

Summary: Costs for Clean Water Improvements by Sector

Vermont Water Quality Funding 20-Year Projection (\$s in millions, unless otherwise indicated), Page 1

1
2
3
4
5
6
7
8
9

Tier 1 and Tier 2 Legend				
Blue Shaded lines are "Tier 1" costs, the incremental costs associated with TMDLs, Act 64 (2015) and CSO Policy (2016).				
Unshaded lines are "Tier 2" costs, costs that support, enhance and catalyze compliance.				
Tan shaded lines represent total of "Tier 1" and "Tier 2"				

Tier 1 Summary: Costs & Financing Sources	Projected 20-Year Costs	Projected 20-Yr Financing	Total 20-Year Gap	Annualized Gap
Tier 1 Municipal Wastewater Pollution Control, including CSO	\$337,971,000	\$215,181,138	(\$122,789,862)	(\$6,139,493)

12

Tier 1 Summary: Costs & Funding Sources	Projected 20-Year Costs	Projected 20-Year Funds	Total 20-Year Gap	Annualized Gap
Tier 1 Agriculture Pollution Control	\$527,633,654	\$207,350,000	(\$320,283,654)	(\$16,014,183)
Tier 1 Stormwater Pollution Control, Including Roads	\$694,678,108	\$212,315,179	(\$482,362,929)	(\$24,118,146)
Tier 1 Natural Resources Restoration for Pollution Control	\$83,885,000	\$32,927,000	(\$50,958,000)	(\$2,547,900)
Tier 1 Subtotal: Agriculture, Stormwater, Natural Resources	\$1,306,196,762	\$452,592,179	(\$853,604,583)	(\$42,680,229)
Tier 1 Total	\$1,644,167,762	\$667,773,317	(\$976,394,445)	(\$48,819,722)

19

Tier 2 Summary: Costs & Financing Sources	Projected 20-Year Costs	Projected 20-Yr Financing	Total 20-Year Gap	Annualized Gap
Tier 2 Municipal Wastewater Control	\$530,399,000	\$378,603,565	(\$151,795,435)	(\$7,589,772)

23

Tier 2 Summary: Costs & Funding Sources to Support Compliance	Projected 20-Year Costs	Projected 20-Yr Funds	Total 20-Year Gap	Annualized Gap
Tier 2 Agriculture Pollution Control	\$46,766,538	\$0	(\$46,766,538)	(\$2,338,327)
Tier 2 Stormwater Pollution Control, Including Roads	\$32,540,000	\$6,159,000	(\$26,381,000)	(\$1,319,050)
Tier 2 Natural Resources Restoration for Pollution Control	\$58,868,000	\$6,435,000	(\$52,433,000)	(\$2,621,650)
Tier 2 Subtotal: Agriculture, Stormwater, Natural Resources	\$138,174,538	\$12,594,000	(\$125,580,538)	(\$6,279,027)
Tier 2 Total	\$668,573,538	\$391,197,565	(\$277,375,974)	(\$13,868,799)

30

Tier 1 & Tier 2 Total				
Total Summary: Costs & Financing Sources	Projected 20-Year Costs	Projected 20-Yr Financing	Total 20-Year Gap	Annualized Gap
Municipal Wastewater Control, including CSO	\$868,370,000	\$593,784,703	(\$274,585,297)	(\$13,729,265)

35

Total Summary: Costs & Funding Sources	Projected 20-Year Costs	Projected 20-Yr Funds	Total 20-Year Gap	Annualized Gap
Agriculture Pollution Control	\$574,400,192	\$207,350,000	(\$367,050,192)	(\$18,352,510)
Stormwater Pollution Control, Including Roads	\$727,218,108	\$207,994,179	(\$519,223,929)	(\$25,437,196)
Natural Resources Restoration for Pollution Control	\$142,753,000	\$39,362,000	(\$103,391,000)	(\$5,169,550)
Subtotal: Agriculture, Stormwater, Natural Resources	\$1,444,371,300	\$454,706,179	(\$989,665,121)	(\$48,959,256)
Tier 1 & Tier 2 Total	\$2,312,741,300	\$1,048,490,882	(\$1,264,250,418)	(\$62,688,521)

Abbreviations	
BMP:	Best Management Practice
CSO:	Combined Sewer Overflows
CWF:	Clean Water Fund
CWIP:	Clean Water Initiative Program
CWSRF:	Clean Water State Revolving Fund
ER:	Ecosystem Restoration Grants (of CWIP)
FWD:	Fish & Wildlife Department
LC TMDL:	Lake Champlain Total Max Daily Load
NPS:	NonPoint Source (not wastewater & reg. stormwater)
PO4:	Phosphorus
REAP Zone:	Rural Economic Area Program Grants
USDA RD:	US Dept of Agriculture Rural Development
VTrans:	Vermont Agency of Transportation
WEP:	Water Environment Program
WPC:	Water Pollution Control
WW:	Wastewater

Summary: Costs for Clean Water Improvements by Sector
 Vermont Water Quality Funding 20-Year Projection (\$s in millions, unless otherwise indicated), Page 2

