

# **Chapter 5**

## **Management of Nonpoint Source Pollution and Storm Water Runoff**

**This chapter recommends the adoption of land regulations in seven areas of nonpoint source and storm water runoff control by local and county units of government in the NEFCO 208 Clean Water Planning area (CWP). It provides model regulations to be considered for this purpose. This program is intended to address the nonpoint source problems that are characteristic of Northeast Ohio's streams. The chapter concludes with an implementation strategy and policies for a program of ongoing planning support.**

### **I. Introduction**

Northeast Ohio depends on its water resources. They are economically and ecologically important to the health and welfare of its citizens. These water resources provide drinking water from both surface and groundwater sources. They provide very important recreational benefits as well as contribute to a diverse ecosystem which provides important functional and economic benefits. However, changes in land use and population shifts have increased demands for these water resources and this, in turn, threatens many of them.

The threats to surface and groundwater resources are changing. Historically, point sources were viewed as the primary threat. However, most point source problems are being controlled, and now it is nonpoint pollution and storm water effects which appear to provide the greater threat to our water resources in many portions of the region.

Nonpoint problems are both water quality and quantity based. Nonpoint pollution is a result of activities that take place on the land surface, and how water runs off the land surface or seeps into the ground. Most land use activities have the potential to contribute to nonpoint pollution problems. There is an emerging realization that unchecked storm water runoff from more intensively used land surfaces is also a major threat to water resources. This occurs due to the alteration of the surface runoff regime and alteration of the hydrologic processes involved in groundwater recharge.

The solution to nonpoint source and storm water runoff problems are watershed specific. Therefore, successful solutions must be carried out using a watershed approach which often involves multiple governmental jurisdictions. Also, the nonpoint management programs that need to be utilized in any given watershed will vary depending upon the type of water resources present, the threats to those resources that exist locally, the existing land use, the future land use trends, the governmental structure having jurisdiction over land use decisions, the financial resources available and the level of citizen involvement.

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An effective watershed program seeks to coordinate the management of all point and nonpoint sources of pollution in a watershed. This effort will provide guidance to assist in identifying watershed-wide solutions and in identifying priorities. The Remedial Action Plan (RAP), State Endorsed Watershed Action Plans (WAPs), and Balanced Growth Initiative (BGI) programs are designed with these principles in mind. The CWA's Total Maximum Daily Load (TMDL) Regulation and Program being implemented by the USEPA and Ohio EPA is based on the same premise.

Generally, because of the complexity of the problems and multiple jurisdictions involved, no one protective measure will wholly solve the problem caused by nonpoint sources of pollution in a given watershed. More likely, a combination of mechanisms will be necessary, and in many cases may be preferred, to give locally based and supported initiatives maximum flexibility in achieving their protection goals and needs. Improved linkages between different levels of government and existing protective mechanisms are needed to ensure that actions taken do actually provide the desired protection of the region's water resources. Local programs can benefit from, and need to be coordinated with, the Ohio Nonpoint Source Management Plan and the Ohio Coastal Nonpoint Source Pollution Control Program supported by State agencies.

There are two conditions that confuse the distinction between point and nonpoint sources of pollution. These are combined sewer overflows (CSO) and sanitary sewer overflows (SSO). Both may result in a discharge of a mix of sanitary wastewater and storm water. For purposes of this discussion, these overflows are considered to be part of the point source family and not discussed here. NPDES permit holders have requirements for managing, and eventually eliminating CSOs and SSOs. Sanitary sewer overflows must be sought out and eliminated as a condition of each wastewater treatment plant's NPDES permit. Combined sewer outfall elimination is regulated by a national policy that calls for the USEPA or delegated states to negotiate a phased remediation program with each discharger that currently has combined sewers. New, updated SSO elimination regulations were originally proposed in 2001 but were subsequently withdrawn. Other draft SSO policies from USEPA have been presented since the new rules were withdrawn in 2001, but none have been finalized. In 2010, USEPA held five "listening sessions" throughout the country to determine whether or how to modify SSO regulations.

## **II. Summary of Nonpoint Pollution Problems in the NEFCO Region**

Chapter 2 described water quality conditions in overall terms for Northeast Ohio's major rivers. This chapter focuses on the extent to which these streams are impaired by nonpoint sources or conditions, and identifies priority nonpoint sources of pollution that impact the area's streams.

Table 5-1 lists the number of sample sites impaired for aquatic life use by nonpoint sources pollution for the major watersheds in the NEFCO region. It is derived from the Ohio EPA's watershed assessment and Total Maximum Daily Load (TMDL) reports which

summarize the causes and sources of aquatic life impairments statewide (documented in the 2010 Integrated Water Quality Monitoring and Assessment Report).

**Table 5-1  
Nonpoint Source Impairments  
to the NEFCO Region Streams**

Assessment Unit Name (Watershed ID)	Watershed Size (mi <sup>2</sup> )	Aquatic Life Use Attainment for Sample Sites in the NEFCO Region			Causes	Sources
		Full	Partial	Non		
Headwaters Cuyahoga River (04110002 01)	149.4	0	0	0	4, 3, 15, 6, 2	18, 16, 7, 11
Breakneck Creek – Cuyahoga River (04110002 02)	140.5	3	6	3	4, 3, 15, 6, 2, 1	3, 18, 6, 16, 10
Little Cuyahoga River – Cuyahoga River (04110002 03)	111.8	4	10	8	4, 3, 5, 6, 2, 18, 1	3,19,4,6,16, 7,1
Yellow Creek & Other Cuyahoga Tributaries (04110002 03)	154.8	7	4	0	4,3, 5, 6, 16, 1	19, 1, 6, 20
Tinkers Creek – Cuyahoga River (04110002 04)	139.3	2	0	4	8, 4, 3, 15, 5, 6	19, 6, 16, 7, 9, 1
Cuyahoga River (04110002 90)	NA	1	2	1	4, 3, 6, 18, 11, 1	19, 17, 4, 6, 16, 15, 1
Mahoning River Headwaters (05030103 01)	129.4	2	1	3	4, 5, 2	10, 3
Deer Creek – Mahoning River (05030103 02)	119.1	1	2	1	5, 3, 4, 2	8, 3, 1, 10
West Branch Mahoning River (05030103 03)	167.0	9	7	1	4, 15, 6, 2, 19, 5, 3	10, 3, 16, 9, 15, 7, 8, 4, 1
Eagle Creek – Mahoning River (05030103 04)	127.1	9	1	4	15, 5, 2, 4	16, 6, 5, 10, 3
Tuscarawas River Headwaters (05040001 01)	151.4	0	2	1	4, 3, 15, 6, 2	3, 20, 16, 1, 18, 6
Chippewa Creek (05040001 02)	188.0	0	0	0	8, 4, 3, 5, 6, 2	20, 6, 10, 11, 9, 8
Nimisila Creek -Tuscarawas River (05040001 03)	170.1	0	0	0	4, 3, 5, 6, 16, 2	18, 5, 20, 6, 7, 11, 8
Nimishillen Creek (05040001 05)	188.0	1	8	6	11, 4, 8, 5, 6, 3, 2, 12, 20	10, 3, 5, 1, 6, 7, 9, 21

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Headwaters Sugar Creek (05040001 09)	97.5	5	3	7	4, 15, 5, 6, 2	12, 3, 11, 10, 7, 14, 15
Middle Fork Sugar Creek (05040001 11)	121.4	1	1	1	4, 9, 15, 12, 2, 8	3, 18, 5, 16, 10, 11, 14, 15, 21
Tuscarawas River from Chippewa Cr. to Sandy Cr. (05040001 90)	NA	3	0	0	5, 6, 16, 7, 1	5, 6, 10
Muddy Fork – Mohican River (05040002 05)	105.7	2	0	1	3, 6, 2	4, 3
Lake Fork – Mohican River (05040002 07)	79.6	1	0	0	None	None
Headwaters Killbuck Creek (05040003 05)	138.8	0	0	0	4, 6	3, 12, 16, 10
Apple Creek – Killbuck Creek (05040003 06)	171.2	0	0	0	4, 6	3, 16
<b>Totals</b>		<b>51</b>	<b>47</b>	<b>41</b>		

Sources: - *Integrated Water Quality Monitoring and Assessment Report – Assessment Unit Summaries.* Ohio EPA, 2010.  
- *The Sugar Creek Watershed Aquatic Life Use TMDL.* Ohio EPA, 2002.  
- *Total Maximum Daily Loads for the Middle Cuyahoga River.* Ohio EPA, 2000.

