

## **Appendix 10. Education Plan: Black & Paw Paw River Watersheds**

### **Introduction**

The Black River Watershed and Paw Paw River Watershed Information & Education (I&E) Plan was formulated through the efforts of the joint information & education sub-committee. This sub-committee consisted of members from both watershed Steering Committees. The purpose of the plan is to provide a framework to inform and motivate the various stakeholders, residents and other decision makers within the Black River and Paw Paw River watersheds to take appropriate actions to protect water quality. This working document will also provide a starting point for organizations within the watersheds looking to provide educational opportunities or outreach efforts.

The geography of the Black River and Paw Paw River watersheds lend themselves to a partnership approach, which has been a focal point for all information and education efforts to date within the watersheds. With both watersheds sharing multiple municipal boundaries as well as many similar water quality concerns, a partnership approach to education and outreach enables both watershed projects to maximize their resources and effectively reach a larger audience than could be accomplished alone.

### **Information & Education Goal**

The I&E plan will help to achieve the watershed management goals by increasing the involvement of the community in watershed protection efforts through awareness, education and action. The watershed community can become involved only if they are informed of the issues and are provided information and opportunities to participate.

The I&E plan lists specific tasks to be completed. These tasks will increase the general awareness of watersheds and water quality issues for all audiences, educate target audiences on specific issues and motivate target audiences to implement practices to improve and protect water quality. These practices may include homeowner activities such as reducing fertilizer use, maintaining septic systems, installing a rain garden or maintaining stream buffers. Practices for governmental units or officials may include incorporating watershed protection language into master plans and zoning ordinances, reducing the amount of salt used for deicing and utilizing low impact development techniques on public property.

### **Target Audiences**

The level of understanding of watershed concepts and management, the concerns, values and level of enthusiasm can all vary between different audience groups. Recognizing differences between groups of target audiences is critical to achieving success through education and outreach efforts. Educational messages may need to be tailored to effectively reach different audiences. It is important to understand key motivators of each target audience to establish messages that will persuade them to adopt behaviors or practices to protect and improve water quality. The table below lists

and describes the major target audiences for the Paw Paw and Black River Watersheds and specific messages and activities that could be used to reach each audience.

| <b>Target Audiences</b>            | <b>Description of Audience</b>   | <b>General Message Ideas</b>   | <b>Potential Activities</b>   |
|------------------------------------|--|--|---|
| Businesses                         | This audience includes businesses engaging in activities that can impact water quality such as lawn care companies, landscapers, car washes, etc.  | Clean water helps to ensure a high quality of life that attracts workers and other businesses.   | Workshops and presentations<br>Brochures/flyers/fact sheets<br>One-on-one contact   |
| Developers / Builders / Engineers  | This audience includes developers, builders and engineers.   | Water quality impacts property values.   | Newsletter articles<br>Workshops and presentations<br>Watershed tours<br>Brochures/flyers/fact sheets<br>Trainings  |
| Farmers                            | This audience includes both agricultural landowners and those renting agricultural lands and farming them.   | Protecting water quality is a long-term investment by saving money by decreasing inputs (fuel, fertilizer)   | Workshops and presentations<br>Brochures/flyers/fact sheets<br>One-on-one contact<br>Watershed tours<br>Newsletter articles   |
| Government Officials and Employees | This audience includes elected (board and council members) and appointed (planning commissions and zoning board of appeals) officials of cities, townships, villages and the county. This audience also includes the drain commission and road commission staff. It also includes state and federal elected officials. | Water quality impacts economic growth potential.<br>Water quality impacts property values and the tax revenue generated in my community to support essential services.<br>Clean drinking water protects public health. | One-on-one contact<br>Trainings<br>Workshops and presentations<br>Brochures/flyers/fact sheets<br>Watershed tours<br>Educational videos<br>Watershed Management Plan<br>User Guide  |
| Kids / Students                    | This audience includes any child living or going to school in the watershed.   | Clean water is important for humans and wildlife. We all depend on water.  | Student stream monitoring<br>Teacher training workshops<br>Curriculum<br>Educational videos   |
| Property Owners                    | This audience includes any property owner in the watershed.  | Water quality impacts my property value and my health.   | PSAs and press releases<br>Display/materials at festivals<br>Workshops and presentations<br>Watershed Tours<br>Tax/utility bill inserts<br>Website/YouTube video<br>Workshops and presentations<br>Brochures/flyers/fact sheets<br>One-on-one contact<br>"Entering the watershed" signs |
| Riparian Property Owners           | This audience includes those property owners that own land along a river, stream, drain or lake.   | Water quality impacts my property value and my health.   | Newsletter articles<br>Door knob hangers<br>One-on-one contact<br>Videos<br>Workshops and presentations   |
| Recreational Users                 | This audience includes any person who engages in recreational activities.  | Water quality is important for enjoying recreational activities.   | Website/YouTube video<br>Kiosks<br>Newsletter articles<br>Brochures/flyers/fact sheets  |

