Central Vermont Regional Planning Commission

AGENDA

Clean Water Advisory Committee

Thursday July 12th 4:00 – 6:00 PM

4:00 PM:	Welcome and Introductions Public Comments
4:05 PM	Changes to agenda
4:10 PM	Meeting Minutes - 6/14/18 (enclosed)
4:15 PM:	Draft Winooski Basin Plan Tables review and comments – Karen Bates
5:30 PM:	Basin Plan schedule and next steps – Karen Bates and Pam DeAndrea
5:45 PM:	Ecosystem Restoration Project Applications for September – Pam DeAndrea
5:55 PM:	Wrap-up. Next Meeting Date? Topics/agenda items for next meeting.

CENTRAL VERMONT REGIONAL PLANNING COMMISSION
CLEAN WATER ADVISORY COMMITTEE
JUNE 14, 2018
Meeting Notes

A meeting of the Central Vermont Regional Planning Commission's Clean Water Advisory Committee was held on Thursday, June 14, 2018 in the Conference Room of the Central Vermont Regional Planning Commission.

Committee Members Present:

Karen Bates – ANR
Dona Bate – Montpelier City Council
Russ Barrett – Northfield Conservation Commission
Michael Gray – Woodbury/ Board of Commissioners
John Hoogenboom – Moretown Selectboard
John Brabant – Calais/Board of Commissioners
Larry Becker- Middlesex Conservation Commission
Stewart Clark – Worcester Planning Commission
Brian Shupe – Friends of Mad River
Amy Hornblas – Cabot/Board of Commissioners

Committee Members Absent:
Michele Braun – Friends of Winooski River
Corrina Parnapy – Winooski Natural Resources Conservation District
Ron Krauth – Middlesex/ Board of Commissioners

Others Present:
None

CALL TO ORDER
Pam DeAndrea called the meeting to order at 4:05 PM.

CHANGES OR AMENDMENTS TO THE AGENDA

Add in review of tables to Basin plan review comments discussion.

PUBLIC COMMENTS

No members of the public were present.

APPROVAL OF MAY 10 MINUTESs
Changes were made to the following lines as indicated in the draft circulated to the CWAC. The amendments listed below were made based on discussion. Stew moved to approve minutes with suggested changes. Larry seconded.

Page 2, lines 3& 4: add "The scope of the "Tactical" Plan is the entire Winooski Basin, within and beyond the area served by the CVRPC."
Page 2, line 18: added the text to clarify which objective was being referenced in Stewart's comment: "as described in TBP top objective #11"

Page 2, line 24: reworded lines 24 and 25 to be clearer on gullies: "Landslide and gullies: don't fit into implementation categories nicely. Request from this group before it would be funded – what is the state of a particular gully? Does ANR fund it or is it too big?"
Page 2, lines 29 and 30: reworded to be clearer on reference to lakeshore habitats: "Stewart – Can we look at why we are looking at the Lake Champlain lakeshore when the Winooski Basin (the mouth of the Winooski River) forms such a small part of Lake Champlain coastline?"

BASIN PLAN COMMENTS

Purpose for this meeting for comments: go through objectives. Pam will compile comments from everyone on CWAC and send them to Karen.
We also want to look through implementation table and make sure we are not missing anything.
In Karen's email regarding guidance to review tables, Table 13 should have been listed as Table 11.

John B. – is the agency dealing with glyphosate? Karen will reach out to ag folks to find out how we can do more with incorporating this.

Larry: The stream equilibrium tracking method does not make it clear how phosphorus loading is linked. The stated reasons for instability are not explained as they connect to dynamic equilibrium. Please make clearer and more understandable for audience. The statement: "It has been documented that under theses ideal geomorphic conditions, we see significant capture and storage of fine sediment and phosphorous" is not referenced. Without a reference how do we know this is a defensible statement?

Stew: Table of contents and other areas refer to "Basin 8". Please define Basin 8 early on or just use Winooski Basin within the Plan. Along the same lines, the "303d list" should be defined.

Objectives: Karen reviewed them with the members of the group: protect river corridor protection and floodplain restoration were discussed. Stew asked if channel straightening and dredging will be included as something that is not the best way to manage rivers. Karen said that would be addressed later in the document.

Larry – Is no till recommended? Karen responded that the plan does not necessarily recommend it but that it would be recommended through the NRCS.

Brian- shouldn't we have language in here that RAPs should be followed? Maybe a general comment that the ANR can provide technical assistant for the adherence to water quality regulations.

