

Winooski River Watershed Basin 8 Tactical Basin Plan

July 2023 | DRAFT

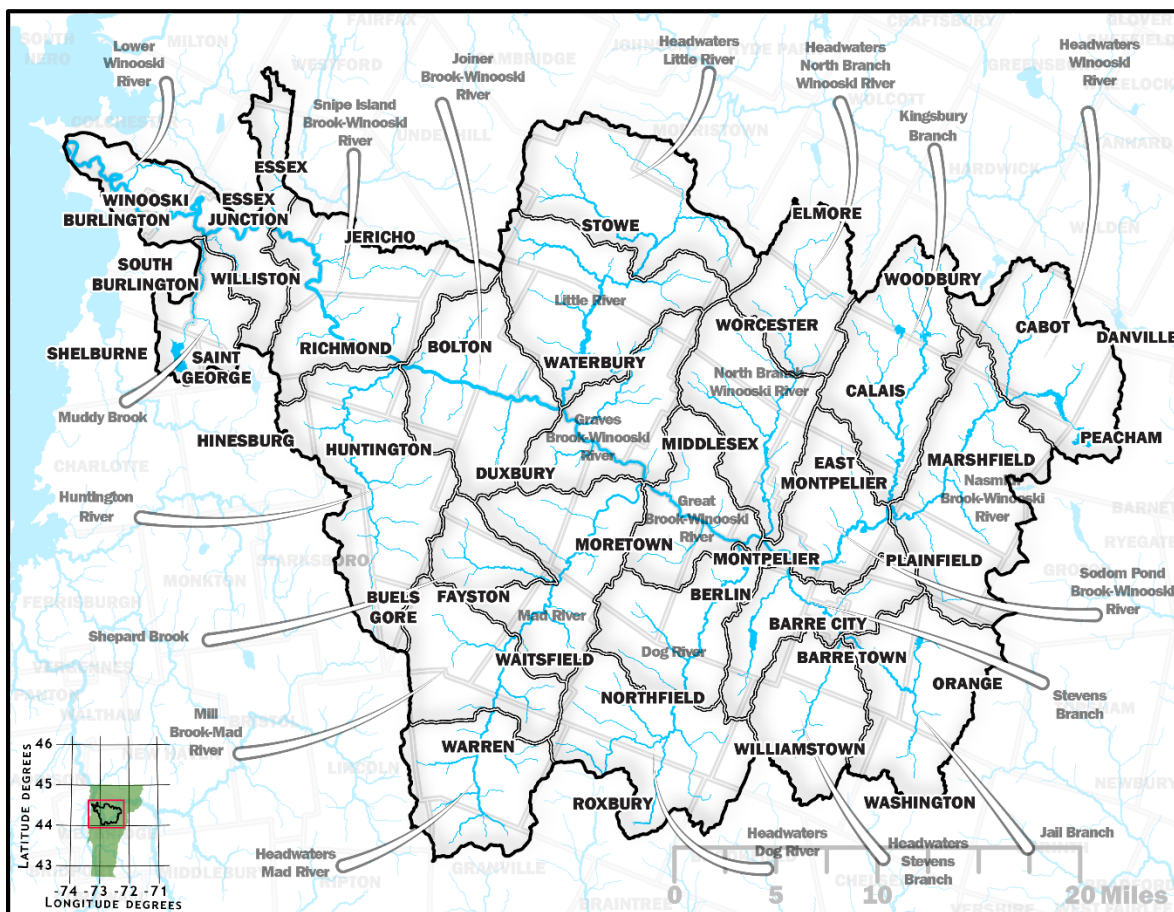
July 26, 2023 document: Exec
Summary + Key Tables, CCRPC
towns highlighted by Albrecht.

Tactical Basin Plan was prepared in accordance with 10 VSA § 1253(d), the Vermont Water Quality Standards¹, the Federal Clean Water Act and 40 CFR 130.6, and the Vermont Surface Water Management Strategy.

Winooski River Basin Towns

Barre City	Elmore	Morristown*	Waitsfield
Barre Town	Essex	Northfield	Walden*
Berlin	Fayston	Orange	Warren
Bolton	Granville*	Peacham	Washington
Brookfield*	Groton*	Plainfield	Waterbury
Buels Gore	Hinesburg*	Richmond	Westford*
Burlington	Huntington	Roxbury	Williamstown
Cabot	Jericho	Saint George	Williston
Calais	Lincoln*	Shelburne	Winooski
Cambridge*	Marshfield	South Burlington	Woodbury
Colchester	Middlesex	Starksboro*	Worcester
Duxbury	Montpelier	Stowe	
East Montpelier	Moretown	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 8, the Winooski River Watershed, covers approximately 1080 square miles, and accounts for 11.5 percent of Vermont's land area. The main stem of the Winooski River flows 94 miles from Cabot to Colchester and enters Lake Champlain at an elevation 1,200 feet lower than where it originates. The Basin occupies major parts of Washington and Chittenden Counties and lesser parts of Lamoille, Orange, Caledonia, and Addison Counties. The entire watershed includes fifty towns and is roughly 73% forest, 9% agriculture, 9% surface waters and wetland, and 3% developed area including roads. This 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.

Although many surface waters monitored meet or exceed water quality standards, there are waters in need of restoration and continued monitoring. 39 lakes, ponds, or river segments are identified for restoration. 24 river segments and three lakes are considered impaired, seven lakes are impacted by aquatic exotic species, eight river segments are considered to have altered flow regimes, and three lakes have increasing nutrient trends. Chapter 3 also includes progress reporting and target setting for Phase 3 of the Lake Champlain Phosphorus Total Maximum Daily Load (TMDL) Implementation Plan. Only the Winooski River watershed contribution to the Main Lake segment of Lake Champlain is addressed.

Sector-based strategies are proposed 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 participation and project implementation by watershed partners and the Basin's Clean Water Service Provider. 52 detailed strategies and 65 monitoring priorities are recommended for the next five years and summarized in Table 1. Monitoring priorities have been identified to fill data gaps, track changes in water quality condition, and identify waters for reclassification and Class I wetland designation.

Table 1. Focus areas and priority strategies for restoration and protection.

	Focus Areas	Priority Strategies
Agriculture	Muddy Brook, Winooski River, Headwaters Little River, Headwaters Winooski River, Headwaters Stevens Branch, Nasmith Brook, Huntington River, Jail Branch, Stevens Branch, Sodom Pond Brook, Snipe Island Brook, Great Brook, Mad River	<ul style="list-style-type: none"> • Target field Best Management Practice implementation in high priority watersheds. • Improve nutrient management planning (NMP) through technical support, NMP workshops, and financial support for improved nutrient utilization. • Implement NMPs and associated agricultural water quality practices in high priority catchments. • Support farm teams, conservation equipment programs, soil health assessments, and farmer participation in the pay for phosphorus program.
Developed Lands - Stormwater	Basin-wide, with focus on Lower Winooski, Muddy Brook, middle Winooski near Montpelier, Stevens Branch, Jail Branch, and towns of Waterbury, Bolton, Brookfield, Orange, Duxbury for assessment	<ul style="list-style-type: none"> • Develop, design, and implement stormwater treatment projects identified in Phosphorus Control Plans, Stormwater Master Plans, stormwater mapping reports, or other assessments. • Support the design and implementation of small-scale stormwater practices through formula grant funding. • Provide outreach and technical support to landowners with 3-acre parcels. • Promote and, where appropriate, coordinate existing campaigns to raise awareness of simple residential stormwater management solutions and chloride application best practices.
Developed Lands - Roads	Basin-wide, with focus on Barre City, Stowe, Northfield, Montpelier, Barre Town, Calais, Plainfield, Moretown, Berlin, Cabot, Duxbury, and Middlesex, stormwater-impaired stream segments, lake watersheds with significant road networks	<ul style="list-style-type: none"> • Provide technical support to towns to implement priority Municipal Roads General Permit projects and to update road erosion inventories. • Develop private road phosphorus reduction estimates and complete private road segmentation and assessments.

