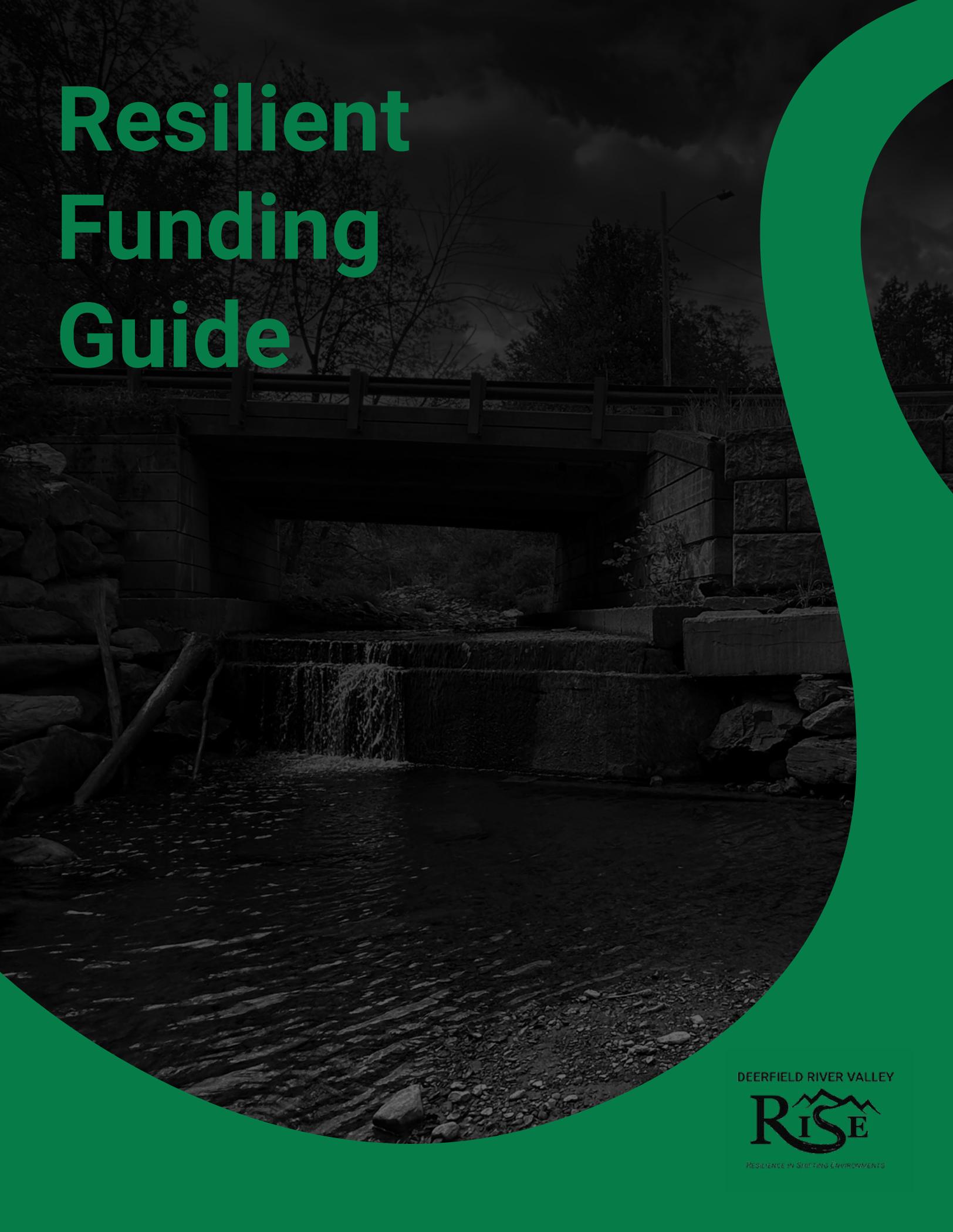


Resilient Funding Guide



DEERFIELD RIVER VALLEY



RESILIENCE IN SHIFTING ENVIRONMENTS

Acknowledgements



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WINDHAM
REGIONAL
COMMISSION

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01

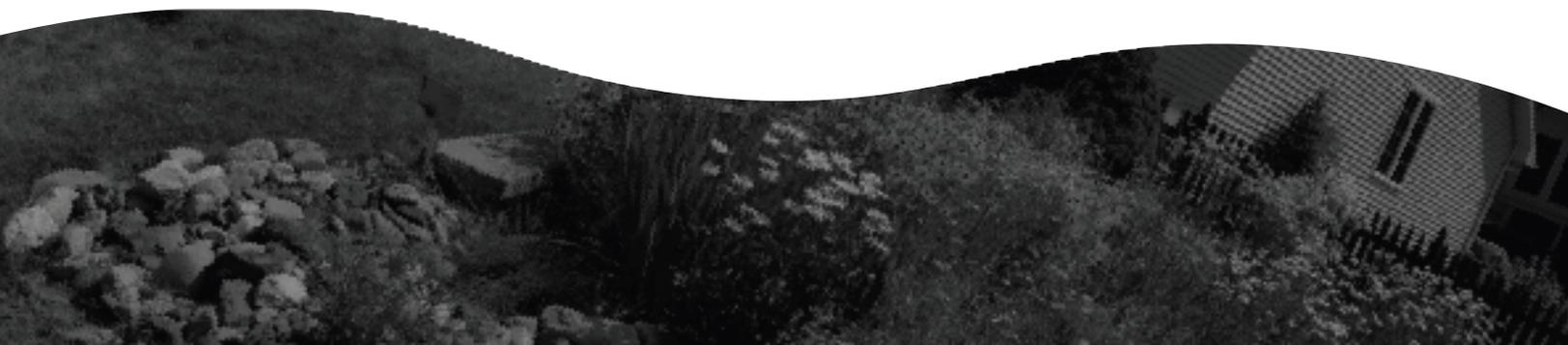
Introduction and Overview

As climate change has increased the severity of flooding events in Southern Vermont, the financial demands of recovery efforts and flood resilience projects have also grown. Since 2005, the State of Vermont has received approximately \$798 million in federal disaster funding (Tracking U.S. Federal Disaster Spending, 2025). This price tag, dedicated solely to flood mitigation and recovery, is approximately 2.5 times the amount of Vermont's current reserve fund and equivalent to giving \$1,230 to every Vermont resident today (National Association of State Budget Officers (NASBO), 2025).