John B. – Are other agencies that are doing other initiatives for farms being mentioned in the plan? A major concern in East Montpelier and Calais is more pesticides being applied on farms as they acquire more fields to farm that used to be just hay fields. Streams in area should be monitored for pesticides – baseline monitoring. KB response – they can ask pesticide monitoring in the DEC.

Larry - stated that Baseline Monitoring can be an objective on page x and xi in the Executive Summary

The group discussed E. Coli in waters. Karen mentioned that watershed organizations volunteers have helped considerably - maybe LCCD or other district could do some monitoring if asked.

Karen also mentioned Great Brook in Middlesex needing some assessment of stormwater. Pam said that Middlesex could be lumped that into a SWMP with Waterbury and that the conservation commission is interested as is Waterbury. Pam will email Stew information on it to possibly include Worcester in the plan.

Other priorities:
Lakes – littoral zone. Strategies could include working with lake associations by connecting them with Lake Wise program. Get addresses from town clerks? Michael was not sure how to get in touch with them. That can be a strategy of how to contact lakeshore landowners.

Road erosion inventories – MRGP addresses what gets prioritized. Not sure how to fund the more expensive projects yet. Prioritization will be done though the inventory process in a sense since those roads that do not meet standards get identified.

John B. – is silviculture addressed? Karen responded yes. Brian mentioned that sugarbush operations are falling through the cracks on following the AMPS since they can fall under the agriculture category. Karen will look into that more.

Brian - There should be an objective on private roads. John H. indicated that Storm Smart program within the Mad River Watershed is a great program to help with private road assessment and fixing.

For towns outside of the Mad River Valley, Karen suggested to reach out to FWR for a private road workshop. Class 4 roads – make them a trail may be a solution sometimes. ANR can provide grants for groups like VYCC to do the work. Can put strategies in the plan for towns to deal with Class 4 roads. Stew- should address both planning commission and selectboard for outreach, conservation and road crews on strategies for Class 4 roads.

Wetland protection: Phosphorus reduction and flood resiliency also means protection of upper wetlands.

Tables: Karen will send out again with town names and what you would like them to review specifically.

LANDSLIDE/GULLY FUNDING PRIORITIZATION

Karen went over handout on criteria for landslide/gully restoration projects. Landslides will be put in the plan but gullies are more of a priority to fix. Landslides will not be funded that are along streams.
Stew – would tallis slopes be included? No since they are not causing water quality problems.
Larry – does it fit into TMDL? Is so, then shouldn't it be included? We can address the lake without addressing the gullies.
Karen Bates- When there are projects that propose sediment basins that need to be cleaned out regularly and it is unlikely that they will be cleaned out, Karen would prefer to not fund those: the reason is - why have a sediment basin at the bottom if there is no one to clean it out?
Stew- landslides after Irene. Karen – what would it take to restore them? She also mentioned that we can't fix everything and we are not supposed to.

TOPICS FOR NEXT MEETING

Basin Plan Tables

Possible projects for Fall ERP grant applications

SCHEDULE

Thursdays: Next meeting July 12, 2018.

Table 1. Summary of Implementation Actions (Watershed Projects Database). The objectives (yellow)and strategies supporting priority actions in Basin 8. The on-going detailed list of actions can be viewed via Watershed Projects Database)

Priority Subbasin	Priority Towns/catchments[1]	Strategies	Source	Stressor addressed	Partners[2]	Funding (see also VSWMS Appendix D)
AGRICULTURE: Implement BMPs						
	Phase II priority catchments for agricultural land Table 17	**Expand small farm NMP development courses** and workshops, trainings for farmers, manure applicators and technical service providers	TMDL Phase I	Nutrients, pathogen	VACD, UVM extension,	
	Phase II priority catchments for agricultural land Table 17	**Increase inspections in priority catchments/watersheds**: target implementation based upon the results	TMDL Phase I	Land erosion, nutrients, pathogens	AAFM,	
	Phase II priority catchments for agricultural land Table 17	**Increase implementation in priority catchments/watersheds**: 1.Provide farms with access to case managers to increase conservation practice implementation through participation in State and federal financial and technical assistance programs; 2 provide modeling analyses as needed to identify most effective BMPs	TMDL Phase I	Land erosion, nutrients, pathogens	AAFM, VDEC,	RCPP, USDA
	Phase II priority catchments for agricultural land Table 17	**Increase technical assistance in priority catchments/ watersheds**: work with farms, including vegetable farms, to meet RAP and adopt BMPs	TMDL Phase I	Land erosion, nutrients, pathogens	WRCD, VACD	RCPP, USDA
	Phase II priority catchments for agricultural land Table 17	**Pilot the Environmental Stewardship Program** to incentivize additional practice adoption	TMDL Phase I	Land erosion, nutrients, pathogens	VAAFM	RCPP, USDA
	Phase II priority catchments for agricultural land Table 17	**Create grassed waterways program** Target funding to critical source areas in coordination with partners	TMDL Phase I	Land erosion, nutrients, pathogens	UVM extension	RCPP, USDA
	Phase II priority catchments for agricultural land Table 17	Evaluate additional BMPs that could be used on pasture land to reduce loading from this land use. Options to evaluate include prescribed pasture practices. Provide outreach to farmers to support implementation of prescribed pasture practices. Provide financial support to purchase fences		Land erosion, nutrients, pathogens	UVM extension, WNRCD, WNRCS, AAFM	USDA, ERP, ACAP, AAFM BMP

