



VERMONT LEGISLATIVE Joint Fiscal Office

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Issue Brief

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Funding Clean Water Initiatives in Vermont

Executive Summary

The ongoing work for Vermont in implementing Act 64 of 2015, relating to improving the quality of state waters, stands to benefit greatly from the influx of federal dollars over the next few years. This issue brief provides an overview of Vermont's clean water funding efforts and relevant metrics. It touches on the following topics:

- What is the Vermont Clean Water Initiative Program (CWIP) and how is it funded?
- In fiscal year (FY) 2022, how did Vermont allocate its clean water funding provided under the federal American Rescue Plan Act (ARPA)?
- What are some relevant questions or considerations when making future decisions regarding clean water funding?

Vermont has invested heavily over many years in cleaning up state waters – through the Vermont Clean Water Initiative Program and earlier clean water programs. Current clean water investments come from a range of state, federal, local, and private sources, and fund projects in a range of locations statewide, from farms to streetscapes to riparian areas and wetlands. The new federal dollars from the American Rescue Plan Act of 2021 and the recently enacted Infrastructure Investment and Jobs Act of 2021 (IIJA) will significantly increase the amount of money for clean water projects over the next few years.

JFO's Series of Issue Briefs on Major Investment Areas

The recent surge in federal funding to Vermont stemming from the coronavirus pandemic has facilitated significant investments in state funding priorities. During the fall of 2021, the Joint Fiscal Office will release a series of issue briefs on the priority areas identified in Section G.100 of the state fiscal year (FY) 2022 funding bill, Act 74 of 2021—investments in climate change, well-being and the economy, housing, broadband, and clean water. The General Assembly set a spending target of \$1.2 billion for the five areas over three years, although actual spending may differ. Each issue brief provides some background and context for the appropriations and lays out considerations for legislators when thinking about future appropriations in the five areas.

Background and Context

Water quality regulations often use a metric called the total maximum daily load (TMDL) which applies to damaged or impaired waters and regulates the maximum amount of different pollutants that may enter such bodies of water. Specifically, TMDLs are defined by the state as the “pollutant reductions required for an impaired waterbody to meet the State of Vermont’s water quality standards.” For example, a phosphorus TMDL would set limits on the total metric tons of phosphorus that can enter an impaired waterbody.¹

Because three of Vermont’s major receiving waters – Lake Champlain, Lake Memphremagog and the Connecticut River – are considered impaired by excessive levels of nutrients, the portions of the Vermont landscape that drain to these waterbodies (the watershed) are subject to TMDL requirements. Because some water bodies, such as Lake Champlain, border more than one state, more than one jurisdiction may have responsibility for supporting TMDL implementations.² TMDLs are reviewed and approved by the Environmental Protection Agency (EPA).

The Lake Champlain TMDL has received recent attention, partly due to the EPA’s 2011 disapproval of the TMDLs for Vermont’s segments of Lake Champlain. In 2015, Vermont passed the Clean Water Act, also known as Act 64. With existing programs amended and new programs and water quality rules established, the Act’s intent is to improve water quality in Vermont. These programs and requirements have broad applications in improving water quality throughout Vermont, and many of them were enacted statewide.³ New TMDLs for Vermont’s segments of Lake Champlain went into effect in 2016.

The Clean Water Act created a Clean Water Board (CWB) and the Clean Water Fund (CWF). The board, composed of five state agency secretaries (or their appointees) and four members of the public appointed by the Governor, oversees water quality improvement activities, and makes recommendations on annual funding with the primary goal of reducing pollution in Vermont waters. The fund finances water quality improvement in four areas: agriculture, developed lands (including stormwater improvements to roads and other impervious surfaces), wastewater and natural resources restoration. The Clean Water Fund is discussed in greater detail below.

