

COUNTY OF FAYETTE STORMWATER MANAGEMENT PLAN ACT 167

JUNE 2010

Prepared for:
OFFICE OF PLANNING, ZONING, & COMMUNITY DEVELOPMENT
61 East Main Street
Uniontown, Pa 15401

Prepared by:
McMILLEN ENGINEERING INC.
115 Wayland Smith Drive
Uniontown, PA 15401
724-439-8110

TABLE OF CONTENTS

Introduction.....	1
Act 167 Watershed Level Stormwater Management	
Planning & Implementation	2
Watershed Characteristics	5
Technical Analysis.....	16
Standards & Criteria for Control of Stormwater	25
Ordinance Provisions	27
Model Ordinance	29
Priorities for Implementation.....	30
Plan Review Adoption & Updating, Procedures.....	32

APPENDIX

Maps	A
Fayette County Map	
Fayette County Watershed Map	
Stormwater Obstruction Map	
Stormwater Problem Area Map	
Stormwater Management Facility Map	
Fayette County Release Rate Map	
Model Stormwater Ordinance.....	B
Comments/Responses During Review Process	C

Section I - Introduction

The Plan is developed for the Youghiogheny River Watershed, Monongahela River Watershed, and the Cheat River Watershed in Fayette County, Pennsylvania. The Plan, for this southwestern county, is developed under the requirements of the Pennsylvania Stormwater Management Act (Act 167) of 1978.

By adopting a countywide Plan, Fayette County is allowing for consistent standards and criteria to control stormwater runoff. Act 167 provides for the regulation of land and water uses for flood control and stormwater management purposes.

Fayette County addressed all three watersheds (Monongahela, Youghiogheny, and Cheat) under one Plan consulting with the municipalities, Fayette County Conservation District and other interested individuals and groups to develop a plan consistent with the legislation as well as achieving the needs of the individual municipalities and the watershed contained within their boundaries.

By addressing the legal, engineering, and municipal government topics collectively in the Plan, the County formed the foundation for implementation and enforcement of a final ordinance. Each municipality has to adopt an ordinance as a result of the Plan. A sample stormwater ordinance for reference has been developed as part of the Plan.

Section II - Act 167 Watershed Level Stormwater Management Planning and Implementation

The Stormwater Management Plan (Act 167) was approved by the Pennsylvania General Assembly as a result of the Assembly recognizing and understanding the undesirable effects of little or no management of excessive rates and volumes of stormwater runoff from development. The Act allows for powers to the Department of Environmental Protection (DEP), counties, and municipalities and provides for the enforcement of the Act.

DEP has designated watersheds and development guidelines for stormwater management plans as well as a suggested model ordinance for municipalities. The County and its municipalities are provided with the authority to prepare a stormwater management plan (county) and to adopt a stormwater management ordinance (municipality).

Fayette County has regulated stormwater, to a degree, through its' countywide Subdivision and Land Development Ordinance affecting thirty-two municipalities on a site-specific basis. County and local officials deemed it necessary to have a more comprehensive and complete approach to stormwater management and the impact to the watershed as compared to the current regulations addressing only site-specific development.

After the Plan is adopted by the County and approved by PADEP, any individual engaged in construction activities is required to implement stormwater management measures consistent with the Plan. In addition to new development, the municipalities have an opportunity to assess and resolve problems to improve existing water quality impairments or existing problem areas of flooding.

With the adoption of the County's Act 167 Plan, the County and municipalities continue to allow development to occur in each of the three watersheds while utilizing both structural and non-structural measures to correctly manage stormwater runoff.

The following objectives will be achieved with the Plan:

1. Reduce flooding;
2. Reduce soil and stream bank erosion and sedimentation;
3. Improve the overall quality of the receiving streams; and
4. Implement a stormwater management ordinance

Cooperation between county and municipal officials, along with state agencies, allows for the success of the Plan to be implemented and the Stormwater Ordinance to be administered and enforced by each municipality. During Phase I and Phase II of the Plan, the Office of Planning, Zoning and Community Development educated the public and local officials on the importance of stormwater management at a watershed level.

The County, shall at a minimum, review and revise the County Plan at least every five years. Since Fayette County is completing an accelerated Phase II for Act 167, each subsequent revision is to address, assess, and provide solutions for problem areas and obstruction areas as identified in the Municipal Survey. Fayette County and its municipalities benefit greatly from a comprehensive approach in regulating stormwater to preserve the overall quality of life and environment.

Once Phase II is completed and adopted by the Fayette County Board of Commissioners, the Plan is forwarded to PADEP for review and approval. After PADEP approves the Plan, each municipality has six months to adopt and implement a Stormwater Ordinance to ensure development is consistent with the Plan and within the provisions of Act 167.

One concern members of the Plan Advisory Committee mentioned is the implementation and administration of the Plan and Ordinance. Many municipalities operate on limited budgets and staff. The Office of Planning, Zoning, and Community Development, along with PADEP representatives and the Fayette County Conservation District had preliminary discussions on viable options for a municipality on the implementation of the Plan and administration of the adopted Stormwater Ordinance.

Table II-1 lists the plan requirements, as specified in Section 5 of Act 167, and the location within this plan. The implementation components of this Plan are not adversely affected by the items in Table II-1 that were not evaluated in detail.

**Table II-1
Act 167 Section 5 Plan Requirements**

Plan Requirement	Location within Plan
A survey of existing runoff characteristics in small as well as large storms, including the impact of soils, slopes, vegetation and existing development.	Section III – Watershed Characteristics (This data was incorporated into the models built for this plan.)
A survey of existing significant obstructions and their capacities that significantly affect storm water management and flooding within the watersheds.	Section III – Watershed Characteristics (The significant obstructions have been identified by each municipality, but there is no analysis of them due to the accelerated Phase II approach of this plan.)
An assessment of projected and alternative land development patterns in the watersheds and the potential impact of runoff quantity, velocity and quality.	Section III – Watershed Characteristics (This data was incorporated into the models built for this plan.)
An analysis of present and projected development in the flood hazard areas, and its sensitivity to damage from future flooding or increased runoff.	Item is not within the scope of the project due to the accelerated Phase II approach of this plan.
A survey of existing drainage problems and proposed solutions.	Section III – Watershed Characteristics (The drainage problems have been identified by each municipality, but there is no analysis of them due to the accelerated Phase II approach of this plan.)
A review of existing and proposed storm water collection systems and their impacts on flooding and storm water runoff.	Section III – Watershed Characteristics (The existing storm water facilities have been identified by each municipality, but there is no analysis of them due to the accelerated Phase II approach of this plan.)
An assessment of alternative runoff control techniques and their efficiencies in each watershed identified.	Item is not within the scope of the project due to the accelerated Phase II approach of this plan.
An identification of existing and proposed State, Federal and Local flood control projects located in the watersheds and their design capacities.	Section III – Watershed Characteristics
A designation of those areas to be served by storm water collection and control facilities within a ten-year period, an estimate of the design capacity and costs of such facilities, a schedule and proposed methods of financing the development, construction, and operation of such facilities, and an identification of the existing or proposed institutional arrangements to implement and operate the facilities.	Item is not within the scope of the project due to the accelerated Phase II approach of this plan.
An identification of flood plains and flood hazard areas within the watersheds.	Section III – Watershed Characteristics
Criteria and standards for the control of storm water runoff from existing and new development which are necessary to minimize dangers to property and life and carry out the purposes of the Act.	Section V – Standards and Criteria for the Control of Stormwater
Priorities for implementation of action within each watershed identified.	Section VIII – Priorities for Implementation (The County has prioritized the obstructions and drainage problems.)
Provisions for periodically reviewing, revising and updating the Plan.	Section IX – Plan Review Adoption and Updating Procedures
Provisions as are reasonably necessary to manage storm water such that development or activities in each municipality within the watersheds do not adversely affect health, safety, and property in other municipalities within each watershed identified and in basins to which the watersheds are tributary.	Section VIII – Priorities for Implementation (All municipalities are required to adopt a storm water management ordinance.)
Consider and be consistent with other existing municipal, county, regional and state environmental and land use plans.	Section III – Watershed Characteristics

Section III- Watershed Characteristics

The Cheat River forms at the northern boundary of the Borough of Point Marion, Fayette County. The Cheat River is a tributary to the Monongahela River. The Cheat River drains the largest uncontrolled watershed in the eastern United States. At its confluence, the drainage area is 1,422 square miles. The stream generally flows in a northwest direction from its source in Randolph County in northwestern West Virginia. The Cheat River flows approximately 8 miles in Fayette County to the confluence with the Monongahela River. Local relief above the stream valley varies from a low of 780 feet to an average hilltop elevation of 1,000 feet. The average river gradient is 6-feet per mile.

The Monongahela River, with a total drainage area of 7,384 square miles, joins the Allegheny River to form the Ohio River at Pittsburgh. The Monongahela River is formed by the junction of the West Fork and Tygart Rivers at Fairmont, West Virginia, which is 128.7 miles above its mouth. The headwaters of these rivers are located on the western slopes of the Appalachian Mountains in Lewis, Upshur, and Randolph Counties in northwestern West Virginia. As the Monongahela River follows the western border of Fayette County it is fed by two watersheds in Fayette County, the Middle Monongahela River Watershed with a drainage area of 509 square miles and the Upper Monongahela River Watershed with a drainage area of 188 square miles. The Monongahela River flows northerly throughout its entire length. The average river gradient is less than 1-foot per mile.

The Youghiogheny River has its source in western Maryland, approximately 123 miles upstream of its confluence with the Monongahela River. It flows north to Confluence, Pennsylvania, where it is joined by the Casselman River and then flows northwest to its mouth. As the Youghiogheny River flows through Fayette County, it is fed by two watersheds, the Lower Youghiogheny River Watershed with a drainage area of 478 square miles and the Upper Youghiogheny River Watershed with a drainage area of 383 square miles.

Refer to the Fayette County Watershed Map to determine the location of each watershed.

Task A- Data Collection

The following documents are available to analyze Fayette County, its municipalities, and the watersheds to understand the existing and future conditions of each watershed:

1. Comprehensive Land Use Plans: Fayette County adopted its countywide comprehensive plan in September 2000; whereas, many municipalities have updated their municipal comprehensive plans after 2000. A copy of the countywide plan is available in the Fayette County Office of Planning, Zoning and

Community Development. The Southwestern Pennsylvania Commission has land coverage mapping for the years of 1999 and 2000 available.

Municipal comprehensive plans have been adopted by thirty-four of forty-two municipalities. One joint plan (Dunbar Borough and Dunbar Township) has only Phase I completed of their joint planning efforts. Copies of the municipal plan are available at the respective municipal office of each municipality or at the Office of Planning, Zoning and Community Development.

Both the County Comprehensive Plan and municipal comprehensive plans provide an existing land use map and a future land use map designating areas for growth and development and the areas of land to be preserved.

2. Existing municipal ordinances: Fayette County governs thirty-two municipalities for zoning, subdivision, and land development ordinances. The remaining ten municipalities have adopted zoning, subdivision and land development ordinances at the local level.