In light of changing availability of federal disaster recovery funds, states are increasingly responsible for furnishing their own recovery funds. Vermont, the second smallest state in the United States by population, is particularly vulnerable to such financial impositions. The cost of the damage inflicted by the 2024 floods would have consumed a whopping 90.6% of the State's reserve fund balance in Fiscal Year 2024 (Maayah et al., 2025). If the state was solely responsible for furnishing recovery funds, the effort would have nearly exhausted their available cash reserves. Unfortunately, the small, rural communities of Southern Vermont are not excluded from this dilemma. Many of these municipalities already struggle to invest in routine infrastructural upkeep, and the near-insurmountable cost of repetitive flooding disasters has placed a focus on the need for more robust and innovative financing strategies.

This conversation is more important now than ever before due to the significant transformation of the Federal Emergency Management Association (FEMA) that is currently underway by the Trump Administration. Since entering office in January of 2025, the structure and scope of FEMA has been significantly reduced, resulting in the decimation of federal assistance dollars provided to disaster-stricken communities across the United States (Dance, 2025). Though there is a possibility that higher levels of federal disaster response funding may some day be restored, it is equally plausible that funding may never return to the level of abundance and stability that Vermont has long relied on for disaster recovery. In the face of future flood disasters, the state and municipalities of Vermont must now fend for themselves, making financial resilience a central strategy to accomplish greater flood resilience.

In light of the current funding climate, financial resilience for the municipalities and region of the Deerfield Valley should be clearly defined. In our analysis of current conditions, a resilient financial strategy encompasses the following guiding principles.



Guiding Principles

- **Drive financial independence at the municipal and regional away from a reliance on conventional outside funding sources.** Federal funding is no longer the bulwark defence against flooding as it once was, and its future remains very uncertain. Even by taking small, incremental steps, municipalities currently hold the opportunity to greatly bolster their control of future finances. As this section describes, the four towns should explore alternative and more diverse funding streams by tapping into a wide array of new funding opportunities and adopting the recommended financial management practices.
- **Establish a planning strategy focused on proactive risk mitigation rather than reactive disaster response.** Flood resilient investments have historically struggled to gather public support due to their competition with more immediate funding demands. Additionally, their most beneficial impacts are non-monetary and challenging to quantify. The monetary benefits they do produce are often realized over long periods of time, further contributing to the difficulty of garnering their support. This, combined with an over dependence on federal funding, has created a perpetually risky strategy of “react, repair, and repeat.” Building resilience involves a new form of planning that threads consideration of flooding’s impact and more holistically frames the long term benefits of flood resilient investments into decision making and public discourse (Center for Climate and Energy Solutions, 2025).
- **Build a financial strategy that complements all municipal plans, initiatives, and funding needs.** Flooding is not an acute issue facing Dover, Readsboro, Whitingham, and Wilmington, but a compounding dilemma that worsens the pre-existing vulnerabilities impacting each community. Fortunately, the solutions to these challenges hold the potential to be as compounding as the dilemmas themselves. A vibrant future for Southern Vermont is not just flood resilient, but is also affordable, scenic, environmentally sustainable, economically thriving, and more. Municipal capacity is already stretched thin, so it is essential municipalities consistently look for quick, overlapping wins.
- **Generate capacity for long term planning and large investment projects through regional collaboration and governance.** With unfilled town positions, volunteer planning boards, and limited budgets, each town faces a significantly larger challenge and a reduced return on investment by approaching the funding and financing of flood resilient projects on their own. Collaboration can reduce costs per municipality, allow for more innovative and versatile strategies, and create a more concrete list of priorities.



The following guide provides a set of critical resources and tools Dover, Readsboro, Whitingham, and Wilmington should utilize to advance the principles above. A robust strategy for any financial entity at any scale begins with diversity.

Chapter 02: State and Federal Funding provides a comprehensive inventory of current funding opportunities that the four towns should pursue.

The following chapters offer critical information and instructional knowledge of financial tools the four towns should individually and collectively explore to drive flood resilience. These tools advance the finances of the four towns in two particular ways.

First, **Chapter 03: Capital Improvement Program** offers critical instruction on how to organize and mobilize funds into long term investments in flood resilient infrastructure strategically.

Second, **Chapter 04: Bonding and Debt**, **Chapter 05: Stormwater Utility Fee**, and **Chapter 06: Flood Resilience Reserve Fund** educate on robust vehicles for generating revenue and accessing funding no matter the political environment or stability of federal assistance. All of which, when combined together, offer a comprehensive approach to ensuring strong financial health in a future with rising waters and rising costs.

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02

State and Federal Funding

Introduction and Overview

In light of the ambiguity surrounding future federal and state funding, there are still a multitude of programs that offer accessible avenues to capital for Vermont's rural communities (Derksen, 2015). These programs offer municipalities the critical financial stimulus needed to get resilience-related projects off the ground and to supplement town finances. This section has been compiled into a navigable excel sheet, linked below, and provides a clear summary of the purview and eligibility requirements for an array of applicable grants, loans, and tax-breaks. The listed programs offer funding for a broad scope of purposes and needs; from strengthening administrative capacity, implementing plans, to securing capital for mitigation measures. The following list has been curated specifically to fit the demographic, political, and economic dimensions of the four towns, with great opportunity to fulfill the funding needs of the Deerfield Valley and Southern Vermont. While some grants listed may not explicitly target flood resilience, they nonetheless assist municipalities in ensuring their infrastructure, such as roadways and culverts, are up-to-date and can maintain their intended services when needed the most.