Funding the Clean Water Initiative Program

The Clean Water Initiative Program operates with State and federal funds.⁴ Since State FY 2016, State-source funding for the Clean Water Initiative Program has come primarily from two places: the Clean Water Fund and the capital spending bill. From 2015 when the passage of Act 64 provided initial funding until now, State funding for water quality improvement has roughly doubled, driven mostly by new allocations of State revenues to the Clean Water Fund, discussed in detail in the next section. Some additional dollars have been appropriated in past years from the General Fund and Transportation Fund. During the 2021 legislative session, the recently awarded federal ARPA funds to Vermont allowed the General Assembly to dramatically increase funding for water quality improvements.

¹ Vermont Clean Water Initiative. (2020). Vermont Clean Water Initiative 2020 Performance Report.

https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2021-01-15_CleanWaterPerformanceReport_SF2020-FINA-PDF-A.pdf

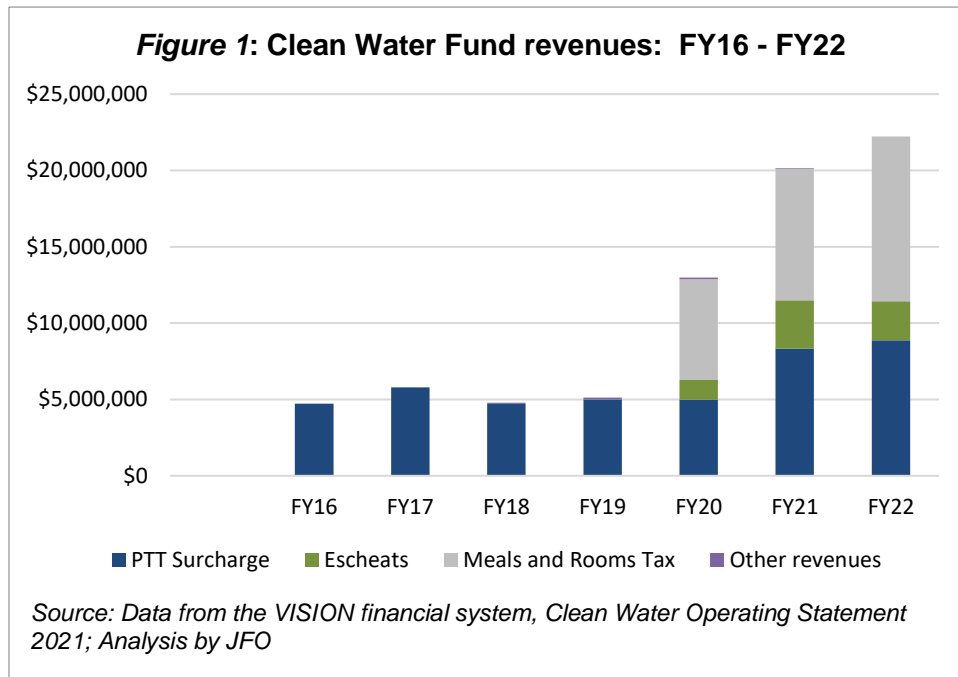
² The part of Vermont that is not included in these three TMDLs is within the Hudson River Drainage. Source: Vermont Clean Water Initiative. (2021). Vermont Clean Water Initiative 2020 Performance Report. https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2021-01-15_CleanWaterPerformanceReport_SF2020-FINA-PDF-A.pdf

³ EPA. (2021). *Lake Champlain Phosphorus TMDL: A Commitment to Clean Water*. <https://www.epa.gov/tmdl/lake-champlain-phosphorus-tmdl-commitment-clean-water>

⁴ For consistency, this section focuses on the funding of the Clean Water Initiative Program, and does not include secondary costs associated with clean water funding including staffing.

