

Ottawa County
MS4 NPDES Application

Total Maximum Daily Load Implementation Plan
Grand River Watershed: Bass River (biota, *E. coli*) and Sand Creek (biota)

I. Procedure to identify and prioritize BMPs being implemented or to be implemented during the permit cycle to achieve TMDL load reductions

The Lower Grand River Watershed Management Plan (LGRWMP) includes recommendations of best management practices to address the TMDLs in Ottawa County. The procedure started with identifying and prioritizing the sources and causes of each pollutant (Section 4.0 in the Management plan). Sources of *E. coli* were identified as cropland, livestock, septic tanks, ducks and geese, and sanitary sewer. Based on the sources and causes of the pollutants, appropriate BMPs were identified. The management plan also includes detailed information about the individual practices including their effectiveness at reducing pollutant loads. BMPs were selected from an existing list of recommended practices compiled by the MDEQ in 1998.

The Lower Grand River Watershed Management Plan is available at:

<https://www.gvsu.edu/wri/isc/lower-grand-river-watershed-management-plan-312.htm>

II. List of prioritized BMPs being implemented or to be implemented during the permit cycle to achieve TMDL load reductions

Table 1 provides a summary of BMPs from the LGRWMP that address the TMDLs for biota and *E. coli*.

In addition to the BMPs recommended in the LGRWMP, the Ottawa County Water Resources Commissioner will also be conducting activities as part of pollution prevention and good housekeeping and illicit discharge elimination that will impact the TMDL pollutants of concern. Catch basin inspection and cleaning will help reduce sediment pollution. Dry weather screenings can assist in the detection and elimination of illicit septic and sanitary discharges.

III. Monitoring plan to assess the effectiveness of BMPs being implemented or to be implemented during the permit cycle to achieve TMDL load reductions

Dry weather screening conducted by the Ottawa County Water Resources Commissioner is one way that *E. coli* pollution will be monitored. In addition, the Ottawa Conservation District is currently working on a project in the Bass River watershed to identify failing septic systems and provide financial assistance to landowners to conduct maintenance and repairs. The Ottawa County Real Estate Evaluation Program also helps to monitor and correct failing septic systems thereby reducing *E. coli* contamination. The MDEQ monitors all TMDL water bodies every other year in order to track progress toward meeting TMDL goals.

Attachment 12

Table 1. BMPs to reduce bacteria and sediment pollution in the Lower Grand River Watershed

Pollutant of concern	Source of pollution (by priority)	Cause of pollution (by priority)	Recommended BMPs	
Pathogens and bacteria (<i>E. coli</i>)	1. Cropland	Over or improper application of manure	Waste storage facilities, Comprehensive Nutrient Management Plans promote incorporation	
	2. Livestock	1. Uncontrolled access	Cattle exclusion or controlled access	
		2. Lack of buffer or setback at holding facilities adjacent channel	Plant buffer/filter strips	
	3. Septic tanks	1. Aging systems	Repair or replace, identify and correct illicit discharge connections	
		2. Lack of septic system regulation	Septic codes and ordinances	
	4. Ducks and geese	1. Maintained lawn to edge of water	Buffer strips	
		2. Overpopulation of waterfowl	Egg shaking, birth control	
	5. Sanitary sewer	Again/leaking sanitary sewer	Maintain and repair, increase capacity of waste water treatment plant	
	Sediment	1. Cropland	1. Tillage practices	Residue management, cover crop, critical area planting
			2. Lack of buffers	Plant buffer/filter strips
3. Dense drainage network				
2. Urban landscapes		1. Impervious surfaces	LID practices: bioretention, capture/reuse, vegetated roof, vegetated swale, infiltration practices, pervious pavement	
		2. Dense drainage network		
		3. Construction sites	Implement proper SESC measures	
3. Streambanks		1. Altered morphology and hydrology	LID for storm water management, streambank stabilization, plan buffer/filter strips	
		2. uncontrolled livestock access	Cattle exclusion or controlled access	
		3. Removal of vegetation	Riparian restoration	
4. Rill and gully erosion		1. Agricultural practices	Slope stabilization, grassed waterways	
		2. Concentrated flow from roadside ditch		
5. Lakeshore erosion		Boat traffic/seawalls/wave action	Shoreline stabilization	