

## ***Chapter 8 – Watershed Action Plan***

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This chapter outlines the specific strategies or BMPs that will be or are currently being implemented by the Phase II communities and agencies in the USR watershed to reduce the discharge of pollutants in stormwater runoff and minimize stormwater runoff quantities to the MEP. Section 8.1 summarizes the current projects, programs and ordinances that address the goals and objectives of the USR WMP, while Section 8.2 outlines the specific BMPs that each community and agency has selected for current and future implementation throughout the permit cycle. Each permittee will be establishing their tailored implementation schedule for each of the applicable BMPs in their SWPPI due by May 1, 2006.

It should be noted that just as the goals and objectives established in this WMP may change over time, the actions to achieve those goals and objectives may just as likely need to be modified as changes in the physical, socioeconomic and political landscape of the watershed changes. It is the hope that the planning and implementation process becomes a self-sustaining process with ever-increasing participation from stakeholders, and that the focus is on implementing the most efficient and cost-effective strategies for protecting the watershed. This process of adaptive management is explained in more detail in Chapter 10.

### **8.1 Existing Projects, Programs and Ordinances**

Currently, many communities and agencies in the USR watershed have several existing projects, programs and ordinances that aim to minimize stormwater pollution to the MEP. Those initiatives are outlined in Table 8.1 below.

**Table 8.1 Summary of Current Local Projects, Programs and Ordinances for Watershed Protection**

Activity	Projects and Programs											
	Hartland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township	Genoa Township	Highland Township	LCDPH	LCDC	LCRC	Watershed-wide Initiative	
<b>Recycling/Cleanup Programs</b>		<ul style="list-style-type: none"> <li>Annual Spring Clean-Up Day in June—residents can discard large items not normally disposed of in the regular trash free of charge (some materials are unacceptable, such as household hazardous waste or items with Freon). Held June 18, 2005 from 8:30am to 12:30pm.</li> </ul>		<ul style="list-style-type: none"> <li>Annual Spring Clean-Up Day in May free of charge. Residents can dispose of large household items, tires, items with Freon and electronics.</li> </ul>						<ul style="list-style-type: none"> <li>Monthly summer Household hazardous waste collection at our permanent facility.</li> <li>Battery collection program.</li> <li>Annual programs for waste reduction (compost bin events &amp; electronics drive)</li> <li>Waste reduction education program. Also have information of proper disposal on our website and a hard copy of guide.</li> </ul>		<ul style="list-style-type: none"> <li>County-wide Household Hazardous Waste Drop-off Dates throughout the year sponsored through the Livingston County Solid Waste Program</li> <li>Annual Computer and Electronics Recycling Day in Howell for the use of County residents sponsored through Recycle Livingston. Helps to keep harmful components of electronics out of area landfills.</li> </ul>
<b>Workshops</b>	Have held workshops on preserving rural character of community.							Well and Septic Maintenance (offered occasionally)			<ul style="list-style-type: none"> <li>Watershed Management Short Course (May 2005)</li> <li>Citizen Planner Program--Land Use Planning Forum/Certification Courses—typically offered biannually</li> </ul>	
<b>Public Events</b>								Attend local events (i.e. home shows, water fests, etc.) and display local water quality and public health information.	Host the annual Livingston Clean Waterfest. Also attend local events (home shows, etc.) and display local water quality information.		<ul style="list-style-type: none"> <li>Livingston County Homeshow</li> <li>Annual Livingston Clean Waterfest. Held June 11 from 10:00am to 3:00pm of this year.</li> </ul>	
<b>Demonstration Projects</b>			<ul style="list-style-type: none"> <li>Rain garden installation at Township Hall</li> </ul>			<ul style="list-style-type: none"> <li>Wildflower plantings at Genoa Township Hall</li> </ul>						

Table 8.1 Summary of Current Local Projects, Programs and Ordinances for Watershed Protection (continued)