	Focus Areas	Priority Strategies
Wastewater	Barre City, Burlington, Cabot, Calais, Essex Junction, Huntington, Marshfield, Montpelier, Northfield, Middlesex, Moretown, Plainfield, Richmond, South Burlington, Stowe, Waitsfield, Warren, Waterbury, Williamstown, Winooski, Woodbury	<ul style="list-style-type: none"> • Support municipalities pursuing wastewater treatment facility phosphorus optimization, expansion projects, and upgrades to meet total maximum daily load allotments, phosphorus optimization and CSO requirements. • Support and ensure monitoring and permit compliance for waste management systems. • Provide technical assistance and funding to towns interested in exploring and implementing village wastewater systems and septic replacement through ANR Village Wastewater Solutions. • Promote septic system maintenance in communities adjacent to nutrient- or bacteria-degraded waters via Wastewater Workshops.
Rivers	Winooski Headwaters, Dog River, Stevens and Jail Branches, Little River, Huntington River, Mad River	<ul style="list-style-type: none"> • Train partners on the Functioning Floodplains Initiative (FFI) tool to estimate the phosphorus-reducing benefits of natural resource projects. • Evaluate protection and restoration projects identified in state-supported plans using the FFI tool and develop and implement priority projects. • Pilot the identification, development, and implementation of low-tech, process-based restoration projects. • Support municipalities in updating flood hazard bylaws and considering adoption of river corridor protections with new Federal Emergency Management Agency maps. • Scope, development, and implement priority culvert upgrade and dam removal projects. • Encourage landowner and recreationist stewardship of riparian areas through established social marketing and signage campaigns for water quality and biodiversity benefits. • Support outreach to towns on opportunities to reclassify waters based on fishing or aquatic biota uses.
Lakes	Sabin Pond, Forest Lake, Shelburne Pond, Peacham Pond, Lake Mirror, Lake Greenwood, Curtis Pond	<ul style="list-style-type: none"> • Implement Next Generation Lake Assessments (NGLA) to rapidly assess lake stressors and evaluate the need for more detailed lake assessments. • Evaluate community support for and implement Lake Wise assessments and Lake Watershed Action Plans (LWAP) in populated lake communities with fair to poor shoreland or watershed conditions. • Develop and implement priority projects identified during NGLA, Lake Wise, or LWAP assessment. • Maintain and build the capacity for existing aquatic invasive species programs. • Where applicable, increase protections for high-quality lakes through reclassification or evaluate reclassification potential through additional monitoring.
Wetlands	Potential Class I wetlands, VRAM-assessed wetlands, RCPP-identified wetland restoration priorities	<ul style="list-style-type: none"> • Develop a process for crediting the phosphorus reduction of wetland protection and restoration projects. • Scope and develop small-scale (10-50 acre) wetland protection and restoration opportunities. • Provide support to the Wetlands Program for publicizing updated wetland mapping and local efforts for reclassification.

	Focus Areas	Priority Strategies
Forests	State lands, town forests, and large private lands with significant tributary networks	<ul style="list-style-type: none"> • Pilot forest road inventories and implement priority projects on state, municipal, and potentially private lands. • Identify and implement feasible forest erosion projects identified with emerging forest erosion mapping tools. • Support the use of skidder bridges through rental and incentive programs. • Encourage land conservation and Use Value Appraisal enrollment where landowners are interested and especially in drinking water source protection areas.

The 2018 Basin 8 plan identified 52 strategies to address protection and restoration of surface waters. Of the 52 strategies identified, 5 are complete, 2 are in progress, 42 are ongoing, and 3 are awaiting action (Figure 1). The Basin 8 report card, to be included in the upcoming [2023 Vermont Clean Water Initiative Performance Report](#), will include a list of detailed updates for each strategy identified in the 2018 Plan. Several strategies will be carried over to this plan.

The 52 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. 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 Winooski River Basin should be protected regardless of their current status. The importance of ensuring access to waters for all members of the community was identified including ensuring clean surface water for consumptive and recreational uses and the safe consumption of fish, access to waters for recreation for all abilities and economic levels, open space availability and access in more densely populated and equitable implementation of clean water projects.

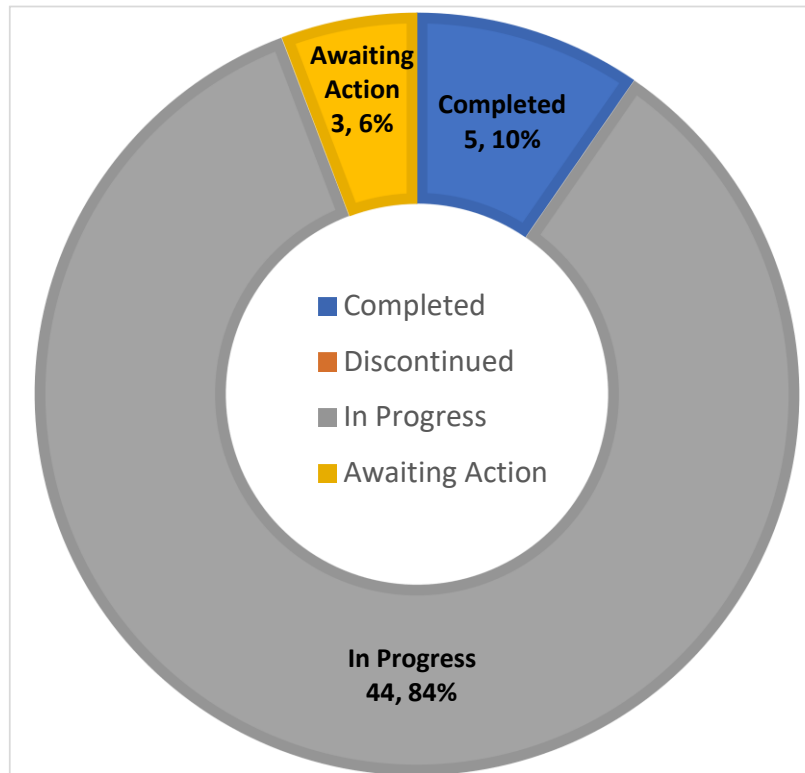


Figure 1. Status of strategies from the 2018 TBP.

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 and restore Vermont's surface waters. The agency develops these watershed plans for each of the 15 major basins in the State of Vermont. TBPs target strategies and prioritize resources to those actions that will have the greatest influence on surface water protection or restoration.



Figure 2. Policy requirements of Tactical Basin Planning.

TBPs are integral to meeting a broad array of both state and federal requirements 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 10 VSA § 925 and 10 V.S.A. § 1253 (Figure 2).



Figure 3. Five-year basin planning cycle.

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. A successful basin planning process depends on a broad base of partnerships with other state, federal, regional, and local government agencies, and other stakeholders, including citizen and non-profit groups and academic institutions. The partnerships support and strengthen the Agency's programs by proposing new ideas and input, increasing understanding of water quality issues, and building commitment to implementing solutions.

Basin-specific water quality goals, objectives, strategies, and projects described in this Plan aim to protect public health and safety 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 shown in Figure 3, allows for the issuance of plans for Vermont's 15 basins every five years.