To see an extensive list of state and federal programs, refer to our State & Federal Funding Guide excel sheet, **found by clicking the link here**. To find out more on how to navigate our guide, read the section below.

User Attribute Table

To help potential applicants navigate the State and Federal Funding Guide this section has been created to explain the array of attributes selected to differentiate programs. The following fields provide pertinent information to all funding opportunities that will help any applicant in their selection process. The following attribute table shows the array of fields that can be filtered on the State and Federal Funding excel sheet to better assist individuals in their refinement of funding sources.

CASE STUDY

Hardwick, Vermont Federal Funding

After multiple flooding events in 2023 and 2024, Hardwick announced a focused approach to flood resilience. Hardwick applied for funding from Vermont and FEMA. Hardwick used these funds to buy-out property in high risk areas, perform bank stabilization efforts, and flood-proof historic buildings, critical infrastructure, and residential homes on a voluntary basis (Fixx, 2024). Hardwick also made flood risk maps and residential guides available on their town website (Hardwick, 2025).

Type of Bond	Description
Budget	Indicates the expected Range of funding applicants can receive and the overall Budget the program is pulling from.
Eligibility Requirements	Provides a short description of the eligibility requirements applicants must meet. This field also includes any listed Match requirement or reimbursement stipulations. If programs possess a large number of eligibility requirements, the homepage of the program may be linked as Eligibility Requirements Here .
Program Focus	Provides an overview of the purpose of the program.
Agency	Shows which state or federal department is responsible for the allocation of funds.
Opportunity Status	Displays drop-down labels that indicate the status of the program. Options include: <ul style="list-style-type: none"> • Forecasted • Posted • Closed
Enrollment Period Start	Indicates the start date of an application period
Enrollment Period Deadline	Indicates the end date of an application period
Funding Instrument Type	Displays a drop-down list that describe the type of funding offered. Options include: <ul style="list-style-type: none"> • Bonds • Grants • Loans • Procurement Contracts • Tax Credit
Funding Purpose	Displays a drop-down list that summarizes a program's intended purpose. Options include: <ul style="list-style-type: none"> • Capital • Emergency • Mitigation • Recovery
Source Level	Displays what level of government is responsible for the program. Options include: <ul style="list-style-type: none"> • Local • State • Federal • Mixed (State and Federal) • Other
Applicants	Shows the intended audience of the program. Options include: <ul style="list-style-type: none"> • Municipality • Individual • Nonprofit • For Profit • Small Business • Regional Development Corporation • Other
Project(s) / Common Uses	Provides quick search terms on the program's purview and common uses of the funding.
Source	Provides a portal to the application page of a given program.

Figure 1

Conclusion

Relying solely on state and federal funding for flood mitigation and disaster recovery introduces great uncertainty into the future into the financial future of the four towns. When major flooding strikes, strong infrastructure offers an integral line of defense in ensuring residents lives are not disrupted. However, maintenance, repairs, replacements, and upgrades to infrastructure requires great financial resources. Dover, Readsboro, Whitingham, and Wilmington must implement new and creative ways to source funding. The aforementioned grant and loan initiatives give these communities a variety of funding pathways that are supplemental to mainstream channels, offering great opportunity to move the four towns towards a flood ready and flood safe future. In addition to growing outside funding, a strong financial strategy for the four towns must also include a strong internal framework for planning and managing finances, which the next section will discuss.

References

- Fixx, P. (2024). Town's 3-Pronged Approach to Flood Resilience. The Hardwick Gazette. <https://hardwickgazette.org/2024/09/24/towns-3-pronged-approach-to-flood-resiliene/>
- Hardwick. (2025). Flood Information – Hardwick, Vermont. <https://hardwickvt.gov/government/planning-zoning-floodplain/flood-information/>

03

Capital Improvement Program

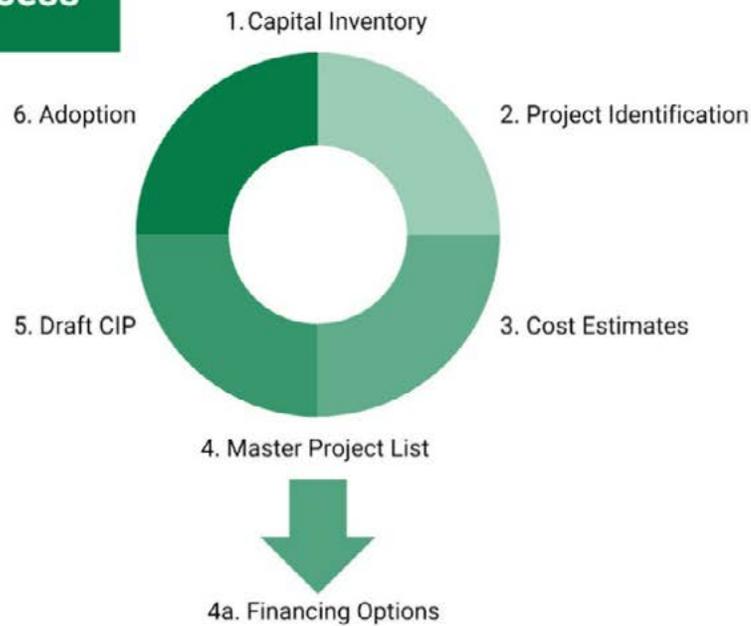
Introduction and Overview

Financial literacy and flexibility are critical to flood resiliency. The high cost of flooding and the uncertainty of state and federal funding requires comprehensive municipal financial planning. Understanding and organizing present and future costs and revenues allows municipalities to make effective choices regardless of future outcomes. A Capital Improvement Program (CIP) is one of the most effective tools for municipalities to increase financial stability and fund capital projects. A CIP is a “blueprint for planning a community’s capital expenditures. . . it coordinates community planning, financial capacity, and physical development” (Capital Improvement Planning Guide, 2016, 1). Through a CIP, you can assess revenue, inventory the conditions of assets, evaluate costs, create procedures for evaluating projects, prioritize projects, identify funding sources, and coordinate the implementation of projects through one cohesive framework (Capital Improvement Planning Guide, 2016). A CIP is beneficial for enabling flood resiliency as it allows you to understand your town’s current financial status and make informed decisions on the type and extent of the projects you undertake. Further, it allows you to find opportunities for shared services and facilities with neighboring towns to distribute their benefits and costs (Kowalski, 2025; State of MA Department of Revenue - Division of Local Services (DLS), 2016; Vermont Land Use Education & Training Collaborative, 2007).