Activity	Projects and Programs										
	Hartland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township	Genoa Township	Highland Township	LCDPH	LCDC	LCRC	Watershed-wide Initiative
Stormwater Website	Yes <a href="http://www.hartlandtp.com/">http://www.hartlandtp.com/</a>	Yes <a href="http://www.howellmi-twp.org/watershed.html">http://www.howellmi-twp.org/watershed.html</a>	Yes <a href="http://www.mariontownship.com/Bulletin%20Board.htm">http://www.mariontownship.com/Bulletin%20Board.htm</a>			Yes <a href="http://www.genoa.org/Storm%20Water%20Mngt.htm">http://www.genoa.org/Storm%20Water%20Mngt.htm</a>	Yes <a href="http://www.highlandtp.com/index.php">http://www.highlandtp.com/index.php</a>	Yes <a href="http://co.livingston.mi.us/health/vironhealth/wqm/waterquality.html">http://co.livingston.mi.us/health/vironhealth/wqm/waterquality.html</a>	Yes <a href="http://co.livingstonmi.us/Drain/phaseii.htm">http://co.livingstonmi.us/Drain/phaseii.htm</a>	Yes <a href="http://www.livingstonroads.org/publications.htm">http://www.livingstonroads.org/publications.htm</a>	
Newsletters	<ul style="list-style-type: none"> <li>North Ore Creek Watershed Newsletter</li> <li>Community Newsletter</li> <li>Tyrone Lake Association Newsletter</li> </ul>	<ul style="list-style-type: none"> <li>Community Newsletter</li> </ul>	<ul style="list-style-type: none"> <li>Community Newsletter</li> </ul>	<ul style="list-style-type: none"> <li>Earl Lake Homeowners Association (ELHOA) Newsletter</li> <li>Thompson Lake Association Newsletter</li> </ul>	<ul style="list-style-type: none"> <li>North Ore Creek Watershed Newsletter</li> <li>Tyrone Lake Association Newsletter</li> </ul>	<ul style="list-style-type: none"> <li>Community Newsletter</li> </ul>		<ul style="list-style-type: none"> <li>Communicable Disease Newsletter (provides information on public health issues, such as how to prevent unsafe swimming conditions with the introduction of contaminants to surface waters).</li> </ul>	<ul style="list-style-type: none"> <li>Puts together three lake association newsletters: Thompson Lake, Tyrone Lake, and Cedar Lake (located in the HCOL watershed).</li> </ul>		
Land Use Planning Meetings	As of 2005, have a Natural Features/Woodlands Ordinance Committee in cooperation with the Hartland Township Planning Commission	<ul style="list-style-type: none"> <li>Planning Commission meets 2 times per month to discuss issues regarding Master Plans, Ordinances and Site Plan Reviews</li> </ul>									<ul style="list-style-type: none"> <li><b>Citizen Planner Program</b> is a program hosted by the MSU-extension office and provides a certification class to land use managers after a series of workshops that offer education regarding smart growth principles and land use planning that promotes water quality and natural resource protection (offered every two years, last one in 2005—every year if there’s enough interest).</li> </ul>
Land Acquisition for Parks/Conservation Easements				<ul style="list-style-type: none"> <li>H. Clare and Harold Salmon Centennial Farm Conservation Easement: 72-acres at Curdy Road, east of Latson Road. Corn is currently growing on the crop land. The property also features a 4-acre woodland made up of red oak, red maple, and southern hardwood trees. A shrub swamp is also located on the property.</li> </ul>					<ul style="list-style-type: none"> <li>Lutz Park, Deerfield Township: Over 200 acres donated to the County that will be preserved as an operating farm. A pristine old-growth hardwood forest is also present on the site.</li> </ul>		<ul style="list-style-type: none"> <li>Livingston Land Conservancy: Protecting the natural heritage and rural character of Livingston County. There is currently over 200 acres of land in conservation easements with another 500 acres being considered throughout the County.</li> <li>The Livingston Land Conservancy has also formed the “Farmland Protection Committee” which aims to identify viable working farms that are worth of protection throughout the County.</li> </ul>

Table 8.1 Summary of Current Local Projects, Programs and Ordinances for Watershed Protection (continued)

Activity	Projects and Programs										
	Hartland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township	Genoa Township	Highland Township	LCDPH	LCDC	LCRC	Watershed-wide Initiative
Land Acquisition for Parks/Conservation Easements (continued)				<ul style="list-style-type: none"> <li>Arthur Main Pasinski Memorial Preserve: 40-acres of mostly Southern Wet Meadow with some Emergent Marsh (cattail). A prairie remnant also exists on a small corner of the land.</li> </ul>							<ul style="list-style-type: none"> <li>The Conservancy, along with the several other organizations, is part of the Livingston Natural Features Coalition that is working to develop a more comprehensive natural features inventory based on the county Department of Planning's previous efforts.</li> <li>The Cranberry Creek Meadows Conservation Easement is located in Deerfield Township. It is 90-acres of rolling farmland adjacent to the Cranberry Creek subdivision.</li> </ul>
Ordinances/Enforcement Documents	<ul style="list-style-type: none"> <li>Mixed Use Zoning Ordinance</li> </ul>	<ul style="list-style-type: none"> <li>Civil Infraction Ordinance</li> <li>Mixed Use Zoning Ordinance</li> <li>Private Roads Ordinance</li> <li>Stream/Wetl and Buffer Ordinance</li> </ul>	<ul style="list-style-type: none"> <li>Mixed Use Zoning Ordinance</li> </ul>	<ul style="list-style-type: none"> <li>Mixed Use Zoning Ordinance</li> <li>Private Roads Ordinance</li> </ul>	<ul style="list-style-type: none"> <li>Mixed Use Zoning Ordinance</li> <li>Wetlands and Watercourse Ordinance</li> </ul>	<ul style="list-style-type: none"> <li>Wetland buffer ordinance</li> </ul>		<ul style="list-style-type: none"> <li>Sanitary Code</li> </ul>	<ul style="list-style-type: none"> <li>Soil Erosion and Sedimentation Control Ordinance</li> <li>Drain Code</li> </ul>		<ul style="list-style-type: none"> <li>Soil Erosion and Sedimentation Control Ordinance is implemented County-wide</li> </ul>
Phase II Permit-/Water Quality-Related Programs	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>Utilizes groundwater contamination maps to help site wells to protect the public health and their drinking water supplies.</li> <li>Offer a program to identify hazardous materials storage and handling practices, as well as disconnection of floor drains to prevent groundwater contamination.</li> <li>Partners with MHOG in seeking wellhead protection funding from the MDEQ Wellhead Protection Unit.</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> <li>Conduct Drain Maintenance</li> <li>Soil Erosion inspectors</li> </ul>	<ul style="list-style-type: none"> <li>IDEP</li> <li>PEP</li> <li>PPP</li> </ul>	<ul style="list-style-type: none"> <li>Michigan <b>Retired Engineer Technical Assistance Program (RETAP)</b>: Pollution Prevention Assistance Program free of charge. Email David Herb at <a href="mailto:herbdw@michigan.gov">herbdw@michigan.gov</a> or phone 517.241.8176 or go to <a href="http://www.michigan.gov/deq">www.michigan.gov/deq</a> for more information.</li> <li><b>Huron Shiawassee Watershed Alliance</b>: Group of Hartland Residents formed watershed alliance to promote watershed stewardship.</li> <li><b>Wellhead Protection Program</b> in place through MHOG</li> <li>Hartland Consolidated School's <b>North Ore Creek Educational Preserve</b> incorporates water quality education and sampling into the curriculum.</li> </ul>

