

What is a Tactical Basin Plan?

A Tactical Basin Plan (TBP) is a strategic guidebook produced by the Vermont Agency of Natural Resources (ANR) to “protect the best and restore the rest” of Vermont’s surface waters. TBPs target strategies and prioritization of resources to those actions that will have the greatest influence on surface water protection or restoration.



Figure 2. The five major policy requirements that feed into the tactical basin planning

10 V.S.A. § 1253.

Tactical basin planning is carried out by the Water Investment Division (WID) in collaboration with the Watershed Management Division (WSMD) and in coordination with other state agencies and watershed partners. TBPs are integral to meeting a broad array of both state and federal requirements (see Figure 2) including the U.S Environmental Protection Agency’s (EPA) 9-element framework for watershed plans (Environmental Protection Agency, 2008) and state statutory obligations including those of the Vermont Clean Water Act, and Act 76 of 2019 and

The basin-specific water quality goals, objectives, strategies, and projects described in the TBPs aim to protect public health and safety and ensure public use and enjoyment of Vermont waters and their ecological health as set forward in the [Vermont Surface Water Management Strategy](#) (VSWMS) and the [Vermont Water Quality Standards](#) (VWQS). The TBP process (Figure 3) allows for the issuance of plans for Vermont’s fifteen basins every five years.

The steps in the basin planning process are:

1. Monitor water quality.
2. Assess and analyze water quality data.
3. Identify strategies and projects to protect and restore waters identified through the monitoring and assessment process.
4. Gather and incorporate public input on the plan and finalize the plan.
5. Implement and track plan priorities as they are accomplished.



Figure 3. Steps to the basin planning process on a 5-year schedule.

Chapters 1 through 4 in the TBP describe water quality in the basin, protection and restoration priorities, and efforts to protect and restore water quality for each sector. This information supports the targeted strategies listed in the implementation table in Chapter 5 as outlined in Figure 4.