However, CIP requires continuous investment, as towns should allocate specific funds that will serve as a source of income in the event of a flood. This fund allocation can also be used for specific improvements throughout the town or to significantly upgrade public facilities such as roads, water and sewer systems, parks, schools, public buildings, or housing developments. Additionally, according to Vermont Law 24 V.S.A § 5203 municipalities may levy impact fees on new development after adopting a CIP. Meaning a CIP provides an opportunity for additional revenue streams for mitigating the impact of new development on public utilities (Vermont Laws, 1989) By adopting and implementing a CIP, you can enable proactive repairs and replacements to lower your town’s vulnerability to flooding and appropriate funds decisively in the event of a flood event (Vermont Land Use Education & Training Collaborative, 2007).



Annual CIP Process



Kowalski, P. (2025, November 12). Capital Budget Training. <https://www.trorc.org/event/capital-budget-training/>

Figure 1

As illustrated in Figure 1, establishing a CIP requires an annual cycle of work. We recognize that this can strain municipal capacity and recommend that the towns work with Windham Regional Commission. This work can be funded through a **Municipal Planning Grant** (bolded text throughout this chapter are clickable links) through VT Department of Housing and Community Development, which are awarded annually (Kowalski, 2025).

In the short term, it is appropriate to give the towns a year or more to adopt a CIP ordinance and conduct your town's first CIP (Kowalski, 2025). A CIP may be established at timescales of five or 10 years (Kowalski, 2025). According to Vermont Law 24 V.S.A § 4440, Vermont towns may implement a CIP through its legislative body (Vermont Laws, 2013). For model language refer to the **Vermont League of Towns and Cities "Capital Improvement Program."**

Guide to a Capital Improvement Program

To assist you in navigating the process we have provided a step by step process to guide you through the planning, implementation, and evaluation processes.

① Establishing regulation and committees

a) Adopt a CIP ordinance

Enabling Law: 24 V.S.A § 4440 (*Vermont Laws*, 2013).

Model Language

b) Appoint a CIP committee

A CIP Committee is commonly made up of selectboard or planning commission members.

Example 5-Year Capital Improvement Program

Sample Capital Improvement Program Budget Schedule	
Date	Task
October	Departments complete capital budget forms and return them to manager's office.
November	Manager transmits draft capital budget to planning commission.
November	Commission begins capital budget review.
January	Public hearing on capital and operating budgets.
January	Select board completes review of capital budget.
March	Annual town meeting.
March	Vote on budget by secret ballot.

Kowalski, P. (2025, November 12). Capital Budget Training. <https://www.trorc.org/event/capital-budget-training/>

Figure 2

2 Set up a Time Table

- a) Refer to Figure 2
- b) Allow your municipality a year to complete this process

Consider applying for a **Municipal Planning Grant** through the VT Department of Housing and Community Development (annually awarded) to seek third party assistance with WRC.

3 Inventory existing capital assets

Have the Department Heads, Planning Commission, CIP Commission, or Town Manager complete the follow inventory form:

Equipment, Assets, and Facilities Inventory Template

4 Determine the Status of Previous Projects

- a) Determine if existing projects require more funds
- b) Determine if completed or discontinued projects have unspent funds available

⑤ Assess Financial Capacity

- a) Examine recent and anticipated revenue and expenditures including debt and other liabilities
- b) Determine if there are areas for shared services with nearby municipalities through mutual aid agreements

⑥ Seek, Compile, and Evaluate Project Requests

a) Evaluate projects uniformly on their ability to:

- i. Preserve or enhance town assets
- ii. Increase government efficiency and effectiveness
- iii. Provide good stewardship of public resources
- iv. Make positive or negative impact on revenue and the operating budget
- v. Other: public health and safety, education, economic growth, aesthetics/historic preservation, recreation and culture, and environmental sustainability



Model Capital Project Template

⑦ Establish Project Priority

- a) **Use a uniform rating sheet to objectively assess projects consistently**
Think about utility and criticality in your evaluation

⑧ Develop a CIP Financing Plan

- a) **Bonding**
See **Chapter 04: Bonding and Debt.**
- b) **Local Financial Resources**
See **Chapter 05: Stormwater Utility Fee**
See **Chapter 06: Flood Resilient Reserve Fund**
- c) **State and Federal Grants**
See **Chapter 02: State and Federal Funding**

⑧ Annually Present the Capital Program and Capital Budget

- a) Review and recommend new actions and needed changes to the capital budget
- b) Ask for public comment and review at an annual town meeting

⑨ Monitor Approved Projects

- a) Have the CIP Committee monitor progress of each project through periodic reports identifying targeted completion dates, issues that may have arisen, and the financial status of each project

⑩ Update the Capital Program

- a) Annually update the CIP by completing Steps 2 through 9

Refer to the resources provided in this section and coordinate with Windham Regional Commission and the other four towns to find synergy in shared service and shared projects.

Resources

The bullet points below are clickable links.

- [**Asset and Facilities Inventory Template**](#)

Vermont League of Cities and Towns

- [**Capital Improvement Plan 5-Year Summary Template**](#)
- [**Capital Project Template**](#)
- [**Model Asset Management Policy Insert**](#)

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04

Bonding and Debt

Climate resilience and flooding disasters often come with price tags that can be well beyond a municipality's capacity to financially cover upfront. Even with strong budgeting and efforts to grow a municipal reserve fund, the scale of damage from climate events can be unpredictable and can quickly exceed what a municipality can financially absorb. It is also important to acknowledge that FEMA is becoming a far less dependable source of funding for both upfront investment in flood mitigation strategies and post-disaster reimbursement (Hazard Mitigation Assistance Grants | FEMA.Gov, n.d.). Therefore, these towns must start thinking strategically about debt and alternative financing tools. To prepare for long-term financial resilience, municipalities need a clear understanding of how debt works and how it can be a reliable, responsible tool that allows communities to invest in systems that protect residents, help stabilize local economies, and reduce the long-term cost of disasters.