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10	Municipal Wastewater Sector	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	20-Year Total	Annualized	
11	Costs & Financing Sources																							
12	Tier 1 Muni. Wastewater Control: Costs, Required by TMDL, Act 64, CSO	11.8	16.1	35.0	42.7	54.8	48.0	39.0	26.8	11.3	11.3	11.3	7.5	3.8	3.8	3.8	3.8	3.8	3.8	0.0	0.0	338.0	16.9	
13	Tier 1 Muni. Wastewater Control: Funding Sources, Req. by TMDL, Act 64, CSO	9.8	11.5	22.1	25.4	25.6	27.6	26.8	20.3	5.0	6.6	6.7	4.9	2.7	2.8	2.9	2.9	2.5	3.0	3.0	3.0	215.2	10.8	
14	Tier 1 Municipal Wastewater Control: Gap, Required by TMDL, Act 64, CSO	(2.0)	(4.6)	(12.8)	(17.3)	(29.2)	(20.4)	(12.2)	(6.5)	(6.2)	(4.7)	(4.6)	(2.6)	(1.1)	(0.9)	(0.9)	(0.8)	(1.3)	(0.7)	3.0	3.0	(122.8)	(6.1)	
15	Tier 2 Municipal Wastewater Control: Costs that Support Compliance	27.8	25.0	11.8	7.7	8.8	5.6	6.4	14.9	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	530.4	26.5
16	Tier 2 Municipal Wastewater Control: Funding Sources to Support Compliance	23.1	17.8	7.5	4.6	4.1	3.2	4.4	11.5	15.7	20.5	20.9	23.1	25.1	26.3	26.8	27.3	23.1	28.5	32.1	32.8	378.6	18.9	
17	Tier 2 Municipal Wastewater Control: Gap, to Support Compliance	(4.7)	(7.2)	(4.3)	(3.1)	(4.7)	(2.4)	(2.0)	(3.3)	(19.5)	(14.7)	(14.3)	(12.1)	(10.1)	(8.9)	(8.4)	(7.9)	(12.1)	(6.7)	(3.1)	(2.4)	(151.8)	(7.6)	
18	Municipal Wastewater Control: Total Costs	39.7	41.1	46.8	50.4	63.6	53.5	45.4	41.6	46.5	46.5	46.5	42.7	39.0	39.0	39.0	39.0	39.0	39.0	35.2	35.2	868.4	43.4	
19	Municipal Wastewater Control: Total Funding Sources	32.9	29.3	29.6	30.0	29.8	30.8	31.2	31.8	20.8	27.1	27.6	28.1	27.7	29.1	29.7	30.3	25.6	31.5	35.2	35.9	593.8	29.7	
20	Municipal Wastewater Control: Total Gap	(6.8)	(11.8)	(17.1)	(20.4)	(33.8)	(22.8)	(14.3)	(9.8)	(25.7)	(19.4)	(18.9)	(14.6)	(11.2)	(9.8)	(9.3)	(8.7)	(13.4)	(7.5)	(0.0)	0.7	(274.6)	(13.7)	
21																								
22	Agricultural Sector																							
23	Costs & Funding Sources																							
24	Tier 1 Agriculture Pollution Control: Costs, Required by TMDL, Act 64	41.0	51.1	52.0	51.9	49.6	41.3	37.5	30.7	28.8	24.3	14.6	12.8	12.8	10.9	12.2	11.2	10.9	10.9	12.2	10.9	527.6	26.4	
25	Tier 1 Agriculture Pollution Control: Funding Sources, Required by TMDL, Act 64	9.5	8.7	10.6	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	207.4	10.4
26	Tier 1 Agriculture Pollution Control: Gap, Required by TMDL, Act 64	(31.4)	(42.4)	(41.4)	(41.4)	(39.1)	(30.8)	(27.0)	(20.2)	(18.3)	(13.8)	(4.1)	(2.3)	(2.3)	(0.4)	(1.7)	(0.7)	(0.4)	(0.4)	(1.7)	(0.4)	(320.3)	(16.0)	
27	Tier 2: Agriculture Pollution Control: Costs that Support Compliance	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	46.8	2.3
28	Tier 2 Agriculture Pollution Control: Funding Sources to Support Compliance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	Tier 2 Agriculture Pollution Control: Gap, to Support Compliance	(2.3)	(2.3)	(2.3)	(2.3)	(2.3)	(2.3)	(2.3)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(46.8)	(2.3)
30	Agriculture Pollution Control: Total Costs	43.3	53.4	54.3	54.2	51.9	43.6	39.9	33.0	31.1	26.6	17.0	15.1	15.1	13.3	14.5	13.6	13.3	13.3	14.5	13.3	574.4	28.7	
31	Agriculture Pollution Control: Total Funding Sources	9.5	8.7	10.6	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	207.4	10.4
32	Agriculture Pollution Control: Total Gap	(33.7)	(44.7)	(43.7)	(43.7)	(41.4)	(33.1)	(29.4)	(22.5)	(20.6)	(16.1)	(6.5)	(4.6)	(4.6)	(2.8)	(4.0)	(3.1)	(2.8)	(2.8)	(4.0)	(2.8)	(367.1)	(18.4)	
33	Stormwater/Developed Lands Sector																							
34	Costs & Funding Sources																							
35	Tier 1 Stormwater Pollution Control: Costs, Required by TMDL, Act 64	13.3	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	43.3	43.3	43.3	43.3	43.3	43.3	17.8	17.8	17.8	17.8	694.7	34.7	
36	Tier 1 Stormwater Pollution Control: Funding Sources Required by TMDL, Act 64	18.8	17.1	9.5	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	12.6	12.6	212.3	10.6	
37	Tier 1 Stormwater Pollution Control: Gap, Required by TMDL, Act 64	5.6	(21.8)	(29.4)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(33.9)	(33.9)	(33.9)	(33.9)	(33.9)	(33.9)	(8.3)	(8.3)	(5.2)	(5.2)	(482.4)	(24.1)	
38	Tier 2 Stormwater Pollution Control: Costs that Support Compliance	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	32.5	1.6	
39	Tier 2 Stormwater Pollution Control: Funding Sources to Support Compliance	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6.2	0.3	
40	Tier 2 Stormwater Pollution Control: Gap, to Support Compliance	(1.5)	(1.5)	(1.5)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(26.4)	(1.3)	
41	Stormwater Pollution Control: Total Costs	14.9	40.5	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	45.0	45.0	45.0	45.0	45.0	45.0	19.4	19.4	19.4	19.4	727.2	36.4	
42	Stormwater Pollution Control: Total Funding Sources	18.9	17.2	9.6	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	12.9	12.9	218.5	10.9	
43	Stormwater Pollution Control: Total Gap	4.1	(23.3)	(31.0)	(30.8)	(30.8)	(30.8)	(30.8)	(30.8)	(30.8)	(30.8)	(35.2)	(35.2)	(35.2)	(35.2)	(35.2)	(35.2)	(9.6)	(9.6)	(6.5)	(6.5)	(508.7)	(25.4)	
44	Natural Resources Sector																							
45	Costs & Funding Sources																							
46	Tier 1 Natural Resources Restoration: Costs, Required by TMDL, Act 64	1.9	3.3	4.1	4.1	4.2	4.4	4.4	4.7	4.8	4.9	4.7	4.8	4.4	4.4	4.1	4.1	4.1	4.1	4.1	4.1	83.9	4.2	
47	Tier 1 Nat Resources Restoration: Funding Sources, Required by TMDL, Act 64	1.9	1.9	1.8	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	32.9	1.6	
48	Tier 1 Natural Resources Restoration: Gap, Required by TMDL, Act 64	(0.0)	(1.4)	(2.3)	(2.3)	(2.6)	(2.8)	(2.8)	(3.2)	(3.2)	(3.3)	(3.2)	(3.2)	(2.8)	(2.8)	(2.6)	(2.6)	(2.6)	(2.6)	(2.6)	(2.6)	(51.0)	(2.5)	
49	Tier 2 Natural Resources: Costs that Support Compliance	1.0	2.8	2.9	3.1	3.1	3.1	3.0	3.2	3.2	3.2	3.2	3.2	3.0	3.1	3.0	3.0	3.0	3.0	3.0	3.0	58.9	2.9	
50	Tier 2 Natural Resources: Funding Sources that Support Compliance	0.9	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6.4	0.3	
51	Tier 2 Natural Resources: Gap, to Support Compliance	(0.0)	(2.5)	(2.6)	(2.8)	(2.8)	(2.9)	(2.8)	(2.9)	(2.9)	(2.9)	(2.9)	(2.9)	(2.8)	(2.9)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(52.4)	(2.6)	
52	Natural Resources Restoration: Total Costs	2.9	6.1	7.1	7.3	7.2	7.5	7.4	7.9	7.9	8.1	7.9	7.9	7.4	7.5	7.1	7.1	7.1	7.1	7.1	7.1	142.8	7.1	
53	Natural Resources Restoration: Total Funding Sources	2.8	2.2	2.1	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	39.4	2.0	
54	Natural Resources Restoration: Total Gap	(0.0)	(3.9)	(4.9)	(5.1)	(5.4)	(5.6)	(5.5)	(6.0)	(6.0)	(6.2)	(6.0)	(6.0)	(5.5)	(5.6)	(5.2)	(5.2)	(5.2)	(5.2)	(5.2)	(5.2)	(103.4)	(5.2)	

