

Meeting Minutes
Thursday, August 6, 2020
Point Source Nutrient Reductions Review (PSNR Review)

Work Group (WG)
Electronic-only Meeting on GoToWebinar

Members Present: George Hayes, Ted Henifin, Adrienne Kotula, Chris McDonald, Chris Pomeroy, Peggy Sanner, and Bill Street.

Members Absent: None.

Other Attendees: Melanie Davenport, Drew Hammond, John Kennedy, Allan Brockenbrough, Austen Stevens, Gary Graham, Alison Thompson, W. Brandon Bull, James Martin, Kevin Vaughan, Clifton Bell, Patrick Bradley, Jamison Brunkow, Pat Calvert, Tim Castillo, Patrick Fanning, Katherine Filippino, Daniel Hingley, Whitney Ketchmark, Anna Killius, Grace LeRose, Timothy Mitchell, Theresa O'Quinn, Andrew Parker, Jim Pletl, Erin Reilly, Lisa Reynolds, Ashley Tatge, Gary Williams, and Joe Wood.

The meeting convened at 1:35 p.m. and adjourned at 4:49 p.m.

1. **Introductions and Meeting Logistics** [Allan Brockenbrough, DEQ]. Mr. Brockenbrough checked in the WG members, made sure they had good audio connections, introduced the on-line attendees that were present for the electronic meeting, and introduced the DEQ staff members attending. The Agenda (Attachment 1) and Attachments 2 through 7 had been provided to WG members for information before the meeting.
2. **Review of Data/Information Requests** [Allan Brockenbrough, DEQ; and Mr. James Martin, DEQ]. Mr. Brockenbrough reviewed the data needs requests received from WG members since the last meeting (Attachment 2) and discussed the portions of the needs requests that DEQ had been able to pull together since then (provided in Attachments 3 through 6). Attachment 7 was presented by Mr. Martin (and later updated by Mr. Martin during the meeting). WG members discussed the information provided and asked questions to clarify the points presented. Then Mr. Brockenbrough reviewed the General Assembly's direction to DEQ for developing a report on cost-effective alternatives for achieving the Chesapeake Bay Phase III WIP.
3. **Alternatives and Costs Discussion** [Allan Brockenbrough, DEQ and Melanie Davenport, DEQ]. Mr. Brockenbrough invited discussion of alternatives from the WG members. Members briefly discussed the five alternatives listed in Mr. Pomeroy's needs request included in Attachment 2 and how the assumptions of the WIP affected where the wasteload allocation reductions would come from. Ms. Davenport led a discussion of the different goals of Initiative 52 and the General Assembly's direction to the Work Group in the budget language with respect to what programs the reductions should come from.
4. **Next Steps** [Allan Brockenbrough, DEQ]. Mr. Brockenbrough identified some resources for additional facility expenditure information that would help with determining costs. DEQ will continue working on putting together and providing information to support the data needs requested in Attachment 2. Send any additional data needs requests to Mr.

Graham (DEQ). DEQ will finalize a date for the next meeting, probably on Tuesday, August 25th.

The [recording of the meeting](#) is available for review on-line.

Attachments:

1. Meeting 1 Agenda
2. PSNR Review WG Data Needs Requests 08.05.2020
3. 2020 WQIF Needs Survey Detail Summary 07.28.2020
4. WIP III Input Deck Notes
5. AllINT Graphs
6. Annual Load Graphs
7. Virginia Final Phase III WIP Tables (Updated 08.06.2020)

Attachment 1

Agenda

Point Source Nutrient Reduction Review Work Group Meeting No. 2 – August 6, 2020, 1:30 p.m.