This is where bonding becomes essential. Bonding is a written promise to repay borrowed money on a fixed rate of interest for the life of the bond (Metropolitan Area Planning Council, 2014). It allows municipalities to spread large costs over time instead of draining general funds and creates financial capacity for municipalities to rebuild, upgrade infrastructure, and reduce future risk while keeping annual budgets manageable. While we encourage municipalities to build reserve funds, we want to emphasize that often, reserve funds alone are not enough. A resilient financial strategy engages with a diverse number of alternative funding options, one of which must be bonding, and effective approach to debt.

It is critical to start planning early when implementing a municipal capital project as they take a significant amount of time. The process of bonding may take many months or even a year as the municipality must approve the bond at an annual or special town meeting. Additionally, there are many requirements that municipalities must be careful in following throughout the bond process. If an error occurs in the process, the municipality may need to start the process over again, so in order to ensure a smooth process, municipalities should start working with a qualified local bond counsel early in the process (Bond Counsel Critical for Municipal Bond Success | Vermont League of Cities and Towns, 2023)

Bond counsel through the Vermont League of Cities and Towns as well as through the Vermont Bond Bank can guide the municipality through the bond process and provide the vital validation that the municipality is in a good place to take on debt. Advice from the bond counsel is a form of reassurance that all legal requirements have been met.

CASE STUDY

Barre, Vermont Bonding for Flood Resiliency

Barre bonded \$3.3 million and \$2.4 million to relocate the public works garage and construct flood-proofed apartments downtown (MyNBC5-WPTZ, 2025). Both of these measures passed in November of 2025, demonstrating public support for financing of flood resilient projects.

Type of Bond	Description
General Obligation Bond	Issued by states, cities, and countries
	Not backed by assets
	Backed by the full faith and credit of the borrower Power to tax residents to pay bond holder
Revenue Bond	Not backed by taxing power but instead by a specific project source (ex: highway tolls, electricity usage)

Figure 1

Vermont Bond Bank

The Vermont Bond Bank is a great resource for Vermont municipalities to look into when identifying potential loan programs. They offer several types of loan programs with the flagship being their Pooled Loan Program. Their Pooled Loan Program “has provided over \$2 billion in low-cost loans to Vermont governmental units for long-term capital projects over its 5-year history” (Pooled Loan Program | VT Bond Bank, n.d.) and are primarily funded through issuance of tax-exempt bonds.

The Municipal Climate Recovery Fund is another notable resource for funding that provides medium term loans for communities recovering from emergency weather events like flooding. It relies on partnership with the VT State Treasurer’s Office that provides the Vermont Bond Bank with a loan to then make loans to municipalities. This loan program aims to reduce borrowing costs to bridge FEMA reimbursements or cover unexpected costs. FEMA may no longer be a reliable source of funding for high cost disaster recovery, so it is very important to note that municipalities may be responsible for paying back borrowed money to the Vermont Bond Bank with no reimbursement from FEMA. That being said, the Municipal Climate Recovery Fund is still a balanced resource for municipalities to cover short term needs while protecting their long term financial health.

Other types of bonds offered by the Vermont Bond Bank are seen in Figure 2.

Vermont Bond Bank	Description
State Revolving Fund	<ul style="list-style-type: none"> Provides conventional and green infrastructure loans related to drinking and wastewater infrastructure and natural resource conservation projects Funded through the EPA with a matching contribution from the State of Vermont
Energy Efficiency and Renewable Energy Program	<ul style="list-style-type: none"> Financing for energy efficiency and renewable energy projects Eligible loans must demonstrate a minimum of 5% savings of costs spent on energy/total energy use

Figure 2

The Loan Process

“Most borrowers begin their loan process by contacting the Bond Bank early on to receive an illustrative debt service schedule that can be used for the purposes of estimating potential budget impacts. Borrowers then formally apply to the Bond Bank following engagement of local bond counsel and approval to issue the bond”

(Pooled Loan Program | VT Bond Bank, n.d.)

Borrowing through the Vermont Bond Bank is a structured process designed to help municipalities understand their financial commitments and plan for responsible long term investment.

Loan Application

Step by Step Loan Process

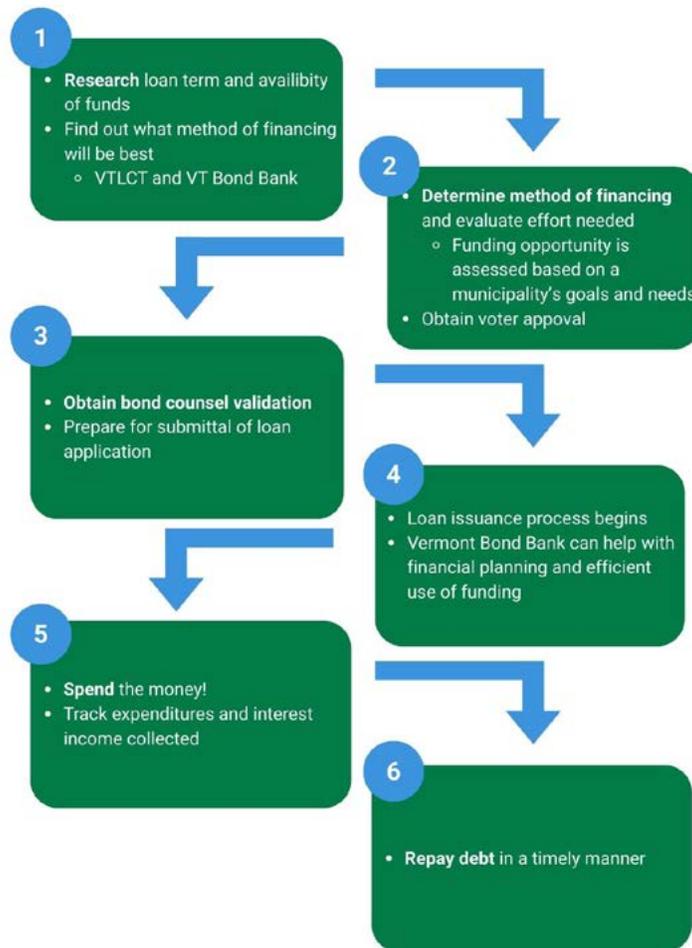


Figure 2

(Financing Capital Projects | New Hampshire Municipal Association, 2024)

