

Ohio Coastal Nonpoint Pollution Control Program Plan

Response for Conditional Management Measures

Ohio Department of Natural Resources, Office of Coastal Management
June, 2016



Overview

The Coastal Nonpoint Pollution Control Program, jointly administered by NOAA and U.S. EPA, requires all states that participate in the National Coastal Zone Management Program to develop a coastal nonpoint pollution control program for its coastal waters. If a state does not submit an approvable coastal nonpoint program, that state's coastal management and nonpoint source grants will be reduced by 30%.

The State of Ohio submitted its Coastal Nonpoint Pollution Control Program Plan to NOAA and U.S. EPA in 2000 for the designated program area of the Lake Erie watershed. In 2002, Ohio obtained conditional approval of its Program Plan. As of June 2016, 14 management measures remain conditionally approved. As a result, the final findings of the NOAA Section 312 Evaluation of the Ohio Coastal Management Program, issued in January 2016, included the following Necessary Action:

“The Ohio Coastal Management Program must work with the NOAA Office for Coastal Management to develop and submit a work plan with interim benchmarks and a timeline for meeting the outstanding conditions of its conditionally approved coastal nonpoint source pollution program by July 31, 2016. The documentation indicating how Ohio has met outstanding conditions must be submitted no later than May 31, 2020.”

About this Document

In this response, the State of Ohio provides information on the program and policies in place to meet the conditional management measures. Below is an overview of which management measures are included in this response and the primary programs and policies described in the management measure sections of the document.

Urban Areas: Urban Runoff

New Development: The State meets this management measure through existing programs and policies including the Storm Water Construction General Permit and the associated State guidance on best management practices, including the Rainwater and Land Development Manual, Balanced Growth Toolkit and the Watershed Coordinator Program.

Watershed Protection: The State meets this management measure through existing programs including the Watershed Action Plan, TMDL and Biological Assessment Programs, designation of High Quality Waters, Balanced Growth Toolkit, Storm Water Construction General Permit, Nonpoint Source Program Plan and associated technical guidance and funding programs for implementation.

Site Development: The State meets this management measure through existing programs including the Storm Water Construction General Permit and the associated State guidance on best management practices, including the Rainwater and Land Development Manual and Balanced Growth Toolkit.

Existing Development: The State meets this management measure through existing programs that include a Watershed Assessment program, Storm Water Construction General Permit, the Statewide NPS Program Plan, the State's Nutrient Reduction Strategy and its participation in the Lake Erie Binational Nutrient Strategy (Annex 4). The State provides a number of funding and technical guidance to provide assistance to local communities for implementation of this management measure.

Urban Areas: Onsite Disposal Systems

New and Existing Onsite Disposal Systems: The State meets this management measure through the rulemaking enacted in 2015 for home sewage treatment systems and its associated required practices outlined in the rule.

Urban Areas: Roads

Planning, Siting and Developing Roads and Highways; Bridges; Operation and Maintenance; and Road, Highway and Bridge Runoff Systems. The State meets the management measures associated with Roads through existing programs including a number of programs through the Ohio Department of Transportation, the State's Storm Water Construction General Permit, and State Scenic Rivers Program.

Hydromodification

Eroding Streambanks and Shorelines: The State meets this management measure through existing programs, including the technical assistance provided by local Soil and Water Conservation Districts, Ohio EPA and the Watershed Coordinator program. The State meets the shorelines measures through its permitting programs for Coastal Erosion Areas, shore structures and the associated design guidance available to local communities for implementation.

Instream and Riparian Habitat Restoration: The State meets this management measure through existing programs and policies including its biological assessment and monitoring programs and a number of funding programs that provide assistance to local jurisdictions for implementation.

Physical and Chemical Characteristics of Surface Waters. The State meets this management measure through existing programs and policies including its Watershed Assessment program, the Watershed Action Plan program, and the State's Water Quality Management Plan and the associated technical guidance and funding programs.

Dams: Protection of Surface Water Quality and Instream and Riparian Habitat. The State meets this management program through the distribution of the Best Practices Guidebook for Dams. For all of the hydromodification management measures, the Storm Water Construction General Permit is applied during implementation of projects.

Monitoring and Tracking

Assessing Water Quality and for Estimating Pollution Loads: Ohio requests that NOAA and USEPA provide documentation of the interim decision of approval for this management measure for records of the status of this management measure.

Techniques and Procedures for Assessing Implementation, Operation and Maintenance: The State meets this management measure by the number of existing monitoring and tracking systems in place through state and multi-state programs.

Next Steps

The Office of Coastal Management will continue to work with NOAA and U.S. EPA, in coordination with State agencies that manage nonpoint pollution programs and policies, to gain approval of conditional management measures. Upon federal approval of the conditional management measures, the State will work with NOAA and U.S. EPA to proceed with the process for a fully approved plan and the requirements for a 5-Year and 15-Year Implementation Strategy.

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URBAN AREAS: URBAN RUNOFF

Management Measure: New Development

NOAA-EPA Guidance

(1) By design or performance:

- (a) After construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solids (TSS) loadings by 80 percent. For purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis (Based on the average annual TSS loadings from all storms less than or equal to the 2-year/24 hour storm. TSS loadings from storms greater than 2-year/24 hour storm are not expected to be included in the calculation of the average annual TSS loadings.) or*
- (b) Reduce the post-development loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings, and*

(2) To the extent practicable, maintain post-development peak runoff rate and average volume at levels that are similar to predevelopment levels. Best management practices focused to treat runoff: infiltration, filtration, and detention.

- a) Develop training and education programs and materials for public officials, contractors, and others involved with the design, installation, operation, inspection, and maintenance of urban runoff facilities.*
- b) Ensure that all urban runoff facilities are operated and maintained properly.*
- c) Infiltration basins.*
- d) Infiltration trenches.*
- e) Vegetated Filter Strips*
- f) Grassed Swales*
- g) Porous Pavement/Permeable Surfaces*
- h) Constructed Wetlands, Extended Detention Ponds*

NOAA-EPA 2002 Findings/Conditions

It is unclear whether the guidance set forth in Rainwater & Land Development provide the level of treatment to reduce average annual TSS loadings by 80% for all storms up to and including the 2 year/24 hour storm or maintain the predevelopment hydrology.

EPA and NOAA assume that the State anticipates the local governments will use one or more practices in the manual to achieve the new development and site development management measures. In addition, no information was provided for implementation of these measures on State lands. To facilitate implementation of the standards and specifications, the State has provided enabling legislation for local governments to enact requirements to implement the guidelines and model regulations to use as templates in the development of local requirements. However, the adoption of these regulations in whole or in part appears to be voluntary. The State has also not provided information describing how

these authorities have been used for this purpose and information regarding implementation at the local level.

Ohio Response

Application of Site Development Management Measure.

The State of Ohio is established under the Ohio Constitution as a home rule state, whereby local jurisdictions govern local land use planning and their associated best management practices for nonpoint source pollution control. The Lake Erie Basin consists of all or portions of 35 counties, and numerous local jurisdictions that include counties, cities, villages and townships.

Regulatory: Consistent with national guidance, designated MS4 urbanized areas within the Lake Erie Basin utilize the NPDES permit requirement for site development of any site that disturbs land of one acre or greater in size. For areas outside of designated MS4 urbanized areas of the Lake Erie Basin, the Ohio EPA requires that a NPDES Storm Water Construction General Permit be obtained and submitted for any site development or disturbance that will occur on sites of one acre or greater and sites less than one acre but part of a larger development that is greater than one acre. The Permit includes “all new and existing discharges composed entirely of storm water discharges associated with construction activity that enter surface waters of the state or storm drain leading to surface waters of the state.” With this permit program in place a large majority of site development in the Lake Erie basin located outside of MS4 area is regulated through this authority. All 35 counties and the communities within them that are completely or partially within the Lake Erie basin have obtained Storm Water Construction General Permits through Ohio EPA for site development projects.

The permit is re-issued on a five-year basis, with the most recent permit having been issued in 2013. The Storm Water Construction General Permit outlines prescriptions for sediment and erosion control, water management controls and post-construction management practices to meet the 80% goal for Total Suspended Solids. Table 2 within the Storm Water Construction General Permit outlines structural post-construction BMPs that will meet the 80% goals for Total Suspended Solids of the management measure if designed under the guidance provided in the State’s Rainwater & Land Development Manual. In the supplemental document for the Permit, “Guidance Regarding Post-Construction Stormwater Management Requirements of Ohio EPA’s Storm Water Construction General Permit,” Question 10 highlights minimum requirements for designing structural post-construction BMPs under the permit, including “removing at least 80% of the average total suspended solids (TSS) load.”

The Storm Water Construction General Permit outlines within the post-construction BMP section (Part III. G.2.) that “the erosion, sediment and stormwater practices used to satisfy the conditions of the permit should meet the standards and specifications in the most current edition of Ohio’s Rainwater and Land Development Manual or other standards acceptable to Ohio EPA.” In this same Guidance, OEPA provides information regarding water quality volume requirements in the permit that “results in the capture and treatment of the entire volume for 85% of the average annual storm events”. (Question 7 of the Guidance, provided as an Appendix document.)

In addition to the Rainwater and Land Development Manual, the permit outlines the guidance available through the Ohio Balanced Growth Program, administered by the Ohio Lake Erie Commission, which provides a land use toolkit for a variety of site development best practices for water resource protection and the applicability for this management measure. Part III. G. 2. E., Non-Structural Post-Construction BMPs of the Storm Water Construction General Permit states “Ohio EPA encourages the

implementation of riparian and wetland setbacks. For examples, see the Ohio Lake Erie Commission's Balanced Growth Program."

Voluntary: In addition to the required Storm Water Construction General Permit, local jurisdictions can develop and adopt a Watershed Planning Partnership Balanced Growth Plan to receive additional State incentives to increase options for funding and technical support. Administered by the Ohio Lake Erie Commission, the Balanced Growth Program provides an extensive toolkit of best land use practices for local communities to utilize and adapt for applicability to local conditions. The Balanced Growth Program Local Land Use Practices Toolkit provide recommendations for local land use planning on low impact development practices including parking lot filter strips, bioretention cells and vegetated swales. The Ohio Lake Erie Commission continues to track the number of communities that participate in the Watershed Planning Partnerships and the utilization of local land use practices.

Additionally, through the Ohio Watershed Coordinator Grant Program, locally-based watershed groups, in coordination with Ohio EPA and Ohio Department of Agriculture's Division of Soil and Water Conservation, assist local communities in identifying best practices for site development or local community planning, zoning or ordinances necessary to address nonpoint source pollution conditions to specific watersheds.

Applicability to State and Local Development Sites.

Ohio EPA administers a Storm Water Construction General Permit to "authorize storm water discharges associated with construction activity under the national pollutant discharge elimination system." Under the Storm Water Construction General Permit, any site development activities conducted by a state agency are required to adhere to the permit process and associated practices for stormwater control and post-construction management. The Ohio Department of Transportation, the Ohio Turnpike and other state facilities are permittees under the General Small MS4 Storm Water Permit for their facilities within the designated urbanized areas. All other State agencies adhere to the Storm Water Construction General Permit requirements on a site by site basis.

For local development sites outside of designated MS4 urbanized areas, County Planning Commissions, local jurisdictions, county soil and water conservation districts and Ohio EPA ensure that the Storm Water Construction General Permit requirements are followed, and determine the applicability to local conditions of general standards of practices set forth in the Rainwater & Land Development Manual and best local land use practices set forth in the Balanced Growth Best Local Land Use Practices Toolkit.

Technical Guidance.

In coordination with its regulatory and voluntary programs for site development and coastal nonpoint source control, the State provides two primary sources of technical guidance for new site development.

These include the Rainwater and Land Development Manual and Balanced Growth Local Land Use Practices Toolkit. The guidance is provided under regulatory recommendations of the Storm Water Construction General Permit for all new development sites with disturbance of one acre or greater or a site less than one acre but part of a development or subdivision greater than one acre. The Rainwater and Land Development Manual and Balanced Growth Local Land Uses Toolkit outline post-construction practices that address filtration, infiltration and detention that meet the 80% target for TSS. The Manual and Toolkit outline design and construction guidance and how these measures can be incorporated in local planning codes. These practices include:

- Infiltration Basins
- Permeable pavement
- Dry Extended Detention Basins
- Wet Extended Detention Basins
- Constructed Wetlands
- Bioretention Areas
- Pocket Wetlands

In addition to the Technical Guidance of the Rainwater and Land Development Manual and Balanced Growth Land Use Practices Toolkit, the State also provides technical assistance to local communities and private land owners on the implementation of the measures identified in the guidance documents. At the State level, technical assistance is provided through the Ohio EPA's Stormwater Program and the Ohio Department of Agriculture's Division of Soil and Water Conservation. At the local level, technical assistance is provided through Leach County's Soil and Water Conservation District. This technical assistance provides communities that may have limited budgets or staffing to obtain technical support to identify site development measures that will reduce nonpoint pollutants.

The State of Ohio meets the New Development management measure with the Storm Water Construction General Permit, the technical guidance provided through the Rainwater and Land Development Manual for specific site practices to address total suspended solids, and the technical assistance provided by State and county agencies throughout the Lake Erie watershed.

Reference Documents:

Ohio EPA Storm Water Construction General Permit,
http://www.epa.state.oh.us/Portals/35/permits/OHC000004_GP_Final.pdf

Guidance Regarding Post-Construction Stormwater Management Requirements of Ohio EPA's Storm Water Construction General Permit, <http://www.epa.state.oh.us/dsw/storm/CGPPCQA.aspx>

Ohio Rain Water & Land Development Manual,
http://epa.ohio.gov/Portals/35/storm/technical_assistance/RLD_11-6-14All.pdf

Ohio Balanced Growth Initiative Best Local Land Use Practices Toolkit
<http://balancedgrowth.ohio.gov/Portals/0/BG%20Documents/Fact%20Sheets%202014/BG%20General%20Fact%20Sheet%202014.pdf>

<http://balancedgrowth.ohio.gov/BestLocalLandUsePractices/BestLocalLandUsePracticeChapters.aspx>

URBAN AREAS: URBAN RUNOFF

Management Measure: Watershed Protection

NOAA-EPA Guidance

Develop a watershed protection program to:

- (1) Avoid conversion, to the extent practicable of areas that are particularly susceptible to erosion and sediment loss;*
- (2) Preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; and*
- (3) Site development, including roads, highways and bridges, to protect the extent practicable the natural integrity of waterbodies and natural drainage systems.*

Applicability: Applied by States to new development or redevelopment including construction of new and relocated roads, highways, and bridges.