1. Meeting Logistics
2. Introductions
3. Review of Data/Information Requests
4. Alternatives Discussion
5. Estimating Costs
6. Next Steps

Attachment 2

PSNR Review WG Data Needs Requests 08.05.2020

Point Source Nutrient Reductions Review

Work Group

Data Needs Submitted 7/23/20 – 7/30/20

Adrienne Kotula

Friday, July 24, 2020, 2:17 PM

Good afternoon Gary,

As requested at the meeting yesterday, below is the list of data that I would request prior to our next meeting:

- List of WWTP upgrades submitted for the 2020 WQIF Needs Assessment - [see 2020WQIFNeedsSurvey_DetailSummary for Allan – 07.28.2020.xlsm](#)
- Costs of the individual upgrades included in the 2020 WQIF Needs Assessment- [see 2020WQIFNeedsSurvey_DetailSummary for Allan – 07.28.2020.xlsm](#)
- List of upgrades DEQ believes are necessary to meet WIP III loads – [see Trading Market Impacts.pdf](#)
- Costs of the individual upgrades DEQ believes are necessary to meet WIP III loads
- A comparison of the projects needed to meet WIP III loads versus what was submitted for the needs assessment (if possible)
- Costs of the hybrid/alternative approaches provided by VAMWA to include the costs of the individual upgrades listed (recognizing some options will not have clear costs at this time)

I'm happy to answer any questions that this may trigger.

Have a lovely weekend,

Adrienne

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George Hayes

Wednesday, July 29, 2020, 1:55 PM

Gary,

First, thank you for your efforts on this workgroup. Per the discussion at our workgroup meeting, I have the following data requests:

1. Any documents or spreadsheets that are shared or discussed at the workgroup should be emailed to the workgroup for review in advance of the meetings. If it is an excel file, it

should be sent in excel so we can review the formulas. (I did not have the spreadsheet DEQ was reviewing 7/23). - **Noted**

2. Provide compiled survey cost data to include cost with and without floating cap concept. - **see 2020WQIFNeedsSurvey_DetailSummary for Allan – 07.28.2020.xlsm**
3. Provide the assumptions used in the Floating Cap input deck for each facility. These assumptions should be provided along with the actual nutrient trending data from each facility so they can be easily compared. The costs from the survey should be provided for each facility for the floating cap assumptions compared to the cost if trending nutrient data used. **See WIP III Input Deck Notes.pdf, AllINTGraphs.xlsm and 2020WQIFNeedsSurvey_DetailSummary for Allan – 07.28.2020.xlsm files.**
4. Concur with Mr. Pomeroy’s request in the 7/23/20 meeting to review the alternative proposals by VAMWA and list the cost of the alternatives.

Thanks,

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 9840 Government Center Parkway
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Bill Street

Wednesday, July 29, 2020, 5:35 PM

Gary,

Please find below the data request from JRA and CBF for the Point Source Nutrient Reductions Review Work Group. If DEQ has any questions or would like to discuss any element of this request please feel free to reach out to any of us copied on this email.

Thank you,

Bill Street

1. Request that DEQ develop a table summarizing scenarios below for Stormwater and Agriculture.

Stormwater	Agriculture
Current rate of implementation (FY17-FY20)* See Virginia Final Phase III WIP Tables_Updated fo PSNRRWG.xlsm	Current rate of implementation (FY17-FY20)* See Virginia Final Phase III WIP Tables_Updated fo PSNRRWG.xlsm
Full WIP III reductions by 2025 Loads: (2019 CAST progress - WIP 3)	Full WIP III reductions by 2025 Loads: (2019 CAST progress - WIP 3)

See Virginia Final Phase III WIP Tables_Updated fo PSNRRWG.xlsm

See Virginia Final Phase III WIP Tables_Updated fo PSNRRWG.xlsm

For each scenario above, provide the following information:

1. Estimated cost of implementation (annualized and cumulative) utilizing two methods and showing the results of each:
 - a. Historic cost efficiency of state funded programs (i.e. cost per pound of reduction based on past state investments). I do not have this data. I included information from CAST on BMP cost effectiveness and BMP importance to the WIP reductions. (James Martin)
 - b. Needs assessments. I do not have this information. Ag needs assessment is available from LIS (<https://rga.lis.virginia.gov/Published/2019/RD585/PDF>) (James Martin). Note – SLAF needs assessment to follow.
2. Reductions of nitrogen and phosphorus by basin at Edge of Tide, (annualized and cumulative) from CAST. See Virginia Final Phase III WIP Tables_Updated fo PSNRRWG.xlsm
3. Breakout of % regulated and % unregulated from CAST Loads by WLA/LA included in Virginia Final Phase III WIP Tables_Updated fo PSNRRWG.xlsm

*FY17-20 is likely a reasonable period to base implementation rate, as investments in ag and stormwater increased during this period.

