Lake Waukewan and Lake Winona Watershed Management Plan. These indicators are listed in Section 7.2 and are intricately tied to the action items identified in the Action Plan.

7.0 Plan Implementation

Plan implementation will be led by the Waukewan Winona Lake Study Advisory Committee. Local participation is an integral part of the success of this plan, and should include the leadership of NHDES, local municipalities (including Meredith, New Hampton, Center Harbor, Holderness, and Ashland), local lake associations, local schools, community groups, local businesses, road associations, and individual landowners. The advisory committee will need to meet regularly and be diligent in coordinating resources to implement practices that will reduce NPS pollution in the Lake Waukewan and Lake Winona watershed.

7.1 Action Plan

The Action Plan was developed through the combined efforts of the LWA and FB Environmental, as well as the advisory committee. The Action Plan is a critical component of the plan because it provides a list of specific strategies for improving water quality and the means to make the water quality goals a reality. The Action Plan consists of action items to help address threats identified within five major categories in no particular order of priority:

- Best Management Practices (BMPs)
- Wastewater Systems
- Municipal Ordinances, Planning, & Land Conservation
- Education & Outreach
- Water Quality Monitoring

In addition to the goal of nutrient (phosphorus) reduction, the Action Plan was also developed to foster thinking about long-term strategies for improving the water quality and related natural resources within the watershed, and to promote communication between citizens, municipalities, and state agencies. The Action Plan outlines responsible parties, potential funding sources, approximate costs, and an implementation schedule for each task within each category. Current cost estimates for each action item will need to be adjusted based on further research and site design considerations.

Best Management Practices (BMPs)

Best Management Practices (BMPs) are restoration tools that property owners can use to minimize impacts from stormwater runoff and restore degraded areas, particularly along shorelines that feed directly to the lakes. This could be as simple as planting vegetated buffers, installing gravel

driplines along roof edges, and ensuring that runoff from paths and driveways is filtered into the ground rather than running overland and into the lake. Coordination with landowners is crucial for successful implementation of BMPs identified in this Action Plan because mitigation measures will need to be implemented on private land. The 2014 watershed and shoreline surveys identified and prioritized several areas within the watershed that should be treated for erosion and/or stormwater runoff issues.

Table 27. Lake Waukewan/Winona Action Plan – Best Management Practices

WATERSHED BEST MANAGEMENT PRACTICES (BMPs)

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST
Priority BMPs	1) Conduct stakeholder review of the BMP matrix and top prioritized sites to ensure that targeted sites are appropriate for the watershed and local interests.	Lake Associations, WWLSAC, Towns	N/A	2015-2025	N/A
	2) Implement BMPs at top priority sites identified from the 2014 watershed survey for both lakes.	Lake & Homeowner Associations, BCCD, Towns	NHDES, Towns, Private, Other Grants	2015-2025	$74,000*
	3) Work with landowners to stabilize shorelines identified in the 2014 shoreline survey.	Lake Associations, NHLAKES, BCCD, Towns	NHDES, Towns, Private, Other Grants	2015-2025	$63,000*
NPS Tracker & BMP Monitoring	1) Track pollutant reductions as sites are identified and BMPs are implemented. Recommend using NPS Tracker template.	LWA, BCCD, Volunteers, Towns	NHDES, Towns, Volunteers	2015-2025	$100/yr
	2) Re-survey implemented BMP sites every five years and develop a tracking system to document long-term functionality. Obtain digitized parcel data before re-surveying.	Lake Assns, BCCD, Volunteers, Towns	NHDES, Towns	2015-2025	$1,000
Shoreline Surveys	1) Conduct a shoreline survey every 5-10 years to track changes in shoreline development over time.	WWLSAC, WWAC, Lake & Homeowner Assns., Towns	Volunteers	2015-2025	$2,000
NH Lakes Conservation Corps (NH LAKES CC)	1) Enlist the NH LAKES Conservation Corps for implementation and outreach activities throughout the watershed.	Lake Associations, NH LAKES, BCCD, Towns	N/A	2015-2025	N/A
Plant Sale	1) Organize and host an annual spring plant sale. Locally-sourced, native plants can be used for shoreline buffer plantings by landowners.	BCCD, Volunteers	LWA, BCCD, Grants, Donations	2015-2025	$500/yr

*Cost estimates include initial cost of BMP plus associated annual costs over a 10-year period.

Wastewater Systems

Septic system effluent typically stores a thousand times the concentration of phosphorus in lake waters, which means that a small amount of effluent could have a major impact on the lake. An old

or improperly-maintained septic system can also result in the delivery of chemicals and hormones used in pharmaceutical and personal care products, as well as the delivery of disease-causing bacteria or viruses that cause gastro-intestinal illness in swimmers. Inundation of systems by groundwater greatly enhances the transport of phosphorus and pathogens to the lake. Therefore, it is critical to ensure adequate setbacks and good vertical separation from the seasonally-high groundwater table.

Based on the watershed modeling that has been completed, septic systems are the third and second largest source of phosphorus to Lake Waukewan and Lake Winona, respectively. The contribution of septic systems was estimated to provide 9% (28.3 kg TP/yr) and 13% (13.6 kg TP/yr) of the total phosphorus load to Lake Waukewan and Lake Winona, respectively. A wastewater inspection and maintenance program will help reduce phosphorus and bacteria loading to these lakes. Significant reductions in phosphorus loading to the lakes will be achieved if landowners take responsibility to evaluate and maintain their systems, and make necessary upgrades, especially to old systems, cesspools, and outhouses.

Table 28. Lake Waukewan/Winona Action Plan- Wastewater Systems

WASTEWATER SYSTEMS						
ACTION ITEM	**DESCRIPTION**	**RESPONSIBLE PARTY**	**FUNDING SOURCE**	**SCHEDULE**	**ESTIMATED COST**	**STATUS (As of June 2016)**
SEPTIC SYSTEMS						
Initial Septic System Inventory	Conduct a comprehensive septic system survey of all properties within 250 ft. of a critical waterbody.	LWA, Towns, Consultants	Towns, NHDES, Other Grants	Completed	$5,000	Completed in 2014 by LWA.
Septic Database	Encourage town officials to track septic system pumping and upgrades; maintain database based on recent comprehensive septic system survey completed by LWA.	Lake Associations, WWLSAC, WWAC, Towns	Towns	2015-2025	$1,000	Initial database exists for properties located within 250 ft of Lakes Waukewan and Winona
Mandatory Inspections & Pumping	1) Continue progress toward development and implementation of an ongoing septic system inspection program to identify failed systems in the 250 ft. shoreline zone around Lake Waukewan and Lake Winona.	Towns	NHDES, Towns	Ongoing	$1,000/yr	Meredith adopted Health Regulation in 2013 requiring evaluation of certain properties within 250 ft. of Lake Waukewan. Requires re-evaluation every 5 yrs.
	2) Require inspections and maintenance of septic systems and repair at time of property transfer. $250-$500/system	Towns, State, Landowners	Landowners	2015-2025	N/A	
	3) Require inspections and maintenance of septic systems for all new permit requests. $250/system	Towns, State, Landowners	Landowners	2015-2025	N/A	
Dye Testing	Encourage and help fund voluntary dye testing for homeowners to evaluate septic system performance. Goal: 20 systems.	WWLSAC, WWAC, Towns	NHDES, Towns	2015-2017	$75/system	
Community Septic Systems	Install community septic systems for cluster developments (campgrounds & small camps with outhouses). Goal: 2 communities at $30,000 each.	Towns, Landowners	NHDES, Other Grants, Low- Interest Loans	2016-2018	N/A	

