LAKE SHORELAND RESTORATION PROJECT SEQUENCING

*This fact sheet is **a guide on how to work with** the Orleans County Natural Resources Conservation District (OCNRCD), NorthWoods Stewardship Center (NWSC), and Memphremagog Watershed Association (MWA) in **identifying, designing, funding, managing, and installing restoration projects on lakeshores** in Orleans County and its watersheds.*

Background

In an effort to protect water quality in Vermont lakes, the Vermont Department of Environmental Conservation (VTDEC) seeks to identify the environmental sources of erosion and phosphorus loading by partnering with water quality professionals. These organizations (OCNRCD, MWA & NWSC) engage in field assessments via programs like **Lake Wise** and **Lake Watershed Action Plans**, to identify problem areas for addressing erosion issues. Lake restoration opportunities are identified, recorded, and prioritized. The next step is turning them into projects that can be implemented.

Phases in Restoration Projects

Once a priority project is identified, the following process ensues to take it from identification to implementation.

- **Phase 1 - Project Development**: Applicant seeks grant funding to identify & define projects; landowner commitment secured; VTDEC eligibility screening
- **Phase 2 - Design:** Applying for grants to pay for design, develop a budget, and identify permits. Project design may take place in two phases: 30% design (preliminary) and then 100% design, or go straight to 100% design
- **Phase 3 - Implementation**: Water quality groups apply for grants to install **Shoreland Best Management Practices** (BMPs); tasks include hiring contractors, managing the project, sourcing supplies; landowner match may be requested (i.e., to pay a percent of the cost of the supplies)
- **Phase 4 - Operations & Maintenance:** Develop O&M plan and agreement; paid for in part by grants and landowner

Design by MWA for infiltration steps & timber walls (photo 1)
Paved parking area to be removed and replaced by BMPs (photo 2)
Planting diagram of planned gardens along infiltration steps (photo 3)
Shadow Lake, 2023

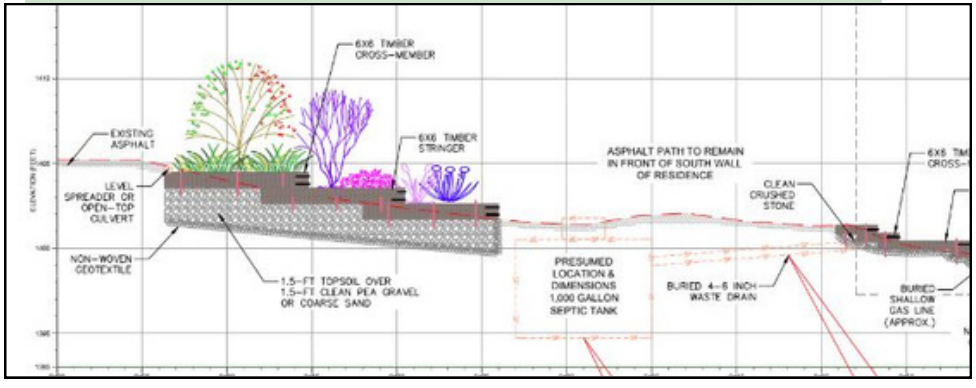

Photo 1

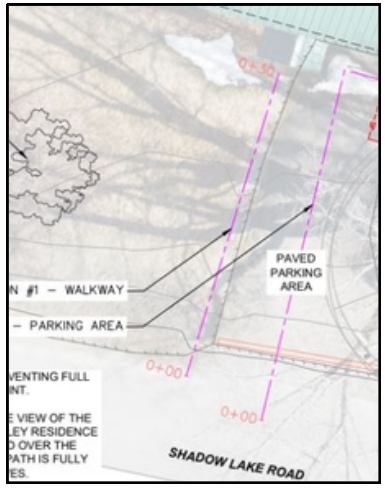

Photo 2

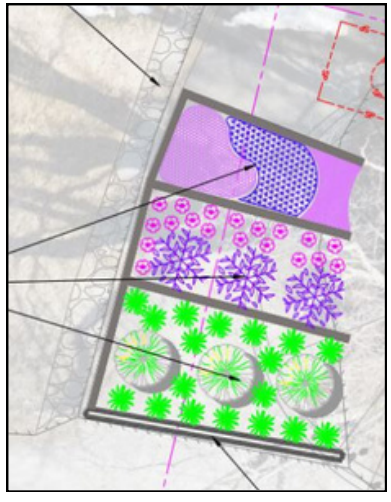

Photo 3

SHORELAND RESTORATION PROJECTS: PROCESS, TIMELINE, COSTS & FUNDING

Roles, Responsibilities & How the Funding Works

OCNRCD, MWA, NWSC, a town, or a lake association can be the applicant for the grants. An organization can apply for clean water funding through various channels such as Watershed United Vermont, the Natural Resource Conservation Council, or the Clean Water Service Provider, which are the programs that administer VTDEC grants. Ideally, one of the conservation organizations will be the applicant and thus function as the project manager and work with the town or lake association or partner organizations to fulfill the grant requirements, secure the permits, and move the project forward.

To learn more about the grants, refer to our **Lake Shoreland Project Funding Opportunities** document found on our website at and linked here.

Timeline

A typical timeline might be the following:
Year 1 - *Lake Wise* assessment leads to project identification. If necessary, grant application submitted for 30% design or grant application for 100% design & project implementation
Year 2 or 3 - 100% design completed; permit applications, paid for and submitted by landowner; secure subcontractors (crew, design oversight, excavation); materials sourced

Costing

The costs of projects can fluctuate and depend on many variables. Project expenses might include project management, design, work crews, excavation, plants and other materials.

Project Budget, Example - Design & implementation of infiltration steps & rain garden

Project Budget - Shadow Lake BMP Installation		
Personnel - Project Mgmt	$	4,920.00
Design & Tech Oversight	$	4,380.00
Crew - Installation (7.5 crew days)	$	13,200.00
Excavation/Site Eval	$	3,800.00
Materials & Equipment	$	3,639.00
Total	**$**	**29,939.00**

Permits - A project may require permitting. i.e., under the Shoreland Protection Act.

To see a full listing of potential permits, go to VTDEC website:

https://dec.vermont.gov/watershed/application-permitting-and-compliance-forms

Encapsulated soil lifts installation Caspian Lake, 2023

Typical Projects - Best Management Practices Implementation

Caspian Lake, 10' Shoreline Stabilization
Practice - Bioengineering with encapsulated soil lifts
Type of grant - Design & Implementation
Cost - $7500 ($37/sq ft); landowner match*- $1500 (50% of materials)

Shadow Lake, Stormwater Remediation
Practice - Infiltration steps & rain garden (removal of impervious surfaces)
Type of grant - Design & Implementation
Cost -$29,939 ($173/sq ft); landowner match $2800 (50% of materials)

Joe's Pond, Replacement of 48' Retaining Wall
Practice - Bioengineering, stone toe & coir rolls
Grant type - Enhancement Design & Implementation
Cost - $16,000 ($82/sq ft); landowner match $2900 (100% of materials)

Maidstone, Lake-friendly Landscaping (640 sq ft)
Practice - No-mow Zone, Rain Garden & Buffer Planting
Grant type - Design & Implementation
Cost - $3080 ($4.80/sq ft) - materials only; landowner match $1540

*Owner match: A*n *example would be paying 50% of materials. Owner match is not required but requested.*

For more information, contact Orleans County NRCD
802.334.6090 x7008 or visit our website:
www.orleanscountynrcd/lake-watershed-project-management

Orleans County Natural Resources Conservation Disrtrict