Clean Water Fund

The initial revenue source for the Clean Water Fund was an additional 0.2 percent surcharge on the value of property subject to the Vermont Property Transfer Tax (PTT,) which taxes the transfer of a property title. The first \$100,000 of value is exempt from this tax, and the exemption goes up to \$200,000 for properties financed through certain lending programs. This surcharge is currently set to sunset at the end of FY 2027 (June 30, 2027). While this tax is still in place, additional clean water funding sources have also been added in recent years. As of FY 2020, 6 percent of revenues from the Meals and Rooms Tax are dedicated to the Clean Water Fund as well as the unclaimed beverage container deposits (also known as “escheats”) remitted to the State. The following figure shows actual Clean Water Fund revenues for FY2016-FY 2021 and FY 2022⁵ projected.



Additional Clean Water Funding

In the initial years of Act 64 implementation, appropriations from the Capital Spending Bill made up a significant share of clean water spending. However, funding from the Capital Spending Bill comes with conditions, and restricts uses to infrastructure, buildings, equipment, and other expenditures that typically have a useful life of many years. Many clean water investments may not fall within this definition, as they may not be hard infrastructure, or they may have a shorter lifespan.

Keeping these constraints in mind, Capital Bill appropriations for clean water were at their highest in State FY 2018 and FY 2019, with appropriations of approximately \$22 million and \$25 million per year respectively. The significant increase in FY 2018 and FY 2019 was "bridge funding" identified by the Treasurer (using unexpended Capital Bill capacity) to be utilized while a permanent funding source was established. Following the bridge funding, appropriations have dropped to a range of \$11 million to \$14 million per year in the years since FY 2019 in accordance with original funding plans and will likely continue at these levels for the foreseeable future.⁶

⁵ The state fiscal year runs from July 1 to June 30.

⁶ Office of the State Treasurer. (2017). Clean Water Report Required by Act 64 of 2015.

https://www.vermonttreasurer.gov/sites/treasurer/files/committees-and-reports/FINAL_CleanWaterReport_2017.pdf

Since the beginning of the Clean Water Initiative Program, the General Fund and other major State funds have provided limited direct appropriations. However, 6 percent of Meals and Rooms receipts that previously went to the General Fund and Education Fund are now deposited in the Clean Water Fund, so those two funds are contributing indirectly to the clean water funding effort.

Vermont has also utilized many federal grants and loans as part of its overall clean water funding portfolio. Average federal funding to Vermont for clean water, not including ARPA, has ranged between \$65 million and \$70 million per year since federal fiscal year (FFY) 2017, with some of these funds appropriated through the State budget and some not. Typically, federal grant aid requires state or local matching dollars; often this is at a ratio of \$20 state/local for every \$80 federal, but some programs have different matching rates.

All federal funding for clean water, excluding ARPA and the Infrastructure Investment and Jobs Act (IIJA), comes from three federal agencies: the U.S. Department of Agriculture (USDA), the EPA, and the Federal Highway Administration (FHWA). Among the three agencies there are currently 17 ongoing funding streams for clean water as of FFY2021. The table below shows total annual federal clean water spending in Vermont, excluding ARPA and the infrastructure bill, from FFY 2019 to FFY 2021, as well as the top five annual federal clean water funding sources, which generally account for approximately 82 percent of total federal funding for clean water projects in Vermont.⁷

Table 1: Federal clean water spending in Vermont⁸ – Total and Top 5 programs

FFY 2019 through FFY 2021 (\$ in millions)

Federal Agency	Program	FFY19	FFY20	FFY21
US Dept. of Agriculture	Rural Development	\$25.9	\$18.4	\$20.0
US Dept. of Agriculture	Natural Resource Conservation Service	\$13.5	\$11.0	\$10.7
US Environmental Protection Agency	Clean Water State Revolving Fund	\$7.8	\$7.8	\$7.8
US Environmental Protection Agency	Lake Champlain Basin Program	\$7.0	\$7.5	\$7.1
Federal Highway Administration	TS4 Stormwater General Permit	\$4.0	\$5.0	\$5.0
Total Federal ⁹		\$70.5	\$60.5	\$60.9