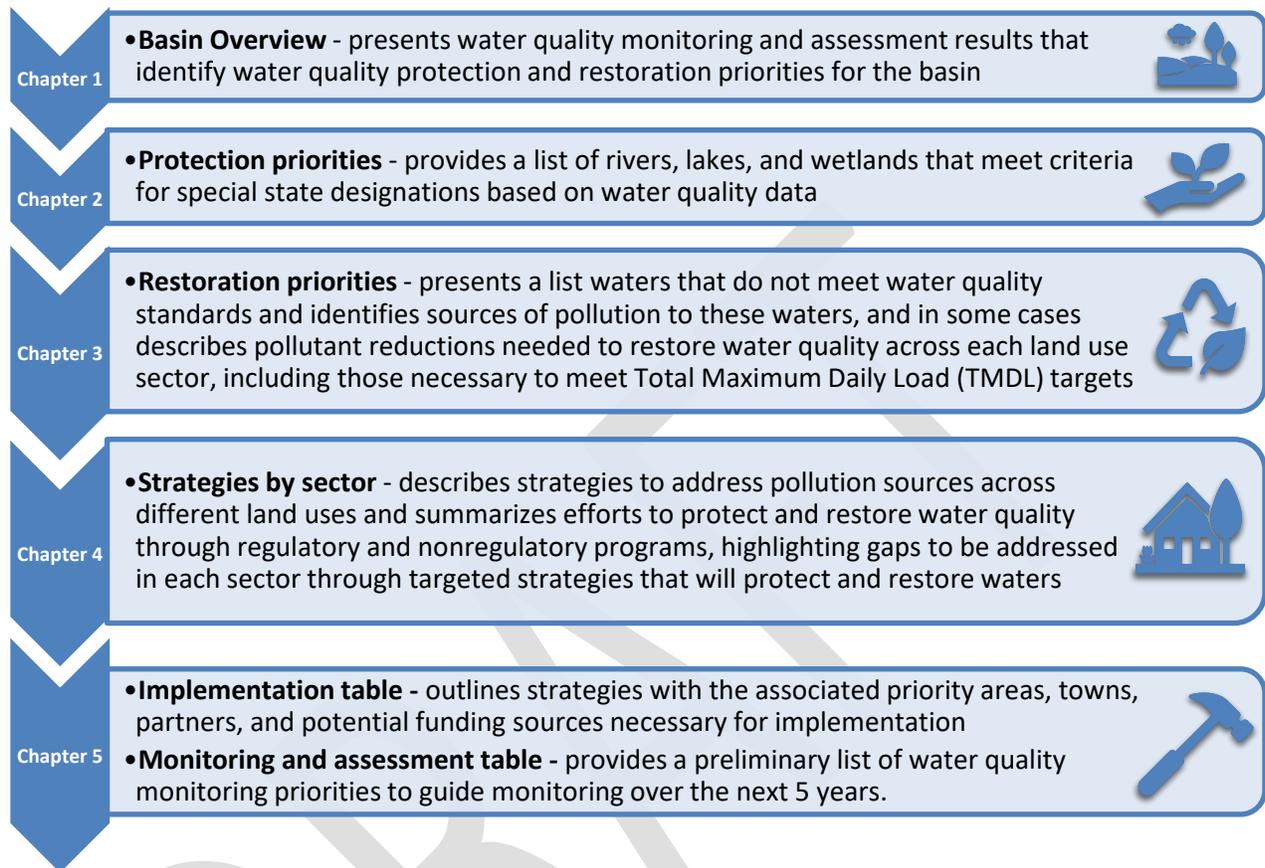


Figure 4. Key roles of the five chapters in Vermont Tactical Basin Plans.

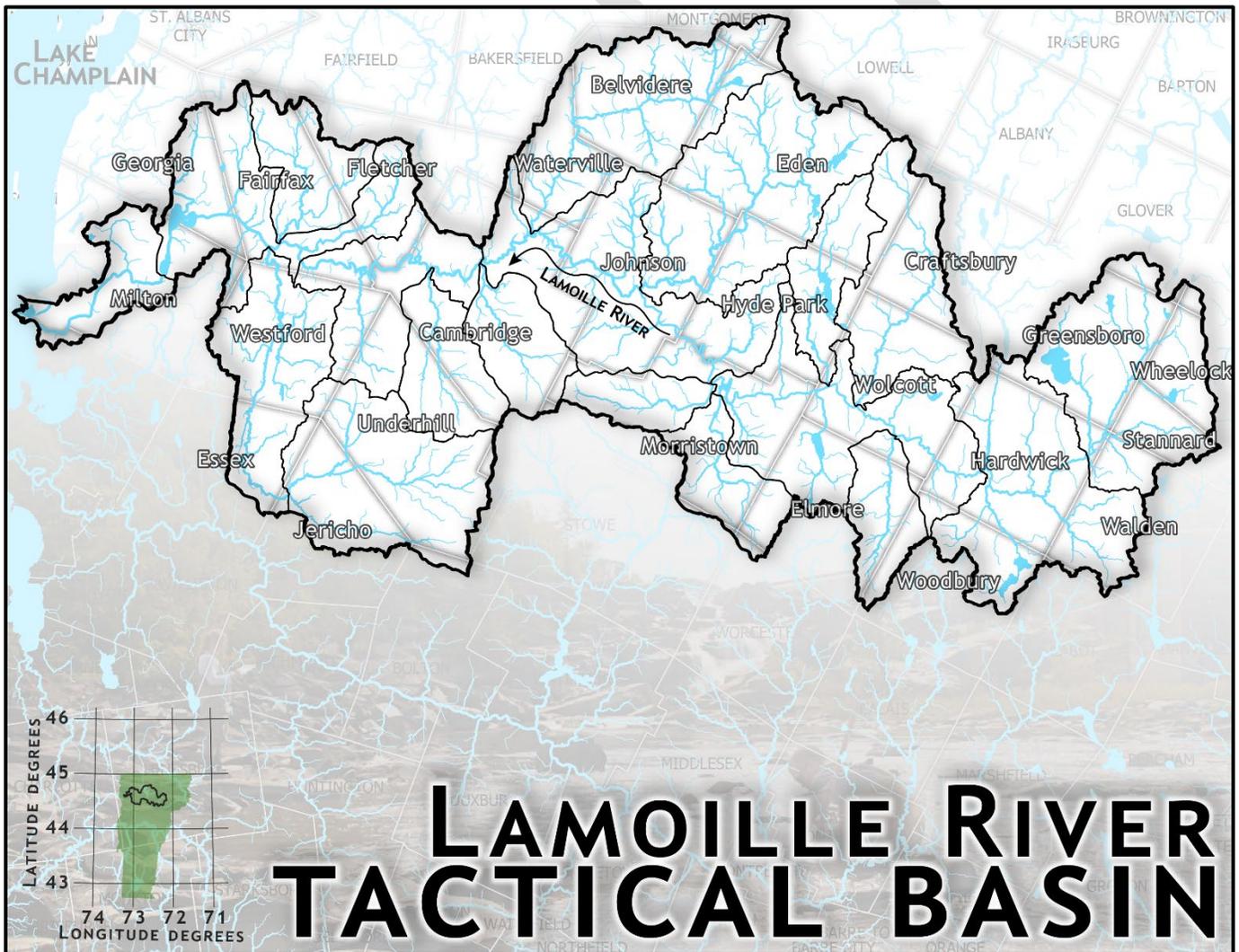
The 2021 Lamoille River Tactical Basin Plan identifies strategies that will help ANR, and its partners, prioritize activities for the next five years. These strategies inform individual projects that are identified and tracked in the [Watershed Projects Database](#) (WPD) and the [Watershed Projects Explorer](#). The project database and explorer are found on ANR’s Clean Water Portal and are continuously updated to capture project information throughout the TBP process.