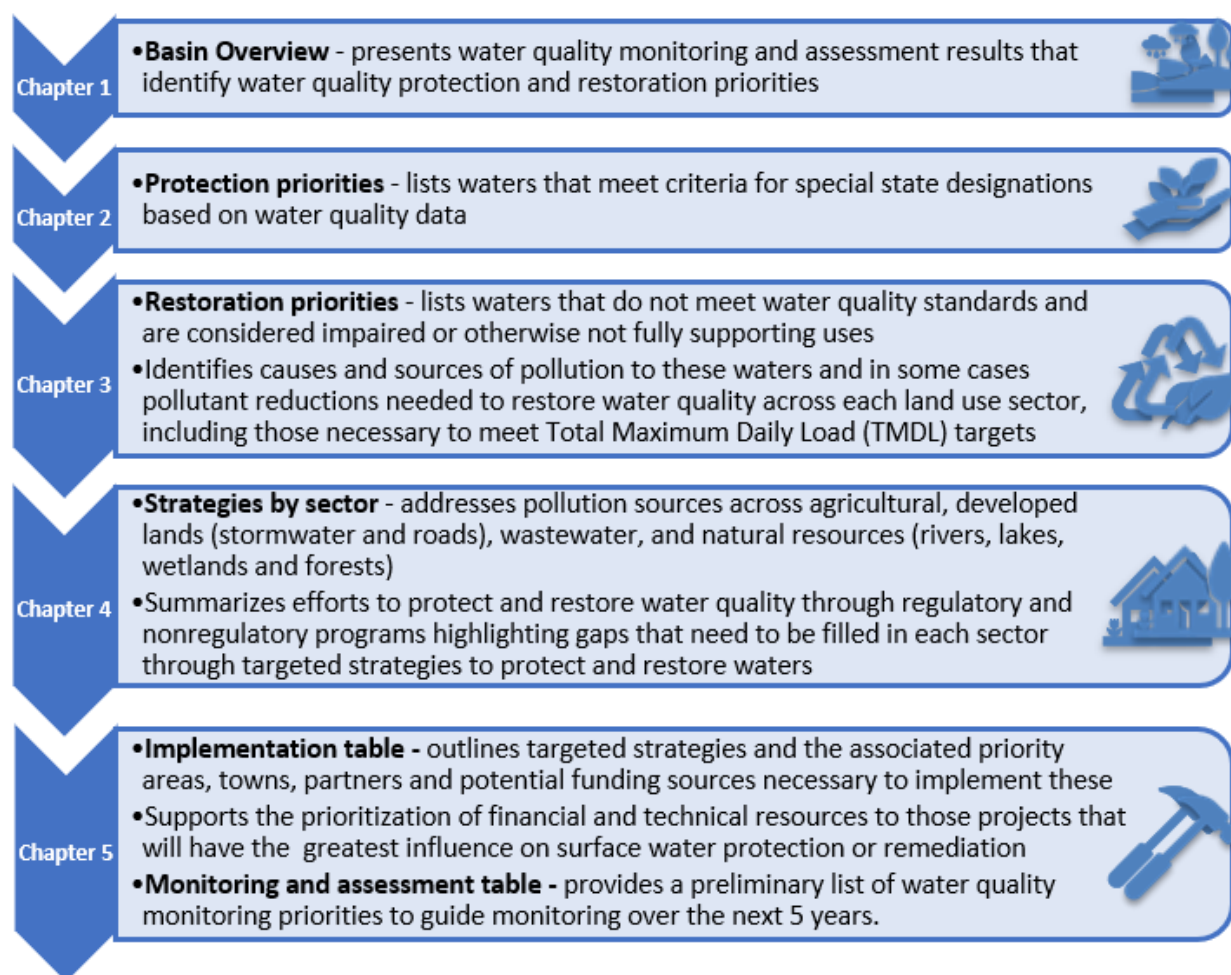


Figure 4. Chapters of Tactical Basin Plans.

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 (Figure 4).

Tactical Basin Plans identify strategies that 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.

D. Implementation Table

The Implementation Table (IT) (Table 19) provides a list of 52 priority strategies created as the go-to implementation guide for watershed action. The IT provides specificity for where each strategy should focus by identifying priority sub-basins and towns. A list of related individual project entries is found in the online [Watershed Projects Database](#) (WPD). The projects in WPD vary in level of priority based on the strategies outlined in the table. All projects in WPD are not expected to be completed over the next five years, but each strategy listed is expected to be implemented and reported upon in future TBP and subsequent phases of TMDL implementation plans and interim and final TBP report cards included in annual Clean Water Performance Reports.

In relation to the Lake Champlain Phosphorus TMDL, IT strategy progress will be measured against the five-year total TP reduction targets for each sector, outlined in Chapter 3. These reduction targets are addressed through both the regulatory programs described in Chapter 3 and the prospective reductions assigned to Clean Water Service Providers and guided by the IT strategies. The effectiveness of those strategies and related implementation efforts will be measured according to Total Phosphorus reductions estimated for each sector. CWIP [clean water project tracking and accounting](#) will estimate the mass of pollutants reduced by implemented projects supporting IT strategies and track progress towards achieving the 5-year target milestones. Progress achieved through outreach, technical assistance, and project funding will inform DEC's gap analysis related to each subsequent phase of TMDL implementation, each annual Clean Water Performance Report, and attendant interim and final TBP report cards.

As projects are developed, priority for CWIP funding is given to those projects that achieve the highest water quality benefits. Projects that provide cumulative benefits (i.e., flood resiliency, water quality improvement, water resource protection, aquatic organism passage) receive additional consideration for prioritization. For these priorities to be achieved, partners and stakeholders must help carry out the strategies identified in the basin plan.

Table 19. Implementation Strategies. See list of acronyms on Page 126. * indicates strategy was carried forward from 2018 TBP.

Strategy		Priority Area or Watershed	Town(s)	Partner(s)	Funding
Strategies to address runoff from Agricultural Lands					
1	Support farmers in developing, updating, and implementing nutrient management plans.	Basin wide	All towns	AAFM, LCCD, NRCS, UVM Ext., WNRCD	NRCS, AAFM, RCPP, Pay for P
2	Maintain cover cropping and other annual practices by supporting farmers' consecutive adoption of practices through education and outreach, and/or enrollment in applicable conservation programs.	All sub-watersheds, especially Sodom Pond Brook, Snipe Island Brook, Winooski River, Great Brook, Huntington River, Mad River, Mill Brook – Mad River	East Montpelier, Richmond, Jericho, Essex, Colchester, Middlesex, Moretown, Huntington, Waitsfield, Warren, Fayston	AAFM, NRCS, UVM Ext., WNRCD	EQIP, CSP, AAFM, AGCWIP
3	Target outreach and increased funding to HUC 12 watersheds where field practice implementation has been lagging TMDL reduction targets to increase crop rotation, cover crop, no till practice, hayland BMP, and grazing management implementation.	Muddy Brook, Winooski River, Headwaters Little River, Headwaters Winooski River, Headwaters Stevens Branch, Nasmith Brook, Huntington River, Jail Branch, Stevens Branch	Shelburne, South Burlington, Williston, Colchester, Stowe, Cabot, Williamstown, Marshfield, Barre Town, Orange, Washington	AAFM, LCCD, NRCS, UVM Ext., WNRCD	NRCS, AAFM, RCPP, Pay for P, AGCWIP