## **Watershed Issues**

To begin formulating education and outreach strategies, it is important to identify the major issues, which need to be addressed to improve and protect water quality. The priority issues for the Black and Paw Paw River Watersheds are described below. Each of these issues relate back to the goals and actions in the Watershed Management Plans for the Black and Paw Paw Rivers.

Each issue is tied to pollutants of concern in the watersheds. For each issue, the audience(s) will need to not only understand the issue, but also the solutions or actions needed to protect or improve water quality. For each major issue, priority target audiences have been identified. The priority audiences were selected because of their influence or ability to take actions, which would improve or protect water quality.

### **1. Watershed Awareness**

The Paw Paw and Black River Watersheds both have unique natural resources, but also have significant problems with water quality. Watershed residents need to understand that their every day activities affect the quality of those resources. All watershed audiences need to be made aware of the priority pollutants and their sources and causes in each of the watersheds. Lastly, education efforts should, whenever possible, offer audiences solutions to improve and protect water quality.

One effective way to increase general watershed awareness is through recreational activities. These activities can help instill a sense of stewardship of the resources needed to enjoy the activities. Rivers, lakes and streams can provide many enjoyable recreational activities such as fishing, paddling, boating and swimming. It is important for recreational users to understand and appreciate the natural resources within the watershed and to gain a level of knowledge about the protection of those natural resources. Water trails and public access to water bodies can ensure that the public is offered an opportunity to enjoy and recreate on the water resources within the watersheds.

**Priority Target Audiences:** All , with focus on kids/students

**Major Pollutants of Concern:** sediment, nutrients, bacteria and pathogens, temperature, oil, grease and metals, pesticides

**Priority Area:** Entire watershed

### **2. Land Use Change**

Land use change can disrupt the natural hydrologic cycle in a watershed. Natural vegetation, such as forest cover, usually has high infiltration capacity and low runoff rates. Whereas, urbanized land cover has impervious areas (buildings, parking lots, roads) and networks of ditches, pipes and storm sewer, which augment natural drainage patterns. Impervious surfaces reduce infiltration and the recharge of groundwater while increasing the amount of runoff. Local governmental officials and builders/developers need to understand the water quality benefits of smart growth, low

impact development, open space and farmland preservation and protection of wetlands, floodplains and riparian areas.

Current and past wetland loss in both urban and agricultural areas is a major concern in both the Paw Paw and Black River Watersheds. The loss of wetlands result in disrupted hydrology and degraded water quality. Further, many agricultural areas have been drained with extensive ditching to move water off the land quickly. While this helps with food production in these areas, water quality suffers. The high flow amounts and velocity can cause increased streambank erosion and sediment delivery. Educational efforts should target drain commissioners and farmers to better understand the water quality benefits of ditch naturalization techniques and the need for wetland protection and restoration.

**Priority Target Audiences:** Farmers, Governmental Officials and Employees, Developers/Builders/Engineers

**Major Pollutant of Concern:** sediment

**Priority Area:** Paw Paw River Watershed High and Medium Priority Protection Areas

### **3. Stormwater Runoff**

Stormwater runoff is caused when rain, snowmelt or wind carries pollutants off the land and into water bodies. Education efforts should increase awareness of stormwater pollutants, sources and causes, especially the impacts of impervious (paved or built) surfaces and their role in delivering water and pollutants to water bodies. Everyday homeowner and business actions are often the source and cause of stormwater pollution. These activities include lawn care practices, household hazardous waste and oil disposal, pet waste disposal and car and equipment care. Local government activities impacting stormwater runoff include land use planning, road and parking lot maintenance and construction, lawn care practices, oversight of construction sites and identification and correction of illicit discharges and connections.

Educational efforts should target property owners and businesses about the many best practices that can decrease the amount of water and pollutants coming from their property. In addition, local governmental units can be encouraged to implement low impact development and smart growth techniques in their plans and zoning ordinances. Local governments can also be encouraged to enact regulations such as a stormwater ordinance and a phosphorus ban for non-agricultural fertilizer use. Educational efforts can also promote municipal operations and maintenance best practices, which are important for reducing polluted runoff. These include best practices for road and parking lot construction and maintenance, lawn care and vehicle maintenance.