(“From Application to Approval, Metro Consulting Associates”, 2025)

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05

Stormwater Utility Fee

Stormwater Utility Fees (SUFs) have emerged as one of the most critical financing mechanisms for municipalities wishing to effectively and sustainably operate stormwater management systems. Unlike general tax revenues and budgeted funds, which are often competed for by other public services, a SUF provides dedicated funds to stormwater management that are stable and predictable. Installation of a SUF, thus, disattaches the financing of stormwater management from the volatility of other funding sources and builds financial capacity that enables communities to plan long-term and act beyond meeting immediate needs. SUFs also build operational and regulatory channels for projecting the capital demands of stormwater management into a CIP, an action whose implementation must be considered simultaneously with a SUF. A CIP is not required by law to enable the adoption of a SUF, but it does provide a structured framework for turning SUF funds into meaningful investments.

The administrative requirements of implementing a SUF requires a sizable investment of time, energy, and money. Of the seven current SUFs in Vermont, all of the municipalities operate with municipal separate storm sewer systems (MS4). The operations and permit requirements of MS4 systems have heightened costs, which effectively requires the adoption of SUF to pay for these expenses. None of the four towns in the Deerfield Valley operate with an MS4. Additionally, each of the four towns are smaller in population and less resourced than these seven municipalities. To cover the expenses of implementation, we heavily recommend the four towns assemble a regional SUF to share costs and allocate revenue according to regional priorities. Still, however, the implementation of a SUF requires a determination of how fees will be structured and assessed. The following section provides an overview of common Stormwater Utility Fee rate structures.

Determining Your SUF Model

There are a small number of models for assessing storm water utility fees that have been widely implemented across New England and the United States, as shown in Figure 1 on the next page. Each of these models have proven to be very effective in equitably generating revenue for stormwater management, and should be chosen with close consideration to the specific political, financial, and environmental context of the respective municipality or region.

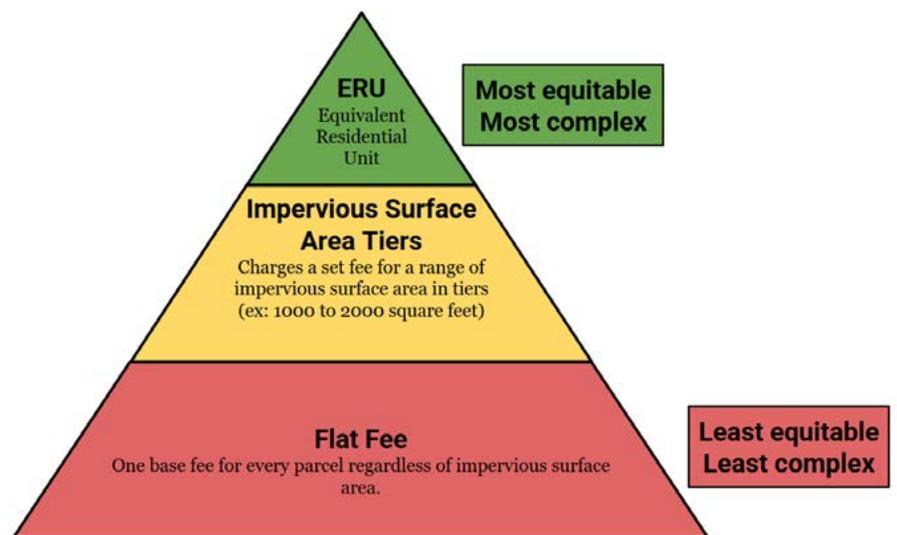


Figure 1

Flat Fee Rate

A flat fee rate structure is exactly as the name describes: each parcel owner pays the same fee no matter the parcel's size or impervious surface area (ISA). To calculate a flat fee rate, the needed revenue derived from the SUF should be divided by the total number of contributing parcels. A municipality wishing to generate \$100,000 in SUF revenue and containing 1,000 contributing parcels, the fee would be \$100 per parcel.

Pros

Flat rate fees provide a simple, streamlined process for assessing fees that minimize administrative work and the need for public education. Flat fees have been used in the past to get SUF programs off the ground by generating revenue to pay for a feasibility study and eventual adoption of a more complex and equitable fee structure. Flat fees have also been used in tandem with other fee systems. For example, the City of Newton, Massachusetts charged a base flat fee for all parcels in tandem with an additional fee determined by ISA (City of Newton, MA, n.d.).

Cons

There is no equitable or fair means of charging a flat rate SUF. It does not provide any mechanism for charging fee amounts in proportion to the amount of storm water created by lots of differing sizes and ISA.

$$\text{Flat SUF rate} = \frac{\text{Needed SUF Revenue}}{\text{Number of Contributing Parcels}}$$

Impervious Surface Area Tiers

Impervious Surface Area tiers are a very common structure for SUFs. In this model, impervious surface area is categorized into ranges and each parcel is charged according to the range they fall into.