Strategy		Priority Area or Watershed	Town(s)	Partner(s)	Funding
4	Develop a list of locally available equipment necessary for BMP implementation (cover crop, crop to hay conversion, conservation tillage, manure injection) and assist farmers in accessing this equipment through local rental programs, cost-shares, or cooperative applications to funding programs.	Basin wide	All towns	AAFM, LCCD, NRCS, UVM Ext., WNRCD	CEAP, VHCB, AGCWIP
5	Provide technical assistance to support soil health and water quality improvements through Soil Health Assessments, the development and implementation of grazing plans, and pasture and hayland BMPs.	Strategy 3 watersheds	Strategy 3 towns	AAFM, LCCD, NRCS, UVM Ext., WNRCD	AGCWIP, RCPP, TBPSG
6	Support collaborative efforts among partners to enhance service to the agricultural community, such as a farm team model that streamlines technical service provider interactions with individual farms.	Strategy 3 watersheds	Strategy 3 towns	AAFM, LCCD, NRCS, UVM Ext., WNRCD	AGCWIP, TBPSG
7	Determine information needs of SFOs to encourage BMP implementation (e.g., economic benefits of conservation BMPs; examples of implemented BMP water quality benefits; equine-, grazing-, or vegetable-specific practice guidance).	Basin wide	All towns	AAFM, LCCD, NRCS, UVM Ext., WNRCD	
8	Convene meetings of the VT Agricultural Water Quality Partnership to track progress on TBP agricultural strategies and identify emerging areas of concern.	Basin wide	All towns	AAFM, LCCD, NRCS, UVM Ext., WNRCD	TBSPG, VAWQP
9	Identify and address barriers to farmer enrollment and maintenance in the Pay for Phosphorus Program	Strategy 3 watersheds	Strategy 3 towns	AAFM, LCCD, NRCS, UVM Ext., WNRCD	NRCS, AAFM, RCPP, Pay for P
10	Investigate opportunities for river corridor easements on large agricultural parcels	Strategy 3 watersheds	Strategy 3 towns		VRP, CREP,

Strategies to address runoff from Developed Lands - Stormwater					
11	Develop stormwater mapping reports, stormwater master plans (SWMPs), or illicit discharge and detection studies to identify priority stormwater projects.	Basin wide	Waterbury, Bolton, Brookfield, Orange, Duxbury, or other VDEC-identified regions	VDEC, CCRPC, CVRPC, FWR, Municipalities, LCCD, LCPC, WNRCD	CWI, Formula
12	Support the prioritization, design, and implementation of P-efficient stormwater projects	Basin wide	Towns with existing stormwater master plans, phosphorus control plans, or other stormwater-related planning. See Table 16.	VDEC, CCRPC, CVRPC, FWR, FMR, Municipalities, LCPC, WNRCD	CWI, TBPSG, Formula
13	Provide outreach and technical assistance to landowners with 3-acre parcels.	Basin wide with emphasis on watersheds with high proportion of developed lands, including: Stevens Branch, Jail Branch, Lower Winooski, Muddy Brook	Basin wide, especially Barre, Barre City, Berlin, Burlington, Montpelier, Williamstown, Northfield, Stowe, Shelburne, Williston, Essex Junction, Winooski, Burlington	VDEC, CVRPC, LCCD, LCPC, WNRCD	LCBP, Green Schools Initiative, ARPA 3-acre funds

14	Promote and, where appropriate, coordinate existing campaigns to raise awareness of simple residential stormwater management solutions (e.g., Rethink Runoff , Storm Smart , Lawn to Lake).	Basin wide	All towns	FMR, FWR, LCCD, LCPC, WNRCD	LCBP
15	Educate towns, businesses and contractors on winter maintenance strategies that reduce use of chlorides.	Catchments of chloride-impaired waters (Centennial Brook, Sunnyside Brook) and watersheds with high proportion of developed lands, including: Stevens Branch, Jail Branch, Lower Winooski, Muddy Brook	Barre, Barre City, Berlin, Burlington , Montpelier, Williamstown, Northfield, Stowe, Shelburne , Williston , Essex Junction , Winooski , Burlington	CCRPC , CVRPC, FMR, FWR, LCPC, WNRCD, UVM Sea Grant	LCBP
16	Support evaluating and improving town salt and sand storage facilities to improve stormwater management on these sites.	Basin wide	All towns	CCRPC , CVRPC, FWR, LCCD, LCPC, WNRCD, Municipalities	SWMG, GIA
Strategies to address runoff from Developed Lands - Roads					
17	Assist municipalities in updating REI inventories and prioritizing and implementing roads projects to meet the Municipal Roads General Permit (MRGP).	Basin wide	All towns with focus on Barre City, Stowe, Northfield, Montpelier, Barre Town, Calais, Plainfield, Moretown, Berlin, Cabot, Duxbury, and Middlesex	CCRPC , CVRPC, LCPC, Municipalities	

18	Pilot a GIS road segmentation and private REI to identify, prioritize, develop, and implement private road restoration projects.	Prioritized private road networks: lakes with nutrient impairments, degrading nutrient trends, or otherwise steep private road networks where road associations exist	All towns	CCRPC, CVRPC, FMR, FWR, LCCD, LCPC, WNRCD, Municipalities	Formula, LCBP, TBPSG
Strategies to address Wastewater					
19	Support municipalities pursuing WWTF phosphorus optimization, expansion projects, and upgrades to meet TMDL allotments, phosphorus optimization and CSO requirements.	Basin-wide	Barre City, Burlington, Cabot, Essex Junction, Marshfield, Montpelier, Northfield, Plainfield, Richmond, South Burlington, Stowe, Waterbury, Williamstown, Winooski	VDEC, CVRPC, LCPC, Municipalities	CWSRF, USDA-Rural Development
20	Assist communities in addressing inadequate individual on-site wastewater treatment on small, challenging sites through the planning and development of solutions, including community wastewater systems (e.g., ANR Village Wastewater Solutions) or innovative/alternative on-site systems	Basin wide	All towns, including Huntington, Waitsfield, Warren, Middlesex, Moretown	VDEC, LCPC	ARPA, CWSRF, EPA Engineering Planning Advance, MPG, TBPSG, USDA Community Facilities Program, USDA-RD SEARCH Grant

21	Educate onsite septic owners about septic system maintenance and alternative systems through local outreach and education programs such as Wastewater Workshops.	Lake watersheds with increasing nutrient trends (Sabin, Forest) or highly developed shorelines; River communities where septic is a likely source of E. coli impairment (middle Huntington, Lower Mad) or where residential development is otherwise dense (Little River)	Calais, Woodbury, Moretown, Huntington , Stowe	VLPMP, CVRPC, FWR, LCPC, Municipalities, Lake Associations, Conservation Commissions	TBPSG
Strategies to support Natural Resource Protection and Restoration - Rivers					
22	Provide partner training on the Functioning Floodplains Initiative (FFI) tool to estimate phosphorus reductions for natural resource protection and restoration projects	Basin wide	All towns	VDEC, FFI Team, VRP, CVRPC	TBPSG
23	Develop and implement priority protection and restoration projects identified in Stream Geomorphic Assessments (SGAs), River Corridor Plans (RCPs), or culvert inventories and supported by FFI phosphorus efficiency estimates.	TNC working group priority watersheds: Winooski Headwaters, Dog River, Stevens Branch	Cabot, Marshfield, Plainfield, Berlin, Northfield, Roxbury, Berlin, Barre, Barre City, Williamstown	VRP, CVRPC, FMR, FWR, LCCD, LCPC, TNC, WNRCD	Building Resilient Infrastructure and Communities Fund, DIBG, Flood Resilient Communities Fund, Formula, RCEBG, WBBG
24	Enhance (beyond RAPs) riparian buffers through woody buffer establishment and invasive species control	SGA/RCP-identified sites	All towns	AAF, CVRPC, FMR, FWR, LCCD, LCPC, NRCS, USFWS, WNRCD	CREP, Formula, LCBP, RCEBG, WBBG
25	Support outreach, training, or technical assistance to increase adoption of innovative agency-supported approaches that address tree stock shortage or invasive species concerns when establishing buffers or accelerate landowner interest in buffer adoption (e.g., agroforestry)	SGA/RCP-identified sites	All towns	LCCD	LCBP, Watershed Grant, TBPSG