Several municipalities have adopted regulations to address floodplain, stormwater management, drainage, and erosion control:

Floodplain Regulations	Dunbar Borough, Everson Borough, Fairchance Borough, Franklin Township, Jefferson Township, North Union Township, Redstone Township, South Connellsville Borough, and South Union Township
Stormwater Management Regulations	Bullskin Township, Connellsville City, Connellsville Township, Dunbar Borough, Everson Borough, Fairchance Borough, Georges Township, Masontown Borough, North Union Township, Redstone Township, South Connellsville Borough, and Washington Township
Drainage Regulations	Bullskin Township, Connellsville City, Connellsville Township, Dunbar Borough, Dunbar Township, Everson Borough, Georges Township, Masontown Borough, North Union Township, and South Connellsville Borough
Erosion Control Regulations	Bullskin Township, Connellsville City, Connellsville Township, Dunbar Borough, Dunbar Township, Everson Borough, Fairchance Borough, Georges Township, Masontown Borough, North Union Township, Redstone Township, South Connellsville Borough, and City of Uniontown

Copies of the regulations are available at the respective municipal office.

3. Existing and anticipated stormwater problems, including quality and quantity problems, impaired stream segments, and previously proposed solutions: During Phase I of Act 167, the Municipal Survey asked each municipality to identify problem areas within their boundaries. Refer to Appendix A for a listing of identified problem areas. Following up on the problem areas identified, the Office of Planning, Zoning and Community Development asked each municipality to prioritize their problem areas; then, the County developed an overall prioritization of problem areas to be addressed during the subsequent revisions of the Plan.
4. Existing and proposed flood control projects: Information about existing and proposed flood control projects is available at www.rampp-team.com/pa.htm Flood Insurance Study, Volume 1, Section 2.4.
5. A listing of existing and proposed stormwater collection and control facilities, including a designation of those areas to be served by stormwater collection and control facilities within a 10-year period and estimate of the design capacity and costs of the proposed facilities, a schedule and the proposed methods of financing the development, construction, and operation of such facilities, and an identification of the existing or proposed institutional arrangements to implement and operate the facilities, where this information is readily available: During Phase I of Act 167, the Municipal Survey asked each municipality to identify stormwater management facilities within their boundaries. Refer to Appendix A for a listing of identified stormwater facilities.
6. Storm sewer outfalls: The MS4 municipalities' stormwater outfalls are on record at the municipal office.
7. Soils: An assessment of the county soil resources is in the Land Use section of the Fayette County Comprehensive Land Use Plan (pg.4.)
8. Geology: An assessment of the county geology is in the Land Use section of the Fayette County Comprehensive Land Use Plan (pg.2.)
9. Significant flow obstructions: During Phase I of Act 167, the Municipal Survey asked each municipality to identify obstruction areas within their boundaries. Refer to Appendix A for a listing of obstruction areas. Following up on the identified obstruction areas, the Office of Planning, Zoning and Community Development asked each municipality to prioritize their obstruction areas; then, the County has developed an overall prioritization of areas to be addressed during the subsequent revisions of the Plan.
10. Topographic mapping: The Southwestern Pennsylvania Commission has topography mapping at twenty-foot contours by USGS.
11. Aerial photographs: The Southwestern Pennsylvania Commission has orthophotographs available for years 1990, 2000, 2003, and 2006.
12. Engineering and planning studies: Refer to existing Plans, Studies and Reviews.

13. Streamflow data: Stream flow data for Fayette County can be found at www.ramp-team.com/pa.htm, Flood Insurance Study, Volume 1, Table 13.

14. Floodplain information: The Southwestern Pennsylvania Commission has flood prone areas mapped and the Office of Planning, Zoning and Community Development has floodplain maps available. Currently, the municipalities are researching the preliminary Digital Flood Insurance Rate Map (DFIRM), and if there are serious issues identified, a formal appeal will be submitted to FEMA within the 90 day appeal period. If there are citizens affected by the preliminary DFRIM, the municipalities is to inform those residents. Also, the municipalities are to review their Floodplain Ordinance to comply with the minimum requirements of the NFIP.

As this is an accelerated Phase II Plan, there is no field investigations conducted. It should be noted the County Comprehensive Plan, while recognized as a valuable resource, was completed in September 2000 and needs updated. Coordination with the individual municipality and the Office of Planning, Zoning and Community Development is necessary to determine existing land use in each watershed for assessing existing and future land use patterns in the watershed.

Problem Area Inspections, Summary and Proposed Solutions

During Phase I, municipalities identified obstruction areas and problems areas within the municipal boundary. The county tabulated sixteen obstruction areas and thirty problem areas.

As a result of Fayette County completing an accelerated Phase II Plan, the County has prioritized the obstruction areas and problem areas. At this time, there has been no modeling or field investigation of any problem areas and obstruction areas identified. The municipalities assisted in prioritizing those identified below:

<p>First Update</p>	<p><i>Connellsville City:</i> Four inadequate storm water system in Davidson Avenue and adjoining Pittsburgh Street (O2)</p> <p><i>Dunbar Borough:</i> Flooding and ponding on Church Street (P4)</p> <p><i>Everson Borough:</i> Open swale on Paddock Avenue (5)</p> <p><i>Fairchance Borough:</i> Undersized principal spillway at Cave Hollow Dam (O4); undersized principal spillway at Asken Hollow Dam (O5)</p> <p><i>Georges Township:</i> Undersized bridge openings on Ringer Road and Weaver Mill Road (O6); Stream bank erosion caused stream to relocate rear Clark Road (P11)</p>
---------------------	--

	<p><i>German Township:</i> Barnhart Road- out dated bridge structure (P12)</p> <p><i>Masontown Borough:</i> Storm surge from SR 21 and Redwood Avenue (O8 and P16); storm surge over SR 21 and SR 166 interchange (P15)</p> <p><i>Saltlick Township:</i> Flooding of bridge and roadway on Fowl Hill Road at Indian Creek (P18); Bridge over Champion Creek on Albright's Road (P19)</p> <p><i>South Union Township:</i> Low bridge over Lick Run at Lebanon Avenue (O11); Undersized cement pipe under S. Mount Vernon Avenue extension (O13); Barriers restrict channel flow under O.C. Cluss Lumber Bldg. C.R.R. (O14)</p> <p><i>Stewart Township:</i> Stream overflows in a floodplain- Meadow Run (P21)</p> <p><i>Wharton Township:</i> Nelson Road- undersize or improperly installed culvert (P30)</p>
<p>Second Update</p>	<p><i>Brownsville Township:</i> Century Bridge- wall heads are eroding (P1)</p> <p><i>Connellsville City:</i> Undersized pipe or pipe blockage at West Green St and Twelfth Street (O1)</p> <p><i>Dunbar Borough:</i> All inlets and culverts need repaired (P5)</p> <p><i>Everson Borough:</i> Drainage and water table at Park (P6); Upgrade inlets, culverts and piping (P8)</p> <p><i>Henry Clay Township:</i> Beaver Creek Bridge (O7)</p> <p><i>Menallen Township:</i> Stoney Point Road and New Salem Road- grate clogs with debris during bad storm (O9); Culvert backs up off of Fan Hollow Road (O16)</p> <p><i>Redstone Township:</i> Floodplain area on Dunlap Creek (P17)</p> <p><i>Saltlick Township:</i> Flooding of roadway during high waters (P20)</p> <p><i>Stewart Township:</i> Inadequate pipes and culverts that cause stream overflows at Laurel Run (P22); Inadequate</p>

	<p>pipes and culverts that cause stream overflows at Jonathan Run (P23)</p> <p><i>Uniontown City:</i> Flooding occurs during heavy rains at Pittsburgh and Arch Streets (P24); Flooding occurs during heavy rains at Beeson Street and Maple Street (P25)</p> <p><i>Washington Township:</i> Williams Drive cross pipe elevations too high (O15); Large swamp area at Heinz property in Washington Heights (P27)</p> <p><i>Wharton Township:</i> Mason Dixon Road- channel filled with silt (P29)</p>
Third Update	<p><i>Connellsville City:</i> Inadequate drainage at intersection of East Apple and Jefferson Street (P2); Inadequate drainage at intersection of Polasky Street and Decateur Avenue (P3)</p> <p><i>Fairchance Borough:</i> Undersized 8' pipe and absence of inlets on Kyle Avenue (O3, P9)</p> <p><i>Upper Tyrone Township:</i> Initial land clearing for development- Valley View Drive (P26)</p> <p><i>Washington Township:</i> End of Kolosky Street and Hollywood Street (P28)</p>
Fourth Update	<i>None identified at this time.</i>

The map in Appendix A identifies the location of problem areas and obstruction areas and the municipality.

At the time of subsequent revisions, the Plan will summarize the identified problems areas and obstruction areas, identify and evaluate proposed solutions, and identify the preferred solution based on feasibility, benefits, and costs. Also, the Plan will address strategies for funding of the preferred solutions.

Preferred solutions identified in the Plan shall satisfy the regulatory requirements in Pennsylvania Code Title 25 and the Clean Streams Law to protect, maintain, reclaim, and restore water quality.

At the beginning of each subsequent revision to this Plan, the Office of Planning, Zoning and Community Development must confirm the priorities of obstruction areas and problem areas in the respective municipalities. A municipality may have resolved the problem or obstruction. On the other hand, the municipality may have a newly developed problem area and/ or obstruction area which is to be considered in the update of the Plan.

Review of Existing Plans, Studies, Reports and Programs

In addition to the Fayette County Comprehensive Land Use Plan and the municipal comprehensive plans, the following is a list of plans and reports that were identified by the Office of Planning, Zoning and Community Development and the Fayette County Conservation District:

- 1 Mon-Fayette Expressway Land Use and Economic Development Analysis
- 2 Natural Heritage Inventory
- 3 Countywide Parks, Recreation, Open Space and Greenway Plan
- 4 Countywide Housing Market Analysis
- 5 Rivers Conservation Plan from Indian Creek Watershed (draft form)
- 6 Watershed Restoration Action Strategy
- 7 Chestnut Ridge Chapter- Laurel Hill Creek
- 8 Watershed Restoration Action Strategy- Champion Creek
- 9 Watershed Restoration Action Strategy- Upper Youghiogheny River Watershed
- 10 Comprehensive Plan for Abandoned Mine Reclamation for Indian Creek Watershed
- 11 Indian Creek Watershed Plan and Environmental Assessment
- 12 Assessment of Mill Run Watershed
- 13 Middle Youghiogheny River Corridor Conservation Plan
- 14 Upper Meadow Run Watershed Association
- 15 Monongahela River Conservation Plan
- 16 Greater Redstone Clearwater Initiative
- 17 Coldwater Conservation Plan on Rasler Run
- 18 Bear Run Nature Reserve Conservation Plan
- 19 Rivers Conservation Plan for Indian Creek Watershed
- 20 Monongahela River Conservation Plan
- 21 Youghiogheny River Conservation Plan
- 22 An Agricultural Non-Point Source Pollution Watershed Assessment for the Redstone-Pigeon Creek Watershed
- 23 An Evaluation of Non-Point Source Pollution in the Middle Youghiogheny River Watershed
- 24 Watershed Restoration Action Strategy Sub-basin 19G Upper Monongahela River Watershed
- 25 Watershed Restoration Action Strategy Sub-basin 19D Lower Youghiogheny River Watershed
- 26 Chestnut Ridge Chapter of Trout Unlimited Middle Youghiogheny River Corridor River Conservation Plan
- 27 Indian Creek Restoration Project
- 28 Draft Indian Creek River Conservation Plan
- 29 Jacobs Creek Watershed Center for Watershed Stewardship Keystone Project
- 30 Watershed Assessment Report Mill Run Watershed Fayette County
- 31 Building an Alliance for the Pennsylvania Ohio River Basin Recommendations from the Local Level
- 32 Jacobs Creek of Nicholson Township, Fayette County Watershed Assessment
- 33 Browns Run Assessment and Restoration Plan
- 34 Morgan Run Assessment and Restoration Plan
- 35 Jonathan Run Assessment and Restoration Plan
- 36 Water Quality & Riparian Health- Watershed Assessment and Restoration Plan for the Greater Redstone Watershed