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
Landowner Assistance	1) Offer landowner assistance (technical, permitting, and grants) for septic system maintenance and upgrades.	LWA, NHDES, Towns	NHDES	2015-2025	$1,000/yr	LWA provided 9 Cost Share Grants in 2014/2015 to property owners to replace failing septic systems. A total of 15 systems were upgraded, resulting in a reduction of 5.3 kg TP/year to Lake Waukewan.
	2) Coordinate group septic system pumping discounts.	Lake & Homeowner Associations, Towns	Towns, Private	2015-2025	N/A	
	3) Investigate grants and low-interest loans to provide cost-share opportunities for septic system upgrades.	Lake Associations, Towns, Landowners	NHDES, USDA Towns, Private	Completed	N/A	List of potential funding sources available for wastewater improvement projects drafted in 2012 and updated Feb. 2015
	4) Establish a finance program for septic system upgrades in cases of economic hardship	Towns	Towns	2015-2025	N/A	Meredith has a finance program in place.
	5) Develop a long-term funding source for septic system upgrades in the watershed.	LRPC, Towns	Grants, Donations	2015-2025	N/A	
SEWER SYSTEM						
Sewer Expansion Mitigation	**1) Make appropriations for a feasibility study to examine expansion of the Meredith sewer system around the southwest end of Lake Waukewan.**	**Town of Meredith**	**Town of Meredith**	**Completed**	**$10,000**	**Completed in May 2009. Report can be found on the Town's website at: http://www.meredithnh.org/Joomla/pdfdocs/ws/Sewer%20Extension%20Study.pdf**
	2) Ensure that prioritized sewer replacement projects in Meredith are completed in a timely manner.	Town of Meredith	Town of Meredith	Ongoing	N/A	
Sewer Database	Encourage town officials to update sewer system connection map; develop database.	LRPC, Town of Meredith	Town of Meredith, NHDES	2015-2025	$1,000	

Note: Blue highlighted areas indicate action item has been completed or is in process.

Municipal Ordinances, Planning, & Land Conservation

Municipal land-use regulations are a guiding force for where and what type of development can occur in a watershed, and therefore, how water quality is affected because of this development. The buildout analysis conducted by FB Environmental indicates that there is considerable need for improvement in protecting water quality through non-structural BMPs, such as municipal ordinance adoption or revisions for new or re-development. Action items related to this element have been divided into those relating to wastewater systems, development planning, other regulations, good housekeeping, and land conservation. These action items will help guide municipalities in making effective ordinance or regulation changes that protect water quality within the Lake Waukewan/Winona watershed.

Refer to Table 29. Lake Waukewan/Winona Action Plan- Municipal Ordinance Review

Education & Outreach

Education and outreach activities can be used to enhance public understanding of the water quality and encourage community participation in watershed restoration and protection activities. Much effort has already been done by various groups (e.g. Towns of Meredith, New Hampton, Center Harbor, WWAC, local lake associations, LWA, Lakes Region Planning Commission (LRPC), Belknap County Conservation District (BCCD), New Hampshire Lakes Association (NH LAKES), etc.) in the watershed to educate, communicate, and coordinate with the community for the protection, preservation, and improvement of the quality of Lake Waukewan and Lake Winona. Local lake associations and the Waukewan Watershed Advisory Committee are the primary entities for education and outreach campaigns in the watershed and for implementation of this plan. The various local lake associations and the WWAC should continue all aspects of their education and outreach programs and consider developing new ones or improving existing ones to reach more watershed residents.

Refer to Table 30. Lake Waukewan/Winona Action Plan - Education and Outreach

Water Quality Monitoring

Monitoring programs are crucial for evaluating the effectiveness of watershed planning activities and determining if water quality goals are being achieved over the long-term. This Action Plan includes recommendations for enhancing current water quality monitoring efforts, including sample collection from lakes and tributaries, and continuation of the Weed Watch and Lake Host programs. Since volunteers typically conduct many different monitoring activities, it will be critical to continue building on the success of the local lake associations' ongoing education, outreach, and water quality monitoring programs.

Lake Monitoring – It is recommended that monitoring continue at all existing lake sampling locations. Alterations to the monitoring plan may include:

- ***Increase sampling frequency*** to examine how nutrients are distributed in the water column and processed throughout and outside of the growing season.
- ***Sampling at pre-determined times of year to maintain a consistent dataset***. Such times could include spring turnover, peak of summer algal growth, and fall turnover.
- ***Promoting advanced research collaborations with other groups*** active in the lake system to collect data with more frequency and for additional parameters. Consider working with universities to develop a cyanobacteria monitoring program, conduct a sediment core study for the lakes, or conduct a boat traffic study.
- ***Conducting a dissolved oxygen study at the lakes***. Both lakes have issues with DO depletion in the deeper waters through the summer. Collecting temperature and DO profiles with greater frequency (and year-round) could help determine the extent of DO depletion and how it relates to sediment phosphorus release.

Tributary Monitoring – It is recommended that monitoring continue at all existing tributary sampling locations. Alterations to the monitoring plan may include:

- ***Capturing water samples at new sites and year-round*** to better quantify pollutant loading from tributaries in the watershed.
- ***Capturing water samples during storm events*** to examine peak discharges and measure inputs of sediment and nutrients during heavy rains. These samples may be collected either by manual or automated grab sampling during storm events; these automated sampling devices are deployed at collection sites and triggered to fill when water rises to a pre-determined level (e.g., the samplers may be positioned so that they fill when the water rises 6 inches).
- ***Deploying data loggers to capture continuous water quality information***. Data sondes and loggers may be deployed at strategic locations in rivers, streams, and lakes to capture continuous (e.g., every 30 minutes) data on a number of parameters, including water temperature, dissolved oxygen, specific conductivity, turbidity, and chlorophyll-a or algae abundance. Data such as these could be valuable for understanding water quality processes in the watershed.
- ***Using water level loggers***. These are a specific type of logger that measure continuous water level in a river, stream, or lake. In flowing waters, water level can be converted to stream discharge. Coupled with water chemistry data, loading rates of nutrients may also be calculated with continuous flow data.