[ANR’s Clean Water Portal](#) is an online platform that houses a variety of clean water tools to assist with project planning, project identification, and funding opportunities. The Clean Water Portal links to the Vermont Clean Water Initiative Program’s (CWIP) Annual Performance Report. The report outlines progress in implementing clean water practices for each basin. The [Clean Water Interactive Dashboard](#) is a data visualization tool that allows users to filter and customize Vermont’s clean water data presented in the CWIP Annual Performance Report.

Lamoille River Basin Towns

Bakersfield*	Essex	Johnson	Walden
Belvidere	Fairfax	Lowell*	Waterville
Bolton*	Fletcher	Milton	Westford
Cabot*	Georgia	Montgomery*	Wheelock
Cambridge	Glover*	Morristown	Wolcott
Colchester*	Greensboro	Sheffield*	Woodbury
Craftsbury	Hardwick	Stannard	Worcester*
Eden	Hyde Park	Stowe*	
Elmore	Jericho	Underhill	

**Only a very small area of the town is in the watershed and is covered in more detail in corresponding basin plans.*



Executive Summary

Basin 7, the Lamoille River Watershed, covers approximately 706 square miles, and accounts for 7.5 percent of Vermont's land area. The mainstem of the Lamoille River flows 85 miles from Wheelock to Milton and drops approximately 1,200 feet in elevation. The basin occupies a major part of Lamoille County and lesser parts of Franklin, Chittenden, Orleans, Washington, and Caledonia counties. The entire watershed includes thirty-five towns and is roughly 76% forest, 13% agriculture, 6% surface waters and wetlands, and 5% developed area including roads. The Basin 7 Tactical Basin Plan (TBP) provides a detailed description of current watershed conditions and identifies water quality focused strategies to protect and restore the basin's surface waters.

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Information from monitoring events over the last five years have been incorporated in Chapters 1, 2, and 3, which cover the condition of surface waters, protection priorities, and restoration priorities, respectively. Generally, the surface waters monitored in Basin 7 meet or exceed water quality standards.

In Chapter 2, a total of nine river segments, lakes, ponds, and wetlands are priorities for protection. Of the nine waters, six river segments are reclassification candidates for fishing (5) and aquatic biota (1) and three lakes and ponds are reclassification candidates for aesthetics. No wetlands are identified as Class I candidates but six are recommended as potential candidates in Chapter 4.

Although many surface waters monitored in Basin 7 meet or exceed water quality standards, there are waters in need of restoration and continued monitoring. In Chapter 3, a total of 39 lakes, ponds, or river segments are identified for restoration. Nine river segments and three lakes are considered impaired, fourteen are considered stressed, two are impacted by aquatic exotic species, and eleven are considered altered by flow regime. Chapter 3 also includes progress reporting and target setting (or Phase 3 content) for the Lake Champlain Phosphorus Total Maximum Daily Load (TMDL) Implementation Plan. Only the Lamoille River watershed contribution to the Mallet's Bay segment of Lake Champlain is addressed.