Number of Billing Units	Square Feet of ISA	Annual Fee
0	0-199	\$0.00
1	200-1499	\$33.00
2	1500 - 2499	\$66.00
3	2500 - 2499	\$99.00
One additional building unit for each additional 1000 square feet increment of impervious area greater than 3499 square feet		

Figure 2

Pros

The ISA tier structure is the simplest means of instituting equity into SUF assessment. It is generally straightforward and easily understood by the public, and directly incentivizes stormwater-mitigation efforts by parcel owners. ISA tiering can also be very easily paired with other fee frameworks, such as the Equivalent Residential Unit (ERU) method below. The Town of Millis, Massachusetts’s SUF is structured around a very simple, but effective tiering model, as shown in Figure 2 below (Town of Millis, MA, n.d.).

Cons

ISA Tier-based SUFs have been noted for creating unfair fee assessments. If done in an unfair or ill-though manner, a tiered fee structure can result in the over charging of smaller properties and the undercharging of larger properties (Looney, 2022).

$$\begin{aligned}
 &\text{Tiered SUF rate} \\
 &= \\
 &(\text{Impervious Area Minumum} \leq x \leq \text{Impervious Area Maximum}) \\
 &= \\
 &\text{Base Rate x Base Rate Multiplier}
 \end{aligned}$$

Equivalent Residential Units per Parcel

The Equivalent Residential Unit (ERU) method is by far the most common fee structure, representing 62 percent of existing SUFs across the United States as of 2021 (Bonsack, 2021). An Equivalent Residential Unit is a calculation of the average area of impervious surface coverage across all single family residential parcels in the SUF area. Used to represent the average rate, a certain fee is assessed per ERU and parcels are billed proportionate to their number of ERUs, as shown in Figure 3 (Looney, 2022). To calculate an ERU, two methods are frequently used:

1. A sample of single family residential parcels are measured for their impervious surface area and their average is calculated.
2. LIDAR mapping is used to estimate the total amount of impervious surface area across residential properties and then divided by the number of residential parcels.

Pros

ERU rate structures create a much simpler and effective message: “You pave, you pay.” They are significantly more equitable than a flat fee structure, and can more easily account for different rates towards varying land uses (e.g. commercial, multi-family residential, etc.). Among proportional rate structures, ERU involves the least administrative burden once the ERU is determined.

Cons

Calculating the ERU does require GIS expertise that may be beyond the capacity of individual towns to conduct. The ERU fee structure also requires very well maintained parcel data and frequent administrative adjustments.

The Equivalent Residential Unit is 2,500 sq ft of Impervious Surface Area					
Parcel	ISA	ERU	Numer of ERU's	ERU Rate	Annual SUF
1	2500	2500 square feet	1	\$25.00 per ERU	\$25.00
2	5000		2		\$50.00
3	7500		3		\$75.00
4	10,000		4		\$100.00

Figure 3

Other Fee Structures to Consider

There are a number of other structures to assess SUF rates, but the three provided are the most common and simplest to implement and oversee. The Residential Equivalence Factor (REF) structure uses topology, hydrology, and land cover data to model the amount of stormwater runoff from each parcel and assesses a fee based on this “runoff ratio” and the size of the parcel (Ecopia AI, 2024). Many municipalities have also pursued a combination of the listed rate structures. For example, the City of Westford, MA calculates a SUF using a combination of ERU and ISA tiering (Town of Westford, MA, 2025).

Once a SUF is established, what is important to remember is that the chosen rate structure is not permanent. The procedure for changing SUF rate structures should be delineated in the Stormwater Utility Fee ordinance, including details such as voting requirements and timeline.

References

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06

Flood Resilience Reserve Fund

As the impacts of flooding events grow costlier and the instability of federal disaster assistance becomes increasingly unstable, every dollar available for flood mitigation projects and disaster response becomes more and more critical. However, planning for flood resilience requires questioning not just of how much, but from where and when funds can be mobilized. Simply put, flexibility and stability of finances is one of the most critical assets in combatting the uncertainty of future flooding threats. Establishing a municipal reserve fund, also known as a stabilization fund or “rainy day” fund, offers a quick and practical step for Dover, Readsboro, Whitingham, and Wilmington to each hold more agency over their future finances.

Overview and Legal Basis

A reserve fund is an amount of money set aside on an annual basis to fund unexpected expenses or make up for changes in revenue that can not be supported by general fund appropriations. When planned well, a reserve fund can be used to even out unexpected changes in municipal revenue, finance emergencies like flooding disasters, invest in infrastructural projects, and even provide an additional revenue source to annual budget (Division of Local Services, 2022).

Municipalities hold the authority to organize and establish a reserve fund under V.S.A. 24 §2804 (State of Vermont, 2014). A reserve fund may only be created via a majority vote of the municipality’s legislative board. Once established, expenditure of a reserve fund’s balance does not require further voter approval. Reserve funds must be established with an explicitly stated purpose, and may only be routinely expended to advance the purpose for which it was created. However, multiple updates and exceptions to this purpose stipulation should be noted:

- Vermont municipalities hold the authority to establish a general purpose reserve fund. The balance of a general reserve fund may be expended for a wider array of purposes, which offers more flexibility than a specifically-purposed reserve fund.
- If a municipality wishes to spend a reserve fund’s balance for a purpose not aligned with the fund’s original intent, they may still do so via a majority vote of their legislative board.
- Act 57 §6, recently adopted in June of 2025, amends V.S.A. 24 §2804 to allow municipal legislative bodies to reassign unexpended budgetary funds as “unassigned fund balances” at the end of each fiscal year (State of Vermont, 2025) . These unassigned fund balances functionally act as reserve funds that municipalities have the discretion to spend for any purpose. Act 57 was explicitly adopted for the purpose of generating financial flexibility for improving emergency management capacity.