Watershed Protection Practices:

- *Resource Inventory and Information Analysis*
- *Development of Watershed Management Plan and/or Local Comprehensive Plans, Land Preservation and Recreation Plans.*
- *Plan Implementation including development of ordinances or regulations requiring NPS pollution controls, infrastructure planning, local zoning ordinances, limits on impervious cover, encouragement of open space and promotion of cluster development, setback buffer standards, slope restrictions, site plan review,*
- *Land conservation/acquisition (conservation/ag/forest easements/districts, TDR, Fee simple)*

NOAA-EPA 2002 Findings/Conditions

The State has not identified a program that contains management measures for 1) avoiding conversion of areas that are particularly susceptible to erosion and sediment loss and 2) preservation of areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota.

The State has also not identified aspects of a “watershed protection program” that will result in the siting of development including roads, highways and bridges to the extent practicable to protect the natural integrity of waterbodies and natural drainage systems. It is unclear what mechanisms will result in implementation of practices included in State Guidance such as the Rain Water and Land Development Manual.

It is unclear how the State will meet the third element of the watershed protection management measure to address site development to protect the natural integrity of waterbodies and natural drainage systems. The State needs to provide information on how State programs consider water quality in siting development, particularly the Watershed Action Plan Program.

Ohio Response

NOAA-EPA Watershed Protection Management Measure (1): Avoiding conversion of areas susceptible to erosion and sediment loss.

Watershed Action Plans and Assessments. The State's watershed action planning process includes an inventory of soil conditions within the watershed to identify areas susceptible to erosion and sediment loss associated with local watershed conditions. This information is assembled in the inventory process and assists in identifying priority resource areas for restoration and protection with the consideration of erosion and sediment loss. The State's watershed action plan program follows U.S. EPA's "9 minimum element" guidance in the development of Watershed Action Plans. To date, 18 plans have been completed within the Lake Erie Watershed since 2002. The State, led by Ohio EPA, is coordinating with local entities to update Watershed Action Plans completed prior to 2010 to address additional U.S. EPA Guidance on the 9-element Planning Guidance. It is anticipated that the State will have an implementation strategy in place this year and will proceed with its implementation and support to local entities for areas that currently hold either a Total Maximum Daily Load (TMDL) or Watershed Action Plan or to update previous plans.

The TMDL Plans assembled by the State of Ohio identify priority pollutants within a watershed, including sediment. Based upon local watershed conditions, sediment load reductions of Total Suspended Solids (TSS) are identified in TMDL recommendations and implementation plans. Implementation recommendations identify best management practices to avoid conversion of areas susceptible to erosion and sediment loss where applicable.

For Ohio's Coastal Nonpoint Program area, TMDLs are complete or will be completed for the entire area before 2019. A map of the status of the TMDL progress for the Lake Erie Basin is provided in the Appendices.

The State also provides technical resources to local communities and private landowners to identify and avoid areas susceptible to erosion and sediment loss through the Ohio Department of Agriculture, Division of Soil & Water Conservation and Local SWCDs. Revised Universal Soil Loss Equation guidance is provided by the state, as advised by NRCS Guidance.

http://www.agri.ohio.gov/divs/SWC/docs/RUSLE_Erosion_Prediction.pdf

These tools and planning resources assist local communities in identifying areas that are susceptible to erosion and sediment loss. These technical resources are provided through the Department of Agriculture, Division of Soil and Water Conservation District Engineers and through county-based SWCD offices.

The State manages a number of programs that assist local communities in avoiding conversion of areas susceptible to erosion and sediment loss during site development.

Storm Water Construction General Permit. Under the regulatory program for stormwater management, Ohio EPA requires that all site development conducted in the state on lands of one acre or greater of land that is disturbed to apply for a Storm Water Construction General Permit to ensure the impact to water and soil resources are minimized or avoided. The permit requires an evaluation and mapping of soil conditions of a site and how the site will be developed to avoid or minimize soil conditions that may affect the susceptibility to erosion and sediment loss.

Section 401 Water Quality Certification Program. Ohio EPA oversees the Section 401 water quality certification program for proposed stream or wetland modifications within the state. Ohio EPA issues an annual report on the isolated wetland permits and 401 water quality certifications issued in Ohio.

Scenic Rivers Program. Through ODNR State Scenic Rivers program, projects proposed within designated scenic river boundaries are reviewed by the state to protect resources and reduce impacts to water resources.

Forestry Assistance Program. The ODNR Division of Forestry provides a number of assistance programs to local communities and property owners on forestry management to protect water resources including the landowner assistance program, woodland plans, and urban forestry assistance.

Water and Floodplain Management Assistance. The ODNR Division of Water Resources provides technical resources for local communities and property owners to assist with the management of water resources and their protection.

Balanced Growth Program. Administered by the Ohio Lake Erie Commission, the Balanced Growth Program provides state funding incentives for local communities who participate in the program. Participation includes the identification of priority conservation areas that include “areas susceptible to erosion that would affect existing or planned development within it” and utilization of best local land use practices for local development projects and the community’s long term economic development planning. The Balanced Growth Program provides state incentives to participating communities of the program. There are 25 state programs that include special consideration for Balanced Growth participating communities. A listing of these programs is provided in the Appendix section of this response statement. Practices outlined in the Best Local Land Use Practices Toolkit that to “avoid conversion” and “protect waterbodies from site development” include:

- Conservation Development
- Compact Development
- Stream, Floodplain and Wetland Protection Model Ordinances & Practices
- Tree and Woodland Protection
- Steep Slope Protection

NOAA-EPA Watershed Protection Management Measure (2): Preservation of areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota.

Statewide Nonpoint Source Program (NPS). One of the priority program areas within the Statewide NPS Program is the protection of high quality waters. The Statewide NPS program has identified protection strategies, priority watersheds within Ohio’s coastal nonpoint management area and has established goals, objectives and milestones through FY 2019. The Ohio statewide NPS Plan Update has established a section to outline strategic goals and objectives to protect and restore high quality waters. In this section of the statewide plan update, high quality water bodies are identified where protection is a priority action. As stated in the State’s NPS Plan, Section 6111.12 (A) (2) of the Ohio Revised Code specifically requires that the Ohio EPA establish provisions “ensuring that waters of exceptional recreational and ecological value are maintained as high quality resources for future generations.” Ohio has established a classification system to establish “Outstanding Resource Waters” or “Superior High Quality Waters”.

Also as stated in the State’s NPS Plan, “streams that have been identified in Ohio’s Integrated Report as meeting these aquatic life use designations shall also be designated as priority high quality waters for

the purpose of Ohio's NPS management support and assistance." The State's NPS plan outlines three priority actions for identified High Quality Waters for preservation of areas that provide important water quality benefits. These are:

- 1) restore and protect high quality in-stream habitat,
- 2) manage invasive species, and
- 3) acquire and protect high quality riparian areas.

The strategy is outlined in the 2014 Statewide NPS Plan update and linked here and is included in the Reference Documents for Site Development management measures.

[http://www.epa.state.oh.us/dsw/nps/index.aspx'](http://www.epa.state.oh.us/dsw/nps/index.aspx)

As part of the Ohio EPA Watershed Assessment process, areas are identified by attainment of quality pertaining to quality of riparian and aquatic biota. A set of indices have been established by the State for these assessments including, Qualitative Habitat Evaluation Index (QHEI) and Index of Biological Integrity (IBI). The information is utilized in the Watershed Action Plans and Area of Concern Plans to prioritize watershed protection measures during site development with local jurisdictions.

State Funding Programs. The State manages and administers a number of funding programs to assist local communities in protecting areas through acquisition or establishment of conservation easements on sites with conditions that are of high biological quality and provide water quality benefits. These include the Clean Ohio Fund (administered by Ohio Public Works Commission), 319 Nonpoint Source Program (administered by Ohio EPA), Water Resource Restoration Sponsor Program (administered by Ohio EPA), and Coastal and Estuarine Land Conservation Program (administered by the Office of Coastal Management), Forest Legacy Program and Urban Forestry Program (administered by the ODNR Division of Forestry), and Ohio Wetlands and Stream Mitigation bank and in-lieu fee programs through Ohio EPA.

Local Comprehensive Planning. Counties in Ohio, under the authority of Ohio Revised Code 303.02, can conduct comprehensive planning within unincorporated areas that may include the identification and strategies of areas of high water quality benefits or susceptible to erosion. Cities and villages (municipalities) plan under Ohio Revised Code 713.01-713.15.

The Ohio Balanced Growth Program, Best Local Land use Practices provides guidance for local governments seeking to produce comprehensive plans that include features to reduce and prevent coastal nonpoint pollution through watershed protection measures. The Ohio Balanced Growth Program Watershed Planning component establishes guidance for groups of communities organized by watershed boundaries to determine the locations of Priority Conservation Areas in their watersheds. Individual communities can use these Priority Conservation Areas in their comprehensive plans, or as priorities for acquisition projects.

NOAA-EPA Watershed Protection Management Measure (3): Identify the state Watershed Protection Program associated with siting of road systems and site development. Describe the mechanisms that result in implementation of practices included in State Guidance such as the Rain Water and Land Development Manual.

The Storm Water Construction General Permit administered by Ohio EPA and required for any site in Ohio that will disturb land of one acre or greater will result in the implementation of practices included in the Rainwater and Land Development Manual. The Storm Water Construction General Permit identifies the Manual as the primary guidance standard for which to use for implementation.

Additionally, the permit also references Ohio Balanced Growth Program Best Local Land Use Practices and Watershed Planning, as guidance to provide watershed protection in development activities.

Within the Storm Water Construction General Permit, Guidance is provided on non-structural post-construction BMPs (Part III, G. 2. e.) “Practices such as preserving open space will reduce the runoff coefficient and thus, the WQv. Ohio EPA encourages the implementation of riparian and wetland setbacks. Practices which reduce stormwater runoff include green roofs, rain barrels, conservation development, smart growth, low impact development and other site design techniques. For examples, see the Ohio Lake Erie Commission’s Balanced Growth Program.”

Reference Documents:

TMDL Completion Status Map- 2015- Ohio – Attachment 1

Soil Erosion Guidance, http://www.agri.ohio.gov/divs/SWC/docs/RUSLE_Erosion_Prediction.pdf

Ohio NPS Plan, <http://www.epa.state.oh.us/dsw/nps/index.aspx>

Table 1. High Quality Waters – Lake Erie Basin

Lake Erie Basin Designated state wild, scenic and/or recreational rivers, (Chapter 1517, ORC)

- Ashtabula River
- Chagrin River
- Conneaut Creek
- Grand River
- Upper Cuyahoga River
- Maumee River
- Sandusky River

Ohio Superior High Quality Waters – Lake Erie Basin (OAC 3745-1-05, Table 5-4)

Water Body Name	Flows Into	Drainage Basin
Ashtabula River – confluence of East and West fork (RM 27.54) to adjacent East 23 rd street (RM 2.00)	Lake Erie	Ashtabula
Auglaize River – Kelly road (RM 77.32) to Jennings creek (RM 47.02)	Maumee River	Maumee
Baughman creek- Beech Fork	Grand River	Grand
Fish Creek – headwaters to Indiana state line (RM 29.37)	St. Joseph River	Maumee
Furnace Run	Cuyahoga River	Cuyahoga
Huron River – East/West Branch confluence (RM 14.7) to the Ohio Turnpike (RM 9.1)	Lake Erie	Huron
North Fork Yellow Creek	Yellow Creek	Cuyahoga
Unnamed tributary to East Branch Black River at RM 41.41	East Branch Black River	Black
West Branch Huron River – Slate run (RM 10.52) to the mouth	Huron River	Huron
West Branch St. Joseph River – Michigan state line (RM 11.41) to the mouth	St. Joseph River	Maumee
Yellow Creek	Cuyahoga River	Cuyahoga

Outstanding state water based on exceptional ecological value in Lake Erie Basin (OAC 3745-1-05, Table 5-5)

Water Body Name	Flows into	Drainage basin
Aurora Branch – State Route 82 (RM 17.08) to the mouth	Chagrin River	Chagrin
Chagrin River – Woodiebrook Road (RM 49.14) to State Route 6 (RM 11.1)	Lake Erie	Chagrin
Conneaut Creek – Pennsylvania state line (RM 23.83) to the mouth	Lake Erie	Ashtabula
Cuyahoga River – Troy- Burton Township line (RM 83.9) to U.S. Route 14 (RM 60.75)	Lake Erie	Cuyahoga
East Branch Chagrin River – Heath Road (RM 14.49) to the mouth	Chagrin River	Chagrin
Fish Creek – Indiana state line (RM 34.48) to the mouth	St. Joseph River	Maumee
Grand River – State Route 322 (RM67.08) to U.S. Route 20 (RM 5.67)	Lake Erie	Grand
Sandusky River – U.S. Route 30 (RM 82.1) to Roger Young Memorial Park in Fremont (RM. 16.6)	Lake Erie	Sandusky
Vermilion River – Southwest Branch (RM47.66) to State Route 2 (RM3.15)	Lake Erie	Vermilion

URBAN AREAS: URBAN RUNOFF

Management Measure: Site Development

NOAA-EPA Guidance

Plan, design, and develop sites to:

- 1) Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss;*
- 2) Limit increases of impervious areas, except where necessary;*
- 3) Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss; and*
- 4) Limit disturbance of natural drainage features and vegetation.*

The goal of this management measure is to reduce the generation of nonpoint source pollution and to mitigate the impacts of urban runoff and associated pollutant through proper site design and development of individual sites. This management measure differs from Management Measure (New Development), which applies to post-development runoff in that the Site Development Management Measure is intended to provide controls and policies that are to be applied during the site planning and review process.

Practices and Programs:

- Site Plan Review to ensure that integrity of environmental sensitive areas and areas necessary for maintaining surface water quality will not be lost;*
- Erosion & Sediment Control Plan Review and approval prior to issuance of development permits.*
- Guidance on appropriate pollution prevention practices to be incorporated into site development and use.*
- Limiting Areas of Disturbance/Minimum Disturbance*
- Site Planning Practices (clustering, minimizing imperviousness, preservation of natural drainage features.*

NOAA-EPA 2002 Findings/Conditions

The State has not provided information about how the State will ensure implementation of the standards and specifications of the Rainwater & Land Development Manual either through a primary mechanism or a back-up authority.

Ohio Response

Regulatory Program for Local Site Development outside of designated MS4 Areas. The Ohio Storm Water Construction General Permit is a regulatory mechanism administered by the Ohio EPA that establishes guidance and requirements to address the Site Development Management Measure.

The Storm Water Construction General Permit is required for all development sites which disturb greater than one acre of land within the State of Ohio or sites that are less than one acre but part of a development that disturb land greater than one acre. The permit pertains to all site development under these size parameters within the State of Ohio, including the Lake Erie Basin (Coastal Nonpoint Program Area) either within an existing designated MS4 area or within an area not designated as an MS4 area. The Storm Water Construction General Permit sets forth standards for site plan review, erosion and sediment control and State standards for site planning practices to reduce and prevent nonpoint source pollution runoff.

