

Goals and Objectives

The goals presented in Exhibit 57 were selected based on the numerous public meetings that were conducted in the watershed, a household survey, previous studies, and current water quality monitoring.

EXHIBIT 57

Goals and Objectives for the Portage Lake Watershed

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
Goal 1—Public Health: Ensure that participants in water-based recreation are not exposed to pathogens or toxic chemicals, and are not consuming water, wild fish, or wildlife with contaminants in excess of advisories.				
1.A. Monitor Portage Lake and Lake Michigan adjacent to the north Portage Lake channel breakwall and report results to assure residents and visitors that state water quality standards for total body contact recreational activities continue to be met at all locations during period of May 31–October 1 of each year.	1.A.1. Conduct <i>E. coli</i> bacteria sampling once per week at Village Beach May31–October 1, once per week at the Lake Michigan swimming beach adjacent to the north breakwall July–mid-September, and once per month at four other swimming areas in Portage Lake for the next three years at the same locations tested in 2007 (see Monitoring Plan) to confirm that state standards are being met and inform stakeholders of the results (see Public Information and Education Plan).	Onekama Twp, Village, PLA, PLEA, MDEQ, MDNR, LRBOI, EPA, Health Dept., School, PLWF, various locations of sampling	0–2 years (High)	\$2,700+ S=50 hours/year V/N
	1.A.2. Support current efforts by Manistee County in cooperation with District 10 Health Department to require time of sale inspections of wells and septic tank/tile filed systems.	PLWF, encourage other partners	0–2 years (High)	S=40 hours/year V
	1.A.3. Evaluate results of the three years of monitoring and, if sample results exceed state standards, determine what new or more frequent sampling or additional actions, if any, are needed. If sample results meet state standards, continue monitoring program.	MDEQ, MDNR, LRBOI, EPA, Health Dept., School, PLWF	2–5 years (High)	S=80 hours/year V
1.B. Assure that all of Portage Lake meets state water quality standards for partial body contact recreational activities for the full 12-month period of each year.	1.B.1. Conduct <i>E. coli</i> bacteria sampling in at least four locations once every three years (see Monitoring Plan) and inform stakeholders of the results (see Public Information and Education Plan).	Onekama Twp, Village, PLA, PLEA, MDEQ, MDNR, LRBOI, EPA, Health Dept., School, PLWF, various locations of sampling	0–2 years (High)	\$720+ S=20 hours/year V/N
	1.B.2. Based upon the sampling results and historical data, evaluate the sampling frequency, locations, time of year, etc., and determine what, if any, additional actions are needed.	MDEQ, MDNR, LRBOI, EPA, Health Dept., School, PLWF	2–5 years (High)	S=20 hours/year V

