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

# Work Group (WG) Electronic-only Meeting on GoToWebinar

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

## Members Absent: None.

<u>Other Attendees</u>: 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 25<sup>th</sup>.

The <u>recording of the meeting</u> 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. AlINT Graphs
- 6. Annual Load Graphs
- 7. Virginia Final Phase III WIP Tables (Updated 08.06.2020)

## 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

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

Adrienne F. Kotula Virginia Director Chesapeake Bay Commission 900 East Main Street, 11th Floor Richmond, Virginia 23219 (804)786-4849 Office (804) 938-7266 Mobile akotula@chesbay.us

**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

- 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, AllNTGraphs.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,

George B. Hayes, P.E. Director of Utilities Chesterfield County 9840 Government Center Parkway P.O. Box 608 Chesterfield, VA 23832 Phone 804-318-8372 Fax 804-751-4607 E-Mail: hayesg@chesterfield.gov

**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

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 )								

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

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)
  - Needs assessments. I do not have this information. Ag needs assessment is available from LIS (<u>https://rga.lis.virginia.gov/Published/2019/RD585/PDF</u>) (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 Email: BSTREET@THEJAMESRIVER.ORG | O 804.788.8811 EXT 201 | C 804.516.1400 JAMES RIVER ASSOCIATION 211 ROCKETTS WAY SUITE 200 | RICHMOND VA 23231 Web THEJAMESRIVER.ORG The James River won the 2019 International Riverprize BE A JAMES CHANGER, and keep the comeback coming! Go to TheJamesRiver.org.

Chris Pomeroy

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
- 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 O: (804) 716-9021 x202 M: (804) 874-1028

#### 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. HRSD General Manager Office: 757.460.4242 | Mobile: 757.274.7904 1434 Air Rail Avenue | Virginia Beach, VA 23455 PO Box 5911 | Virginia Beach, VA 23471-0911 thenifin@hrsd.com | www.hrsd.com Please consider the environment before printing this email.

## James River Nitrogen

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

Table James N To Rappahannock N

#### Table James N to To York N

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

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

# James River Phosphorus

## Table JR-Phosphorus

1	2	3	4	5	6	7	8	9
				(Col 3-4)		(Col 5+6)		(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	3	4
	(Col 9 above)		(Col 2 * 3)
Phosphorus	Excess	P to N	Pounds N
	available for	exchange	available for
	exchange	ratio	exchange
Wastewater			
Agriculture			
MS4			
Developed			
Non-MS4			
Developed			
Natural			
Federal			
Total			