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**Table 5-1 (continued)**  
**Nonpoint Source Impairments**  
**to the NEFCO Region Streams**

<b>Causes</b>	<b>Sources</b>
1. Unknown Toxicity	1. Urban Run-off/Storm Sewers
2. Sediment/Siltation	2. Land Fill
3. Flow Alteration	3. Channelization
4. Direct Habitat Alteration	4. Dam Construction
5. Nutrients	5. Industrial Point Sources
6. Organic Enrichment/DO	6. Municipal Point Sources
7. Suspended Solids	7. Onsite wastewater treatment system
8. Unknown	8. Upstream Impoundment
9. Metals	9. Unknown
10. Zinc	10. Nonirrigated crop production
11. Unionized Ammonia	11. Pasture lands
12. pH	12. Feedlots
13. Thermal Modification	13. Animal holding/Management Area
14. Pathogens	14. Removal of Riparian Vegetation
15. Natural Limits (wetlands, flow, habitat)	15. Streambank destabilization
16. Salinity, TDs, chlorides	16. Natural
17. Chlorine	17. Contaminated Sediments
18. Total Toxics	18. Flow Regulation/Modification
19. Turbidity	19. Combined Sewer Overflows
20. Temperature	20. Land Development/Suburbanization
	21. Mining

Source: Ohio EPA 2010 Integrated Water Quality Monitoring and Assessment Report – Assessment Unit Summaries

### **III. Major Storm Water Regulations and Programs**

#### ***National Pollution Discharge Elimination System (NPDES) Storm Water Program***

To address impairments caused by polluted runoff, the Clean Water Act (CWA) of 1990 established a program to address storm water quality coming from developed urbanized areas. The program requires urbanized communities to attain an NPDES permit from the U.S. EPA for discharges from separated storm sewers. The NPDES Storm Water Program was implemented in two Phases from 1992 through 2003. Each community that is included must develop and implement a storm water management program (SWMP) to reduce contamination of storm water runoff and prohibit illicit discharges.

Phase I of the Program addresses storm water runoff from: 1) “medium” and “large” municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, 2) construction activities disturbing 1 acres of land or greater, and 3) ten categories of industrial activity. The City of Akron is the only entity in the NEFCO region that is affected by the Phase I portion of the rules. Akron has been issued an NPDES permit for its separate storm water discharges that must be renewed every five years.

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Phase II of the NPDES Storm Water Program requires permits for small MS4s that are located in an “urbanized area” as determined by the Bureau of the Census. Table 5-1 lists the communities in the NEFCO region that are located in an urbanized area. Phase II also requires a storm water permit for any construction activity that disturbs one acre or more in Ohio.

<b>Table 5-2</b>				
<b>Designated NPDES Phase II Communities</b>				
<b>Cities</b>		<b>Villages</b>	<b>Townships</b>	
<b>Portage County</b>				
Aurora		Brady Lake	Brimfield	Franklin
Kent		Sugar Bush Knolls	Ravenna	Rootstown
Ravenna	Streetsboro		Suffield	
<b>Stark County</b>				
Alliance		East Canton	Canton	Jackson
Canal Fulton		Hartville	Lake	Lawrence
Canton		Navarre	Nimishillen	Perry
Louisville			Plain	Tuscarawas
Massillon	North Canton			
<b>Summit County</b>				
Barberton		Boston Heights	Bath	
Cuyahoga Falls		Clinton	Boston	
Fairlawn		Lakemore	Copley	
Green		Mogadore	Coventry	
Hudson		Northfield	Franklin	
Macedonia		Richfield	Northfield Center	
Monroe Falls		Silver Lake	Richfield	
New Franklin			Sagamore Hills	
Norton	Stow		Springfield	
Tallmadge	Twinsburg		Twinsburg	
<b>Wayne County</b>				
Wooster		Doylestown	Chippewa	

The Phase II Rule defines a SWMP as comprised of six minimum control measures that, when administered in concert, are expected to result in reduction of the discharge of pollutants into receiving streams or lakes. Operators of regulated small MS4s are required to design their programs to do the following: reduce the discharge of pollutants to the "maximum extent practicable" (MEP), protect water quality and satisfy the appropriate water quality requirements of the Clean Water Act. Implementation of the MEP standard requires the development and implementation of best management practices and the achievement of measurable goals to satisfy each of the following six minimum control measures:

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- **Public Education and Outreach**
- **Public Participation/Involvement**
- **Illicit Discharge Detection and Elimination**
- **Construction Site Runoff Control**
- **Post-Construction Runoff Control**
- **Pollution Prevention/Good Housekeeping**

The management of storm water runoff is a complex and inexact undertaking. Peak flow reductions and runoff volume management can be realized with the use of engineered structures bolstered by runoff reducing land practices.

***Total Maximum Daily Load Program***

Section 303(d) of the Clean Water Act established the Total Maximum Daily Load (TMDL) program. The TMDL program identifies and restores polluted rivers, lakes, stream, and other surface waterbodies by detailing in a quantitative assessment the water quality problems and contributing sources of pollution. It is required of all waterbodies that do not meet Ohio’s water quality standards. The document determines how much a pollutant needs to be reduced to meet water quality standards, and provides the foundation for taking actions locally to restore a waterbody to fishable and swimmable standards.

Ohio is required by the Clean Water Act to submit a prioritized list of impaired waterbodies to the U.S. EPA. The list indicates the waters that are currently impaired and may require a TMDL assessment to meet water quality standards. The following waterbodies in the NEFCO region are on the list of impaired waters in Ohio:

<b>Waterbody</b>	<b>TMDL Status (Completion Year)</b>
Upper Cuyahoga River	Completed (2004)
Middle Cuyahoga River	Completed (2000)
Lower Cuyahoga River	Completed (2003)
Chagrin River	Completed (2007)
Rocky River	Completed (2001)
Tuscarawas River & Chippewa Creek	Completed (2009)
Nimishillen Creek	Completed (2009)
Sugar Creek*	Completed (2002, 2007)
Upper Grand River	In Progress (2011)
Upper Mahoning River	In Progress (2011)
Killbuck Creek	In Progress (2011)
Sandy Creek	In Progress (2013)

\* Sugar Creek Aquatic Life Use TMDL was completed in 2002 and Bacteria TMDL was completed in 2007

***Ohio’s Nonpoint Source (NPS) Management Program***

In 1987, Section 319 of the Clean Water Act (CWA) establishing a national program to control nonpoint sources of pollution. Ohio’s Nonpoint Source Management Plan followed in 1988 with the goal of identifying implementation strategies to restore and maintain the

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chemical, physical, and biological integrity of surface waterbodies in the state. The Plan was revised in 1992, 1999, and in 2005 and contains detailed strategies for addressing water quality impairments.