The Storm Water Construction General Permit, administered by the Ohio EPA, identifies practices to satisfy the condition of the permit, including non-structural preservation methods, erosion control practices, runoff control practices, sediment control practices, and post-construction storm water management requirements. The Storm Water Construction General Permit requires a Storm Water Pollution Prevention Plan (SWP3) with a site map showing “soil types for all areas of the site, including locations of unstable or highly erodible soils.”

The Storm Water Construction Permit identifies the guidance set forth by the State’s Rainwater and Land Development Manual and the State’s Balanced Growth Best Local Land Use Practices to be utilized by permittees for their development site plans.

The Ohio Rainwater and Land Development Manual “defines Ohio’s standards and specification for stormwater practices implemented during land development. The manual aims to integrate water resource protection into development site planning in order to maintain or improve stream integrity. The manual outlines practices and strategies for protecting streams and wetlands, treating stormwater pollutants, rehabilitating streams and establishing permanent runoff controls.”

The manual outlines the following stormwater management objectives in planning and designing a development project: 1) preserve the natural drainage system and important water resources, 2) minimize imperviousness of the proposed development, 3) improve degraded streams, 4) plan additions to the site drainage system that are stable and sustainable, 5) manage post-construction runoff, 6) control erosion and sediment impacts during construction, 7) control high risk pollution sources, and 8) assure long-term access to and maintenance of stormwater system. Each of these objectives is outlined in the manual with specific site development practices.

Additionally, Ohio’s Lake Erie Basin has areas that have a high concentration of site development occurring, whereas other regions of the basin contain minimal site development activities. The Ohio EPA, through its MS4 program, identifies high development regions to prioritize where site development may provide the most impact to waters of the State during a period of time and permit requirements for those areas. These watersheds have been identified within Ohio EPA’s NPDES MS4 Stormwater Program. There are currently 13 counties within Ohio’s coastal nonpoint area that hold MS4 permits. Storm Water Construction General Permits have been obtained for site development projects in all 35 counties within the Lake Erie Basin.

The Ohio Balanced Growth Program was developed by the Ohio Lake Erie Commission, a State agency authorized under ORC 1506.21. The Balanced Growth Program is “a voluntary, incentive-based strategy to link land-use planning to the health of watersheds and major water bodies.”

The resources provided include the following:

- Checklists for local communities to compare existing code and comprehensive plans to recommended Best Practices of the Balanced Growth program
- Guidance to develop Watershed Planning Partnerships and associated planning process to prepare a Watershed Balanced Growth Plan
- Best Local Land Use Practices Toolkit, outlining practices to assist local governments balance development opportunities with watershed protection. Land use practices include comprehensive plans, site development practices that minimize site disturbance, sensitive areas protection, and storm water management on site that local communities can integrate into local codes and land use policies as applicable to local conditions.

The program is administered by the Ohio Lake Erie Commission.

Local Comprehensive Planning. In addition to the application of the Rainwater and Land Development Manual, local comprehensive planning can serve as a tool for local communities to use in guiding site development. Ohio Revised Code Section 303.02 outlines County Comprehensive Plans to guide land development in unincorporated areas of the State within each county.

Training and Outreach to Local Jurisdictions:

The State and partner organizations provide a number of training, outreach and technical assistance opportunities to local jurisdictions regarding the practices set forth in the State’s Rainwater and Land Development Manual and any additional pertinent site development practices to avoid nonpoint source pollution impacts. The State is a home rule state, whereby local land use planning occurs at the local level including each county, township, and municipality within the Lake Erie Basin. This results in a robust outreach network of State and regional efforts to provide information to local jurisdictions on the technical resources and assistance available for implementation of site development practices to address nonpoint source pollution.

State of Ohio Education and Outreach on Site Development Management Measures and associated practices include the following programs.

Technical Assistance to Local Communities:

Coordination with Local SWCD. Each county of the Lake Erie Basin contains a Soil and Water Conservation District (SWCD), administered jointly with the Ohio Department of Agriculture’s Division of Soil and Water Conservation, which provides technical assistance to local communities, site developers and private property owners on best practices available to local site development projects. This assistance is tracked through the statewide Soil & Water Information Management System, or SWIMS.

Agency Technical Assistance. Within the Department of Agriculture’s Division of Soil & Water Conservation and Ohio EPA Stormwater Program, technical assistance is provided at a regional and statewide level for stormwater management practices and site plan review program development. The technical assistance provided includes site visits to assist in evaluating appropriate management

practices, site plan review checklists, and engineering guidance on measures outlined in the Rainwater and Land Development Manual.

Balanced Growth Local Land Use Practices. Through the Balanced Growth Program, technical guidance is provided to local communities by the Ohio Lake Erie Commission through its Best Local Land Uses Toolkit. The toolkit provides guidance on how to incorporate best land use practices within local zoning and site planning procedures and plans. The toolkit includes a checklist for local communities available to communities to use to evaluate their local policies to reduce and prevent coastal nonpoint pollution from site development.

Ohio Watershed Coordinator Grant Program. Watershed Coordinators work with local governments and property owners on providing information on the technical resources available through the state and other programs on management practices for site development to mitigate polluted runoff to coastal waters. This program is administered through Ohio Department of Agriculture's Division of Soil & Water Conservation in partnership with Ohio EPA and Ohio State University Extension. One example of watershed coordinator assistance to local communities is the Chagrin River Watershed Partners. A past participant of the grant program, the organization now staffs a watershed coordinator who works with local jurisdictions on introducing riparian setbacks policies and their application into local municipal codes. The position is now funded locally through the non-profit organization with dues paid by communities in the watershed, state, local and federal grants, and specific contracts and donations.

Training Partnerships. The State has and will continue to establish a variety of partnerships with local and regional entities to provide information on these resources and particularly the practices set forth for site development to address nonpoint source pollution and the guidance set forth in the State's Rainwater and Land Development Manual and other technical guidance. Current training partnerships include:

- Ohio Planning Association – The association provides a robust professional development program including webcasts, workshops, the State Planning Conference for Municipal and Township Planning Officials, and a number of publications.
- Ohio Stormwater Conference – This is a statewide annual conference that provides education sessions to local governments and other jurisdictions on management practices, associated with the Rain Water & Land Development Manual, the Storm Water Construction General Permit and the Balanced Growth Local Land Use Practices. The average attendance for the conference has been over 600, with the 2016 conference having an attendance of 800.
- Ohio Coastal Training Program – Administered by the Old Woman Creek National Estuarine Research Reserve in close coordination with the Ohio Coastal Management Program, the Ohio Coastal Training Program provides education sessions on coastal nonpoint topics to local governments annually.
- Areawide Water Quality Management Planning Agencies – The three areawide water quality management planning agencies within the Lake Erie Basin coordinate with Ohio EPA provide guidance and education sessions on best management practices for site development to its member communities which include areas outside of the designated urbanized area (NOACA, TMACOG, NEFCO).
- OEPA Training Councils- (Northeast Ohio Stormwater Training Council) – The Council in northeast Ohio is a consortium of 28 agencies and organizations to provide education, train and guide curriculum development on stormwater related issues. Initiated in 2007, the Council holds up to six workshops annually on site development practices. Past workshops sessions have included the following topics:

1. Low Impact Development Performance & Policy Implications
2. Improving SWP3 Reviews
3. Stormwater Management Training for Commercial Properties
4. Stormwater Management Training for Residential Properties

More information on the Council can be found at

<http://neohiostormwater.com/past-workshopstrainings.html>.

Additional Training Partnerships with the State of Ohio regarding outreach and technical guidance to local jurisdictions include the Ohio Water Managers Association Annual Conference and the Annual Conference of the Federation of the Soil & Water Conservation Districts.

Reference Documents

Rainwater and Land Development Manual

Ohio EPA Storm Water Construction General Permit

Ohio Balanced Growth Local Land Use Practices Toolkit

<http://balancedgrowth.ohio.gov/BestLocalLandUsePractices/BestLocalLandUsePracticeChapters.aspx>

Ohio Balanced Growth Local Land Use Practice Checklist.

<http://balancedgrowth.ohio.gov/Portals/0/BLLUP/2010%20Update/Checklist%20for%20Comp%20PIng%20Review%202014-05-23.pdf>

URBAN AREAS: URBAN RUNOFF

Management Measure: Existing Development

NOAA-EPA Guidance

Develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development:

- (1) Identify priority local and/or regional watershed pollutant reduction opportunities (e.g. improvements to existing urban runoff control structures;*
- (2) Contain a schedule for implementing appropriate controls;*
- (3) Limit destruction of natural conveyance systems; and*
- (4) Where appropriate, preserve, enhance or establish buffers along surface water bodies.*

The focus of this management measure is to reduce surface water runoff pollution loadings from areas where development has already occurred.

Practices and Programs:

- *Retrofit existing stormwater controls, detention basins, bioswales, other.*
- *Targeting priority nutrient pollutants and implementation strategies for mitigating the effects of NPS pollutants.*
- *Inventory retrofit opportunities and nonstructural alternatives.*

NOAA-EPA 2002 Findings/Conditions

The State has not provided information on priority watershed pollutant reduction opportunities or a schedule(s) to address these priorities.

Ohio Response

The State of Ohio has three primary initiatives and/or programs that identify priority watershed pollutant reduction opportunities and schedules to address mitigating effects of NPS pollutants.

The State has developed a Watershed Assessment Program within Ohio EPA. As part of this program, Ohio EPA has established Watershed Assessment Units for monitoring and evaluation of water resource conditions on a five-year schedule. The information collected is utilized for the Statewide Water Quality Management Plan and utilized for other watershed-based studies including TMDLs and Watershed Action Plans. Both of these planning initiatives identify priority pollutant loadings from point and nonpoint sources within the designated Watershed Assessment Units (WAU). The assessments are conducted at a HUC-12 (hydrologic unit) watershed size. The State has completed assessments and identified priority watershed pollutant reduction opportunities within the Ohio coastal nonpoint area. The State will continue to complete assessments of the entire Lake Erie Basin every five to ten years. These assessments have identified primary sources and causes of point and nonpoint pollution within

the Lake Erie Basin. Table 2 summarizes primary nonpoint pollutant sources identified through these assessments within the Lake Erie Basin or the status of the assessment process.

Table 2: Watershed Assessment Nonpoint Source Identification

Lake Erie Watershed- HUC -8	Number of HUC-12 Watersheds	Nonpoint Sources identified and prioritized for implementation
St. Joseph (partial)	18	Assessment in progress
Tiffin (partial)	20	Assessment in progress
Upper Maumee (partial)	9	Assessment in progress
Auglaize (partial)	60	Assessment in progress (Lower), Nutrients, Habitat, Bacteria, Dissolved Oxygen/Organic Enrichment
Lower Maumee	42	Nutrients, Habitat, Bacteria, TSS
Ottawa-Stony (partial)	10	Assessment in progress
River Raisin (partial)	4	Assessment in progress
Cedar-Portage	35	Nutrients, Habitat, bacteria, TSS, Dissolved Oxygen/organic enrichment, Flow
Blanchard	30	Nutrients, Habitat, bacteria, TSS
St. Marys (partial)	19	Assessment in progress
Sandusky	66	Nutrients, Habitat, Bacteria, TSS, Dissolved Oxygen, Organic Enrichment
Huron-Vermilion	30	Huron/Old Woman Creek – Nutrients, Habitat, TSS
Black-Rocky	32	Nutrients, Bacteria, TSS, Dissolved Oxygen/Organic Enrichment
Cuyahoga	29	Nutrients, Habitat, Bacteria, TSS, Dissolved Oxygen/Organic Enrichment, Flow
Chagrin-Ashtabula	20	Nutrients, Habitat, Bacteria, TSS
Grand	26	Nutrients, Habitat, Bacteria, TSS, Flow
Chautauqua-Conneaut (partial)	4	Assessment in progress

The State is updating its Watershed Action Plan requirements for existing plans and their updates to include specificity on pollutant reduction opportunities and schedules in compliance with the U.S. EPA 9 Minimum Element Guidance for Watershed Action Plans. 18 Watershed Action Plans have been completed within the Lake Erie Basin. Both the TMDL and Watershed Action Plans identify priority watershed pollutant reduction opportunities, based upon field data collection, and develop schedules to address priorities.

<http://www.epa.state.oh.us/dsw/tmdl/index.aspx>

<http://www.agri.ohio.gov/divs/SWC/SWC.aspx#tog>

Identifying Retrofit Opportunities. With the findings of these assessments and plans, the State develops priorities for retrofitting existing development in its Statewide nonpoint program plan. In Ohio's Statewide NPS Management Plan Update (2014), a priority includes urban sediment and nutrient reduction strategies. The NPS Management Program identifies nonpoint stormwater practices on

development sites, including existing developed sites as a key element of the Statewide Plan for nonpoint source pollution control.

As part of its reporting to U.S. EPA on the Statewide Nonpoint Source Management Plan, the State of Ohio provides information on best management practices implemented within the Lake Erie Basin that addresses nonpoint pollutants on existing development that have been funded through state program funding, primarily the 319 program. The Statewide Plan is provided in the Appendices for the Urban-Site Development Management Measures.

Ohio EPA's NPDES Storm Water Construction General Permit for all construction sites of one acre of disturbance or greater or less than one acre but part of a larger development plan area provides specific guidance on redevelopment projects. In Part III. G. 2. e., the Storm Water Construction General Permit states, "Sites that have been previously developed where no post-construction BMPs were installed shall either ensure a 20 percent net reduction of the site impervious area, provide for treatment of at least 20 percent of the WQv or a combination of the two. A one-for-one credit towards the 20 percent net reduction of impervious areas can be obtained through the use of green roofs. Where projects are a combination of new development and redevelopment, the total WQv that must be treated shall be calculated by a weighted average, with the new development at 100 percent WQv and redevelopment at 20 percent WQv." All 35 counties that are completely or partially contained within the Lake Erie Basin have obtained Storm Water Construction General Permits or are part of an MS4 area for development projects.

Ohio Nutrient Reduction Strategy. In 2013, the State of Ohio established a Statewide Nutrient Reduction Strategy Plan. The plan identifies priorities both for nonpoint pollutant sources and watershed geographies to focus on (See Table 1 of Nutrient Strategy Document). The Strategy also identifies NPS implementation strategies, including improving urban storm water management practices, under its section, "Recommended Management Practices for Urban and Suburban Nonpoint Nutrient Reductions" (Section 7.3). The State identifies five urban storm water management practices as part of its nutrient reduction strategy:

- 1) Municipal development-innovative site planning storm water BMPs including low impact development (low impact development, conservation easements, elimination of curbs and gutters, green parking, green roofs);
- 2) Slow down, store and infiltrate runoff from impervious surfaces with municipality oriented BMPs (grassed swales, infiltration basin, permeable pavers, filter strips, dry detention ponds, wet ponds, storm water wetlands);
- 3) Control erosion from construction sites and barren ground (sodding, seeding, compost blanket, geotextiles, temporary stream crossing);
- 4) Control runoff from construction sites (permanent slope diversion, earthen perimeter control structures, check dams); and
- 5) Control sediment (filter berms, sediment traps, silt fence, vegetated buffers, storm drain inlet protection).