**Priority Target Audiences:** Property Owners, Builders/Developers/Engineers, Businesses, Governmental Officials and Employees

**Major Pollutants of Concern:** sediment, nutrients, bacteria and pathogens, temperature, oil, grease and metals, pesticides

**Priority Area:** Paw Paw River Watershed High and Medium Priority Urban Management Areas

#### ***4. Natural Resources Management and Preservation***

Preserving land and managing natural resources is crucial for effective watershed management. Preservation and management of open space, wetlands, farmland and other natural features helps to reduce the amount of stormwater runoff entering water bodies, preserve natural ecosystems, endangered species as well as the services that the natural systems provide to us such as filtering drinking water and retaining storm water.

Invasive species, both aquatic and terrestrial; pose a threat to water quality and biodiversity in both watersheds. Education efforts should focus on identification and control techniques as well as the prevention of additional invasive species. Education efforts should also encourage the use of native Michigan plants for landscaping, wildlife habitat and other uses.

Recreational activities can often have a negative impact on sensitive areas. It may be necessary to understand carrying capacities for boats on lakes and rivers. In sensitive areas, there may be a need to limit recreational activities to ensure water quality and natural resources are protected. In addition, best management practices should be utilized to limit the impacts of recreational use on water and other natural resources. BMPs could include proper woody debris management for clearing rivers for navigation and installing and maintaining proper access sites to rivers and streams for fishing and canoeing.

Education efforts should instill a sense of understanding and appreciation for natural features. Property owners, developers and local governmental officials and employees need to be presented with options for preservation and management of natural resources. Educational efforts promoting smart growth, low impact and open space development and green infrastructure should target local government officials and employees and builders, developers and engineers.

**Priority Target Audiences:** Property Owners, Governmental Officials and Employees, Recreational Groups/Users, Developers/Builders/Engineers

**Major Pollutants of Concern:** sediment, temperature

**Priority Area:** Paw Paw River Watershed High and Medium Priority Protection Areas

## **5. Agricultural Runoff**

Agricultural lands cover most of the area in the Black and Paw Paw River Watersheds, If not properly managed, runoff from agricultural lands can impact the watershed by delivering pollutants such as sediment and nutrients. Education efforts should seek to help audiences understand the impacts of agricultural runoff. A key concept is the need to reduce soil erosion from agricultural lands. It is also important to understand that soil particles also carry nutrients and chemicals to water bodies. There are many best management practices for addressing soil erosion from agricultural lands. Best management practices include conservation tillage, filter strips, cover crops, grassed waterways, ditch naturalization and wetland restoration.

Erosion is an intrinsic natural process, but in many places it is increased by human land use. A certain amount of erosion is natural and, in fact, healthy. Excessive erosion, however, does cause problems, such as sedimentation of streams and lakes, ecosystem damage and outright loss of soil. Soil erosion on agricultural fields can be caused by water, wind and tillage practices. Soil loss, and its associated impacts, is of great concern to farmers.

Drain maintenance activities, which often remove vegetation from riparian areas, contribute to soil erosion problems in agricultural areas. Drain maintenance projects should ensure as much riparian vegetation is left intact as possible and replace the vegetation with native grasses, shrubs and trees if it needs to be removed. Another major concern is manure being applied to fields in the watershed especially fields with drain tiles, which connect to ditches and streams. For nutrients and bacteria and pathogens, agricultural best management practices include methane digesters, manure and/or nutrient management, restricting livestock access to water bodies, wetland restoration and soil testing. Lastly, for pesticide concerns, best management practices include organic production and integrated pest management techniques. Cost share and technical assistance programs are available to assist agricultural landowners in implementing many of these practices.

**Priority Target Audiences:** Farmers

**Major Pollutants of Concern:** sediment, nutrients, bacteria and pathogens, pesticides

**Priority Area:** Paw Paw River Watershed High and Medium Priority Agricultural Management Areas

## **6. Septage Waste**

Septage waste is both an urban and rural issue. In more rural areas and around lakes, failing or incorrectly installed septic systems impact water quality by adding excess nutrients, bacteria or other pollutants to the system. Education activities should seek to educate audiences about the impacts of septic systems on water quality. Proper maintenance of septic systems is a key practice for homeowners. Educational efforts should also target governmental units to encourage them to enact point of sale septic system inspection ordinances and to plan and zone for higher density development only in areas served by municipal sewer systems.

