Chapter 2
Water Quality Policies

I. Introduction

Areawide Water Quality Management Policies

One role of this Plan is to describe the roles and responsibilities of the region's many local governments in carrying out specific aspects of the Clean Water Act. These roles protect the environment and public health through municipal sewerage services. They also include promoting good water quality and habitat by preventing non-point source pollution. These governmental services are laid out as *Areawide Water Quality Management Plan* (AWQMP) policies in the five chapters following this one:

Chapter 3 - Water Quality Management Framework

Chapter 4 - Public Wastewater Treatment

Chapter 5 - On-Site Sewage Treatment

Chapter 6 - Agriculture, Drainage, and Habitat

Chapter 7 - Stormwater Management

Treating or preventing water pollution does not completely fulfill the "fishable and swimmable" goals of the Clean Water Act. A healthy and productive Lake Erie fishery, for instance, requires more than just pure water. It requires a food chain to support the fish, all of which requires habitat and food sources throughout the lake, rivers, and all their tributaries. In addition, there are sources of water quality impairment that don't fit neatly into point or non-point categories. One purpose of this chapter is to record TMACOG's policies on such issues.

In addition to local governments, Designated Management Agencies (DMAs) (see **Chapter 3**), and regulatory agencies, there are many stakeholders in natural resources. Business and industry require clean water for manufacturing, commerce, transportation, and tourism, to name just a few uses.

Besides businesses, non-profit agencies, governmental agencies and special districts play important roles. Examples include park districts, land conservancies and trusts, and watershed councils. Some stakeholders work through Toledo Metropolitan Area Council of Governments (TMACOG) committees; others are part of another organization, sometimes with the participation of TMACOG members or staff. This chapter recognizes stakeholder plans in two ways:

- Documents developed by TMACOG committees or staff are incorporated by reference as part of this AWQMP.
- Documents of other stakeholders are recognized as compatible plans, whose goals TMACOG supports.

Both types of documents so recognized are listed later in this chapter.

II. Water Quality Goals

Water quality is regulated through Water Quality Standards in the Ohio Administrative Code (OAC), and in the Clean Water Act through National Pollutant Discharge Elimination System (NPDES) Permits. NPDES

permits legally require wastewater to be cleaned to specific parameters before it may be discharged. State and federal laws regulate wetlands, landfills, onsite sewage systems, animal feeding operations, among others. Other laws and documents define the principles of water quality protection.

Clean Water Act

The Clean Water Act (PL 92-500 and its revisions) is often characterized as calling for "fishable and swimmable" waters. The objective of the Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The provisions of the Act include (33 U.S. Code §1251 Title I, Sec. 101 (a)):

(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;

(2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;

(3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;

(4) it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;

(5) it is the national policy that areawide treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State;

(6) it is the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone and the oceans; and

(7) it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and nonpoint sources of pollution.

The Water Pollution Control Federation, now the Water Environment Federation, made the following observations (Water Pollution Control Federation, 1982):

PL 92-500 established the following precepts: First, no discharger can assume the right to pollute navigable waters. All discharges must obtain a permit to continue such actions. Second, permits shall contain limitations on the composition and concentrations of the polluting substances in them. … Third, some of the permit conditions are based on the technological capability of control, rather than on the biological capability of receiving waters to purify themselves. "Dilution is not the solution to pollution," as the saying goes. … Fourth and finally, controls higher than the minimum are to be based on receiving water quality.

The Six "Free-Froms"

OAC, besides setting quantifiable water quality standards and stream use attainments, states clean water goals in qualitative terms that are easy to visualize. It includes six statements of types of pollution that streams are to be free from (OAC 3745-1-04 Water Quality Standards). They define a desired future state for waterways, which discharge permits and numerical standards are intended to achieve.

The following general water quality criteria shall apply to all surface waters of the state including mixing zones. To every extent practical and possible as determined by the director, these waters shall be:

(1) Free from suspended solids or other substances that enter the waters as a result of human activity and that will settle to form putrescent or otherwise objectionable sludge deposits, or that will adversely affect aquatic life;

(2) Free from floating debris, oil, scum and other floating materials entering the waters as a result of human activity in amounts sufficient to be unsightly or cause degradation;

(3) Free from materials entering the waters as a result of human activity producing color, odor or other conditions in such a degree as to create a nuisance;

(4) Free from substances entering the waters as a result of human activity in concentrations that are toxic or harmful to human, animal or aquatic life and/or are rapidly lethal in the mixing zone;

(5) Free from nutrients entering the waters as a result of human activity in concentrations that create nuisance growths of aquatic weeds and algae.

(6) Free from public health nuisances associated with raw or poorly treated sewage. A public health nuisance shall be deemed to exist when the conditions set forth in paragraph [below] *are demonstrated.* [the Ohio Administrative Code goes on to define "nuisance."]

The Six "Free-Froms" are also stated as general objectives of the Great Lakes Water Quality Agreement (IJC, 1989).

The Great Lakes Water Quality Agreement

The U.S. and Canada signed the Great Lakes Water Quality Agreement (GLWQA) in Ottawa on November 22, 1978. The GLWQA's stated purpose was (IJC, 1989):

The purpose of the Parties is to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem. In order to achieve this purpose, the Parties agree to make a maximum effort to develop programs, practices and technology necessary for a better understanding of the Great Lakes Basin Ecosystem and to eliminate or reduce to the maximum extent practicable the discharge of pollutants into the Great Lakes System.