26	Pilot a process to update existing RCPs using FFI-derived or other geographic information and prioritize additional SGA fieldwork.	Partner-identified priority watersheds: Dog River, Stevens and Jail Branches	Cabot, Marshfield, Berlin, Northfield, Moretown, Roxbury, Berlin, Barre, Barre City, Williamstown	VRP, VDEC, CVRPC	LCBP? TBPSG
27	Coordinate with VRP on a process to identify, design, evaluate the water quality benefits of, and implement effective low-tech process-based restoration projects to restore fluvial processes in smaller drainages (e.g., strategic wood addition, beaver dam analogs, post-assisted log structures).	Protected federal or state lands (Little River, Headwaters North River, Joiner Brook - Winooski, Huntington, Headwaters - Mad, Millbrook – Mad), or other protected lands within working group-identified priority watersheds (headwaters Winooski, Dog River, Stevens and Jail Branches)	Stowe, Waterbury, Warren, Huntington , Duxbury, Richmond , Jericho , Worcester, Elmore	VRP, VFWD, VDEC, AAFM, FWR, LCPCD, WNRCD, TNC, USFWS	CREP?, DIBG, EQIP, Formula grants, NFWF, USFWS
28	Develop and implement projects from a list of priority culverts with AOP and geomorphic compatibility benefits	Winooski AOP working group priorities on candidate B(1)-Fisheries streams (Upper Winooski, Stevens and Jail Branches)	Cabot, Marshfield, Plainfield, Berlin, Williamstown	VFWD, VRP, CVRPC, FWR, LCPC, USFWS, WNRCD	LCBP, NFWF, TBPSG, USFWS, VFWD
29	Identify, develop, and implement high priority dam removal projects	TNC working group active (9 dams) and scoping (21 dams) lists	All towns	VRP, VFWD, VDEC, AAFM, CVRPC, FWR, LCPC, VNRC, WNRCD, TNC, USFWS	DRBG, Formula, RCPP, NFWF, USFWS
30	Identify and remove streamside berms to increase floodplain access	Basin wide	All towns	VRP, VFWD, NRCDs, FWR, TNC	CWG, SWG, PFW

31	Support recreational river access through the establishment and maintenance of stable access areas.	Stevens Branch, Jail Branch, lower Winooski River, other river segments with few or unsafe access opportunities	Barre City; All towns	Barre City, Barre City River Access Task Force, LCPC	LCBP, Watershed Grant, DIBG (if a water quality component exists)
33	Educate towns about and assist them in adopting new FEMA flood maps using model river corridor bylaw or similarly protective language.	Basin wide	All towns, esp. those without adequate river corridor protections in place. See Municipal Protectiveness Table (Appendix C)	CCRPC, CVRPC, LCPC, VRP	FEMA, TBPSG
34	Implement social marketing campaign that incentivizes riparian stewardship (i.e., Stream Wise)	Basin wide	All towns	FMR, FWR, LCCD, WNRCD	LCBP
35	Coordinate with VFWD to develop and implement a native fish signage campaign that highlights the biodiversity co-benefits of water quality improvement and fosters river stewardship interest from new stakeholders	Upland B(1) Fisheries candidates (allopatric brook trout) and lowland streams with other SGCN species, as identified by VFWD	Multiple	VWFD, NFC	Watershed Grant, Other
36	Support outreach to towns on opportunities to petition reclassifying waters to B(1) or A(1)	Multiple: See Figure 13, Table 6	Multiple	VDEC, CVRPC, NFC	
Strategies to support Natural Resource Protection and Restoration - Lakes					
37	Use Next Generation Lake Assessments (NGLAs) to evaluate need for Lake Watershed Action Plans (LWAPs) or to rapidly identify restoration and protection needs in less complex lake watersheds	Basin wide, including Sabin Pond	All towns	VLPMP	

38	Support Lake Watershed Action Plans for priority lakes if there is sufficient community engagement to make assessments successful.	Possibly Forest Lake (Calais), Sabin Pond	Calais, Woodbury	VLPMP, CVRPC, FWR, Lake Associations	CWIP, Formula grant
39	Support Lake Wise assessments on priority lakes if sufficient opportunity for community engagement.	Sabin Pond, Forest Lake (Calais), Curtis Pond, Lake Greenwood, Peacham Pond	Calais, Woodbury, Peacham	VLPMP, WNRCD	Formula grants, PDBG, TBPSG
40	Develop, design and implement priority projects identified through Lake Wise assessments, LWAPs, NGLAs, other assessment processes, or Lakes Program recommendations.	Buck Lake, Mirror Pond, Gillett Pond, Curtis Pond, Peacham Pond, Sabin Pond, Forest Lake, Waterbury Reservoir	Calais, Woodbury, Peacham, Waterbury		CWI, Watershed Grant, EDDIBG & DIBG
41	Coordinate aquatic invasive species spread prevention efforts throughout the basin among lake associations through collaboration on local Public Access Greeter Programs, hosting a VIP/A trainings in the watershed at priority lakes, installing signage on public accesses, and conducting aquatic plants surveys.	Basin wide	All towns	VLPMP, WNRCD, Lake Associations, Municipalities	Aquatic Nuisance Control Grant, LCBP, TBPSG
42	Support B(1) designation for qualifying lakes or additional monitoring to evaluate B(1) or A(1) eligibility elsewhere	Current B(1) candidate: Peacham Pond; See Table 20 for 16 lakes with reclassification-related monitoring needs	Peacham, Calais, Woodbury	VLPMP, CVRPC, Lake Associations, Municipalities	
Strategies to support Natural Resource Protection and Restoration - Wetlands					
43	Increase the identification, landowner outreach, development, and implementation of wetland protection and restoration projects, especially at smaller scales (10-50 acres).	SGA-, RCP-, or RCPP-identified sites	All towns	VWP, VCWIP, AAFM, FWR, LCCD	CWI, Formula grants, RCPP, NRCS-WRE

44	Support local efforts to reclassify Class I wetland candidates.	Any qualifying wetland, including those proposed for study in Figure 15 and Table 20	Multiple towns, including: Essex/Westford Burlington/Colchester, Shelburne, Williston, Bolton, Marshfield, Peacham	VWP, Municipalities, CVRPC	TBPSG
45	Support outreach to towns and the public – especially zoning administrators, prospective land purchasers, wastewater designers, and realtors – regarding updated wetlands mapping available in Fall 2023.	Basin wide	All towns	VWP, Municipalities, CVRPC	VDEC, TBPSG
46	Evaluate opportunities to incorporate adjacent wetlands into the footprints of existing and new river corridor easements.	Basin wide	All towns	VWP, VRP, LCCD, Stowe Land Trust, Vermont Land Trust, Vermont Rivers Conservancy	
Strategies to support Natural Resource Protection and Restoration - Forests					

47	Pilot the identification and prioritization of forest road segments with water quality impacts via the pending Forestland Erosion Assessment tool and subsequent forest REIs.	State and municipal lands with significant road and stream networks, especially in areas of high runoff potential: possibly headwaters of Little River, North Branch, Mad, Huntington, Winooski, Stevens and Jail Branches.	Mount Mansfield State Forest, CC Putnam State Forest, Camels Hump State Park; Potential town forests of Northfield, Berlin, Montpelier, Barre City, Marshfield, and Worcester	VDEC, VFPR, CVRPC	CWI, LCBP, TBPSG
48	Pilot the identification and prioritization of other erosional features like gullies using the Forestland Erosion Assessment tool.	State and municipal lands with significant stream networks, especially in areas of high runoff potential; as above.	As above.	VDEC, VFPR, CVRPC	CWI, LCBP, TBPSG
49	Develop and implement AMPs and high priority forest road projects on state, municipal, and private lands.	Basin wide; High priority forest REI segments	All towns	VDEC, VFPR, CVRPC, NRCS	CWI, EQIP, Formula, RCPP
50	Coordinate outreach and training on properly implementing the AMPs for practitioners, landowners, and technical service providers, including via local workshops and VAWQP presentations.	Basin wide	All towns	NRCS, UVM ext., VAWQP, VFPR LEAP and Master Loggers Program	TBPSG

51	Encourage forest conservation and potential UVA enrollment wherever landowners express interest, and especially in Source Protection Areas	Surface- and groundwater Source Protection Areas with remaining unprotected lands (SW: Barre City – Jail Branch, Montpelier – Stevens Branch; GW: multiple unprotected SPAs)	Multiple towns		
52	Reinvigorate skidder bridge programs and increase the use of skidder bridges through direct grants to foresters to purchase skidder bridges.	Basin wide	All towns	VFPR, LCCD, WNRCD	CWI

D. Monitoring and Assessment Table

The Monitoring and Assessment Table (Table 20) provides a preliminary list of water quality monitoring priorities to guide monitoring over the next five years. The [ANR's Water Quality Monitoring Strategy](#) describes the monitoring programs supported by ANR and its partners, who are listed in Chapter 2. Common goals for monitoring efforts across programs include identifying water quality conditions, tracking water quality trends, identifying pollution sources and evaluating improvements over time. The table includes more sites than there is capacity to monitor and as such, will be further prioritized before monitoring occurs.