2020 WQIF Needs Survey Detail Summary 07.28.2020

Applicant     Paint Name     Project Description     Wall Project Speed Filter Content Crash W/T Project Speed Speed Transmer Filter Transpreci endols to be constradid on on endols severe seco					Are the Projects Independent of				Total Project Co	ists					wo	QIF Eligible Project	t Costs by Fiscal Ye	ar				WQIF Eligible Pr	roject Cost
Instruction     While Next 3 Years     Notifier Care Republic Or P     Notif Care Republic Or P     Notif Care Republic Or P </th <th></th> <th>Direct Norma</th> <th>Project Description</th> <th>WQIF Projects Planned</th> <th>the adoption of the WIP III</th> <th>Dealerst Contract</th> <th>Dealersh Turan</th> <th>Fatimated Tatal Designt</th> <th></th> <th>Count N from</th> <th>Estimated</th> <th>FY2</th> <th>21</th> <th>FY22</th> <th></th> <th>FY</th> <th>23</th> <th>FY2</th> <th>4</th> <th>FY25</th> <th></th> <th>WOIF Eligible Es</th> <th>stimated Grant</th>		Direct Norma	Project Description	WQIF Projects Planned	the adoption of the WIP III	Dealerst Contract	Dealersh Turan	Fatimated Tatal Designt		Count N from	Estimated	FY2	21	FY22		FY	23	FY2	4	FY25		WOIF Eligible Es	stimated Grant
Interesting     Process Creek WWTP     Secondary Clarifier Mechanism Upgrade     Yes     CP     Nutrient     3300,00     1155,00     384     484,26     577,300       Chesterfield County     Proctos Creek WWTP     Nutrient Trainmer Flant     Proctos Creek WWTP     Nutrient Trainmer Flant     Process Creek WWTP     Nutrient Trainmer Flant     Process Creek WWTP     Nutrient Trainmer Flant     Process Creek WWTP     Nutrient Trainmer Flant     Nutr		Plant Name	Project Description	Within Next 5 Years		Project Status	Project Type				Eligible Grant	WQIF Eligible	Estimated Grant	WQIF Eligible Es	stimated Grant	WQIF Eligible	Estimated Grant	WQIF Eligible	Estimated Grant	WQIF Eligible Es	timated Grant	Project Cost	Amount
Checker (bid Cum)     Proctors Cree WUTP     Nutrient Gualization Basins     Yes     Yes    Yes     Yes     <					SWCB / DEQ?			Cost	Project Cost	revious Grant	Amount	Project Cost	Amount	Project Cost	Amount	Project Cost	Amount	Project Cost	Amount	Project Cost	Amount	Project Cost	Amount
City of predericksburg     Peter Statuy Watewater Transmert Plant     This project is for expanding the Remigon WVP to Yes     PER     Convegnee     84,00.000     42,01.000     35%     14,70.350     83,000       Faraguie Contry Water and Smitch Water Transmert Plant     This project in Construct a find Transmission Force Yes     CP     Our One-yance     5,00,000     60%     8,80,000     0				Yes	Yes	CIP	Nutrient					577,500	202,125	577,500	202,125	0	0	0	0	0	0	1,155,000	404,250
Function County Water and Shintation Authorik     Remington Water Water Transmer Plant     This project is for seganding the Remington WWTP to Yes     Yes     OP     Nutrient     18.60/000     7.897/000     60%     7.897/000 <		Creek WWTP M	lutrient 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	7,700,000	2,695,000
Hardmoory-Bockingham Regional Sever Authority     North Neur Wattewater Treatment Fairt     Upgrades to the plant's terum, Private with rives     Yes     Under Contrat     Nutrient     5.319,488     3.079,000     66%     8.447,000     9.079,000       HKSD     Urbanna Treatment Plant     This project includes the construction of a 3.2 mile fork's     Yes     CP     Conveyance     25,500,000     5,240,000     66%     8.400,000     10,073,000       HKSD     James Neur Treatment Plant     This project is for the design and construction of inprrVes     Yes     CP     Conveyance     25,500,000     5,240,000     6.0%     8.400,013,71     13,40,260       HKSD     James Neur Treatment Plant     This project is for the design and construction of inprrVes     Yes     CP     Conveyance     16,61,372,289     6.0%     82,81,318     23,71,51       HKSD     Bat Habor Treatment Plant     The project consists of the on-baqueue consist of the vibaqueue consis of the vibaqueue consist of the vibaqueue consist of the vibaqueu					Yes	PER	Conveyance						3,675,875	10,502,500	3,675,875	10,502,500	3,675,875	10,502,500	3,675,875	0	0	42,010,000	14,703,500