Under Section 319 of the CWA, Ohio EPA receives federal grant money to support activities to reduce NPS pollution throughout the state. Ohio EPA distributes these grant funds to support activities that reduce NPS pollution, including watershed planning, demonstration projects, education, training, and water quality monitoring. The cornerstone of Ohio's NPS Management Program is working with watershed groups and others who are implementing locally developed watershed action plans and restoring surface waters impaired by NPS pollution. The grant monies are targeted to waters where NPS pollution is a primary caused of aquatic life use impairments. Several entities in the NEFCO region, include NEFCO, have participated in the Section 319 grant program under Ohio's NPS Management Plan.

#### **IV. Recommended Program of Local and County Nonpoint Source and Storm Water Management**

Seven nonpoint source management programs are recommended for implementation by local and county agencies in the planning area. These are as follows:

1. Improved storm water runoff management from development and redevelopment actions;
2. Improved construction site erosion and sediment control programs;
3. Riparian zone and wetland protection program;
4. Conservation design for storm water management;
5. Road salt minimization and storage program;
6. Nonpoint source management plans for funding; and
7. New and enhanced incentives for agriculture best management practices.

Each of these programs are introduced as a plan recommendation which is followed by a summary discussion that addresses the program's purpose, legal authority for implementation, and how the program works.

The recommendations that are presented to better manage nonpoint sources of pollution are supported by model ordinances, fact sheets, or policy guidelines. This is done to help insure the development of adequate control programs while minimizing the costs and difficulties of implementation. Implementation of the control programs identified in the models serves as one measure by which existing and future programs can be assessed. Appendix 5-1 contains references and contacts for each of the recommended programs.

Each local or county jurisdiction is requested to undertake a nonpoint source program evaluation process as a prelude to implementing the recommendations in this chapter. This evaluation process includes the following steps:

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- a. Compare existing legislation and regulations to a model ordinance with the intent of identifying inconsistencies or shortcomings.
- b. Decide whether shortcomings can be adequately addressed by implementing administrative policy changes.
- c. Where substantial change is needed, decide whether it is better to upgrade the existing legislation or to adopt the model ordinance as a replacement for the existing base.
- d. With enactment of legislation or administrative policy changes, provide for the training of all staff who are charged with implementing the changes adopted. In the case of counties, provide for training of township personnel as appropriate.

NEFCO, in concert with other county and state agencies, will assist local and county jurisdictions in undertaking implementation of these recommendations. Refer to the implementation strategy outlined in Section VI below.

Local and county jurisdictions identified for nonpoint source implementation actions in this plan are encouraged to consult Chapter 6 of this plan which outlines a program of nonpoint source controls for protection of critical water resources in the region.

**Recommendation 5-1: All municipalities and counties in the CWP area are encouraged to improve their Storm Water Management Programs for all development and redevelopment activities which affect an area equal to one acre or more as part of a common plan of development or sale. These programs need to implement new technology, standards, and designs with the goal of reducing storm water discharges to predevelopment volumes.**

Storm water management regulations, which apply to new developments and to major redevelopment actions and which are adopted and enforced locally, accomplish several objectives. They reduce the flood risk to downstream areas, provide for the protection of stream channels, and can protect water quality. Municipalities and counties are authorized under Ohio law to implement these programs.

Storm water management in developing areas is critical to the maintenance of water resources. Beyond the obvious advantages of flood control, water quality benefits in several important ways. Altered runoff patterns following the creation of large tracts of impervious surfaces can upset the hydraulics of stream channels. This often destroys stream habitat thereby degrading aquatic communities present in the stream. These same forces contribute to the creation of channel instability and increases in the rate of bank erosion and problems in downstream areas. This is a major concern to local communities and abutting property owners with increasing costs to stabilize existing channels.

Many cities are implementing storm water management programs within the Northeast Ohio region. The City of Akron has adopted a storm water management program as per a

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Storm Water NPDES permit (Phase I of the NPDES Storm Water Program). All of the entities in Table 5-2 have also implemented a storm water management program under Phase II of the NPDES Storm Water Program. All communities not under Phase I or II of the NPDES Storm Water Program need to adopt formal storm water management programs, and all communities in a watershed need to coordinate their control efforts. Even where communities have existing storm water management programs in place, their design standards may need to be upgraded to be more protective of downstream channels.

Comprehensive storm water management ordinances focus on reducing downstream flooding and channel erosion through the use of on-site detention and/or retention of storm water runoff. They also need to establish post-construction maintenance requirements for installed retention systems. Ordinances require on-site detention to maintain predevelopment peak flow rates for the 1-year through 100-year storm. Ordinances also need to require consideration of the critical storm which is more protective of downstream flow conditions. The ultimate goal is to have post-construction runoff be the same as pre-construction conditions.

Model ordinances that meet the needs discussed here can be found in Appendix 5-1. Communities are encouraged to review these ordinances and compare them to their current zoning and/or building regulations to help determine where improvements can be made in storm water management. In addition, communities should consider providing incentives to developers and landowners to promote green infrastructure practices like permeable pavement, grass swales, rain gardens, and green roofs to minimize storm water discharges.

Continuing education programs will be needed to train local management personnel in the application of storm water management programs. New technologies, improved standards, and fresh design approaches to managing storm water in less expensive and more aesthetically pleasing ways are constantly being developed. Storm water controls can become an asset to the landscape when applied by persons trained in innovative techniques. The Soil and Water Conservation Districts serve as a resource for this training.

**Recommendation 5-2: All municipalities and counties in the CWP area are encouraged to improve or enhance Soil Erosion and Sediment Control Management Programs for all nonagricultural land disturbance activities which affect an area equal to one acre or more as part of a common development.**

Soil erosion and sediment control occurs best when locally adopted regulations guide construction and development activities. The main objective is to demand more accountability so as to prevent significant stream damage from occurring downstream from development. Regular inspection of construction sites by local building and zoning inspectors who can issue stop work orders helps to insure that all planned controls are properly installed and maintained. All municipalities can implement soil erosion and sediment control programs through home rule powers. Counties are authorized under Section 307.79 of the Ohio Revised Code to establish such a program.

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Phase II of the NPDES storm water permits program brought small municipal storm sewer systems (MS4s) and construction sites greater than 1 acre into the NPDES program. In heavily urbanized areas that already have hydrologic problems, there may be a need to decrease the size of the disturbed area to a lower value. The NPDES Storm Water Program, encompassing erosion control methods to address sediment from construction sites, is a means of preventing adverse environmental impacts from new development on water quality and aquatic communities in the region's rivers, streams, and lakes.

Soil erosion and sediment control programs should take a watershed approach and be implemented consistently in both unincorporated and incorporated areas. Approved plans need to be implemented and monitored for effectiveness over the course of the development action. Elements of an effective urban sediment control program should include the following:

- Subdivision review procedures;
- Education of developers and local public officials;
- Required installation of BMPs for both erosion minimization and sediment control;
- Monitoring and enforcement of BMPs;
- Coordination with Ohio EPA's storm water permits program; and
- Adherence to the principles and guidance contained in the Ohio Department of Natural Resources' "Rainwater and Land Development Guide".

All management practices used to comply with soil erosion and sediment control programs should meet the specifications contained in the "Rainwater and Land Development Guide" produced jointly by ODNR, Ohio EPA and NRCS. Model ordinance for use by communities and contact information for various agencies can be found in Appendix 5-1.

Continuing education programs are needed to assist in the implementation of sound erosion and sediment control programs. There is a wide variety of techniques and circumstances that can apply at any given site. Not all erosion and sediment control management practices are applicable everywhere. Programs to acquaint developers, contractors, and site inspectors with available practices and their proper usage will need to be conducted on a regular basis. Education classes are also needed for local elected officials to keep them knowledgeable on the needs, requirements, and benefits of erosion and sediment control programs.