For urban areas, the proper operation and maintenance of municipal sewer infrastructure is necessary for protecting water quality. There is a widespread problem with aging infrastructure in urban areas, with some sewer systems dating over 100 years. Municipalities must ensure that combined sewer overflow events and other untreated releases of septage waste do not impact water quality. Educational efforts should target municipal officials and employees to encourage planning for adequate capacity, management, operation, and maintenance of sewer collection and treatment systems.

**Priority Target Audiences:** Governmental Officials and Employees, Riparian Property Owners

**Major Pollutants of Concern:** bacteria and pathogens, nutrients

**Priority Area:** Paw Paw River Watershed High and Medium Priority Urban Management Areas and E.coli TMDL watersheds (Pine and Mill Creek watersheds)

### **Distribution Formats**

Because of the differences between target audiences, it will sometimes be necessary to utilize multiple formats to successfully get the intended message across. Distribution methods include the media, newsletters and direct mailings, email lists and websites, and passive distribution of printed materials. Below is a brief description of each format with some suggestions on specific outlets or methods.

#### **1. Media**

Local media is a key tool for outreach to several audience groups. The more often an audience sees or hears information about watershed topics, the more familiar they will become and the more likely they will be to use the information in their daily lives. Keeping the message out in front through press releases and public service announcements is essential to the success of education and outreach efforts.

Newspapers include: the Herald Palladium, the Kalamazoo Gazette (including the Hometown Gazette), the Courier Leader, the Bangor Reminder, the South Haven Tribune, the South Bend Tribune, the Decatur Republican, the Tri-City Record, Michigan Farm News and the Farmer's Exchange.

Radio outlets include WMUK, WCSY, WKZO, WBCT, Michigan Farm Radio Network , WKMI – Kalamazoo, WDW – Dowagiac

Television outlets include WWMT Channel 3, WOOD Channel 8, WZZM Channel 13, WGVU Channel 35 and WXMI FOX Channel 17.

#### **2. Newsletters and other direct mailings**

Several municipalities, governmental agencies, utilities, County offices and non-profit organizations send out newsletters or other mailings which may be coordinated with

various outreach efforts such as fact sheets or “Did you Know” messages. Currently identified mailings include Van Buren County Drain Office, Village and City utility bills, Van Buren, Allegan and Berrien County Farm Bureau newsletters, USDA Farm Service Agency newsletters, Van Buren, Allegan and Berrien Conservation District newsletters, Sarett Nature Center, The Southwest Michigan Land Conservancy newsletters, MSUE, Southwest Michigan Planning Commission newsletters and The Stewardship Network.

### **3. E-Mail lists and Websites:**

The Van Buren Conservation District and the Southwest Michigan Planning Commission maintain active websites and email lists which can be used to reach residents of the watersheds as well as elected officials and businesses. As part of the Information and Education plan, other organizations should be encouraged to supply watershed related educational materials through their websites where appropriate. Enviro-mich provides an opportunity to advertise events and workshops to a large audience. Enviro-mich is a list serve for those in Michigan interested in environmental issues.

### **4. Passive Distribution:**

This method relies on the target audience picking up a brochure, fact sheet, or other information. This can occur by placing materials at businesses, libraries, township/city/village halls and community festivals and events, An example would be to place information on reducing fertilizer use at a store that sells fertilizer.

## **Plan Administration and Implementation**

An information and education implementation strategy is laid out for the Black and Paw Paw River Watersheds in the table found at the end of this report. This table lists specific tasks or activities, a potential lead agency and partners, timeframe, milestones and costs to educate target audiences for each watershed issue.

## **Roles and Responsibilities**

The Southwest Michigan Planning Commission and the Van Buren Conservation District will continue to oversee the implementation of the Information and Education Plan as well as make adjustments to the plan when necessary. An Information & Education committee will meet as needed to advise on educational efforts.

There are efforts underway to establish a non-profit organization called the Two Rivers Coalition to implement the watershed plans for the Black and Paw Paw River Watersheds. Once this group is established, it may be most appropriate for this organization to oversee the implementation of the I&E Plan and convene the I&E committee.

## **Existing Efforts**

It is important to understand current education efforts being offered or resources that are available for use or adaptation in the Paw Paw and Black River Watersheds. In some cases, existing efforts may need additional advertisement or updating to more effectively transmit their intended message. A few existing efforts that could be



supplemented or utilized in the Paw Paw and Black River Watersheds are described below.

MSU Extension sponsors a Citizen Planner Course each year in Southwest Michigan. The target audiences for this course are municipal and planning officials as well as citizens. Topics presented during each course include various land use planning topics and techniques.