2. Additional information requests:
 - a. Estimate the cost effectiveness of wastewater reductions using historic implementation data as an alternative method to the facility responses to the needs assessments survey.
 - b. Explanation of how each needs assessments was formed for each sector and the timeline for meeting 100% WIP III implementation. 2019 Ag needs assessment planned for ag implementation through 2030 to achieve WIP implementation goals. Regulated Stormwater will have 3-full permit cycles to meet there reductions.
 - c. Description of details for VAMWA’s initial and hybrid plans, including associated reductions and costs tied to each component.

BILL STREET

Chief Executive Officer

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Chris Pomeroy

Wednesday, July 29, 2020, 6:08 PM

Gary:

In terms of data needs, my requests to support the work group's effort are:

1. Annual POTW wastewater discharges by basin, 2010 – present [See AnnualLoadGraphs.xlsm](#)
2. Annual Industrial wastewater discharges basin 2010 – present [See AnnualLoadGraphs.xlsm](#)
3. WQIF Needs Assessment Survey results by basin/owner/individual project with schedule and cost
4. Range of Alternatives with benefits and costs
 - a. Current performance/trending
 - b. Projects in progress/expected
 - c. Additional projects planned (WQIF Needs Assessment results)
 - d. DEQ Floating Cap > 5mgd only
 - e. DEQ Floating Cap

Thanks,

Chris

Christopher D. Pomeroy
President – AquaLaw PLC
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Ted Henifin

Thursday, Jul 30, 2020, 3:52 PM

Allan,

Again, sorry for the delay. The attached tabular format would make it easier (perhaps possible) to follow the WIP 3 from getting target loads from EPA in 2018 through the final WIP 3 recommendations. I would like to see a full set of tables for each basin – not all need as many exchange tables as the James but it appears they all have some exchange that should be listed in detail with the rest of the basin information to provide a complete picture.

I believe we need this level of detail to really roll up our sleeves and see what alternatives exist.

The other request would be for:

Basis for climate change loads. [In Dec 2017 the Bay Program estimated climate change load reductions of 9M pounds of nitrogen and 0.5M pounds of phosphorus. Based on the same allocation method as was used for the WIP III Planning Targets, Virginia's share was 1.72M pounds nitrogen and 0.19M pounds phosphorus.](#)

[How does that compare to current climate change projections. Current estimates for climate effects through 2025 are a little lower. Depending on the final allocation method, Virginia's share would be between 0.96 and 1.71M pounds nitrogen and 0.14-0.43M pounds phosphorus.](#)

[Are the assumptions based on what we expect in 2025 and if not, over what time frame do we expect that impact? The climate estimates are based on effects from 1990-2025. Initial estimates for Virginia's share of the impact from 1990-2035 would be between 2M and 3.24M pounds nitrogen and 0.29-0.75M pounds phosphorus.](#)

For example – the WIP 3 includes 690,000 pounds of TN in the Potomac alone. Do we anticipate that will be seen in the river in 2025 as a result of climate change? **One of the changes to the modeling and allocation considerations is that the Bay Program can now estimate the watershed loads associated with climate change, so instead of allocating based on planning target methodology, the Partnership is considering accounting for climate change loads from the watersheds where they originate. Final Climate change decisions are expected from the PSC in the spring 2021.**

Perhaps a phased in approach that aligns with expected climate change impact would be an alternative that needs to be explored.