HRSD     Nasswards Treatment Plant     This project will construct a find 12 mile for Yes     Yes     CP     Convegnce     14,000,000     46/000     66/00     8,400,000     66/00     8,400,000     66/00     8,400,000     66/00     8,400,000     66/00     8,400,000     66/00     8,1440,000     16/00,000     66/00     8,1440,000     16/00,000     66/00     8,1440,000     16/00,000     66/00     8,1440,000     16/00,000     66/00     8,1440,000     16/00,000     66/00     8,144,000     16/00,000     66/00     8,1440,000     16/00,000     66/00     8,144,000     16/00,000     66/00     8,144,000     16/00,000     66/00     8,144,010     8,141,000     16/00,000					Yes	CIP	Nutrient						487,800	1,681,000	1,008,600	3,056,000	1,833,600	1,825,000	1,095,000	522,000	313,200	7,897,000	4,738,200
HRSD     Urbann Train Indiget: mercatment Plant     This project includes the construction of a 21 mile forks     Yes     CIP     Convegnoe     22,50,000     5,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,240,000     6,227,373     6,350,000     1,340,000       HRSD     James Netr Teatment Plant     This project is for the design and construction of inprtYs<					Yes	Under Contract	Nutrient					3,079,000	1,847,400	0	0	0	0	0	0	0	0	3,079,000	1,847,400
HISD     Central Middless Treatment Plant     "The project includes the construction of largit"s     Yes     OP     Convegnce     2,123,20     2,123,20     2,127,374     1,340,300       HISD     mane River Treatment Plant     This project is for the design and construction of imprif*s     Yes     OP     Nutrient     120,820,82     666     61,00,317,312     132,040,00       HISD     Bat Habor Treatment Plant     The project consists of the undergo and construction of scrtt"s     Yes     OP     Convegnce     65,648,99     65,64					Yes	CIP	Conveyance					0	0	1,000,000	600,000	5,000,000	3,000,000	8,000,000	4,800,000	0	0	14,000,000	8,400,000
HISD     James New Treatment Plant     This project is for the design and construction of imprives     Ves     OP     Nutrient     161,372.28     10.688.362     600.371     12.82.00       HISD     Boat Habor Treatment Plant     The project consists of the on-had connection of imprives     Ves     OP     Nutrient     161,372.28     10.688.362,101.55     600.     82.81.335     23.71.351       HISD     Boat Habor Treatment Plant     The project consists of the ubaqueous consist of the vibaqueous consist of the vibagueous consist of the vibaqueous consist of the vibaqueous consist of the vibaqueous consist of the vibaque		Treatment Plant "	This project includes the construction of a 3.2 mile for	Yes	Yes	CIP	Conveyance	26,540,000					658,372	1,042,714	625,628	3,100,000	1,860,000	0	0	0	0	5,240,000	3,144,000
HNSD     Namement Plant     This project is for the design and construction of jscrtt's     Yes     OP     Nutrient     120,082,06     13,021,01     60%     82,81,100     22,13,11       HNSD     Bod Habor Treatment Plant     The project consists of the unsadoneous cosing of the Yes     Yes     OP     Convegne     65,648,399 <td></td> <td></td> <td></td> <td></td> <td>Yes</td> <td>CIP</td> <td>Conveyance</td> <td>2,129,290</td> <td></td> <td></td> <td></td> <td></td> <td>804,096</td> <td>789,130</td> <td>473,478</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>2,129,290</td> <td>1,277,574</td>					Yes	CIP	Conveyance	2,129,290					804,096	789,130	473,478	0	0	0	0	0	0	2,129,290	1,277,574
HSD     Bodt Harbor Treatment Plant     The project consists of the subaqueous consist of the subaqueous consis the subaqueous consist of the subateous to the subaqueous consist		er Treatment Plant 1	his project is for the design and construction of impro	Yes	Yes	CIP	Nutrient	161,379,289					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