Local soil and water conservation districts and the Ohio EPA are two of the agencies that provide training and support to local officials and developers to help them design and implement better control plans. Local interaction and cooperation are often better mechanisms to achieve soil erosion and sediment control than is reliance on State enforcement of the NPDES program. Local regulations can be used to identify and fix problems in an expedient manner before damage is done. This is preferable over a system that fines developers for damages caused. Every community should include a provision to utilize a local "stop work" order in their storm water program.

Since the implementation of Phase II of the NPDES Storm Water Program, soil erosion and sediment control programs have been established throughout the NEFCO region. For these programs to be successful, a reliable funding mechanism and adequate enforcement of the program's requirements are needed. Costs to implement soil erosion and sediment control programs are most often recovered from permit fees charged to the developer/builder. However, a difficult economic climate beginning in 2007 has made it challenging for some communities to continue implementing an effective storm water program. Developing a dependable funding mechanism for storm water management should be a priority for all communities. The funding can come from various sources including permit fees, utility fees, special assessments, and grants. A dependable funding source will ensure proper implementation of the current soil erosion and sediment control plans; as well as, provide adequate resources for any future changes or new requirements to the NPDES Storm Water Program or other storm water initiatives.

**Recommendation 5-3: Developing communities in the CWP area are encouraged to adopt and implement Riparian Zone and Wetland Protection Ordinances. All other areas are encouraged to protect existing wetland and riparian corridor vegetation and work to restore the integrity of disturbed wetland and riparian areas. In urban and densely developed areas where riparian and wetland areas have been permanently altered and/or lost, communities are encouraged to implement alternative best management practices where possible to help replace the benefits lost from impacted wetland and riparian zones.**

Riparian and wetland setback ordinances prevents/minimizes the alteration of the riparian zone along stream segments and wetlands to ensure that functions provided by these areas are protected. The riparian zone generally covered by a setback ordinance includes the vegetative corridor adjacent to a perennial or intermittent stream. Building setbacks may be necessary to protect the riparian zone and may range from 75 to 300 feet depending on the stream's characteristics (slope, size, soil type, land use, function, etc.). Wetland setbacks are generally 75 to 120 feet depending on the quality of the wetland as determined by Ohio EPA's wetland assessment method. The ordinances require building setbacks which apply to new subdivisions and major redevelopment actions. Riparian and wetland protection programs encourage the restoration of previously disturbed areas where practical but do not affect existing structures or uses.

The purpose of riparian and wetland setback ordinances is to ensure that the existing functions provided by the vegetation are maintained as much as possible, and that any future encroachment within the setback zones meets certain standards and conditions. Riparian zones and wetlands provide several important functions including flood control, erosion control, nonpoint source pollution control, groundwater purification, and habitat protection. Economic benefits are realized by a community when it protects these functions and when it acts to minimize future property damage by preventing encroachment on the stream channel.

The specific purpose and intent of these ordinances is to regulate uses and developments within the wetland and riparian setback area that would impair its ability to:

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1. Reduce flood impacts by absorbing peak flows, slowing the velocity of flood waters and regulating base flow.
2. Stabilize the banks of watercourses to reduce bank erosion and the downstream transport of sediments eroded from watercourse banks.
3. Reduce pollutants in watercourses during periods of high flows by filtering, settling and transforming pollutants already present in watercourses.
4. Reduce pollutants in watercourses by filtering, settling and transforming pollutants in runoff before they enter watercourses.
5. Provide high quality watercourse and wetland habitats with shelter and food sources for aquatic organisms.
6. Reduce the presence of aquatic nuisance species to maintain a diverse aquatic system.
7. Provide habitat to a wide array of wildlife by maintaining diverse and connected riparian and wetland vegetation.
8. Benefit the community economically by minimizing encroachment on watercourse channels and the need for costly engineering solutions such as dams, retention basins and constructed slope protection measures to protect structures and reduce property damage and threats to the safety of watershed residents, and by contributing to the scenic beauty and environment of the community, thereby preserving the character of the community, the quality of life of the residents of the community and corresponding property values.

Riparian and wetland setback ordinances are implemented at the local level. Further support could be provided for the use of these ordinances through state policy or legislative changes. To work effectively, a fixed width or setback may be specified. Enforcement mechanisms need to be clearly developed. The Chagrin River Watershed Partners, Inc. has prepared "Riparian Buffers, Technical Information for Decision Makers" which summarizes national research completed to document the benefits of riparian buffers. The following cities, townships, and villages in the NEFCO region have adopted riparian and/or wetland protection resolutions or ordinances:

- Cities: Aurora, Barberton, Cuyahoga Falls, Green, Hudson, Louisville, Macedonia, Munroe Falls, New Franklin, Norton, Stow, Streetsboro, and Tallmadge
- Villages: Boston Heights, Clinton, Lakemore, Mogadore, Northfield Village, Reminderville, Richfield, and Silver Lake
- Townships: Bath, Boston, Brimfield, Copley, Coventry, Northfield Center, Richfield, Sagamore Hills, Springfield, and Twinsburg

In 2002, Summit County passed a Riparian Ordinance for the unincorporated areas of Summit County and has encouraged townships to adopt and administer the ordinance.

The Ohio Department of Natural Resources, USEPA, and local agencies have prepared useful guides on the subject. The guidance recommends fixed setbacks relative to stream size as defined by upstream drainage area. The recommended setbacks are to be consistent with the latest scientific findings as to the minimum distances needed to maintain functions and may consider criteria such as: stream flow characteristics; stream size; stream order;

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flood plain areas; quality of wetlands; topography; soil types; slope; existing terrestrial and aquatic communities; existing land use; and the function or objective of the riparian protection zone ordinance. It is desirable that a riparian and wetland protection zone ordinance be flexible and based on criteria that are defensible and equitable in nature.

Educational programs are critical in all areas prior to implementing an ordinance. Misunderstandings of the intent and content of riparian and wetland protection efforts are commonplace. Township residents need to be assured that riparian and wetland protection programs are designed to protect the stream side landowner as well as the environment. Downstream interests are benefited only if upstream problems are averted. The clarification of the intent and content of riparian protection measures has been a challenge in areas within the region where ordinance adoption has already been proposed. For this reason, public education programs need to be stressed in the region.

Educational efforts targeted to wetland and riparian landowners can result in substantial protection without the need for a protection ordinance. The implementation of an educational program might be an appropriate first step in communities that are experiencing little development pressure that affects riparian corridors.

In urban areas, traditional wetland and riparian zone protection methods might not be an option due to encroachment from existing developments and infrastructure. Entities in these areas need to look at alternative best management approaches to replace the values and functions lost from riparian zone and wetland encroachment. Management practices that should be considered include storm water retrofits and green infrastructure. Storm water retrofits provide treatment in locations where practices previously did not exist or were ineffective. Retrofits are usually installed within the stream corridor or upland areas to capture and treat storm water before it reaches the waterway. Green infrastructure captures, cleans, and reduces storm water runoff using plants and soils, essentially mimicking the natural landscapes. Practices like rain gardens, grassed swales, green roofs, pervious pavement, and storm water treatment wetlands are examples of green infrastructure. Entities with brownfield redevelopment opportunities are encouraged to apply storm water retrofit and green infrastructure practices to these sites.

**Recommendation 5-4: Developing communities in the CWP area are encouraged to consider the use of Conservation Design for Development to enhance storm water management.**

Conservation design for development is often referred to as “low impact development”. This design involves the principle of maintaining open space areas in the layout of a development project. This minimizes infrastructure needs and preserves the natural character of much of the land. It reduces the cost of development while protecting the environment. It is important to strictly limit the number of building lots created under a conservation design to that number supported on a particular property under existing zoning and building ordinances.