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
<p>1.C. Prevent releases of hazardous substances that pose a risk to human health through the consumption of contaminated fish or wildlife taken in the watershed, and provide information to anglers on state fish consumption advisories in the watershed due to sources outside the watershed.</p>	<p>1.C.1. Implement a cooperative, pollution-prevention education program targeted to local businesses and governmental agencies located in the watershed that use, store, handle, or dispose of potentially hazardous materials to prevent accidental discharges to the ground or surface waters (see Public Information and Education Plan).</p>	<p>Onekama Twp, Village, PLA, PLEA, MDEQ, MDNR, LRBOI, EPA, Health Dept., School, PLWF, AES, MCD, MSU Ext., USDA-NRCS</p>	<p>2–5 years (Low)</p>	<p>\$2,740+ S=80 hours/year V/M/N</p>
	<p>1.C.2. Implement an up-to-date public information mechanism to assure that anglers have the best information on state consumption advisories specifically related to fish taken from Portage Lake (see Public Information and Education Plan).</p>	<p>MDNR, MDEQ, LRBOI, MSU Ext., MCD, PLA, PLEA, PPSRC, PLWF</p>	<p>2–5 years (Low)</p>	<p>S=20 hours/year V/M/N</p>
	<p>1.C.3. Advocate for mercury emission reductions as part of regional Great Lakes effort to reduce levels of this environmental contaminant.</p>	<p>PLWF, encourage other partners</p>	<p>2–5 years (Low)</p>	<p>S=40 hours/year V</p>
<p>1.D. Reduce severity and frequency of swimmer's itch (schistosome cercarial dermatitis) by collecting information for distribution to the public that can assist lake users in avoiding exposure, and can guide efforts in minimizing the abundance of intermediate host-animals that contribute to the problem.</p>	<p>1.D.1. Establish a mechanism for Portage Lake residents and users to report instances of swimmer's itch and provide information to the public on swimmer's itch, its causes, and steps to minimize exposure (see Public Information and Education Plan).</p>	<p>Onekama Twp, Village, MDEQ, MNDR, LRBOI, PLA, PPSRC, PLEA, PLWF, MCD, MSU Ext., School</p>	<p>0–2 years (Low)</p>	<p>\$500+ S=40 hours/year V/N</p>
	<p>1.D.2. Evaluate reports of swimmer's itch on Portage Lake and document any activities that encourage congregations or increased abundance of suspected host waterfowl, and propose appropriate actions.</p>	<p>Onekama Twp, Village, MDEQ, MNDR, LRBOI, PLA, PPSRC, PLEA, PLWF, School</p>	<p>2–5 years (Low)</p>	<p>S=20 hours/year V</p>
<p>1.E. Provide information to watershed residents on actions they can take to have their drinking water supplies tested, and advocate best management practices to prevent groundwater contamination.</p>	<p>1.E.1. In cooperation with other organizations, become an advocate for groundwater pollution prevention best management practices in the watershed including: the plugging of abandoned domestic and hydrocarbon/mineral wells that provide direct exposure of surface contaminants to groundwater aquifers, quick response to known areas of releases or spills of contaminated materials, encouraging government units to support volunteer household hazardous waste disposal programs (see Public Information and Education Plan).</p>	<p>Health Dept., MCD, USDA-NRCS, MSU Ext., MDEQ, School, PLWF</p>	<p>0–2 years (High)</p>	<p>S=80 hours/year V/M/N</p>
	<p>1.E.2. In cooperation with local health officials and the Michigan Department of Agriculture, develop and distribute information on cost-effective ways to have drinking water supplies tested for bacteria and most likely potential contaminants (see Public Information and Education Plan).</p>	<p>Health Dept., MCD, USDA-NRCS, MSU Ext., MDEQ, PLWF, School</p>	<p>0–2 years (Medium)</p>	<p>S=30 hours/year V/M/N</p>