From Table 4 on Page 155, what is driving the shortage on the Eastern Shore? **There are no basin shortages. Each basin followed the same WIP development process. Details of NPS implementation levels are included in the spreadsheet. They are similar levels of effort across all basins.**

Did Ag miss their goals entirely? It would seem additional Ag BMPs would address this issue at a significantly lower cost per pound. Did DEQ consider any options that would require additional BMP – perhaps 100% funded by the Commonwealth? **Yes. The WIP includes more than 25 initiatives to drive implementation in the agricultural sector (see WIP pg 62-72) including regulatory requirements for livestock exclusion from perennial streams and cropland nutrient management.**

DEQ's cost basis for alternative evaluation. What cost per pound removed was used for each sector? At one time the Bay Program, CBF and DEQ all had charts indicating average cost per pound for the various sectors. Agriculture and land conservation always seemed to be shown as significantly less expensive per pound. Again, that information would be helpful if we are going to actually look at alternatives. **Information of BMP cost effectiveness based on CAST is included in the spreadsheet. There are several data visualization tools included in CAST that allow for additional assessment of loads, BMP effectiveness and cost (<https://cast.chesapeakebay.net/Home/TMDLTracking>).**

I would like to reserve the right to request additional data as we move forward but this would be a very helpful start.

Thanks, Ted

Ted Henifin, P.E.

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James River Nitrogen

1	2	3	4	5 (Col 3-4)	6	7 (Col 5 + 6)	8	9 (Col 8 – 7)	10 (from P-N Exchange Table)	11 (Col 9 + 10)
Nitrogen	TMDL WLA	2018 Target Load	2017 Progress Load	Gap to 2018 Target (excess)	Climate Change Load	Total Reduction needed by WIP III (surplus)	Reductions included in WIP III (without exchanges)	Excess N available for exchanges or (Shortage requiring exchange)	Excess N available as result of P-N exchange	Total available for exchange
Wastewater										
Agriculture										
MS4 Developed										
Non-MS4 Developed										
Natural										
Federal										
Total										

Table James N To Potomac N

Table James N To Eastern Shore N

1	2	3	4 (Col 2 * 3)		1	2	3	4 (Col 2 * 3)
Nitrogen	Total available for exchange	Basin exchange ratio	Net provided by exchange		Nitrogen	Total available for exchange	Basin exchange ratio	Net provided by exchange
Wastewater					Wastewater			
Agriculture					Agriculture			
MS4 Developed					MS4 Developed			
Non-MS4 Developed					Non-MS4 Developed			
Natural					Natural			
Federal					Federal			
Total					Total			

James River Nitrogen

Table James N To Rappahannock N

Nitrogen	Total available for exchange	Basin exchange ratio	Net provided by exchange
Wastewater			
Agriculture			
MS4 Developed			
Non-MS4 Developed			
Natural			
Federal			
Total			

Table James N to To York N

Nitrogen	Total available for exchange	Basin exchange ratio	Net provided by exchange
Wastewater			
Agriculture			
MS4 Developed			
Non-MS4 Developed			
Natural			
Federal			
Total			

James River Phosphorus

Table JR-Phosphorus

1	2	3	4	5 (Col 3-4)	6	7 (Col 5+6)	8	9 (Col 8 -7)
Phosphorus	TMDL WLA	2018 Target Load	2017 Progress Load	Gap to 2018 Target (Surplus)	Climate Change Load	Total Reduction (surplus) needed by WIP III	Reductions included in WIP III (without exchanges)	Excess available for exchanges or (Shortage requiring exchange)
Wastewater								
Agriculture								
MS4 Developed								
Non-MS4 Developed								
Natural								
Federal								
Total								

Table James P to N Exchange

1	2 (Col 9 above)	3	4 (Col 2 * 3)
Phosphorus	Excess available for exchange	P to N exchange ratio	Pounds N available for exchange
Wastewater			
Agriculture			
MS4 Developed			
Non-MS4 Developed			
Natural			
Federal			
Total			