Chapters 4 and 5 outline sector-based strategies to meet overall protection and restoration goals, as well as strategies to achieve targets of the Lake Champlain Phosphorus TMDL, with a focus on voluntary actions to be carried out by watershed partners and the Basin's Clean Water Service Provider. This chapter includes a list of 63 geographically explicit strategies and 65 monitoring priorities for the next five years. Monitoring priorities have been identified to fill data gaps, track changes in water quality condition, and identify waters for reclassification and Class I designation.

Focus areas and strategies for restoration and protection are summarized by land use sector in Table 1.

Table 1. Basinwide priority strategies and focus areas for restoration and protection in Basin 7.

	Focus Areas	Priority Strategies
Agriculture	Deer Brook, Stones Brook, Streeter Brook, Mill Brook, Browns River, Lower and Middle Lamoille River, Centerville Brook, Wild Branch, Beaver Meadow Brook, Perkins Meadow Brook, Porter Brook	<ul style="list-style-type: none"> • Form agricultural sector workgroups for priority watersheds. • Identify areas of nutrient input through AAFM inspections and landowner outreach. • Implement Nutrient Management Plans and agricultural water quality practices in high priority catchments. • Provide education and assistance to agricultural communities in priority watersheds. • Support monitoring efforts to track results of practices applied in priority watersheds. • Continue funding programs to support water quality practices in high priority watersheds.
Developed Lands - Stormwater	Lamoille mainstem, Lamoille River Tributary #4, Deer Brook, three-acre sites, Streeter Brook, Lake Elmore, Lake Eden, Lower Gihon River, Centerville Brook, Greensboro Brook, Browns River, Brewster River	<ul style="list-style-type: none"> • Provide technical and funding support to develop high priority projects from stormwater master plans (SWMPs) and Phosphorus Control Plans. • Provide information to municipalities on DEC standards and training opportunities for operations and maintenance of installed stormwater Best Management Practices (BMPs). • Encourage participation in the Green Schools Block Grant and support three-acre schools with funding and technical assistance for project development, implementation, and design. • Provide outreach to towns on and promote the adoption of Green Stormwater concepts. • Implement projects addressing vulnerabilities from flooding, severe rainstorms, and fluvial erosion from county and municipal All-Hazards Mitigation Plans.
Developed Lands -	Caspian Lake, Streeter Brook, Deer Brook, Lake Eden, Lake Elmore, Stannard Brook, Kate Brook	<ul style="list-style-type: none"> • Provide support for towns and contractors to attend Road Roundtable Forums. • Implement high priority road projects identified in Municipal Road General Permit (MRGP) road erosion inventories, lake watershed action plans, and SWMPs. • Support outreach and funding for MRGP equipment for towns. • Support training, outreach, and funding for equipment sharing programs.
Waste-water	Lamoille Mainstem	<ul style="list-style-type: none"> • Provide technical assistance and funding to towns interested in exploring and implementing village wastewater systems and septic replacement. • Support and ensure monitoring and permit compliance for waste management systems.
Rivers	Wild Branch, Deer Brook, North Branch Lamoille, Browns River, Seymour River, Centerville Brook, Stones Brook, Stannard Brook, Brewster River, Gihon River, Lamoille River	<ul style="list-style-type: none"> • Provide technical assistance to help towns implement stronger protections for surface water in their town plans and municipal regulations. • Work with towns to increase their Emergency Relief Assistance Funds (ERAF) rating. • Develop projects identified in the River Corridor Plans and by the Functioning Floodplain Initiative tool. • Scope, design, and implement high priority bridge and culvert replacements to improve aquatic organism passage, stream geomorphic compatibility, and flood resilience.
Lakes	Caspian Lake, Lake Eden, Lake Elmore, Round Pond, East Long Pond, Nichols Pond	<ul style="list-style-type: none"> • Develop lake watershed action plans and implement priority projects. • Maintain and build the capacity for existing aquatic invasive species programs. • Initiate stakeholder meetings to discuss fair to poor shoreland condition in target waters. • Where applicable, increase protections for high-quality lakes through reclassification.
Wetlands	Potential Class I wetlands, Browns River watershed, wetlands identified for restoration in assessments	<ul style="list-style-type: none"> • Provide outreach and technical assistance for Class I wetland assessment, stakeholder discussions, and petition development where there is interest. • Increase wetland acreage and function through restoration of wetlands. • Provide support to the Wetlands Program by publicizing volunteer wetland mapping workshops and training for the public.
Forests	Browns River, Lamoille River tributaries, Lake Eden, State Lands, North Branch Lamoille	<ul style="list-style-type: none"> • Develop forestland focused workgroups in priority watersheds to carry out strategies in the 2021 Lamoille TBP. • Implement forestry Acceptable Management Practices (AMPs) and natural resource restoration and conservation projects on state and private lands. • Maintain and increase UVA enrolled forestland among eligible parcels by providing outreach and technical assistance to private landowners, foresters, and loggers to equip them with tools to apply, enroll and manage forestland in accordance with program standards, including implementation of AMPs.