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
1.F. Protect groundwater from contamination at known leaking underground storage tank (LUST) sites, Part 201 sites, and other known sites of environmental contamination, and research potential and unreported environmental contamination sites.	1.F.1. Work with MDEQ and other appropriate public agencies to identify, and keep current, known sites of environmental contamination.	MDEQ, Health Dept., local government, PLWF	0–2 years (High)	S=20 hours/year V
	1.F.2. Determine impacts of known environmental contamination sites on groundwater and advocate for rapid response and appropriate testing by MDEQ and other public agencies to protect public health and the environment.	MDEQ, Health Dept., local government, PLWF	0–2 years (High)	S=15 hours/year V
	1.F.3. Work with MDEQ and other public agencies to determine potential sites of environmental contamination at oil and gas wells that are not currently active but have not been officially abandoned.	MDEQ, Health Dept., local government, PLWF	0–2 years (Medium)	S=15 hours/year V
Goal 2—Aquatic Ecosystem⁴: Protect the quality of water resources in the Portage Lake watershed, as well as other essential habitats, to maintain the integrity and functions of the aquatic ecosystem.				
2.A. Monitor Portage Lake to assure that future loadings of nutrients, specifically phosphorus, do not exceed levels that would change the current mesotrophic status of Portage Lake capable of supporting coolwater and warmwater fisheries throughout the year, seasonal use by anadromous trout and salmon, and other existing, protected uses.	2.A.1. Annually monitor total phosphorus, transparency, and chlorophyll a for at least three locations in the spring before turnover and in the fall after turnover in order to detect any significant trends in the trophic status index (TSI) of Portage Lake, based on historical monitoring results (see Monitoring Plan).	School, Onekama Twp, Village, PLA, PLEA, MDEQ, MDNR, LRBOI, EPA, Health Dept., PLWF	0–2 years (High)	\$456+ S=20 hours/year V
	2.A.2. Support current efforts by Manistee County in cooperation with District Health Department #10 to require septic system inspections at time of sale in or to determine system failure rates and to upgrade failing systems (Note: Also supports objective to prevent recreational user exposure to pathogens.)	PLWF, encourage other partners	0–2 years (High)	S=20 hours/year V
	2.A.3. Develop and distribute information to residents and businesses on proper maintenance and operation of septic tile field sanitary systems (see Public Information and Education Plan). (Note: Also supports objective to prevent recreational user exposure to pathogens.)	MCD, MSU Ext., USDA-NRCS, PLWF, MDEQ, School, PLA, PPSRC, PLEA	0–2 years (High)	S=40 hours/year V/M/N
	2.A.4. Evaluate results of the inspections, surveys, monitoring, and education programs designed to control phosphorus loadings and determine what additional actions, if any, are needed.	MDEQ, MDNR, MCD, MSU Ext., USDA-NRCS, Health Dept., School, PLWF	2–5 years (High)	S=30 hours/year V
	2.A.5. Advocate for meaningful federal requirements and support Michigan's efforts to control invasive species through ballast water discharge controls for ocean-going vessels entering the Great Lakes.	PLWF, encourage other partners	0–2 years (High)	S=20 hours/year V

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
	2.A.6. Inventory existing storm water point-source discharges from the Village of Onekama, other urbanized areas with direct discharges to Portage Lake and tributary streams, and significant nonpoint sources of storm water from urban and agricultural areas and determine whether or not sampling of water quality for phosphorus during wet weather events should be conducted (see Monitoring Plan and Public Information and Education Plan).	Village, Onekama Twp., EPA, MDEQ, Health Dept., MCD, MSU Ext., School, PLWF	0–2 years (Medium)	\$1,000+ S=15 hours/year V/D
	2.A.7. Develop and implement a plan to monitor <i>Cladophora</i> algae as an index to detect nearshore nutrient sources (see Monitoring Plan and Public Information and Education Plan).	MDEQ, MDNR, LRBOI, School, Onekama Twp., PLWF	0–2 years (Medium)	\$1,000+ S=25 hours/year V/D/N
	2.A.8. Implement a monitoring plan that will sample dissolved oxygen (DO) levels in the epilimnion of Portage Lake during summer stratification at two locations (deepest basins) at least three time per year every three years and at least twice per year during a 24-hour period to determine whether or not DO levels meet state water quality standards (see Monitoring Plan).	Onekama Twp, Village, PLA, PLEA, MDEQ, MDNR, LRBOI, EPA, Health Dept., School, PLWF	0–2 years (Medium)	S=25 hours/year V/D
	2.A.9. Determine if additional DO sampling is needed to determine whether or not the severity, depth, and period oxygen depletion below the thermocline has increased significantly based upon historical information on Portage Lake and data for similar lakes (see Monitoring Plan).	MDEQ, MDNR, LRBOI, EPA, Health Dept., School, PLWF	2–5 years (Medium)	S=20 hours/year V
	2.A.10. Develop and distribute information to residents and businesses on limiting phosphorus loadings to surface water through use of low- or zero-phosphorus fertilizers for lawn maintenance (see Public Information and Education Plan).	MCD, MSU Ext., USDA-NRCS, PLWF, MDEQ, School, PLA, PPSRC, PLEA	2–5 years (Low)	S=25 hours/year V/M/N
	2.A.11. Continue efforts to determine type, locations, and potential discharges from any historical industrial uses on or adjacent to Portage Lake to determine if any contaminants from past uses represent a present or future threat to humans or biota of the lake.	Village, Onekama Twp., Historical Museum, MDEQ, PLWF	2–5 years (Low)	S=10 hours/year V