Table 8.1 Summary of Current Local Projects, Programs and Ordinances for Watershed Protection (continued)

Activity	Projects and Programs										
	Hartland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township	Genoa Township	Highland Township	LCDPH	LCDC	LCRC	Watershed-wide Initiative
Phase II Permit-/Water Quality Related Programs (continued)								<ul style="list-style-type: none"> <li>Perform Soil Evaluations for proper OSDS citing</li> <li>Perform drinking water testing</li> </ul>			<ul style="list-style-type: none"> <li><b>Wild Corner Program</b> sponsored by Howell Nature Center, Livingston Conservation District and the Crossroads Group of the Sierra Club.</li> <li><b>Cooperative Lakes Monitoring Program (CLMP)</b> is sponsored by the MDEQ and for a small monetary fee, incorporates the help of volunteers to gain water quality data pertaining to phosphorus loads, water transparency, pH and temperature in lakes throughout the watershed.</li> <li>In 2001, the LCDC updated its Drainage Rules and Soil Erosion and Sedimentation Control Program and combined them into one manual in order to address stormwater management comprehensively throughout the development process. This process includes drainage design for water quality and quantity, soil erosion and sedimentation control during construction, and long-term maintenance to ensure the effectiveness of BMPs. The manual provides the following guidance principles:                             <ul style="list-style-type: none"> <li>Protect Livingston County water resources from adverse impacts of urban stormwater runoff.</li> <li>Provide design guidance on the most effective structural and non-structural BMPs for development sites.</li> <li>Achieve effective and reasonable control of accelerated soil erosion.</li> <li>Improve the quality of BMPs that are constructed in Livingston County, including performance, longevity, safety, ease of maintenance, community acceptance, and environmental benefit.</li> </ul> </li> </ul>

8.2 Action Plan Matrix (APM)

Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
<b>Land Use Planning</b>												
1	Support Citizen Planner Program	3.3, 4.2, 4.3	N	N/A	N/A	C	C	C	C	C	C	C
2	Adopt and Implement Natural Features Setback Ordinance	1.1-1.5, 2.1, 2.2, 3.1, 3.2, 4.1	N/A	N/A	N/A	C	N	N	C			C
3	Adopt and Implement Zoning Ordinances to Support Low-Impact Development Strategies	1.1-1.5, 2.1, 2.2, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	N	N		C	C
4	Support Purchase of Development Rights Program	1.5, 5.1-5.3	N/A	N/A	N/A				C		N	N
5	Support Farmland Preservation Program	5.1-5.3	N/A	N/A	N/A				C		C	C
6	Adopt Mixed Used Zoning Ordinance	3.2, 4.1	N/A	N/A	N/A	C	C	C	C	C	C	C
7	Adopt and Implement Wetlands and Watercourse Ordinance	1.1-1.5, 2.1, 2.2, 3.1-3.2, 4.1, 5.1, 6.2	N/A	N/A	N/A	C	N	N	N			C
8	Adopt and Implement Aquatic (Riparian) Buffer Ordinance	1.1-1.5, 2.1, 2.2, 3.1, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	N	N			N
9	Implement Soil Erosion and Sedimentation Control Ordinance	1.1, 1.3, 1.4, 2.1, 3.1, 4.1	C	S.E.	C	S.E.	S.E.	N/A	S.E.	S.E.	S.E.	S.E.
10	Adopt and Implement Stormwater Control Operation and Maintenance Ordinance	1.1-1.3, 2.1, 2.2, 3.1	N/A	N/A	N/A		N	N			N	N/A
11	Adopt and Implement Illicit Discharge Elimination Ordinance	1.2, 1.7, 2.2, 2.3, 6.3	N/A	N/A	N/A	N	N	N	N		N	N/A
12	Adopt and Implement Post-Construction Stormwater Management Ordinance	1.1-1.3, 2.1, 2.2, 3.1	N/A	N/A	N/A		N	N			N	N/A
<p><b>Key:</b>  <b>C</b> = Current Practice  <b>N/A</b> = Not Applicable (Not Responsible for Implementing)  <b>S. E.</b> = Addressed by the County’s Soil Erosion Control Ordinance  <b>N</b> = New Practice (Will Consider Implementing)  <b>Blank</b> = Not Interested (Will Not Currently Consider Implementing)</p>												