Attachment 3

2020 WQIF Needs Survey Detail Summary 07.28.2020

Applicant	Plant Name	Project Description	WQIF Projects Planned Within Next 5 Years	Are the Projects Independent of the adoption of the WIP III Floating Cap Regulation by the SWCB / DEQ?	Project Status*	Project Type	Total Project Costs				WQIF Eligible Project Costs by Fiscal Year										WQIF Eligible Project Cost				
							Estimated Total Project Cost	WQIF Eligible Project Cost	Grant % from Previous Grant	Estimated Eligible Grant Amount	FY21		FY22		FY23		FY24		FY25		WQIF Eligible Project Cost	Estimated Grant Amount			
											WQIF Eligible Project Cost	Estimated Grant Amount	WQIF Eligible Project Cost	Estimated Grant Amount	WQIF Eligible Project Cost	Estimated Grant Amount	WQIF Eligible Project Cost	Estimated Grant Amount	WQIF Eligible Project Cost	Estimated Grant Amount					
Chesterfield County	Proctors Creek WWTP	Secondary Clarifier Mechanism Upgrade	Yes	Yes	CIP	Nutrient	3,300,000	1,155,000	35%	404,250	577,500	202,125	577,500	202,125	0	0	0	0	0	0	0	0	0	1,155,000	404,250
Chesterfield County	Proctors Creek WWTP	Nutrient Equalization Basins	Yes	Yes	CIP	Nutrient	22,000,000	7,700,000	35%	2,695,000	0	0	2,600,000	910,000	2,600,000	910,000	2,500,000	875,000	0	0	0	0	0	7,700,000	2,695,000
City of Fredericksburg	Fredericksburg Wastewater Treatment Plant	Consolidation of 3 WWTPs and associated conveyance	Yes	Yes	PER	Conveyance	84,020,000	42,010,000	35%	14,703,500	10,502,500	3,675,875	10,502,500	3,675,875	10,502,500	3,675,875	10,502,500	3,675,875	0	0	0	0	0	42,010,000	14,703,500
Fauquier County Water and Sanitation Authority	Remington Wastewater Treatment Plant	This project is for expanding the Remington WWTP to Yes	Yes	Yes	CIP	Nutrient	18,607,000	7,897,000	60%	4,738,200	813,000	487,800	1,681,000	1,008,600	3,056,000	1,833,600	1,825,000	1,095,000	522,000	313,200	0	0	0	7,897,000	4,738,200
Harrisonburg-Rockingham Regional Sewer Authority	North River Wastewater Treatment Facility	Upgrades to the plant's tertiary filtration system with rYes	Yes	Yes	Under Contract	Nutrient	5,319,488	3,079,000	60%	1,847,400	3,079,000	1,847,400	0	0	0	0	0	0	0	0	0	0	0	3,079,000	1,847,400
HRSD	Nassawadox Treatment Plant	This project will construct a 6-inch Transmission Force Yes	Yes	Yes	CIP	Conveyance	14,000,000	14,000,000	60%	8,400,000	0	0	1,000,000	600,000	5,000,000	3,000,000	8,000,000	4,800,000	0	0	0	0	0	14,000,000	8,400,000
HRSD	Urbanna Treatment Plant	"This project includes the construction of a 3.2 mile foYes	Yes	Yes	CIP	Conveyance	26,540,000	5,240,000	60%	3,144,000	1,097,286	658,372	1,042,714	625,628	3,100,000	1,860,000	0	0	0	0	0	0	0	5,240,000	3,144,000
HRSD	Central Middlesex Treatment Plant	"This project includes the construction of a 1.8 mile traYes	Yes	Yes	CIP	Conveyance	2,129,290	2,129,290	60%	1,277,574	1,340,160	804,096	789,130	473,478	0	0	0	0	0	0	0	0	0	2,129,290	1,277,574