- 37 Study & Conceptual Design of treatment Alternatives for the Mayfield and Donnelly Mine Discharges
- 38 Georges Creek Watershed Conservation Plan
- 39 PA CleanWays Illegal Dump Survey
- 40 Jacobs Creek Watershed Implementation and Restoration Plan
- 41 Ramcat Run Coldwater Conservation Plan

Between the Office of Planning, Zoning and Community Development and the Fayette County Conservation District the above-mentioned plans/studies can be reviewed. For those not available at either office, contact should be made with the municipality and/or watershed organization.

The above-mentioned plans/studies are to be reviewed to understand the goals and objectives for each watershed.

Goals

Fayette County identified the following goals for the Countywide Stormwater Management Plan, as discussed and developed during Phase I of Act 167:

1. Goal: To promote the health, safety, and welfare of both residents in the County and neighboring counties.
 - A. New development will be required to be consistent with the County Plan and meet the requirements of the adopted Stormwater Ordinance.
 - B. The obstruction areas and problem areas identified during Phase I Municipal Surveys are prioritized and are to be addressed in the subsequent revisions to the Plan to provide sound and reasonable solutions for the municipalities.
2. Goal: To protect the lands, environment and natural resources in the Commonwealth.
 - A. Adoption of the Plan and Ordinance will allow for the preservation of natural drainage systems.
 - B. Ability to manage stormwater runoff.
 - C. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and protect water resources.
 - D. Prevent stream bank erosion and streambeds.
 - E. Provide for the proper operations and maintenance of all permanent Stormwater Management Best Management Practices that are implemented within the municipality.
3. Goal: To develop a procedure between county and municipal officials to assure development is in compliance with the adopted County Plan and the adopted

municipal ordinance.

- A. Coordinate for approval of subdivision or land development plan and issuance of permits (zoning and/or building) results in positive development with positive impact to those in the watershed.

Municipal Ordinance Reviews and Evaluations

Prior to undertaking the initiative of completing a Countywide Stormwater Management Plan, Fayette County adopted a stormwater ordinance in the Subdivision and Land Development Ordinance (hereafter referred to as SALDO). The SALDO governs thirty-two municipalities. The municipalities not governed under the County SALDO include: City of Uniontown, City of Connellsville, Ohio Pyle Borough, Perryopolis Borough, Wharton Township, Stewart Township, Henry Clay Township, Washington Township, Connellsville Township and South Union Township.

North Union Township, who is under the County SALDO, adopted a Stormwater Ordinance which applies to any new development. Coordination between the Office of Planning, Zoning and Community Development and North Union Township was developed at the time of adoption for consistency and compliance with the Township's adopted Ordinance.

The City of Uniontown administers an adopted Stormwater Ordinance.

Fairchance Borough adopted an Illicit Discharge and Connection Ordinance and Stormwater Management Ordinance. Similar to North Union Township, there is coordination between Fairchance Borough and the Office of Planning, Zoning and Community Development for consistency and compliance with the Borough's adopted Ordinances.

As the County proceeds with adopting the County Stormwater Management Plan, the model ordinance (Appendix B) is to be reviewed and adopted by each municipality.

The outcome of the County Plan is for the development and implementation of a stormwater ordinance that meets the five purposes identified below, at a minimum:

1. Manage stormwater runoff impacts at their source by regulating activities that cause these problems.
2. Utilize and preserve the existing natural drainage systems as much as possible.
3. Focus on infiltration of stormwater to prevent degradation of surface and groundwater quality and to otherwise protect water resources.
4. Provide for proper operations and maintenance of all permanent stormwater management facilities that are constructed in the municipalities and County.
5. Meet legal Water Quality requirements under state law, including regulations at 25 Pa. Code Chapter 93.4a to protect and maintain "existing uses" and maintain the level of water quality to support those uses in all streams, and to protect and maintain water quality in "special protection" streams.

Data Preparation for Technical Analysis

As a result of the resources being available and collected, the following data layers create mapping for the technical analyses and graphical content of the Plan:

* Base mapping was available through the Office of Planning, Zoning and Community Development and Tax Assessment GIS layers as well as GIS layers from the Southwestern Pennsylvania Commission.

* Land Use/Land Cover: Fayette County is rural in nature with 'pockets' of dense development peppered throughout the municipalities. The Laurel Highlands region of the County is rural with limited development (both residential and commercial) along with the southern municipalities in the County. The County has two cities, seventeen boroughs, and twenty-four townships. Fayette County, also, has numerous villages and unincorporated settlements within these municipalities.

Fayette County has experienced a steady growth in some municipalities in recent years (South Union, North Union, Bullskin, and Wharton Townships, to name a few); however, the majority of the county remains rural in nature. Agricultural is still identified as a prime industry.

The Mon-Fayette Expressway is a north-south road system that maximizes the County's location between Morgantown, West Virginia and Pittsburgh, Pennsylvania. The Expressway will impact land use, particularly the immediate area near or at the interchanges in the County.

*Future Land Use Conditions are identified in the Fayette County Comprehensive Plan and municipal comprehensive plans located on record in the Office of Planning, Zoning and Community Development. The Southwestern Pennsylvania Commission has supporting documentation of future land use to assess changes in land use as it relates to transportation demands and economic development throughout the region.

*The Southwestern Pennsylvania Commission has soil mapping available for prime agricultural land. Soil mapping is also available from the U.S. Department of Agriculture.

*Digital Raster Graphics was used to prepare the Plan from the PA Spatial Data Access.

* Wetland mapping is available from the Southwestern Pennsylvania Commission.

* Digital geology is accessible through the Pennsylvania Spatial Data Access

web site as well as available through the Southwestern Pennsylvania Commission.

* Obstruction area mapping is available from the Office of Planning, Zoning and Community Development as those obstructions were identified in the Municipal Surveys included in Phase I of Act 167 (Appendix A).

* Problem Areas and Stormwater Management Facilities is available from the Office of Planning, Zoning and Community Development as problem areas and stormwater management facilities were identified in the Municipal Survey, included in Phase I of Act 167 in Appendix A; whereas, flood control structures are available from FEMA at www.rampp-team.com/pa/htm, Flood Insurance Study, Volume 1, Section 2.4.

* Floodplain mapping is available through Southwestern Pennsylvania Commission and the Office of Planning, Zoning and Community Development.

* Environmental Characteristics, such as open space, buffer, etc. is available through the Office of Planning, Zoning and Community Development and the Southwestern Pennsylvania Commission.

The Office of Planning, Zoning and Community Development is a recognized planning partner with the Southwestern Pennsylvania Commission and is available to assist in securing mapping. As the Southwestern Pennsylvania Commission updates its GIS layers, the County is notified.

For the purpose of an accelerated Phase II Act 167 County Plan, the consultant and County have utilized USGS maps to prepare the modeling for the Plan Preparation and for the model Stormwater Ordinance to be adopted by municipalities.

Section IV - Technical Analysis

Watershed Modeling

An initial step in preparing the Fayette County Stormwater Management Plan was to determine the stormwater simulation model to be utilized. The selected model had to:

- Be adaptive to the size of each watershed;
- Evaluate specific physical characteristics of the rainfall-runoff process; and
- Not require excessive amount of input data given the accelerated Phase II approach while providing reliable results.

The software package selected was Bentley PondPack V8i, using the method of the United States Department of Agriculture (USDA)– Soil Conservation Service (SCS) Technical Release 55 (TR-55) for the following reasons:

- 1) Capable of modeling large watersheds.
- 2) Flexibility of adjusting input parameters.
- 3) Capable of analyzing detention basin routing effects on the watershed.
- 4) It is accepted by the Pennsylvania Department of Environmental Protection.

Modeling Process

The study consists of calculating flow quantities for the pre-developed and the post-developed conditions at a common point of interest for each of the three watersheds within Fayette County. These calculations will indicate the peak flows and the arrival time for each condition and return frequency at the point of interest for each watershed.

The pre-developed analysis involved the following aspects:

- Determining the existing land use characteristics of all sub-watersheds within the three major watershed areas. The existing land use characteristics were determined from USGS maps.
- Applying the existing conditions for the run-off surface characteristics. Typical CN numbers were chosen, based on a type C soil.
- Determining the travel time of concentration for all sub-watersheds within the three major watershed areas. The time of concentration paths were determined from USGS maps.
- Calculating the peak flows for various return frequencies. Due to the accelerated Phase II approach to this plan, only the 100-year storm was analyzed in detail for each watershed.

The post-developed analysis involved the following aspects:

- Modifying the pre-developed conditions to reflect changes due to the projected 10 year future growth characteristics of the county. The future growth areas were obtained from the Fayette County Comprehensive Plan and a 1% per year increase of development was added to all sub-watersheds.
- Calculating the peak flows for various return frequencies. Due to the accelerated Phase II approach to this plan, only the 100-year storm was analyzed in detail for each watershed.

Included in Appendix A is a map delineating the three major watersheds, as well as the sub-watersheds. This map was provided by Fayette County, which the delineation of the watersheds are from SPC data.

The existing peak flows were compared to the projected future peak flows for the three watersheds within the County. Tables IV-1 thru IV-3 summarizes the peak flows of the 100-year storm for the three watersheds. Each watershed was then modeled with different release rates and compared to the existing peak flows. Tables IV-4 thru IV-6 summarizes the peak flows for these scenarios. The data obtained from these models were then used to determine the appropriate release rates for the three watersheds. These release rates were determined by estimating the percentage to be withheld in order to obtain a peak flow equal to the existing peak flow conditions for the 100-year storm event. A map is included in Appendix A showing the allowable release rates for the three watersheds.