56	Summary of Broad Categories - TMDL, Act 64, CSO	Projected 20-Year Costs	Projected Funding	Total 20-Year Gap	Annualized Gap
57	Municipal Water Pollution Control Infrastructure (WWTF)	\$337,971,000	\$215,181,138	(\$122,789,862)	(\$6,139,493.09)
58	Non-Wastewater Pollution Control (Precipitation-Based)	\$1,306,196,762	\$452,592,179	(\$853,604,583)	(\$42,680,229.14)
59	Total	\$1,644,167,762	\$667,773,317	(\$976,394,445)	(\$48,819,722)

61	Summary of Broad Categories - Other	Need	Projected Funding	Total 20-Year Gap	Annualized Gap
62	Municipal Water Pollution Control Infrastructure (WWTF)	\$530,399,000	\$378,603,565	(\$151,795,435)	(\$7,589,771.76)
63	Non-Wastewater Pollution Control (Precipitation-Based)	\$138,174,538	\$12,594,000	(\$125,580,538)	(\$6,279,026.92)
64	Total	\$668,573,538	\$391,197,565	(\$277,375,974)	(\$13,868,799)

Abbreviations	
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Sector #1: Clean Water Infrastructure - Municipal Wastewater, Combined Sewer and Other Categories

Funding Need, 20-Year Projection (\$\$ in millions, unless otherwise indicated)

	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	20-Year Total	Total Annualized	Notes
Municipal Wastewater Sector																							
Costs & Funding Sources																							
Tier 1 Costs: Required by TMDL, Act 64, CSO																							
LC TMDL Phosphorus (13 WWTFs)	0.90	2.30	10.60	16.80	27.70	14.10	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.40	3.92	Based on FED's Cost Estimate - Does not include longer term cost beyond FY36.
WWTF Water Quality Refurbishment, TMDL-Related	6.32	8.08	17.41	20.31	18.08	22.59	21.74	15.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	129.99	6.50	
Lake Memphremagog Nutrient Removal (4 WWTFs)	0.00	0.22	0.44	2.24	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.22	
LC TMDL Phosphorus (Capital Bill Priorities)	3.60	3.20	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.50	Current State Revolving Fund Priority List that includes the Airport Parkway & Hinesburg wastewater treatment facility
CSO (66 CSOs at 15 municipalities)	1.00	2.30	3.30	3.30	7.52	11.28	11.28	11.28	11.28	11.28	11.28	7.52	3.76	3.76	3.76	3.76	3.76	3.76	0.00	0.00	115.18	5.76	Began implementing CSO controls in 2016 (\$1.34M) and 2017 (\$1.4M)
Subtotal	11.82	16.10	34.95	42.65	54.80	47.97	39.02	26.75	11.28	11.28	11.28	7.52	3.76	3.76	3.76	3.76	3.76	3.76	0.00	0.00	337.97	16.90	
Tier 1 Funding Sources: To support TMDL, Act 64, CSO																							
CWSRF Current Balance (6/30/2015 - Provided as Loans)	1.82	2.10	4.02	4.55	4.54	4.82	4.62	3.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.92	1.50	CWSRF Starting Balance ~ 7/1/15; set at 61.1; spread over 10 years
CWSRF Annual Federal Grant (Provided as Loans)	1.83	2.11	4.03	4.56	4.55	4.83	4.63	3.46	1.02	1.31	1.31	0.95	0.50	0.52	0.52	0.43	0.52	0.52	0.52	0.52	38.65	1.93	Assumes Level Funding
CWSRF Annual State Match (Provided as Loans)	0.39	0.45	0.86	0.97	0.97	1.03	0.99	0.74	0.22	0.28	0.28	0.20	0.11	0.11	0.11	0.11	0.09	0.11	0.11	0.11	8.23	0.41	Assumes Level Funding
CWSRF Annual Loan Repayments (Provided as Loans)	2.83	3.40	6.76	7.96	8.26	9.12	9.09	7.07	2.17	2.89	3.00	2.27	1.25	1.34	1.40	1.45	1.25	1.57	1.57	1.57	76.23	3.81	Based on Current Projections
WPC Annual State Grants Appropriation	0.63	0.72	1.38	1.56	1.56	1.66	1.59	1.19	0.35	0.45	0.45	0.33	0.17	0.18	0.18	0.15	0.18	0.18	0.18	0.18	13.25	0.66	Projection based on prior 10-yr avg.