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
<p>2.B. Protect remaining wetland habitats contiguous to Portage Lake and tributary streams to assure that they continue to provide a natural filter system and function as spawning, nursery, and refuge areas to support the natural reproduction and survival of resident fish and wildlife populations and other aquatic organisms.</p>	<p>2.B.1. Develop and distribute information to area property owners on the importance of protecting existing wetlands to sustaining fish and wildlife populations and in providing a natural filter system to protect the lake and tributaries from sediment, nutrients, and other pollutants contained in surface runoff from adjacent lands (see Public Information and Education Plan).</p>	<p>MSU Ext., MCD, USDA-NRCS, PLA, PPSRC, PLEA, MDEQ, MDNR, LRBOI, local government, School, PLWF</p>	<p>0–2 years (High)</p>	<p>S=40 hours/year V/M/N</p>
	<p>2.B.2. Complete an inventory and mapping of significant contiguous wetland areas associated with Portage Lake and tributary streams and determine whether existing federal, state, and local regulations are adequate to protect these areas from injury should future development occur (see Monitoring Plan and Public Information and Education Plan).</p>	<p>MDEQ, MDNR, LRBOI, USFWS, EPA, MSU Ext. MCD, School, PLWF</p>	<p>0–2 years (High)</p>	<p>\$1,000+ S=40 hours/year V/D</p>
	<p>2.B.3. Make recommendations for actions to local units of government, if needed, to assure that critical contiguous wetlands required to support resident fish and wildlife are protected.</p>	<p>MDEQ, MDNR, LRBOI, USFWS, EPA, local government, School, PLWF</p>	<p>2–5 years (Low)</p>	<p>S=15 hours/year V</p>
<p>2.C. Protect the shallow (littoral) zone habitat from physical alteration and the spread of invasive plant species that can reduce the diversity of water-related habitats and limit the abundance and sustainability of resident fish populations, impact fishing, and impair other recreational water uses.</p>	<p>2.C.1. Develop and implement a plan that will identify and map areas of rooted aquatic plant growth, in or adjacent to Portage Lake, with particular attention to the presence of exotic, invasive species such as purple loosestrife (<i>Lythrum salicaria</i>), Eurasian watermilfoil (<i>Myriophyllum spicatum</i>), and phragmites (<i>Phragmites australis</i>) (see Monitoring Plan and Public Information and Education Plan).</p>	<p>MDEQ, MDNR, LRBOI, USFWS, Onekama Twp., Village, School, MCD, MSU Ext., PLA, PLEA, PLWF</p>	<p>0–2 years (Medium)</p>	<p>\$1,000+ S=40 hours/year V/D</p>
	<p>2.C.2. Make recommendations as to what actions, if any, need to be implemented to reduce the impacts and spread of invasive aquatic species.</p>	<p>MDEQ, MDNR, LRBOI, USFWS, EPA, MCD, MSU Ext., School, PLWF</p>	<p>2–5 years (Medium)</p>	<p>S=10 hours/year V</p>
	<p>2.C.3. Develop and distribute educational materials explaining the importance of the nearshore littoral zone and the impacts of beach grooming, shoreline hardening, and permanent mooring structures on the habitat essential to resident fish, wildlife, and fish food organisms (see Public Information and Education Plan).</p>	<p>MCD, MSU Ext, MDEQ, MDNR, School, PLWF, local government, PLA, PLEA, PPSRC</p>	<p>0–2 years (Medium)</p>	<p>S=20 hours/year V/M/N</p>
	<p>2.C.4. Develop and implement a program to identify and make recommendations for the applications of best management practices to address significant soil erosion and sedimentation sources on public and private lands riparian to Portage Lake and tributaries (see Monitoring Plan and Public Information and Education Plan).</p>	<p>USDA-NRCS, MCD, MSU Ext., County, local government, MDEQ, MDNR, LRBOI, School, PLWF</p>	<p>2–5 years (Low)</p>	<p>\$1,000+ S=10 hours/year V/D</p>