FY22 Clean Water Appropriations

In Act 74 of 2021, the annual State Appropriations Bill, the General Assembly appropriated the usual mix of Clean Water Fund, Capital Bill and federal grant dollars. However, an additional \$100 million was appropriated from federal ARPA dollars towards water infrastructure over the next few years.¹⁰ This represents a dramatic increase in clean water investments from prior spending but also presents a challenge

⁷ Vermont Agency of Administration. (2021). *2021 Report on Federal Funding Related to Water Quality Improvement Efforts in Vermont. (Table 1).*

<https://dec.vermont.gov/content/2021-vermont-federal-clean-water-funding-report>

⁸ VT Agency of Administration. Sep. 17, 2021. *2021 Report on Federal Funding Related to Water Quality Improvement Efforts in Vermont. (Table 1).*

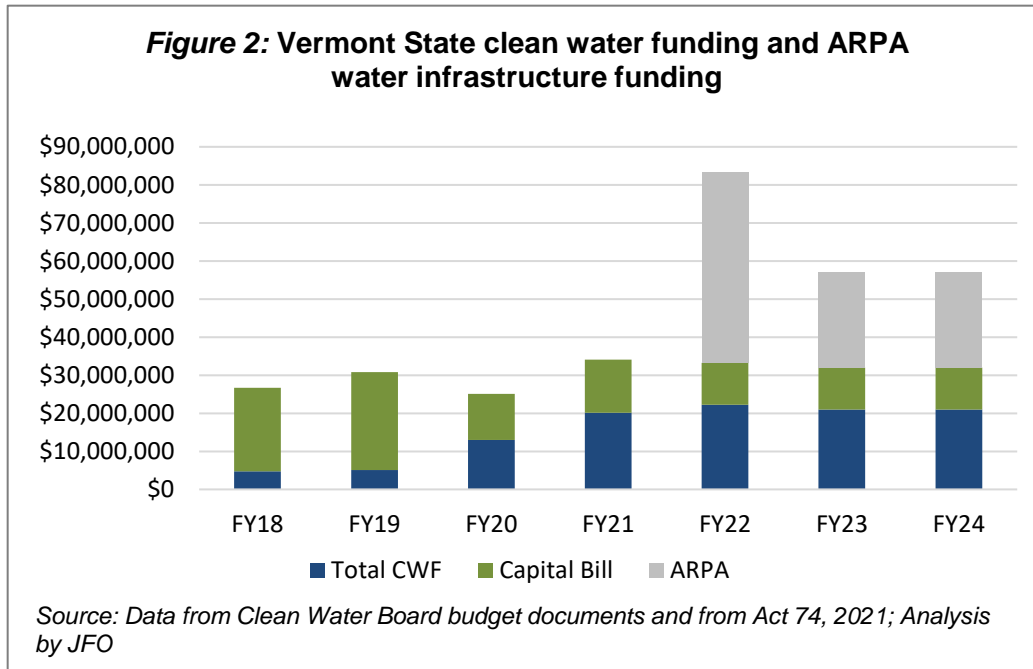
<https://dec.vermont.gov/content/2021-vermont-federal-clean-water-funding-report>

⁹ Total Federal includes other funding which is not explicitly listed in earlier rows in the table

¹⁰ Water infrastructure includes investments in drinking water systems and other infrastructure projects.

to ensure that funds are spent timely and effectively.

The following figure shows how the \$100 million in ARPA clean water dollars were allocated in Act 74 and how these dollars compare to the base, state-sourced, clean water spending in FY2022-2024. The comparison shows that when adding ARPA funding to state-sourced funds, FY2022 clean water related funding would increase by 150%; in FY23 and FY24, the increase would be 75% over the two years. These increases do not include the additional ARPA funding of \$125 million for clean water that has not yet been allocated.¹¹



In Act 74, the General Assembly states the intent to allocate \$225 million in ARPA funds for “clean water initiatives” over the next three years. \$100 million of the intended \$225 million clean water funding was allocated in Act 74 while \$125 million remains to be allocated. Of the allocated funds, the \$10 million in ARPA funds assigned to the Clean Water Board in Sec. G.700(a)(5) of Act 74 were allocated at the August 12, 2021 Board meeting. The funds were allocated to departments, agencies, projects and grants in the agriculture, stormwater, and wastewater sector.¹² Furthermore, the Board also increased the allocation of Clean Water Fund dollars in FY22 to reflect the increased July 2021 State revenue forecast. See Appendix B at the end of this Issue Brief for a table with baseline State-source clean water funding and the additional ARPA funds that were allocated in Act 74.