[1] High priority catchments identified in Phase II content which provides the highest phosphorus loading for a particular sector.
[2] See Appendix A for additional description of partners

Priority Subbasin	Priority Towns/catchments[1]	Strategies	Source	Stressor addressed	Partners[2]	Funding (see also VSWMS Appendix D)
	Phase II priority catchments for agricultural land Table 17	Increase the availability of equipment available for rental or through custom operators to allow farmers to follow NMPs including equipment to measure crop yields, manure application rates, take soil samples. In addition, equipment options to implement BMPs would include crop and grassland no till drills, Crop and grassland manure injectors, and tine weeder air seeders.		Land erosion, nutrients, pathogens	UVM extension, WNRCD, WNRCS, AAFM	NRCS CSP, ACAP, VHCB
	Phase II priority catchments for agricultural land Table 17	Develop and provide support for equine specific programing including support for installing horse manure compost bins and making pasture improvements		Land erosion, nutrients, pathogens	UVM extension, WNRCD,	ACAP, EQIP, AAFM BMP
Upper Winooski	In addition, Colchester	Provide technical and financial resources to farms that aren't large enough to meet AAFM Small Farm Operation definations		Land erosion, nutrients, pathogens	WNRCD	
	Phase II priority catchments for agricultural land Table 17	Complete targeted water quality sampling on 3 farms to help identify source areas and evaluate nutrient reductions achieved through BMP implementation.		Land erosion, nutrients, pathogens	WNRCD, VDEC	VDEC LaRosa Partnership
STORMWATER: Reduce pollutants and volume						
Lower Winooski	MS4 entities	**Support the development and implementation of Phosphorus Control Plans and implementation of the Flow Restoration Plans.**		Land erosion, nutrients, pathogens	VDEC, CCRPC	CWIP
Stevens Branch, West Branch	Williamstown, Stowe,	**Provide technical assistance** to identify and prioritize stormwater management projects. Use stormwater plan template developed by VDEC	TMDL Phase I	Land Erosion, Channel erosion, pathogens	VDEC, CVRPC,	CWIP
Multiple	See Appendix C	**Support implementation of high priority projects in stormwater master plans**	TMDL Phase I	Land Erosion, Channel erosion, pathogens	VDEC, CCRPC, CVRPC, LRPC	CWIP

Priority Subbasin	Priority Towns/catchments[1]	Strategies	Source	Stressor addressed	Partners[2]	Funding (see also VSWMS Appendix D)
Basin wide	See top 10 prioritized road projects in town road erosion inventories as well Phase II priority catchments for roads (Tables 23 and 24)	**Help municipalities control runoff from gravel and paved roads:** implement road assessment protocol to assist with prioritization; provide technical and financial resources to assist with implementation; provide guidance on implementation projects within 250 feet of lakes; implement Municipal Roads General Permit ,	TMDL Phase I	Land Erosion	CCRPC, CVRPC, LRPC. NVDA, VTrans, WNRCD, VDEC, Municipalities	CWIP
All	Phase II priority catchments for developed land, Table 22	**Support municipal stormwater regulation adoption, include incorporation of LID and GSI practices; Implement "Three-acre" permit, including the green schools initiative to help schools meet the three-acre permit**	VDEC	Land erosion, nutrients, Channel erosion, pathogens	Municipality, CCRPC, CVRPC, LRPC, NVDA, VDEC,	CWIP
		Implement six minimum control measures required in the State TS4 permit	TMDL Phase I	land erosion, channel erosion,	VTrans	VTrans
		Develop and begin implementation of a phosphorus control plan early in the next TS4 permit cycle	TMDL Phase I	land erosion, channel erosion,	VTrans	VTrans
See VTrans road erosion inventory (not completed yet)	Phase II priority catchments for paved roads (Table 23)	**Intercept and treat runoff from agricultural and silvicultural land before it reaches VTrans right of way**	VDEC	Land Erosion, Channel erosion, pathogens	AAFM, NRCS, WNRCD,	USDA, ERP
Stevens Branch	Phase II priority catchments for develop land, Table 22.	**Support brownfields restoration efforts that mitigate surface water pollution generated from these sites.**	VDEC	Toxics, Land Erosion, Channel erosion, pathogens	CCRPC, CVRPC, LRPC, towns	VDEC, EPA
Stevens Branch, Sunny Brook, Lower Winooski	Barre city, Montpelier, M34 entities	Provide education on winter maintenance strategies to businesses and towns to reduce use of Chlorides.	VDEC	Toxics	UVM Sea Grant, WNRCD, towns	LCBP