The Ohio Nutrient Reduction Strategy identifies how the State will provide accountability and verification of progress in correcting nutrient water pollution. These include:

- 1) Documenting restoration of beneficial uses in targeted watersheds;
- 2) Report biennially on the state-wide impact of excessive nutrients on water quality and beneficial use attainment;
- 3) Calculate annual nutrient loading estimates for the priority rivers and point sources; and
- 4) Track basic programmatic efforts of state agencies and key partners.

<http://www.epa.state.oh.us/dsw/wqs/NutrientReduction.aspx#146064466-nutrient-strategy>

Lake Erie Binational Nutrient Strategy (Annex 4): The State of Ohio is represented by the International Joint Commission and the binational Great Lakes Water Quality Agreement. Under Annex 4 of the Agreement – Nutrients – the State of Ohio will be part of the United States representation that will:

- 1) Develop objectives for phosphorous concentrations, loading targets and loading allocations for Lake Erie;
- 2) Develop binational phosphorous reduction strategies and domestic action plans to meet the objectives for phosphorous concentrations and loading targets in Lake Erie;
- 3) Assess, develop and implement programs to reduce phosphorous loadings from urban, rural, industrial and agricultural sources. This will include best management practices, along with new approaches and technologies;
- 4) Identify priority watersheds that contribute significantly to local algae development and develop and implement management plans to achieve phosphorus load reduction targets and controls; and
- 5) Undertake and share research, monitoring and modeling necessary to establish, report on and assess the management of phosphorus and other nutrients and improve the understanding of relevant issues associated with nutrients and excessive algal blooms. (GLWQA, 2012 Nutrients Annex).

In 2015, an Interim Joint Action Plan for Lake Erie Nutrient Targets was developed by the Lake Erie States and the province of Ontario. One of the primary actions identified is to “encourage investments in green infrastructure for urban stormwater and agricultural runoff, including ecological buffers for rivers, stream and wetlands.” The interim plan (September 2015) serves as a framework for the release of final Lake Erie nutrient targets in 2016 and Domestic Action Plans in 2018. In May, 2016, Ohio established a Draft Western Lake Erie Basin Collaborative Implementation Plan.

The State of Ohio meets the Existing Development Management Measure through its Watershed Assessment programs, local watershed partnership programs and binational Lake Erie initiatives, which require the identification of priority watershed pollutant reduction opportunities and the development of a schedule to address priorities.

State Funding Programs for Implementation

To support the implementation of these priorities of mitigating NPS pollutants on existing development, the State provides funding programs for local communities and other local and regional organizations to utilize on existing developed sites. State funding programs include the Section 319 Ohio Nonpoint Source Pollution Control Program, Lake Erie Protection Fund, and the Ohio Water Development Authority (OWDA) when funds are available. The Alternative Stormwater Infrastructure Loan Program is administered by OWDA, provides funding to mitigate NPS pollutants on redevelopment and existing

developed sites. In 2008, Ohio EPA created the Surface Water Improvement Fund (SWIF) to provide funding, when available, to local governments, park districts and conservation organizations and other entities with an area of focus for retrofit best management practices on existing developed sites.

Additionally, through the Ohio Public Works Commission (DOPWIC), funds are available to local communities to improve stormwater management that includes the reduction and/or removal of nonpoint source pollutants. One example of these funds for nonpoint source pollutant reduction in existing development is the retrofit of an existing detention pond to improve its nutrient reduction functions. Through a DOPWIC-funded project, the Langerdale Basin in South Euclid, Ohio, serving a direct tributary to Lake Erie was retrofitted to reduce nonpoint source pollutants on an existing facility. Between 2007 and 2014, the State's Water Pollution Control Loan Fund administered \$2.0 billion towards 642 projects within the Lake Erie Watershed to address nonpoint pollution, for improvements to wastewater and stormwater infrastructure, implementation of best management practices for urban and agricultural land uses, household sewage treatment systems replacement and upgrades, stream corridor restoration and land conservation in high priority critical water resource areas of the basin.

With these program and plans, priority watersheds within Ohio's coastal nonpoint area have been identified, nonpoint source reductions strategies have been selected and approximate scheduling for implementation and reporting has been developed. As a result of these programs, the State of Ohio addresses the existing development management measures for the Coastal Nonpoint Pollution Control Program.

Reference Documents

Ohio Nutrient Reduction Strategy Plan, 2013,
<http://epa.ohio.gov/dsw/wqs/NutrientReduction.aspx#146064466-nutrient-strategy>

Ohio Nonpoint Source Management Plan, 2014,
http://epa.ohio.gov/Portals/35/nps/NPS_Mgmt_Plan.pdf

Lake Erie Interim Joint Action Plan for Nutrient Targets, 2015, <http://glc.org/files/projects/lent/LENT-Joint-Action-Plan-FINAL-Sept-2015.pdf>

DRAFT, State of Ohio Western Lake Erie Basin Collaborative Implementation Plan, 2016,
<http://epa.ohio.gov/Portals/33/documents/WLEBCollaborative.pdf>

Ohio EPA, Storm Water Construction General Permit

URBAN AREAS: ONSITE DISPOSAL SYSTEMS

Management Measure: New Onsite Disposal Systems Operating Onsite Disposal Systems

NOAA-EPA Guidance

New Onsite:

- (1) Ensure that new Onsite Disposal Systems are located, designed, installed, operated, inspected and maintained to prevent the discharge of pollutants to surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters.*
- (2) Direct placement of OSDS away from unsuitable areas.*
- (3) Establish protective setbacks from surface waters, wetlands, and floodplains.*
- (4) Establish protective separation distances between OSDS system components and groundwater which is closely hydrologically connected to surface waters.*
- (5) Reduction of total nitrogen loadings where conditions exist.*

Operating Onsite:

- (1) Establish and implement policies and systems to ensure that existing OSDS are operated and maintained to prevent discharge of pollutants.*
- (2) Inspect OSDS frequency adequate to ascertain whether OSDS are failing.*
- (3) Consider replacing or upgrading OSDS to reduce nitrogen loadings in effluent where conditions apply.*

NOAA-EPA 2002 Findings/Conditions

In the 2002 Findings and Conditions set forth by NOAA and U.S. EPA, three conditions were established under the Onsite Disposal Systems management measures for the State to address to proceed toward full approval of the two management measures associated with Onsite Disposal Systems (OSDS). The State of Ohio has included these conditions below and its response in meeting the conditions.

2002 Program Conditions: Establish protective setbacks for surface waters, wetlands and floodplains for new OSDS; new nonresidential OSDS; and operating OSDS in conformity with the 6217 (g) guidance. Also include enforceable policies and mechanisms to ensure the implementation of the management measures for nonresidential new OSDS and existing OSDS throughout the 6217 management area.

- a) It is not clear if the definition of water supply source includes surface waters, wetlands and floodplains and what lateral setbacks are required if these resources are not water supply sources. This pertains to element (3) of the new OSDS management measure.*

Ohio Response

The State of Ohio adopted into the Ohio Administrative Code (OAC 3701-29) updated regulations for household sewage treatment systems. These enhanced Sewage Treatment System rules ensure proper treatment and dispersal of sewage and promote long-term system sustainability while protecting public health and the environment. The regulations focus on treatment rather than disposal of sewage from these systems.

Regulations in the Ohio Administrative Code (OAC) for Household Sewage Treatment Systems enacted January 1, 2015 outline lateral isolation distances as follows:

The “general provisions and prohibitions” contained in OAC §3701-29-06(G)(3)(b) require that a sewage treatment system (STS) soil absorption component shall be at least fifty feet from any surface water impoundment, lake, river, wetland, perennial stream and road cut-bank or stream cut-bank. The term “cut-bank” is defined in OAC §3701-29-01 as “a steep slope formed typically by stream erosion or construction.”

Additionally, OAC §3701-29-06(G)(3)(c) requires that all components of a STS shall be at least fifty feet from any water supply source and vertical open and closed loop geothermal heating and/or cooling system.

Pursuant to OAC §3701-29-06(H)(1) a new STS shall not be sited in an area identified as a flood way, and only below grade soil absorption components of a new STS may be sited within any part of the one-hundred year flood plan except where prohibited by federal, state or local regulations or ordinance.

The document EPA-840-B-92-002, *Guidance for Management Measures for Onsite Disposal Systems*, (4)(a) recommends a setback for water supply and surface waters between 50-100 feet. The State of Ohio’s setback of 50 feet meets this management measure recommendation.

Additionally, OAC §3701-29-14, §3701-29-15 and their associated appendices outline the effluent quality standards for design for treatment before discharge to “reduce soil absorption areas, nutrient reduction, or reduction of high strength waste before distribution to a soil absorption component. OAC §3701-29-14 (C) outlines nutrient reduction standards for pretreatment components, “that may be established by the director or board of health when there is a significant risk of nutrient contamination to surface or ground water due to risk factors identified in the site review or other types of water quality assessments, or risk due to proximity to local, state, or federally recognized nutrient sensitive environments.”

OAC §3701-29-15 and Appendices A, B, and C outline design standards for pretreatment before discharge to further reduce and prevent nonpoint pollution. The standards include vertical distance parameters under limiting conditions and technical standards for soil absorption and their operation and maintenance requirements under an operation permit issued by the local health department.

NOAA-EPA 2002 Findings/Conditions

- b) *NOAA and EPA recommend Ohio establish a process for case-by-case determination on protective setbacks similar to the State's approach under OAC 3701-29-10(B).*

Ohio Response

OAC §3701-29-06 (G)(1) (a) states, pertaining to soil absorption replacement areas, "The minimum horizontal isolation distances as required in paragraph (G)(3) of this rule, and any additional horizontal isolation distance determined by the (local) board of health as necessary to accommodate lateral flow due to shallow limiting conditions identified in the soil evaluation conducted in accordance with rule §3701-29-07 of the Administrative Code shall be met for the STS and designated replacement area. OAC §3701-29-06 (G)(3)(f) states "Any more stringent horizontal isolation distance included as a condition of an approval by the director of health or defined in these rules for specific STS or treatment components." This rule provides a process for case-by-case determination on protective setbacks upon site conditions assessment and permit submission and review process set forth in §3701-29-07, §3701-29-08 and §3701-29-09.

Additionally, the State's Water Quality Management (208) plans for controlling water pollution from point and nonpoint source pollution is conducted and administered either by the Ohio EPA or a designated Areawide Planning Agency within the Lake Erie Basin. These plans provide local guidance and planning for future and current wastewater facility planning needs for both home sewage treatment systems and semi-public sewage treatment systems for local communities.

NOAA-EPA 2002 Findings/Conditions

- c) *For existing OSDS, Ohio should provide information on when inspections of existing OSDS occur, such as at time of property transfer. Also, clarity if the State can undertake inspections or enforcement actions if the local government fails to undertake the inspections.*

Ohio Response

OAC §3701-29-19 establishes the standards and requirements for the development of operation and maintenance management programs by boards of health. Boards of health are required to track and monitor operation and maintenance of systems installed after the effective date of the rules. Boards of health are also required to develop and implement an inventory of existing sewage systems, and an operation and maintenance tracking/inspection program. The rule establishes the minimum elements required of boards of health for an operation and maintenance management program including recordkeeping, tracking of activities and requirements, and establishing operation permit conditions.

OAC §3701-29-19 states that monitoring and assessment of STS may be performed upon request for real estate inspections or as part of locally established real estate transfer programs as developed under local Board Of Health programs for O&M management.

OAC §3701-29-04, Survey to Determine Compliance, outlines the process as directed by the Director of the Ohio Department of Health as it relates to inspections and enforcement actions if the local government fails to undertake the inspections. The Ohio Department of Health is required to survey each STS and gray water recycling program of the city and general health districts at least once every three years to determine whether there is compliance with the applicable requirements in Chapter 3718

of the Ohio Revised Code pertaining to health districts as well as the regulations contained in OAC Chapter §3701-29.

NOAA-EPA 2002 Findings/Conditions

d) Ohio should submit information on its Semipublic Sewage System Program.

Ohio Response

All semi-public sewage plants in the State of Ohio as defined in the NOAA-U.S. EPA Guidance for Management Measures for New and Operating OSDS and not defined as an individual household treatment system are managed for their compliance by Ohio EPA, Division of Surface Water. If the system has a discharge, Ohio EPA would consider it a point source and therefore not a non-point source under the Coastal Nonpoint Program. All semi-public sewage plants are required by Ohio EPA to obtain and hold an NPDES permit if they are discharging water to a surface water of the State. Hence, applicability of semi-public sewage plants is considered exempt for the State of Ohio under the federal 6217 guidance.

The HB110 Program, enacted by the State of Ohio in 1984, incorporates a voluntary partnership between Ohio EPA and Local Health Department for the inspection and enforcement of these facilities. The program is a contractual partnership between local health departments and Ohio EPA whereby the local health departments conduct, on behalf of the agency, inspection and enforcement services for commercial sanitary waste treatment disposal systems of discharging 25,000 gallons or less per day. This is an optional program provided by the State to the local health districts.

Small semi-public facilities, as defined in the 6217 Guidance for management measures associated with Onsite Disposal Systems, are identified and assessed for pollutant loadings and their contribution to the condition of surface waters through the State's Watershed Assessments and TMDLs. If these facilities are identified as a cause for nonpoint source pollution by a TMDL or 208 Planning process, through data collected by Ohio EPA or state credible data partner, practices or actions are identified within the TMDL and 208 plans, either general to the region or specific to the hydrologic unit and local conditions to address any nonpoint source pollution conditions in coordination with local jurisdictions. The State's 208 Plans are available at <http://epa.ohio.gov/dsw/mgmtplans/208index.aspx#157704651-recent-activities>

Additional Information:

The administrative rules in §OAC 3701-29-19(G) requires that all local health departments provide educational outreach to system owners to assist with information on STS systems and their O&M.

The State of Ohio will be conducting local program surveys beginning in 2016 which will include the review of the development of a plan for an O&M tracking program for the local health departments. The Ohio Department of Health is required to survey local health districts on their program implementation progress and compliance every three years (OAC §3701 -29-04 Survey to Determine Compliance). The Ohio Department of Health is in the process of compiling guidance for local health departments for implementing and O&M tracking programs.

The Ohio Bureau of Environmental Health and Radiation Protection has been developing a statewide database for environmental health permit tracking and program information, called the Environmental Health Data Systems Integration System (EHDSI). A sewage treatment module is being developed as part

of the EHDSI, which will capture all sewage treatment system permit data and provide for tracking and maintenance. Some local health departments already use a program to manage and track permits. Through EHDSI, the data will become centralized from all of the local health departments. It is anticipated that the sewage treatment module under EHDSI for the State of Ohio will be launched in 2016.