Model Calibration

Calibration of the watershed models has been conducted to determine the accuracy of the results obtained for this plan. Stream flow data was obtained from the USGS website and rainfall data was obtained from the NOAA website. There was only one stream gage which has its drainage area located entirely within Fayette County. This gage is located along Redstone Creek in Waltersburg, PA. Using this gage location will allow for comparison of the historical data to the portion of our model, which drains to the same location. Historical data, from the past 10 years, was examined to find rainfall events of approximately a 2-year storm. There were five instances which occurred during this time frame. After reviewing the flow data for the days that these rainfall events occurred, it was found that the flow varied drastically between days of similar rainfall. Due to the inconsistency, we chose to average the rainfall and flows of these 5 storm events, to be used in comparison to our model. The average rainfall amount was determined to be 2.6 inches over a 24-hour period and the corresponding average flow resulted in 838 cfs. The comparison is shown below:

Historical Data Stream Flow (cfs)	Our Model Flow for 2.6in. Rainfall Event (cfs)
838	879

Our model was found to be within 5% of the historical data; therefore our watershed models have been accurately created.

**Table IV-1
Cheat Watershed Peak Flows
100-year 24-hour Storm Event**

Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)	Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)
1	237.37	242.98	27	2,760.25	2,866.51
2	1,052.73	1,079.88	28	1,659.87	1,722.17
3	1,189.53	1,233.65	29	962.63	1,000.00
4	3,491.96	3,611.57	30	825.35	857.25
5	2,039.52	2,115.00	31	1,398.84	1,451.34
6	64.00	66.25	32	5,303.83	5,508.51
7	266.34	275.21	33	1,933.47	2,011.65
8	4,047.16	4,210.14	34	1,643.46	1,707.52
9	74.51	77.39	35	867.63	901.95
10	4,737.56	4,920.69	36	1,189.99	1,235.34
11	1,482.75	1,543.52	37	310.41	322.36
12	112.07	116.26	38	644.28	668.74
13	1,239.75	1,290.49	39	219.10	227.18
14	816.53	847.88	40	106.53	110.63
15	92.91	96.53	41	626.61	650.09
16	1,749.12	1,819.11	42	112.65	116.64
17	158.82	164.74	43	455.66	473.03
18	794.93	825.70	44	438.92	455.57
19	3,346.63	3,481.39	45	981.72	1,019.85
20	1,643.38	1,708.93	46	1,415.52	1,469.05
21	945.15	983.27	47	2,169.89	2,252.19
22	1,958.13	2,035.38	48	5,899.21	6,135.12
23	2,838.78	2,954.70	49	2,299.03	2,389.88
24	2,693.99	2,802.06	50	4,374.08	4,546.21
25	3,134.30	3,261.90	51	1,571.11	1,631.52
26	1,074.82	1,116.06			
Cheat Watershed Total Peak Flow				6,253.41	6,577.56
Percent Increase				5.2%	

**Table IV-2
Monongahela Watershed Peak Flows
100-year 24-hour Storm Event**

Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)	Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)
1	2,242.83	2,296.67	41	5,011.69	5,176.25
2	1,396.51	1,435.49	42	4,888.55	5,631.85
3	2,568.50	2,662.62	43	4,230.50	4,388.07
4	1,472.01	1,526.50	44	5,818.50	6,026.96
5	1,442.43	1,495.11	45	3,745.05	3,894.12
6	1,836.90	1,904.55	46	3,773.75	3,811.06
7	4,918.95	5,073.45	47	2,890.83	3,212.17
8	7,441.24	7,734.29	48	1,287.19	1,333.87
9	5,434.04	5,638.26	49	2,897.66	3,116.13
10	7,851.41	8,141.75	50	6,764.91	7,020.31
11	2,086.60	2,163.18	51	2,757.00	2,858.68
12	2,268.41	2,352.22	52	5,482.25	6,005.50
13	2,025.19	2,098.19	53	3,120.97	3,236.70
14	727.41	755.09	54	4,300.66	4,466.29
15	3,684.03	3,817.58	55	8,133.66	8,984.43
16	6,066.43	6,551.13	56	603.30	623.60
17	2,234.49	2,317.88	57	95.85	99.00
18	1,473.08	1,530.32	58	2,255.05	2,335.73
19	3,131.04	3,246.29	59	5,443.16	5,621.16
20	3,760.45	4,637.14	60	4,273.54	4,430.00
21	2,106.63	2,183.74	61	3,121.06	3,238.49
22	3,647.60	4,322.03	62	4,144.08	4,299.51
23	3,867.76	4,143.33	63	6,505.88	6,754.55
24	1,220.57	1,267.98	64	4,729.90	5,094.37
25	3,227.15	3,349.64	65	3,593.49	3,736.08
26	3,614.33	3,736.34	66	758.75	788.82
27	1,443.56	1,498.38	67	1,678.00	1,744.23
28	1,049.29	1,088.36	68	1,727.95	1,792.54
29	4,833.01	5,001.66	69	1,171.95	1,381.99
30	5,718.86	5,926.33	70	3,375.23	4,143.01
31	2,548.99	2,646.31	71	1,772.93	1,843.33
32	2,454.78	2,545.84	72	4,478.92	4,631.51
33	1,633.13	1,695.57	73	3,933.77	4,088.32
34	2,124.10	2,203.92	74	4,629.79	4,804.99
35	3,013.07	3,359.95	75	777.16	805.33
36	3,258.84	3,381.43	76	2,070.26	2,151.31
37	2,541.00	2,637.63	77	887.61	919.53
38	3,616.55	3,752.00	78	1,495.73	1,554.34
39	1,737.78	1,801.21	79	2,215.25	2,303.01
40	2,263.72	2,351.11	80	3,881.85	4,031.67
Monongahela Watershed Total Peak Flow				17,781.54	19,144.92
Percent Increase				7.7%	

**Table IV-3
Youghiogheny Watershed Peak Flows
100-year 24-hour Storm Event**

Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)	Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)
1	1,962.59	2,035.72	43	2,615.17	2,715.80
2	36.81	38.02	44	3,245.69	3,371.64
3	2,312.27	2,404.88	45	61.70	63.09
4	11,269.53	11,647.71	46	1,496.70	1,552.43
5	962.96	1,000.06	47	4,918.59	5,469.34
6	1,303.09	1,350.35	48	2,346.94	3,190.00
7	1,960.90	2,106.15	49	2,008.17	2,521.47
8	2,545.51	2,645.31	50	3,890.90	4,026.15
9	8,967.61	9,290.59	51	2,167.28	2,247.37
10	3,931.53	4,087.72	52	1,077.30	1,116.68
11	4,797.36	4,984.13	53	2,315.35	2,407.63
12	4,843.62	5,021.95	54	741.72	771.11
13	3,628.38	3,762.50	55	1,760.16	1,827.77
14	2,385.30	2,473.91	56	6,170.59	6,415.78
15	1,885.52	1,958.13	57	2,055.00	2,130.16
16	2,957.33	3,066.62	58	5,185.35	5,385.44
17	2,684.75	3,458.77	59	3,068.80	3,187.41
18	3,630.03	3,771.03	60	2,755.41	2,860.19
19	5,505.09	5,719.28	61	3,641.20	3,781.58
20	2,598.48	2,701.03	62	209.29	217.39
21	83.35	86.19	63	118.31	122.79
22*	1,457.76	1,509.14	64	826.46	859.22
23*			65	226.45	235.06
24	1,842.23	2,109.25	66	505.57	525.22
25	4,356.23	4,523.42	67	4,783.13	5,463.58
26	2,785.93	2,892.14	68	976.66	1,011.60
27	4,014.94	4,169.32	69	1,744.32	1,809.49
28	5,297.78	5,495.15	70	2,686.79	2,790.33
29	1,771.36	2,258.29	71	2,076.83	2,154.43
30	1,255.11	1,302.51	72	2,557.62	2,659.51
31	5,530.98	5,735.08	73	3,190.29	3,314.74
32	2,461.47	2,556.40	74	2,714.81	2,820.24
33	1,855.69	1,926.49	75	2,093.75	2,171.25
34	1,339.02	1,390.11	76	3,971.95	4,124.90
35	2,593.53	2,694.35	77	3,315.58	3,447.12
36	924.03	960.50	78	1,436.09	1,492.93
37	2,611.75	2,710.93	79	1,405.22	1,457.41
38	2,303.15	2,394.00	80	1,736.47	1,801.16
39	681.41	708.00	81	2,909.94	3,020.66
40	3,900.44	4,047.02	82	4,893.72	5,087.04
41	3,113.69	3,230.90	83	4,211.95	4,377.98
42	4,345.26	4,506.30	84	2,304.25	2,395.21

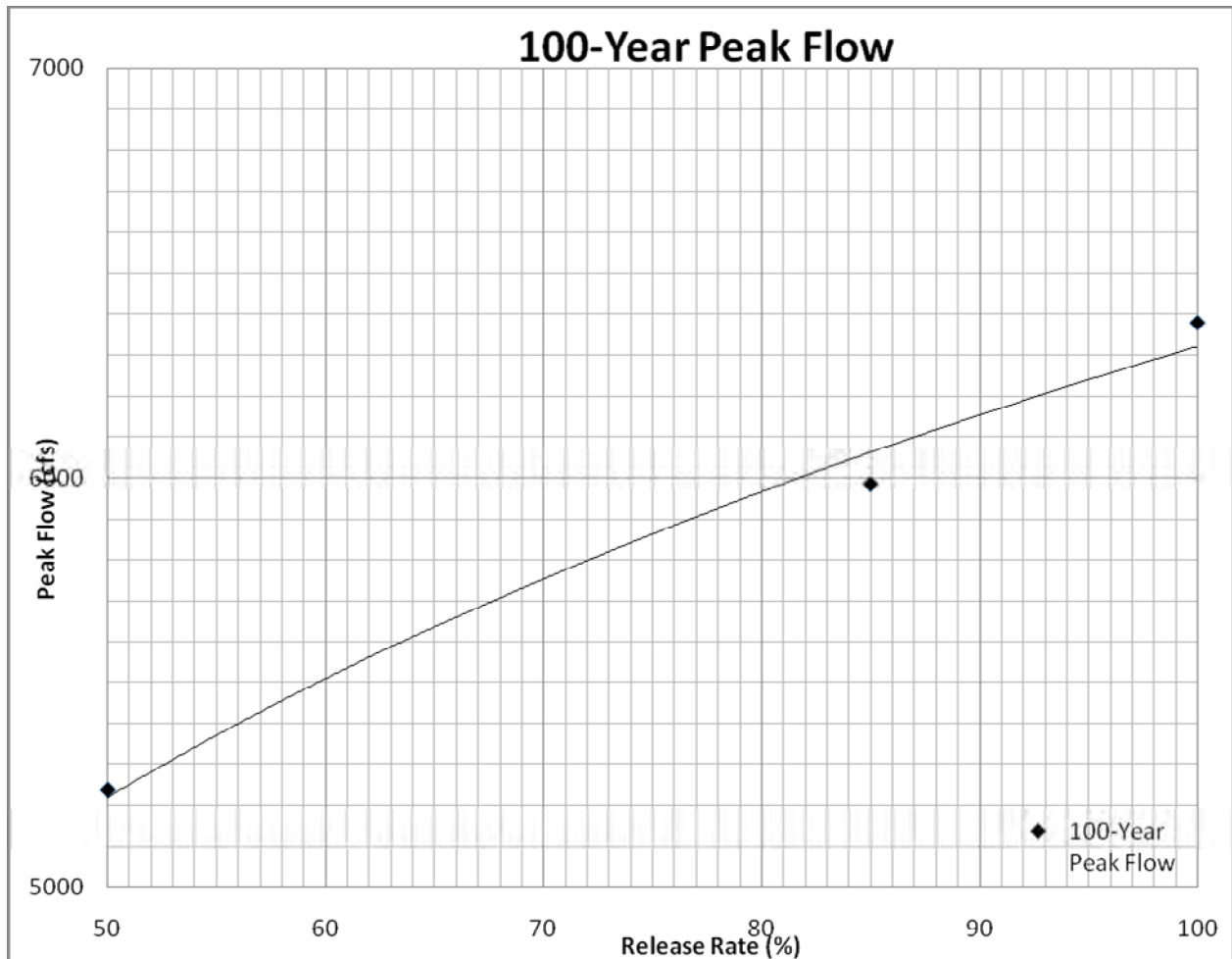
**Table IV-3 (Continued)
Youghiogheny Watershed Peak Flows
100-year 24-hour Storm Event**

Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)	Subarea	Existing Peak Flow (cfs)	Projected Future Peak Flow (cfs)
85	851.40	883.02	106	3,080.95	3,542.65
86	1,066.35	1,107.11	107	4,277.56	4,446.44
87	754.96	784.61	108	1,800.83	1,869.70
88	813.99	842.84	109	2,197.30	2,281.41
89	3,876.76	4,025.63	110	4,841.50	5,207.79
90	2,341.50	2,430.66	111	951.18	987.99
91	649.39	674.78	112	2,939.12	3,053.61
92	4,698.37	4,883.27	113	3,238.04	3,361.94
93	4,722.22	4,910.49	114	3,066.26	4,345.85
94	1,347.82	1,402.15	115	2,790.29	2,899.25
95	706.90	734.66	116	6,421.77	6,919.85
96	13,758.16	14,251.59	117	5,329.16	5,533.89
97	639.42	663.89	118	1,680.69	1,746.47
98	1,287.54	1,335.67	119	2,304.13	2,391.59
99	1,038.03	1,077.44	120	4,105.13	4,256.64
100	2,434.90	2,527.36	121	2,634.90	2,734.19
101	5,032.83	5,226.09	122	61.36	63.48
102	730.81	758.47	123	114.51	118.56
103	2,010.11	2,090.37	124	1,318.48	1,366.31
104	352.38	365.60	125	2,212.84	2,280.01
105	1,825.31	1,895.67	126	495.97	515.05
Youghiogheny Watershed Total Peak Flow				26,198.23	27,985.43
Percent Increase				6.8%	

*Subareas 22 and 23 were combined due to the small size of subarea 22.

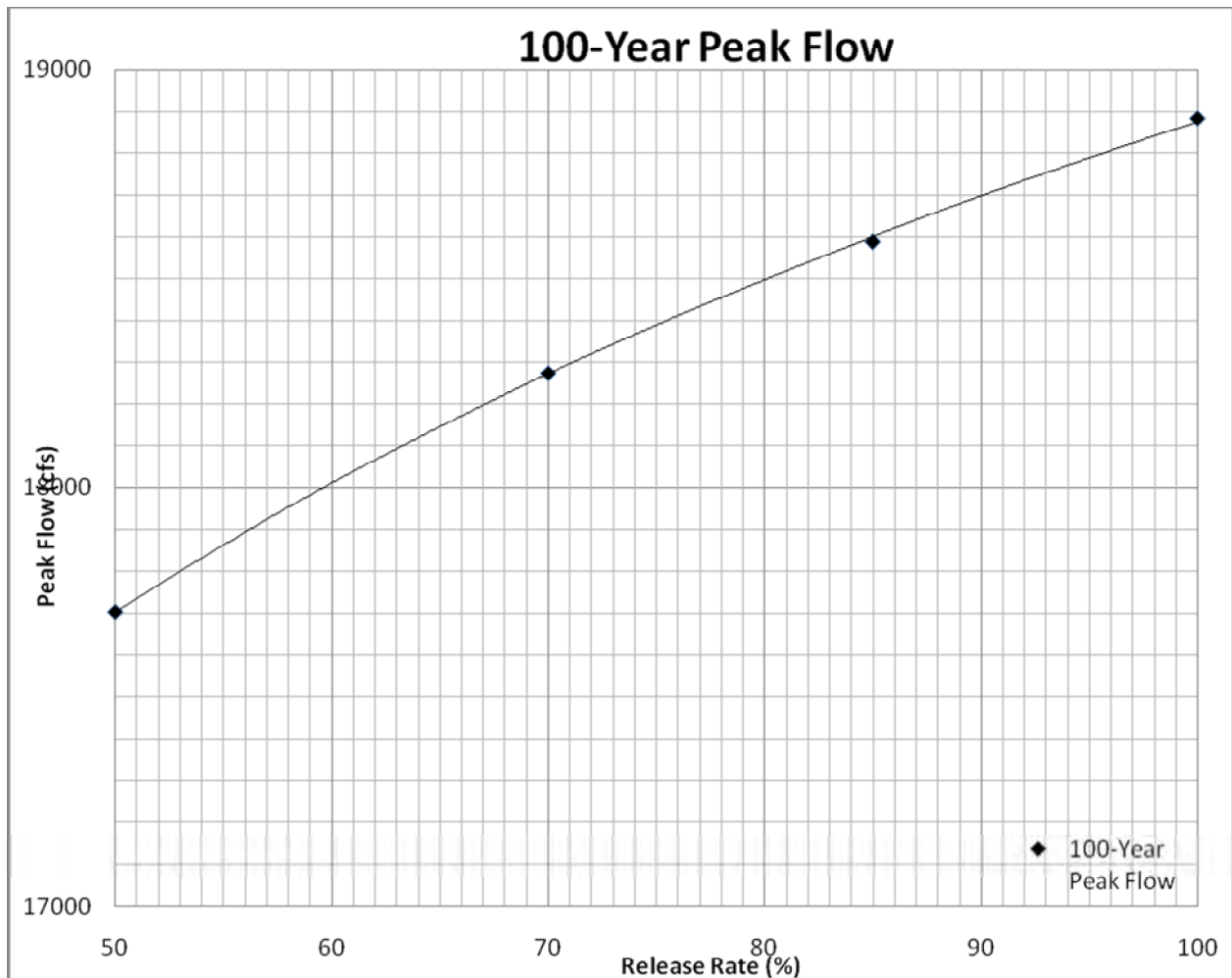
The post-developed model for the Cheat Watershed was analyzed with a 100%, 85%, and 50% release rate for the 100-year storm event. The peak flows from these scenarios were then compared to the pre-developed peak flow to determine the release rate for this watershed. The results are summarized in the following table and graph. The release rate for the Cheat Watershed was determined to be 95%.

Release Rate (%)	Peak Flow (cfs)
50	5,236.87
85	5,985.84
100	6,380.46



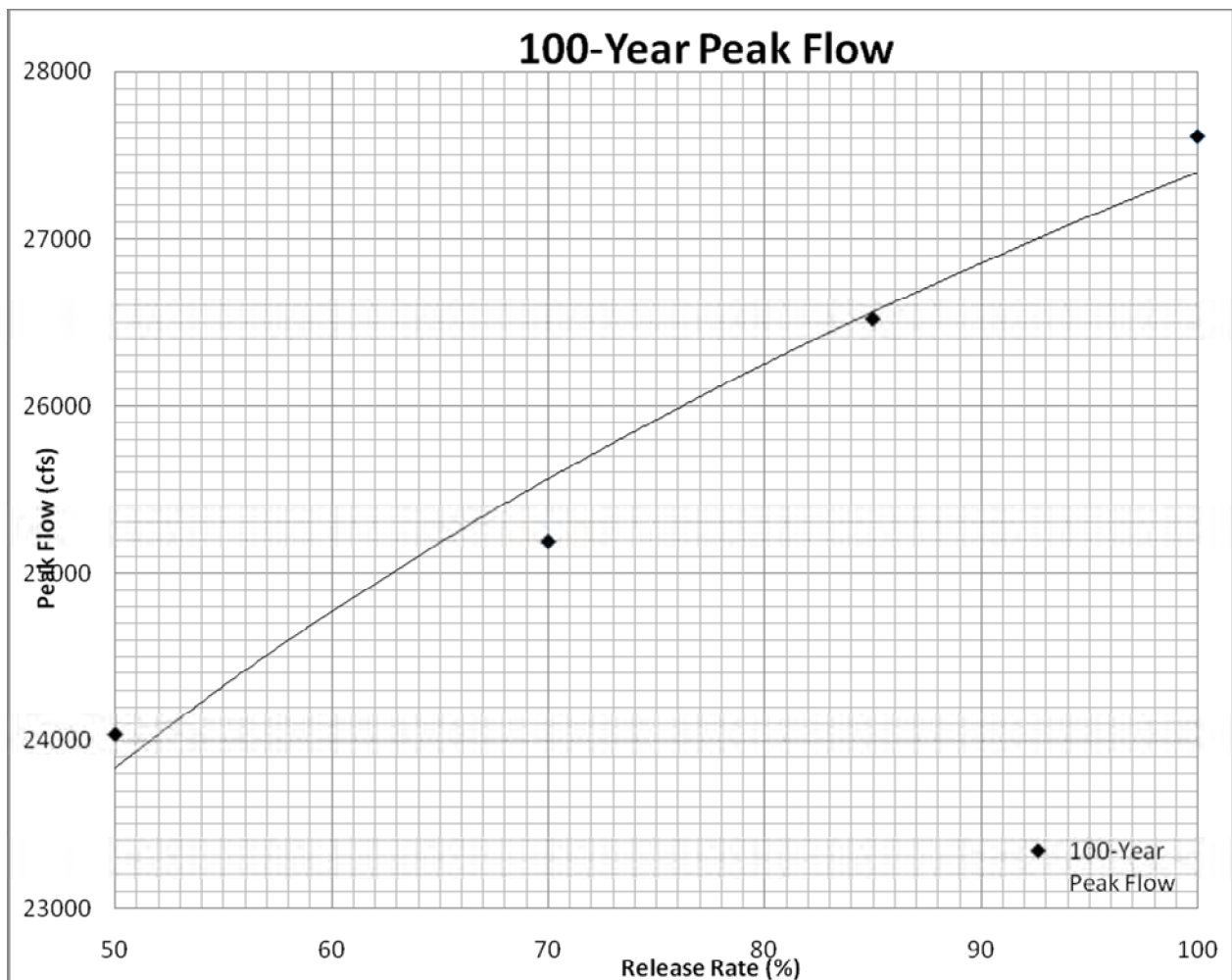
The post-developed model for the Monongahela Watershed was analyzed with a 100%, 85%, 70%, and 50% release rate for the 100-year storm event. The peak flows from these scenarios were then compared to the pre-developed peak flow to determine the release rate for this watershed. The results are summarized in the following table and graph. The release rate for the Monongahela Watershed was determined to be 55%.