Consistent with the provisions of this Agreement, it is the policy of the Parties that:

(a) The discharge of toxic substances in toxic amounts be prohibited and the discharge of any or all persistent toxic substances be virtually eliminated;

(b) Financial assistance to construct publicly owned waste treatment works be provided by a combination of local, state, provincial, and federal participation; and

(c) Coordinated planning processes and best management practices be developed and implemented by the respective jurisdictions to ensure adequate control of all sources of pollutants.

The International Joint Commission (IJC) is a binational organization established by the Boundary Waters Treaty in 1909 to advise the Governments of the U.S. and Canada on preventing or resolving problems along their common border. This includes addressing the pollution problems of the Great Lakes. Over the years

the IJC has become involved in issues related to such matters as water and air quality, lake levels, and power generation.

Several Annexes to the Agreement have been adopted over the years. Two are of specific concern for this Areawide Water Quality Management Plan.

Annex 3, the Phosphorus Load Reduction Supplement was signed on October 16, 1983 (IJC, 1989).

> *The purpose of the following program is to minimize eutrophication problems and prevent degradation with regard to phosphorus in the boundary waters of the Great Lakes System. The goals of phosphorus control are:*
>
> *(a) Restoration of year-round aerobic conditions in the bottom waters of the Central Basin of Lake Erie;*
>
> *(b) Substantial reduction in the present levels of algal biomass to a level below that of a nuisance condition in Lake Erie…*

The Phosphorus Control Annex set specific targets for phosphorus load reductions to Lake Erie. It called for cutting annual loading from its 1976 level of 20,000 metric tons per year to 11,000 metric tons. In 2007, Ohio EPA (Ohio EPA) convened its *Ohio Lake Erie Phosphorus Task Force* to determine what practices may have changed since 1995 that could increase dissolved reactive phosphorus loads, and lead to algae blooms. This issue is discussed in **Chapter 1**.

Remedial Action Plans

On November 18, 1987, Annex 2 for Remedial Action Plans (RAP) and Lakewide Management Plans (LaMP) was signed in Toledo, Ohio (IJC, 1989). This Annex defined an "Area of Concern" (AOC) as "a geographic area that fails to meet the General or Specific Objectives of the GLWQA where such failure has caused or is likely to cause impairment of beneficial use or of the area's ability to support aquatic life." Four AOCs are located in Ohio: Ashtabula, Cuyahoga, Black, and Maumee Rivers.

RAPs were undertaken for all forty-three of the AOCs to provide a coordinated cleanup and restoration of impaired beneficial uses of waterways. The GLWQA identifies 14 beneficial uses which may result from "a change in the chemical physical or biological integrity of the Great Lakes System." RAPs were charged with undertaking "…a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses in Areas of Concern …"

The beneficial use impairments (BUIs) identified by Annex 2 of the Agreement are:

(1) Restrictions on fish and wildlife consumption;

(2) Tainting of fish and wildlife flavor;

(3) Degradation of fish and wildlife populations;

(4) Fish tumors or other deformities;

(5) Bird or animal deformities or reproduction problems;

(6) Degradation of benthos;

(7) Restrictions on dredging activities;

(8) Eutrophication or undesirable algae;

(9) Restrictions on drinking water consumption, or taste and odor problems;

(10) Beach closings;

(11) Degradation of aesthetics;

(12) Added costs to agriculture or industry;

(13) Degradation of phytoplankton and zooplankton populations; and

(14) Loss of fish and wildlife habitat.

The beneficial use impairments apply specifically to the lower Maumee River because it is an AOC. The two other major rivers in the region, the Portage and the Sandusky, are not AOCs. The BUIs also apply to these rivers because they are tributaries of Lake Erie, and BUIs are an issue for the Lake Erie LaMP. The difference for the three rivers is that for the Maumee, an AOC, there is an emphasis on *restoration* of beneficial uses. For the Portage and Sandusky, not AOCs, there is a greater emphasis on *protection* of beneficial uses.

III. Water Quality Policies

Use of Policies

This Plan adopts the following statements as TMACOG policy and guidance to staff. These policies are set to fulfill the goals of the Clean Water Act and the GLWQA at the local and regional level.

The policies set by this plan should be used for the following purposes:

(1) Set goals for the TMACOG *Annual Work Plan* and committees of TMACOG, subject to approval of the TMACOG Board of Trustees.

(2) Set goals for projects and funding applications to be conducted by TMACOG staff and committees of TMACOG subject to approval of the Chairman of the TMACOG Water Quality Council.

(3) Support projects and funding applications of TMACOG members, project partners, and Water Quality stakeholders of the region, subject to the approval of the Chairman of the TMACOG Water Quality Council.

(4) Support financial assistance requests through the "A-95" Regional Clearinghouse Review Process. Compatible projects should be recommended to the federal funding agency as "consistent with regional goals," subject to approval by the TMACOG Executive Committee.

(5) Support federal, state, and local legislation subject to approval by the TMACOG Board of Trustees.

Policy and Goal Statements

The following policy and goal statements are endorsed by the Plan:

(1) Support Public Wastewater Treatment Infrastructure

a) Support implementation and funding of public wastewater collection and treatment needs identified in **Chapters 4** and **5** of this Plan.

b) Assist DMAs, as identified in **Chapter 3** of this Plan, in planning, implementing, and

financing sanitary sewerage infrastructure.

c) Coordinate DMAs and provide technical assistance to plan efficient and cost-effective sanitary sewerage facilities.

d) Coordinate DMAs and provide technical assistance to assist in meeting NPDES permit requirements.