The Ohio EPA in partnership with Ohio Department of Health through the State Water Pollution Control Loan Fund provides low or no interest loans to local communities to provide financial assistance to homeowners with limited incomes to upgrade or replace failing home sewage treatment systems. As provided in Table 1 of the Appendix, the State awarded \$1,000,000 in 2015 to seven counties in the Ohio Lake Erie watershed to address home sewage treatment systems in local communities.

The Ohio EPA also provides funding assistance through its Water Pollution Control Loan Fund (WPCLF) for wastewater collection and treatment including: facilities for unsewered areas, including HSTS systems, and wastewater treatment systems, including semi-public sewage disposal systems. Funding awards for these projects are included in the funding summaries of Table 2 of the Appendix.

Reference Documents:

Ohio Rule OAC §3701.29 for Home Sewage Treatment Systems, enacted, January, 2015.
<http://www.odh.ohio.gov/en/rules/final/3701-20-29/f3701-29.aspx>

Water Pollution Control Loan Fund Sewage Treatment System Recipients in Lake Erie Basin, 2016. – Attachment 2.

Ohio 208 Program, <http://epa.ohio.gov/dsw/mgmtplans/208index.aspx>

URBAN AREAS: ROADS

Management Measure: Roads, Highways and Bridges

NOAA-EPA Guidance

A. Management Measure for Planning, Siting, and Developing Roads and Highways

Plan, site, and develop roads and highways to:

- 1) *Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;*
- 2) *Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; and*
- 3) *3) Limit disturbance of natural drainage features and vegetation.*

Applicability: site development and land disturbing activities for new, relocated and reconstructed (widened) roads (including residential streets) and highways in order to reduce the generation of nonpoint source pollution and to mitigate the impacts of urban runoff and associated pollutants from such actions.

B. Management Measure for Bridges

Site, design and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important water quality benefits area protected from adverse effects.

- *Avoid highway locations requiring numerous river crossings.*
- *Direct pollutant loadings away from bridge decks by diverting runoff waters to land for treatment.*
- *Restrict use of scupper drains on bridges less than 400 feet in length and on bridge crossing very sensitive ecosystems.*
- *Site and design new bridges to avoid sensitive ecosystems.*
- *On bridges using scupper drains, provide equivalent urban runoff treatment for pollutant load reduction to compensate for the loading discharged off the bridge.*

Applicability: New, relocated, and rehabilitated bridge structures in order to control erosion, streambed scouring, and surface runoff from such activities.

C. Management Measure for Operation and Maintenance

Incorporate pollution prevention procedures into the operation and maintenance of roads, highways and bridges to reduce pollutant loadings to surface waters. Best practices examples. This measure should consist of identifying standard operating procedures for nutrient and pesticide management, road salt use minimization, and maintenance guidelines.

- *Inspection program to ensure general maintenance is performed on urban runoff and NPS pollution control facilities.*

- Seeding
- Nutrient management programs/pesticide/herbicide management
- Sweeping streets
- Removal of road debris
- Management of deicing salts/salt application.

D. Management Measure for Road, Highway and Bridge Runoff Systems

Develop and implement runoff management systems for existing roads, highways and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

- 1) *Identify priority and watershed pollutant reduction opportunities.*
- 2) *Establish schedules for implementing appropriate controls.*
 - *Retrofit systems for existing road systems.*
 - *Locate runoff treatment facilities within existing rights of ways or in medians and interchange loops.*
 - *Develop multiple –use treatment facilities on adjacent lands.*
 - *Acquire additional land for locating treatment facilities.*
 - *Maximize the length and width of vegetated filter strips to slow the travel time of sheet flow and increase the infiltration rate of urban runoff.*
 - *Typical runoff controls include vegetated filter strips, grassed swales, detention basins, constructed wetlands, and infiltration trenches.*

NOAA-EPA 2002 Findings/Conditions

Ohio needs to clarify whether similar standards that ODOT maintains (Standards for construction and maintenance, NPDES Storm water program, Handbook for Erosion and Sediment Control, Scenic Rivers program) exist and whether ODNR approval is established in local governments for local/municipal roads, highways and bridges.

Ohio Response

All local road projects are required to adhere to the following standards and procedures that are not within established MS4 NPDES permitted areas.

Ohio EPA Storm Water Construction General Permit. Development projects, including local roads, highways and bridges disturbing one acre or greater are required to obtain a NPDES Storm Water Construction General Permit, administered by Ohio EPA, to identify site management controls to reduce nonpoint source pollutant loadings to the State's water resources. The Storm Water Construction General Permit calls for the use of the State's Rainwater and Land Development Manual for site practices that will be in compliance with the permit requirements. The Storm Water Construction General Permit also allows roadway projects implemented by public agencies to use ODOT's Location and Design Manual, Volume 2 for the purposes of post construction BMP design. A copy of the current State's Storm Water Construction General Permit is provided in supporting documents of this response.

State Scenic Rivers Program. Under Ohio Revised Code §1547.82, the Director of ODNR has the approval authority over public funded projects within 1,000 feet of state-designated rivers, outside of municipal corporation limits. The State Scenic Rivers program has established guidance for project design, best practices, notification procedures and mitigation procedures within these designated areas.

Ohio Department of Transportation Local Projects. ODOT-let projects are projects managed cooperatively with ODOT and the local jurisdictions. All ODOT- let projects are required to conduct road and bridge construction projects utilizing the guidance set forth in ODOT's Location and Design Manual, Volume 2, Drainage Design. Additionally, any road, highway and bridge projects funded through ODOT or federal funds are required to adhere to the practices set forth in the Location and Design Manual. The ODOT Location and Design Manual, Volume II, includes a section on post-construction BMPs associated with roads including, vegetation based BMPs, extended detention, bioretention and infiltration. A copy of the current Manual is provided in the supporting documents of this response. Sections 1115-1117 of the Manual outline specific guidance for post-construction practices to reduce and prevent nonpoint pollution for roads.

In addition, ODOT, through its Ohio Research Initiative for Locals Program (ORIL), within the Office of Statewide Planning and Research, has developed an online tool to assist local jurisdictions to identify and select appropriate post-construction best management practices for local road projects. The BMP Tool is intended to assist local jurisdictions to improve implementation of appropriate BMPs through evaluation of footprint requirements, on-going maintenance, aesthetics, safety considerations, and other potential impacts to the construction project to consider in selecting BMPs for specific site characteristics and local jurisdiction operations. The Tool was launched in September, 2015 and is available for use by local jurisdictions. A copy of the report outlining the tool is provided in the supporting documents of this response. Additionally, a link is to the BMP tool that can be downloaded for use is provided at <http://www.dot.state.oh.us/groups/oril/Pages/BMP-Tool.aspx>

ODOT administers additional assistance programs to local communities who are not within established MS4 permitted areas. Under participation of these programs, local jurisdictions are required to adhere to the post-construction management practices included in ODOT's Location & Design Manual for those projects which receive ODOT or federal funding. ODOT assistance programs focused on communities not located in designated MS4 permitted communities include: Credit Bridge Program, Small City Program (populations between 5,000 and 25,000) and the Rural Planning Assistance program.

With these programs in place, ODOT maintains mechanisms to evaluate and track implementation of best management practices to reduce nonpoint source pollutants on roads, highways and bridges within the Lake Erie Basin.

The other primary state or regional programs that provide funding for road and bridge projects include the Ohio Public Works Program (OPWC) and through Areawide Metropolitan Planning Organizations. Any road or bridge project funded through OPWC funds or Areawide Funds without federal or ODOT funds will be required to obtain a Storm Water Construction General Permit, through OEPA on sites with land disturbance of one acre or greater and can utilize the guidance set forth in ODNR's Rainwater and Land Development Manual as prescribed in the Storm Water Construction General Permit administered by Ohio EPA or ODOT's Location and Design Manual Volume 2.

The State has established a Memorandum of Understanding between ODOT and ODNR Office of Coastal Management to ensure that road, highway or bridge activities conducted by ODOT within the designated Coastal Zone are to be coordinated between the two agencies through a review process to ensure projects are consistent with the policies of the Ohio Coastal Management Program. Through the State Consistency authority granted to ODNR in ORC §1506.03, reviews are conducted by ODNR for certain ODOT projects regardless of whether a Federal Consistency review is required under the CZMA. The MOU outlines the review process and coordination contacts with ODOT and Office of Coastal Management. Additionally, ODOT has also established staff that provides technical assistance to ODOT

projects to reduce and prevent nonpoint pollution control on road and bridge projects in coordination with ODNR and OEPA.

The State has established a Memorandum of Agreement (MOA) between ODOT and ODNR for project coordination on Ohio's state wild, scenic, and recreational rivers. This MOA outlines the coordination process between ODOT and ODNR on transportation projects (ODOT projects) occurring within ODNR scenic rivers jurisdiction. The MOA also outlines BMPs and avoidance and minimization measures for ODOT projects involving scenic rivers. The MOA satisfies the provisions of Ohio Revised Code (ORC) 1547 which establishes ODNR's authority over Ohio's Scenic Rivers.

http://www.dot.state.oh.us/Divisions/Planning/Environment/Ecological_Resources/Permits/Ecology/Documents/Agreements/2014_State_Scenic_River_MOA_Final.pdf

NOAA-EPA 2002 Findings/Conditions

The State should provide information regarding the procedures followed by ODOT and its contractors to incorporate BMPs to reduce the potential for the release of pollutants in the environment.

Ohio Response

The Ohio Department of Transportation (ODOT) is a permittee under Ohio EPA's Small MS4 NPDES Permit for its facilities and structures within the urbanized areas of the state. ODOT development projects that disturb one or more acre of land and are not routine maintenance projects must obtain coverage under Ohio EPA's Storm Water Construction General Permit, which requires project managers to evaluate site conditions and include post construction BMPs to reduce nonpoint source pollutants. ODOT has identified specific BMPs to reduce potential for the release of pollutants in the environment. Additionally, ODOT projects utilize the guidance of the Location and Design Manual to reduce nonpoint source pollutants. Through contracts between ODOT and construction contractors, contractors are required to furnish temporary sediment and erosion controls through the use of ODOT's Supplemental Specification 832 and to provide a Stormwater Pollution Prevention Plan consistent with the requirements of the Storm Water Construction General Permit.

NOAA-EPA 2002 Findings/Conditions

The State should provide a priority list and schedule for retrofit projects to reduce road, highway and bridge pollutant loadings, if available.

Ohio Response

The State's TMDL and Watershed Action Plan programs through Ohio EPA and Ohio Department of Agriculture Division of Soil and Water Conservation provide assessments of each watershed within the designated 6217 area for the State and identifies causes and sources of pollutants that contribute the coastal water quality. Through these assessments, nonpoint source pollutant sources and causes are identified and implementation plans are developed to address the pollutants identified. Typically, roads, highways and bridges are not identified as specific primary sources of the pollutants within the established TMDLs and Watershed Action Plans, but generally are included with urban land use, including impervious cover nonpoint pollution sources and causes. As part of its MS4 permit, ODOT will review any TMDL approved for the waterbody into which the site is discharging into and shall consider recommended BMPs as stated in the TMDL study to demonstrate compliance with the Storm Water Construction General Permit.

The ODOT Location and Design Manual Volume II guidance can also be utilized for local and state projects that may be updating existing facilities on redevelopment projects. The post-construction stormwater BMPs in the Manual can be applicable to redevelopment projects to reduce road, highway and bridge pollutant loadings.

Examples of redevelopment projects that included retrofits addressing nonpoint source pollutants are underway in Ohio's designated coastal nonpoint area. ODOT, District 12, located in the Cleveland area (northeast region of the state) currently has a number of significant retrofit projects underway. ODOT is managing three redevelopment projects; Innerbelt (5 miles of Interstate highway, two five-lane bridges), Lakefront West (2.5 miles of road) and Opportunity Corridor (3.6 miles of road). Each site has incorporated post-construction best management practices to reduce nonpoint pollutants in Lake Erie. Management practices for these road and bridge reconstruction projects include; expanded greenspace, use of bioswales, extended detention and filter strips to reduce nonpoint pollutants as part of the retrofitting existing roads and bridges. The Innerbelt Bridge portion completed to date treated 100% of the water quality requirements and ODOT increased the requirement above the minimum requirements of the Ohio EPA NPDES permit (ODOT District 12). The Lakefront West project will convert an estimated 16.5 acres of residual land into bioretention areas or greenspace with trees and plantings.

ODOT, in coordination with the Areawide Metropolitan Planning Organizations and local jurisdictions, develops a list of road and bridge improvement projects (TIP) for the State to identify priority projects for the projected funding. These projects proceed with site evaluation, environmental review and the Storm Water Construction General Permit and application of ODOT's Location and Design Manual post construction practices within its planning, design and construction work for the project.

NOAA-EPA 2002 Findings/Conditions

Provide information on how the CWA water quality standards, the Pesticide Licensing and Registration Program and the Stream Litter Law can be used to implement the operation and maintenance runoff systems measures.

Ohio Response

The Ohio Department of Agriculture administers the Pesticide Applicator License Certification program. As part of the MS4 permit, ODOT maintains current requirements associated with training and certifications for herbicide applicators. ODOT operates an Integrated Vegetation Management Program to reduce and minimize pollutants. ODOT also provides training through its Local Technical Assistance Program (LTAP) to local jurisdictions on Pesticide and Herbicide Application Certification program and its associated best practices. ODOT administers the Vegetation Maintenance Permit for local road managers. The ODOT Vegetation Maintenance Permit states "no herbicide treatment shall be permitted on highway landscape plantings, trees, shrubs and ground covers." Secondly, the permit states: "All pesticide applicators and operators shall be licensed as required by the Revised Code of Ohio. Any spraying, trimming or removal of trees or brush outside the 30' clear zone requires prior written approval by the District Horticulturist."

ODOT also manages the Adopt-A-Highway program which addresses stream litter and general litter within the road right of ways. In 2015, ODOT's program identified that there was an active volunteer group in every county within Ohio's coastal nonpoint area. Other programs that ODOT has established that contribute to the implementation of Ohio's Litter Laws (ORC 1531.29) and their contribution in reducing nonpoint source pollutants includes: a Memorandum of Understanding with the Ohio Department of Rehabilitation and Correction to formalize an inmate litter pick-up program, and a

partnership with Keep Ohio Beautiful, a not-for profit organization to conduct annual State Roadway cleanup events. All of these activities that address Stream Litter Laws on roads, highways and bridges are reported annually through ODOT's Annual Report.

NOAA-EPA 2002 Findings/Conditions:

The State also needs to describe how operation and maintenance of runoff systems are addressed for local roads and bridges.