HNSD     Bota Hashor Treatment Plant     The project consists of the subqueous cossing of the Yes     Yes     OP     Convenue     65,648,399     65,648,399     65,648,399     65,748,399     75,753<		nd Treatment Plant 1	his project is for the design and construction of impro	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
HBO     Bod Harbor Treatment Plant     The fort Harbor Treatment Plant     The fort Harbor Treatment Plant     Yes     CP     Convegance     62,266,33     62,265,33     63,35     63,53		oor Treatment Plant 1	he project consists of the on-land connection of Secti	Yes	Yes	CIP	Conveyance	16,412,249	16,412,249	60%	9,847,349		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
South Central Watewater Authority     Scuth Central Watewater Authority     Viral Pacing Pa		oor Treatment Plant 1	he project consists of the subaqueous crossing of the	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
Sportsynalic County     Matagonasi WWTP     Regional WWTP concollation with Cly of Fredericts/bytes     Yes     PER     Nutrient     38,051,353     19,025,220     35%     6,658,852     4,756,323       Sportsynalic County     Little Falls Run     Comprehensive Plant Upgrade     Yes     Yes     CP     Nutrient     12,125,455     2,029,28     35%     6,658,852     1,665,573       Stafford County     Little Falls Run     Comprehensive Plant Upgrade     Yes     Yes     CP     Nutrient     12,125,455     2,029,28     35%     6,032,00     45%     3,977,100     0       Jupger Coccupance Swick Authority     Weyers Cave WWTP     Weyers Cave WWTP     Weyers Cave WWTP     Yes, but timing and cor/No     PER     Nutrient     1,000,00     4,000,00     4,600,00     0     0       Chesterfield County     Proctors Creek WWTP     Side Stram Nutrient Removal Upgrade     Yes     No     CIP     Nutrient     2,750,00     962,500     35%     336,875     0       Chesterfield County     Falling Creek WWTP     Dentrification Filters     Yes     No     CIP     Nutrient		oor Treatment Plant 1	he Boat Harbor Treatment Plant will be converted to	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
Spectry on the spectry with process of the spectry with process of the spectry with the spectry withhe spectry with the spectry with spectry with the spectry with the spectry with the spe	nority	ntral Wastewater Authority S	CWWA Nutrient Project, 4 mg/l N and 0.3 mg/l P	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
Stafford County     Little Falls Run     Comprehensive Plant Upgrade     Yes     Yes     OP     Nutrient     12,845,000     8,838,000     45%     3,977,100     D       Upger Concounds Serke Authority     Miller H. Bobbins IV. Water Reclamation Reductions     Yes     Yes     OP     Nutrient     1,000,000     45%     3,977,100     D     D       August Sourd Serke Authority     Weyers Cave WWTP     Weyers Cave WWTP Nutrient Recoval Upgrade     Yes, but Timing and cos1No     PER     Nutrient     1,000,000     45%     3,88,675     O       Chesterfield County     Falling Ceek WWTP     Side Stream Nutrient Treatment     Yes     No     CIP     Nutrient     2,750,000     9,952,500     35%     338,675     O       Chesterfield County     Falling Ceek WWTP     Dentification Fillers     Yes     No     CIP     Nutrient     1,200,000     35%     338,675     O       Chesterfield County     Falling Ceek WWTP     Dentification Fillers     Yes     No     CIP     Nutrient     1,200,000     35%     3132,700     O       Falling Ceek WWTP     D		nax WWTP F	egional WWTP consolidation with City of Fredericksbu	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	19,025,292	6,658,852
Upper Cocoquins Service Authority     Willard H. Robbins Jr. Water Reductions     Yes     Yes     OP     Nutrient     29,130,000     29,130,		g WWTP L	pgrade 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	2,409,398	843,289