USDA RD WEP Annual Loan Appropriation	1.39	1.60	3.06	3.46	3.46	3.67	3.51	2.63	0.77	0.99	0.99	0.72	0.38	0.39	0.39	0.33	0.39	0.39	0.39	0.39	29.34	1.47	Assumes Level Funding & 50/50 Split w/DW
USDA RD WEP Annual Grant Appropriation	0.67	0.78	1.48	1.68	1.67	1.77	1.70	1.27	0.37	0.48	0.48	0.35	0.19	0.19	0.19	0.16	0.19	0.19	0.19	0.19	14.20	0.71	Assumes Level Funding
USDA RD REAP Zone Grant	0.25	0.29	0.56	0.63	0.63	0.67	0.64	0.48	0.14	0.18	0.18	0.13	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07	5.36	0.27	Assumes Level Funding
Subtotal	9.80	11.46	22.14	25.39	25.65	27.56	26.77	20.30	5.05	6.58	6.69	4.94	2.68	2.81	2.86	2.92	2.47	3.04	3.04	3.04	215.18	10.76	
Tier 1 Gap: To support TMDL, Act 64, CSO	(2.02)	(4.63)	(12.81)	(17.27)	(29.15)	(20.40)	(12.25)	(6.46)	(6.23)	(4.70)	(4.59)	(2.58)	(1.08)	(0.95)	(0.90)	(0.84)	(1.29)	(0.72)	3.04	3.04	(122.79)	(6.14)	
Tier 2 Costs: Costs that Support, Enhance & Catalyze Compliance																							
Water Quality-Related Refurbishment, Other WWTFs & Collection Systems	26.84	24.02	10.81	6.73	7.78	4.56	5.41	13.88	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	34.20	510.40	25.52	Figures beyond FY16 based on Needs Survey (2008) and adjusted to 2015 dollars
Sewer Extension (Pollution Abatement Only)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	20.00	1.00	Based on Castleton, W Windsor & Colchester. Assume \$1M FY18 and beyond.
Subtotal	27.84	25.02	11.81	7.73	8.78	5.56	6.41	14.88	35.20	35.20	35.20	35.20	35.20	35.20	35.20	35.20	35.20	35.20	35.20	35.20	530.40	26.52	
Tier 2 Funding Sources: Funding Sources to Support Compliance																							
CWSRF Current Balance (6/30/2015 - Provided as Loans)	4.29	3.27	1.36	0.82	0.73	0.56	0.76	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.97	0.70	CWSRF Starting Balance ~ 7/1/15; set at 61.1; spread over 10 years
CWSRF Annual Federal Grant (Provided as Loans)	4.30	3.28	1.36	0.83	0.74	0.56	0.76	1.93	3.18	4.08	4.08	4.44	4.73	4.87	4.87	4.87	4.04	4.87	5.39	5.39	68.57	3.43	Assumes Level Funding
CWSRF Annual State Match (Provided as Loans)	0.92	0.70	0.29	0.18	0.16	0.12	0.16	0.41	0.68	0.87	0.87	0.95	1.01	1.04	1.04	1.04	0.86	1.04	1.15	1.15	14.61	0.73	Assumes Level Funding
CWSRF Annual Loan Repayments (Provided as Loans)	6.67	5.29	2.28	1.44	1.32	1.06	1.49	3.93	6.76	9.01	9.37	10.60	11.74	12.58	13.08	13.60	11.73	14.71	16.94	17.61	171.22	8.56	Based on Current Projections
WPC Annual State Grants Appropriation	1.47	1.12	0.47	0.28	0.25	0.19	0.26	0.66	1.09	1.40	1.40	1.52	1.62	1.67	1.67	1.38	1.67	1.85	1.85	1.85	23.50	1.18	Projection based on prior 10-yr avg.
USDA RD WEP Annual Loan Appropriation	3.26	2.49	1.03	0.63	0.55	0.42	0.58	1.46	2.42	3.10	3.10	3.37	3.59	3.70	3.70	3.70	3.06	3.70	4.09	4.09	52.04	2.60	Assumes Level Funding & 50/50 Split w/DW
USDA RD WEP Annual Grant Appropriation	1.58	1.20	0.50	0.30	0.27	0.21	0.28	0.71	1.17	1.50	1.50	1.63	1.74	1.79	1.79	1.48	1.79	1.98	1.98	1.98	25.18	1.26	Assumes Level Funding
USDA RD REAP Zone Grant	0.60	0.46	0.19	0.11	0.10	0.08	0.11	0.27	0.44	0.57	0.57	0.62	0.66	0.68	0.68	0.68	0.56	0.68	0.75	0.75	9.51	0.48	Assumes Level Funding
Subtotal	23.09	17.81	7.48	4.60	4.12	3.19	4.39	11.55	15.75	20.53	20.89	23.13	25.07	26.32	26.82	27.34	23.11	28.45	32.14	32.82	378.60	18.93	
Tier 2 Gap: to Support, Enhance & Catalyze Compliance	(4.75)	(7.20)	(4.33)	(3.13)	(4.65)	(2.36)	(2.01)	(3.33)	(19.45)	(14.67)	(14.31)	(12.07)	(10.13)	(8.88)	(8.38)	(7.86)	(12.09)	(6.75)	(3.06)	(2.38)	(151.80)	(7.59)	