HRSD	James River Treatment Plant	This project is for the design and construction of imprcYes	Yes	Yes	CIP	Nutrient	161,379,289	101,668,952	60%	61,001,371	1,328,040	796,824	9,056,880	5,434,128	36,718,920	22,031,352	40,898,340	24,539,004	13,666,772	8,200,063	101,668,952	61,001,371			
HRSD	Nansemond Treatment Plant	This project is for the design and construction of imprcYes	Yes	Yes	CIP	Nutrient	219,082,406	138,021,916	60%	82,813,150	2,371,511	1,422,907	1,541,610	924,966	10,297,980	6,178,788	58,705,920	35,223,552	65,104,895	39,062,937	138,021,916	82,813,150			
HRSD	Boat Harbor Treatment Plant	The project consists of the on-land connection of SectYes	Yes	Yes	CIP	Conveyance	16,412,249	16,412,249	60%	9,847,349	281,997	169,198	1,060,000	636,000	150,000	90,000	3,656,000	2,193,600	11,264,252	6,758,551	16,412,249	9,847,349			
HRSD	Boat Harbor Treatment Plant	The project consists of the subaqueous crossing of theYes	Yes	Yes	CIP	Conveyance	65,648,999	65,648,999	60%	39,389,399	947,042	568,225	593,958	356,375	4,094,000	2,456,400	30,195,999	18,117,599	29,818,000	17,890,800	65,648,999	39,389,399			
HRSD	Boat Harbor Treatment Plant	The Boat Harbor Treatment Plant will be converted to Yes	Yes	Yes	CIP	Conveyance	62,265,633	62,265,633	60%	37,359,380	926,000	555,600	2,241,000	1,344,600	556,000	333,600	18,760,000	11,256,000	39,782,633	23,869,580	62,265,633	37,359,380			
South Central Wastewater Authority	South Central Wastewater Authority	SCWWA Nutrient Project, 4 mg/l N and 0.3 mg/l P Yes	Yes	Yes	PER	Nutrient	93,540,000	61,280,000	75%	45,960,000	4,080,000	3,060,000	21,440,000	16,080,000	23,860,000	17,895,000	10,110,000	7,582,500	1,790,000	1,342,500	61,280,000	45,960,000			
Spotsylvania County	Massaponax WWTP	Regional WWTP consolidation with City of FredericksbYes	Yes	Yes	PER	Nutrient	38,050,585	19,025,292	35%	6,658,852	4,756,323	1,664,713	4,756,323	1,664,713	4,756,323	1,664,713	4,756,323	1,664,713	0	0	0	0	19,025,292	6,658,852	
Spotsylvania County	Thornburg WWTP	Upgrade and Expansion of Thornburg WWTP.	Yes	Yes	Under Contract	Nutrient	31,129,545	2,409,398	35%	843,289	1,686,578	590,302	722,820	252,987	0	0	0	0	0	0	0	0	0	2,409,398	843,289
Stafford County	Little Falls Run	Comprehensive Plant Upgrade	Yes	Yes	CIP	Nutrient	21,845,000	8,838,000	45%	3,977,100	0	0	2,651,400	1,193,130	4,419,000	1,988,550	1,767,600	795,420	0	0	0	0	0	8,838,000	3,977,100
Upper Occoquan Service Authority	Millard H. Robbins Jr. Water Reclamation Fa	Phase 2 Nutrient Reductions	Yes	Yes	CIP	Nutrient	29,130,000	29,130,000	35%	10,195,500	1,080,000	378,000	2,590,000	906,500	12,730,000	4,455,500	12,730,000	4,455,500	0	0	0	0	0	29,130,000	10,195,500
Augusta County Service Authority	Weyers Cave WWTP	Weyers Cave WWTP Nutrient Removal Upgrade	Yes, but timing and cost	No	PER	Nutrient	1,000,000	1,000,000	60%	600,000	0	0	0	0	1,000,000	600,000	0	0	0	0	0	0	0	1,000,000	600,000