(2) Support Federal Assistance for Public Wastewater Treatment Infrastructure Financing

a) The federal government should participate in funding projects by funding at least a base percent of mandated sewerage projects through grant funding. Implementation schedules should be based on available grant funding. Support should be in the form of grants, in preference to loans, using Clean Water Act §201 grants, U.S. Department of Agriculture (USDA) Rural Utility Service, or equivalent mechanisms.

b) The criteria for an "affordable" sewerage project should be based on comprehensive economic factors, rather than a set percentage of median household income. Sewerage mandates should take into account the point of diminishing returns, or cost/benefit analysis of environmental benefit for expenditure of money. In particular, the criteria avoid imposing an economic or competitive disadvantage on local businesses.

c) State Revolving Fund (SRF) loans, if used for economic stimulus, should provide zero percent or negative interest loans to communities.

d) The federal government needs to be a partner with local governments by providing grant funds for sewerage improvements. Communities that do not receive federal grant funds should instead be granted time flexibility on combined sewer overflow (CSO) mandates until a new implementation schedule can be developed based on the redefined "affordability" criteria that account for community economic impact.

e) For sewerage projects that result in a financial hardship for residents, TMACOG supports the use of federal Clean Water SRF monies for principal-forgiveness loans which recipients are not required to repay.

f) TMACOG supports reserving 15% of SRF financing for communities of 10,000 or less population.

g) Support State affordability criteria based on income data, population trends, and other data determined relevant by the State, including whether the project or activity is to be carried out in an economically-distressed area.

h) Update U.S. EPA guidance, Combined Sewer Overflows-Guidance for Financial Capability, Assessment and Schedule Development (U.S. EPA, 1997):

i. Greater emphasis on local economic conditions;

ii. Prescriptive formulas to calculate financial capability should not be the only indicator of the financial capability of a communality;

iii. Consideration of site-specific local conditions in analyzing financial capability;

iv. A comprehensive approach to affordability with single measures (such as median household income) viewed in the context of other economic measures, rather than as a threshold to be achieved; and

v. Consideration to the economic outlook of a community in the development of implementation schedules.

(3) Federal Water Trust Fund to provide funding to the Clean Water and Drinking Water State Revolving Funds

a) Include appropriate funding mechanisms in Water Trust Fund legislation, drawing upon sources independent of current local, state, and federal revenues; and

b) Water Trust Fund revenues be designed to be adequate to meet nationwide needs for financing of drinking water and sanitary sewerage infrastructure; and

c) Water Trust Fund monies be dedicated solely to the planning, design, and construction of water and wastewater infrastructure and used on an annual basis; and

d) TMACOG will review and comment on proposed Water Trust Fund legislation in consultation with the Environmental Council and Executive Committee and support legislation that consistent with TMACOG's adopted positions.

(4) Support the Water Resource Restoration Sponsor Program (WRRSP) and its continued funding through Ohio EPA's Water Pollution Control Loan Fund

(5) Reduce Eutrophication and Nutrient Loadings

a) Reduce phosphorus loadings to Lake Erie and achieve targets of the Phosphorus Reduction Strategy.

b) Reduce nitrogen loadings to Lake Erie and its tributaries to control eutrophication and protect drinking water sources.

c) Support and provide financial assistance for best management practices to reduce nutrient loadings to Lake Erie and its tributaries.

(6) Reduce Sediment Loading and Erosion

a) Support and provide financial assistance for best management practices to reduce erosion and sediment loadings to Lake Erie and its tributaries, and achieve clear water.

b) Reduce sediment loading to the Maumee River to maintain the economic viability of Toledo Harbor and its shipping channel.

c) Support full state and federal funding for agricultural conservation incentive programs that encourage farmers to preserve floodplains, wetlands, and riparian habitat. Support includes but is not limited to the Conservation Reserve Enhancement Program (CREP).

(7) Disposal/Reuse/Reduction of Maumee River Channel Dredged Material

a) It is imperative for maintenance dredging of the Toledo shipping channel to provide access to the Port of Toledo for the economic benefit of the entire region.

b) Support reduction and ultimate elimination of disposal of Toledo harbor dredge material by discharge into Maumee Bay or Lake Erie.

c) Support measures to beneficially reuse dredge sediment on appropriate upland sites, or to create habitat areas in Maumee Bay or Lake Erie.

d) Support conservation Best Management Practices (BMPs) throughout the Maumee River basin to reduce the river's sediment and nutrient loading to Lake Erie.

(8) Support Stormwater Management

a) Coordinate and provide technical assistance to local governments to fulfill NPDES Stormwater permit requirements efficiently.

b) Support and provide financial assistance for stormwater best management practices on a watershed basis.

c) Reduce pollutant loadings to streams from stormwater runoff, including nutrients, sediment, pesticides, oil, and metals.

(9) Protect Natural Habitat

a) Preserve, protect, and restore wetlands and natural habitat areas.

b) Recognize high priority areas for protection and restoration of natural habitat:

i. The Oak Openings

ii. The Maumee Bay South Coastline

c) Preserve, protect, and, where needed, expand floodplains and their stormwater storage capacity for the prevention of flooding and to provide riparian or aquatic habitat.

d) Support voluntary, compensated acquisition of natural areas for the purpose of preservation or restoration by governmental or non-profit agencies.

e) Support recreational use of and public access to waterways and natural areas where they do not endanger the natural habitat.

Oak Openings Region

The region's single most important natural habitat area is the Oak Openings region. The Maumee RAP calls for preservation and acquisition of fish and wildlife habitats, specifically recommending wet prairies and oak savannahs of western Lucas County, in the Oak Openings area. The *Swan Creek Plan of Action* gives its highest priority to preserving floodplains and wetlands as natural habitats.

The Oak Openings Region, located within portions of the Swan Creek and Ottawa River watersheds, is a 130-square mile area supporting globally rare oak savanna and wet prairie habitats. It is home to more rare species of plants and animals than any other area of Ohio. Its trees, plants, sandy soils, wet prairies, and floodplains benefit the region by acting as natural filters for our air and water.