Release Rate (%)	Peak Flow (cfs)
50	17,704.26
70	18,273.44
85	18,589.11
100	18,883.88



The post-developed model for the Youghiogheny Watershed was analyzed with a 100%, 85%, 70%, and 50% release rate for the 100-year storm event. The peak flows from these scenarios were then compared to the pre-developed peak flow to determine the release rate for this watershed. The results are summarized in the following table and graph. The release rate for the Youghiogheny Watershed was determined to be 80%.

Release Rate (%)	Peak Flow (cfs)
50	24,038.33
70	25,191.56
85	26,517.80
100	27,610.46



Section V - Standards and Criteria for the Control of Stormwater

Watershed Level Stormwater Control

Fayette County and its municipalities decided to control runoff rates at a watershed level. Current practice is site (individual) specific as development occurs. Currently, through county and municipal adopted ordinances, stormwater is regulated through the subdivision and land development ordinances or through the few municipalities who have an adopted ordinance as a result of an urbanized area (MS4 community).

Description of Management Districts

Fayette County is comprised of three major watersheds: Cheat, Monongahela, and Youghiogheny. Refer to the attached map for delineation of the watersheds. For simplicity of this Plan, due to the accelerated Phase II approach, the County has decided to implement a consistent release rate for each watershed.

Standards and Criteria

Refer to the Pennsylvania Stormwater Best Management Practices Manual, dated December 2006, for the required standards and criteria.

Best Management Practices

The use of traditional and innovative Best Management Practices (BMPs) is encouraged to meet the water quantity and quality criteria established in the County Plan. The Pennsylvania Department of Environmental Protection Stormwater BMP Manual (hereafter PA BMP Manual) describes a variety of non-structural and structural best management practices to be used to achieve comprehensive stormwater management goals.

The PA BMP Manual provides guidance, options, and tools to be used to protect water quality, enhance water availability and reduce flooding potential through effective stormwater management. The BMP's identified when designed according to the standards, implemented and maintained will achieve the Department of Environmental Protection's water quality mandates established in 25 Pa. Code Chapter 93 and required by the federal Clean Water Act, federal NPDES regulations, the PA Storm Water Management Act, and the PA Clean Streams Law.

When stormwater detention basins are constructed, note that they may be considered a jurisdictional dam which would require a permit and also the requirements for this permit may differ from the storm water management plan.

Alternate BMPs, not listed in the PA BMP Manual, that provide equal or greater level of protection may be used to attain regulatory standard. The burden to use an alternate BMP is on the Developer to demonstrate the effectiveness with appropriate supporting analysis, calculations, test results or other documentation to the municipality.

Impervious Area Exemptions

Stormwater Management exemptions shall follow the requirements listed below, as per Section 302 of the Model Ordinance:

- A. Regulated activities that create DIAs smaller than 1000 sq. ft. are exempt from the peak rate control and the SWM Site Plan preparation requirement of this Ordinance.
- B. Regulated activities that create DIAs equal to or greater than 1000 sq. ft. and less than 5000 sq. ft. are exempt only from the peak rate control requirement of this Ordinance.
- C. Agricultural activity is exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code 102.
- D. Forest management and timber operations are exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code 102.
- E. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301.D. through L.

Section VI - Ordinance Provisions

Act 167 emphasizes municipalities to administer stormwater programs within their identified watershed. Included in Section VII of this Plan is a sample stormwater management model ordinance to be adopted by each municipality with minor changes to meet the needs of that particular municipality.

In accordance with Section 11 (b) of Act 167, each municipality must adopt or amend, and implement ordinances and regulations, including zoning, subdivision and land development ordinances, building code, and erosion and sedimentation ordinances, as necessary to regulate development in a manner consistent with the approved stormwater management plan and Act 167. Again, the municipalities may amend the model ordinance to be more restrictive, but in no way less restrictive than the model ordinance contained within an approved Act 167 Plan.

As the municipality proceeds with reviewing and amending the sample model storm water ordinance, the final adopted ordinance should be understandable, applied equally and uniformly throughout their municipality. Furthermore, the ordinance should not discourage innovative solutions to stormwater management problems. Ideally, it would be most beneficial if all municipalities contained within each watershed adopt a uniform regulatory approach.

The implementation of the runoff control strategy for new development is through the adopted municipal stormwater management ordinance and provisions contained therein. The stormwater ordinance contains the following eight articles:

- I. General Provisions
- II. Definitions
- III. Stormwater Management Standards
- IV. Stormwater Management Site Plan Requirements
- V. Operation and Maintenance
- VI. Fees and Expenses
- VII. Prohibitions
- VIII. Enforcement and Penalties
- IX. References
 - a. Low Impact Development Practices
 - b. Site Conditions Suitable for Infiltration
 - c. Operation and Maintenance Agreement, Stormwater Best Management Practices
 - d. Procedures and Examples for Total Impervious Area Calculation

As Fayette County has an adopted and administers a countywide zoning ordinance, subdivision and land development ordinance, and state mandated building code (Uniform Construction Code) for a majority of the municipalities, it shall be required that the municipality approving the stormwater plan issue an approval letter to the Fayette County Office of Planning, Zoning and Community Development prior to granting final approval on a subdivision or land development, issuance of a zoning permit, and/or issuance of a building permit. For the municipalities that have hired a third party agency

to administer and enforce the state mandated building code (Uniform Construction Code), the Building Code Official shall not issue a building permit until a letter is issued by the municipality for compliance with the adopted stormwater ordinance.

Section VII - Model Ordinance

STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. _____

MUNICIPALITY OF

_____ COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on

_____, 20____

Article I - General Provisions

- Section 101. Short Title
- Section 102. Statement of Findings
- Section 103. Purpose
- Section 104. Statutory Authority
- Section 105. Applicability
- Section 106. Repealer
- Section 107. Severability
- Section 108. Compatibility with Other Requirements

Article II - Definitions

Article III - Stormwater Management Standards

- Section 301. General Requirements
- Section 302. Exemptions
- Section 303. Volume Controls
- Section 304. Rate Controls

Article IV - Stormwater Management Site Plan Requirements

- Section 401. Plan Requirements
- Section 402. Plan Submission
- Section 403. Plan Review
- Section 404. Modification of Plans
- Section 405. Resubmission of Disapproved Stormwater Management Site Plans
- Section 406. Authorization to Construct and Term of Validity
- Section 407. As-Built Plans, Completion Certificate and Final Inspection

Article V - Operation and Maintenance

- Section 501. Responsibilities of Developers and Landowners
- Section 502. Operation and Maintenance Agreements

Article VI - Fees and Expenses

- Section 601. General

Article VII - Prohibitions

- Section 701. Prohibited Discharges and Connections
- Section 702. Roof Drains
- Section 703. Alteration of SWM BMPs

Article VIII - Enforcement and Penalties

- Section 801. Right-of-Entry
- Section 802. Inspection
- Section 803. Enforcement
- Section 804. Suspension and Revocation
- Section 805. Penalties
- Section 806. Appeals

Article IX - References

Appendix A: Operation and Maintenance Agreement

Appendix B: Disconnected Impervious Area (DIA)

ARTICLE I - GENERAL PROVISIONS

Section 101. Short Title

This Ordinance shall be known and may be cited as the “(Name of municipality and name of watershed plan, if applicable) Stormwater Management Ordinance.”

Section 102. Statement of Findings

The governing body of the municipality finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases nonpoint source pollution of water resources.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, and welfare and the protection of people of the Commonwealth, their resources, and the environment.
- C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.
- D. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).

Section 103. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within the municipality and its watershed by minimizing the harms and maximizing the benefits described in Section 102 of this Ordinance, through provisions designed to:

- A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of this Commonwealth.
- B. Preserve the natural drainage systems as much as possible.
- C. Manage stormwater runoff close to the source.
- D. Provide procedures and performance standards for stormwater planning and management.
- E. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.

- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper operation and maintenance of all SWM BMPs that are implemented within the municipality.
- H. Provide standards to meet NPDES permit requirements.

Section 104. Statutory Authority

A. Primary Authority:

The Municipality is empowered to regulate land use activities that affect stormwater impacts by the authority of the *[cite relevant sections of the applicable municipal code (e.g., 53 P.S. §§ 55101 et seq. — First Class Township Code — confer with municipal solicitor)]*.

B. Secondary Authority:

The municipality also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended.

Section 105. Applicability

All regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this Ordinance.

Section 106. Repealer

Any other ordinance provision(s) or regulation of the municipality inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

Section 107. Severability

In the event that a court of competent jurisdiction declares any section or provision of this Ordinance invalid, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

Section 108. Compatibility with Other Requirements

Approvals issued and actions taken under this Ordinance do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation, or ordinance.

ARTICLE II - DEFINITIONS

For the purposes of this Ordinance, certain terms and words used herein shall be interpreted as follows:

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word “includes” or “including” shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.

Agricultural Activity – Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops or pasturing and raising of livestock and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity.

Applicant - A landowner, developer, or other person who has filed an application to the municipality for approval to engage in any regulated activity at a project site in the municipality.

Best Management Practice (BMP) - Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to meet state water quality requirements, to promote groundwater recharge, and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: “structural” or “nonstructural.” In this Ordinance, nonstructural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the project site.

Conservation District - A conservation district, as defined in Section 3(c) of the Conservation District Law (3 P. S. § 851(c)) that has the authority under a delegation agreement executed with DEP to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102.

Design Storm - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 5-year storm) and duration (e.g., 24 hours) used in the design and evaluation of stormwater management systems. Also see Return Period.

Detention Volume - The volume of runoff that is captured and released into the waters of this Commonwealth at a controlled rate.

DEP - The Pennsylvania Department of Environmental Protection.

Development Site (Site) - See Project Site.

Disconnected Impervious Area (DIA) - An impervious or impermeable surface that is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area, which allows for infiltration, filtration, and increased time of concentration as specified in Appendix B, Disconnected Impervious Area.

Disturbed Area - An unstabilized land area where an earth disturbance activity is occurring or has occurred.

Earth Disturbance Activity - A construction or other human activity which disturbs the surface of the land, including, but not limited to: clearing and grubbing; grading; excavations; embankments; road maintenance; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

Erosion - The natural process by which the surface of the land is worn away by water, wind, or chemical action.

Existing Condition - The dominant land cover during the 5-year period immediately preceding a proposed regulated activity.

FEMA - Federal Emergency Management Agency.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a special flood hazard area. Also includes areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania DEP Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by DEP).

Floodway - The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the 100-year flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year floodway, it is assumed--absent evidence to the contrary--that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Forest Management/Timber Operations - Planning and activities necessary for the management of forestland. These include conducting a timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation, and reforestation.

Hydrologic Soil Group (HSG) - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS ^{3,4}).

Impervious Surface (Impervious Area) - A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to: roofs; additional indoor living spaces, patios, garages, storage sheds and similar structures; and any new streets or sidewalks.

Decks, parking areas, and driveway areas are not counted as impervious areas if they do not prevent infiltration.