Ohio Response

Each project that involves new construction, rehabilitation or reconstruction for local roads and bridges that is funded either by ODOT or local funds is required to submit a NPDES Storm Water Construction General Permit to Ohio EPA, for all projects that disturb one acre or greater. The permit requires a plan on good housekeeping and maintenance of the facilities. Of the 35 counties completely or partially within Ohio's coastal nonpoint area, 30 have a Storm Water Construction General permit with some also having small MS4 permit for particular road and bridge projects within their respective counties. The permit would include a plan to address good housekeeping and maintenance of facilities and structures to prevent or reduce nonpoint source pollutants. Ohio EPA's Small MS4 Permit requires that permittees perform, track and document regular maintenance on stormwater runoff treatment systems. In 2013, ODOT, in partnership with the Ohio Water Resources Council, developed the guidance document, "Recommendations for Salt Storage" which provides guidance on managing road salt storage facilities to protect water resources and reduce nonpoint source pollutants. In coordination with ODOT's Local Technical Assistance Program (LTAP), this information is distributed to local jurisdictions.

Through the LTAP, ODOT "assists local governments in managing and maintaining a safe, cost-effective and environmentally sound transportation system by providing training and technical assistance." The LTAP provides annual training to local governments on best practices for road maintenance and operations approved by Ohio EPA. Additional training partnerships that provide information to local jurisdictions on operation and maintenance of road runoff systems are conducted by ODOT in cooperation with ODNR and Ohio EPA. These training partnerships include the Ohio County Engineers Association, which holds an annual Stormwater Conference for Association members, and the Ohio Stormwater Conference that contains an entire session track focused on BMPs to reduce and prevent nonpoint pollution from roads on an annual basis.

Ohio EPA's Office of Compliance Assistance and Pollution Prevention provides training sessions to local jurisdictions on BMPs to reduce nonpoint pollutants including operation and maintenance of runoff systems of local roads and bridges. Trainings, to local communities and county engineers, have been conducted annually since 2007 have included particular work sessions focused on the following topics:

- Pollution and Good Housekeeping for Stormwater Program Managers
- Post-Construction Practices for Public Roadway Projects
- Greening the Road: Using the Green Rating System to Evaluate Your Transportation Project.

<http://epa.ohio.gov/ocapp/train/tabid/6067/LiveTabId/126540/Default.aspx#126577140-training-opportunities>

Ohio will continue to utilize these existing training partnerships to develop and distribute guidance on operation and maintenance practices to reduce nonpoint pollutants from the runoff systems of local roads, highways and bridges and post-construction best management practices.

Reference Documents:

ODOT Location & Design Manual II,

<http://www.dot.state.oh.us/Divisions/Engineering/Hydraulics/Location%20and%20Design%20Volume%202/Pages/LandD-Vol-2.aspx>

Salt Storage Guidance Report, <http://www.epa.ohio.gov/portals/35/owrc/SaltStorageGuidance.pdf>

Stormwater BMP Tool Report Summary, <http://cdmresolver.worldcat.org/oclc/922993331/viewonline>

ODOT, Supplement Documents on Post Construction BMP Guidance,

<http://www.dot.state.oh.us/Divisions/Engineering/Hydraulics/Pages/PostConstructionStormWaterBMP.aspx>

HYDROMODIFICATION

Management Measure: Eroding Streambanks and Shorelines

NOAA-EPA Guidance

- 1) *Where streambanks or shoreline erosion is a nonpoint source pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost-effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.*
- 2) *Protect streambank and shoreline features with the potential to reduce NPS pollution.*
- 3) *Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.*

Practices: (bioengineering, marsh creation, beach nourishment, structural practices, setbacks)

- a). Use soil bioengineering and other vegetative techniques to restore damaged habitat along shorelines and streambanks wherever conditions allow. (Live staking, live fascines, brushlayering, marsh creation and restoration. Vegetative stabilization site evaluation form)*
- b) Use properly designed and constructed engineering practices for shore erosion control in areas where practices involving marsh creation and soil bioengineering are ineffective. (beach nourishment, groins)*
- c) In areas where existing protection methods are being flanked or failing, implement properly designed and constructed shore erosion control methods such as returns or return walls, toe protection and proper maintenance or total replacement (toe protection, return walls, maintenance of structures)*
- d) Plan and design all streambank, shoreline and navigation structures so that they do not transfer erosion energy or otherwise cause visible loss of surrounding streambanks or shorelines.*
- e) Establish and enforce no-wake zones to reduce erosion potential from boat wakes.*
- f) Establish setbacks to minimize disturbance of land adjacent to streambanks and shorelines to reduce other impacts. Upland drainage from development should be directed away from bluffs and banks so as to avoid accelerating slope erosion.*

NOAA-EPA 2002 Findings/Conditions

Ohio should clarify how it will protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters. NOAA and EPA also recommend that Ohio clarify how the State coordinates with other programs to identify where shorelines and streambanks are a nonpoint source problem.

Ohio Response

The State of Ohio has a number of existing programs to protect streambanks and shorelines. Due to the structure of the programs, the response is divided by inland streambanks and coastal shorelines.

Streambanks

Evaluation and Assessment of Conditions. Ohio has a number of programs that evaluate and identify streambanks for erosion caused by nonpoint source pollution. The county Soil and Water Conservation Districts (SWCDs), coordinated through the Ohio Department of Agriculture, Division of Soil and Water Conservation, provide technical assistance to property owners to evaluate and identify eroding streambank conditions. These evaluations and site visits are included in a statewide reporting system for the SWCDs known as SWIMS.

Ohio EPA evaluates stream conditions and the severity of bank erosion through monitoring work of the TMDL program, established under Section 303(d) of the Clean Water Act, and local watershed action plan programs. The State utilizes the Qualitative Habitat Evaluation Index (QHEI) and Headwater Habitat Evaluation Index (HHEI) to identify where bank erosion is most prevalent and utilizes the State's Biological Assessment and Monitoring program to identify causes and sources of the impairments. Additional modeling within the State's monitoring program is used to identify areas with the highest vulnerability to upland erosion. The Soil and Water Assessment Tool (SWAT) Model and its streambank erosion module is utilized during the TMDL process to evaluate and identify segments of a watershed where streambank erosion is most prevalent.

The Local Watershed Plan process administered jointly by Ohio EPA and Ohio Department of Agriculture's Division of Soil and Water Conservation provides a framework for local organizations and governments to conduct comprehensive evaluations of watersheds, including an evaluation of stream erosion and its sources of pollution. The watershed planning process results in specific priorities for a watershed, based upon its conditions. The State recognizes these Plans through an endorsement process, and upon State endorsement the Local Watershed Plan managing entity and its local partners are eligible for State funding for implementation of Watershed Plan priority actions. Specific information collected during the Watershed Plan process for streambank erosions includes miles and conditions of eroding banks, floodplain connectivity and channel and floodplain condition. A QHEI is used as a metric for evaluating local conditions within a watershed.

Through these evaluations, priority areas of streambank erosion that contribute to nonpoint source pollution are identified.

Technical Guidance. The Ohio Rainwater and Land Development Manual provides guidance for Stream Conditions. The Manual is included in the Appendix for this management measure. A number of guidance materials are provided for Stream Assessments and applicable erosion control practices for streambanks including 22 "Stream Management Guide Fact Sheets" available to local communities and property owners on techniques and best practices for stream bank management for Ohio's streams.

<http://water.ohiodnr.gov/water-conservation/stream-restoration>

The State has also established, through the Ohio Lake Erie Commission's Balanced Growth Program, Best Local Land Use Practices Guidance to Stream Setbacks and Steep Slope Protection. The Ohio Balanced

Growth Program is a voluntary, incentive-based program that provides local governments with a regional planning framework based on watershed and water resources protection. The program contains two initiatives for which local jurisdictions can participate; Watershed Planning Partnerships and Best Local Land Use Practices. The Balanced Growth Program offers model ordinances and guidance documents pertaining to local land use practices, including practices to reduce streambank erosion that will protect and reduce the impacts of nonpoint source pollution as it pertains to streambank erosion.

<http://balancedgrowth.ohio.gov>

Additional training and assistance for these tools assembled by the State is available through Ohio EPA's Compliance and Pollution Prevention Assistance Municipal Storm Water Training Program and Old Woman Creek National Estuarine Research Reserve's Ohio Coastal Training Program. These entities hold training events annually for local jurisdictions and consultants who work with local communities.

Ohio EPA's Office of Compliance Assistance and Pollution Prevention, provides free assistance to Ohio's businesses and local governments to assist them in complying with Ohio's environmental requirements. Services of the offices include a toll-free hotline, on-site compliance and pollution prevention assessments, workshops and trainings, (both in person and online) and assistance in completing permit application forms. A focus of this training program is municipalities and Local Governments and the State Stormwater Permit program, including MS4 communities and Storm Water Construction General permittees within non-MS4 communities. A training example is a short course conducted in 2013 on updated bioretention design standards.

<http://www.epa.state.oh.us/ocapp/train.aspx#126577140-training-opportunities>

The Old Woman Creek NERR Site and its Ohio Coastal Training Program serves as a training resource for local communities on a wide array of coastal issues, including site development and coastal nonpoint source pollution. Past training included partnerships with local watershed organizations to develop performance information about innovative stormwater systems used by municipalities, stormwater utilities and developers and exchange of the information obtained through workshops with Ohio's coastal communities.

<http://wildlife.ohiodnr.gov/oldwomancreek#tabr4>

Program Implementation Assistance and Prioritization. The Ohio EPA Nonpoint Source Management Plan (Section 319) Update for 2014-2019 has identified the protection and restoration of effective riparian buffers as a goal of its program. The 319 program provides financial assistance to facilitate the restoration and protection of high quality riparian buffers and measures to restore impaired streams using bioengineering methods and materials where appropriate to stabilize streambanks. The 319 program prioritizes streambank stabilization projects through their identification within critical areas noted in approved TMDL studies and 9-element watershed action plans.

Additional assistance programs available through the State or a federal-state partnership include:

- Agricultural Pollution Abatement Program (Ohio Department of Agriculture)
- Lake Erie CREP/Regional Conservation Partnership Program (Ohio Department of Agriculture)
- Clean Ohio Fund (Ohio Public Works Commission)
- Ohio Water Development Authority's Loan Program

Shorelines: (coastal erosion/stabilization/protection, marsh creation, beach nourishment)

Coastal Erosion Area Permits. A Coastal Erosion Area (CEA) is a designated land area along Ohio's portion of the Lake Erie shore that is anticipated to be lost due to Lake Erie-related erosion if preventative measures are not taken. As set forth in Ohio Revised Code Section 1506.07, CEAs are zones that begin at the water's edge and extend a specific distance landward of an identified recession feature based upon the measured rate of recession along that specific stretch of bluff, bank or beach ridge.

<https://gis.ohiodnr.gov/website/dgs/cea/>

The ODNR Division of Geological Survey led the efforts to identify the original CEAs and continues to lead efforts to update them in collaboration with the Office of Coastal Management. ODNR used scientific records and data to analyze recession of the Lake Erie shore and forecast erosion rates pursuant to criteria identified in the Ohio Administrative Code. Geologists, engineers, local officials and lakeshore property owners assisted with and provided input on development of these rules. ODNR is mandated to review and, if necessary, update the CEA once every 10 years. The initial CEA Maps were finalized in 1998. Revisions to the CEA Maps were finalized in December 2010, and the next round of revisions is expected to be complete in 2017.

ODNR administers a CEA Permit program whereby a permit is required to be obtained prior to the construction of a new building (i.e. residential, commercial, industrial, institutional or agricultural) or septic system within a designated CEA. Furthermore, an addition of 500 square feet or larger, as measured at ground level, to an existing building also requires a permit. The CEA Permit ensures that measures to effectively protect the building or septic system from shore erosion and bluff instability are in place prior to construction. The intent of the CEA permitting program is to minimize the risk of damage to or loss of property, infrastructure and life due to coastal erosion. The CEA Permit program is administered by the ODNR Office of Coastal Management. <http://coastal.ohiodnr.gov/permits#CEA>

There is also a CEA loan program which is administered by participating counties with funding from the Water Resources Development Authority. CEA loans are low interest loans available for the planning and construction of erosion control measures on or adjacent to parcels located within a designated coastal erosion area. The Office of Coastal Management coordinates with the County during the application and approval process for the loan through review of project cost estimates, permitting, and inspection of the final constructed project.

A fact sheet on CEA loans is found on page 15 of the linked document.

http://coastal.ohiodnr.gov/Portals/coastal/pdfs/CoastalGuidance/CoastalGuidance_Packet_All.pdf

Shore Structure Permits. In 1955, the State of Ohio began requiring permits for the construction of shore erosion, wave, and flood control structures as an early effort to protect and manage Ohio's Lake Erie shore. Shore Structure Permits are issued by the ODNR Director pursuant to Ohio Revised Code Section 1506.40 after technical review by the Office of Coastal Management. A Shore Structure Permit must be obtained before constructing a measure that will control erosion, wave action or flooding along or near the Ohio shoreline of Lake Erie including related islands, bays and inlets. Shore structures subject to these permits commonly include nourished beaches, seawalls, stone revetments, bulkheads, breakwaters, groins, piers and jetties. Permit applications are generally reviewed with respect to three major criteria:

1. Whether the proposed project is of sound coastal engineering design;
2. Whether the proposed project will function as anticipated and
3. Whether the proposed project minimizes impacts to the shore as a natural resource

The third review criteria listed above includes an assessment of potential impacts to the nearshore wave climate, littoral transport, sand resources, and public safety. Potential and cumulative impacts are also considered. An acceptable shore structure will have minimal impacts on adjacent properties, the shoreline and Lake Erie. Pursuant to the Ohio Revised Code, all plans and specifications submitted as part of the application for a Shore Structure Permit must be prepared by an Ohio registered professional engineer. The professional engineer not only provides professional drawing services but designs and professionally certifies the structure. <http://coastal.ohiodnr.gov/permits#SHO>

Evaluation and Technical Guidance

Lake/Lacustrary QHEI. Ohio EPA has developed a standard procedure to evaluate and assess shoreline habitat conditions. The LQHEI or Lacustrary/Lake QHEI establishes metrics for conditions in the shoreline and lacustrary regions of the coastal region of Lake Erie within the State. Metrics evaluated include cover types, shoreline morphology, (including stability), bank erosion and aquatic vegetation quality. The LQHEI is conducted by Ohio EPA as part of its monitoring and assessment program. http://epa.ohio.gov/portals/35/documents/QHEIManual_LakeErieShoreline_June2010.pdf

Design Guidance for Shoreline Property Owners. The Ohio Coastal Design Manual, created by the Ohio Coastal Management Program, focuses on the design of the types of structures most commonly constructed along the Lake Erie shore in Ohio; therefore the guidance specifically applies to Ohio's unique coastal environment. The purpose of this manual is to illustrate the engineering and surveying processes needed to develop safe, sound and successful erosion control and lake access projects along Ohio's Lake Erie shore. The manual is a valuable resource for engineers, surveyors and contractors who plan and build projects as well as for landowners looking to understand the design, surveying and construction processes. The first edition of the manual was released in May 2011. The second edition is currently under development and will expand upon the information contained in the original document by addressing design guidelines for breakwater, groins, piers, beach nourishment and monitoring & bypassing of littoral material. <http://coastal.ohiodnr.gov/design>

Ohio Revised Code Section 1506.47 authorizes ODNR to prepare a plan for the management of shore erosion along Lake Erie, its bays and associated inlets; revise the plan whenever it can be made more effective; and make the plan available for public inspection. In conjunction with development of a plan, the code states that ODNR "may establish a program to provide technical assistance on shore erosion control measures to municipal corporations, counties, townships, conservancy districts, park boards, and shoreline property owners."