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

<b>BMP No.</b>	<b>Action (BMP Strategy)</b>	<b>Plan Goals &amp; Objectives Addressed (See Table 6.1)</b>	<b>LCDC</b>	<b>LCRC</b>	<b>OCDC</b>	<b>Genoa Township</b>	<b>Hartland Township</b>	<b>Highland Township</b>	<b>Howell Township</b>	<b>Marion Township</b>	<b>Oceola Township</b>	<b>Tyrone Township</b>
13	Adopt and Implement Resource Protection Overlay District Standards	1.5, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N		N			N
14	Adopt Model Development Standards for Water Quality and Quantity Protection	1.1-1.5, 2.1, 2.2, 3.1-3.3, 4.1-4.3, 5.1, 5.2	N/A	N/A	N/A		N	N				N
15	Implement Private Roads Ordinance	1.3, 3.1, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A	C	N	C	C	N	C	C
16	Support County-wide Onsite Septic Disposal System (OSDS) Ordinance	1.2, 1.7, 2.2, 2.3, 3.2, 4.1, 6.2, 6.3	N	N	N	N	N		N	N	N	N
17	Enact Joint Municipal Planning Authority (PA 226 of 2003)	3.3, 4.2, 4.3	N/A	N/A	N/A					N		N
18	Incorporate High-Quality Natural Features Inventory into Master Plan	1.4, 1.5, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	N			N	C
19	Ensure Master Plan Addresses Watershed Plan Goals and Objectives	3.2, 4.1	N/A	N/A	N/A		N	C	C		N	N
37	Identify Areas for Recreational Enhancement	7.1-7.3	N/A	N/A	C		N	C	C	C	C	N
96	Utilize the Greenways Initiative Guidebook for Natural Resource Protection	1.5, 4.1, 5.1, 5.2, 7.2, 7.3	N/A	N/A	N/A	C	N	N/A	N	N		N
97	Support the Crosstown Trails Network	7.3	N/A	C	C	C	N/A	N/A	C	C	C	N/A
98	Adopt and Implement Floodplain Management Ordinance	1.1-1.5, 2.1, 2.2, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	C	N		N	N
<b>Public Education and Outreach</b>												
1	Support Citizen Planner Program	3.3, 4.2, 4.3	N	N/A	N/A	C	C	C	C	C	C	C
20	Support Soil Testing Program	1.2, 1.6, 2.2, 2.4	C	N	N/A	C	N	C	C	C	N/A	C
<p><b>Key:</b>  <b>C</b> = Current Practice  <b>N/A</b> = Not Applicable (Not Responsible for Implementing)  <b>S. E.</b> = Addressed by the County’s Soil Erosion Control Ordinance  <b>N</b> = New Practice (Will Consider Implementing)  <b>Blank</b> = Not Interested (Will Not Currently Consider Implementing)</p>												

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
21	Support Wellhead Protection Program	6.1, 6.2	N	N/A	N/A	C	N	C	C	C	C	C
22	Support Seven Simple Steps to Clean Water Campaign	1.6, 2.4, 3.3, 6.1	C	C	C	C	C	C	C	C	C	C
23	Encourage Golf Course Nutrient Management	1.2, 1.6, 2.2, 2.4, 3.3	N/A	N/A	C	N		C			N	N
24	Increase Public Involvement in the Cooperative Lakes Monitoring Program (CLMP)	1.9, 2.5	N	N/A	N/A		N	N				N
25	Support Household Hazardous Waste Disposal Programs	1.6, 2.4, 6.1	C	N/A	C	C	C	C	C	C	N/A	C
26	Facilitate Generally Accepted Agricultural Management Practices (GAAMPs)	1.1-1.4, 1.6, 1.7, 2.1-2.4, 3.1, 3.3, 6.3	N	N/A	N/A		N	N				N
27	Encourage Conservation Crop Rotation with Cover Crop and Mulch/No-till	1.1-1.4, 2.1, 2.2	N/A	N/A	N/A					N		N
28	Provide Education on the Identification of Failing OSDS	1.2, 1.6, 1.7, 2.2, 2.3, 6.1	N/A	N/A	C	C		C	N	N	N	N
29	Minimize Use of Salt and Deicing Chemicals	1.4, 1.6, 2.4, 6.1, 6.2	N/A	N	N/A		N/A	N	N/A	N	C	N/A
30	Reduce Fertilizer, Pesticide and Herbicide Usage	1.4, 1.6, 2.4, 6.1, 6.2	N/A	N	N/A	C	N	N	N/A	C	C	N
31	Develop and Distribute Outreach Materials on Low-Impact Design	1.1-1.6, 2.1, 2.2, 3.1-3.3, 4.1-4.3, 5.1, 5.2	N	C	C		C	N	N	N	N/A	N
32	Develop and Distribute Outreach Materials on Natural Stormwater Management	1.1-1.4, 1.6, 2.1, 2.2, 2.4, 3.1, 3.3, 5.2, 5.3	N	N/A	N/A		C	N	N	N	N/A	N
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**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
94	Support Wild Corner Program	1.1-1.4, 1.6, 2.1, 2.2, 2.4, 3.1, 5.1, 5.2	N	N/A	N/A		N		N	C		N
95	Perform storm drain/catch basin marking	1.6, 2.4	N	N	C		N	C	N/A	N	N/A	N
<b>Public Involvement and Participation</b>												
24	Increase Public Involvement in the Cooperative Lakes Monitoring Program (CLMP)	1.9, 2.5	N	N/A	N/A		N	N		N		N
33	Seek Participation from the Public at Upper-2 Shiawassee River (USR) Watershed Advisory Group (WAG) Meetings	1.6, 2.4, 4.2, 6.1	C	C	C	N	C		C	C	C	C
34	Seek Input from the Public on Development of Ordinances for Water Quality and Quantity Protection	1.6, 2.4, 3.3, 4.1, 4.2	C	N/A	N/A	C	C	C		C	N/A	C
35	Seek Participation from the Public at Watershed Events	1.6, 2.4	C	C	N/A	N	C	C	C	C	N/A	C
36	Increase Public Involvement in Adopt-a-Stream Programs	1.6, 1.9, 2.4, 2.5	N	N/A	N/A	N	N	C		C		N
37	Identify Areas for Recreational Enhancement	7.1-7.3	N/A	N/A	C		N	C	C	C	C	N
94	Support Wild Corner Program	1.1-1.4, 1.6, 2.1, 2.2, 2.4, 3.1, 5.1, 5.2	N	N/A	N/A				N	C		N
<b>Agricultural Runoff Control</b>												
8	Adopt and Implement Aquatic (Riparian) Buffer Ordinance	1.1-1.5, 2.1, 2.2, 3.1, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	N	N			N
<p><b>Key:</b>                      C = Current Practice                      N/A = Not Applicable (Not Responsible for Implementing)                      S. E. = Addressed by the County's Soil Erosion Control Ordinance                      N = New Practice (Will Consider Implementing)                      Blank = Not Interested (Will Not Currently Consider Implementing)</p>												