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
	2.C.5. Identify and map the unimproved shoreline areas of Portage Lake and evaluate the effectiveness of existing federal, state, and local regulations to protect critical undisturbed areas from impairment and make recommendations, if any, for actions needed to protect this limited and essential habitat feature (see Monitoring Plan and Public Information and Education Plan).	Onekama Twp, Village, MDEQ, MDNR, School, PLWF	2–5 years (Low)	\$1,000+ S=10 hours/year
Goal 3—Water-Based Recreation: Protect and enhance the quality of and access to water-based recreational opportunities within the Portage Lake watershed for people of all ages and abilities.				
3.A. Maintain adequate depths in the Portage Lake Channel to assure safe, easy access to and from Portage Lake from Lake Michigan and adequate boating access to Portage Lake.	3.A.1. Actively support and participate in the efforts of the Portage Lake Harbor Commission to secure adequate, sustained funding for the dredging of Portage Lake Channel to depths required to accommodate recreational boating access to and from Portage Lake and Lake Michigan.	PLWF, other partners as appropriate	0–2 years (High)	S=80 hours/year V
	3.A.2. Support improvement of existing boating access and public marina facilities and acquisition of additional properties for boating and non-boating public access to Portage Lake (also supports 3.C.3. below).	Onekama Twp., Village, MDNR, PLWF	0–2 years (High)	S=15 hours/year V
	3.A.3. Support completion of north and south piers of the Portage Lake Channel breakwall to reduce the frequency of maintenance dredging and at the same time accommodate larger vessels.	USACE, Onekama Twp, Harbor Commission, Village, local businesses, PLWF	0–2 years (Medium)	S=15 hours/year V
	3.A.4. Maintain and enhance quality of current public access sites for launching of watercraft into Portage Lake and monitor use to identify capacity or other concerns at these sites.	MDNR, Onekama Twp., Village, PLWF	2–5 years (Low)	S=15 hours/year V