Natural floodplain corridors occur between the Oak Openings Region and Lake Erie along the Maumee River, Swan Creek, and Ottawa River. Preserved natural floodplains in these areas help to balance the effects of development and the resulting downstream effects of increased urban runoff. Floodwater is slowed within the broad forested areas of the floodplain allowing for groundwater replacement, and evaporation to take place.

The Oak Openings Region with its wet prairies and savannas, together with the connecting corridors along the Maumee River, Swan Creek, and Ottawa River should be given the highest priority for preservation. By maintaining the natural character of these areas, they will continue to benefit humans, and wildlife, long into the future.

For these reasons, this Plan recognizes the Oak Openings region as a sensitive and unique habitat

area, and recommends it as a priority area for protection and restoration of habitat. Additional areas may be recognized by this Plan upon based on recommendation of the affected watershed council.

Maumee Bay South Coastline

This plan recognizes coastal natural areas as important habitat. They may include wetlands, but also provide shoreline habitat and natural beauty for both recreation users and residents. This plan identifies the south coast of Maumee Bay from the east side of the mouth of the Maumee River to Little Cedar Point within the boundaries of Ohio's Critical Coastal Area (ODNR, 2000).

(10) Support the Clean Ohio Fund

a) Supports State of Ohio funding for the Clean Ohio Fund.

b) Requests that the Ohio General Assembly take appropriate steps to authorize Clean Ohio Fund funds, including but not limited to legislation or placing continuation of the Clean Ohio Fund on a statewide ballot measure.

(11) Support Removal of Drainage Obstructions on the Portage River

a) Support removal of logjams that are causing localized flooding problems and removal of individual leaning trees that are likely to cause or contribute to future logjam obstructions.

b) Encourage the Boards of Commissioners of Wood, Hancock, and Seneca Counties to direct any obstruction removal projects to be designed to minimize disturbance of riparian habitat or removal of vegetation that does not currently or likely to form logjams.

c) Support comprehensive, impartial watershed studies and research on all sources and impacts of flooding on the Portage River analyses conducted under the auspices of appropriate governmental agencies.

(12) Support Healthy Fish and Wildlife Communities

a) Eliminate consumption advisories for fish from Lake Erie and its tributaries in the TMACOG region.

b) Sustain and increase fish populations of Lake Erie and its tributaries, both for number of fish and diversity of species. Reduce fish kills in power plant intakes. Consider the Walleye as our primary indicator species.

c) Sustain and increase wildlife populations of the region. Consider the Bald Eagle as our primary indicator species.

d) Restore and sustain a healthy benthic macroinvertebrate community to streams of the region.

(13) Reduce Pesticide Loadings to Lake Erie and its Tributaries

a) Support best management practices for use of pesticides, both for agricultural and residential purposes.

b) Support reduced use of pesticides, and use of less persistent pesticides.

(14) Eliminate Persistent Toxic Chemicals

a) Support remediation of land and stream sediments contaminated with persistent toxic chemicals.

b) Support the GLWQA goal to virtually eliminate discharges of toxic substances in toxic amounts.

c) Support funding and implementation of pollution prevention programs.

(15) Reduce Bacterial Contamination

a) Reduce fecal bacterial loadings to Lake Erie, its tributaries, and their sediments to provide for safe water recreation throughout the bathing season.

b) Reduce discharges of fecal bacteria and pathogens in wastewater effluent and surface runoff to protect human health and meet recreational use designations of water quality standards.

c) Support and require replacement of onsite sewage treatment systems by public sewers wherever practicable.

d) Promote and require proper operation and maintenance of onsite sewage treatment systems in areas where it is not practicable to replace them with public sanitary sewers.

e) Eliminate swimming or wading advisories for Lake Erie and its tributaries in the TMACOG region.

(16) Support Ohio Legislation and Regulations for On-site Sewage Treatment Systems

a) Base the definition of "ponding" as a legal nuisance [ORC §3718.011(B)] on evidence of repeated or persistent ponding.

b) Provisions regulating vertical separation distances between onsite sewage treatment systems and limiting soil layers should allow use of mounded systems and avoid requirements for mechanical pretreatment equipment.

c) Support regulations allowing design of subsurface drains ("curtain drains") to be installed at shallow enough depths to drain by gravity where feasible.

d) Support a consistent, risk-based methodology for determining seasonal high water table as a limiting condition and the basis for a vertical separation distance from the soil absorption system.

e) Encourage onsite sewage treatment designs to provide effective sewage treatment in the soil conditions of northwest Ohio with a minimum of mechanical equipment; and support research and demonstration projects for such designs.

f) Support grant and revolving loan programs to help low income residents afford onsite sewage system repairs and replacements.

(17) Animal Feeding Operations (AFOs)

a) TMACOG is neither pro-AFO nor anti-AFO, but stresses that siting, permitting, and operation of AFOs must be fact-based, and founded on sound science and effective BMPs for protection of the environment and public health.

b) Support comprehensive, impartial watershed studies and research on all sources and impacts of pollutants, potential impacts on the quality of surface and ground water from application of manure to agricultural fields, impacts to air quality and monitoring of pests related to AFOs.

c) Support funding proposals for studies, research, demonstration projects, and implementation

related to BMPs related to AFOs.

d) Support use of Comprehensive Nutrient Management Plans as a BMP for using manure as an agricultural resource.

e) Support AFO siting criteria that take into consideration soil conditions and geology, avoiding water and gas wells, and proximity to residential areas.

f) Recommend studies of infrastructure (especially road) impacts, and infrastructure improvement and maintenance costs resulting from the establishment, expansion, and operation of AFOs.

g) Recommends against siting AFOs within the bounds of 100-year floodplains.