The specific amounts of expected funds from the recently passed IIJA are not included in the figure above. Water infrastructure makes up a funding component in the bill that will allow additional fiscal resources to flow towards Vermont’s clean water programs. Most of these monies will come to Vermont through the State revolving loan funds and will be constrained in their usage. Further, accessing these dollars will require State match that may exceed the capacity of the Capital Bill (the traditional source of match for the state revolving fund program). Currently however, specific details regarding programs and funding tied to the IIJA remain unknown.

¹¹ Breakdown of ARPA funding in FY23 and FY24 have not yet been determined. For visualization, the following graph assumes the \$50 million funding will be evenly split across FY23 and FY 24. This assumption may not accurately reflect future allocation decisions. Furthermore, the additional \$125 million that remains to be allocated is not included in the graph.

¹² Departments and agencies receiving funds to further allocate include DEC, Department of Forests, Parks, and Recreation, Agency of Transportation, Department of Housing and Community Development, ANR, and other recipients. A deeper breakdown of allocations and further details are available in Act 74 sec. G.700(a): <https://legislature.vermont.gov/Documents/2022/Docs/ACTS/ACT074/ACT074%20As%20Enacted.pdf>

Allocating Clean Water Funds

While there are often program-specific requirements associated with the spending of different federal sources that often constrain or direct funding to specific project types, certain general parameters may be considered when allocating fund to clean water initiatives. These include cost effectiveness, cost variability, and project lifespan.

Cost effectiveness: Budgets presented by the Clean Water Board are required to achieve “the greatest water quality gain for investment.” This legislative requirement leads to prioritization of spending being greatly influenced by the cost-effectiveness of investments. Cost effectiveness is a standardized metric examining amount of pollutant reduced per dollar spent, which allows for direct comparison of water quality projects. Across the clean water spending sectors¹³, cost-effectiveness greatly differs. The agriculture and natural resources sectors are generally more cost effective than expenditures on developed lands and wastewater.¹⁴

One example of the direct application of this metric to analyze clean water funding was the State Auditor’s 2019 non-audit report, which analyzed the cost-effectiveness of phosphorous pollution reduction projects within the Lake Champlain basin.¹⁵ The report questioned whether clean water funding could have been spent more effectively based on analysis of the early years of the Clean Water Initiative Program, when sources of funding and uses of funding were both limited. While the report was released soon after the passage of legislation meant to improve the Clean Water Initiative Program and address some of the issues raised in the report, it did highlight the need for the state to continue refining methods for measuring and publishing the benefits of clean water projects.

Cost variability: Cost variability describes the general range of project costs within a sector. It is generally defined as the difference between the most cost effective project and the least cost effective project in a sector. Projects within a high cost variability sector will have a broad range of cost effectiveness, whereas projects within sectors with low cost variability will be more similar in their levels of cost effectiveness. Of the four spending sectors, the agriculture sector generally has the lowest cost variability, whereas road erosion remediation practices have the greatest variability. In other words, in the Lake Champlain basin, cost effectiveness of agriculture projects ranges from \$3 to \$705 per kilogram of estimated reduced phosphorus annually, whereas road erosion projects’ estimated cost per kilogram of annual phosphorus reduction of road erosion projects ranges from \$104 to \$66,000.¹⁶ Cost variability is important in programmatic design and determining types of projects that may be well-suited to unit-cost reimbursement (i.e., set payment per acre of cover crop planted) versus efforts that need to be funded on a project-by-project basis that takes into account site-specific conditions.

