

Areawide Water Quality Management Plan Chapter 7
STORMWATER MANAGEMENT
Executive Summary

Urbanization and the TMACOG Region

An overall population increase of 1.3 % for the region between the 2000 census and 2009 census estimates does not reflect the significant shifts in population from the urban to the suburban and rural areas. For example, rural areas in Wood County and western Lucas County experienced population increases while communities like Bowling Green and Maumee experienced population decreases. Similar patterns can be seen throughout Northwest Ohio and Southeast Michigan.

In urbanizing areas a variety of created surfaces now cover much of the landscape. Many of these surfaces are impervious and therefore prevent rainwater and snowmelt from following their natural course into the soil. Roofs and pavement prevent infiltration completely, while suburban lawns absorb far less than natural areas. As the greatest growth continues to occur on the fringes of the metropolitan areas, the impervious areas within our watersheds expands at ever increasing rates.

Older, developed communities face expensive infrastructure challenges related to sewer system capacity, combined sewers, maintenance, replacement, and surface runoff. At the same time some of these areas are faced with declining tax bases and decreasing available revenue to support water quality programs.

The Stormwater Management Chapter of this Plan identifies public agencies (“Designated Management Agencies, or DMAs) and their roles in alleviating water pollution caused by urban stormwater runoff. Each agency has a role in educating the public, providing technical assistance to communities, providing planning and incentive funding, and monitoring and enforcing regulations.

Local DMAs: Municipal and township governments and utilities.

County DMAs: Lucas, Monroe, Ottawa, and Wood Counties; and County Soil, & Water Conservation Districts (SWCDs) in Ohio and the County Soil Conservation District in Michigan.

State DMAs: Ohio EPA, Ohio and Michigan Departments of Natural Resources, and Michigan DEQ.

Federal DMAs: US EPA

Urban Runoff and Water Quality

Urban stormwater pollution has two main components:

- Increased volume and velocity of surface runoff.
- Concentration of pollutants in the runoff.

Impervious surfaces increase the rate and volume of stormwater runoff, resulting in higher flows and more frequent floods. In Swan Creek (Lucas Co.) for example, flood flows have increased 17 to 85 percent from pre-settlement times. The elevated flows increase the erosion of waterway beds and banks. Other negative impacts include increasing the receiving waters temperature, changing habitat, and decreasing stream flow stability.

Most land use activities deposit detrimental and sometimes hazardous materials on the impervious surfaces: sediments such as dust and sand, toxic metal particles, pesticides and fertilizers, petroleum products, harmful bacteria, salt, pet waste, and trash. As rainfall and snowmelt move rapidly across this transformed landscape, these pollutants are carried to surface and underground collection systems. Eventually these polluted flows reach waters that we use for drinking, swimming, fishing, and recreation without treatment. Nearly all of the sub-watersheds in the Plan Area are impaired for at least one cause or source that can be traced to urban runoff or urbanization.

In short, the ecology of urban streams may be completely re-shaped by the extreme shifts in hydrology, morphology and water quality that can accompany the development process. The stresses that these changes place on the aquatic community, although gradual and often not immediately visible, are profound. To mitigate these impacts, it is necessary to reevaluate the way that stormwater and land development are managed.

This Plan’s Recommendations

This Plan recommends developing new funding mechanisms, increasing inspection and maintenance activities, planning on a watershed basis, and use of Best Management Practices (BMPs), Low Impact Development (LID), and Conservation Development. to achieve water quality goals. Implementation activities will vary from community to community. However each entity should conduct planning on a regional, watershed basis. Activities recommended by this Plan include:

- Conduct watershed based planning and coordination
- Enhance maintenance programs and develop stormwater facility maintenance plan
- Put into practice short-term and long-term capital improvement plans
- Increase inspection and enforcement activities

The practices recommended under this plan reduce water pollution by slowing the expansion of impervious surface area, by promoting stormwater infiltration and by detaining the stormwater runoff to mimic more natural runoff patterns. Some practices also provide riparian or aquatic habitat, benefiting fish and wildlife. Management strategies and BMPs recommended in model stormwater management standards include:

- Preservation of natural streams and channels
- Conservation site design for new development
- Disconnecting rooftop drainage from the storm sewer system (e.g., green roofs, rain barrels, rain gardens, bioretention areas).
- Grass paving for low traffic areas or overflow parking areas
- Grass swales in place of storm sewers for low to medium density development
- Filter strips and buffer areas along streams to capture pollutants and provide natural habitat
- Stormwater wetlands for detention and treatment of runoff
- Stormwater detention and retention ponds to reduce peak flows

Priority Watersheds

This Plan identified Critical Urbanizing Watersheds with the following criteria:

- Watersheds designated as sensitive or unique natural habitat areas; two are designated.
- Impaired by urban nonpoint sources, and
- Include high growth jurisdictions (growth greater than 5%):

More than half the sub-watersheds in the Plan area are impaired by at least one source and are located in

high growth jurisdictions. Two watersheds meet all criteria: Swan Creek and the Ottawa River in Lucas County.

The Plan recommends using the Critical Urbanizing Watershed designations as follows:

- Priority areas for projects to implement BMPs, particularly to expand, enhance, and preserve wetland, habitat, and floodwater storage. These areas should be the top priority for Supplemental Environmental Projects and grants such as EPA §319.
- Priority areas for EPA Total Maximum Daily Load programs to address nonpoint sources.
- Priority areas for local and county ordinances/regulations to protect wetlands and floodplains
- This Plan supports funding proposals to buy natural habitat properties or conservation easements in these areas for the purposes of natural habitat and floodwater storage.

Funding Sources

Use of state and federal grant programs to accomplish these goals is encouraged. Under this Plan it is TMACOG's policy to support funding of these grants programs through local, state, and federal agencies, and support funding for participating agencies to administer them. It is not anticipated that grants will generally be available to prepare and implement stormwater permits. Some grants and loans may be available for specific projects recommended by this Plan:

- Ohio Public Works Commission (OPWC): "Issue 2" loans or grant
- Ohio EPA Div. Environmental & Financial Assistance (DEFA): loans
- US EPA / Ohio EPA / Michigan DEQ: Clean Water Act §319 Non-Point Source Grants
- Ohio DNR / Michigan DNRE Coastal Management Program