

Summary: Costs for Clean Water Improvements by Sector

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

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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)

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	\$616,748,077	\$282,045,000	(\$334,703,077)	(\$16,735,154)
Tier 1 Stormwater Pollution Control, Including Roads	\$694,678,108	\$124,675,000	(\$570,003,108)	(\$28,500,155)
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	\$1,395,311,185	\$439,647,000	(\$955,664,185)	(\$47,783,209)
Tier 1 Total	\$1,733,282,185	\$654,828,138	(\$1,078,454,047)	(\$53,922,702)

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)

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)

Tier 1 & Tier 2 Total	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)

Total Summary: Costs & Funding Sources	Projected 20-Year Costs	Projected 20-Yr Funds	Total 20-Year Gap	Annualized Gap
Agriculture Pollution Control	\$663,514,615	\$282,045,000	(\$381,469,615)	(\$19,073,481)
Stormwater Pollution Control, Including Roads	\$727,218,108	\$130,834,000	(\$596,384,108)	(\$29,819,205)
Natural Resources Restoration for Pollution Control	\$142,753,000	\$39,362,000	(\$103,391,000)	(\$5,169,550)
Subtotal: Agriculture, Stormwater, Natural Resources	\$1,533,485,723	\$452,241,000	(\$1,081,244,723)	(\$54,062,236)
Tier 1 & Tier 2 Total	\$2,401,855,723	\$1,046,025,703	(\$1,355,830,020)	(\$67,791,501)

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

Please note that these data are rounded for presentation purposes, and therefore, may not always total to the exact number.

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

Tier 1 and Tier 2 Legend

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Main data table with columns for fiscal years (FY18-FY37), 20-Year Total, and Annualized. Rows include Municipal Wastewater Sector, Agricultural Sector, and Stormwater/Developed Lands Sector.

Summary of Broad Categories - TMDL, Act 64, CSO table with columns: Need, Projected Funding, Total 20-Year Gap, Annualized Gap.

Abbreviations table listing terms like BMP, CSO, CWF, CWIP, CWSRF, ER, FWD, LC TMDL, NPS, PO4, REAP Zone, USDA RD, VTrans, WEP, WPC, WW and their corresponding definitions.

Sector #2: Agriculture Pollution Control

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

4	Agricultural Sector																				20-Year	Notes	
5	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY 28	FY 29	FY 30	FY 31	FY 32	FY 33	FY 34	FY 35	FY 36	FY 37	Total		
6	Tier 1 Costs: Required by TMDL, Act 64																						
7	Production Area BMP Implementation	7.00	8.00	9.00	8.00	7.00	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	5.35	119.2	e.g. silage leachate, manure pits, manure stacking sites, barnyards
8	Cropland BMP Implementation (Farm Agronomic Practices)	5.00	6.00	7.00	7.00	6.00	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	113.1	e.g. riparian buffers, cover cropping, grassed waterways
9	Livestock exclusion (includes CREP)	2.00	3.00	4.00	3.00	2.00	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	34.6	total cost is based off of livestock exclusion report
10	NMP & CNMP Development	2.00	3.00	4.00	3.00	3.00	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	45.8	assumes NMP standard changes every 5 years
11	NMP Plan Implementation (NRCS Practice Code 590)	6.00	7.00	8.00	8.50	8.50	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	8.91	171.6	assumes NMP standard changes every 5 years
12	NMP Classes for Farmers	0.30	0.30	0.30	0.30	0.30	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	6.2	Supports training courses for farmers
13	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	3.0	Support administration of training courses and provide regulatory oversight 1 FTE manage,train®ulate Tech Service Providers to assist for NMPs (incl support for non-certified SFOs interested in NMP)
14	NMP Classes for Technical Service Providers	0.10	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	1.8	100% of total costs to provide assistance, e.g., engineering, project mgmt
15	Tech. Assist.-BMPs (production area, cropland, livestock exclusion)	3.50	4.25	5.00	4.50	3.75	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	66.8	100% of total costs to provide assistance
16	Tech. Assist.-NMPs (development and implementation)	2.00	2.50	3.00	2.88	2.88	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	54.0	100% of total costs to provide assistance
17	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	0.6	Soil testing support
18	Subtotal	28.2	34.5	40.7	37.6	33.7	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	616.7	
19	Tier 1 Funding Sources: To support TMDL, Act 64																						
20	USDA 5-year grant, BMP Implementation (VT RCPP)	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	1.1	22.4	RCPP-State of VT
21	Agriculture Technical Assistance (VACD RCPP)	0.2	0.2	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	0.9	VACD for NMP
22	USDA BMP Implementation (NRCS Base Funding)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	220.0	USDA
23	AAFM Capital Funds - Agriculture Implementation	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	28.0	assumes level funding each year (FY19-FY35)
24	AAFM General Fund	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	assumes level funding each year (FY17-FY35)
25	Clean Water Fund	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	Does not include CWF operating for FY16,FY17; includes approx 10% partner funds
26	Subtotal	15.0	14.3	14.3	14.3	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	282.0	
27	Tier 1 Gap: To support TMDL, Act 64	(13.2)	(20.2)	(26.5)	(23.3)	(19.7)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(15.5)	(334.7)	
28	Tier 2 Costs: Costs that Support, Enhance & Catalyze Compliance																						
29	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	20.5	enhanced equipment to implement practices
30	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	10.1	Base information for nutrient management plans
31	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	6.0	goal is to have additional \$200,000 per year in private match
32	Farm relocation	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	assume, took middle value, based on range VAAFM provide
33	Subtotal	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	
34	Tier 2 Funding Sources: Funding Sources to Support Compliance																						
35	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	
36	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)	(46.8)	