August acumty Service Authority     Weyers Cave WVTP     Weyers Cave WVTP Nutrient termoval Uggrade     Yes, but timing and costNo     PER     Nutrient     1.000.000     1.000,000     60%,     600,000     0       Chesterfield County     Proton Greek WWTP     Side Strame Nutrient Teatment     Yes     No     CIP     Nutrient     2,750,000     952,500     356,975     0       Chesterfield County     Faling Creek WWTP     Side Strame Nutrient Teatment Vers     No     CIP     Nutrient     2,750,000     952,500     356,975     0       Chesterfield County     Faling Creek WWTP     Dentification Filters     Yes     No     CIP     Nutrient     1,200,000     3,356,075     0       Chesterfield County     Paling Creek WWTP     Dentification Filters     Yes     No     CIP     Nutrient     1,200,000     3,356,075     0       Fauger County Water and Santation Authory     Marshal Water trastmert Plant     Yes     No     CIP     Nutrient     1,200,000     3,356,000     4,359,000     4,359,000     0     1,200,000     1,230,000     4,558,300     0     0		Run C	omprehensive 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	8,838,000	3,977,100
Cheateriled County     Proctons Creek WVTP     Stide Straam Nutrient Tratmert Removal     Yes     No     CIP     Nutrient     2,750,000     962,300     355,873     0.0       Cheateriled County     Falling Creek WVTP     Stide Straam Nutrient Removal     Yes     No     CIP     Nutrient     2,750,000     962,300     355,873     0.0       Cheateriled County     Falling Creek WVTP     Dentrification Filters     Yes     No     CIP     Nutrient     11,200,000     332,0000     355,873     0.0       Cheateriled County     Portofn/Cation Filters     Yes     No     CIP     Nutrient     11,200,000     3,20,000     355,473     4,680,200     0       Fauoret County Water and Saintation Authory     Markall Watewater Treatment Plaint     This project is for upgrading the Markall WVTP to refer Single     O     OP     Nutrient     11,378,000     4,680,200     0       Hanover County     Ashand Watewater Treatment Plaint     VIP II Ill upgrades Ashand WVTP to refer Single     PER     Nutrient     12,880,000     4,550,000     4,550,000     125,000     0     0     12,880,00     125,000	clamation Fa	Robbins Jr. Water Reclamation Fa	hase 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	29,130,000	10,195,500
Chesteridie County     Falling Creek WUTP     Side Strame Nutrient Removal Vers     No     C/P     Nutrient     2,750,000     952,300     335,873     0.0       Chesteridie County     Falling Creek WUTP     Dentrifrication Filters     Vers     No     C/P     Nutrient     37,800,00     132,000,00     335,873     0.0       Chesteridie County     Proctors Creek WUTP     Dentrifrication Filters     Vers     No     C/P     Nutrient     37,800,00     132,000,00     335,873     0.0       Fauger County Water and Sanitation Authority     Densel Watewater Treatment Plant     Wirp III Ingrovements Daswell WUTP to meYs     No     C/P     Nutrient     13,78,000     65%     4,732,200     812,000       Hanover County     Ashand Watewater Treatment Plant     WirP III Ingrovements Daswell WUTP to meYs     No     PER     Nutrient     11,378,000     65%     4,732,200     812,000       Hanover County     Ashand Watewater Treatment Plant     WirP III Ingrovements Daswell WUTP     No     PER     Nutrient     12,180,000     4,550,000     2,50,000     45%     1,322,000     0       Hanover County </td <td></td> <td>ave WWTP \</td> <td>Veyers Cave WWTP Nutrient Removal Upgrade</td> <td>Yes, but timing and cos</td> <td>tNo</td> <td>PER</td> <td>Nutrient</td> <td>1,000,000</td> <td>1,000,000</td> <td>60%</td> <td>600,000</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1,000,000</td> <td>600,000</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1,000,000</td> <td>600,000</td>		ave WWTP \	Veyers Cave WWTP Nutrient Removal Upgrade	Yes, but timing and cos	tNo	PER	Nutrient	1,000,000	1,000,000	60%	600,000	0	0	0	0	1,000,000	600,000	0	0	0	0	1,000,000	600,000