(18) Control Invasive Species and Prevent Introduction of Additional Invasive Species

a) Support comprehensive federal legislation to prevent the introduction and spread of aquatic invasive species from all sources, ultimately eliminate the introduction and spread of aquatic invasive species from ballast water discharged into the Great Lakes.

(19) Exclude Invasive Asian Carp Species from the Great Lakes

a) The U.S. Army Corps of Engineers (USACE) should aggressively expedite full operation of the dispersal barrier system and to establish structural measures to prevent the inadvertent introduction of Asian carp from floodwaters of the Des Plaines River into the Chicago Sanitary and Shipping Canal.

b) Federal agencies should take every action necessary and possible to keep Asian carp out of the Great Lakes, including closing the two Chicago locks; chemical controls; increased monitoring (DNA) and speed up test processing; building additional barriers; finishing the electric barrier system and operating it at optimal power; and the construction of hydrological barriers to prevent overflow (flooding) exchange between the Illinois and Des Plaines River basins, the Illinois and Michigan Canal, and the Chicago Sanitary and Ship Canal.

c) The most effective solution for the health of both the Mississippi River and Great Lakes watersheds is separation, barring migration of invasive species, and that this goal must start with investigation to identify alternatives for existing uses of the Chicago Sanitary and Shipping Canal, including for stormwater and wastewater control and commercial and recreational navigation.

d) Congress should reinforce the authority for and provide funding to the USACE and other federal agencies to develop a specific plan of how to hydrologically separate the Mississippi River and Great Lakes basins to prevent further migration of any Asian carp and to continue aggressive monitoring and response efforts in Chicago-area waterways.

(20) Support and Conduct Water Quality Education Programs for General Public and Target Groups

(21) Support Beneficial Uses identified by GLWQA

a) Support restoration and protection of beneficial uses in the Lower Maumee River AOC.

b) Support protection of beneficial uses in the rest of the TMACOG, and restoration where needed.

(22) Protect Groundwater for a Safe, Reliable, and High Quality Source of Potable Water

(23) Protect Surface Drinking Water Supplies through Watershed Programs such as Source Water and

Assessment Protection (SWAPs) Plans

(24) Support Protecting the Waters of the Great Lakes against bulk diversions outside the watershed

a) TMACOG encourages the Ohio and Michigan to continue the process of the Great Lakes Basin Water Resources Compact and the Great Lakes Basin Sustainable Water Resources Agreement.

b) Supports Compact language that does not impose unnecessarily rigid water use restrictions for municipal water supplies.

(25) Support Preparation of Total Maximum Daily Load (TMDLs) assessments for watersheds of the region

(26) Support water Quality Monitoring and Assessment to track progress in achieving these environmental policies

Table 2-1: Documents Incorporated into this Plan by Reference

Title	Author	Year	TMACOG Library Catalogue	Web Address
§208 of the Federal Water Pollution Control Act Amendments (P.L. 92-500) as amended by the Clean Water Acts of 1977, 1982, and 1987 (P.L. 95-271, 97-440, and 100-4)			On file at TMACOG	
American Heritage Rivers Nomination for the Maumee River	TMACOG | Toledo/Lucas County Port Authority	1997	1376-Mau	NA
Bylaws of the Toledo Metropolitan Area Council of Governments			On file at TMACOG	http://www.tmacog.org/Administration/2014/TMACOG_Bylaws_1_2013.pdf
Curriculum Guide: Water Quality Testing for Secondary Schools |Maumee Bay Watershed Project	TMACOG Maumee River Area of Concern Remedial Action Plan (RAP) Implementation Committee | Fraleigh	1993	7950-Cur	NA
Elmore Ohio: Wellhead Protection Plan	TMACOG	1993	1386-Elm (2 vol.)	NA
Environmental Resources Inventory: Landfills Dumps & Hazardous Waste Sites	TMACOG	1993	1472.5-TMACOG	NA
Environmental Resources Inventory: Prime Agricultural Land TMACOG Region	TMACOG	1993	1370-Env	NA
Environmental Resources Inventory: Wetland Areas TMACOG Region	TMACOG	1992	1370-Env	NA
Environmental Resources Inventory: Wildlife Habitat Areas TMACOG Region	TMACOG	1993	1370-Env	NA
Federal Register §35.1521 et seq. Vol. 44 No. 101, Wednesday May 23, 1979, Rules and regulations			On file at TMACOG	NA
Flooding and Erosion Related to Urbanization: Swan Creek Watershed Lucas County Ohio	TMACOG | Metropolitan Park District of the Toledo Area | Earthview Inc.	1973	7560-Flo	NA