Refer to Table 31. Lake Waukewan/Winona Action Plan - Water Quality Monitoring

Table 29. Lake Waukewan/Winona Action Plan- Municipal Ordinance Review

MUNICIPAL ORDINANCES, PLANNING, & LAND CONSERVATION						
ACTION ITEM	**DESCRIPTION**	**RESPONSIBLE PARTY**	**FUNDING SOURCE**	**SCHEDULE**	**ESTIMATED COST**	**STATUS (As of June 2016)**
WASTEWATER SYSTEMS REGULATIONS						
Septic System Regulations Assessment	1) Review septic system rules for all watershed towns.	LWA, Towns	Towns, Grants	Completed	$1,500	2009 - Review of Town regulations by Meredith and in 2013 by LWA as part of Septic System Improvement Initiative
Septic System Permitting	1) Require a permit for the replacement or repair of septic systems to ensure proper installation.	Towns	Towns, Fees	2015-2017	N/A	The Town of Meredith adopted a Health Regulation in 2013 that addresses septic permitting. New Hampton and Center Harbor should consider adopting a similar regulation.
	2) Require upgrade, repair, or replacement of septic systems with building permits.	Towns	Towns, Fees	2015-2025	N/A	
	3) Improve septic system regulations/ordinances to consider more than just number of bedrooms when doing expansions.	LRPC, Towns	Towns, Fees	2015-2025	N/A	
Enforcement	1) Communicate with town departments to enforce occupancy loads and have septic system inventories in Master Plans.	LRPC, Towns, Planning Boards	Towns	2015-2025	N/A	
DEVELOPMENT PLANNING						
Plan Adoption	1) Incorporate watershed plan recommendations into town master plans.	Towns	Towns	2015-2020	N/A	
Conservation Subdivisions	1) Increase incentives for conservation subdivisions in town ordinances.	LRPC, Towns	Towns	2015-2020	$1,500	Meredith has a Conservation Subdivision Ordinance. Center Harbor has a Cluster Subdivision Ordinance, New Hampton encourages Cluster Development design.
	2) Adopt open space guidelines for conservation subdivisions.	LRPC, Towns	Towns	2015-2020	N/A	
Low Impact Development (LID)	1) Develop new policy to encourage LID for all future development.	LRPC, Towns, BCCD	Towns, Grants	2015-2020	$1,500	
Note: Blue highlighted areas indicate action item has been completed or is in process.						

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
Setbacks, Buffers & Lot Coverage	1) Improve ordinances to include mandatory setbacks, riparian buffers between development and waterbodies, and maximum lot coverage restrictions.	LRPC, Towns	Towns, Grants	2015-2020	$1,500	
	2) Base zoning on "maximum % impervious cover allowed" rather than "% green space required."	LRPC, Towns	Towns	2015-2020	N/A	
	3) Determine current and future impervious cover for watershed towns so that communities can make better informed planning decisions.	LRPC, Towns, Consultant	LWA, Towns	2015-2020	$5,000	
	4) Review and lower limits of impervious cover by zone to less than 10-20% imperviousness.	Towns, Consultant	LWA, Towns	2015-2020	$1,500	
	5) Limit amount of tree removal and/or expand ordinance to include logging.	State, LRPC, Land Trusts, Towns, Lake Assns, Landowners	Federal Grants (NRCS, EPA), Private	2015-2020	$1,500	
Overlay Districts	Adopt a watershed overlay district that directs development away from ecologically-sensitive areas, guides construction and development, and prohibits high risk land uses.	Towns	NHDES, Towns	Completed		Meredith (2006) and New Hampton (2008) adopted a Lake Waukewan Watershed Overlay District. Center Harbor has a 5 ac minimum for rural and agriculture zones. In March 2016, Center Harbor adopted a Water Resources Conservation Overlay District Ordinance, http://www.centerharbornh.org/sites/centerharbornh/files/pages/zoning-chapter-10.pdf
Erosion Control BMPs	1) Require erosion control BMPs through the development review process, including construction inspection and site stabilization. Distinguish between temporary and permanent erosion control methods.	Town Planning Boards, Code Enforcement Officers	Towns, Fees	2015	N/A	This has been completed for Meredith, but should also be completed for the other watershed towns.
	2) Require formal construction agreements that specify sequencing, inspections, and reports, for both temporary and permanent controls.	Town Planning Boards, Code Enforcement Officers	Towns, Fees	2015	N/A	
	3) Integrate Erosion and Sediment Control Regulations with Stormwater Regulations.	Towns	Towns	2015	N/A	

	4) Strengthen Erosion and Sediment Control Regulations by moving it from Site Plan Review and Subdivision Regulations to an Ordinance.	Towns	Towns	2015	N/A	
	5) Review procedures and regulations for maintenance of BMPs and existing vegetation.	LRPC, BCCD, Towns	Towns	Ongoing	N/A	
Stormwater Regulations	1) Implement a comprehensive stormwater management plan in the watershed that prevents potential harmful and destructive effects of stormwater runoff.	Towns, NHDES, NHDOT	NHDES, Other Grants	2015	N/A	Current update to the Waukewan Watershed Management Plan will quantify pollutant loads and assist the municipalities in identifying measures to reduce loading.
	2) Review effectiveness of existing stormwater regulations and practices in the watershed communities, and update the regulations as necessary.	LRPC, Towns, NHDES, NHDOT	NHDES, Other Grants	Completed	N/A	2013 - LRPC completed a study for Meredith, Laconia, and Gilford. Review should be done for other watershed towns.
	3) Ensure that stormwater BMPs are incorporated in land use planning, zoning, and subdivision/site plan reviews.	Towns, Planning Boards, NHDES	Towns	2015	N/A	
	4) Map all watershed catch basins, culverts, and stormwater discharge points in the watershed.	LRPC, Towns, Consultant	LWA, Towns	2015-2025	$5,000	
	5) Clearly define imperviousness or impervious surfaces in documents.	LRPC, Towns	LWA, Towns	2015-2025	N/A	
	6) Consider the use of different stormwater standards for treatment (e.g. more frequent storms vs. retention during 25-50 yr. size storms).	Town Planning Boards	Towns	2015-2017	N/A	
Enforcement	Employ a single code enforcement officer for purposes of permitting, inspection, and compliance for watershed towns. Ensure consistent application of the provisions of the Shoreland WQ Protection Act.	Towns	Towns	Ongoing	N/A	Meredith Code Enforcement Officer coordinates with the other towns in the watershed.
OTHER REGULATIONS						