Table 20. Priorities For Monitoring and Assessment

Waterbody	Project Description	Location	Partner(s)	Purpose
Lakes and Ponds				
Sabin Pond	Chemical monitoring, chlorophyll-a, Secchi, Next Generation Lake Assessment	Calais, Woodbury	DEC – Lakes; Lay Monitoring	Assessment for A1 eligibility. Continue tracking increasing nutrient trends. Rapidly assess lakeshore and catchment conditions.
Forest Lake (Calais)	Chemical monitoring, chlorophyll-a, Secchi	Calais, Woodbury	DEC – Lakes; Lay Monitoring	Assessment for A1 eligibility. Continue tracking increasing nutrient trends.
Berlin Pond	Chemical monitoring, chlorophyll-a, Secchi	Berlin	DEC – Lakes; Lay Monitoring	Assessment for A1 eligibility.
Lake Mansfield	Chemical monitoring, chlorophyll-a, Secchi	Stowe	DEC – Lakes; Lay Monitoring	Assessment for A1 eligibility.
Turtlehead Pond	Chemical monitoring, chlorophyll-a, Secchi	Marshfield	DEC – Lakes; Lay Monitoring	Assessment for A1 eligibility.
Lake Mirror	Chemical monitoring, chlorophyll-a, Secchi	Calais	DEC – Lakes; Lay Monitoring	Assessment for B1 eligibility.
Lake Greenwood	Chemical monitoring, chlorophyll-a, Secchi	Woodbury	DEC – Lakes; Lay Monitoring	Assessment for B1 eligibility.
Blueberry Lake	Chemical monitoring, chlorophyll-a, Secchi	Warren	DEC – Lakes	Assessment for general reclassification eligibility; Most recent spring TP = 11.2 ug/l
Buck Lake	Chemical monitoring, chlorophyll-a, Secchi	Woodbury	DEC – Lakes	Assessment for general reclassification eligibility; Most recent spring TP = 10.1 ug/l
Coits Pond	Chemical monitoring, chlorophyll-a, Secchi	Cabot	DEC – Lakes	Assessment for general reclassification eligibility; Most recent spring TP = 10.0 ug/l
Cranberry Meadow Pond	Chemical monitoring, chlorophyll-a, Secchi	Woodbury	DEC – Lakes	Assessment for general reclassification eligibility; Most recent spring TP = 13.6 ug/l
Curtis Pond	Chemical monitoring, chlorophyll-a, Secchi	Calais	DEC – Lakes; Lay Monitoring	Assessment for general reclassification eligibility; Most recent spring TP = 13.6 ug/l
Gillett Pond	Chemical monitoring, chlorophyll-a, Secchi	Richmond	DEC – Lakes; Lay Monitoring	Assessment for general reclassification eligibility; Most recent spring TP = 9.4 ug/l

Hardwood Pond	Chemical monitoring, chlorophyll-a, Secchi	Elmore	DEC – Lakes	Assessment for general reclassification eligibility; Most recent spring TP = 12.0 ug/l
Pigeon Pond	Chemical monitoring, chlorophyll-a, Secchi	Groton	DEC – Lakes	Assessment for general reclassification eligibility; Most recent spring TP = 8.1 ug/l
Valley Lake	Chemical monitoring, chlorophyll-a, Secchi	Woodbury	DEC – Lakes; Lay Monitoring	Assessment for general reclassification eligibility; Most recent spring TP = 14.2 ug/l
Wrightsville Reservoir	Secchi	East Montpelier	DEC – Lakes; VFPR	Trend detection in high-use recreational lake
Mollys Falls Reservoir	Secchi	Cabot	DEC – Lakes; VFPR	Trend detection in high-use recreational lake
Waterbury	Secchi	Waterbury	DEC – Lakes; VFPR	Trend detection in high-use recreational lake
Shelburne Pond	Chemical and cyanobacterial monitoring, Secchi	Shelburne	DEC – Lakes, UVM, WNRCD	Trend detection in high-use recreational lake; Evaluate cyanobacterial blooms; Internal vs. external loading, seasonal P fluctuations, and other needs laid out by DEC - Lakes program
Cutter Pond	Chemical monitoring	Williamstown	DEC – Lakes	Insufficient data to determine water quality status. Medium sized pond (20.5 acres) with more than 40% agricultural and development lands.
Unnamed Pond (referred to as Richards)	Chemical monitoring	Marshfield	DEC – Lakes	Insufficient data to determine water quality status. Medium sized pond (14.7 acres) with more than 20% agricultural and development lands.
Identified Lakes and Ponds	Complete AIS survey and plankton net survey	Multiple	DEC – Lakes	Generate AIS status of lakes and ponds with no data.
Rivers and Streams				
Tributaries to Shelburne Pond	Chemical monitoring	Shelburne	LaRosa, Local partner TBD	Identify tributaries that may disproportionately contribute phosphorus.
Tributaries to Forest Lake	Chemical monitoring	Calais, South Woodbury	LaRosa, Local partner TBD	Identify tributaries that may disproportionately contribute phosphorus.
Tributaries to Sabin Pond	Chemical monitoring	Calais, South Woodbury	LaRosa, Local partner TBD	Identify tributaries that may disproportionately contribute phosphorus.
Stevens Branch	Biological monitoring	Barre City, Barre Town, Berlin,	DEC - MAP, Barre City River Access	Re-assess status and boundaries of E. coli impairment because of increasing primary contact

		Williamstown	Task Force	recreation interest.
Stevens Branch watershed	Chemical monitoring	Barre City, Barre Town, Berlin, Williamstown	LaRosa, Local partner TBD	Systematically sample data gaps below to source track elevated nutrient levels
Thatcher and Graves Brook watershed	Chemical monitoring	Waterbury	LaRosa, Local partner TBD	Systematically sample data gaps below to source track elevated nutrient levels
Allen Brook, 2.4	Biological monitoring	Williston	DEC - MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Snipe Island Brook, 1.4	Biological monitoring	Richmond	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Thatcher Brook, 0.1	Biological monitoring	Waterbury	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Great Brook, 0.8	Biological monitoring	Middlesex	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Blanchard Brook, 0.1	Biological monitoring	Montpelier	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Winooski River, 82.8	Biological monitoring	Marshfield	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Mollys Brook, 0.5	Biological monitoring	Marshfield	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Mollys Brook, 1.5	Biological monitoring	Cabot	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Little River, 7.1	Biological monitoring	Stowe	DEC – MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Long Meadow Brook, 0.9	Biological monitoring	East Montpelier	DEC - MAP	Poor to Fair fish community scores contrast Good to Excellent macroinvertebrate scores
Allen Brook, 8.2	Biological monitoring	Williston	DEC - MAP	Determine potential for enhanced protection.
Alder Brook, 4.1	Biological monitoring	Essex	DEC - MAP	Determine potential for enhanced protection.
Fargo Brook, 0.3	Biological monitoring	Huntington	DEC - MAP	Determine potential for enhanced protection.
Cobb Brook, 0.4	Biological monitoring	Huntington	DEC - MAP	Determine potential for enhanced protection.
Brush Brook, 2.8	Biological monitoring	Huntington	DEC - MAP	Determine potential for enhanced protection.
Preston Brook, 0.9	Biological monitoring	Bolton	DEC - MAP	Determine potential for enhanced protection.
Chase Brook, 1.2	Biological monitoring	Fayston	DEC - MAP	Determine potential for enhanced protection.
French Brook, 0.5	Biological monitoring	Fayston	DEC - MAP	Determine potential for enhanced protection.