Summary	Projected Costs	Projected Funding	Total 20-Year Gap	Annualized Gap
Tier 1 Wastewater: Required for TMDL, Act 64, CSO	\$337,971,000	\$215,181,138	(\$122,789,862)	(\$6,139,493)
Tier 2 Wastewater: to Support, Enhance & Catalyze Compliance	\$530,399,000	\$378,603,565	(\$151,795,435)	(\$7,589,772)
Wastewater: Total	\$868,370,000	\$593,784,703	(\$274,585,297)	(\$13,729,265)

Tier 1 and Tier 2 Legend

Blue Shaded lines are "Tier 1" costs, the incremental costs associated with TMDLs, Act 64 (2015) and CSO Policy (2016).

Unshaded lines are "Tier 2" costs, costs that support, enhance and catalyze compliance.

If no other source of state or federal funds are available to meet the funding gap, it is expected that Municipal Bonds would fill the gap

Abbreviations	
BMP:	Best Management Practice
CSO:	Combined Sewer Overflows
CWF:	Clean Water Fund
CWIP:	Clean Water Initiative Program
CWSRF:	Clean Water State Revolving Fund
ER:	Ecosystem Restoration Grants (of CWIP)
FWD:	Fish & Wildlife Department
LC TMDL:	Lake Champlain Total Max Daily Load
NPS:	NonPoint Source (not wastewater & reg. stormwater)
PO4:	Phosphorus
REAP Zone:	Rural Economic Area Program Grants
USDA RD:	US Dept of Agriculture Rural Development
VTTrans:	Vermont Agency of Transportation
WEP:	Water Environment Program
WPC:	Water Pollution Control
WW:	Wastewater

Sector #2: Agriculture Pollution Control

Funding Need, 20-Year Projection (\$s in millions, unless otherwise indicated)