Central to the design is the consideration of controls for storm water quantity and quality management during the design process rather than after the site layout has been completed.

The objective is to provide storm water control measures to manage and minimize the amount of imperviousness created while maintaining tracts of open space. Structural and nonstructural measures are considered and used to maintain water quality and minimize the impact of the storm water.

The benefits of a conservation design land subdivision include the 1) minimization of increased watershed imperviousness, 2) moderation of hydrologic and hydraulic impacts on downstream waters, 3) prevention of the increased risks to flooding in downstream areas, 4) protection of environmentally sensitive areas such as wetlands and riparian corridors, and 5) maintenance of wildlife habitat. Conservation designs accomplish this by encouraging changes in local subdivision regulations that are more environmentally friendly.

These benefits are realized while decreasing the actual cost of building the development due to a minimization of infrastructure needs (it is easier and less costly to supply utilities and construct road access to concentrated housing units than to scattered ones).

Conservation designs also reduce soil erosion and storm water management costs.

Subdivision regulations are created, adopted, implemented and enforced by county planning commissions for unincorporated areas and by municipalities for incorporated areas. Cities and villages can require conservation design subdivisions as part of their zoning districts, architectural review and subdivision regulations. Townships have no architectural review authority and must rely on the county subdivision regulations as the means to govern subdivision development. A review of current subdivision and zoning regulations is critical to determine what regulations promote and deter the use of conservation design.

Allowing for conservation design in subdivisions regulations is not a new idea, nor is the idea of using the design to manage storm water. Many states actively promote the use of conservation designs. Several areas locally allow conservation design subdivisions. The Community Planning Program, formally the Countryside Program, began in 1996 by the Western Reserve Resource Conservation and Development (RC&D) Council to assist local governments interested in implementing this measure. The Program was incorporated into Cleveland State University's Center for Planning Research and Practice at the Levin College in 2006. The Community Planning Program has prepared model regulations for conservation development. These are contained in the Conservation Development Resource Manual, prepared by the Western Reserve RC & D in 1998. The document contains model zoning regulations for townships, model subdivision regulations for counties, and guidelines for adoption and use of the conservation development approach by municipalities. The Community Planning Program is the model recommended for use under this element of the CWP.

The implementation of conservation design subdivisions is facilitated in areas served by a centralized sanitary sewer system. It is also possible in areas where local soils are highly suitable for the use of individual on-site wastewater treatment systems. In areas where soils limit individual systems, alternative community-based systems may be required. Ohio

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EPA's policies currently limit the use of such systems. Ohio EPA is encouraged to pursue the development of such a policy that is compatible with conservation design subdivisions before they can be used in many unsewered areas of the region.

**Recommendation 5-5: All political subdivisions, governmental agencies, or private entities are encouraged to adopt, implement, and/or maintain Road Salt Minimization and Storage Management Programs.**

Many communities in Northeast Ohio are implementing environmentally responsible road salt programs. They seek to minimize applications and most have constructed adequately protected storage facilities. The application of road salt remains the most efficient and cost-effective method of keeping roads free of ice. Maintenance of roads during the winter months varies depending on the geographic location, weather and temperature conditions, use of alternatives other than salt, road types and level of service, types of available equipment, financial resources, and road maintenance staff.

A winter maintenance program consists of several elements ranging in degrees of importance depending on the size of the operational jurisdiction and the complexity of its road network. However, every winter maintenance program needs to ensure safety and flow of traffic, be protective of the environment, while also being fiscally responsible.

The Ohio Department of Transportation (ODOT) provides guidance that is in accord with these needs. Section 900 in the ODOT Maintenance Administration Manual combined with the District's Guidelines provides the basis for ODOT's Snow and Ice Policy. These efforts need to be continued regionally and enhanced in areas that could threaten drinking water supplies and surface waters.

It is well understood that road salt programs are driven by the need to provide for safe driving conditions. This objective cannot be compromised. Management programs seek to use only the amount of salt that will be needed to provide the desired level of safety and to apply that amount at the time when it will deliver the most good. Under some conditions, substitutes to road salt are used. Sand and other grit materials can be used in many locations that are not served with storm sewers (which quickly become clogged if sand is used). Calcium chloride is one substitute that is used locally in limited quantities. Using brine prior to a snow storm and brine additives such as beet juice have also been used as supplemental deicing treatments in the NEFCO region. Research continues regarding cost-effective alternatives that are more environmentally friendly.

Local officials understand that it never pays to over salt or to apply quantities at times when it is not needed or cannot work. A responsible program ensures that all road maintenance personnel are fully trained in application procedures and policies. It also includes a commitment not to apply road salt when the temperature is too low for it to work. The adoption of a policy to spot apply is another mechanism that can help to reduce the impacts of salting. Such a policy calls for the salting of intersections, steep grades, and high use areas while limiting the application on flat, straight stretches of road and on side streets. Whereas not all measures of road salt minimization work everywhere, each community

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needs to strive to find those that can most effectively protect its citizens while minimizing off-road effects.

**Recommendation 5-6: Soil and Water Conservation Districts, local/regional watershed-based groups, and other appropriated organizations are encouraged to take the lead in developing nonpoint source pollution management plans such as watershed action plans and balanced growth plans. Watersheds with completed and endorsed plans are eligible to receive greater consideration for various funding sources to implement nonpoint source pollution control projects.**

The objective of this mechanism is to strengthen the NEFCO region's ability to secure state, federal, and other funding sources to implement various storm water and nonpoint pollution control projects. The monetary needs for these projects in Ohio (and the nation) far exceed the available funds available. To help insure that the money from grant or loan programs go to projects with the best chance of success, many of these programs are now linking funding considerations to planning work done in the watershed.

The proliferation of watershed-based groups over the last decade along with already established funding applicants like cities, SWCDs, areawide agencies, etc., has resulted in increased competition of the limited state and federal funds available for NPS pollution controls projects. For the NEFCO region to remain competitive in receiving these grants and loans, watershed-based planning needs to be a priority in areas impacted by storm water and nonpoint source pollution. Areas without this level of planning will be at a disadvantage for receiving funding or might not even be eligible to apply to certain funding programs.

There are two watershed-based planning models in Ohio that are linked to various funding programs: watershed action plans (WAP) and balanced growth initiatives (BGI) plans. A WAP is a comprehensive effort to address multiple causes of water quality and habitat degradation in a watershed. It is a process that emphasizes prioritizing problem areas and developing comprehensive, integrated solutions by involving stakeholders from both inside and outside of government. The BGI plan is a voluntary, incentive-based strategy to protect and restore Lake Erie, the Ohio River, and Ohio's watersheds to assure long-term economic competitiveness, ecological health, and quality of life. The recommendations focus on reducing urban sprawl, protecting natural resources and encouraging redevelopment in urban areas. Both plans must be approved or endorsed by the appropriate state agencies before they can be used to attract funding. NEFCO completed a fully-endorsed watershed action plan for Nimishillen Creek (Stark County) and is developing an action plan for the Middle Cuyahoga River (Summit and Portage Counties). In Summit County, Furnace Run, and Brandywine Creek, both have balanced growth plans in development by the Cuyahoga River Community Planning Organization (CRCPO).

Several state and federal funding programs are linked to these watershed-based planning efforts with more funding sources being added periodically. The linked funding sources include Ohio EPA Section 319 Grants, Clean Ohio Fund, Water Resources Restoration Sponsorship Program (WRRSP), Wetland Reserve Program (WRP), Lake Erie Protection

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Fund (LEPF), Clean Ohio Trail Program, Environmental Quality Incentives Program (EQUIP), and Coastal Management Assistance Program.