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
26	Facilitate Generally Accepted Agricultural Management Practices (GAAMPs)	1.1-1.4, 1.6, 1.7, 2.1-2.4, 3.1, 3.3, 6.3	N	N/A	N/A		N	N				N
27	Encourage Conservation Crop Rotation with Cover Crop and Mulch/No-till	1.1-1.4, 2.1, 2.2	N/A	N/A	N/A					N		N
38	Install and Maintain Riparian Buffers	1.1-1.4, 2.1, 2.2, 3.1	C	N	C	N/A	C	N		C	N/A	N/A
39	Establish Grassed Waterways	1.1-1.4, 2.1, 2.2, 3.1		C	N/A	N/A	N					N/A
40	Install Grade Stabilization Structures	1.1, 1.4, 2.1	C	C	S.E.	N/A	N			C	N/A	N/A
41	Utilize Conservation Cover	1.1, 1.4, 2.1	C	N/A	N/A	N/A	N			C	N/A	N/A
42	Install and Maintain Sediment Trapping Devices	1.1, 1.2, 1.4, 2.1, 2.2	C	C	C	N/A	N/A			C	N/A	N/A
43	Practice Nutrient Management	1.2, 1.6, 2.2, 2.4, 3.3, 6.1	N/A	N/A	N/A		N/A					N/A
44	Construct and Maintain Waste Storage Facilities	1.2, 1.7, 2.2, 2.3, 6.2	N/A	N/A	N/A	N/A	C					N/A
45	Install and Maintain Livestock Exclusion	1.1, 1.2, 1.4, 1.7, 2.1-2.3	N/A	N/A	N/A	N/A						N/A
46	Install and Maintain Vegetated Filter Strips	1.1-1.4, 2.1, 2.2, 3.1	N/A	C	N/A	N/A	C					N/A
<b>Illicit Discharge/Connection Elimination</b>												
11	Adopt and Implement Illicit Discharge/Connection Elimination Ordinance	1.2, 1.7, 2.2, 2.3, 4.1, 6.2, 6.3	N/A	N/A	N/A	N	N	N	N	N	N	N/A
16	Support County-wide Onsite Septic Disposal System (OSDS) Ordinance	1.2, 1.7, 2.2, 2.3, 3.2, 4.1, 6.2, 6.3	N	N	N	N	N		N	N	N	N
25	Support Household Hazardous Waste Disposal Programs	1.6, 2.4, 6.1	C	N/A	C	C	C	C	C	C	C	C
<b>Key:</b> <b>C</b> = Current Practice <b>N/A</b> = Not Applicable (Not Responsible for Implementing) <b>S. E.</b> = Addressed by the County’s Soil Erosion Control Ordinance <b>N</b> = New Practice (Will Consider Implementing) <b>Blank</b> = Not Interested (Will Not Currently Consider Implementing)												

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
28	Provide Education on the Identification of Failing OSDS	1.2, 1.6, 1.7, 2.2, 2.3, 6.1	N/A	N/A	C	C		C	N	N	N	N
47	Adopt and Enforce an Illegal Dumping Ordinance	1.2, 1.7, 2.2, 2.3, 4.1, 6.3	N/A	N/A	N/A	C	N/A	C	N	C	N	C
48	Implement Illicit Discharge Elimination Plan (IDEP)	1.2, 1.7, 2.2, 2.3, 6.3	C	C	C	C	C	C	C	C	C	C
<b>Construction Site Stormwater Runoff Control</b>												
2	Adopt & Implement Natural Features Setback Ordinance	1.1-1.5, 2.1, 2.2, 3.1, 3.2, 4.1	N/A	N/A	N/A	C	N	N	C			C
3	Adopt and Implement Zoning Ordinances to Support Low-Impact Development Strategies	1.1-1.5, 2.1, 2.2, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	C	N		C	C
7	Adopt and Implement Wetlands and Watercourse Ordinance	1.1-1.5, 2.1, 2.2, 3.1-3.2, 4.1, 5.1, 6.2	N/A	N/A	N/A	C	N	N	N			C
8	Adopt and Implement Aquatic (Riparian) Buffer Ordinance	1.1-1.5, 2.1, 2.2, 3.1, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	N	N			N
9	Implement Soil Erosion and Sedimentation Control Ordinance	1.1, 1.3, 1.4, 2.1, 3.1, 4.1	S.E.	N/A	S.E.	S.E.	S.E.	N/A	S.E.	S.E.	S.E.	S.E.
10	Adopt and Implement Stormwater Control Operation and Maintenance Ordinance	1.1-1.4, 2.1, 2.2, 3.1	N/A	N/A	N/A		N	N			N	N/A
14	Adopt Model Development Standards for Water Quality and Quantity Protection	1.1-1.5, 2.1, 2.2, 3.1-3.3, 4.1-4.3, 5.1, 5.2	N/A	N/A	N/A		N	N				N/A
<p><b>Key:</b>  <b>C</b> = Current Practice  <b>N/A</b> = Not Applicable (Not Responsible for Implementing)  <b>S. E.</b> = Addressed by the County’s Soil Erosion Control Ordinance  <b>N</b> = New Practice (Will Consider Implementing)  <b>Blank</b> = Not Interested (Will Not Currently Consider Implementing)</p>												