	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	20-Year Total	Total Annualized	Notes		
Agricultural Sector																									
Costs & Funding Sources																									
Tier 1 Costs: Required by TMDL, Act 64																									
Production Area BMP Implementation	9.00	10.00	11.00	12.00	12.00	11.00	10.00	9.00	8.00	7.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	119.0	5.95	e.g. silage leachate, manure pits, manure stacking sites, barnyards	
Cropland BMP Implementation (Farm Agronomic Practices)	7.00	10.00	12.00	12.00	12.00	10.00	9.00	7.00	6.00	5.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	113.0	5.65	e.g. riparian buffers, cover cropping, grassed waterways	
Livestock exclusion (includes CREP)	3.00	4.00	4.00	5.00	4.00	3.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	34.5	1.73	total cost is based off of livestock exclusion report	
NMP & CNMP Development	3.00	4.00	4.00	3.00	3.00	2.00	2.00	2.00	2.50	2.50	1.75	1.50	1.50	1.50	2.50	1.75	1.50	1.50	2.50	1.50	2.50	45.5	2.28	assumes NMP standard changes every 5 years	
NMP Plan Implementation (NRCS Practice Code 590)	9.75	12.00	9.75	8.65	7.90	6.40	6.40	4.90	4.90	3.40	3.40	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	97.3	4.86	assumes NMP standard changes every 5 years	
NMP Classes for Farmers	0.50	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	7.4	0.37	Supports training courses for farmers	
Manure Applicator Training Program	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	3.0	0.15	Support administration of training courses and provide regulatory oversight	
NMP Classes for Technical Service Providers	0.25	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	2.0	0.10	1 FTE manage,train®ulate Tech Service Providers to assist for NMPs (incl support for non-certified SFOs interested in NMP)	
Tech. Assist.-BMPs (production area, cropland, livestock exclusion)	4.75	6.00	6.75	7.25	7.00	6.00	5.25	4.25	3.75	3.25	1.50	1.50	1.50	1.13	1.13	1.13	1.13	1.13	1.13	1.13	66.6	3.33	100% of total costs to provide assistance, e.g., engineering, project mgmt		
Tech. Assist.-NMPs (development and implementation)	3.41	4.19	3.63	3.10	2.91	2.26	2.26	1.88	2.01	1.61	1.42	1.06	1.06	1.06	1.31	1.12	1.06	1.06	1.31	1.06	38.8	1.94	100% of total costs to provide assistance		
Tech. Assist.-manure and soil testing	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.6	0.03	Soil testing support	
Subtotal	41.0	51.1	52.0	51.9	49.6	41.3	37.5	30.7	28.8	24.3	14.6	12.8	12.8	10.9	12.2	11.2	10.9	10.9	12.2	10.9	527.6	26.38			
Tier 1 Funding Sources: To support TMDL, Act 64																									
USDA 5-year grant, BMP Implementation (VT RCPP)	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.17	RCPP-State of VT	
Agriculture Technical Assistance (VACD RCPP)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.01	VACD for NMP	
USDA BMP Implementation (NRCS Base Funding)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	100.0	5.00	USDA	
AAFM Capital Funds - Agriculture Implementation	1.8	2.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	92.8	4.64	assumes level funding each year (FY19-FY35)	
AAFM General Fund	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	10.2	0.51	assumes level funding each year (FY17-FY35)	
Clean Water Fund	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.04	Does not include CWF operating for FY16,FY17; includes approx 10% partner funds	
Subtotal	9.5	8.7	10.6	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	207.4	10.37		
Tier 1 Gap: To support TMDL, Act 64	(31.4)	(42.4)	(41.4)	(41.4)	(39.1)	(30.8)	(27.0)	(20.2)	(18.3)	(13.8)	(4.1)	(2.3)	(2.3)	(0.4)	(1.7)	(0.7)	(0.4)	(0.4)	(1.7)	(0.4)	(320.3)	(16.01)			
Tier 2 Costs: Costs that Support, Enhance & Catalyze Compliance																									
Capital Equipment Assistance Program	1.00	1.00	1.00	1.00	1.00	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	20.5	1.02	enhanced equipment to implement practices	
Manure and soil tests	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	10.1	0.51	Base information for nutrient management plans	
Incentive Payments	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	6.0	0.30	goal is to have additional \$200,000 per year in private match	
Farm relocation	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	10.2	0.51	assume, took middle value, based on range VAAFM provide	
Subtotal	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	46.8	2.34		
Tier 2 Funding Sources: Funding Sources to Support Compliance																									
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
Tier 2 Gap: to Support, Enhance & Catalyze Compliance	(2.3)	(2.3)	(2.3)	(2.3)	(2.3)	(2.3)	(2.3)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(2.4)	(46.8)	(2.34)		
Summary																									
Tier 1 Agriculture: Required for TMDL, Act 64	Projected Costs		Projected Funding				Total 20-Year Gap				Annualized Gap														
	\$527,633,654		\$207,350,000				(\$320,283,654)				(\$16,014,183)														
Tier 2 Agriculture: to Support, Enhance & Catalyze Compliance	\$46,766,538		\$0				(\$46,766,538)				(\$2,338,327)														
Agriculture: Total	\$574,400,192		\$207,350,000				(\$367,050,192)				(\$18,352,510)														

Tier 1 and Tier 2 Legend
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 Unshaded lines are "Tier 2" costs, costs that support, enhance and catalyze compliance.