**Recommendation 5-7: Local, State, and Federal agencies are encouraged to develop new and enhanced incentives to reduce nonpoint source pollution from agriculture lands.**

Nonpoint source pollution from agricultural lands is a significant cause of impairments in many of the streams in the NEFCO region (Table 5-2). However, unlike NPS pollution from urban storm water runoff or from construction sites greater than one acre, pollution from agricultural activities generally does not fall under the authority of the Clean Water Act and the NPDES permit program. The primary exception to this rule is concentrated animal feeding operations (CAFOs) which must get an NPDES permit from Ohio EPA. Typical agricultural activities that cause pollution problems are poorly located or managed animal feeding operations; livestock in the stream; plowing too often or at the wrong time; and improper use of fertilizers, pesticides and irrigation.

Because most agricultural practices fall outside of any regulatory authority, voluntary incentive-based conservation practices are the primary tools used to reduce NPS pollution from these lands. Most of the traditional agriculture conservation program are administered by the United States Department of Agriculture's (USDA's) Natural Resources Conservation Service (NRCS) which has several conservation programs to assist with reducing soil erosion, enhancing water supplies, improving water quality, increasing wildlife habitat, and reducing damages caused by flooding. The Conservation Reserve Program (CRP), EQUIP, and Wetlands Reserve Program (WRP) were established through the Farm Bill and provide monetary incentives through the USDA to implement best management practices.

The Farm Bill and other similar agriculture incentive-based conservation programs have been successfully implemented for over 25 years in the NEFCO region. However, pollution from agriculture continues to impair local waterways, so it is clear that these programs alone will not completely alleviate the water quality issues associated with agricultural NPS pollution. Additional conservation initiatives and funding are needed.

Entities are encouraged to participate in programs that provide incentives for agricultural land owners to implement management practices that reduce NPS pollution. A water quality trading program is a non-traditional mechanism to reduce NPS pollution by allowing entities with an NPDES permit to pay for NPS pollution control projects instead of paying for more costly upgrades at their treatment facility. Just south of the NEFCO region, a successful nutrient trading program has been established for the Alpine Cheese Company in Holmes County where the company pays for farmers to install management practices to reduce phosphorus. The program includes farmers in Wayne County. Additional water quality trading programs should be investigated in all watersheds impacted by NPS pollution. Appendix 5-1 has information regarding Ohio's rules for water quality trading.

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NEFCO also encourages regional, state, and federal grant funding agencies to improve funding options to address NPS pollution problems from agriculture. Ohio EPA's Section 319 grants, Water Resources Restoration Sponsorship Program (WRRSP), Source Water Improvement Fund (SWIF), and other similar programs should be flexible in order to deal with the wide variety of NPS pollution issues from agriculture lands.

#### **IV. Planning Strategies for Nonpoint Source Management**

This section reviews some of the initiatives that are being increasingly used to manage problems associated with nonpoint sources of pollution and storm water runoff. These initiatives form the core of management planning efforts being implemented during the continuing planning phase of the CWP. Under the 208 Plan, NEFCO has continuing planning responsibilities. They include providing for education outreach and implementing demonstration projects designed to advance the state of management of nonpoint source pollution within the region. Areas where there is a logical and viable role for continuing planning are discussed below. The participation of local management agencies is central to the success of these activities.

##### **Strategy 5-1: Intercommunity Storm Water Management Planning Support**

Storm water retention/detention basins are generally approved on a site-by-site basis in lieu of a watershed approach. This could actually result in worse downstream flooding at some locations during certain storm events unless the location, size, and other design features of storm water basins are developed within the context of an overall comprehensive storm water management program. Coordination in storm water planning by all communities in a watershed is necessary to avoid causing such a condition. Development is needed of an on-line hydrologic and hydraulic model that is capable of assisting in the interactive design of storm water control basins. All communities in a watershed need to share in the development, financing, and maintenance of such models. Efforts to develop State legislation that requires such cooperation are supported by the CWP. **See Recommendation 5-1.**

##### **Strategy 5-2: Highway Runoff Management Planning**

The design and maintenance of highways can influence the type and amount of pollutants in the runoff from the roadway. Vehicular traffic introduces a wide variety of potentially harmful chemicals into surface runoff. There are practices that can reduce the impacts associated with these chemicals. Local officials, acting in concert with the Ohio Department of Transportation (ODOT), need to develop management programs that can be implemented locally to control these releases. The melding of water quality and transportation planning capabilities can be drawn on to help realize this objective.

There is a need to develop educational programs which demonstrate how to minimize or mitigate the hydraulic impacts of highway runoff. There are techniques that can be used during the engineering phase, during actual construction, and as part of long-term operation

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and maintenance. It is even possible in some cases to provide partial mitigation of previous impacts.

### **Strategy 5-3: Cooperation with Stream Channel Stabilization and Stream Restoration Programs**

The disturbance of the natural landscape has many consequences. One of these is that stream hydrology is altered as we clear native vegetation and convert the land to agricultural and urban uses. As the hydrology of a watershed is altered, the stream responds by adjusting its hydraulic forces to compensate for the new conditions. These adjustments have serious consequences such as increased flood damages, stream bank erosion, and the loss of quality stream habitat. In the past, we have responded to the changing conditions within the stream channel with a series of engineered approaches that have not proven wholly successful in dealing with the complete problem within the stream. Channelization and hard bank armoring, which have commonly been used to deal with problems in the channel, often pass the problem somewhere else because they have not dealt with the cause of the problem.

New approaches are being recognized as ways to address some of these shortcomings. These approaches incorporate the use of bioengineering principles which use natural plant materials instead of concrete. Bioengineering maximizes the establishment of terrestrial and aquatic habitat. Other aspects involve the recreation of stable channel patterns and cross-sections that mimic natural conditions. The area's SWCDs can be contacted for more information on how to incorporate bioremediation measures in stream management projects (See Appendix 5-1).

Programs for the maintenance or improvement of drainage ditches need to adopt soil bioengineering principles. These principles will allow the ditch to better provide its drainage function while still providing aquatic habitat. The two-stage or overwide ditch design is one alternative to traditional ditch methods. A two-stage ditch advantages over a traditional design includes better drainage, improved habitat, increased ditch stability, and reduced maintenance.

### **Strategy 5-4: Cooperation with Watershed Stewardship Projects**

Watershed stewardship programs are being established to raise public awareness which can help to build a constituency for protecting or restoring local streams. They do this by involving the public in efforts to clean up or to preserve local streams with the cooperation of the public agencies that are responsible for those streams. Stewardship programs emphasize voluntary actions as the means to accomplish stream improvement objectives. They energize watershed residents to take an active role in the protection of the stream through participation in clean-up campaigns, stream monitoring activities, vegetative planting projects, and similar activities. Local officials participate through their support of the citizen projects and by targeting their resources to the problems documented by stewardship activities.

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Stewardship programs raise awareness of a watershed's problems and seek to coordinate efforts to deal with them in an efficient manner. The public/private partnerships that are established by the programs are the mechanism by which this happens. The key element of stewardship programs is the consensus-building process involved. Volunteers identify problems, research cost-effective solutions, and provide manpower to help implement these solutions. They are assisted in this process by the professional environmental staffs working for a host of public agencies. Local communities step in with the resources needed to carry out the recommended actions. When done in a coordinated manner, public support is organized to take care of the priority problems without overtaxing a community's ability to respond. This generation of community support is the key to real and lasting change.

Stream Stewardship Programs are becoming commonplace in the NEFCO 208 water quality management areas. Programs are now underway in all of the following streams: Furnace Run, Tinkers Creek, Brandywine Creek, Grand River, Middle Cuyahoga River, Little Cuyahoga River, Yellow Creek, Sugar Creek (Wayne County), and Nimishillen Creek.