Karst - A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

Land Development (Development) - Inclusive of any or all of the following meanings: (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Municipality - (municipality name), (county name) County, Pennsylvania.

NRCS - USDA Natural Resources Conservation Service (previously SCS).

Peak Discharge - The maximum rate of stormwater runoff from a specific storm event.

Pervious Area - Any area not defined as impervious.

Project Site - The specific area of land where any regulated activities in the municipality are planned, conducted, or maintained.

Qualified Professional - Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by this Ordinance.

Regulated Activities - Any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff.

Regulated Earth Disturbance Activity - Activity involving earth disturbance subject to regulation under 25 Pa. Code 92, 25 Pa. Code 102, or the Clean Streams Law.

Retention Volume/Removed Runoff - The volume of runoff that is captured and not released directly into the surface waters of this Commonwealth during or after a storm event.

Return Period - The average interval, in years, within which a storm event of a given magnitude can be expected to occur one time. For example, the 25-year return period rainfall would be expected to occur on average once every 25 years; or stated in another way, the probability of a 25-year storm occurring in any one year is 0.04 (i.e., a 4% chance).

Runoff - Any part of precipitation that flows over the land.

Sediment - Soils or other materials transported by surface water as a product of erosion.

State Water Quality Requirements - The regulatory requirements to protect, maintain, reclaim, and restore water quality under Title 25 of the Pennsylvania Code and the Clean Streams Law.

Stormwater - Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

Stormwater Management Facility - Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include, but are not limited to: detention and retention basins; open channels; storm sewers; pipes; and infiltration facilities.

Stormwater Management Plan - The (name of stormwater management plan) for managing stormwater runoff adopted by the county of (county name) as required by the Act of October 4, 1978, P.L. 864, (Act 167), as amended, and known as the “Storm Water Management Act.”

Stormwater Management Best Management Practices - Is abbreviated as **BMPs** or **SWM BMPs** throughout this Ordinance.

Stormwater Management Site Plan - The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at the development site in accordance with this Ordinance. **Stormwater Management Site Plan** will be designated as **SWM Site Plan** throughout this Ordinance.

Subdivision - As defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247.

USDA - United States Department of Agriculture.

Waters of this Commonwealth – Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

Watershed - Region or area drained by a river, watercourse, or other surface water of this Commonwealth.

Wetland - Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.

ARTICLE III - STORMWATER MANAGEMENT STANDARDS

Section 301. General Requirements

- A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in Section 302:
 - 1. Preparation and implementation of an approved SWM Site Plan is required.
 - 2. No regulated activities shall commence until the municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by the municipality, in accordance with Section 406, shall be on site throughout the duration of the regulated activity.
- C. The municipality may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.
- D. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual (E&S Manual)*², No. 363-2134-008 (April 15, 2000), as amended and updated.
- E. For all regulated activities, implementation of the volume controls in Section 303 is required.
- F. Impervious areas:
 - 1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
 - 2. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.
 - 3. For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this Ordinance; except that the volume controls in Section 303 and the peak rate controls of Section 304 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed regulated activity.
- G. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification of the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.

- H. All regulated activities shall include such measures as necessary to:
1. Protect health, safety, and property;
 2. Meet the water quality goals of this Ordinance by implementing measures to:
 - a. Minimize disturbance to floodplains, wetlands, and wooded areas.
 - b. Maintain or extend riparian buffers.
 - c. Avoid erosive flow conditions in natural flow pathways.
 - d. Minimize thermal impacts to waters of this Commonwealth.
 - e. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
 3. To the maximum extent practicable, incorporate the techniques for Low Impact Development Practices described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual)¹.
- I. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.
- J. Infiltration BMPs should be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.
- K. Normally dry, open top, storage facilities should completely drain both the volume control and rate control capacities over a period of time not less than 24 and not more than 72 hours from the end of the design storm.
- L. The design storm volumes to be used in the analysis of peak rates of discharge should be obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, Version 3.0, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland. NOAA's Atlas 14⁵ can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
- M. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.
- N. Various BMPs and their design standards are listed in the BMP Manual¹.

Section 302. Exemptions

- A. Regulated activities that create DIAs smaller than 1000 sq. ft. are exempt from the peak rate control and the SWM Site Plan preparation requirement of this Ordinance.

- B. Regulated activities that create DIAs equal to or greater than 1000 sq. ft. and less than 5000 sq. ft. are exempt only from the peak rate control requirement of this Ordinance.
- C. Agricultural activity is exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code 102.
- D. Forest management and timber operations are exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code 102.
- E. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301.D. through L.

Section 303. Volume Controls

The low impact development practices provided in the BMP Manual¹ shall be utilized for all regulated activities to the maximum extent practicable. Water volume controls shall be implemented using the *Design Storm Method* in Subsection A or the *Simplified Method* in Subsection B below. For regulated activity areas equal or less than 1 acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.

- A. The *Design Storm Method* (CG-1 in the BMP Manual¹) is applicable to any size of regulated activity. This method requires detailed modeling based on site conditions.
 - 1. Do not increase the postdevelopment total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.
 - 2. For modeling purposes:
 - a. Existing (predevelopment) nonforested pervious areas must be considered meadow in good condition.
 - b. 20% of existing impervious area, when present, shall be considered meadow in good condition in the model for existing conditions.
- B. The *Simplified Method* (CG-2 in the BMP Manual¹) provided below is independent of site conditions and should be used if the *Design Storm Method* is not followed. This method is not applicable to regulated activities greater than 1 acre or for projects that require design of stormwater storage facilities. For new impervious surfaces:
 - 1. Stormwater facilities shall capture at least the first 2 inches of runoff from all new impervious surfaces.
 - 2. At least the first 1 inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow--i.e., it shall not be released into the surface waters of this Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.

3. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first 0.5 inch of the permanently removed runoff should be infiltrated.
4. This method is exempt from the requirements of Section 304, Rate Controls.

Section 304. Rate Controls

- A. Areas not covered by a release rate map from an approved Act 167 Stormwater Management Plan:

Postdevelopment discharge rates shall not exceed the predevelopment discharge rates for the 2-, 10-, 25-, and 100-year 24-hour storms. If it is shown that the peak rates of discharge indicated by the postdevelopment analysis are less than or equal to the peak rates of discharge indicated by the predevelopment analysis for 2-, 10-, 25-, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

- B. Areas covered by a release rate map from an approved Act 167 Stormwater Management Plan:

For the 2-, 10-, 25-, and 100-year storms, the postdevelopment peak discharge rates will follow the applicable approved release rate maps. For any areas not shown on the release rate maps, the postdevelopment discharge rates shall not exceed the predevelopment discharge rates.

ARTICLE IV - STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

Section 401. Plan Requirements

The following items shall be included in the SWM Site Plan:

- A. Appropriate sections from the municipal's Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans. In instances where the municipality lacks Subdivision and Land Development regulations, the content of SWM Site Plans shall follow the county's Subdivision and Land Development Ordinance.
- B. The municipality shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the municipality may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the municipality may accept submission of modifications.
- C. Provisions for permanent access or maintenance easements for all physical SWM BMPs, such as ponds and infiltration structures, as necessary to implement the Operation and Maintenance (O&M) Plan discussed in Item E.9 below.
- D. The following signature block for the municipality:

“(Municipal official or designee), on this date (date of signature), has reviewed and hereby certifies that the SWM Site Plan meets all design standards and criteria of the Municipal Ordinance No. (number assigned to the Ordinance).”
- E. The SWM Site Plan shall provide the following information:
 - 1. The overall stormwater management concept for the project.
 - 2. A determination of site conditions in accordance with the BMP Manual. A detailed site evaluation shall be completed for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas, such as brownfields.
 - 3. Stormwater runoff design computations, and documentation as specified in this Ordinance, or as otherwise necessary to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Ordinance, including the recommendations and general requirements in Section 301.
 - 4. Expected project time schedule.
 - 5. A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.
 - 6. The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and aquatic features and on any existing stormwater conveyance system that may be affected by the project.

7. Plan and profile drawings of all SWM BMPs, including drainage structures, pipes, open channels, and swales.
8. SWM Site Plan shall show the locations of existing and proposed on-lot wastewater facilities and water supply wells.
9. The SWM Site Plan shall include an O&M Plan for all existing and proposed physical stormwater management facilities. This plan shall address long-term ownership and responsibilities for O&M as well as schedules and costs for O&M activities.

Section 402. Plan Submission

- A. ____ (Typically 5) copies of the SWM Site Plan shall be submitted as follows:
 1. ____ (Typically 2) copies to the municipality.
 2. ____ (Typically 1) copy to the municipal engineer (when applicable).
 3. ____ (Typically 1) copy to the County Conservation District.
 4. ____ (Typically 1) copy to the County Planning Commission/Office.
- B. Additional copies shall be submitted as requested by the municipality or DEP.

Section 403. Plan Review

- A. SWM Site Plans shall be reviewed by the municipality for consistency with the provisions of this Ordinance.
- B. The municipality shall notify the applicant in writing within 45 days whether the SWM Site Plan is approved or disapproved. If the SWM Site Plan involves a Subdivision and Land Development Plan, the notification shall occur within the time period allowed by the Municipalities Planning Code (90 days). If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the municipality.
- C. If the municipality disapproves the SWM Site Plan, the municipality will state the reasons for the disapproval in writing. The municipality also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.

Section 404. Modification of Plans

A modification to a submitted SWM Site Plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other conditions are not as stated on the SWM Site Plan as determined by the municipality shall require a resubmission of the modified SWM Site Plan in accordance with this Article.

Section 405. Resubmission of Disapproved SWM Site Plans

A disapproved SWM Site Plan may be resubmitted, with the revisions addressing the municipality's concerns, to the municipality in accordance with this Article. The applicable review fee must accompany a resubmission of a disapproved SWM Site Plan.

Section 406. Authorization to Construct and Term of Validity

The municipality's approval of an SWM Site Plan authorizes the regulated activities contained in the SWM Site Plan for a maximum term of validity of 5 years following the date of approval. The municipality may specify a term of validity shorter than 5 years in the approval for any specific SWM Site Plan. Terms of validity shall commence on the date the municipality signs the approval for an SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 407 within the term of validity, then the municipality may consider the SWM Site Plan disapproved and may revoke any and all permits. SWM Site Plans that are considered disapproved by the municipality shall be resubmitted in accordance with Section 405 of this Ordinance.

Section 407. As-Built Plans, Completion Certificate, and Final Inspection

- A. The developer shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the municipality.
- B. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate.
- C. After receipt of the completion certification by the municipality, the municipality may conduct a final inspection.