Abbreviations	
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PO4:	Phosphorus
REAP Zone:	Rural Economic Area Program Grants
USDA RD:	US Dept of Agriculture Rural Development
VTrans:	Vermont Agency of Transportation
WEP:	Water Environment Program
WPC:	Water Pollution Control
WW:	Wastewater

Sector #3: Stormwater, Road Infrastructure Runoff and Erosion Control
 Funding Need, 20-Year Projection (\$s in millions, unless otherwise indicated)

	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	20-Year Total	Total Annualized	Notes	
Stormwater/Developed Lands Sector																								
Tier 1 Costs: Required by TMDL, Act 64, CSO																								
Inventory to Identify Stormwater "Critical Source Areas" for Treatment	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	10.0	0.50	Municipal inventories; WSMD estimate	
Non-Road Stormwater/Developed Land Implementation	4.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	30.0	30.0	30.0	30.0	30.0	30.0	4.4	4.4	4.4	4.4	4.4	432.1	21.61	DEC estimate; used \$30K/acre estimate
Municipal Roads Implementation	3.6	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	161.4	8.07	Municipal Roads Implementation using DEC estimates
State (VTrans): (a) Roads & (b) Non-Road Developed Land-Implementation	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	91.1	4.55	VTrans implementation using DEC estimates
Funding Need Subtotal	13.3	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	43.3	43.3	43.3	43.3	43.3	43.3	17.8	17.8	17.8	17.8	694.7	34.73		
Tier 1 Funding Sources: To support TMDL, Act 64, CSO																								
State Municipal Mitigation-VT Better Roads-Municipal Support	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	9.6	0.48	Former Better Back Roads Grants; Assumes Level Funding
State and Federal Transportation Funds-Municipal Support	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.10	Assumes continuation of funds after FY19
Fed Highway Admin Transportation Alternatives-Municipal Support	2.2	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	24.2	1.21	assume Fed Highway/Transpo Alternatives will continue and first two years, full amount of funds dedicated to clean water improvements
Fed Highway Admin Annual Formula STBG Funds - Municipal Support	5.2	5.2																				10.5	0.52	
Federal Highway Administration - Project Dev., Construction	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	91.1	4.55	Assumes linear sources are priority over non-highway sources; 100% of VTrans road-related costs are covered by FHA and state funds
Lake Champlain Basin Program	0.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4.8	0.24	Assume level funding from Federal partners (EPA, Great Lakes Fishery Commission)
CWIP Ecosystem Restoration	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	62.1	3.10	
Clean Water Fund	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.1	8.1	0.41	DEC estimate; 90% of available funds after FY18	
Subtotal	18.8	17.1	9.5	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	12.6	12.6	212.3	10.62		
Tier 1 Gap: To support TMDL, Act 64, CSO	5.6	(21.8)	(29.4)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(29.5)	(33.9)	(33.9)	(33.9)	(33.9)	(33.9)	(33.9)	(8.3)	(8.3)	(5.2)	(5.2)	(482.4)	(24.12)		
Tier 2 Costs: Costs that Support, Enhance & Catalyze Compliance																								
Non-Road Stormwater Implementation (below regulatory thresholds)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	10.0	0.50	Stormwater controls for properties below 3 acres
Municipal Capital Equipment Assistance Program	1.0	1.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	20.0	1.00	enhanced equipment for municipalities to implement practices
Stormwater Technical Assistance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.5	0.13	WSMD estimate to support VLCT, SeaGrant techn assistance
Subtotal	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	32.5	1.63		
Tier 2 Funding Sources: Funding Sources to Support Compliance																								
CWIP Ecosystem Restoration	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6.2	0.31	WSMD Estimate; assumes 83% for life of RCPP match, then 10% of available funds
Subtotal	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6.2	0.31	
Tier 2 Gap: to Support, Enhance & Catalyze Compliance	(1.5)	(1.5)	(1.5)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(26.4)	(1.32)	

Summary	Projected Costs	Projected Funding	Total 20-Year Gap	Annualized Gap
Tier 1 Stormwater: Required by TMDL, Act 64	\$694,678,108	\$212,315,179	(\$482,362,929)	(\$24,118,146)
Tier 2 Stormwater: to Support, Enhance & Catalyze Compliance	\$32,540,000	\$6,159,000	(\$26,381,000)	(\$1,319,050)
Stormwater: Total	\$727,218,108	\$218,474,179	(\$508,743,929)	(\$25,437,196)

Tier 1 and Tier 2 Legend
 Blue Shaded lines are "Tier 1" costs, the incremental costs associated with TMDLs, Act 64 (2015) and CSO Policy (2016).
 Unshaded lines are "Tier 2" costs, costs that support, enhance and catalyze compliance.

Abbreviations	
BMP:	Best Management Practice
CSO:	Combined Sewer Overflows
CWF:	Clean Water Fund
CWIP:	Clean Water Initiative Program
CWSRF:	Clean Water State Revolving Fund
ER:	Ecosystem Restoration Grants (of CWIP)
FWD:	Fish & Wildlife Department
LC TMDL:	Lake Champlain Total Max Daily Load
NPS:	NonPoint Source (not wastewater & reg. stormwater)
PO4:	Phosphorus
REAP Zone:	Rural Economic Area Program Grants
USDA RD:	US Dept of Agriculture Rural Development
VTrans:	Vermont Agency of Transportation
WEP:	Water Environment Program
WPC:	Water Pollution Control
WW:	Wastewater

Sector #4: Restoration of Natural Resources (River Corridors, Floodplains, Wetlands, Forest Management) for Pollution Control