The 2016 Basin 7 plan identified 88 strategies to address protection and restoration of surface waters. Of the 88 strategies identified, 27 are complete, 21 are in progress, 17 are ongoing, 13 are awaiting action, and 10 have been discontinued (Figure 1). Eighty-five percent (65) of the priority strategies identified in the 2016 TBP are ongoing (19%), in progress (24%), complete (31%), or discontinued (11%)¹. Of the 21 priorities “in progress”, five are 75% complete, seven are 50% complete, and nine are 25% complete. The Basin 7 report card, to be included in the [Vermont Clean Water Initiative 2021 Performance Report](#), will include a list of detailed updates for each strategy identified in the 2016 Plan. Several strategies will be carried over to this plan.

STATUS OF 2016 LAMOILLE TBP STRATEGIES

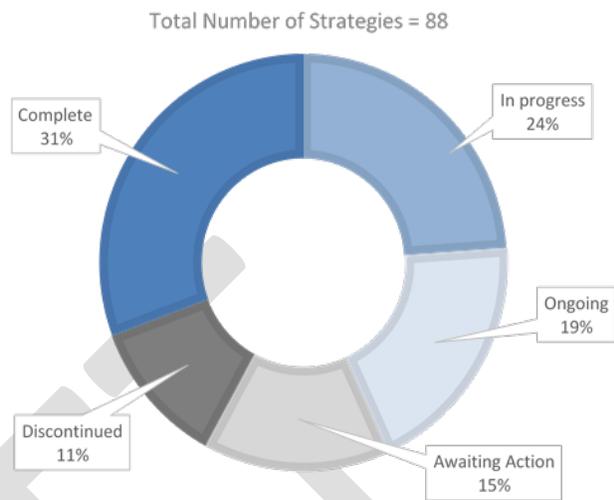


Figure 1. Status of 88 strategies from the 2016 Lamoille TBP.

While many water quality improvements are being made in Basin 7, limited staff capacity of partners, funding gaps, and lack-of-interest are primary challenges to voluntary implementation for the strategies awaiting action. In terms of the Lake Champlain Phosphorus TMDL, many programs are still in the beginning stages of implementation and tracking. New and expanded collaboration through the Clean Water Service Providers and state regulatory programs will continue to fill gaps through future iterations of the phased implementation plans. Implementing regulatory programs and continued tracking improvements are also foremost in achieving TMDL goals. In fiscal year (FY) 2022, which started July 1, 2021, the State of Vermont allocated \$100 million in American Rescue Plan Act (ARPA) funds for clean water. This includes money to invest in water and sewer infrastructure to help address funding gaps and water quality needs.

The 63 priority strategies identified in this plan reflect input from the public, state and federal water quality staff, sector-based workgroups, watershed groups, and regional planning commissions. They also serve as a location specific guide to meeting the 5-year total phosphorus reduction targets and milestones required by EPA. During the basin planning process, stakeholders expressed that unified clean water messaging, technical support and training on how to protect and maintain surface waters, and continued financial and technical support, are all critical to meet water quality goals. There was also a strong sentiment that all waters in the Lamoille River Basin should be protected regardless of their status.

¹ Discontinued = strategies that have not been initiated and are no longer being pursued. Awaiting action = strategies that have not been initiated for various reasons such as a lack of resources or local support.