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
<p>3.B. Actively support sustainable fish community management objectives for Portage Lake watershed that focus on self-reproducing populations of both warmwater and coolwater fish species in Portage Lake and resident trout populations in tributaries, supplemental stocking of coolwater species as needed to support fishable populations, and annual plantings of trout and salmon as required to sustain nearby Great Lakes fishing opportunities and seasonal angling in Portage Lake.</p>	<p>3.B.1. Periodically inventory and monitor specific and easily measured physical, biological, and chemical conditions within and adjacent to tributary streams to assist state, federal, and tribal resource protection and management agencies with protection of fish habitat, prevention of migration barriers, and protection of the quality of the water entering Portage Lake (see Monitoring Plan and Public Information and Education Plan).</p>	<p>PLWF, MCD, MSU Ext., School, PLA, PLEA, local government</p>	<p>2–5 years (Low)</p>	<p>\$1,000+ S=30 hours/year V/D/N</p>
	<p>3.B.2. Establish a forum/communication tool that can be used by the state, federal, and tribal resource protection and management agencies to communicate information to and answer questions from residents and visitors to Portage Lake about issues important to anglers like annual fish plantings in Portage Lake, water quality, fish population surveys, fish diseases or invasive species that are limiting fishery management options, and creel census information (see Public Information and Education Plan).</p>	<p>PLWF, School, MCD, MSU Ext., PLA, PLEA</p>	<p>2–5 years (Low)</p>	<p>\$1,000+ S=30 hours/year V</p>
	<p>3.B.3. Determine, in conjunction with other local, state, federal, and tribal resource management agencies, locations on Portage Lake where shore-based fishing opportunities can be enhanced through the use of fishing piers or platforms and/or how accessibility to the existing fishery by those with physical limitation could be enhanced.</p>	<p>MCCF, AES, ESM, MDEQ, MDNR, USFWS, LRBOI, USACE, PLWF, local government</p>	<p>2–5 years (Low)</p>	<p>S=15 hours/year V</p>
<p>3.C. Promote, maintain, and where practicable enhance accommodations for non-boating public recreational uses of Portage Lake, including such things as swimming, wading, lakeside walks, and wildlife viewing.</p>	<p>3.C.3. Endorse the purchase or acquisition of property within the Portage Lake watershed for habitat protection, public use, access, and recreation.</p>	<p>PLWF, encourage other partners</p>	<p>0–2 years (High)</p>	<p>S=20 hours/year V</p>
	<p>3.C.1. Inventory existing public access opportunities on Portage Lake and determine capacity and appropriateness of various uses and identify opportunities for enhancement of non-boating uses.</p>	<p>PLWF, Onekama Twp., Village, County, MCCF, AES, ESM, MDNR</p>	<p>2–5 years (Low)</p>	<p>S=30 hours/year V</p>
	<p>3.C.2. Prepare recommendations to the public agencies that control the sites for enhancements.</p>	<p>PLWF, PLA, local government</p>	<p>5–10 years (Low)</p>	<p>S=15 hours/year V</p>
	<p>3.C.4. Prepare and distribute information about public access facilities currently available for non-boating users (see Public Information and Education Plan).</p>	<p>PLA, PPSRC, local governments, PLWF</p>	<p>5–10 years (Low)</p>	<p>\$1,340+ S=20 hours/year V/N</p>

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3.D. Provide a forum to help resolve conflicts between recreational users of Portage Lake by anticipating problems and proposing alternative solutions that provide for equitable allocation of surface and shoreline natural resources.	3.D.1. Collect further information on user conflicts reported during the 2007 Public Sector Consultants phone survey of Portage Lake users and determine whether educational materials and/or better enforcement of existing regulations can resolve conflicts, or whether further actions are needed (see Public Information and Education Plan).	PLWF, Onekama Twp., Village, School, PLA	2–5 years (Low)	\$15,000
	3.D.2. Cooperate with the appropriate public authorities and other affected parties to implement recommendations for conflict resolution.	MDNR, Village, USCG, PLWF	2–5 years (Low)	S=10 hours/year V
Goal 4—Natural Resource and Cultural Assets: Invest in protection and enhancement of land-based natural resources and related cultural assets that provide recreational and educational benefits unique to the watershed and contribute to the quality of life and economic well-being of local residents while expanding the vacation experiences of visitors.				
4.A. Preserve, enhance, and promote access and use of the scenic vistas in the watershed that characterize the unique natural resources of the region and add to the quality of life of residents and attract visitors.	4.A.1. Map the location of scenic vistas in the watershed that local residents and visitors identify as significant places that characterize the aesthetic qualities of the region that make them want to live and/or vacation in the area (see Monitoring Plan).	PLWF, Townships, Village, School	2–5 years (Low)	S=80 hours/year V
	4.A.2. Develop a plan to provide special designation for these locations; develop and distribute public information that describes each location or series of locations associated with a scenic drive; and recommend education, information, and voluntary actions to private land owners and actions by public agencies to encourage protection and provide enhancements that will accommodate sustained public enjoyment of these local assets.	Townships, Village, County, MDOT	5–10 years (Low)	\$1,340+ S=80 hours/year V/N
4.B. Preserve and enhance public understanding and appreciation of specific historical sites , structures, centennial farms, and historical artifacts that provide an opportunity for residents and visitors to better understand how the natural resources of the region attracted and supported Native American, early European	4.B.1. Map sites of historical significance in the watershed identified as key locations that give the watershed residents a sense of place, and that can provide important information on the past uses of natural resources in the region and lessons learned that encourage future stewardship of the natural assets of the region.	Historical Museum, School, PLWF, local government	2–5 years (Low)	S=50 hours/year V
	4.B.2. Develop and distribute public information that describes each historical site.	Historical Museum, PLWF, local government, service clubs	2–5 years (Low)	\$1,340+ S=50 hours/year V/N