Checkerelied County     Failing Creek WUTP     Dentrification Filters     Yes     No     CP     Nutrient     11,200,000     3,321,000     35%     1,372,000     0       Checkerelied County     Proctors Creek WUTP     Dentrification Filters     Yes     No     CP     Nutrient     11,200,000     13,220,000     35%     4,630,200     0       Fauguet County Water and Santation Authory     Marshall Wastewater Treatment Filtant     This project is for upgrading the Marshall WUTP to meYs     No     CP     Nutrient     11,378,000     65%     4,732,200     843,2000       Hanower County     Doeell Wastewater Treatment Filtant     WP III Upgrades Ashland WUTP to meYs     No     PER     Nutrient     11,378,000     65%     4,732,200     843,2000       Hanower County     Ashland Matewater Treatment Filtant     WP III Upgrades Ashland WUTP to meYs     No     PER     Nutrient     12,800,000     4,550,000     4,550,000     12,50,000     12,50,000     12,50,000     12,50,000     12,50,000     12,50,000     12,50,000     12,50,000     12,50,000     2,450,000     13,55,7500     12,50,000     2,450,000     <		Creek WWTP S	ide Stream Nutrient Treatment	Yes	No	CIP	Nutrient	2,750,000	962,500	35%	336,875	0	0	0	0	0	0	0	0	962,500	336,875	962,500	336,875
Cheaterial County     Procing Creek WVP     Demotification Fillers     Yes     No     OP     Nutrient     37,800,00     13,230,000     35%     4,600,500     Bit       Gauguei County Water and Santation     Markin Mastewater Treatment Plant     This project is fore upgrading the Markin Mark WVP to me Yes     No     OP     Nutrient     13,230,000     35%     4,600,500     812,000 <td></td> <td>eek WWTP S</td> <td>ide Stream Nutrient Removal</td> <td>Yes</td> <td>No</td> <td>CIP</td> <td>Nutrient</td> <td>2,750,000</td> <td>962,500</td> <td>35%</td> <td>336,875</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>962,500</td> <td>336,875</td> <td>962,500</td> <td>336,875</td>		eek WWTP S	ide Stream Nutrient Removal	Yes	No	CIP	Nutrient	2,750,000	962,500	35%	336,875	0	0	0	0	0	0	0	0	962,500	336,875	962,500	336,875
Faunce County Water and Shintation Authority     Marchail Waterwater Treatment Plant     This project is for upgrading the Marchail WW/PT one Yes     OP     Nutrient     11,378,000     7,887,000     65%     4,782,200     882,000       Hanover County     Dopell Waterwater Treatment Plant     WP III Upgrades Ashland WW/P     Yes     No     PER     Nutrient     11,378,000     45%     1,372,500     0       Hanover County     Ashland Waterwater Treatment Plant     WP III Upgrades Ashland WW/P     Yes     No     PER     Nutrient     12,88,000     45%     1,372,500     0       Hanover County     Topotromy Water and Strotopony WW/P     Yes     No     PER     Nutrient     12,88,000     45%     1,88,000     125,000     2,40,000     45%     1,88,000     125,000     2,40,000     45%     1,88,000     125,000     2,45,000     35%     32,57,500     0     10     Nor Responsibility     Not Responsibility     10,50,000     35%     32,57,500     0     0     0     0     0     0     0     0     0     0     0     0     0     0 <td></td> <td>eek WWTP E</td> <td>enitrification Filters</td> <td>Yes</td> <td>No</td> <td>CIP</td> <td>Nutrient</td> <td>11,200,000</td> <td>3,920,000</td> <td>35%</td> <td>1,372,000</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>3,920,000</td> <td>1,372,000</td> <td>3,920,000</td> <td>1,372,000</td>		eek WWTP E	enitrification Filters	Yes	No	CIP	Nutrient	11,200,000	3,920,000	35%	1,372,000	0	0	0	0	0	0	0	0	3,920,000	1,372,000	3,920,000	1,372,000