	1) Adopt an ordinance that requires new or replacement installations for residential heating fuel storage have either double-walled tanks or secondary containment, be weather protected if located outdoors, and have encapsulated lines.	Towns, Code Enforcement Officers, Fire Departments, NHDES	Towns	2015-2020	N/A	
Heating Fuel Tank Regulations	2) Ensure local enforcement of state code requirements for oil burning equipment installations and tank replacements (e.g. fill alarms with audible whistle, use of UL-approved tanks, protected lines, etc.).	Code Enforcement Officers, Fire Departments	Towns	2015-2020	N/A	Meredith Fire Chief states this is N/A for residential and cites NFPA 211 as code.
	3) Encourage, or where necessary require, inspection and testing of residential heating fuel tanks.	Oil Industry	Private	2015-2020	N/A	
Heating Fuel Tank Regulations	4) With the assistance of local home heating fuel distribution companies, create a database of existing residential fuel tanks which include an inventory of tank age, type, volume, etc.	Town Planning Departments, Oil Industry	NHDES	2015-2020	N/A	
Recreational Regulations	1) Encourage enforcement of RSA 270-D:2 "General Rules for Vessels Operating on Water."	NH Marine Patrol, NHDES, LWA, Towns	N/A	Ongoing	N/A	
	2) Post prohibitions outlined by NHDES Administrative Rule Env-Ws 386.49 at public access points to the lakes.	Town Water Departments	Towns	Ongoing	N/A	
	3) Write a letter to entities that provide aviation training in the watershed and request that they discontinue use of Lake Waukewan as a flight training area. A copy of this letter should be sent to the Seaplane Pilots Association.	Town Board of Selectmen	N/A	Completed	N/A	Letter sent requesting aviation training entities not use Lake Waukewan. Result?
	4) Prohibit fueling of airplanes and establishment of commercial seaplane bases in the watershed.	Towns	N/A	Ongoing	N/A	
	5) Adopt an ordinance to restrict or prohibit use of fireworks under NH RSA 160-B:10.	Towns	N/A			

Hazardous Waste Regulations	1) Review progress of facilities classified as "hazardous waste handlers" or Resource Conservation and Recovery Act sites (RCRA) in the watershed.	Town Water Departments, NH DES	N/A	Ongoing	N/A	Searchable database on NHDES website should be reviewed every 2 years. http://des.nh.gov/onestop/index.htm
	2) Determine discharge location of floor drains at two businesses in the watershed and develop a spill prevention plan for each.	Meredith Water Department	Meredith Water Department	Completed	N/A	
	3) Send letter to the NHDOT Railroad Bureau and owners of the railroad requesting that all stockpiles of abandoned railroad ties along the railroad right-of-way around Lake Waukewan be removed.	Town of Meredith, NHDOT, Railroad owners	N/A	Completed	N/A	Letter sent in 2006. Reportedly railroad ties have been removed.
GOOD HOUSEKEEPING						
Road Management	1) Implement a comprehensive and collaborative road maintenance management program in the watershed that safeguards public safety, identifies ecologically-sensitive areas, identifies corresponding low salt zones, and uses techniques for minimizing the use of deicing materials.	Towns, NHDES, NHDOT, WWAC, Lake and Homeowner Assns	NHDES, Other Grants	Ongoing	N/A	WWAC requested Meredith DPW treat Water St. and Waukewan St. as a low salt area for snow removal/treatment. Practice has been implemented and appropriate signage installed.
Road Management	2) Encourage new road designs that limit imperviousness and minimize negative environmental effects.	Boards of Selectmen, Planning Boards, NHDES, NHDOT	N/A	Ongoing	N/A	In Meredith this is done via road waiver standards with all new road construction projects.
Materials Management	1) Dispose material from street sweeping, catch-basin sump cleaning, and snow collection in an environmentally-sound manner.	Town Department of Public Works	N/A	Ongoing	N/A	In Meredith the snow dump is only for snow. Street sweeping material is not considered hazardous and is disposed of as solid waste. Catch basin material in deposited in a DES approved retention basin.
	2) Recommend that the state prohibit transport of hazardous material cargoes and petroleum transport trucks through the watershed, except on major State roads. Local residential delivery is not included.	Towns, LRPC, NHDOT	N/A	Completed	N/A	This action has been tabled by the WWAC. Roads of concern were monitored in 2013 to determine the actual threat. No hazardous material carrying vehicles were observed traveling the road.

	3) Develop an Emergency Response Spill Plan for the watershed that protects Lake Waukewan as a source of public drinking water.	Town Water Departments, Fire Departments	N/A	Updated every 5 yrs.	N/A	Local Emergency Operations Plan addresses this action item.
BMP Maintenance	1) Integrate maintenance agreements into structural BMPs to ensure continued maintenance and proper functioning.	Town Department of Public Works, Landowners	Towns, Private, Grants	2015-2025	N/A	
LAND CONSERVATION						
Natural Resource Protection	1) Identify and conserve key properties that protect drinking water supplies and sensitive ecological features in the watershed. Use tools such as buildout analyses, GIS, and natural resource inventories to target critical land for protection.	Conservation Commissions, LRCT, SPNHF, BCCD	NHDES, LRCT, Private, Donations	Ongoing		Individual Conservation Commissions, land trusts continue to work to conserve important parcels of land. In 2014, LRCT acquired 192 acre parcel on Fogg Hill, Center Harbor and in 2015 acquired another 43 acre parcel for a total of 235 conserved acres. The Fogg Hill Conservation Area forms part of a 900+ acre unfragmented woodland and wetland habitat in the Waukewan watershed, and is located within one of the highest priority areas for conservation in the town. It has significant ecological, wildlife habitat, scenic, water quality, and recreational values.
	2) Protect natural areas that are essential for the control of stormwater runoff.	Conservation Commissions, LRCT, BCCD	NHDES, LRCT, Private, Donations	Ongoing	TBD	Center Harbor and Meredith have Wetlands Overlay Districts. New Hampton, Ashland, and Holderness do not have Wetland Ordinances
Funding	1) Add extra tax to town property bills that goes into a lake protection fund. Develop a subcommittee that determines how the funding is spent.	Towns	Towns, Fees	2015-2025	N/A	
	2) Solicit residents for individual donations.	Lake & Homeowner Assns, LRCT, Conservation Commissions	Private, Donations	2015-2025	N/A	