Title	Author	Year	TMACOG Library Catalogue	Web Address
From Satellites to Earthworms: Improving Farm Management	TMACOG | RAP Agricultural Runoff Action Group	1996	1382-Sat	NA
Gibsonburg Ohio Wellhead Protection Plan	TMACOG	1992-4	1386-Gib (2 vol.)	NA
Give Water a Hand (educational brochures)	TMACOG, RAP	2003, 2008	1466-giv	http://tmacog.org/Environment/Stormwater/storc_programs.htm
Lindsey Ohio: Wellhead Protection V.1: Ground Water Information	TMACOG	1991-2	1386-Lin 2 volumes	NA
Lucas County Summary of Phosphorus Load Changes from Non-Agricultural Sources: 1982 Vs. 1989	TMACOG	1990	1464-Luc	NA
Making Funding Work for Water & Sewer	TMACOG	1995	3568-Mak	NA
Maumee RAP Recommendations Report	TMACOG, Maumee RAP Advisory Committee	1991	1376-Mau	NA
Maumee RAP Stage I Report	Ohio EPA, TMACOG, Maumee River Remedial Action Plan Advisory Committee	1990	1376-Mau	NA
Maumee River Basin Remedial Action Plan Rap: Investigation Report: Turtle Creek Packer Creek Toussaint River	TMACOG, RAP	1993	1376-Mau	NA
Maumee River RAP: Storm Drain Stenciling Program Project Handbook: Dump No Waste Drains to Lake	TMACOG	1995	1466-Mau	NA
Maumee Area of Concern Stage 2 Watershed Restoration Plan	Maumee RAP | Partners for Clean Streams | Duck & Otter Creek Partnership | Ohio EPA | TMACOG	2006		http://partnersforcleanstreams.org/index.php/watershed-stage-2
Ohio Revised Code Section 167.01 - 167.08, "Regional Councils of Governments"			On file at TMACOG	

Title	Author	Year	TMACOG Library Catalogue	Web Address
Ohio Revised Code Section 6111.03, "Powers of Director of Environmental Protection."			On file at TMACOG	
Ottawa County Summary of Phosphorus Load Changes from Non-Agricultural Sources: 1982 Vs. 1989	TMACOG	1990	1464-Ott	NA
Ottawa River -- Swan Creek Urban Runoff Demonstration Project	TMACOG | Lucas SWCD	1993	1466-Ott	NA
Ottawa River Risk Assessments	Limno-Tech, Intertox, Parametrix for TMACOG	2001	1373-Eco	http://www.epa.gov/glnpo/sediment/OttawaRiver/ra2001/index.html http://www.tmacog.org/Environment/Ottawa%20River%20web%20page/Ottawa_River_Remediation.htm
Ottawa River Sediment Remediation Priorities	Hull & Associates and Blasland Bouck and Lee for TMACOG / US EPA Region V Great Lakes Regional Program Office (GLNPO)	2004	1373-Ott	http://www.tmacog.org/Environment/Ottawa%20River%20web%20page/Ottawa_River_Remediation.htm
Sampling Report for the Ottawa River: Toledo, Lucas County, Ohio	US EPA Region V Great Lakes Regional Program Office (GLNPO) / Tetra Tech	2006	1373-Sam	NA
Ottawa River Sediment Investigation Report: Stickney Avenue Depositional Zone (report with CD)	TMACOG / Hull / Limno-Tech / US EPA Region V Great Lakes Regional Program Office (GLNPO)	2007	1373-Ott	http://www.tmacog.org/Environment/Ottawa%20River%20web%20page/Ottawa_River_Remediation.htm
Ottawa River Habitat Restoration Inventory	TMACOG / Mannik & Smith / National Fish and Wildlife Foundation	2008	1370-Ott	http://www.tmacog.org/Environment/Ottawa_River_habitat.htm
Package Sewage Treatment Plant Inventory	TMACOG		Computer database on file at TMACOG	NA
Paving Paradise	TMACOG - Maumee RAP - Swan Creek Action Group	1999	1466-PAV	NA
Pemberville Ohio Groundwater Protection Plan	TMACOG	1990-2	1386-Pem (2 vol.)	NA
Pesticides and Lawn Care	TMACOG	1993	1445-Pes	NA
Pollution Prevention and Good Housekeeping Practices for Municipal	TMACOG	2010	1466-Pol	http://tmacog.org/Environment/Stormwater/GHP_Training_Manual.pdf

Title	Author	Year	TMACOG Library Catalogue	Web Address
Operations				
Portage River - Journey to the Great Black Swamp	BGSU, TMACOG	2001	1376-Por	NA
Portage River Basin Council Volunteer Stream Corridor Survey	TMACOG	1999	1376-Por	NA
Portage River Basin Water Quality Study	TMACOG	1995	7950-Por (2 volumes)	NA
Portage River Hydrological Study	Finkbeiner, Pettis, & Strout for TMACOG	2002	NA	http://www.tmacog.org/Environment/portage%20hydro%20study%201.pdf http://www.tmacog.org/Environment/portage%20hydro%20study2.pdf
Portage River Watershed Restoration Action Strategy	TMACOG Portage River Basin Council	2003	7980.3-Por	NA
Portage River: a Resource Worth Protecting	TMACOG	1997	7950-Por	NA
Coastal Nonpoint Pollution Control Program for the Portage River Watershed	TMACOG	2007	7950-Coa	
Portage River Watershed Action Plan	TMACOG	2013	7950-Por	http://www.tmacog.org/Environment/Portage/2011/Portage_River_Watershed_Plan.pdf
Profiling the Ottawa River Volumes 1-6	Maumee RAP	1994 - 2002	1373-Pro (Vol 1-5)	http://partnersforcleanstreams.org/index.php/reports/profiling-the-ottawa-river
Stormwater Management Standards Manual	TMACOG, Stormwater Action Group	2008	NA	http://www.tmacog.org/Environment/TMACOG_Stormwater_Standards_Manual_.pdf
Swan Creek Urban Inventory and Assessment	TMACOG	2012	1466-SWA	http://www.tmacog.org/Environment/Stormwater/swancreek_BMP_retrofit.htm
Swan Creek Watershed Balanced Growth Plan	TMACOG	2009, 2013	7980.3 SWA	http://tmacog.org/Environment/swan_pilot/Swan_Creek_Watershed_Balanced_Growth_Initiative.pdf
Swan Creek Watershed Plan of Action	TMACOG	2002	1376-SWA	http://www.partnersforcleanstreams.org/mauSwanCreekPlanOfAction.pdf
Swan Creek Wetlands Re-Creation Project: Site Data Report	TMACOG	1991	1370-SWA	NA
Syllabus: Ohio Attorney General's Opinion 79-018 (May 24, 1979)			On file at TMACOG	NA
TMACOG Environmental Resources Inventory:	TMACOG	1993	1472.5-TMACOG	NA