Objectives	Tasks	Potential partners ¹	Timeline (and priority) ²	Estimated cost/year ³
settlers, and later immigrants, and how important many of the same natural resources are to the future economic well-being of the region.	4.B.3. Develop a plan that will encourage private and public efforts to preserve, protect, and provide interpretation of sites of historical significance in cooperation with other public entities, private organizations, and other interested stakeholders.	Historical Museum, PLWF, service clubs	5–10 years (Low)	\$500+ S=30 hours/year V
4.C. Promote recognition of the agricultural heritage in the watershed, present agriculture, the use of local agricultural products, and sustainable agricultural practices that rely on the unique combinations of micro-climates, soils, and topography of the region that have been important in the past and are a significant component needed to support a future diverse and sustainable local economy.	4.C.1. Encourage and facilitate development of a program to celebrate local agricultural products and encourage their sale and use in partnership with local farmers and other interested stakeholder organizations and individuals that will include potential for: establishing seasonal, central, open-air farm markets; published guides for farm tours including locations of on-site/roadside farm markets; special promotions of local products in local retail stores, groceries, and restaurants; and, promotion of locally grown agricultural products in tourist information distributed to potential visitors to the watershed.	USDA-NRCS, MCD, MSU Ext., AES, PLWF, local farmers and businesses	0–2 years (Low)	S=15 hours/year V
	4.C.2. Begin implementation of recommended promotion of locally grown agricultural products in cooperation with partners.	AES, USDA-NRCS, MCD, MSU Ext., PLWF	2–5 years (Low)	\$1,340+ S=10 hours/year V/N
Goal 5— Local Management and Implementation Institutions: Establish mechanisms to provide sustained local leadership, community engagement, and fundraising needed to assure implementation and updating of the Portage Lake Watershed Forever Plan.				
5.A. Create an organizational structure that will encourage sustained local leadership needed to engage the public, manage projects, and raise funds needed to implement and periodically update this plan from various sources through the voluntary participation of governmental and private interests in the watershed.	5.A.1. Establish a volunteer organization under the umbrella of the existing Alliance for Economic Success with bylaws that establish, as a minimum, the purpose of the organization; membership qualifications; method of electing, qualifications, and number of officers; terms of officers; standing committees and appointment of committee chairs; number of annual meetings; method of decision making; and process for approving budgets, grant requests, and expenditures.	PLWF, AES	0–2 years (High)	S=120 hours/year V
	5.A.2. Commence operation of standing committees to assist in the implementation of the plan and in combination with the officers of the organization determine a reasonable proposed budget for the following 12 months including the needed staff support and the direct expenses related to the 2008 fiscal year actions.	PLWF, AES	0–2 years (High)	S=120 hours/year V
	5.A.3. Evaluate results of voluntary organization operation and make changes, if necessary.	PLWF, AES	2–5 years (High)	S=40 hours/year V