Table 30. Lake Waukewan/Winona Action Plan - Education and Outreach

EDUCATION & OUTREACH						
ACTION ITEM	**DESCRIPTION**	**RESPONSIBLE PARTY**	**FUNDING SOURCE**	**SCHEDULE**	**ESTIMATED COST**	**STATUS (As of June 2016)**
			BMPs			
Plan Promotion	1) Promote the plan throughout the watershed.	WWAC, Lake and Homeowner Assns, LWA, LRPC, BCCD, Towns, Landowners	Towns, Private, Volunteer	Ongoing	N/A	
BMP Demonstrations	1) Setup demonstration projects at high-visibility residential BMPs throughout the watershed.	Lake & Homeowner Assns, BCCD, Towns, Landowners	NHDES, Other Grants	2015-2025	$10,000	
	2) Locate willing volunteers to "demonstrate" what an ideal shoreline buffer looks like and how it functions.	Lake & Homeowner Assns, BCCD, Towns, Landowners	NHDES, Other Grants, Private, Volunteers	2015-2025	N/A	
	3) Continue to host workshops on vegetative buffers and landscaping by the water's edge for local residents.	Lake & Homeowner Assns, BCCD, Towns, Landowners	NHDES, Other Grants, Donations	Ongoing	$2,000	2011- UNH Cooperative Extension held Healthy Waterfront Property Workshop for the Lakes Region Board of Realtors. BCCD held 'Landscaping by Water's Edge' in Moultonborough in 2012, Meredith hosted a Shoreland Protection Workshop in 2014
BMP Educational Materials	1) Develop and send letters to residents in the spring showing before/after photos of implemented BMPs.	Lake & Homeowner Assns	Donations, Fundraisers	2015-2025	$1,000	
	2) Continue to distribute educational packets to businesses and industries in the watershed about safeguarding water quality through BMP implementation.	Town Water Departments	Town Water Departments	2015-2025	N/A	
Self-Assessment Tool - Stormwater Footprint calculator - 'What's Your P?'	Encourage homeowners to calculate their stormwater footprint and determine the positive impact from BMP implementation	LWA, BCCD, Towns, WWAC, NHDES	N/A	Ongoing		Online Stormwater Footprint Calculator available on the Winnipesaukee Gateway at http://winnipesaukeegateway.org/resources/phosphorus-calculator/

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
Door-to-Door BMP Education	Enlist volunteers to go door-to-door to inform neighbors about erosion, BMPs, and programs that can help.	Lake & Homeowner Assns	Volunteers	2015-2017	N/A	
			NPS Pollution			
Educational Signage	1) Install educational signs at select locations in the watershed, such as "Scoop the Poop!"	Towns, Lake & Homeowner Assns	Grants, Fundraisers	2015-2017	$250	
P-Based Products	1) Educate residents that urine and some household products contain phosphorus that can be harmful in excessive amounts to the lake's ecology.	Lake & Homeowner Assns, WWAC, BCCD, Towns	Volunteers	Ongoing	N/A	
Spill Prevention & Awareness	1) Educate homeowners about spill liability, methods of secure storage and spill prevention, how to get tanks inspected, changes in consumption rates, how sump pumps can contaminate water resources, what to do if a leak is found, and permit and code requirements.	Towns, NHDES	NH Small Outreach and Education Grants for Nonpoint Source Pollution	2015-2025	N/A	Home Heating Oil Tanks - A Hidden Threat?' document created and published in the June 2007 Waukewan ShoreOwners Association newsletter. Article also submitted to other local newspapers.
	2) Educate local residential heating fuel distributors about the locations of public water supplies in the watershed and inform them about their susceptibility to spills. Remind companies about spill reporting requirements.	Town Planning Departments	Towns	Ongoing	N/A	
			Community Involvement			
Winnipesaukee Gateway	Keep the Winnipesaukee Gateway website current, and include up-to-date information about watershed efforts, ongoing activities, and interactive water quality data.	LWA, LRPC	Donations, Fundraisers	Ongoing	$5,000	**Map Atlas, 'What's Your P?' stormwater footprint calculator, water quality data map feature are new tools, resources added to the Gateway since 2010.**
Publicity	Publicize events and lake quality updates through local newspapers and newsletters.	WWAC, Towns, Lake and Homeowner Assns	Donations, Fundraisers	2015-2025	$500	
Educational Kiosk	Maintain kiosk at Waukewan boat ramp with educational posters/signs conveying issues related to the boat launch, no wake zone, cyanobacteria, etc.	WWAC, Towns, Lake and Homeowner Assns	Donations, Fundraisers	2015-2016	$1,500	
Donations	Build a donation box, and encourage landowners to donate to watershed restoration efforts.	WWAC, Lake and Homeowner Assns	Donations, Fundraisers	2015	$100	

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
Community Involvement						
Discovery Cruises	Organize an annual discovery cruise/paddle on the lake.	Lake & Homeowner Assns	Volunteers, Grants	2015-2025	$250	
Roads						
Road Maintenance BMPs	1) Educate town officials, road maintenance personnel, and contractors through roadway BMP outreach workshops.	BCCD, Towns	Grants, Towns	2015-2025	$1,000	
	2) Salt Reduction: Require Green SnoPro certification for DPWs, and commercial snow removal contractors	Towns, Homeowner & Lake Assns	NHDES, UNH, Contractors	2015-2025	N/A	
Road Associations	1) Consider forming private road associations in key neighborhoods or heavily-used roads for better management by local stakeholders.	Lake and Homeowner Assns	Volunteers	2015-2025	N/A	
	2) Host a Gravel Roads workshop for road associations every two years.	BCCD, Towns	Grants	2015-2025	$1,000	
Aquatic Invasives						
Lake Host/Boat Launch Brochure	Continue the Lake Host program and distribute information about inspection of boats before and after launching.	NH LAKES, Windy Waters Conservancy, WWAC, Lake & Homeowner Assns	Grants, Donations	Ongoing	$500	Lake Waukewan has an active lake host program
Weed Watchers Program	Continue the Weed Watchers Program on Lake Waukewan to prevent milfoil and other invasive species from becoming established. Hold annual trainings for identification of native vs. invasive plants.	Lake Associations, NHDES	Volunteers	Ongoing	N/A	
Recreational Activities						
Recreational Boating	1) Continue to educate boaters who have inboard motors to use oil absorbing pillows or "bilge socks" to prevent pollutants from entering the lake.	WWAC, Towns, Lake & Homeowner Assns	In-kind, Grants	Ongoing	N/A	In 2007, the Waukewan Watershed Advisory Committee gave out free bilge pillows to every I/O boat on Lake Waukewan and Winona with a note on how to use and where to purchase replacements. Consider doing this every few years.