Title	Author	Year	TMACOG Library Catalogue	Web Address
Landfills Dumps & Hazardous Waste Sites				
TMACOG Region Environmental Resources Inventory: Flood Prone Areas	TMACOG	1992	1454-TMACOG	NA
Ottawa River Watershed Scrap Yard Pollution Prevention Program Final Report	TMACOG, City of Toledo	2012		http://tmacog.org/Scrapyard/salvage_steward_2012.htm
Urban Cooperation Act of 1967, Michigan Public Act No. 7, §124.501 - 124.512 (Ex. Sess.).			On file at TMACOG	NA
Water Quality Monitoring Inventory in the TMACOG Region 1970-1992	TMACOG	1993	7950-Wat	NA
Whitehouse Ohio Wellhead Protection Plan	TMACOG	1991-2	1386-Whi (2 vol.)	NA
Wolf Creek Bacterial Impact on Maumee Bay State Park Beach Summary Report	TMACOG and University of Toledo Lake Erie Center	2003	1373-Wol	http://www.tmacog.org/Environment/Wolf_Creek.htm
Escherichia coli and Suspended Sediment in Berger Ditch at Maumee Bay State Park, Oregon Ohio	US Geological Survey / University of Toledo / TMACOG	2006	1373-Esc	http://pubs.usgs.gov/of/2005/1386/
Maumee Bay Bacteria Study, 2003-2005	US Geological Survey / University of Toledo / TMACOG	2006	1373-Mau	http://www.tmacog.org/Environment/Maumee%20Bay%20Bacteria%20Study/Maumee_Bay_Bacteria_Study.pdf
Maumee Bay State Park Wetland Restoration	TMACOG / Hull & Associates / University of Toledo / US Geological Survey	2007	1373-Mau	http://www.tmacog.org/Environment/Wolf_Creek.htm
Wolf Creek - Berger Ditch Corridor Restoration Plan	TMACOG / Hull & Associates / University of Toledo	2010	1373-Wol	http://www.tmacog.org/Environment/Wolf_Creek.htm
Woodville Ohio Wellhead Protection V. 1: Ground Water Information	TMACOG	1992-5	1386-Woo (3 vol.)	NA

II-Table 2-2: Documents of Partners and Stakeholders are Recognized as Compatible Plans, whose Goals TMACOG Supports

Title	Author	Year	TMACOG Library Catalogue	Web Address
City of Northwood Stormwater Management Plan	City of Northwood | Feller Finch & Associates	2003		
City of Oregon Stormwater Management Plan	City of Oregon	2003		
Wetland Identification and Restoration Plan for Duck and Otter Creeks	Duck and Otter Creek Partnership	2003		http://www.maumeerap.org/Duck&OtterWIRP(compressed).pdf
Screening Human Health Risk Assessment: Duck and Otter Creeks, Toledo and Oregon Ohio Vol 1: Report Vol 2: Quality Assurance Project Plan Vol. 3: Data Gap Analysis	Duck and Otter Creeks Partnership / Tetra Tech / US EPA Region V Great Lakes Regional Program Office (GLNPO)	2005	1373-scr	http://www.partnersforcleanstreams.org/DOCreeks(ERA)-FinalReport.pdf http://www.partnersforcleanstreams.org/DOCreeks(HHRA)-FinalReport.pdf http://www.partnersforcleanstreams.org/Duck&Otter-Screening%20HHRA%20Report(Oct05).pdf
Environmental Trends for Toledo Ohio 1968-1990	Toledo Dept of Public Utilities Division of Pollution Control	1992	1376-Tol	
Fate of a River: Revisited	WGTE | Clear Water Inc. | Hull & Associates	2002	1376-Fat	
Geohydrology and Quality of Water in Aquifers in Lucas Sandusky & Wood Counties Northwestern Ohio	US. Interior. Geological Survey (USGS) | Breen & Dumouchelle	1991	1386-Geo	
Groundwater Quality Baseline Report | Groundwater Management Strategies	TMACOG	1984	1386-Gro	NA
Herbicide Contamination in Municipal Water Supplies of Northwestern Ohio: Draft Final Report	Heidelberg College. Water Quality Laboratory | David B. Baker	1983	1458-Her	
Home Sewage Treatment System Plan Sandusky County	Sandusky County Health Department	2004		

Title	Author	Year	TMACOG Library Catalogue	Web Address
Home Sewage Treatment System Plan: Ottawa County	Ottawa County Health Department	2004		
Home Sewage Treatment System Plan: Wood County	Wood County Health Department	2004		
Hydrology, Water Quality, and Effects of Drought in Monroe County, Michigan	US Geological Survey	1996	1376-Hyd	
Karst in Southeast Michigan and Groundwater Regulations and Karst	Monroe County MSU Extension Office	2002	7171-Kar	
Karst Unified Source Water Protection Plan	Great Lakes Rural Community Assistance Program	2001	1458-Kar	
Lake Erie Protection & Restoration Plan	Ohio Lake Erie Commission	2000	1370-Lak	
Lake Erie Tributary Program: Maumee River Data Appendices	Heidelberg College Water Quality Laboratory	1995	1458-Lak	
Lake Erie Tributary Program: Sandusky River Data Appendices	Heidelberg College Water Quality Laboratory	1995	1458-Lak	
Landfills Dumps & Hazardous Sites	Toledo Division of Environmental Services	1994	1472.5-Lan	
Low Impact Development Manual for the Lower Maumee and Ottawa River Watersheds	American Rivers	2010	1466-Low	http://www.americanrivers.org/assets/pdfs/reports-and-publications/low-impact-development-manual.pdf
Lucas County & 9 Joint Permittees Stormwater Meeting Plan (County, Villages of Holland and Waterville, and Townships of Jerusalem, Monclova, Spencer, Springfield, Sylvania, Washington, and Waterville)	Lucas County Engineer	2003		