In the late 1990s, ODNR began the preliminary stages of erosion management plan development. This initial work focused on technical aspects, calling for an increase in the geographic information system (GIS) capabilities of the state. More recently, ODNR began development of the formal Lake Erie Shore Erosion Management Plan (LESEMP), for local communities and individual property owners to aid in the management of coastal erosion. The LESEMP is based on the premise that specific regions along Ohio's Lake Erie coast are dealing with similar issues that could be handled in a more coherent manner. The plan is being developed according to a regional framework for Ohio's coast, with each region based on

general erosion characteristics and represented in an individual chapter. The LESEMP incorporates a wide range of information and topics including coastal geology, erosion processes, critical habitat, and the cultural characteristics of local communities. In order to fully bridge these topics, specialists from the ODNR divisions of Geological Survey and Wildlife and the Office of Coastal Management collaborated on this initiative. Additional expertise was included through the creation of an external workgroup. Workgroup members include state and federal government personnel, university researchers, non-governmental representatives, and a member of the public.

The final and critical piece to the LESEMP development is the input from those with a vested interest in erosion issues. Specifically, information was garnered from littoral property owners and public officials from coastal communities as well as contractors and consultants who work along the Lake Erie shore. These target audiences were reached via a Local Community Needs Assessment, conducted by the Ohio Sea Grant College Program in 2007. This social assessment consisted of focus group sessions and a questionnaire.

Additional information is being acquired from local officials during the recommendation development process for each region. The local officials contribute information regarding their communities and the type of mitigation measures that would be most compatible with the character of their county, municipality or township. This information is augmented with public meetings, where the local property owners and others can provide input and feedback on the LESEMP products. The LESEMP is designed as an informative and voluntary plan with recommended actions for property owners and local officials. The recommendations contained within serve as a best practices guide for the management of erosion along Ohio's coast. <http://coastal.ohiodnr.gov/erosion>

Beach Nourishment/Nearshore Habitat Enhancements. Ohio has identified in its Ohio Coastal Program Enhancement Plan 2016-2020 (Section 309 Assessment and Strategies) the completion of a Sand Resources Study through a GIS product. The findings of this information will be incorporated into the LESEMP. Additionally, the State continues to seek resources to develop a Sand Resources Management Plan to identify specific beach nourishment priority areas and associated restoration and management plans for them. A key priority strategy for the Ohio Coastal Management Program Enhancement Plan is to evaluate the integration of a new regulatory framework of new administrative rules and policies and other coastal and nearshore habitat enhancement/restoration strategies that will support the protection of the shoreline from accelerated erosion.

Marsh Enhancements. The Ohio Coastal Program Enhancement Plan has identified coastal wetland prioritization and assessment as a key strategy for its 2016-2020 program. To achieve this strategy, the State has engaged as a participant of the Upper Midwest and Great Lakes Landscape Conservation Cooperative, established in 2014.

As a result, the State will be working towards identifying coastal wetland prioritization areas where marsh enhancements will provide improvements to reduce streambank and shoreline erosion. The prioritization plan will also assist in the State's CECLP program in identifying and selecting projects based upon the Plan.

No Wake Zones. Section 1547.08 establishes no wake zones throughout the State under the following circumstances:

- Within three hundred feet of any marina, boat docking facility, boat gasoline dock, launch ramp, recreational boat harbor, or harbor entrance on Lake Erie; or
- Within any area buoyed or marked as a no wake area on any waters in Ohio.

Section 1547.99 of the Ohio Revised Code establishes a penalty of a first degree misdemeanor for violation of the no wake zone law. Furthermore, Section 1547.63 allows for enforcement of no wake zones by ODNR Division of Watercraft officers as well as “every sheriff, deputy sheriff, marshal, deputy marshal, member of the organized police department of any municipal corporation, police constable of any township, wildlife officer, park officer, preserve officer, conservancy district police officer, and other law enforcement officer, within the area of his authority.”

Reference Documents:

Ohio Coastal Erosion Area Permit, 2016 and Shore Structure Permit and Guidance.

<http://coastal.ohiodnr.gov/portals/coastal/pdfs/regulatory/CoastalPermits-LeaseBooklet.pdf>

<http://coastal.ohiodnr.gov/portals/coastal/pdfs/forms/CoastalPermitsLeaseApp.pdf>

Coastal Guidance for Construction or development along Ohio’s Lake Erie Shore

Coastal Permits and Lease Booklet,

<http://coastal.ohiodnr.gov/portals/coastal/pdfs/regulatory/CoastalPermits-LeaseBooklet.pdf>

Coastal Guidance Fact Sheets, Coastal Erosion Area Permit,

http://coastal.ohiodnr.gov/Portals/coastal/pdfs/CoastalGuidance/5_CEA_Permits.pdf

Coastal Guidance Fact Sheets, Shore Structure Permit,

http://coastal.ohiodnr.gov/Portals/coastal/pdfs/CoastalGuidance/2_ShoreStructPermit.pdf

Methods of Assessing Habitat in Lake Erie Shoreline Waters Using the Qualitative Habitat Evaluation Index Approach, (Ohio EPA),

http://www.epa.state.oh.us/portals/35/documents/QHEIManual_LakeErieShoreline_June2010.pdf

Lacustrine QHEI Field Sheet, Appendix C.

http://www.epa.state.oh.us/Portals/35/lakeerie/2015_Erie_Study_Plan.pdf

HYDROMODIFICATION

Management Measure: Instream and Riparian Habitat Restoration

NOAA-EPA Guidance

Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat in those channels.

Operation and maintenance programs should include provisions to use one or more of the approaches below to prevent future impacts to instream and riparian habitat or to solve current problems caused by channelization and channel modification.

Streambed protection

Levee protection

Channel stabilization and flow restrictors

Check dams

Vegetative cover

Instream sediment load control

Non eroding roadways and

Setback levees and flood walls.

NOAA-USEPA 2002 Findings/Conditions

Ohio has not clearly addressed the operation and maintenance program development component of the channelization and channel modification management measures, although the State's existing capabilities and techniques for investigating biological indices would seem applicable here. NOAA and EPA recommend that Ohio re-visit its existing capabilities and techniques and integrate these findings into its program.

Ohio Response

The State of Ohio has a number of existing programs to address the operation and maintenance of existing modified channels to identify opportunities to restore instream and riparian habitat in those channels.

State Programs for Investigating Biological Indices

The State of Ohio manages a statewide Biological Assessment and Monitoring Program. The state has established a watershed based approach to its monitoring and assessment using watershed assessment units for reporting conditions for the State including Ohio's 6217 designated management area. The State of Ohio's Assessment approach for identifying existing modified channels is administered through an established 'five-year basin approach' by Ohio EPA. The State utilizes the HUC-12 watershed assessment units (WAU), delineated by the U.S. Geological Survey. Since 2008, the State has used the HUC-12 WAU to conduct watershed survey monitoring and assessment and any associated TMDL plan development. To further categorize and assess stream and river sites, the state established Large River

Assessment Units (LRAUs) of watersheds draining greater than 500 square miles. There are 454 HUC-12 WAUs within the Lake Erie Basin and eight LRAUs within the Lake Erie Basin. Lake Erie Assessment Units (LEAUs) were also established by the State of Ohio for the Lake Erie Western Basin Shoreline, Lake Erie Central Basin Shoreline and the Lake Erie Islands.

The assessment and monitoring program contributes information toward a variety of state and locally-based watershed plans to evaluate conditions associated with modified channels and identifying opportunities to restore riparian habitat.

To address existing modified channels and opportunities to restore riparian habitat, the State specifically conducts monitoring and assessment utilizing methods of conducting Qualitative Habitat Evaluation Index (QHEI) and Index of Biological Integrity (IBI), and water temperature. Additionally, locally-led watershed action plans identify the number of miles and locations of existing modified channels. The data collected and evaluated by the State and locally-led watershed plans, identify and prioritize opportunities for restoring riparian habitat where modified channels currently exist.

Support for Implementation

The State of Ohio has a number of programs available to implement restoration projects on existing modified channels to address improvements of riparian habitat. These include:

319 Nonpoint Source Pollution Control Grant Program. The Ohio Nonpoint Source Pollution Control Plan has identified restoring modified channels as a key priority of the State's program.

<http://www.epa.state.oh.us/dsw/nps/index.aspx#120843258-nps-management-plan>

Water Resource Restoration Sponsorship Program. The Water Resource Restoration Sponsorship Program, coordinated by Ohio EPA's Office of Division of Environmental and Financial Assistance, matches priority watershed restoration projects with project sponsors through Water Pollution Control Loan Fund. In addition, the Water Pollution Control Fund provides low-interest loans to local public entities to address nonpoint source water pollution, including projects for stream corridor restoration.

<http://epa.ohio.gov/defa/ofa.aspx#169558734-water-resource-restoration-sponsor-program-wrrsp>

Agricultural Pollution Abatement Program. The State provides funds to eligible property owners to restore existing modified channels within agricultural lands. The cost-share program administered by the Department of Agriculture Division of Soil and Water Conservation provides assistance to farmers for best management practices to restore channels including, critical area protection, stream crossing stabilization, grassed waterways, and other erosion control measures under the guidance of the program. <http://www.agri.ohio.gov/divs/SWC/SWC.aspx#tog>

State of Ohio Stream Mitigation Program. In partnership with federal permitting agencies, Ohio operates a mitigation program to identify sites to utilize for improvements for riparian habitat restoration on existing modified channels where feasible. Another option newly established in the State of Ohio is the In-Lieu Fee (ILF) Program associated with 401 Water Quality Certifications. The In-Lieu Fee Program is operated by The Nature Conservancy and the North Coast Regional Council of Park Districts with review by the State Inter-Agency Review Team for Mitigation Bank Plan for setting criteria and guidelines.

HYDROMODIFICATION

Management Measure: Physical and Chemical Characteristics of Surface Waters

NOAA-EPA Guidance

Develop an operation and maintenance program for existing modified channels that includes identification and implementation to improve physical and chemical characteristics of surface waters in those channels. The operation and maintenance programs for existing modified channels should identify and implement any available opportunities to improve the physical and chemical characteristics of surface waters in those channels.

This management measure aims to address three effects of channelization and channel modification.

- 1) Change sediment supply*
- 2) Reduce freshwater availability (not applicable to Ohio)*
- 3) Accelerated delivery of pollutants.*

Practices

- a) Use models/methodologies as one means to evaluate the effects of proposed channelization and channel modification projects on the physical and chemical characteristics of surface waters. Evaluate these effects as part of watershed plans, land use plans and new development plans.*
- b) Identify and evaluate appropriate BMPs for use in the design of proposed channelization or channel modification projects or in the operation and maintenance of existing projects.*

NOAA-USEPA 2002 Findings/Conditions

Ohio has not clearly addressed the operation and maintenance program development component of the channelization and channel modification management measures, although the State's existing capabilities and techniques for investigating biological indices would seem applicable.

The State of Ohio, administered by the Ohio Environmental Protection Agency, has an established Statewide Biological and Water Quality Monitoring and Assessment Program that includes the evaluation of modified channels and their effects on physical and chemical characteristics of surface waters in those channels. NOAA and EPA recommend that Ohio re-visit its existing capabilities and techniques and integrate these findings into its program.

Ohio Response

The State of Ohio has programs and resources in place to address the operation and maintenance of existing modified channels associated with the physical and chemical characteristics of surface waters. They are organized in three program areas: 1) identification and evaluation, 2) best management practices and 3) State resources for implementation. Each of these is described below.

Evaluation of Existing Modified Channels Affecting the Sediment Supply & Distribution and the Delivery of Pollutants due to altered flow regimes.

The State of Ohio's Assessment approach for identifying existing modified channels is administered through an established 'five-year basin approach' by Ohio EPA. The State utilizes the HUC-12 watershed assessment units (WAU), delineated by the U.S. Geological Survey. Since 2008, the State has used the HUC-12 WAU to conduct watershed survey monitoring and assessment and any associated TMDL plan development. To further categorize and assess stream and river sites, the state established Large River Assessment Units (LRAUs) of watersheds draining greater than 500 square miles. There are 454 HUC-12 WAUs within the Lake Erie Basin and eight LRAUs within the Lake Erie Basin. Lake Erie Assessment Units (LEAUs) were also established by the State of Ohio for the Lake Erie Western Basin Shoreline, Lake Erie Central Basin Shoreline and the Lake Erie Islands. The assessments are conducted on a five year basin schedule. Waterbody assessments conducted by the State and its partners include the measurement of dissolved oxygen, suspended and dissolved solids, turbidity, nutrients, major anions (chloride, sulfate, bicarbonate) and major cations (calcium, iron, magnesium, sodium, potassium.)

Through these assessments, the State compiles the data to report on the conditions of the waterbodies of the state. That report is utilized for various water resource programs including TMDL, nonpoint source management and the State's integrated Water Quality report 303(d). The assessments assist in identifying stream reaches within a HUC-12 watershed that have opportunities to implement measures to improve the physical and chemical characteristics of surface waters. Within the State's Biological Monitoring and Assessment Program, causes and sources of impairments are identified, including sedimentation/siltation, flow alterations as causes and channelization as a source of an impairment on a designated stream reach of a particular watershed assessment unit.

The Ohio Watershed Action Plan Program has also assisted in identifying priority areas within a watershed to identify best practices to improve the conditions of existing modified channels. The inventories for the plans include the number of miles of modified channels within the watershed and priority actions associated with nonpoint source pollutant loads. With the information obtained through the Local Watershed Plans and State Assessments, priority areas can be identified for implementation actions.

Lastly, through the State's Water Quality Management Plan administered by Ohio EPA, the 208 Areawide Water Quality Management Plans are developed within the Lake Erie Watershed. These plans identify priority watersheds for restoration within the 208 management areas. The 208 Planning is managed by three designated area-wide agencies, NOACA, TMACOG and NEFCO. For the remaining areas within the 6217 Management Area, Ohio EPA develops the Water Quality Management Plans as required for 208.

Once these sites are identified through the state agencies, soil and water conservation districts, local watershed organizations, local jurisdictions or other property owners can submit these projects for support through State programs for funding consideration.