NEFCO has sponsored a two ODNR Watershed Coordinator in the Upper Tuscarawas River Basin (Stark, Summit, and Wayne Counties) and the Middle Cuyahoga River Watershed (Summit and Portage Counties). The Watershed Coordinator's job is to facilitate local watershed groups to develop watershed plans and assist with procuring resources to implement the plans.

#### **Strategy 5-5: Coordination of Geographic Information System (GIS) Opportunities**

One of the difficulties in dealing with nonpoint sources of pollution is that it is characterized by small incremental loadings generated from a very large land base. It is difficult to identify and estimate the contribution from each specific portion of a watershed. This limits the ability to target priority sources or areas within problematic watersheds.

The development of computerized mapping and analysis tools is providing new opportunities for the management of nonpoint sources. It is now becoming a matter of course to be able to manipulate very large data bases that allow one to overlay land use, soil type, land slope, hydrologic data, and other parameters in ways that provide insight into those combinations that are most important in any given watershed. It is also possible to link these overlays to stream performance data including chemical monitoring data, biological assessments, and stream channel instability problems. Hydrologic modeling, which demands large amounts of land-based inputs, is becoming more efficient, allowing for a better analysis of flooding and water quality problems. The ability to link numerous causes and effects related to our use of the landscape increases the support for action by combining several objectives into one coordinated solution. This information is instrumental in helping public officials to recognize and understand these interrelationships.

As new tools are developed to help identify and prioritize remediation actions in nonpoint source impaired watersheds, numerous agencies will have to actively coordinate their data collection and reporting procedures. This will allow for the generation of up-to-date

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computer files of land based information that can readily and easily be shared among all parties needing it. Support for the maintenance of this data base is important if GIS technology is to be maximized. The outputs of the technology can then be used to assist in the education of local public officials regarding their role in the management of nonpoint sources of pollution.

### **Strategy 5-6: Encouragement of Land Preservation Programs**

A variety of land preservation and conservation programs are available to offset the effects of continued land development trends. These programs seek to accommodate growth while maintaining the land and water resources in developing areas. Farmland Preservation and Land Conservancy Programs are two examples of such efforts.

Farmland preservation efforts seek to maintain the character of rural landscapes by maintaining the conditions that enhance the sustainability of agriculture in growth pressure areas. They involve the purchase of land development rights on those tracts of agricultural land deemed crucial to the continued agricultural viability in a particular area. They also work to buffer agriculture from development by employing the concept of conservation design in which residential development is clustered in areas surrounded by open space.

Land Conservancy Programs seek conservation easements from landowners interested in helping to preserve the natural character of undeveloped areas. Conservation easements can be an important tool which can provide tax benefits to the donor and at the same time provide important protection for a water or land resource. A conservation easement is a recorded deed restriction under which a property owner gives up all or some of the development rights associated with their property. The conservation easement is generally managed by a charitable organization in the conservation field or a unit of government. In granting a conservation easement, the owner is in essence giving up any future development rights on the property and giving the management organization the right to enforce the extinguished development rights. The property can be sold but it will always be subject to the terms of the conservation easement. Stream banking programs can make use of conservation easements for the protection of riparian areas.

Land conservation projects can receive funding support from several programs. The State of Ohio's Nature Works Program is one of these. The Lake Erie Protection Fund and Section 319 Nonpoint Source Grants have also been used in this regards. The Wetlands Preserve Program administered by NRCS-USDA is another source of this protection. Local SWCD offices can be contacted for more information on all of these initiatives. Land conservancy organizations, park districts, nature preserves, and other entities committed to the preservation of open space should be considered in land conservation projects. They can provide support in various roles including funding assistance, legal guidance, land negotiations, and other areas of expertise related to the land conservation.

## **Strategy 5-7: Regional Smart Growth**

“Smart Growth” has many different meanings to various people and organizations. In the context of this plan, “Smart Growth” has helped communities grow in ways that expand economic opportunity while protecting public health and the environment. Smart growth development can minimize water pollution, encourage brownfield clean-up and reuse, and preserve natural lands by incorporating low impact development and green infrastructure principles. Done on a regional scale, the goal is maximize the use of existing infrastructure and limit the development or “sprawl” into new areas in the NEFCO region.

Efforts will need to be coordinated on a regional or watershed scale to ensure the protection of water resources. Balanced growth plans, and to a lesser extent watershed action plans, contain many of the principles of smart growth but on a coordinated watershed scale. In addition, cities, villages, and counties need to complete a “green audit” of their zoning and building codes to determine needed changes to encourage smart growth while maintaining local needs and preferences. Regional entities like areawide planning agencies, regional planning commissions, watershed groups, conservancy districts, etc., can be forums to distribute information and exchange ideas on regional smart growth. These organizations may also assist in resolving conflicts among entities that will likely arise from a regional approach to development.

## **VI. Policies for Encouraging Local Actions for the Control of Nonpoint Source Pollution**

NEFCO encourages local initiatives for control of storm water and nonpoint source pollution. The adoption of the following policies is presented as a beginning point to ameliorate the impacts of nonpoint source pollution arising from runoff.

**Policy 5-1: NEFCO will promote and support the implementation by local and county jurisdictions in the CWP area of the nonpoint source management programs presented in this chapter. These programs include:**

- 5-1. Storm water runoff management from development and redevelopment actions**
- 5-2. Construction site erosion and sediment control programs**
- 5-3. Riparian zone protection program**
- 5-4. Conservation design for storm water management**
- 5-5. Road salt minimization and storage program and**
- 5-6. Nonpoint source management plans funding programs**
- 5-7. Incentives to reduce nonpoint source pollution from agriculture**

**Policy 5-2: A local or county jurisdiction that agrees to implement one or more of these nonpoint source recommendations will be recognized as a management agency for that purpose in this plan.**

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**Policy 5-3: Local and county jurisdictions will be encouraged to pursue implementation of the recommended nonpoint source management programs by cooperating on an interjurisdictional watershed basis.**

**Policy 5-4: NEFCO encourages state and federal funding agencies to provide on a priority basis nonpoint source and watershed grants to support implementation of nonpoint source management programs by management agencies recognized for nonpoint source management in this plan.**

**Policy 5-5: NEFCO will cooperate with the planning initiatives outlined in the nonpoint source management planning strategies presented in this chapter. These strategies include:**

**Strategy 5-1: Intercommunity Storm Water Management Planning Support**

**Strategy 5-2: Highway Runoff Management Planning**

**Strategy 5-3: Cooperation with Stream Channel Stabilization and Stream Restoration Programs**

**Strategy 5-4: Cooperation with Watershed Stewardship Project**

**Strategy 5-5: Coordination of Geographic Information System (GIS) Opportunities**

**Strategy 5-6: Encouragement of Land Preservation Programs**

**Strategy 5-7: Regional Smart Growth**

## **VII. Strategy for Implementing Recommended Nonpoint Source Management Programs**

Implementation of the programs recommended in this chapter will require an active sustained effort at promoting and supporting local implementation initiatives. This is an effort that will require the sustained interest and cooperation of a number of agencies with nonpoint source technical resources, including the areawide planning agencies, county level support agencies such as the soil and water conservation districts, county engineers, county planning agencies, the Northeast Ohio Regional Sewer District (NEORS) and Akron Water Public Utilities and others, state agencies including Ohio EPA, ODNR, ODH, ODOT the Ohio Lake Erie Commission and the OWDA among others, and the watershed planning organizations discussed in Chapter 8.