Chesterfield County	Proctors Creek WWTP	Side Stream Nutrient Treatment	Yes	No	CIP	Nutrient	2,750,000	962,500	35%	336,875	0	0	0	0	0	0	0	0	0	0	962,500	336,875	962,500	336,875	
Chesterfield County	Falling Creek WWTP	Side Stream Nutrient Removal	Yes	No	CIP	Nutrient	2,750,000	962,500	35%	336,875	0	0	0	0	0	0	0	0	0	0	962,500	336,875	962,500	336,875	
Chesterfield County	Falling Creek WWTP	Denitrification Filters	Yes	No	CIP	Nutrient	11,200,000	3,920,000	35%	1,372,000	0	0	0	0	0	0	0	0	0	0	3,920,000	1,372,000	3,920,000	1,372,000	
Chesterfield County	Proctors Creek WWTP	Denitrification Filters	Yes	No	CIP	Nutrient	37,800,000	13,230,000	35%	4,630,500	0	0	0	0	0	0	0	0	0	0	13,230,000	4,630,500	13,230,000	4,630,500	
Fauquier County Water and Sanitation Authority	Marshall Wastewater Treatment Plant	This project is for upgrading the Marshall WWTP to meYes	Yes	No	CIP	Nutrient	11,378,000	7,887,000	60%	4,732,200	812,000	487,200	1,679,000	1,007,400	3,052,000	1,831,200	1,822,000	1,093,200	522,000	313,200	0	0	0	7,887,000	4,732,200
Hanover County	Doswell Wastewater Treatment Plant	WIP III Improvements Doswell WWTP	Yes	No	PER	Nutrient	10,000,000	2,500,000	45%	1,125,000	0	0	0	0	0	0	125,000	56,250	2,375,000	1,068,750	2,500,000	1,125,000			
Hanover County	Ashland Wastewater Treatment Plant	WIP III Upgrades Ashland WWTP	Yes	No	PER	Nutrient	12,188,000	3,050,000	45%	1,372,500	0	0	0	0	150,000	67,500	150,000	67,500	2,750,000	1,237,500	3,050,000	1,372,500			
Hanover County	Totopotomoy Wastewater Treatment Plant	WIP III Upgrades to Totopotomoy WWTP	Yes	No	PER	Nutrient	9,532,000	2,400,000	45%	1,080,000	125,000	56,250	90,000	40,500	90,000	40,500	1,048,000	471,600	1,047,000	471,150	2,400,000	1,080,000			
Henrico County Department of Public Utilities	Henrico County Water Reclamation Facility	Provide denitrification filters, supplementary carbon faYes	No	No	CIP	Nutrient	110,000,000	92,450,000	35%	32,317,500	0	0	0	0	0	0	61,450,000	21,507,500	10,000,000	3,500,000	71,450,000	25,007,500			
Town of Leesburg	Water Pollution Control Facility	Plant expansion to 10 MGD with ENR	Yes, but timing and cost	No	No Response	Nutrient	65,000,000	29,000,000	35%	10,150,000	0	0	2,000,000	700,000	10,000,000	3,500,000	10,000,000	3,500,000	7,000,000	2,450,000	29,000,000	10,150,000			
Upper Occoquan Service Authority	Millard H. Robbins Jr. Water Reclamation Fa	Nutrient Reduction for WIP III Floating Cap	Yes	No	CIP	Nutrient	45,700,000	45,700,000	35%	15,995,000	1,695,963	593,587	5,016,729	1,755,855	12,995,769	4,548,519	12,995,770	4,548,520	12,995,769	4,548,519	45,700,000	15,995,000			
Totals							\$1,233,697,484	\$790,972,729		\$409,343,765	\$37,499,900	\$18,018,474	\$73,632,564	\$39,792,860	\$149,128,492	\$78,961,097	\$291,998,452	\$147,518,333	\$217,713,321	\$117,703,000	\$769,972,729	\$401,993,765			