Thus, reserve funds provide municipalities two major benefits. First, once established by majority vote, it provides a flexible framework to disburse funds for a specified, approved purpose without further voter approval. Second, unlike a normal annual operating budget, under Vermont budgeting laws municipalities can roll over funding from year to year without having to reallocate (Vermont League of Cities and Towns, 2025). These funds may also be invested, offering opportunity for passive fund development over time. Beyond the opportunity to operate with more financial independence, reserve funds also provide a practical means of generating local funds for leveraging outside investment. As the case studies below highlight, many state and federal cost-sharing investment programs require a local contribution, and reserve funds have often been used as the source for enabling significant amounts of outside investment (Dykema et al., 2022). Thus, when implemented strategically, reserve funds offer a powerful vehicle for generating tremendous financial capacity on the municipal level.

Local Examples of Reserve Fund Best Practices

Bristol, Vermont

The Town of Bristol utilized its Conservation Reserve Fund to invest approximately \$16,000 to support projects relating to land acquisition, streambank stabilization, and riparian buffer plantings. This investment attracted over \$173,600 in outside investment, meaning every \$1 in local contributions sourced from the reserve fund generated over \$11 in outside investment (Town of Bristol, 2020).

Richmond, Vermont

When voters in the Town of Richmond created a conservation fund in 2005, they approved a measure to support the fund through a \$.01 increase in the property tax rate (\$100,000 property valuation would generate \$10 per year). Richmond administrators have championed the 1 cent tax assessment rule, claiming it has generated over five times the amount the town has alternatively raised for similar conservation projects. Every dollar contributed to the conservation fund from Richmond locals has generated \$4.18 in funding from other sources, totaling \$1.5 million in all. The funds contributed by the conservation fund have spurred numerous projects, including preserving historic buildings, protecting recreational assets, and maintaining working farms (Town of Richmond, 2022).

Newbury, Vermont

In 2017, voters approved to mobilize \$25,000 from the municipality's conservation reserve fund to buy 636 acres of scenic land. This minor investment led to over \$100,000 in investment from private investors in the Newbury area. Without the funds on hand through the conservation fund, many residents

Bristol, VT. Source: Town of Bristol, VT.



believe the town would have otherwise not been able to act fast enough to secure the deal (Town of Cornwall, 2024). Conversely, the Town of Shrewsbury, acting without a reserve fund, required 12 years of time— accompanied by many road blocks— to find and secure the funding to acquire a 526 acre parcel (Town of Cornwall, 2024).

Steps to Establishing a Fund

Define the Purpose and Scope of the Reserve Fund

Some common examples of the purpose reserve funds service includes emergency stabilization, capital investments, disaster response, or targeted priorities like flood mitigation or broadband development. This establishes clear parameters around the fund’s allowable uses as well as the conditions under which the fund can be repurposed.



Draft a Reserve Fund Policy

The reserve fund policy is the formal proposal to which the reserve fund is established. Some parameters of the reserve fund that should be clearly defined in the policy include targeted balance of the fund, withdrawal rules, replenishment plans, investment strategy, and reporting practices.

Prepare for a Town Meeting and Draft Warrant Language

The warrant article should clearly define the major principles for organizing the reserve fund, including statutory authority, initial appropriation, and purpose of the fund. Your local selectboard and attorney should be consulted for advice in drafting warrant language.

Secure Voter Approval

A simple majority vote by the local selectboard establishes the reserve fund and authorizes the initial deposit. The town meeting at which the reserve fund is voted on presents a prime opportunity for engagement and education about the reserve fund with the public. Consider developing education materials and informational references.

Set Up the Fund and Determine its Controls

Per Vermont rules, reserve funds must be separated into a distinct account from other public funds. Internal procedures should also be outlined for how deposits, withdrawals, and public reporting will be conducted.

Fund the Reserve

Small annual appropriations, local option taxes, dedicated fees, one-time revenues, or unassigned fund balances are all very common forms of funding a reserve fund. There is no limit on the procedural pathways for funding the account so long as it is sufficiently reported.

Adopt Withdrawal and Replenishment Rules

Many municipalities have distinct procedures to determine when withdrawing funds is appropriate and for how much. Large or repurposed uses are commonly required to be approved by a majority vote of the legislative body. If a withdrawal is made, a clear plan should first be put into place regarding how the balance of the fund will be replenished.

Report and Annual Review

Public balances, deposits, withdrawals, investment earnings in the annual Town report. Make adjustments to the reserve fund strategy according to the performance of its balance and operation procedures.

Additional Considerations

- Determine the balance of a municipal reserve fund that fits your municipality's financial context. A range between 5% to 15% of the annual operating budget is recommended. A higher percentage, such as 15% or even 20%, is recommended for reserve funds serving larger, more robust stabilization purposes or for towns facing potentially high expenses, such as flood disaster recovery (Romanoff, n.d.).
- Assess your town's budget to find opportunities to save on expenditures. A reserve fund requires strong fiscal policy and disciplined use of financial resources.
- Take an incremental approach to generate a reserve fund that matches the fiscal capacity of your town.

Important Resources

The below bullet points are clickable links.

- [V.S.A. 24 §2804 Reserve Funds](#)
- [Town of Pomfret, Vermont Rainy Day Reserves Fund Policy](#)
- [Vermont League of Cities and Towns: Legal Parameters of Municipal Budgeting, Spending, and Borrowing](#)

07

Recommendations

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Capital Improvement Program	Resilient Funding Guide				High	\$\$\$
Flood Reserve Fund	Resilient Funding Guide				High	\$\$\$
Stormwater Utility Fee	Resilient Funding Guide				Mid	\$\$

Figure 3

Prioritization

Financial resilience is a critical aspect of our recommendations. These three deliverable components are effective across all scenarios, but we recognize they come with higher implementation costs. The long term benefits of a Capital Improvement Program (CIP) and Stormwater Utility Fee particularly outweigh the up front costs.

Key Takeaways

- Identify opportunities for shared services and mutual aid agreements during the CIP process.
- Implement and administer a Stormwater Utility Fee regionally for increased effectiveness.
- Pair a CIP with complementary actions like Strategic Conservation, a Stormwater Utility Fee, and a Flood Reserve Fund.

Thank you for reading!

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deliverables, visit our website:

 deerfieldvalleyrise.com



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RESILIENCE IN BRITISH COLUMBIA