The Stewardship Network, Sarett Nature Center, Conservation Districts, Southwest Michigan Planning Commission, MSUE and lake associations periodically host educational workshops related to watershed and water quality topics.

The Southwest Michigan Planning Commission provides educational resources about stormwater and water quality to Berrien and Cass County Phase II communities. These resources are available on the Internet at [www.swmpc.org/pep\\_materials.asp](http://www.swmpc.org/pep_materials.asp) and could easily be adapted for use in the Black and Paw Paw River Watersheds.

The St. Joseph River Basin has produced a DVD about septic systems that could be distributed in the Black and Paw Paw River Watersheds.

The Southeast Michigan Council of Governments is facilitating a committee to develop a Statewide Low Impact Development manual, which will be extremely useful for educating and implementing LID.

### **Priorities**

Project priorities will be established to direct resources to the areas that will gain the most benefit from the designated outreach activity. These priorities should be re-evaluated over time by the Education & Outreach sub-committee and changed as necessary.

#### ***Highest priority activities include:***

- Activities that promote or build on existing efforts and expand partnerships with neighboring watershed projects, municipalities, conservation organizations and other entities.
- Activities that promote general awareness and understanding of watershed concepts and project goals.
- Activities that leverage external funding from local, state or federal sources.
- Activities that lead to actions (especially those in the watershed management plan), which help to improve and/or protect water quality.

### **Evaluation**

Ultimately, evaluation should show if water quality is being improved or protected in the watershed due to education efforts being implemented. Since watersheds are dynamic systems, this can be difficult to accomplish. For the education efforts, one level of evaluation is documenting a change in knowledge or increase in awareness and participation. Measures and data collection for this level can take place in three specific ways:

1. A large-scale social survey effort to understand individual watershed awareness and behaviors impacting water quality.
2. A pre- and post-test of individuals at workshops focused on specific water quality issues in the PPRW.
3. The tracking of involvement in a local watershed group or increases in attendance at water quality workshops or other events.

Additional levels of evaluation, which estimate pollutant loading reductions and measure water quality improvements through monitoring, are explained in the Paw Paw River Watershed Management Plan in Chapter 11 Evaluation.

**Information and Education Strategy for the Black and Paw Paw River Watersheds**

| Issue  | Priority Target Audience* | Activity   | Potential lead agency  | Potential partners                        | Timeline** (milestone)                   | Evaluation   | Costs  |
|--|---------------------------|--|--|---|--|--|--|
| <b>Watershed awareness</b>   | All                       | Produce and distribute 3- 4 public service announcements/press releases per year   | VBCD, BCD  | SWMPC, MSUE, TRC                          | current - on-going (3-4 PSAs/year)       | number of news articles  | 5 hours staff time/press release   |
|  |                           | Maintain a website that makes watershed information easily available to the public   | TRC  | VBCD, SWMPC                               | current - on-going                       | website traffic - number of hits monthly                                       | \$20 per month hosting fees + 20 hours staff time/month                      |
|  |                           | Develop 4 videos for website (stories about watershed protection/management - Farmer, Landowner, Municipal Official, etc.) | TRC  | SWMLC, TNC, VBCD, SWMPC                   | short-term (2 videos/ year)              | website traffic - number of hits monthly                                       | \$600/video for production 100 hours staff time/video                        |
|  |                           | Create a display and participate in 2-3 community festivals/year   | TRC  | VBCD, SWMPC                               | current - on-going (2-3 festivals/ year) | number of participants   | \$200 per event + 30 hours staff time to develop                             |
|  |                           | Develop and install "Entering the watershed" signs at watershed boundaries   | Road Commission  | TRC                                       | long-term (5 signs/ year)                | number of installed signs  | \$200 per sign for printing and installation                                 |
|  | Kids/ Students            | Develop a student stream monitoring program  | VBISD  | VBCD, Math & Science Center (Allegan ISD) | long-term (1 school/ year)               | number of schools participating in program                                     | \$1500 for program materials (nets, waders, etc) + 20 hours/month staff time |
|  |                           | Plan and offer 1 teacher training workshop/year  | VBCD   | VBISD                                     | long-term (1 training/ year)             | attendance at workshop and incorporation of watershed topics into curriculum   | \$200/workshop + 40 hours staff time/year                                    |
|  |                           | Distribute curriculum materials on watersheds and water quality to teachers (use materials from Great Lakes Alliance)      | VBISD  | VBCD, Math & Science Center               | medium-term (4 schools/ year)            | number of schools incorporating curriculum materials                           | \$200/school + 60 hours staff time   |
|  | <b>Land Use Change</b>    | Drain Commission   | Meet one-on-one with drain commissioners to discuss alternative drain maintenance methods and ditch naturalization techniques and stormwater standards/ordinance | VBCD, SWMPC                               | TRC, Drain Commissioner                  | medium-term (3 commissioners/year)   | miles of County Drains converted and improvements in stormwater standards    |
| Promote trainings being offered that relate to drain maintenance and construction methods that protect water quality |                           |  | TRC  | Drain Commissioner, VBCD, SWMPC           | short-term (1 training/ year)            | improvements in drain maintenance and construction practices, reduced sediment | 5 hours staff time/training  |