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
Recreational Activities						
Recreational Boating	2) Continue to educate boaters (residents and visitors) that Lake Waukewan is a public drinking water source, about safe fueling practices, the availability of MtBE-free gasoline, servicing and cleaning of boats, and invasive species prevention.	Towns, NH LAKES, WWAC, Lake Host Program, Lake and Homeowner Assns	NHDES, Other Grants	Ongoing	N/A	
	3) Educate swimmers about the importance of Lake Waukewan as a public water supply and about healthy swimming etiquette (e.g. use of restrooms, no diapers allowed in lake).	Towns	NHDES, Other Grants	Ongoing	N/A	In 2014 WWAC commissioned a mural on retaining wall at town beach to raise awareness of protecting lake quality
	4) Provide permanent restroom facilities at the Meredith Town Beach on Lake Waukewan.	Meredith	Town of Meredith	Complete	N/A	Permanent rest rooms completed in 2008
	5) Continue to provide temporary restrooms in appropriate access sites for boating enthusiasts. Consider developing a long-term funding source for this action item.	Towns	General Appropriations	Ongoing	N/A	Port A Potty placed at Lake Waukewan boat ramp. Funding provided by Town of Meredith for 2010 and 2011.
Fireworks Research & Education	1) Investigate the effects of fireworks on lake water quality, and distribute information via website, or develop an informational brochure on results.	Lake Associations, NHDES, UNH	Grants	2015-2016	$500	
Septic Systems						
Septic System Maintenance Awareness	1) Distribute educational pamphlets on septic system function and maintenance in tax bills.	WWAC, Homeowner Assns, Lake Assns, Towns	NHDES, Towns, Private, Volunteer	2015-2025	$1,000	In 2008 Meredith created and distributed a one page "Caring for Lake Waukewan: It Starts at Home" document. Septic System Reference material can be found http://www.winnipesaukee.org/category/programs-2/lakeside-learning/
	2) Continue to host Septic Sense Seminars to address link between septic system maintenance and water quality.	LWA, WWAC, Homeowner Assns, Lake Assns, Towns	Granite State Designers & Installers Assn (GSDIA), Towns, Volunteer	2015-2025	$250/yr	

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
Septic Systems						
Targeted Septic Outreach	1) Continue to focus outreach on neighborhoods with properties that have no septic systems on town record.	WWAC, Homeowner Assns, Lake Assns, Towns	Grants, Volunteers	2015-2017	$1,000	Meredith's Health Regulation adopted in 2013 targets properties located within 250' of Lake Waukewan, which have no record of operational approval on file.
	2) Focus septic system maintenance education at campgrounds.	WWAC, Homeowner Assns, Lake Assns, Towns	Volunteers	2015-2017	$500	
	3) Conduct door-to-door septic education to follow-up on septic survey.	WWAC, Homeowner Assns, Lake Assns, Towns, Landowners	Volunteers	2015-2017	N/A	
Septic Provider List	1) Create and distribute a list of septic service providers (create magnets, etc.).	WWAC, Homeowner Assns, Lake Assns, Towns, Landowners	Volunteers, Fundraisers	2015-2017	$500	
Development/Landscaping						
Landscaping	1) Continue to educate homeowners and businesses about lawn care and landscaping techniques that minimize impacts on water resources (e.g. water conservation, native plant species, low maintenance grasses, and low-phosphorus lawn and garden fertilizers).	Towns, Local lake Assns, BCCD, WWAC, NHDES	NH DES Small Outreach and education Grants for Nonpoint Source Pollution	2015-2020	$500	2011- UNH CE held Healthy Waterfront Property Workshop for the Lakes Region Board of Realtors in Meredith. 2012 - BCCD held 'Landscaping by Water's Edge' 2014- Meredith hosted a Shoreland Protection Workshop
Fertilizer Use	1) Continue to promote use of phosphorus-free fertilizers or no fertilizers, such as "Don't P in the Lake" campaign	LWA, NH LAKES, WWAC, Lake & Homeowner Assns, BCCD, Towns, Landowners	Private, Volunteer	Ongoing	$500	The WWAC developed the 'Don't P in the Lake' campaign in 2009/2010. Meredith town fields and lawns converted to low/no phosphorus and no pesticides. Education/outreach was performed by BOS, Meredith Rotary, Kiwanis
Workshops	1) Hold informational workshops for new landowners and developers on local ordinances and watershed goals.	Conservation Commissions, NHDES, Towns, LWA, LRPC, BCCD	NHDES, Towns, Fundraisers	2015-2025	$250/yr	

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
Development/Landscaping						
Workshops	2) Hold educational workshops on conservation easements in the region. Reach out to large landowners to discuss conservation options.	Conservation Commisions, Lakes Region Conservation Trust, SPNHF	NHDES, Towns, Fundraisers, Grants	2015-2025	$250/yr	
Training	1) Require State-sponsored training for code enforcement officers and ZBAs in watershed towns.	Towns	Towns	2015-2025	$5,000	
	2) Require contractors to have adequate training in the installation and maintenance of Low Impact Development (LID) and BMPs for all permit work.	Towns	Contractors	2015-2025	N/A	
	3) Require Green SnoPro certification for DPWs, and commercial snow removal contractors	Towns, Homeowner & Lake Assns	NHDES, UNH, Contractors	2015-2025	N/A	http://t2.unh.edu/green-snowpro-training-and-certification