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
49	Implement and Enforce the Soil Erosion and Sedimentation Control (SESC) Program and Drainage Rules	1.1-1.4, 1.6, 2.1-2.4, 6.1, 6.3	C	C	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50	Provide Training to Municipal Employees on SESC	1.6, 2.1, 2.4, 3.1	C	C	C		C	N	N	C	C	N
51	Construct/Maintain Stormwater Management Facilities	1.1-1.4, 2.1, 2.2, 3.1	C	C	C	N/A	N/A	C	N/A	C	N/A	N/A
<b>Post-Construction Runoff Control</b>												
10	Adopt and Implement Stormwater Control Operation and Maintenance Ordinance	1.1-1.4, 2.1, 2.2, 3.1	N/A	N/A	N/A		N	N			N	N/A
12	Adopt and Implement Post-Construction Stormwater Management Ordinance	1.1-1.4, 2.1, 2.2, 3.1	N/A	N/A	N/A		N	N			N	N/A
14	Adopt Model Development Standards for Water Quality and Quantity Protection	1.1-1.5, 2.1, 2.2, 3.1-3.3, 4.1-4.3, 5.1, 5.2	N/A	N/A	N/A		N	N				N/A
16	Support County-wide Onsite Septic Disposal System (OSDS) Ordinance	1.2, 1.7, 2.2, 2.3, 3.2, 4.1, 6.2, 6.3	N	N	N	N	N		N	N	N	N
23	Encourage Golf Course Nutrient Management	1.2, 1.6, 2.2, 2.4, 3.3	N/A	N/A	N/A	N		N			N	N
38	Install and Maintain Riparian Buffers	1.1-1.4, 2.1, 2.2, 3.1	C	N	N/A	N/A	C	N		C	N/A	N/A
39	Establish Grassed Waterways	1.1-1.4, 2.1, 2.2, 3.1	C	C	C	N/A	N					N/A
40	Install Grade Stabilization Structures	1.1, 1.4, 2.1	C	C	C	N/A	N			C	N/A	N/A
41	Utilize Conservation Cover	1.1, 1.4, 2.1	C	N/A	N/A	N/A	N			C	N/A	N/A
42	Install and Maintain Sediment Trapping Devices	1.1, 1.2, 1.4, 2.1, 2.2	C	C	S.E.	N/A	N/A			C	N/A	N/A
<p><b>Key:</b>                      C = Current Practice                      N/A = Not Applicable (Not Responsible for Implementing)                      S. E. = Addressed by the County’s Soil Erosion Control Ordinance                      N = New Practice (Will Consider Implementing)                      Blank = Not Interested (Will Not Currently Consider Implementing)</p>												

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
43	Practice Nutrient Management	1.2, 1.6, 2.2, 2.4, 3.3, 6.1	N/A	N/A	N/A		N/A					N/A
44	Construct and Maintain Waste Storage Facilities	1.2, 1.7, 2.2, 2.3, 6.2	N/A	N/A	N/A	N/A	C					N/A
45	Install and Maintain Livestock Exclusion	1.1, 1.2, 1.4, 1.7, 2.1-2.3	N/A	N/A	N/A	N/A						N/A
46	Install and Maintain Vegetated Filter Strips	1.1-1.4, 2.1, 2.2, 3.1	N/A	C	N/A	N/A	C					N/A
48	Implement Illicit Discharge Elimination Plan (IDEP)	1.2, 1.7, 2.2, 2.3, 6.3	C	C	C	C	C	C	C	C	C	C
49	Implement and Enforce the Soil Erosion and Sedimentation Control (SESC) Program and Drainage Rules	1.1-1.4, 1.6, 2.1-2.4, 6.1, 6.3	C	S.E.	C	S.E.	S.E.	N/A	S.E.	S.E.	S.E.	S.E.
52	Adopt and Implement Low-Impact Development Strategies in Site Planning Process	1.1-1.6, 2.1, 2.2, 3.1-3.3, 4.1, 5.1, 5.2	N	N/A	N		N	C	N	N	C	N
53	Implement Streambank Stabilization Measures	1.1, 1.4, 2.1, 5.1	C	C	C	N/A	N/A			C	N/A	N/A
54	Install and Maintain Infiltration BMPs	1.1-1.4, 2.1, 2.2, 3.1	S.E.	C	S.E.	N/A	N			S.E.	N/A	N/A
55	Install and Maintain Catch Basin Inserts	1.1, 1.4, 2.1	S.E.	N	S.E.	N/A	N	C		S.E.	N/A	N/A
56	Control Soil Erosion/Stabilize Soil on Construction Sites and Road Crossing Embankments	1.1, 1.4, 2.1	S.E.	C	S.E.	N/A	N/A		N/A	S.E.	N/A	N/A
57	Construct and Maintain Media/Sand and Organic Filters	1.1, 1.4, 2.1	N	N	N/A	N/A				N	N/A	N/A
58	Install and Maintain Oil/Grit Separators	1.1, 1.4, 2.1	C	N	N/A	N/A				N	N/A	N/A
59	Perform High-Powered Street and Paved Area Sweeping	1.1, 1.2, 1.4, 2.1, 2.2	S.E.	C	S.E.	N/A	N/A			S.E.	N/A	N/A
	<p><b>Key:</b>  <b>C</b> = Current Practice  <b>N/A</b> = Not Applicable (Not Responsible for Implementing)  <b>S. E.</b> = Addressed by the County’s Soil Erosion Control Ordinance  <b>N</b> = New Practice (Will Consider Implementing)  <b>Blank</b> = Not Interested (Will Not Currently Consider Implementing)</p>											