| Issue   | Priority Target Audience*  | Activity   | Potential lead agency | Potential partners                               | Timeline** (milestone)                                     | Evaluation  | Costs  |
|---|----------------------------|--|-----------------------|--|--|---|--|
| Agricultural runoff and Land Use Change   | Farmers                    | Produce and distribute brochures/flyers/fact sheets to farmers about best management practices, cost share programs, wetland protection/restoration opportunities  | VBCD                  | MSUE, Drain Commissioner, VBCD, NRCS             | short-term (2 printed pieces/year)                         | number of practices installed, amount of Farm Bill \$ spent in the watershed, reduction in pollutants | \$1500 per direct mailing + 30 hours staff time/distribution |
|   |                            | Plan and host at least 1 workshop per year and host a tour/field site visit at least every 2-3 years addressing agricultural runoff, best management practices, wetland protection and restoration                                     | VBCD, BCD, ACD        | MSUE, NRCS                                       | current - on-going (1 workshop/ year and 1 tour/2-3 years) | number of attendees and evaluations completed   | \$200-\$600/workshop + 80 hours/year                         |
|   |                            | Develop and provide 1 newsletter article per year to Farm Bureau or other agencies on agricultural BMPs and wetland restoration/protection   | MSUE, VBCD            | NRCS   | short-term (1 article/ year)                               | number of readers (circulation of publication)  | 10 hours/year  |
|   |                            | Contact farmers in TMDL areas on a one-on-one basis to discuss best management practices and wetland restoration and distribute printed materials  | VBCD                  | NRCS, MSUE, Drain Commissioner                   | medium-term (15-20 farmers/ year)                          | number of practices installed, reduction of pollutants  | \$400 printing + 400 hours staff time                        |
| Land use change, stormwater runoff and natural resource management and preservation | Government units-officials | Promote trainings being offered on water quality, land use planning and LID  | TRC                   | VBCD, MSUE, SWMPC                                | current - on-going (2 trainings/ year)                     | increase in use of LID techniques   | 5 hours staff time/training                                  |
|   |                            | Promote the adoption of a county-wide phosphorus ban in Van Buren and Berrien Counties and assist with educational efforts in Berrien, Van Buren and Allegan counties  | TRC                   | Lake Assoc, Drain Commissioner, VBCD, SWMPC, ACD | current - on-going (1 adoption/ year)                      | adoption of ordinance   | \$1000 (printing materials) + 120 hours staff time           |
|   |                            | Plan and host at least 1 workshop or summit per year on land use and water quality related issues and to share successes in watershed protection efforts and host a watershed tour every 2-3 years focusing on low impact development. | SWMPC                 | MSUE, VBCD, Planning Commission                  | long-term (1 workshop/ year and 1 tour/2-3 years)          | incorporation of watershed topics into land use planning  | \$600/year + 80 hours staff time                             |
|   |                            | Produce and distribute a Watershed Management Plan user guide  | TRC                   | VBCD, SWMPC                                      | short-term (1 user guide/ year)                            | number of guides distributed or requested   | 200 hours staff time +\$800 printing                         |
|   |                            | Produce and distribute brochures/flyers/fact sheets on land use and water quality, low impact development, smart growth, green infrastructure etc.   | SWMPC                 | VBCD, MSUE, TRC, SWMLC                           | current - on-going (2 printed pieces/year)                 | increased use of LID practices  | \$800/printing & postage 80 staff hours/item                 |
|   |                            | Work one-on-one with planning commissions to improve plans and zoning ordinances for water quality protection ordinances, smart growth and low impact development and green infrastructure   | SWMPC                 | VBCD, TRC.                                       | current - on-going (3 municipalities/year)                 | number of improvements to plans and ordinances  | 200 hours staff time/municipality                            |