Priority Subbasin	Priority Towns/catchments[1]	Strategies	Source	Stressor addressed	Partners[2]	Funding (see also VSWMS Appendix D)
	Phase II priority catchments for develop land, Table 22.	**Support stormwater management education for private landowners, including private drive ways (http://dec.vermont.gov/sites/dec/files/wsm/erp/docs/VT_Guide_to_Stormwater_for_Homeowners_DRAFT.pdf and Lake Wise reports**	VDEC	Land erosion, channel erosion	UVM Sea Grant, WNRCD	LCBP
RIVER CORRIDOR: Reach stream equilibrium and flood resilience						
See River Corridor plan table 7		**Implement high priority projects identified in River corridor plans**	TMDL Phase I	Channel erosion, flood resilience, thermal modification	VDEC, FWR, FMR, WNRCD	CWIP
Mid and Upper Winooski tributaries	Potential B1 for fishing watersheds	**Replace geomorphologically and aquatic organism passage (AOP) incompatible culvert and bridges:** RPCs work with towns to identify, add to capital budget, seek additional funding sources	DEC	Channel erosion, flood resilience	municipalities, VTrans,	federal hazard mitigation funds, Municipalities, VTrans
See River Corridor plan table 7	See WPD	**Increase River Conservation Easements**: support projects which incorporate channel management and riparian buffer Provisions in areas where protection does not otherwise exist.	TMDL Phase I	Channel erosion, flood resilience, thermal modification	VDEC, VRC, VLT	CWIP
	Towns with interim ERAF status	**Enhance the Flood Resilient Communities Program** with funding and technical assistance incentives for municipalities. Encourage towns with provisional ERAF status to meet current standards	TMDL Phase I	Channel erosion, flood resilience	VDEC, CCRPC, CVRPC, LRPC, UVM Sea Grant	State of Vermont
All	All	**Support studies to investigate benefits of removal of dams listed in Table 9 and where landowner interest exists, remove.**	VDEC	Channel erosion, encroachment, thermal modification	VDEC, TU	CWIP, LCBP, Watershed Grant
See Landslide Inventory Map, 2017	Middlesex, Plainfield, Calais, Warren, Jericho, Bolton,	Assist towns in accessing and understanding use of the Vermont Geological Survey's landslide inventory to benefit Hazard Mitigation Plan as well as preventing landslides through protection	VDEC	Land Erosion, encroachment	CCRPC, CVRPC, LRPC	FEMA (for Hazard Mitigation)
FISHERIES HABITAT: Restore complexity and diversity (see also above for addressing AOP and Thermal Modification						
Mad and Dog River		Remediate habitat in highly degraded areas and/or areas where extensive channel management occurred by adding woody debris	VDFW	Channel erosion	VFWD, TU, VTrans,	