Title	Author	Year	TMACOG Library Catalogue	Web Address
Lucas County & 9 Joint Permittees Stormwater Meeting Plan 2004 Annual Report	Lucas County Engineer	2004		
Nitrate and Pesticides in Private Wells of Ohio: a State Atlas | Groundwater	Heidelberg College Water Quality Laboratory | Baker	1989	1458-Nit	http://www.heidelberg.edu/academiclife/distinctive/ncwqr/water/well
Occurrence, Distribution and Loads of Selected Pesticides in Streams in the Lake Erie-Lake St. Clair Basin, 1996-98	USGS Dept. of the Interior	2002	4510.Nat	
Ohio Coastal Nonpoint Pollution Control Program Plan	ODNR Div. of Soil and Water Conservation	2000	1458-Ohi	
Ohio Department of Transportation Stormwater Management Plan	Ohio Department of Transportation | ODOT | URS	2003		
Pesticide Concentration Patterns in Agricultural Drainage Networks in the Lake Erie Basin	Heidelberg College Water Quality Laboratory	1992	1458-Pes	
Sandusky River Watershed Resource Inventory	Sandusky River Watershed Coalition	2002	1376-San	http://sanduskyriver.org/
KARST Unified Source Water Protection Plan	Sandusky River Watershed Coalition			http://sanduskyriver.org/uploads/KarstPlanfinal.doc
Honey Creek Watershed Action Plan	Sandusky River Watershed Coalition, National Center for Water Quality Research	2006		http://www.sanduskyriver.org/uploads/HCWAP-FINAL.pdf http://www.sanduskyriver.org/uploads/HC-WAP%20FINAL%20MAPS%208.5x11.pdf
Sandusky River-Tiffin Watershed Action Plan	Sandusky River Watershed Coalition, National Center for Water Quality Research	2007		http://sanduskyriver.org/uploads/SR-Tiffin%20WAP%20Plan.pdf http://sanduskyriver.org/uploads/SR-T%20WAP%20Maps.pdf
Soil Evaluation Field Guide	Northwest Ohio Sewage Consortium | National Soil Survey Center - US Dept of Agriculture	2002	1382-Soi	
Soil Survey of Lucas County Ohio	US Agriculture (USDA) Soil Conservation Service (SCS) | Ohio Natural Resources (ODNR) | Ohio Agricultural	1980	1382-Luc	

Title	Author	Year	TMACOG Library Catalogue	Web Address
	Research & Development Center			
Soil Survey of Monroe County Michigan	US Agriculture Soil Conservation Service | Michigan Agricultural Experiment Station	1981	1382-Mon	
Soil Survey of Ottawa County Ohio	US Agriculture Bureau of Chemistry and Soils | Ohio Agricultural Experiment Station		1382-Soi	
Soil Survey of Ottawa County Ohio	US Agriculture Soil Conservation Service | Ohio Natural Resources (ODNR) Division of Lands & Soil | Ohio Agricultural Research & Development Center	1985	1382-Ott	
Soil Survey of Sandusky County Ohio	US Agriculture (USDA) Soil Conservation Service (SCS) | Ohio Natural Resources (ODNR) | Ohio Agricultural Research & Development Center	1987	1382-San	
Soil Survey of Wood County Ohio	US Agriculture Soil Conservation Service | Ohio Natural Resources Lands & Soil | Ohio Agricultural Experiment Station		1382-Woo	
Study of Physical Features for the Toledo Regional Area	TRAPA | Toledo-Lucas County Plan Commissions | Bowling Green State University. Geology Dept. | Jane Forsyth	1968	7171-Stu	
Trends in Nutrient & Suspended Sediment Concentrations in Lake Erie Tributaries, 1975-1990	Heidelberg College Water Quality Laboratory | Baker & Richards	1993	1458-Tre	
Valuing The Ottawa River: The Economic Values & Impacts of Recreational Boating	Ohio State University	1991	1376-Val	
Village of Holland Stormwater Management Plan	Village of Holland	2004		
Village of Millbury Stormwater Management Plan	Village of Millbury | Poggemeyer Design Group	2003		
Village of Ottawa Hills	Village of Ottawa Hills	2003		

Title	Author	Year	TMACOG Library Catalogue	Web Address
Stormwater Management Plan				
Village of Walbridge Stormwater Management Plan	Village of Walbridge | Feller Finch & Associates	2003		
Wood County & 3 Joint Permittees Stormwater Meeting Plan (County, and Townships of Lake, Middleton, and Perrysburg)	Wood County Engineer	2003		

References

International Joint Commission (IJC), 1989. Great Lakes Water Quality Agreement of 1978 as Amended by Protocol Signed November 18, 1987.

Ohio Department of Natural Resources (ODNR), 2000. Ohio Coastal Nonpoint Pollution Control Program Plan. Figure 2-19.

U.S. Environmental Protection Agency (U.S. EPA), 1997. Combined Sewer Overflows-Guidance for Financial Capability Assessment and Schedule Development. http://www.epa.gov/npdes/pubs/csofc.pdf

Water Pollution Control Federation, 1982. The Clean Water Act with Amendments.