State Technical Guidance for Best Management Practices.

The State of Ohio, in partnership with Ohio State University, has developed a set of technical guidance resources to assess and plan to improve existing modified channels. The guidance available, STREAM Modules, is provided on the state website and available through the local SWCD offices located within every county of the state. The information includes tools for river evaluation, assessment and monitoring, and guidance on stream management techniques and best practices for design, operation and maintenance. Additional guidance is provided in the State's Rainwater and Land Development Manual that is part of the State's Storm Water Construction General Permit for all construction projects consisting of a land area of one acre or greater in both designated MS4 communities and non-MS4 communities within the Ohio Lake Erie watershed.

Technical Guidance for BMPs is provided through the Ohio Department of Agriculture. These practices include are provided at <http://water.ohiodnr.gov/water-conservation/stream-restoration>.

Vegetation
Tree Kickers
Evergreen Revetments
Forested Buffer Strips
Live Fascines
Gabion Revetments
Riprap Revetments
Live Cribwalls
Stream Debris and Obstruction Removal
Deflectors
Eddy Rocks
Gravel Riffles

The guidance also provides methodologies and other resources to evaluate the local conditions of existing modified channels to assess the appropriate best practices that may be suitable for specific site conditions.

The State of Ohio Nonpoint Source Management Plan Update (2014) has identified altered stream and habitat restoration strategies as one of four of the state's priorities for nonpoint source pollution control.

The Ohio plan identified five key strategies to address modified channels:

- 1) Restore Streams using Natural Channel Design Methods,
- 2) Daylighting Culverted and Severely Modified Streams,
- 3) Restoring Natural Flow, and
- 4) Improve Land Use Practices.

These strategies establish guidance for prioritizing and identifying sites within the Ohio Lake Erie Watershed that can be eligible for funding under state programs to support the implementation of best practices that address the effects of modified channels and nonpoint source pollution. The 2014 Nonpoint Source Management Plan Update identifies examples of applicable best practices to address the impacts of existing modified channels associated with flow regimes and sediment transport. Specific

to modified channels and their effects on natural flow regimes, the State's NPS Plan outlines four priorities relative to the conditions of the modified channels within the State and particularly to the Lake Erie watershed.

- 1) Remove and/or modify dams and levees in critical areas identified in TMDL studies and endorsed 9-element watershed action plans that will remove significant impairments of a channel.
- 2) Restore natural flow conditions, including the slowing of rapid movement of stormwater and reduce flashy flows within stream channels.
- 3) Convert maintain agricultural ditches to two-stage channels to allow for slower discharge of water to allow for increased assimilation of nonpoint source pollution before entering the waters of Lake Erie.

State Programs for Local Implementation

Through the monitoring , inventory and assessment work conducted by the State and local watershed organizations and the utilization of the technical guidance to assess, plan and prioritize the most suitable modified channels for enhanced operation and maintenance, local projects can be implemented through the support of a variety of state programs. These include:

- Ohio EPA 319 Nonpoint Source Management Program
- Ohio EPA Surface Water Enhancement, Restoration and Protection Clearinghouse
- Ohio EPA – Water Resource Restoration Sponsor Program
- Ohio Department of Agriculture, Division of Soil and Water Conservation Agricultural Abatement Program

Through the three state programmatic areas that the State has in place, assessment and identification, technical guidance for best management practices, and implementation support, the State of Ohio meets this management measure associated with operation and maintenance of existing modified channels.

HYDROMODIFICATION

Management Measure: Dams: Protection of Surface Water Quality and Instream and Riparian Habitat

NOAA Guidance

Development and implement a program to manage the operation of dams in coastal areas that includes the assessment of:

- (1) Surface water quality and instream and riparian habitat and potential for improvement and*
- (2) Significant nonpoint source pollution problems that result in excessive surface water withdrawals.*
- (3)*

NOAA-USEPA 2014 Findings/Status

Once the State finalizes this BMP guide, publishes it online, and publicizes it to relevant parties, Ohio will have met this management measure.

Ohio Response

Included in the Hydromodification submission is the Best Management Practices Guidebook for Dams

About the BMP Guidebook.

The Guidebook contains six sections that contain information on dams and management practices to improve water quality. The Guidebook sections include:

- Types of Dams and Surface Impoundments
- Best Management Practices in the Watershed
- Practices for Improving Water Quality within Impoundments
- Practices for Improving the Quality of Water Releases
- Best Management Practices for Fish Passage
- Best Management Practices for Dam Modification/Removal

Additionally, a section in the Guidebook provides information on financial resources, primarily grant programs.

Distribution Strategy for BMP Guidebook

- a) The BMP Guidebook will be made available on the Ohio DNR website pages for the Division of Water Resources, Dam Safety Program and the Office of Coastal Management's, Coastal Nonpoint Program.

The Dam Safety Program within the ODNR Division of Water Resources conducts safety inspections of all regulated dams within the Lake Erie Watershed every five years. The Division will include the BMP Guidebook in its resource library and in its Safety Inspection Reports to property owners where applicable. ODNR will track the number of inspections for the Lake Erie Watershed where this

information is applicable. The Office of Coastal Management, through the Ohio Coastal Nonpoint Pollution Control Program, will coordinate with the Dam Safety staff annually on the number of BMP Guide references that were included in inspection reports as part of the five year implementation strategy reporting requirements. The Distribution Strategy for the BMP Guidebook will be completed by spring, 2016.

Reference Documents:

Best Management Practices Guidebook for Dams, Attachment 3

MONITORING & TRACKING

Administrative Coordination: Monitoring & Tracking: Assessing Water Quality and for Estimating Pollution Loads

NOAA-EPA Guidance

Guidance for measuring changes in pollution loads and in water quality that may result from the implementation of management measures.

Assess changes in pollution loads over time

Assess changes in water quality over time.

NOAA-EPA July 2015 Findings /Status

NOAA and USEPA agree that the State has met this management measure with the information provided. An interim decision document documenting interim approval has not been provided to the State.

Ohio Response

Ohio requests NOAA and USEPA provide documentation of the interim decision of interim approval for this management measure for records of the status of this management measure.

MONITORING & TRACKING

Administrative Coordination: Monitoring & Tracking: Techniques and Procedures for Assessing Implementation, Operation, and Maintenance of Management Measures

NOAA-EPA Guidance

Guidance for ensuring that management measures are implemented, inspected and maintained properly.

Assess over time the success of management measures in reducing pollution loads and improving water quality.

NOAA-EPA 2002 Findings/Conditions

Ohio's program does not include a plan to assess over time the success of the management measures in reducing pollution loads and improving water quality.

2015 Notes: NOAA and EPA had not reached a decision on this aspect of the management measure. The State was exploring meeting this through its watershed planning process and that watershed coordinators are tracking implementation of certain BMPs. Providing an update on BMP tracking effort in revised watershed planning process and any other implementation tracking efforts would be very helpful.

Ohio Response

Each Ohio program that manages funding, permitting or compliance for coastal nonpoint source pollutant reduction, provides guidance for the implementation, operations and maintenance of management measures associated under each coastal nonpoint program land use category. The guidance available has been described in each section of the land use category of the Ohio Coastal Nonpoint Pollution Control Program Plan. General references for guidance available through state programs for effective implementation under each land use management measure are provided in Table 1 of this response statement.

The State of Ohio uses a number of mechanisms to monitor and track the implementation of management measures and their effectiveness.

Ohio utilizes the SWIMS reporting system through the Ohio Department of Agriculture's, Division of Soil and Water Conservation to provide tracking of management measures implemented by a watershed. This information is provided to U.S. EPA in the State Water Quality reporting. The local Soil & Water Conservation Districts also utilize the SWIMS reporting system of management measures implemented within a particular watershed at the county or local watershed level.

Additionally, through Ohio's Nonpoint Source program, Ohio EPA produces an annual report of management measures implemented and their effectiveness in load reduction for all of the projects

funded by the State that address nonpoint source through the 319 program. This includes reporting the implementation of management measures through local watershed action plans.

Each State program that provides funding for nonpoint source reduction and control has a monitoring and implementation reporting requirement to the respective State agency.

Ohio EPA submits an annual report to U.S. EPA of the implementation projects and their effectiveness through its Nonpoint Source Management Annual Report. The most recent annual report is included as an Appendix. A summary of past annual reports are provided at <http://www.epa.state.oh.us/dsw/nps/index.aspx#120979053-annual-report>

The Ohio Coastal Nonpoint Program management area also includes four designated Areas of Concern under the Great Lakes Water Quality Agreement. The local coordinating committees for these four areas, Maumee, Cuyahoga, Black and Ashtabula, provide status reports of implemented management measures to Ohio EPA as part of this program.

Mechanisms to monitor and track implementation and effectiveness of management measures will be further developed in three initiatives for priority areas to reduce coastal nonpoint pollutants: 1) the Western Basin of Lake Erie Collaborative, 2) Annex 4, and 3) the Lake Erie Lakewide Management Plan under the Great Lakes Water Quality Agreement.

The Western Basin of Lake Erie Collaborative Agreement was signed in June 2015 by Ohio with Ontario and Michigan agreeing to work to achieve a 40 percent total load reduction in the amount of phosphorus entering Lake Erie by 2025. In coordination with ODNR, the Ohio Department of Agriculture and interested stakeholders, Ohio EPA is developing Ohio's implementation plan with specific actions, evaluation and monitoring identified in the plan. Projects under the plan must be completed in one to three years. This plan will be folded into the Annex 4 (Great Lakes Water Quality Agreement) domestic action plans. A draft plan for the Western Basin was established in May, 2016 and the Domestic Plan for Ohio will be established by 2018.

Ohio EPA represents Ohio on the Great Lakes Executive Committee and actively participates in the binational initiatives under Annex 4 (Nutrients) of the Great Lakes Quality Agreement. The State's involvement in this effort as well as the Lakewide Management Plan for Lake Erie require the establishment of monitoring parameters that include a key commitment to "undertake and share research, monitoring and modeling necessary to establish, report on and assess the management of phosphorous and other nutrients and improve the understanding of relevant issues associated with nutrients." These plans are underway and are estimated for completion by 2018.

Ohio EPA is also working with USGS to monitor (nutrients, flow) a number of key locations in the Western Basin. These long-term stations are planned to assess changes in pollution load and water quality over time. Combined with Ohio EPA's monthly stations, the state will have a comprehensive monitoring system in place in priority watersheds to assess how water quality is affected by nonpoint source pollutant loads and changes that may occur from implementation of management measures.

Additionally, Ohio House Bill, 64 requires the development of a biennial report by spring, 2016 regarding mass loading of nutrients delivered to Lake Erie from Ohio's point and nonpoint sources. For reference: HB 64 added the following to section 6011-03 (U) of the Ohio Revised Code:

(U) Study, examine, and calculate nutrient loading from point and nonpoint sources in order to determine comparative contributions by those sources and to utilize the information derived from

those calculations to determine the most environmentally beneficial and cost-effective mechanisms to reduce nutrient loading to watersheds in the Lake Erie basin and the Ohio river basin. In order to evaluate nutrient loading contributions, the director or the director's designee shall conduct a study of the nutrient mass balance for both point and nonpoint sources in watersheds in the Lake Erie basin and the Ohio River basin using available data, including both of the following:

- (1) Data on water quality and stream flow;
- (2) Data on point source discharges into those watersheds.

The director or the director's designee shall report and update the results of the study to coincide with the release of the Ohio integrated water quality monitoring and assessment report prepared by the director.

In 2014, the Ohio Board of Regents (now known as the Ohio Department of Higher Education) allocated funds toward a research initiative focused on the monitoring of priority watersheds in Ohio's Lake Erie watershed. One objective is the implementation of management measures to evaluate and address management needs to reduce pollutant loads. The research initiative is aimed at the Western Basin with research projects focused in five areas: 1) Lake Erie water quality, 2) drinking water safety, 3) agricultural best management practices, 4) algal toxins effects on humans and 5) economics and policy. The initiative is also coordinating the various monitoring programs between universities and state agencies to ensure monitoring is being conducted in priority locations and coordinated to ensure management issues are addressed. An advisory committee comprised of eight Ohio universities, Ohio Sea Grant, Ohio EPA, Ohio DNR, Ohio Department of Health, Ohio Department of Agriculture and Ohio Lake Erie Commission coordinate this initiative and its results.

<http://ohioseagrant.osu.edu/archive/research/bor/>

Each management measure land use category is listed in Table 1 with the associated current monitoring and reporting programs in place to meet this management measure.

Reference Documents:

Ohio Nonpoint Source Management Program Annual Report,
http://www.epa.state.oh.us/Portals/35/nps/319docs/FFY14_Annual_Report.pdf

Table 1.

Management Measure Land Use Category	Monitoring & Tracking Implementation of Management Measures	Guidance for effective Implementation
Agriculture	<ul style="list-style-type: none"> • Soil & Water Conservation SWIMS reporting system • Ohio EPA Nonpoint Source Annual Report • Ohio Dept. of Agriculture and Ohio EPA regulatory permitting programs 	<ul style="list-style-type: none"> • Agricultural Pollution Abatement Program • Ohio Department of Agriculture and Ohio EPA permitting programs.
Urban Runoff – Site Development and Roads	<ul style="list-style-type: none"> • Ohio EPA Nonpoint Source Annual Report • Soil & Water Conservation SWIMS reporting system • Ohio EPA General Construction permit program • Ohio Lake Erie Commission, reporting of program implementation • Ohio Funding programs and annual reporting of project awards and implementation 	<ul style="list-style-type: none"> • Rainwater & Land Development Manual • Balanced Growth Best Local Practices. • ODOT Location & Design Manual • Ohio EPA Permit Guidance • Ohio EPA publications (Training & Compliance)
Urban Runoff- Onsite Disposal Systems	<ul style="list-style-type: none"> • Ohio EPA funding programs and their associated annual and grant reporting • Ohio Department of Health, EDIS reporting system (to be implemented in 2016) 	Ohio Department of Health, Household Sewage Treatment Rule
Marinas and Recreational Boating	<ul style="list-style-type: none"> • Ohio Sea Grant annual reports on certifications and status of management measures 	<ul style="list-style-type: none"> • OSU-Extension/ODNR-Watercraft, Clean Marinas Guidance
Hydromodification	<ul style="list-style-type: none"> • Soil & Water Conservation Districts SWIMS reporting system • Ohio DNR Dam Safety Program • Ohio EPA funding programs for implementation projects 	<ul style="list-style-type: none"> • Dam BMP Guide • ODNR and Ohio EPA Guidance
Wetlands, Riparian Areas and Vegetated Treatment Systems	<ul style="list-style-type: none"> • Soil & Water Conservation District SWIMS reporting system • Ohio EPA and ODNR funding program requirements for projects 	<ul style="list-style-type: none"> • Ohio EPA and ODNR Guidance