Priority Subbasin	Priority Towns/catchments[1]	Strategies	Source	Stressor addressed	Partners[2]	Funding (see also VSWMS Appendix D)
Mid Winooski tributaries, Winooski headwaters, Mad River, Dog River, Huntington	See high quality waters map for potential B1 for fisheries watershed	Protect water quality and riparian characteristics in subwatersheds that protect salmon and brook trout habitat. Use community interest in salmon and/or brook trout to engage community in watershed protection actions			TU, USFW, FWD	USFWS
FOREST MANAGEMENT: Abate soil erosion						
All	Phase II priority catchments for forested land (Table 16)	Identify eroding, abandoned and retired forest roads, skid trails and log landings to assist in identification of remediation projects	VDEC, TMDL Phase I	Land erosion	DFPR	RCPP
All	Phase II priority catchments for forested land (Table 16)	Prioritize work with landowners based on contribution of erosion features on logging roads to water quality impairment, use of roads to manage a sugarbush. Provide technical and financial assistance.	TMDL Phase I	Land erosion	State foresters, DFPR	RCPP
All	All	Provide loggers with access to bridges to reduce floodplain encroachment and improve AOP, including renting portable skidder bridges or promote building and ownership of bridges by logging as part of their general practices. In addition, DFPR will continue renting larger temporary bridges, which provide a larger opening than the skidder bridge and can handle logging trucks.	DFPR	Land erosion, Channel erosion	Fontaine Lumber, DFPR, WNRCDs, VACD	CWIP
All	All	Enhance forest cover to improve watershed health by promoting the use of Ecologically Sensitive Treatment Areas for managed forest in current-use.	Phase I TMDL	Land erosion, Channel erosion	DFPR	
Winooski headwaters, North Branch, Kingsbury Branch,	Berlin, Middlesex	Protect forestland through support of the working landscape as well as conservation to protect community valued ecosystem services. Use Vermont Cover to identify priority forest areas for protection, encourage towns to protect forested area in watershed of water supplies, direct outreach to landowners of large forested tracks under or eligible for current use	ANR, CVRPC	Land Erosion	CVRPC, FWR, VLT,	ACCD -VHCB programs; High Meadows(2017 grant)
WETLANDS: Protect and restore						
		Collect additional information on Shelburne Pond, Essex Alder Brook (Essex and Milton), Upper Gleason (Duxbury), Berlin Pond (Berlin), Kettle Pond south (Marshfield and Groton , Lanesboro Bog (Marshfield) and Mud Pond (Williston) to determine potential as Class I wetland	TMDL Phase I, VDEC	Protection	VDEC,	
Lower Winooski		**Prioritize restoration of wetland and floodplain projects** on agricultural lands with highest potential for phosphorus retention and sediment attenuation. VDEC has mapped priority areas for projects,	VDEC	pathogens, land erosion, nutrients, channel erosion	VDEC, USFWS,	USDA, RCPP, CWIP

Priority Subbasin	Priority Towns/catchments[1]	Strategies	Source	Stressor addressed	Partners[2]	Funding (see also VSWMS Appendix D)
		Prioritize restoration and protection of wetlands, as well as floodplain forests, and river corridors based on potential to filter out pollution. See Water Quality Blueprint for specific areas: https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/vermont/freshwater/nature-based-solutions-for-clean-water.xml	VDEC, TNC	land erosion, nutrients, channel erosion	VDEC, TNC,	ERP, ACCD-VHCB
LAKE and SHORELINE: Protect and restore						
Kingsbury Branch	Calais, East Montpelier, Woodbury, including Greenwood Lake	Promote the Lake Wise Program's online resources to encourage lake-friendly shoreline property maintenance	TMDL Phase I	Shoreline encroachment, land erosion	UVM Sea Grant, VDEC	LCBP, Watershed Grants, CWIP
All	Greenwood Lake	Promote contractor and partner participation on the Natural Shoreland Erosion Control Certification Program			UVM Sea Grant, VDEC	
Kingsbury Branch	Calais, East Montpelier, Woodbury	Incorporate materials specific to spiny water flea into signs, greeter program. Place spiny water flea spread prevention information at all lake accesses	VDEC	Aquatic invasive species	VDEC, lake associations	LCBP
See Table 4 for lakes altered by Eurasian watermilfoil		Support community's efforts to control Eurasian watermilfoil	VDEC, lake assn.	Aquatic invasive species	VDEC	AIS grant-in-aid program
Kingsbury Branch	Curtis Pond	Grow the access greeter program at Curtis Pond to include other local lakes	VDEC, lake assn.	Aquatic invasive species	VDEC	
All		Assist development of a cyanobacteria (blue-green algae) volunteer monitoring program and response plan	VDEC	Land erosion, channel erosion, nutrient loading	VDEC, VDH, LCC	VDEC, VDH staff time
Kingsbury Branch?	Buck, Pidgeon, Coits, Turtlehead	Recruit lay monitors for collecting water quality data on high priority lakes			VDEC Lay monitoring program, residents	VDEC
All	All	Support community efforts to protect lake shoreland	Partner s	Encroachment, land erosion	Watershed groups, NGOs, FOLAP	