| Issue  | Priority Target Audience*             | Activity  | Potential lead agency                   | Potential partners                              | Timeline** (milestone)                           | Evaluation  | Costs  |
|--|---------------------------------------|---|---|---|--|---|--|
| <b>Land use change, stormwater runoff and natural resource management and preservation</b> | Developers/<br>builders/<br>engineers | Develop and distribute newsletter articles and brochures, flyers and fact sheets on low impact development to SW Michigan realtor and builders associations             | SWMPC                                   | SWMHBA,<br>SWMAR                                | medium-term<br>(1 printed<br>piece/year)         | increased use of LID<br>practices                               | 30 hours staff time/item   |
|  |                                       | Plan and host a watershed tour to showcase LID every 2-3 years  | TRC                                     | VBCD, MSUE,<br>SWMPC                            | medium-term<br>(1 tour/2-3 years)                | tour attendance and<br>evaluations                              | 100 hours/event +<br>\$50/person                                 |
|  |                                       | Promote statewide LID manual and trainings offered  | SWMPC                                   | SWMHBA /<br>SWMAR                               | short-term<br>(1 training/ year)                 | attendance at trainings   | 80 hours staff time  |
| <b>Stormwater runoff and natural resource management and preservation</b>                  | Property<br>owners                    | Print and distribute fact sheets from SWMPC's stormwater campaign at <a href="http://www.swmpc.org/water.asp">www.swmpc.org/water.asp</a>                               | TRC                                     | SWMPC, VBCD                                     | current - on-going<br>(50 fact<br>sheets/year)   | number distributed  | \$300 printing/postage<br>20 hours staff time                    |
|  |                                       | Install storm drain markers and place door knob hangers to educate residents about stormwater runoff  | VBCD, BCD                               | Lake Associations,<br>TRC                       | current - on-going<br>(2<br>municipalities/year) | number installed  | 40 hours staff time to<br>coordinate volunteers                  |
|  |                                       | Produce a direct mailing on land protection options - focus on property owners in high priority protection areas and high priority wetland protection/restoration areas | SWMLC                                   | Land Preservation<br>Board, VBCD,<br>BCD, SWMPC | short-term<br>(1 mailing/ 2-3<br>years)          | increased landowner<br>interest in land<br>preservation options | \$1000/printing and<br>postage + 100 hours staff<br>time         |
|  |                                       | Host workshops/tours for property owners in high priority protection areas  | SWMLC                                   | VBCD, BCD, TRC,<br>SWMPC                        | short-term<br>(1 tour/ 2-3 years)                | attendance and<br>evaluations completed                         | \$100-\$500/workshop + 80<br>staff hours                         |
|  |                                       | Distribute printed materials on what can be done to protect water quality and on land protection options for private landowners in tax or utility bills                 | County and<br>Townships                 | SWMLC, VBCD,<br>BCD, SWMLC,<br>TRC              | long-term<br>(1 mailing/ year)                   | number of mailings  | \$300 printing/postage<br>40 hours staff time                    |
| <b>Stormwater runoff</b>   | Government<br>units-<br>employees     | Promote trainings on municipal operations (including road maintenance and construction) and best management practices to protect water quality                          | Drain<br>Commissioner<br>Municipalities | Road Commission,<br>VBCD, SWMPC                 | medium-term<br>(1 training/ year)                | number of governmental<br>employees attending<br>trainings      | 20 hours/training<br>opportunity                                 |
|  |                                       | Distribute brochures/flyers/fact sheets about municipal operations and road construction and maintenance best practices for water quality                               | Road Commission,<br>Municipalities      | SWMPC   | medium-term<br>(1 printed<br>piece/year)         | number adopting<br>watershed friendly<br>practices              | \$150/item printing and<br>postage + 20 hours staff<br>time/item |