Hannover Country     Doswell Vaterwater Treatment Plant     VMP II luggrades Axhand WWTP     Yes     No     PER     Nutrient     10,000,000     2,500,000     45%     1,125,000     0       Hanover Country     Ashland Wastewater Treatment Plant     VMP II luggrades Axhland WWTP     Yes     No     PER     Nutrient     12,128,000     3,550,000     45%     1,372,500     0       Hanover Country     Totopotomory Wastewater Treatment Plant VMP II luggrades Axhland WWTP     Yes     No     PER     Nutrient     13,23,000     45%     1,372,500     125,000       Henrico Country Country Water Reclamation Failing     Priver Plant VMP II luggrades Axhland WWTP     Yes     No     OP     Nutrient     13,000,000     45%     1,080,000     125,000     125,000       Hanover Country Water Reclamation Failing     Priver Ayesing to Totopotomory Water Reclamation Failing     Yes     No     OP     Nutrient     110,000,000     92,450,000     35%     32,55,500     O       Town of Lessing     Water Pollucino Control Failing     Plant expansion to 10 MGO with ENR     Yes, but timing and cos:No     No Respones     Nutrient     50,000,000		Creek WWTP E	enitrification Filters	Yes	No	CIP	Nutrient	37,800,000	13,230,000	35%	4,630,500	0	0	0	0	0	0	0	0	13,230,000	4,630,500	13,230,000	4,630,500
Hannover Country     Ashland Wateswater Treatment Plant     WP III Upgrades Ashland WVIP     Yes     No     PER     Nutrient     12,18,000     3,05,000     45%     1,372,500     0       Hanover Country     Totophormy Waterwater Treatment Plant WIP III Upgrades Ashland WVIP     Yes     No     PER     Nutrient     12,83,000     4,5%     1,372,500     0       Hanover Country     Totophormy Waterwater Treatment Plant P	nt Plant	Wastewater Treatment Plant 1	his project is for upgrading the Marshall WWTP to me	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	7,887,000	4,732,200
Hanover County     Totopotomov Wastewater Treatment Plant WIP III Uggrades to Totopotomovy WVTP     Yes     No     PER     Nutrient     9,532,000     2,400,000     45%     1,080,000     125,000       Henrico County Department Plant WIP III Uggrades to Totopotomovy WVTP     Yes     No     CIP     Nutrient     11,000,000     45%     1,080,000     125,000     125,000       Town of Lessing     Water Poliution Control Facility     Pinet expansion to 10 MGO with ENR     Yes, but timing and coshyo     No Response     Nutrient     500,000     2,450,000     35%     10,150,000     0	t Plant	Vastewater Treatment Plant	VIP 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
Henrico County Department of Public Utilities     Henrico County Water Reclamation Facility     Provide denitrification filters, supplementary carbon fa Yes     CIP     Nutrient     110,000,000     92,450,000     35%     32,357,500     0       Town of Leesburg     Water Pollution Control Facility     Plant expansion to 10 MGD with ENR     Yes, but timing and cos1No     No Response     Nutrient     65,000,000     35%     10,150,000     0	t Plant	Vastewater Treatment Plant	VIP 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
Town of Leesburg     Water Pollution Control Facility     Plant expansion to 10 MGD with ENR     Yes, but timing and costNo     No Response     Nutrient     65,000,000     35%     10,150,000     0	atment Plant	moy Wastewater Treatment Plant \	VIP 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
	tion Facility	ounty Water Reclamation Facility	rovide denitrification filters, supplementary carbon fa	Yes	No	CIP	Nutrient	110,000,000	92,450,000	35%	32,357,500	0	0	0	0	0	0	61,450,000	21,507,500	10,000,000	3,500,000	71,450,000	25,007,500
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		llution Control Facility F	lant expansion to 10 MGD with ENR	Yes, but timing and cos	tNo	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
	clamation Fa	Robbins Jr. Water Reclamation Fall	lutrient 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								\$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)

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:

General Permit	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) Elimnated 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

## 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 gary.graham@deq.virginia.gov (804) 698-4103

Annual Load 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 gary.graham@deq.virginia.gov (804) 698-4103

Virginia Final Phase III WIP Tables (updated 08.06.2020)

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