No previous grant - estimated grant percentage

Chesapeake Bay WIP Phase III Floating Cap Driver

* Project Status Details

CIP = The project is included in an adopted Capital Improvement Plan

PER = A PER has been completed or is in progress for the project

Under Contract = The respondent has secured a contract for construction (Traditional, Design-Build, Other)

Attachment 4

WIP III Input Deck Notes

Notes on VA WIP III Input Deck

Only WWTP information has been updated. CSO, Biosolids, Irrigation and Large Onsite & RIB inputs should match 2018 progress runs
Input deck reflects a conservative projection of 2025 progress based on WIP III initiatives for wastewater sector

Significant WWTP Loads

Industrial TN loads are taken from the WQMP Regulation

Industrial TP loads are the more stringent of the WQMP Regulation or the Watershed GP Regulation (for James Basin only see 9VAC25-820-80)

Municipal TN loads are based on 2018 flows and the more stringent of: (with the exception of Richmond, Lynchburg, Hopewell & UOSA)

1. the TN concentration that serves as the basis for the WQMP Regulation WLA, or
2. 4 mg/l TN

Municipal TP loads are based on 2018 flows and the more stringent of:

1. the TP concentration that serves as the basis for the WQMP Regulation WLA, or
2. the TP concentration that serves as the basis for the TP WLA in the Watershed General Permit (9VAC25-820-80), or
3. 0.3 mg/l TP

Nonsignificant WWTP Loads:

Nonsignificant load projections for 2025 are based upon analysis of data available from VPDES monitoring and a DEQ sampling effort funded by an EPA CBRAP Grant.

Municipal WWTP individual permit loads are based upon 42.4% of design flow, 30.11 mg/l TN and 4.19 mg/l TP

Industrial WWTP individual permit loads are based upon actual flow and nutrient data, if available and representative, or the TMDL WLA.

Some WWTP individual loads were based on the representative General Permit category, if applicable

7 Categories of General Permits were analyzed and the following average flows and concentrations were used to characterize those loads:

<u>General Permit</u>	Flow (MGD)	TN (mg/l)	TP (mg/l)
VAG40 - Domestic Sewage <1000 GPD	0.0002	58.78	7.05
VAG64 - Potable WTPs	0.074	0.78	0.37
VAG52 - Seafood Processing	0.0013	13.18	2.4
VAG75 - Vehicle Wash & Laundry	0.0039	3.53	0.77
VAG25 - Noncontact Cooling Water	0.007	6.25	0.23
VAG84 - Nonmetallic Mineral Mining	0.27	3.12	0.02
VAG11 - Concrete Products	0.01	10.35	0.71

Unallocated reserve WLAs included in the WQMP Regulation have been included at the bottom of the WWTP Plant Info tab

8-7-19 Version Notes

Richmond (VA0063177) flows changed from 2018 values to 45 MGD (flows > 45 MGD are addressed by the CSO WLA)
Corrected AdvanSix (VA0005291) flows to 121 MGD

8/12/2019 Version Notes

0 flow for municipal facilities listed with a "C" footnote on the watershed GP (Amelia Smack's Creek, Lawnes Point, Eheart Subdivision, Oilville, Deer Park, Regatta Point Yacht Club, Norview Marina)

Set TN = 3.32 mg/l based on monitoring for VA0087734 (Dominion Materials and Metering Services Center)

Eliminated TN load for VA0005312 (Advansix Chesterfield) as this is once thru noncontact cooling water with no net load

Set VA0004880 (Veolia) TN WLA to original TMDL, discharge is 99% noncontact cooling water

8/12/2019b Version Notes

Deleted loads for VA0089541 - these are industrial SW loads that should be included in the Urban sector

Deleted duplicative entry for Shore Memorial Hospital (VA0027537) - retain WLA based on actual 2018 flows rather than design flow

7/31/2020 Version Notes

Formatting of Notes tab for printing purposes only

Attachment 5

AIINT Graphs

This file is too large to fit in the Minutes.
Please contact the following person for a copy of the file:

Gary Graham, DEQ Regulatory Analyst

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(804) 698-4103

Attachment 6

Annual Load Graphs

This file is too large to fit in the Minutes.
Please contact the following person for a copy of the file:

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Attachment 7

Virginia Final Phase III WIP Tables (updated 08.06.2020)

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