Ridley Brook, 0.8	Biological monitoring	Duxbury	DEC - MAP	Determine potential for enhanced protection.
Hancock Brook, 1.9	Biological monitoring	Worcester	DEC - MAP	Determine potential for enhanced protection.
Stevens Branch, 11.9	Biological monitoring	Williamstown	DEC - MAP	Determine potential for enhanced protection.
Kingsbury Branch, 13.5	Biological monitoring	Calais	DEC - MAP	Determine potential for enhanced protection.
Marshfield Brook, 0.1	Biological monitoring	Marshfield	DEC - MAP	Determine potential for enhanced protection.
Marshfield Brook, 1.3	Biological monitoring	Marshfield	DEC - MAP	Determine potential for enhanced protection.
Turtlehead Pond Trib #1, 0.2	Biological monitoring	Marshfield	DEC - MAP	Determine potential for enhanced protection.
Muddy Brook	Biological monitoring	Williston, South Burlington	DEC - MAP	Determine attainment of aquatic biota use.
West Branch Little River at Mansfield Base Road	Biological monitoring	Stowe	DEC - MAP	Determine attainment of aquatic biota use.
West Branch Little River (rm 8.5 up to headwaters)	Biological monitoring	Stowe, Cambridge	DEC - MAP	Determine attainment of aquatic biota use.
Little River, from West Branch down to reservoir	Biological monitoring	Stowe, Waterbury	DEC - MAP	Determine attainment of aquatic biota use.
Graves Brook (Mouth upstream to rm 0.3)	Biological monitoring	Waterbury	DEC - MAP	Determine attainment of aquatic biota use.
Thatcher Brook (Waterbury to Waterbury Center)	Biological monitoring	Waterbury	DEC - MAP	Determine attainment of aquatic biota use.
Jail Branch, Barre City and below (1.5 miles)	Biological monitoring	Barre City	DEC - MAP	Determine attainment of aquatic biota use.
Long Meadow Brook	Biological monitoring	East Montpelier, Calais	DEC - MAP	Determine attainment of aquatic biota use.
High Bridge Brook	Biological monitoring	Waitsfield	DEC - MAP	Determine attainment of aquatic biota use.
Sodom Pond Brook	Biological monitoring, chemical monitoring	East Montpelier	DEC - MAP, LaRosa	Data gap in medium watershed with more than 20% agricultural and developed lands.
Mallory Brook	Biological monitoring, chemical monitoring	East Montpelier	DEC - MAP, LaRosa	Data gap in medium watershed with more than 20% agricultural and developed lands.
Still Brook	Biological monitoring, chemical monitoring	Calais	DEC - MAP, LaRosa	Data gap in small watershed with more than 20% agricultural and developed lands.
Miller Creek	Biological monitoring, chemical monitoring	Barre Town	DEC - MAP, LaRosa	Data gap in small watershed with more than 20% agricultural and developed lands.
Honey Brook	Biological monitoring, chemical monitoring	Barre Town	DEC - MAP, LaRosa	Data gap in small watershed with more than 20% agricultural and developed lands.

Cold Spring Brook	Biological monitoring, chemical monitoring	Williamstown	DEC - MAP, LaRosa	Data gap in small watershed with more than 20% agricultural and developed lands.
Barnes Brook	Biological monitoring, chemical monitoring	Montpelier	DEC - MAP, LaRosa	Data gap in small watershed with more than 20% agricultural and developed lands.
Pekin Brook	Biological monitoring, chemical monitoring	Calais	DEC - MAP, LaRosa	Data gap in larger tributary with mixed land use.
Welder Brook	Biological monitoring	Moretown	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Upper Huntington River	Biological monitoring	Huntington	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Sterling Brook	Biological monitoring	Morristown	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Mill Brook	Biological monitoring	Fayston	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Jones Brook	Biological monitoring	Huntington	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Herring Brook	Biological monitoring	Moretown	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Dugar Brook	Biological monitoring	Calais	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Bull Run	Biological monitoring	Northfield	DEC - MAP	Data gap in medium watershed with less than 5% agricultural and developed lands.
Buck Lake Brook	Biological monitoring	Woodbury	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands. Likely lake-influenced.
Wes White Creek	Biological monitoring	Richmond	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Upper Ridley Brook	Biological monitoring	Duxbury	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Sunny Brook	Biological monitoring	Middlesex	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Slide Brook	Biological monitoring	Fayston	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Pinneo Brook	Biological monitoring	Bolton	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.

Nate Smith Brook	Biological monitoring	Orange	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Lockwood Brook	Biological monitoring	Fayston	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Kelley Brook	Biological monitoring	Moretown	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Jones Brook	Biological monitoring	Berlin	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Johns Brook	Biological monitoring	Richmond	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Gleason Brook	Biological monitoring	Bolton	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Deer Brook	Biological monitoring	Fayston	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Cold Brook	Biological monitoring	Marshfield	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Chase Brook	Biological monitoring	Berlin	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Baker Brook	Biological monitoring	Orange	DEC - MAP	Data gap in small watershed with less than 5% agricultural and developed lands.
Sunny Brook	Biological monitoring	Northfield	DEC - MAP	Data gap
Stony Brook	Biological monitoring	Northfield	DEC - MAP	Data gap
Moss Glen Brook	Biological monitoring	Stowe	DEC - MAP	Data gap
Martin Brook	Biological monitoring	Williamstown	DEC - MAP	Data gap
King Brook	Biological monitoring	Marshfield	DEC - MAP	Data gap
Johnnie Brook	Biological monitoring	Richmond	DEC - MAP	Data gap
Hollow Brook	Biological monitoring	Huntington	DEC - MAP	Data gap
Great Brook	Biological monitoring	Plainfield	DEC - MAP	Data gap
Graves Brook	Biological monitoring	Waterbury	DEC - MAP	Data gap
Folsom Brook	Biological monitoring	Waitsfield	DEC - MAP	Data gap
Doctors Brook	Biological monitoring	Moretown	DEC - MAP	Data gap
Crossett Brook	Biological monitoring	Duxbury	DEC - MAP	Data gap
Cox Brook	Biological monitoring	Northfield	DEC - MAP	Data gap
Carpenter Brook	Biological monitoring	Huntington	DEC - MAP	Data gap

Bryant Brook	Biological monitoring	Waterbury	DEC - MAP	Data gap
Beaver Meadow Brook	Biological monitoring	Marshfield	DEC - MAP	Data gap
Alder Brook	Biological monitoring	Waterbury	DEC - MAP	Data gap
Wetlands				
Derway Island and other wetlands at mouth of Winooski	Wetland assessment	Burlington, Colchester	DEC - Wetlands	Assessment for Class I wetland eligibility.
Alder Brook	Wetland assessment	Essex	DEC - Wetlands	Assessment for Class I wetland eligibility.
Shelburne Pond	Wetland assessment	Shelburne	DEC - Wetlands	Assessment for Class I wetland eligibility.
Upper Gleason	Wetland assessment	Bolton	DEC - Wetlands	Assessment for Class I wetland eligibility.
Mud Pond	Wetland assessment	Williston	DEC - Wetlands	Assessment for Class I wetland eligibility.
Other high-quality wetlands proposed by local communities	Wetland assessment	Multiple	DEC - Wetlands	Assessment for Class I wetland eligibility.