Priority Subbasin	Priority Towns/catchments[1]	Strategies	Source	Stressor addressed	Partners[2]	Funding (see also VSWMS Appendix D)
Other						
Entire Basin	See Table 30	Review WWTF facilities in the Winooski Basin and issue permits that meet these new phosphorus limits. Support towns pursuing phosphorus optimization, expansion projects, and Upgrades	VDEC FED	Pathogens, nutrients	VDEC, municipalities	USDA-Rural Development, Clean Water State Revolving Funds
	All	Document the current loading conditions for phosphorus, and determine the "reasonable potential" that WWTF's have to cause or contribute to downstream water quality impairment	VDEC	Nutrients	VDEC, towns	VDEC
Kingsbury Branch, Jail Branch	See Table 11	Monitor and assess surface waters to gain better understanding of condition and potential pollution sources, including internal phosphorus loading in lakes. In addition, monitor for pathogens at swimming areas and report to community.	VDEC	Pathogens, land erosion, channel erosion	VDEC, watershed groups,	VDEC including LaRosa Partnership Program, Lay Monitoring Program
Huntington River, Kingsbury Branch, Jail Branch		Provide septic system maintenance education to homeowners	Partners	Pathogen	UVM Sea Grant, WNRCD, VDEC	
	See Table 11	Conduct biomonitoring and/or water quality monitoring on streams that have met "very good" or "excellent" criteria to identify candidates for reclassification	VDEC	Protection	VDEC	VDEC
		Assist land managers in reducing use of toxins that adversely impact aquatic biota	Partners	Toxins	LCBP	

Table 2. Additional proposed monitoring and assessment needs to inform remediation or protection strategies.

Water body	*Town*	*Assessment Goal*	*Existing data supporting goal*	*Monitoring needs*
Minister Brook	Worcester	Determine condition based on aquatic life support (ALS)	Stressed due to acid, low spring pH	Macroinvertebrates and fish
Hancock Brook	Worcester	Determine condition based on aquatic life support	Stressed due to acid for ALS, low spring pH, 2005 macroinvertebrates and fish Good	Macroinvertebrates and fish updated
Little River	Waterbury	Determine condition	stressed: so, instability still an issue.	Review geomorphic condition. Macroinvertebrate and fish data
Upper Winooski (btw Marshfield and Cabot Creamery)	Cabot	Determine condition	2015 and 2016 data above Cabot WWTF shows *Excellent* macroinvertebrates, but this area is currently listed as stressed	Macroinvertebrate and fish data
Upper Winooski – ¼ mile below Cabot WWTF	Cabot	Determine condition	macroinvertebrate – 2015 data = *Very Good*.) Recovered from spill	Macroinvertebrate and fish data
Upper Winooski – Molly Falls, brook – Upper area of brook	Cabot	Determine condition	Macroinvertebrate good in lower brook nearer to confluence (RM 0.1, RM 0.5); Indeterminate Fair/Good closer to Rez at RM 1.5. Fish fail at 1.5 and 0.5. VDFW data shows increased temp.	Macroinvertebrate and fish data
Main stem - Upper Winooski to Essex	Cabot to Essex	Determine condition	Macroinvertebrates are good or above, nothing has failed except after Cabot Creamery spill.	Macroinvertebrate data (river too wide to collect fish data).
Great Brook	Plainfield	Confirm that geomorphic issues are resulting in ALS degradation.	Geomorphic assessment	Macroinvertebrates and fish data
Gunner Brook - RM 1.1 to mouth.	Barre	Determine condition	Macroinvertebrates/ fish results variable btw poor and good. Macroinvertebrates better than fish. The fish might be stressed due to invasive rainbow.	Macroinvertebrate and fish. Review Toxins data
Stevens Branch – Rm 4.9 and downstream	Barre	Determine condition	Landscape suggests degraded conditions	Macroinvertebrate /fish data
High Brook bridge, Welder Brook, and Folsom Brook	Waitsfield, Moretown	Determine condition	based on review of FMR volunteer data that has identified these as relatively high pollutant loads	Macroinvertebrate /fish data
Chase Brook	Fayston	Determine condition	upstream activity (Sugarbush North) 2006 data good.	Macroinvertebrate /fish data