Table 31. Lake Waukewan/Winona Action Plan - Water Quality Monitoring

WATER QUALITY MONITORING

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
LAKES						
Expand Lake Monitoring Program	1) Extend lake monitoring season April through November (or year-round) to capture spring and fall turnover and timing of potential algal blooms.	Lake Associations, Volunteers, NHDES VLAP	Lake Associations, NHDES	2015-2025	$250	Current monitoring season generally runs July through September, with one sample collected at each site per month.
	2) Recruit and train additional VLAP volunteers.	Lake Associations, Volunteers, NHDES VLAP	Lake and Homeowner Associations, Volunteers, NHDES VLAP	2015-2025	N/A	
	3) Increase frequency of Secchi Disk Transparency and DO/temperature profile readings. More data on DO profiles could help determine the extent of DO depletion and how it relates to sediment phosphorus release.	Lake Associations, Volunteers, NHDES VLAP	Lake and Homeowner Associations, Volunteers, NHDES VLAP	2015-2025	N/A	
Weed Watch & Lake Host Programs	1) Continue Weed Watcher program; recruit new volunteers, conduct routine surveys of dam, tributaries, and shallows during summer months.	Lake Associations, Homeowner Associations, Volunteers, NHDES	Lake and Homeowner Assns., NHDES, Volunteers	Ongoing	N/A	
	2) Support State legislation that increases funds for aquatic invasive plant (e.g. milfoil) eradication.	Lake Associations, Volunteers, NHDES, NH LAKES	Lake Assns., Homeowner Assns., Residents, Towns	2015-2025	N/A	
	3) Increase the number of volunteer inspectors for the Lake Host program at Lake Waukewan. Consider adding Lake Winona to program.	Lake Associations, Volunteers, NH LAKES	Lake Associations, Towns, Volunteers	2015-2025	N/A	
Cyanobacteria Monitoring	1) Work with UNH and NHDES to implement a formal cyanobacteria monitoring program for the lakes.	Lake Associations, UNH, NHDES	Lake Assns, Towns, NHDES, UNH	2015-2025	TBD	

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
LAKES						
Cyanobacteria Monitoring	2) Host a cyanobacteria talk in coordination with UNH every few years.	Lake Assns, Towns, UNH, NHDES	UNH, NHDES, Donations	2015-2016	$250	Last one held in Meredith in 2011.
Sediment Cores	Work with PSU to examine sediment cores for phosphorus, copper and other parameters; use students to assist with studies.	Lake Assns, Towns, NHDES, PSU	NHDES, PSU	2015-2020	N/A	
Boat Traffic Study	1) Consider collecting data (TP, Chl-a, Color, Turbidity, and SDT) before, during, and after busy holiday weekends to examine effects of boat traffic. Consider adding boat counts, time lapse photography, and the use of a submerged sonde to quantify the effects of boat traffic.	Lake Assns, NHDES, Consultant	Lake Assns, Donations	2015-2020	$5,000	
	2) Implement a monitoring program to assess concentrations of gasoline constituents including MtBE in Lake Waukewan from May to September	Meredith Water Dept., UNH, NHDES	Meredith Water Dept.	Completed		Monitoring program began in 2005. 2007 - Monthly reports from June through Oct.; no issues found, 2008- no issues found. No VOC testing has been done since 2008. MtBE fuel no longer sold in NH
	3) Further research is needed to assess whether or not the drinking water intake in Lake Waukewan should have an isolation zone, demarcated by buoys, in which motorized activity should not occur.	Lake Assns, Meredith, NHDES, NH Marine Patrol	LWA	Ongoing	TBD	
Shoreline Septic Systems	Develop a water quality monitoring program that identifies failing septic systems along the shorelines.	Town Water & Sewer Department, Meredith	NHDES, Other Grants, Donations	Completed		Town of Meredith did a one-time water testing at 9 locations on Lake Waukewan in order to detect failing septic systems. The results were inconclusive
Data Access	Continue to provide water quality data on the Winnipesaukee Gateway website.	LWA, NHDES	Donations, Grants	Ongoing	N/A	LWA uploads water quality data on an annual basis to the Winnipesaukee Gateway

ACTION ITEM	DESCRIPTION	RESPONSIBLE PARTY	FUNDING SOURCE	SCHEDULE	ESTIMATED COST	STATUS (As of June 2016)
TRIBUTARIES						
Expand Tributary Monitoring Program	1) Conduct intensive tributary monitoring at new and existing stations in the watershed to better understand the effects of nutrient and sediment loading to the lake. Include both wet and dry weather sampling events and collect flow data to help further quantify nutrient loading from individual tributaries.	Lake Assns, WWLSAC, PSU, Towns	NHDES, Other Grants, Donations, Volunteers	Ongoing	$1,000/yr	
Year-Round Sampling	Consider collecting year-round and/or continuous monitoring data in several of the streams to further characterize loading and flow during different times of the year.	Lake Assns, WWLSAC, NHDES, PSU, Towns	NHDES, Other Grants, Donations, Volunteers	2015-2025	$500/yr	
Bracket Sampling	Conduct bracket sampling upstream of sampling locations to identify potential sources of increased loading, particularly for subwatersheds with the highest TP loading (e.g. Winona East Inlet, Snake River, and Reservoir Brook).	Lake Assns, WWLSAC, NHDES, PSU, Towns	NHDES, Other Grants, Donations, Volunteers	2015-2025	$500	
Storm Events	Train volunteers to monitor during storm events at road crossings and culverts near the shorelines. Use information to identify problem areas and recommend solutions.	Lake Assns, WWLSAC, NHDES, PSU, Towns	NHDES, Other Grants, Donations, Volunteers	2015-2025	$500	
Mapping Update	Develop a detailed drainage network map of persistent and intermittent streams and tributaries that can be used to guide water quality monitoring, road maintenance, stormwater management, development, review, and emergency response planning.	LRPC, Towns, NHDES, PSU	NHDES, Other Grants, Donations, Volunteers	Ongoing	N/A	
Continuous Loggers	Add continuous loggers for stage/flow, temperature, dissolved oxygen, conductivity, turbidity, etc. at key sampling locations throughout the watershed.	Lake Assns, PSU, NHDES, Towns	NHDES, Other Grants, Donations, Volunteers	2015-2025	$3,000/yr	

7.2 Indicators and Benchmarks to Measure Progress

Establishing indicators and numeric targets (benchmarks) to quantitatively measure the progress of this plan will provide both short and long-term input about how successful the plan has been in meeting the established goals and objectives for the watershed.

Indicators are derived directly from tasks identified in the Action Plan. While the Action Plan provides a description of tasks, responsible parties, a schedule, and estimated annual costs associated with each task, the indicators are developed to reflect how well implementation activities are working, and provides a means by which to track progress toward established goals and objectives.

The following environmental, programmatic, and social indicators and associated benchmarks will help measure the progress of this plan. These benchmarks represent short-term (2017), mid-term (2020), and long-term (2025) targets for improving water quality in these waterbodies. Setting benchmarks allows for periodic updates to the plan, maintains and sustains the action items, and makes the plan relevant to ongoing activities. The advisory committee will review the benchmarks for each indicator on an ongoing basis to determine if progress is being made, and then determine if the watershed plan needs to be revised because the targets are not being met.

Environmental Indicators are a direct measure of environmental conditions. They are measurable quantities used to evaluate the relationship between pollutant sources and environmental conditions. They assume that BMP recommendations outlined in the Action Plan will be implemented accordingly and will indirectly result in water quality improvement, including reductions in median in-lake TP concentrations, the duration and extent of anoxic conditions at deep holes, and the frequency of peak flows to tributaries from unbuffered impervious or bare soil surfaces that carry phosphorus-laden sediment.