Appendix C. Winooski Basin Municipal Protectiveness Table

Table C1. Surface-water related protections adopted by municipalities predominantly in the Winooski basin.

	National Flood Insurance Program	Road and Bridge Standards	Local Emergency Management Plan	Local Hazard Mitigation Plan	River Corridor Protection ¹	ERAF Rate	E911 Structures in Special Flood Hazard Area (SFHA)	SFHA Structures Insured	Critical or Public Structures in SFHA	Percent of All Town Structures in SFHA	Steep Slope Protection	Water Resource Setbacks In by-laws, ordinances, town plan, or zoning?		
	Enrolled?	Adopted?	Completed?	Adopted?	None, CRS, By-Law, or Interim	Percent	Count	Percent	Count	Percent	In by-laws, ordinances, town plan, or zoning?	Rivers	Wetlands	Lakes
Barre City	Yes	No	Yes	No	None	7.5%	342	23%	8	11%		No	No	No
Barre Town	Yes	Yes	Yes	No	None	7.5%	7	29%	1	<1%		Yes	Yes	Yes
Berlin	Yes	Yes	Yes	Yes	CRS	17.5%	161	19%	3	12%		Yes	Yes	Yes
Bolton	Yes	Yes	Yes	Yes	Interim	17.5%	36	22%	1	7%	Yes	Yes	Yes	Yes
Buels Gore	No	Yes	No	Yes	None	7.5%	0	-	0	0%	Yes	Yes	Yes	Yes
Burlington	Yes	Yes	Yes	Yes	None	12.5%	42	17%	0	<1%	Yes	Yes	Yes	Yes
Cabot	Yes	Yes	Yes	No	Interim	7.5%	30	10%	1	4%		No	No	Yes
Calais	Yes	Yes	Yes	Yes	None	12.5%	39	3%	0	4%		Yes	Yes	Yes
Colchester	Yes	Yes	Yes	No	CRS	7.5%	81	19%	0	1%	Yes	Yes	Yes	Yes
Duxbury	Yes	Yes	No	Yes	None	7.5%	37	8%	0	5%		No	No	No
East Montpelier	Yes	Yes	Yes	Yes	By-law	17.5%	33	9%	1	3%		Yes	Yes	Yes
Elmore	Yes	No	No	Yes	By-law	7.5%	8	13%	0	1%		Yes	Yes	Yes
Essex	Yes	Yes	Yes	Yes	Interim	17.5%	8	?	1	0%	Yes	Yes	Yes	Yes
Essex Junction	Yes	Yes	Yes	Yes	Interim	17.5%	9	?	2	<1%	Yes	Yes	No	No
Fayston	Yes	Yes	Yes	No	Interim	7.5%	15	7%	0	2%		Yes	Yes	No
Huntington	Yes	Yes	Yes	Yes	By-law	17.5%	20	10%	0	2%	Yes	Yes	Yes	No

	National Flood Insurance Program	Road and Bridge Standards	Local Emergency Management Plan	Local Hazard Mitigation Plan	River Corridor Protection ¹	ERAF Rate	E911 Structures in Special Flood Hazard Area (SFHA)	SFHA Structures Insured	Critical or Public Structures in SFHA	Percent of All Town Structures in SFHA	Steep Slope Protection	Water Resource Setbacks In by-laws, ordinances, town plan, or zoning?		
	Enrolled?	Adopted?	Completed?	Adopted?	None, CRS, By-Law, or Interim	Percent	Count	Percent	Count	Percent	In by-laws, ordinances, town plan, or zoning?	Rivers	Wetlands	Lakes
Jericho	Yes	Yes	Yes	Yes	Interim	17.5%	13	8%	2	1%	Yes	Yes	Yes	No
Marshfield	Yes	Yes	Yes	Yes	None	12.5%	35	3%	1	5%		Yes	Yes	Yes
Marshfield Village	Yes	Yes	Yes	Yes	None	12.5%	6	33%	1	15%		-	-	-
Middlesex	Yes	Yes	Yes	No	Interim	7.5%	38	16%	0	4%		Yes	No	Yes
Montpelier	Yes	Yes	Yes	Yes	CRS	17.5%	255	38%	18	9%	Yes	No	No	No
Moretown	Yes	Yes	Yes	Yes	None	12.5%	55	31%	2	7%		Yes	Yes	No
Northfield	Yes	Yes	No	Yes	Interim	7.5%	108	12%	0	5%		Yes	No	No
Orange	Yes	Yes	No	No	Interim	7.5%	21	10%	0	4%		No	No	No
Peacham	Yes	Yes	Yes	Yes	Interim	17.5%	11	?	0	2%				
Plainfield	Yes	Yes	Yes	Yes	Interim	17.5%	21	33%	0	4%		Yes	No	Yes
Richmond	Yes	Yes	Yes	Yes	Interim	17.5%	100	18%	4	6%	Yes	Yes	Yes	Yes
Roxbury	Yes	Yes	No	No	Interim	7.5%	6	?	1	1%		No	No	No
Saint George	Yes	Yes	No	Yes	By-law	7.5%	0	-	0	0%	Yes	Yes	Yes	Yes
Shelburne	Yes	Yes	No	Yes	Interim	7.5%	9	33%	0	<1%	Yes	Yes	Yes	Yes
South Burlington	Yes	Yes	Yes	Yes	By-law	17.5%	4	?	1	<1%	Yes	Yes	Yes	Yes
Stowe	Yes	Yes	Yes	Yes	Interim	17.5%	91	9%	1	3%		Yes	Yes	Yes
Waitsfield	Yes	Yes	No	No	Interim	7.5%	19	74%	1	2%				
Warren	Yes	Yes	No	Yes	Interim	7.5%	18	17%	0	1%		Yes	Yes	Yes
Washington	Yes	Yes	Yes	Yes	None	12.5%	25	?	2	4%		Yes	Yes	Yes

	National Flood Insurance Program	Road and Bridge Standards	Local Emergency Management Plan	Local Hazard Mitigation Plan	River Corridor Protection ¹	ERAF Rate	E911 Structures in Special Flood Hazard Area (SFHA)	SFHA Structures Insured	Critical or Public Structures in SFHA	Percent of All Town Structures in SFHA	Steep Slope Protection	Water Resource Setbacks In by-laws, ordinances, town plan, or zoning?		
	Enrolled?	Adopted?	Completed?	Adopted?	None, CRS, By-Law, or Interim	Percent	Count	Percent	Count	Percent	In by-laws, ordinances, town plan, or zoning?	Rivers	Wetlands	Lakes
Waterbury	Yes	No	No	No	None	7.5%	25	84%	0	2%		No	No	No
Waterbury Village	Yes	Yes	No	No	None	7.5%	150	21%	11	22%		-	-	-
Williamstown	Yes	Yes	Yes	Yes	None	12.5%	81	5%	1	6%		No	No	No
Williston	Yes	Yes	Yes	Yes	Interim	17.5%	17	6%	0	<1%	Yes	Yes	Yes	Yes
Winooski	Yes	Yes	Yes	Yes	Interim	17.5%	3	100%	0	<1%	Yes	Yes	Yes	No

¹The River corridor protection [eligibility criteria for a 17.5% ERAF rate](#) can be met through Community Rating System participation (CRS), River Corridor by-law adoption (By-law), or temporarily through early adopter status for communities that adopted some river corridor protections before October 2014 (interim).