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
60	Replace Undersized Culverts/Repair Misaligned or Obstructed Culverts	1.1, 1.3, 1.4, 2.1	N	C	C	N/A	N/A		N	N/A	C	N/A
61	Stabilize Eroding Road and Bridge Surfaces (see also BMP 56)	1.1, 1.4, 2.1	N/A	C	N/A	N/A	N/A		N/A	N/A	N/A	N/A
62	Construct and Maintain Infiltration Trenches	1.1-1.4, 2.1, 2.2, 3.1	N	C	N/A	N/A	N/A		N/A	S.E.		N/A
63	Install and Maintain Stormwater Retention/Infiltration Basins and other Infiltration Devices	1.1-1.4, 2.1, 2.2, 3.1	C	C	N/A	N/A	N/A		N/A	C	N/A	N/A
64	Install Grassed Swales	1.1-1.4, 2.1, 2.2, 3.1	S.E.	N/A	S.E.	N/A	N/A			S.E.	N/A	N/A
65	Install and Maintain Extended Wet Detention Ponds	1.1-1.4, 2.1, 2.2, 3.1	S.E.	N/A	N/A	N/A	N/A			S.E.	N/A	N/A
66	Install Naturalized Detention/Retention Basins	1.1-1.4, 2.1, 2.2, 3.1	S.E.	N/A	S.E.	N/A	N/A			S.E.	N/A	N/A
67	Install and Maintain Rain Gardens (Bioinfiltration)	1.1-1.4, 2.1, 2.2, 3.1	N	N/A	N/A	N/A	N			C	N/A	N
68	Install and Maintain Vegetated (“Green”) Roofs	1.1-1.4, 2.1, 2.2, 3.1	N	N/A	N/A	N/A	N			N	N/A	N/A
69	Install Pervious Pavements	1.1-1.4, 2.1, 2.2, 3.1	N	N/A	N/A	N/A				N	N/A	N
70	Install Rain Barrels	1.3, 3.1	N	N/A	N/A	N/A	N			N	N/A	N
71	Install Dry Wells	1.3, 3.1	N	N/A	N/A	N/A	C			N	N/A	N
72	Perform Wetland Restoration	1.1-1.4, 2.1, 2.2, 3.1, 5.1, 5.2, 6.2	N	C	N/A	N/A	N/A			N	N/A	N
73	Initiate Hydrologic and Hydraulics Studies	1.9, 2.5, 3.4	C	C	N/A					N	N/A	N
74	Construct and Maintain Stormwater Retention/Detention Basins	1.1-1.4, 2.1, 2.2, 3.1	S.E.	C	C	N/A	N/A			S.E.	N/A	N/A
75	Construct/Maintain Wet Detention Ponds (Constructed Wetlands)	1.1-1.4, 2.1, 2.2, 3.1	S.E.	C	N/A	N/A	N/A			S.E.	N/A	N/A
76	Implement Alternative Drain Practices and Rehabilitation	1.4	C	N/A	N/A	N/A	N			C	N/A	N/A
	<p><b>Key:</b>  <b>C</b> = Current Practice  <b>N/A</b> = Not Applicable (Not Responsible for Implementing)  <b>S. E.</b> = Addressed by the County’s Soil Erosion Control Ordinance  <b>N</b> = New Practice (Will Consider Implementing)  <b>Blank</b> = Not Interested (Will Not Currently Consider Implementing)</p>											