| Issue  | Priority Target Audience* | Activity  | Potential lead agency | Potential partners                                   | Timeline** (milestone)               | Evaluation  | Costs   |
|--|---------------------------|---|-----------------------|--|--------------------------------------|---|---|
| Stormwater runoff                            | Businesses                | Give presentations at local business gatherings about what businesses can do to protect water quality   | VBCD                  | MSUE, Drain Commissioner                             | medium-term (1 presentation/ year)   | number of business adopting watershed friendly practices        | 40 hours staff time/presentation                            |
|  |                           | Distribute brochures/flyers/fact sheets about business operations best practices for water quality - focus on lawn care companies               | MSUE                  | VBCD   | medium-term (1 distribution/ year)   | number of business adopting watershed friendly practices        | \$200-\$500 printing/postage<br>30 hours staff time/item    |
| Natural resource management and preservation | Recreation groups/users   | Develop and install kiosks at parks along the rivers about water quality and natural features   | Municipalities        | BSHWTA, VBCD, SWMPC, Sarett Nature Center, TRC       | medium-term (1 kiosk/ 2 years)       | number of kiosks installed                                      | \$1,000/kiosk + 120 hours staff time/kiosk                  |
|  |                           | Develop water trails, public access sites and walling trails along the river  | Municipalities        | BSHWTA, Sarett Nature Center, SWMPC, Road Commission | long-term (1 access site/ 2-3 years) | number of access sites; use of trails                           | \$100/mile for water trail<br>\$1,000-\$8,000/access site   |
|  |                           | Develop and distribute 1 newsletter article per year for recreation groups  | VBCD                  | BSHWTA, Lake Associations SWMLC                      | medium-term (1 article/ year)        | number of readers (circulation of publication)                  | 10 hours staff time/article                                 |
| Septage waste                                | Riparian property owners  | Develop 1 newsletter article per year for lake associations to utilize in their newsletters   | VBCD                  | Health Dept, MSUE, SWMPC                             | medium-term (1 article/ year)        | number of readers (circulation of publication)                  | 10 hours staff time/article                                 |
|  |                           | Develop and work with lake associations to distribute door knob hangers about septic system maintenance   | Lake Assoc.           | VBCD, TRC  | medium-term (2 lakes/year)           | number of households in distribution area                       | \$0.50each printing + 100 hours staff time/lake association |
|  |                           | Encourage lake association members to meet with lake owners on a one-on-one basis to discuss septic system maintenance                          | Lake Assoc.           | VBCD, MSUE   | medium-term (2 lakes/year)           | improved septic maintenance and reduced pollutants              | 3 hours/household   |
|  |                           | Obtain and distribute a video on septic systems and water quality to Lake Associations (video available from St. Joseph River Basin Commission) | Lake Assoc.           | SWMPC, St Joe River Basin Commission                 | medium-term (3 lakes/year)           | improved septic maintenance and reduced pollutants              | 100 hours staff time  |
|  | Government unit-employees | Promote trainings about municipal sewer infrastructure planning and management  | TRC                   | VBCD, SWMPC, Health Dept.                            | medium-term (1 training/ year)       | number of municipal officials and employees attending trainings | 10 hours/training   |

| Issue         | Priority Target Audience*  | Activity   | Potential lead agency | Potential partners                   | Timeline** (milestone)                     | Evaluation                                    | Costs   |
|---------------|----------------------------|--|-----------------------|--------------------------------------|--|---|---|
| Septage waste | Government units-officials | Develop and distribute brochures/flyers/fact sheets about the impacts of failing septic systems and what local governments can do                | VBCD                  | MSUE, Health Dept, TRC               | medium-term (1distribution/ 4 years)       | increased number of septic related ordinances | \$400 printing/postage<br>80 hours staff time |
|               |                            | Obtain and distribute a video on septic systems and water quality to governmental units (video available from St. Joseph River Basin Commission) | SWMPC                 | St. Joe Basin Commission, VBCD, MSUE | medium-term (5 governmental units/year)    | number of municipalities receiving video      | 100 hours staff time                          |
|               |                            | Work one-on-one with planning commissions to improve plans and zoning ordinances relating to septic systems                                      | SWMPC                 | VBCD, MSUE                           | current - on-going (3 municipalities/year) | increased number of septic related ordinances | 80 hours/municipality                         |

\*Note: Primary audiences are listed; there may be additional audiences that could benefit as well

\*\* short-term - within one year; medium-term - within 2-3 years; long-term - within 4-6 years

| Acronyms  |
|---|
| ACD: Allegan Conservation District  |
| BCD: Berrien Conservation District  |
| BSHWTA" Bangor-South Haven Heritage Water Trail Association                       |
| MSUE: Michigan State University Extension   |
| NRCS: Natural Resources Conservation Service                                      |
| SWMAR: Southwest Michigan Association of Realtors                                 |
| SWMHBA: Southwest Michigan Home Builder's Association                             |
| SWMLC: Southwest Michigan Land Conservancy  |
| SWMPC: Southwest Michigan Planning Commission                                     |
| TNC: The Nature Conservancy   |
| TRC: Two Rivers Coalition: An Alliance for the Black and Paw Paw River Watersheds |
| VBCD: Van Buren Conservation District   |
| VBISD: Van Buren Intermediate School District                                     |