Table 32. Environmental Indicators to measure progress in plan implementation and toward established goals.

Environmental Indicators			
Indicators	**Benchmarks**		
	2017	2020	2025
Improvement in mean annual water clarity	+ 0.1 m	+ 0.25 m	+ 0.4 m
Reduction in median in-lake phosphorus concentration. Goal: 4.95 ppb for Lake Waukewan; 6.30-6.65 ppb for Lake Winona	10% of goal	30% of goal	75% of goal
Reduction in frequency and number of algal blooms			
Reduction in number of beach postings/closures due to elevated *E.coli* (bacteria) levels			
Reduction in erosion and sedimentation issues throughout the watershed			
Increase in fish and wildlife species populations			

Programmatic Indicators are indirect measures of watershed protection and restoration activities. Rather than indicating that water quality reductions are being met, these programmatic measurements list actions intended to meet the water quality goal.

Table 33. Programmatic Indicators to measure progress in plan implementation and toward established goals.

Programmatic Indicators			
Indicators	**Benchmarks**		
	2017	2020	2025
Amount of funding secured for plan implementation through fundraisers, donations, and grants	$50,000	$150,000	$300,000
Successful completion of annual review and update of the plan			
Number of priority sites remediated with recommended BMPs			
Number of high-visibility residential BMP demonstration projects completed			
Linear feet of roadway addressed by BMPs			
Number of shoreline properties showing improved survey scores			
Linear miles of stabilized streambanks or shorelines			
Number of culverts stabilized or retrofitted			
Number of retrofitted stormdrains/catch basins			
Number of voluntary septic system inspections			
Number of sewer or septic system upgrades			
Number of acres of new land in conservation			
Number of new conservation subdivisions			
Number of new or re-developments using LID techniques			
Number of watershed-based educational materials distributed			
Number of educational signage posted throughout the watershed			
Number of new water quality monitoring sites added			
Number of sites monitored during storm events and year-round			
Number of sites with continuous data loggers			

Social Indicators measure changes in social or cultural practices and behavior that lead to implementation of management measures and water quality improvement.

Table 34. Social Indicators used to measure progress in plan implementation and toward established goals.

Social Indicators			
Indicators	**Benchmarks**		
	2017	2020	2025
Number of new lake association members			
Number of new stakeholders on the advisory committee			
Number of homeowners who participate in "septic socials"			
Number of landowners receiving free landowner assistance for septic system maintenance and upgrades			
Number of homeowners who participate in residential demonstration projects/workshops			
Number of volunteers who sign up for BMP implementation projects			
Number of volunteers participating in door-to-door education campaigns			
Number of people participating in educational workshops			
Number of people attending annual spring plant sale			
Number of people participating in online Self-Assessment Quiz			
Number of new road associations			
Number of contractors completing a BMP or LID training			
Number of new regulations or new/amended ordinances passed by citizen support			
Number of landowners with >10 acre lots participating in land conservation programs			
Number of new and active "Lake Hosts"			
Number of new and active "Weed Watchers"			
Number of newly-trained NHDES VLAP volunteers			
Number of new volunteers and sponsors for water quality monitoring			

7.3 Estimated Costs and Technical Assistance Needed

The cost of successfully implementing this watershed plan for Lake Waukewan and Lake Winona is estimated at $324,200 over the next 10 years (Table 35). However, many costs are still unknown and should be incorporated into the Action Plan as information becomes available. This includes both structural BMPs, such as fixing eroding roads and planting shoreline buffers, and non-structural BMPs, such as improving ordinances. Annual BMP costs were estimated based on a 10-year total for the initial BMP installation plus 10 years of maintenance. Therefore, the annual BMP costs are not truly representative of how funds will likely be allocated during implementation since the annual costs may be higher earlier in the 10-year plan and less toward the end.

Table 35. Estimated annual and 10-year costs for watershed restoration.

Category	Estimated Annual Costs	10-year Total
Wastewater Systems	$3,850	$38,500
Best Management Practices (BMPs)	$14,600	$146,000
Municipal Ordinance, Planning, & Land Conservation	$4,500	$45,000
Education & Outreach	$3,270	$32,700
Water Quality Monitoring	$6,200	$62,000
Total Cost	**$32,420**	**$324,200**

A diverse source of funding and a funding strategy will be needed to match these implementation activities. Funding to cover ordinance revisions and third-party review could be supported by municipalities through tax collection, permit fees, or violation fees. Monitoring and assessment funding could come from a variety of sources, including state and federal grants (Section 319, ARM, Moose Plate, etc.), private foundations, and municipalities. Funding for education and outreach might also be expected to come from these sources as well as the local lake associations. Funding to improve septic systems, public and private roads, and shoreland buffers could be expected from property owners most affected by the improvements. As the plan evolves into the future, the Advisory Committee will play a key role in how the funds are raised, tracked and spent to implement and support the plan.

7.4 Evaluation of the Plan

Annual advisory committee meetings should be organized to review the status of goals and objectives presented in this watershed management plan. It is recommended that an adaptive management approach be used to assess annual progress, determine key projects for the following year, and provide a venue for sharing information with watershed stakeholders. Adaptive management is the process by which new information about the health of the watershed is incorporated into the plan. This process allows stakeholders the opportunity to evaluate the effectiveness of restoration and monitoring activities before implementing future actions. Tasks listed in the Action Plan should be tracked and recorded as they occur, and new tasks should be added to the plan as determined through the adaptive management process. All achievements, such as press releases, outreach activities, number of sites repaired, number of volunteers, amount of funding received, and number of sites documented, should be tracked. Stakeholders can then use the established indicators to determine the effectiveness of the plan.

7.5 Conclusion

Watershed residents, landowners, business owners, and recreationalists alike have a vested interest in protecting the long-term water quality of Lake Waukewan and Lake Winona for future generations. The goal of this plan is to improve the dissolved oxygen concentrations in the bottom depths by reducing the amount of pollutants, sediments, and nutrients that enter the lakes. The lake study advisory committee has chosen to reduce the median in-lake phosphorus concentrations by 10% and 5-10% in Lake Waukewan and Lake Winona, respectively, over the next 10 years. This goal can be reached if management actions discussed in this plan are implemented accordingly. Implementation of this plan over the next 10 years is expected to cost $324,200, and will require the dedication and hard work of municipalities, conservation groups, and volunteers to ensure that the actions identified in this plan are carried out accordingly. The Action Plan will need to be updated as the plan is implemented and new action items are added, in accordance with the adaptive management approach.