Project lifespan: Cost-effectiveness metric aside, project lifespans vary, meaning the required frequency of investment to maintain pollutant reduction levels also varies across sectors and projects. When considering the allocation of one-time funds, lifespan reflects required future investments to maintain water quality gains. For instance, agriculture projects typically have a one-year lifespan, meaning that to continue pollution reduction, investment is required annually. Meanwhile stormwater treatment and other infrastructure projects typically have much longer lifespans which means annual investment needs tend to be lower and limited to operation and maintenance needs.

¹³ Recall that these are agriculture, developed lands, wastewater, and natural resources.

¹⁴ Per the 2020 Clean Water Initiative Program annual report, the average cost per kilogram of annual phosphorous reduction in the agriculture sector is \$86 while the average cost for stormwater treatment improvements (developed lands) is \$4,560. (https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2021-01-15_CleanWaterPerformanceReport_SFY2020-FINA-PDF-A.pdf)

¹⁵ Office of the Vermont State Auditor. (2019). Where’s the Money Flowing? Cost-Effectiveness of Lake Champlain Clean Water Efforts. <https://auditor.vermont.gov/sites/auditor/files/documents/SAO%20Report%20on%20Lake%20Clean-Up%207-15-19%20v.1.pdf>

¹⁶ Vermont Clean Water Initiative. (2021). Vermont Clean Water Initiative 2020 Performance Report. https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2021-01-15_CleanWaterPerformanceReport_SFY2020-FINA-PDF-A.pdf

Considerations for Legislators

Through a mixture of ARPA dollars and the expected IIJA dollars, the state is positioned to make considerable headway towards improving water quality. However, there are several important factors to consider as the General Assembly continues to provide oversight of clean water policy implementation and associated spending. These include project details, cost effectiveness, and climate change.

Allocating clean water dollars wisely

Prior to making appropriations, the General Assembly might want to consider certain questions relating to the timely use of federal funds:

- What types of clean water projects are not eligible for the new federal funding streams, and are there opportunities to direct the more flexible clean water fund dollars to these types of projects?
- How will the State match the available federal dollars in order to draw them down?
- Do local/private partners have enough matching funds (if needed), or can matching funds be identified within appropriation windows?
- How does the federal funding timeframe align with State funding decisions and allocation of clean water investments?
- Will labor force constraints affect clean water investments and, if so, how could they be addressed?

In addition to simply getting funds out the door, the effective spending of funds also plays an important role. Further considerations regarding effective spending include:

- Are there additional ways to measure effectiveness in clean water spending, and how should these metrics be prioritized?
- After federal funding windows close for ARPA and IIJA, what level of funding will Vermont need to continue to address water quality standards?
- If the State's clean water initiatives conflict with Vermont's economic and demographic goals, how will needs be prioritized?
- With future additional federal funding, how should responsibilities of future allocations be delegated?
- Statute requires an audit report by January 15, 2023.¹⁷ In subsequent years, how and when will cost-effectiveness and progress of spending be evaluated?
- If a future audit is to be performed after 2023, what considerations and metrics should it focus on?

As Vermont further invests in clean water and allocates this influx of money, additional considerations regarding social justice and equity may be considered.¹⁸

Planning around climate change

Within Vermont, climate change is expected to increase average yearly temperatures, extreme weather events, and climate variability. Climate change poses substantial risks for clean water progress, including expected increases in the prevalence of significant rainfall events leading to increased volumes of

¹⁷ 10 V.S.A. §1389b.

¹⁸ Manchester, J. and Parker, B. (2021). Climate Change and Public Policy Solutions in Vermont. JFO Issue Brief. https://jfo.vermont.gov/assets/Publications/Issue-Briefs/df76e1fc59/Climate_Change_Issue_Brief_11-30-2021_final.pdf

stormwater runoff from developed and agricultural lands and the nutrients this runoff carries which, in turn, coupled with higher temperatures contributes to harmful algal blooms in surface waters.