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrone Township
77	Encourage Native Landscaping in New Developments/Redevelopments	1.1-1.4, 2.1, 2.2, 3.1	C	N/A	N/A	C	N	N	N	C	N/A	N
78	Implement Phosphorus Fertilizer Reduction Ordinances	1.2, 2.2	N/A	N/A	N/A		N	N			C	N
79	Install and Maintain Oil and Grease Traps (See also BMP 58)	1.1, 1.4, 2.1	N	N/A	N/A	N/A	N			N	N/A	N/A
80	Utilize In-Stream Habitat Restoration Techniques	1.4	C	N/A	C	N/A	N/A	C	N/A	C	N/A	N/A
81	Minimize Directly Connected Impervious Areas	1.3, 3.1, 4.1	N/A	N/A	N/A		N			C	N	N
82	Install and Maintain USGS Gauge Stations	1.9, 2.5, 3.4	C	N/A	C	N/A	N/A			C	N/A	N/A
<b>Pollution Prevention/Good Housekeeping</b>												
30	Reduce Fertilizer, Pesticide and Herbicide Usage	1.4, 1.6, 2.4, 6.1, 6.2	N/A	N	N/A	C	N	N	N/A	C	C	N
48	Implement Illicit Discharge Elimination Plan (IDEP)	1.2, 1.7, 2.2, 2.3, 6.3	C	C	C	C	C	C	C	C	C	C
51	Construct/Maintain Stormwater Management Facilities	1.1-1.4, 2.1, 2.2, 3.1	C	C	C	N/A	N/A		N/A	C	N/A	N/A
55	Install and Maintain Catch Basin Inserts	1.1, 1.4, 2.1	S.E.	N	N/A	N/A	N			S.E.	N/A	N/A
59	Perform High-Powered Street and Paved Area Sweeping	1.1, 1.2, 1.4, 2.1, 2.2	S.E.	C	N/A	N/A	N/A			S.E.	N/A	N/A
83	Implement Catch Basin Cleaning Program	1.1, 1.4, 2.1	C	C	C	N/A	N/A		N/A	C	N/A	N/A
84	Utilize Retired Engineer Technical Assistance Program (RETAP) to Identify Improvements to Municipal Housekeeping Practices	1.1, 1.2, 1.4, 1.6, 2.1, 2.2, 2.4	N	N/A	N/A		N	N	N			N
85	Perform Storm Sewer System Maintenance and Drain Cleaning	1.1-1.4, 2.1, 2.2, 3.1	C	C	C	N/A	N/A		N/A	C	N/A	N/A
86	Maintain Sanitary Sewer System Infrastructure	1.7, 2.3, 6.2	C	N/A	C		C	N	C	C	N/A	N/A
87	Manage Public Facilities	1.1, 1.2, 1.4, 1.7, 2.1-2.3, 6.2	C	C	C		C	C	C	C	N/A	N/A
<p><b>Key:</b>  <b>C</b> = Current Practice  <b>N/A</b> = Not Applicable (Not Responsible for Implementing)  <b>S. E.</b> = Addressed by the County's Soil Erosion Control Ordinance  <b>N</b> = New Practice (Will Consider Implementing)  <b>Blank</b> = Not Interested (Will Not Currently Consider Implementing)</p>												

**Table 8.2 Upper-2 Shiawassee River Watershed Action Plan Matrix (continued)**

BMP No.	Action (BMP Strategy)	Plan Goals & Objectives Addressed (See Table 6.1)	LCDC	LCRC	OCDC	Genoa Township	Hartland Township	Highland Township	Howell Township	Marion Township	Oceola Township	Tyrene Township
88	Manage Riparian Corridors	1.1-1.4, 1.6, 2.1, 2.2, 2.4, 3.1, 5.2	C	N/A	C		N	C		C	N/A	N/A
89	Implement Road/Bridge Maintenance BMPs (see also BMP 56 and 61)	1.1, 1.3, 1.4, 2.1, 3.1	N/A	C	N/A	N/A	N/A		N/A	N/A	N/A	N
99	Reduce the Use of Conventional Road Deicers	1.4, 6.2	N/A	C	N/A	N/A	N/A		N/A	N/A	N/A	N/A
100	Construct and Maintain Septage Receiving Station	1.4, 1.7, 2.3, 6.2, 6.3	C	N/A	C	C	C	N/A	C	C	C	C
<b>Watershed Plan Implementation</b>												
90	Implement Financial Solutions	8.2, 8.3	C	C	C		C	N		C	N/A	C
91	Provide Sufficient Enforcement Capability	1.1-1.7, 2.1-2.4, 3.1, 3.2, 4.1, 5.1, 5.2, 6.3	C	C	C		N			C	N/A	C
92	Implement Institutional Framework for Watershed-Wide Actions	8.1, 8.3, 8.4	C	C	C		N	C		C	N/A	C
<b>Other Applicable BMPs</b>												
93	Meet Established Total Maximum Daily Loads (TMDLs) in the USR Watershed (once developed)	1.8	C	N	C		N	N	N/A	C	N/A	C
94	Support Wild Corner Program	1.1-1.4, 1.6, 2.1, 2.2, 2.4, 3.1, 5.1, 5.2	N	N/A	N/A		N		N	C		N
95	Perform Storm Drain/Catch Basin Marking	1.6, 2.4	N	N	C		N	C	N/A	N	N/A	N
96	Utilize the Greenways Initiative Guidebook for Natural Resource Protection	1.5, 4.1, 5.1, 5.2, 7.2, 7.3	N/A	N/A	N/A	C	N	N/A	N	N		N
97	Support the Crosstown Trails Network	7.3	N/A	C	N/A	C	N/A	N/A	C	C	C	N/A
98	Adopt and Implement Floodplain Management Ordinance	1.1-1.5, 2.1, 2.2, 3.2, 4.1, 5.1, 5.2	N/A	N/A	N/A		N	C	N		N	N
99	Reduce the Use of Conventional Road Deicers	1.4, 6.2	N/A	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100	Construct and Maintain Septage Receiving Station	1.4, 1.7, 2.3, 6.2, 6.3	C	N/A	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<p><b>Key:</b>                      C = Current Practice                      N/A = Not Applicable (Not Responsible for Implementing)                      S. E. = Addressed by the County's Soil Erosion Control Ordinance                      N = New Practice (Will Consider Implementing)                      Blank = Not Interested (Will Not Currently Consider Implementing)</p>												