The presentation of the draft plan to local jurisdictions for review and comment provides an initial opportunity for promoting these recommendations. However, the effort to secure local adoption of these recommendations will require a sustained effort over a period of time. The ongoing areawide planning process outlined in Chapter 10 discusses the issue in more detail.

## **APPENDIX 5-1**

### **Nonpoint Source Management: Recommended Model Ordinances Resource, Fact Sheets, and Agency Contact List**

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## **Appendix 5-1**

### **Nonpoint Source Management: Recommended Model Ordinances, Fact Sheets and Resource Agency Contact List**

#### **I. Recommended Model Ordinances**

Please contact the Northeast Ohio Four County Regional Planning and Development Organization (NEFCO) for copies of the following documents. Please consult the attached Resource/Agency Contact List to obtain additional information.

#### **Recommendation 5-1: Storm Water Management from Development and Redevelopment Actions**

Northeast Ohio Areawide Coordinating Agency. “NOACA Model Approach to the Phase II Storm Water Management Plan.” 2003.

Regional Storm Water Task Force – NOACA. “Ordinance Controlling Post-Construction Water Quality Runoff.” 2009.

#### **Recommendation 5-2: Construction Site Erosion and Sediment Control Programs**

Chagrin River Watershed Partners, Inc. “Model Ordinance for Erosion and Sediment Control.” 2004.

Ohio Department of Natural Resources. “Rainwater and Land Development Guide.” 1996.

Regional Storm Water Task Force – NOACA. “Ordinance Controlling Construction Site Soil Erosion, Sediment, and Other Wastes and Storm Water Runoff.” 2009.

#### **Recommendation 5-3: Riparian Zone and Wetland Protection Program**

Center for Watershed Protection. “Manual 3 - Urban Storm Water Retrofit Practices.” 2007.

Chagrin River Watershed Partners. “A Model Ordinance for the Establishment of a Riparian Setback” 2004.

Chagrin River Watershed Partners. “A Model Ordinance for the Establishment of a Wetland Setback.” 2004.

Chagrin River Watershed Partners. “Riparian Setbacks: Technical Information for Decision Makers.” 2006

Regional Storm Water Task Force – NOACA. “Ordinance Controlling Riparian Setbacks and Wetland Setbacks” 2006

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Summit County Riparian Ordinance, 2002, Summit Soil and Water Conservation District.

**Recommendation 5-4: Conservation Design for Storm Water Management**

Western Reserve Resource Conservation and Development Council: The Countryside Program. "Conservation Development Resource Manual." 1998.

**Recommendation 5-5: Road Salt Minimization and Storage Programs**

Ohio Department of Transportation. "Maintenance Administration Manual – 900 Snow and Ice Removal."

**Recommendation 5-6: Watershed Planning Programs**

Ohio Environmental Protection Agency. "Guide to Developing Local Watershed Action Plans in Ohio." 1997.

Ohio Lake Erie Commission. "Linking Land Use and Lake Erie: A Planning Framework for Achieving Balanced Growth in the Ohio Lake Erie Watershed." 2004.

**Recommendation 5-7: Agricultural Pollution Abatement Programs**

Ohio Environmental Protection Agency. "Rules for Water Quality Trading." 2007.

## II. Resource/Agency Contact List

### **Portage Soil and Water Conservation District**

6970 State Route 88  
Ravenna, Ohio 44266  
Phone: (330) 297-7633  
Fax: (330) 296-5917  
E-mail: [mwillett@portageswcd.org](mailto:mwillett@portageswcd.org)  
Web site: [www.portageswcd.org](http://www.portageswcd.org)

### **Stark Soil and Water Conservation District**

650 Richville Drive SE, Suite 103  
Massillon, Ohio 44646  
Phone: (330) 830-7700 x103  
Fax: (330) 830-7731  
E-mail: [julie.berbari@starkswcd.org](mailto:julie.berbari@starkswcd.org)  
Web site: [www.starkswcd.org](http://www.starkswcd.org)

### **Summit Soil and Water Conservation District**

2525 State Road  
Cuyahoga Falls, Ohio 44223  
Phone: (330) 929-2871  
Fax: (330) 929-2872  
E-mail: [staff@summitswcd.org](mailto:staff@summitswcd.org)  
Web site: <http://www.summitswcd.org>  
(source for information about the Summit County Riparian Ordinance)

### **Wayne Soil and Water Conservation District**

428 W. Liberty St.  
Wooster, Ohio 44691  
Phone: (330) 262-2836  
Fax: (330) 226-7422  
E-mail: [info@wayneswcd.org](mailto:info@wayneswcd.org)  
Web site: <http://www.wayneswcd.org/>

### **Ohio Department of Natural Resources (ODNR), Division of Soil and Water Conservation**

2045 Morse Road  
Building B-3  
Columbus, Ohio 432249  
Phone: (614) 265-6610  
Fax: (614) 262-2064  
E-mail: [dswc@dnr.state.oh.us](mailto:dswc@dnr.state.oh.us)  
Web site: <http://www.dnr.state.oh.us>

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**Cuyahoga Valley Communities Council**

8001 Brecksville Road  
Brecksville, Ohio 44141  
Phone: (440) 526-1822  
Fax: (440) 526-1822  
E-mail: cdcc@qwis.com  
Web site:

**Chagrin River Watershed Partners, Inc.**

4145 Erie Street, Suite 203  
P.O. Box 229  
Willoughby, OH 44096-0229  
Phone: (440) 975-3870  
E-mail: [lmoran@crwp.org](mailto:lmoran@crwp.org)  
Web site: <http://www.crwp.org>

**Western Reserve Resource, Conservation & Development Council (RC&D)**

125 E. Erie St.  
Painesville, OH 44077  
Phone: (440) 350-2034  
FAX: (440) 350-2063  
E-mail:  
Web site: <http://www.oh.nrcs.usda.gov/programs/rcd/westernreservehome.html>

**Ohio Environmental Protection Agency, Division of Environmental and Financial Assistance (DEFA)**

Lazarus Government Center  
50 West Town Street, Suite 700  
P.O. Box 1049  
Columbus, Ohio 43216-1049  
Phone: (614) 644-2798  
Fax: (614) 644-3687  
E-mail: [Becky.Hegy@epa.state.oh.us](mailto:Becky.Hegy@epa.state.oh.us)  
Web site: <http://www.epa.ohio.gov/defa>

**Ohio Environmental Protection Agency, Northeast District Office (NEDO)**

2110 East Aurora Road  
Twinsburg, Ohio 44087  
Phone: (330) 963-1200  
Fax: (330) 487-0769  
E-mail: [dbogolveski@epa.state.oh.us](mailto:dbogolveski@epa.state.oh.us)  
Web site: <http://www.epa.ohio.gov/nedo>

*Please call Ohio EPA for information related to nonpoint source pollution control at (330) 963-1215 or storm water management at (330) 963-1145.*

**Approved by the NEFCO General Policy Board  
12/21/2011**

**Ohio Department of Transportation (ODOT)**

District 4

2088 S. Arlington Road

Akron, OH 44306

Phone: (330) 786-3100 or (800) 603-1054

Fax: (330) 786-2210

E-mail: [D04.PIO@dot.state.oh.us](mailto:D04.PIO@dot.state.oh.us)

Web site: <http://www.dot.state.oh.us/dist4/>

**Ohio Department of Transportation (ODOT)**

District 3

906 North Clark Street

Ashland, OH 44805

Phone: (800) 276-4188

Fax: (419) 281-0874

E-mail: [D03.PIO@dot.state.oh.us](mailto:D03.PIO@dot.state.oh.us)

Web site: <http://www.dot.state.oh.us/dist3/>

Approved by the NEFCO General Policy Board

12/21/2011