The scale and speed at which climate change impacts Vermont in the coming years may create headwinds for achieving clean water goals. Most planning and modeling for water quality improvements in Vermont anticipates impacts from climate change. However, climate change modeling assumptions have limitations as details remain that are not yet understood. Policymakers should consider updating water quality plans and models when further information and insight become available. Furthermore, some initiatives and actions published in the Climate Action Plan overlap with clean water goals. As such, policymakers could consider prioritizing clean water projects that also help towards initiatives in the Climate Action Plan.¹⁹

¹⁹ Vermont Climate Council. (2021). Initial Vermont Climate Action Plan. <https://climatechange.vermont.gov/sites/climatecouncilsandbox/files/2021-12/Initial%20Climate%20Action%20Plan%20-%20Final%20-%2012-1-21.pdf>

Appendix A: Additional Resources

For the General Assembly to provide effective oversight of state spending on the clean water initiative, it is critical that information on spending, programs, and policies are made easily accessible and available. Below are resources the General Assembly may use to help inform decisions on investments in clean water programs.

- Clean Water Board – Meeting agendas, minutes, and materials for the Board are located on the Department of Environmental Conservation (DEC) webpage. The Board’s own webpage is a good resource for information on its budgeting process.
Clean Water Board website:
<https://dec.vermont.gov/water-investment/cwi/board>
- Annual Reports – DEC, in collaboration with other state departments and agencies, produces annual performance reports for the Clean Water Initiative. The reports list clean water investments, and associated pollution reduction results by spending category and by watershed. They also discuss in detail the Lake Champlain basin and its progress towards meeting the federal TMDL requirements. The reports are a compilation of several statutory reporting requirements.
CWI 2020 Performance Report:
https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2021-01-15_CleanWaterPerformanceReport_SF2020-FINA-PDF-A.pdf
- Clean Water Fund Audit - The Agency of Administration is required to submit an audit report of the Clean Water Fund to the General Assembly by January 15, 2023, per 10 V.S.A. §1389b. Among other topics, the audit must analyze whether the state is making smart investments with Clean Water Fund dollars and whether those investments are having a positive effect on water quality. This audit will be an important gauge for how much progress is being made towards achieving Act 64 goals and should help inform future water quality investment decisions. The General Assembly should consider requiring another audit in the future that would analyze all clean water spending, including ARPA and other federal dollars.

Appendix B: Vermont Clean Water Funding

VT Clean Water Funding FY22-FY24 – State, ARPA, and IJJA		
<i>(\$ in millions)</i>		
<i>State Investments</i>	<i>FY22</i>	<i>FY23-24</i>
Clean Water Fund (from August 2021)	\$21.7	~\$21.0 annually
Capital Bill	\$11.0	~\$11.0 annually ²⁰
Act 74 G.700 ARPA Investments		
	<i>FY22</i>	<i>FY23-24</i>
G.700(a)(1) – Stormwater Retrofit projects	\$10.0	
G.700(a)(2) – Wastewater projects and pretreatment activities	\$10.0	
G.700(a)(3) – Eliminate wet weather sewer overflows	\$10.0	
G.700(a)(4) – Residential water and wastewater	\$5.0	
G.700(a)(5) – For allocation by Clean Water Board in FY22	\$10.0	
G.700(a)(6)(A) – For allocation by Clean Water Board in FY23 and FY24 budget process		\$20.0
G.700(a)(6)(B) – For allocation by DEC in FY23 and FY24 budget process		\$30.0
G.700(a)(7) – Landscape resilience and flood hazard mitigation	\$5.0	
State funds	\$32.7	~\$32.0 annually
ARPA investments	\$50.0	\$50.0 across 2 yrs.
State funds plus ARPA	\$82.7	~\$114.0 across 2 yrs.
IJJA	TBD	

²⁰ Investments from the Capital Bill are typically around \$11 million annually.