Water body	*Town*	*Assessment Goal*	*Existing data supporting goal*	*Monitoring needs*
Clay and Rice Brooks	Waitsfield	Determine condition	part of the Stormwater Master Plan for Sugarbush with consultant monitoring	Macroinvertebrate /fish data
Joiner Brook	Bolton	Determine condition	check impact of development	Macroinvertebrate /fish data
Cobb Brook	Huntington	Determine Condition	Huntington Conservation Commission requested assessment	Macroinvertebrate /fish data
Huntington River	Huntington	Determine condition	Texas Hill Road is steep and could contribute sediment. Macroinvertebrates very good to excellent and fish good condition.	Macroinvertebrate /fish data
Muddy Brook	Williston	Determine condition	Landuse suggests stressors beyond listed area	Macroinvertebrate /fish data
Blanchard Brook	South Burlington	Identify stressors	Will be listed for stormwater and temperature in 2018	Macroinvertebrate /fish data
Sand Hill Brook VT08-04	Essex	Confirm as Class B(1) for aquatic biota and wildlife	2015 macroinvertebrate =*Very Good*, fish=*Excellent*	Macroinvertebrate /fish data
Jug Brook VT08-09:	Cabot	Confirm as Class B(1) for aquatic biota and wildlife	Might meet B1 depending on whether final criteria allow two individual sample sites with only 1 sample to meet criteria (RM 1.4 & 3.0)	Macroinvertebrate /fish data
Pinnacle Brook VT08-12:	Stowe	Confirm as Class B(1) for aquatic biota and wildlife	Data from 2012-2016 shows very good or better macroinvertebrates Try to sample in 2018.	Fish data
Orange Brook VT08-15:	Orange	Confirm as Class B(1) for aquatic biota and wildlife	Low gradient, Very Good macroinvertebrates in 2013. an additional Very Good or better macroinvertebrate assessment.	Macroinvertebrate data
Upper Stevens Branch VT08-16:	Williams-town	Confirm as Class B(1) for aquatic biota and wildlife	RM 11.9 fish and macroinvertebrates were Very Good in 2015	Macroinvertebrate /fish data

Water body	*Town*	*Assessment Goal*	*Existing data supporting goal*	*Monitoring needs*
Freeman Brook VT08-20:	Warren	Confirm as Class B(1) for aquatic biota and wildlife	Based on macroinvertebrate/fish data	Macroinvertebrate/fish data
Lincoln Brook VT08-20:	Warren	Confirm as Class B(1) for aquatic biota and wildlife	very good for macroinvertebrate/fish in 2015.	Macroinvertebrate/fish data
Gleason Brook	Duxbury	Explore for reclassification to A1	Landscape would support, part of Camels Hump State Park. Part of management plan's Natural Area down to 900 ft.	Macroinvertebrate/fish data
Trib to Woodbury Lake (across from DFW boat access)	Woodbury	Explore for Class B1 for aquatic biota and wildlife	Mouth of tributary provides habitat for X mussel	Macroinvertebrate/fish data
Mill Brook	Jericho	Explore for Class B1 for aquatic biota and wildlife	Based on macroinvertebrate/fish data	Macroinvertebrate/fish data

Priority Subbasins for Remediation

The assessment results described throughout this Chapter as well as the EPA and state-listed waters (Table 4) provide a basis for identifying priority stressors in subbasins (Table 12) for remediation. These priority subbasins have been identified as providing significant phosphorus and sediment loads to the watershed and/or need protection for purposes of flood resilience. In addition, assessments have provided information about appropriate strategies and actions to address stressors. The actions in the Watershed Projects Database were informed by these priority actions.

Table 3. Strategies to address priority stressors in subbasins.

Subbasin Waterbody Name[3]	*Streams*	*Priority Stressor/Concern*	*Priority Strategy*
Lower Winooski River mainstem		Urban development stressors and toxins[4] agriculture, chlorides	Support MS4 permit implementation, Education/Outreach to encourage implementation of best practices by private landowners (E/O)
Tributaries to Lower Winooski	Centennial, Sunderland, Allen, Sucker, Alder and Muddy Brook	Urban Development stressors, chlorides, agriculture	Support MS4 permit implementation, stormwater management to reduce landslide, E/O , protect/enhance river corridors
Lower Mid-Winooski River mainstem -the confluence of Alder Brook to the		Temperatures sustained from smaller streams despite Bolton and Waterbury dam, road stormwater, agriculture	Protect/enhance River corridor, manage stormwater, agric. BMP

[3] To identify the towns encompassed by each of the subbasins, please see Water Quality Assessment Maps.
[4] Urban development stressors: land erosion, nutrient loading, channel erosion, pathogens, Thermal stress; encroachment Agricultural stressors: land erosion, nutrient loading, channel erosion, pathogens, Thermal stress