38	Summary	Projected Costs	Projected Funding	Total 20-Year Gap	Annualized Gap
39	Tier 1 Agriculture: Required for TMDL, Act 64	\$616,748,077	\$282,045,000	(\$334,703,077)	(\$16,735,154)
40	Tier 2 Agriculture: to Support, Enhance & Catalyze Compliance	\$46,766,538	\$0	(\$46,766,538)	(\$2,338,327)
41	Agriculture: Total	\$663,514,615	\$282,045,000	(\$381,469,615)	(\$19,073,481)

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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	Notes
Stormwater/Developed Lands Sector																						
Costs & Funding Sources																						
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	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	432.1	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	161.4	Municipal Roads Implementation using DEC estimates
State (VTrans): (a) Roads & (b) Non-Road Developed Land-Implementa	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	VTrans implementation using DEC estimates
Funding Need Subtotal	13.25	38.93	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	
Tier 1 Funding Sources: To support TMDL, Act 64, CSO																						
State Municipal Mitigation-VT Better Roads-Municipal Support	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	0.4	8.8	Former Better Back Roads Grants; Assumes Level Funding
State Transportation Funds-Municipal Support	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	20.0	Assumes continuation of funds after FY19
Fed Highway Admin Transportation Alternatives-Municipal Support	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	1.1	22.0	assume Fed Highway/Transpo Alternatives will continue
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	4.8	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	62.1	
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	7.1	DEC estimate; 90% of available funds after FY18
Subtotal	6.46	5.85	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	9.0	9.0	9.0	124.7	
Tier 1 Gap: To support TMDL, Act 64, CSO	(6.79)	(33.1)	(33.0)	(33.0)	(33.0)	(33.0)	(33.0)	(33.0)	(33.0)	(33.0)	(37.4)	(37.4)	(37.4)	(37.4)	(37.4)	(37.4)	(11.9)	(11.9)	(8.8)	(8.8)	(570.0)	
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	10.0	Stormwater controls for properties below 3 acres
Municipal Capital Equipment Assistance Program	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	20.0	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	2.5	WSMD estimate to support VLCT, SeaGrant techn assistance
Subtotal	1.60	1.60	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	
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	6.2	WSMD Estimate; assumes 83% for life of RCPP match, then 10% of available funds
Subtotal	0.10	0.10	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	
Tier 2 Gap: to Support, Enhance & Catalyze Compliance	(1.50)	(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)	

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Tier 1 Stormwater: Required by TMDL, Act 64	\$694,678,108	\$124,675,000	(\$570,003,108)	(\$28,500,155)
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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 #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	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	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	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	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	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	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	
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	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	
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	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	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	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	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	
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	
Tier 1 Gap: To support TMDL, Act 64	(0.00)	(1.4)	(2.31)	(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)	
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	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	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	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	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	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	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	
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	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	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	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	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	
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)	

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
 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