Funding Need, 20-Year Projection (\$s in millions, unless otherwise indicated)

	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	20-Year Total	Total Annualized	Notes
Natural Resources Sector: Pollution Reduction																							
Costs & Funding Sources																							
Tier 1 Costs: Required by TMDL, Act 64																							
Passive restoration projects (easements) Rivers (LC TMDL)	0.60	0.72	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	17.52	0.88	water quality & flood resilience
Passive restoration projects (easements) Wetlands (LCTMDL)	0.00	0.30	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	10.38	0.52	water quality & flood resilience
Floodplain restoration projects (LC TMDL)	0.60	0.80	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	23.00	1.15	water quality & flood resilience
Wetland restoration projects (LC TMDL)	0.49	1.28	1.28	1.28	1.28	1.50	1.50	1.88	1.88	2.03	1.88	1.88	1.50	1.50	1.28	1.28	1.28	1.28	1.28	1.28	28.79	1.44	water quality & flood resilience
Forestry Technical Assistance & Implementation	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	4.20	0.21	DFPR for TMDL (AMP training, publication), forest buffer restoration, BMP incentivizes
Funding Need Subtotal	1.9	3.3	4.1	4.1	4.2	4.4	4.4	4.7	4.8	4.9	4.7	4.8	4.4	4.4	4.1	4.1	4.1	4.1	4.1	4.1	83.9	4.19	
Tier 1 Funding Sources: To support TMDL, Act 64																							
CWIP - Ecosystem Restoration	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.4	0.2	DEC estimate; Assume half of available funds
CWIP-Ecosystem Restoration RCPP Match-Wetland Restoration	0.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	
Clean Water Fund-Implementation, Tech Assistance	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	Assume half of available funds
Lake Champlain Basin Program	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.8	0.2	Assume alignment of funds to help meet need
FWD License Plate Grants-Implementation, Tech Assistance	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.35	0.0	Assume half of available funds
USDA WRE Program	0.50	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	17.60	0.9	Assume 90% of available funds
US Fish and Wildlife Service - Partners for Fish & Wildlife	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	6.00	0.3	
Subtotal	1.9	1.9	1.8	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	32.93	1.6	
Tier 1 Gap: To support TMDL, Act 64	(0.0)	(1.4)	(2.3)	(2.3)	(2.6)	(2.8)	(2.8)	(3.2)	(3.2)	(3.3)	(3.2)	(3.2)	(2.8)	(2.8)	(2.6)	(2.6)	(2.6)	(2.6)	(2.6)	(2.6)	(51.0)	(2.5)	
Tier 2 Costs: Costs that Support, Enhance & Catalyze Compliance																							
Assessments to identify priority Rivers and Wetlands projects	0.25	0.41	0.41	0.41	0.36	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	5.58	0.28	DEC estimate-river corridor & wetland restoration assessments
Clean Water restoration projects (easements) - Rivers	0.30	0.38	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	9.68	0.48	water quality & flood resilience
Clean Water Restoration projects (easements) - Wetlands	0.00	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	3.61	0.18	water quality & flood resilience
Clean Water Restoration projects - Floodplains	0.28	0.50	0.50	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	13.18	0.66	water quality & flood resilience
Wetland restoration projects	0.12	0.33	0.33	0.33	0.33	0.50	0.40	0.53	0.53	0.53	0.53	0.53	0.40	0.50	0.33	0.33	0.33	0.33	0.33	0.33	7.82	0.39	water quality & flood resilience; added 0.3 fro first 2
Loggers Capital Equipment Assistance Program	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	19.00	0.95	DFPR estimate for new logger capital equipment assistance program
Subtotal	1.0	2.8	2.9	3.1	3.1	3.1	3.0	3.2	3.2	3.2	3.2	3.2	3.0	3.1	3.0	3.0	3.0	3.0	3.0	3.0	58.9	2.94	
Tier 2 Funding Sources: Funding Sources to Support Compliance																							
CWIP - Ecosystem Restoration	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.4	0.2	DEC estimate; assume 10% of avail. funds
Clean Water Fund-Implementation, Tech Assistance	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	includes 20% of partner funds for FY17
FWD License Plate Grants-Implementation, Tech Assistance	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.35	0.0	Assume 50% of available funds
USDA WRE Program	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	2.00	0.1	Assume 10% of funding of Farm Bill program
Subtotal	0.9	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6.44	0.3	
Tier 2 Gap: to Support, Enhance & Catalyze Compliance	(0.00)	(2.5)	(2.6)	(2.8)	(2.8)	(2.9)	(2.8)	(2.9)	(2.9)	(2.9)	(2.9)	(2.9)	(2.8)	(2.9)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(52.4)	(2.6)	

Summary	Projected Costs	Projected Funding	Total 20-Year Gap	Annualized Gap
Tier 1 Natural Resources: Required for TMDL, Act 64	\$83,885,000	\$32,927,000	(\$50,958,000)	(\$2,547,900)
Tier 2 Natural Resources: to Support, Enhance & Catalyze Compliance	\$58,868,000	\$6,435,000	(\$52,433,000)	(\$2,621,650)
Natural Resources: Total	\$142,753,000	\$39,362,000	(\$103,391,000)	(\$5,169,550)

Tier 1 and Tier 2 Legend
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