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5.B. Provide sufficient resources to support plan implementation, including staff support to assist volunteer officers and committee chairs; encourage participation and in-kind contributions from public agencies, local private entities, tribal interests, and interested residents; and, seek grants from public agencies and private foundations.	5.B.1. Secure funding to provide for paid staff or a secure commitment from an experienced volunteer to assist in: development of the bylaws of the organization; initiating work on the actions identified in this plan that are to be commenced as early as January 1, 2008; and securing funds, in-kind contributions, and volunteer participants needed to sustain public interest in the plan and meet public expectations for early results from actions identified in the plan.	PLWF	0–2 years (High)	S=120 hours/year V
	5.B.2. Provide support for and participate in building the Portage Lake Forever Endowment Fund to assure long-term financial support needed to involve stakeholders in the implementation and periodic updates of this plan.	MCCF, PLWF	0–2 years (High)	S=120 hours/year V
5.C. Ensure that growth and development in the communities within the watershed is directed to areas of the watershed with existing adequate infrastructure in a compact and mixed use manner, allowing for the conservation of existing open space and farmland outside of those areas.	5.C.1. Form a joint planning authority among the five communities in the watershed and develop a joint master plan and complementary zoning ordinances The emphasis of the plan and ordinances should be to direct development to areas of the watershed with existing adequate infrastructure; ensure that compact, mixed use development occurs in those areas; and conserve existing open space and farmland outside of those areas (see next section for specific tools/ordinances that could be considered).	AES, EPA, local government, LRBOI, MCCF, MCD, MDEQ, MDNR, MDOT, MSU Ext., PLA, PLEA, PLWF, School, USDA-NRCS, USFWS	0–2 years (High)	\$50,000 S=120 hours/year S/V/M/N
	5.C.2. Implement watershed protection ordinances (see next section for specific tools/ordinances that could be considered).	AES, EPA, Health Dept., LRBOI, local government, MCCF, MCD, MDEQ, MDNR, MDOT, MSU Ext., PLA, PLEA, PLWF, School, USDA-NRCS, USFWS	2–5 years (Medium)	S=120 hours/year S/V/M/N

SOURCE: Public Sector Consultants Inc., 2007.

¹Partner Abbreviations:

AES = Alliance for Economic Success (formerly Manistee Economic Development Office)
 County = Manistee County
 EPA = U.S. Environmental Protection Agency
 ESM = Easter Seals of Michigan
 Harbor Commission = Portage Lake Harbor Commission
 Health Dept. = District Health Department #10

Historical Museum = Manistee County Historical Museum
 LRBOI = Little River Band of Ottawa Indians
 MCCF = Manistee County Community Foundation
 MCD = Manistee Conservation District
 MDEQ = Michigan Department of Environmental Quality
 MDNR = Michigan Department of Natural Resources
 MDOT = Michigan Department of Transportation
 (Continued on following page)

MSU Ext. = Manistee County Michigan State University Extension Office
Onkama Twp = Onkama Township
PLA = Portage Lake Association
PLEA = Portage Lake Environmental Association
PLWF = Portage Lake Watershed Forever
PPSRC = Portage Point Summer Resort Corporation

School = Onkama Consolidated Schools
Townships = Onkama, Bear Lake, Manistee, and Brown Townships
USACE = U.S. Army Corps of Engineers
USDA-NRCS = U.S. Department of Agriculture – Natural Resources Conservation Service
USFWS = U.S. Fish and Wildlife Service
Village = Village of Onkama

²Timeline is from plan approval. All tasks to be accomplished in the 2–10 year time horizon are ranked as low priority for now, but should be reprioritized two years after the plan is approved.

³The estimated cost figures do not include anticipated volunteer time, donated equipment, existing educational material that will be adapted, PLWF newsletter that will deliver educational information, or staff support for coordination of all tasks within the watershed plan. Project coordination is estimated at \$45,000–\$65,000 per year (1/FTE) depending on experience and responsibilities. PLWF newsletter is estimated to cost \$2,265/newsletter for 1,000 copies to produce and mail. Elements that require volunteer time (V), staff time (S), donated equipment (D), PLWF newsletter (N), and/or existing educational material (M) are noted.

Staff costs are based on the estimated number of hours multiplied by an average staff salary of \$45,000 to \$65,000, resulting in an average cost of \$20–\$30 per hour.

⁴An ecosystem is a sustainable, functioning complex or community of organisms interacting with each other and their physical and chemical environment as a unit.