Subbasin Waterbody Name[3]	*Streams*	*Priority Stressor/Concern*	*Priority Strategy*
confluence of the Little River			
Tributaries to Lower Mid-Winooski	Mill, Johnnie, Duck, Joiner, Pinneo, Preston, Gleason	Roads, landslide activity, these streams currently protect temp. of main stem. Trout/salmon spawning habitat	Driveway E/O and Road management, Protect/enhance River corridor
Huntington River	Cobb Brook, Hollow Brook	Pathogens, temperatures (limit spawning habitat), geomorphic instability, agric. runoff, septic. Protect swimming holes	Driveway E/0, support town floodplain protection, Protect/enhance river corridor. Manage stormwater and streams to reduce landslide/gully
Upper Winooski River mainstem	from confluence of Stevens Branch to confluence of Molly's Bk	Geomorphic instability: cutting through old lake terraces, dams and lack of riparian buffer result in thermal modification. Pathogens from village centers; Flood resilience	Forest integrity E/O, grazing workshops, Protect/enhance river corridor, stormwater management including IDDE in villages
Tributaries to Upper Winooski	Great Brook (Plainfield), & Nasmith, Creamery, Mallory Bennett, Sodom Pond,Guernsey Brook	Geomorphic instability, landslides and gullies Protect trout habitat Flood resilience	Forest integrity, river corridor easements, road and bridge work, Protect/enhance river corridor, manage stormwater and streams to reduce landslide/gully
Winooski River headwaters	from confluence of Molly's Brook to its headwaters and tributaries incl. Mollys, Jugg and Sucker Brooks	Temperatures (Dams), Stormwater from villages, agriculture. Pathogens Flood resilience	Forest integrity E/O, agriculture BMP, including hay field management and woody riparian buffer
Kingsbury Branch Winooski River	including the tributaries Buck Lake Brook, Pekin Brook, Dugar, Still	Protection of lakes/ponds. N. Montpelier pond dam increases temperature although Dugar & Pekin brook provide cold water to Pond. Geomorphic instability although Kingsbury protected by ledge/wetland. Agric in Pekin Brk & Kingsbury trib	Driveway E/O, lake shore protection and BMPs; River corridor protection on Pekin Brook. Forest integrity E/O.
Tributaries to Upper Mid-Winooski	Graves (Thatcher,) Jones Brook (Great),Herring Brooks.	Forested except for Thatcher (urban development). Private and town road runoff.	Waterbury village stormwater management; driveway E/0
Lower Little River		Geomorphic instability, Japanese Knotweed on river banks. Temperature main stem, Development in upper watersheds.	Protect River corridor: Protection of headwaters streams. and plantings
Upper Little River	West Branch little river; gold brook; Miller brook, Moss Glen Brook	Geomorphic instability, temperature, development in upper watershed. Agric. cropland near Stowe.	Stormwater management, Protect/enhance river corridor, include berm removal. Transportation resilience plan, Agric field BMPs

Subbasin Waterbody Name[3]	*Streams*	*Priority Stressor/Concern*	*Priority Strategy*
Upper Mid-Winooski River mainstem	from the confluence of the Little River to the confluence of Stevens Branch	CSO pathogens, stormwater runoff	Support permits, GSI in Montpelier
Jail Branch Winooski River		Toxins, agric. impacts in upper, Temperature, stormwater,	Stormwater management, protect river corridor
Stevens Branch Winooski River	Gunner Brook); Pond Brook (drains Berlin Pond so flow regulation)	Toxins, stormwater, Temperature; Gunnar brook - important spawning habitat for cold water fishery, but geomorphic instability – road conflicts	Stormwater management, flood resilience practices,
Dog River		Pathogens, temperature, geomorphic instability, urban stormwater, floodplain protection;	Stormwater management, protect/enhance river corridors, agricultural BMPs
Mad River mainstem		Geomorphic instability, flood resilience, pathogens from farms (septic? , roads. Lack riparian buffers	Agric field BMPs, flood resilience ; protect/enhance river corridors
Lower Mad River tributaries		Steep slopes and erodible soils intensify erosion; high road density, geomorphic instability. Pathogens, Agriculture. Dowsville wild native brook trout	Agriculture BMPs, Silvicultural BMPs, road E/Os, flood resilience ; protect/enhance river corridors.
Upper Mad River tributaries		Steep slopes and erodible soils intensify erosion; high road density, geomorphic instability. above Warren -wild native brook trout	Manage developed land stormwater. Silvicultural BMPs, flood resilience ; protect/enhance river corridors
North Branch Winooski River		Protection of streams, address road runoff and structures, address logging roads	Protect/enhance river corridor, driveway workshops, remediate logging roads

Task	Start date	End date
RPC and NRCD review	Friday, April 20, 2018	Monday, July 23, 2018
Partners review	Monday, May 21, 2018	Monday, July 23, 2018
RPC cross walk w BP and Municipal policies	Friday, June 15, 2018	Thursday, July 19, 2018
RPC review	Tuesday, August 28, 2018	Wednesday, October 31, 2018
Public draft/ comment period	Friday, September 21, 2018	Wednesday, October 31, 2018
Public meetings	Friday, September 21, 2018	Monday, October 15, 2018
ANR signature	Friday, November 30, 2018	Friday, December 7, 2018