ARTICLE V - OPERATION AND MAINTENANCE

Section 501. Responsibilities of Developers and Landowners

- A. The municipality shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. The municipality may require a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that the municipality will accept the facilities. The municipality reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls.
- B. Facilities, areas, or structures used as Stormwater Management BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.
- C. The O&M Plan shall be recorded as a restrictive deed covenant that runs with the land.
- D. The municipality may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

Section 502. Operation and Maintenance Agreements

- A. Prior to final approval of the SWM Site Plan, the property owner shall sign and record an Operation and Maintenance (O&M) Agreement (see Appendix A) covering all stormwater control facilities which are to be privately owned.
 - 1. The owner, successor and assigns shall maintain all facilities in accordance with the approved maintenance schedule in the O&M Plan.
 - 2. The owner shall convey to the Municipality conservation easements to assure access for periodic inspections by the Municipality and maintenance, as necessary.
 - 3. The owner shall keep on file with the Municipality the name, address, and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information shall be submitted by the owner to the Municipality within ten (10) working days of the change.
- B. The owner is responsible for operation and maintenance (O&M) of the SWM BMPs. If the owner fails to adhere to the O&M Agreement, the municipality may perform the services required and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.

Section 503. Performance Guarantee

For SWM Site Plans that involve subdivision and land development, the applicant shall provide a financial guarantee to the Municipality for the timely installation and proper construction of all stormwater management controls as required by the approved SWM Site Plan and this Ordinance in accordance with the provisions of Sections 509, 510, and 511 of the Pennsylvania Municipalities Planning Code.

ARTICLE VI - FEES AND EXPENSES

Section 601. General

The municipality may include all costs incurred in the review fee charged to an applicant.

The review fee may include, but not be limited to, costs for the following:

- A. Administrative/clerical processing.
- B. Review of the SWM Site Plan.
- C. Attendance at meetings.
- D. Inspections.

ARTICLE VII - PROHIBITIONS

Section 701. Prohibited Discharges and Connections

- A. Any drain or conveyance, whether on the surface or subsurface, that allows any nonstormwater discharge including sewage, process wastewater, and wash water to enter the waters of this Commonwealth is prohibited.
- B. No person shall allow, or cause to allow, discharges into surface waters of this Commonwealth which are not composed entirely of stormwater, except (1) as provided in Subsection C below and (2) discharges allowed under a state or federal permit.
- C. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of this Commonwealth:

- Discharges from firefighting activities	- Flows from riparian habitats and wetlands
- Potable water sources including water line flushing	- Uncontaminated water from foundations or from footing drains
- Irrigation drainage	- Lawn watering
- Air conditioning condensate	- Dechlorinated swimming pool discharges
- Springs	- Uncontaminated groundwater
- Water from crawl space pumps	- Water from individual residential car washing
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used	- Routine external building wash down (which does not use detergents or other compounds)
- Diverted stream flows	

- D. In the event that the municipality or DEP determines that any of the discharges identified in Subsection C significantly contribute to pollution of the waters of this Commonwealth, the municipality or DEP will notify the responsible person(s) to cease the discharge.

Section 702. Roof Drains

Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs and to the maximum extent practicable satisfy the criteria for DIAs.

Section 703. Alteration of SWM BMPs

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures without the written approval of the municipality.

ARTICLE VIII - ENFORCEMENT AND PENALTIES

Section 801. Right-of-Entry

Upon presentation of proper credentials, the municipality may enter at reasonable times upon any property within the municipality to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Ordinance.

Section 802. Inspection

SWM BMPs should be inspected by the landowner, or the owner's designee (including the municipality for dedicated and owned facilities), according to the following list of minimum frequencies:

1. Annually for the first 5 years.
2. Once every 3 years thereafter.
3. During or immediately after the cessation of a 10-year or greater storm.

Section 803. Enforcement

- A. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 302.
- B. It shall be unlawful to violate Section 703 of this Ordinance.
- C. Inspections regarding compliance with the SWM Site Plan are a responsibility of the municipality.

Section 804. Suspension and Revocation

- A. Any approval or permit issued by the municipality pursuant to this Ordinance may be suspended or revoked for:
 1. Non-compliance with or failure to implement any provision of the approved SWM Site Plan or O&M Agreement.
 2. A violation of any provision of this Ordinance or any other applicable law, ordinance, rule, or regulation relating to the Regulated Activity.
 3. The creation of any condition or the commission of any act during the Regulated Activity which constitutes or creates a hazard, nuisance, pollution, or endangers the life or property of others.
- B. A suspended approval may be reinstated by the municipality when:
 1. The municipality has inspected and approved the corrections to the violations that caused the suspension.
 2. The municipality is satisfied that the violation has been corrected.

- C. An approval that has been revoked by the municipality cannot be reinstated. The applicant may apply for a new approval under the provisions of this Ordinance.
- D. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, the municipality may provide a limited time period for the owner to correct the violation. In these cases, the municipality will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, the municipality may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

Section 805. Penalties

[Municipalities should ask their solicitors to provide appropriate wording for this section.]

- A. Anyone violating the provisions of this Ordinance shall be guilty of a summary offense, and upon conviction, shall be subject to a fine of not more than \$_____ for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.
- B. In addition, the municipality may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other appropriate forms of remedy or relief.

Section 806. Appeals

- A. Any person aggrieved by any action of the municipality or its designee, relevant to the provisions of this Ordinance, may appeal to the municipality within 30 days of that action.
- B. Any person aggrieved by any decision of the municipality, relevant to the provisions of this Ordinance, may appeal to the County Court of Common Pleas in the county where the activity has taken place within 30 days of the municipality's decision.

ARTICLE IX - REFERENCES

1. Pennsylvania Department of Environmental Protection. No. 363-0300-002 (December 2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual*. Harrisburg, PA.
2. Pennsylvania Department of Environmental Protection. No. 363-2134-008 (April 15, 2000), as amended and updated. *Erosion and Sediment Pollution Control Program Manual*. Harrisburg, PA.
3. U.S. Department of Agriculture, National Resources Conservation Service (NRCS). *National Engineering Handbook*. Part 630: Hydrology, 1969-2001. Originally published as the *National Engineering Handbook*, Section 4: Hydrology. Available from the NRCS online at: <http://www.nrcs.usda.gov/>.
4. U.S. Department of Agriculture, Natural Resources Conservation Service. 1986. *Technical Release 55: Urban Hydrology for Small Watersheds*, 2nd Edition. Washington, D.C.
5. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center. 2004-2006. *Precipitation-Frequency Atlas of the United States, Atlas 14*, Volume 2, Version 3.0, Silver Spring, Maryland. Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

(Ordinance Name)

(Ordinance Number)

ENACTED and **ORDAINED** at a regular meeting of the

on this _____ day of _____, 20_____.

This Ordinance shall take effect immediately.

(Name)

(Title)

(Name)

(Title)

(Name)

(Title)

ATTEST:

Secretary

APPENDIX A

**OPERATION AND MAINTENANCE (O&M) AGREEMENT
STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMPs)**

THIS AGREEMENT, made and entered into this _____ day of _____, 20____, by and between _____, (hereinafter the “Landowner”), and _____, _____ County, Pennsylvania, (hereinafter “Municipality”);

WITNESSETH

WHEREAS, the Landowner is the owner of certain real property as recorded by deed in the land records of _____ County, Pennsylvania, Deed Book _____ at page _____, (hereinafter “Property”).

WHEREAS, the Landowner is proceeding to build and develop the Property; and

WHEREAS, the SWM BMP Operation and Maintenance (O&M) Plan approved by the Municipality (hereinafter referred to as the “O&M Plan”) for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the Municipality, provides for management of stormwater within the confines of the Property through the use of BMPs; and

WHEREAS, the Municipality, and the Landowner, his successors and assigns, agree that the health, safety, and welfare of the residents of the Municipality and the protection and maintenance of water quality require that on-site SWM BMPs be constructed and maintained on the Property; and

WHEREAS, the Municipality requires, through the implementation of the SWM Site Plan, that SWM BMPs as required by said SWM Site Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors, and assigns.

NOW, THEREFORE, in consideration of the foregoing promises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM Site Plan.
2. The Landowner shall operate and maintain the BMPs as shown on the SWM Plan in good working order in accordance with the specific operation and maintenance requirements noted on the approved O&M Plan.
3. The Landowner hereby grants permission to the Municipality, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the Municipality shall notify the Landowner prior to entering the property.
4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the Municipality or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). It is expressly understood and agreed that the

Municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Municipality.

5. In the event the Municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the Municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Municipality.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Municipality from all damages, accidents, casualties, occurrences, or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Municipality.
8. The Municipality intends to inspect the BMPs at a minimum of once every three years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of _____ County, Pennsylvania, and shall constitute a covenant running with the Property and/or equitable servitude, and shall be binding on the Landowner, his administrators, executors, assigns, heirs, and any other successors in interests, in perpetuity.

ATTEST:

WITNESS the following signatures and seals:

(SEAL)

For the Municipality:

For the Landowner:

ATTEST:

_____ (City, Borough, Township)

County of _____, Pennsylvania

I, _____, a Notary Public in and for the county and state aforesaid, whose commission expires on the _____ day of _____, 20____, do hereby certify that _____ whose name(s) is/are signed to the foregoing Agreement bearing date of the _____ day of _____, 20____, has acknowledged the same before me in my said county and state.

GIVEN UNDER MY HAND THIS _____ day of _____, 20_____.

NOTARY PUBLIC

(SEAL)

APPENDIX B

DISCONNECTED IMPERVIOUS AREA (DIA)

B.1. Rooftop Disconnection

When rooftop downspouts are directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the rooftop may qualify as completely or partially DIA and a portion of the impervious rooftop area may be excluded from the calculation of total impervious area.

A rooftop is considered to be completely or partially disconnected if it meets the requirements listed below:

- The contributing area of rooftop to each disconnected discharge is 500 square feet or less, and
- The soil, in proximity of the roof water discharge area, is not designated as hydrologic soil group “D” or equivalent, and
- The overland flow path from roof water discharge area has a positive slope of 5% or less.

For designs that meet these requirements, the portion of the roof that may be considered disconnected depends on the length of the overland path as designated in Table B.1.

Table B.1: Partial Rooftop Disconnection	
Length of Pervious Flow Path *	Roof Area Treated as Disconnected
(ft)	(% of contributing area)
0 – 14	0
15 – 29	20
30 – 44	40
45 – 59	60
60 – 74	80
75 or more	100

* Flow path cannot include impervious surfaces and must be at least 15 feet from any impervious surfaces.

B.2. Pavement Disconnection

When pavement runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing pavement area may qualify as a DIA that may be excluded from the calculation of total impervious area. This applies generally only to small or narrow pavement structures such as driveways and narrow pathways through otherwise pervious areas (e.g., a walkway or bike path through a park).

Pavement is disconnected if the pavement, or area adjacent to the pavement, meets the requirements below:

- The contributing flow path over impervious area is not more than 75 feet, and
- The length of overland flow is greater than or equal to the contributing length, and
- The soil is not designated as hydrologic soil group “D” or equivalent, and
- The slope of the contributing impervious area is 5% or less, and
- The slope of the overland flow path is 5% or less.

If the discharge is concentrated at one or more discrete points, no more than 1,000 square feet may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. For nonconcentrated discharges along the edge of the pavement, this requirement is waived; however, there must be a provision for the establishment of vegetation along the pavement edge and temporary stabilization of the area until vegetation becomes stabilized.

REFERENCE

Philadelphia Water Department. 2006. *Stormwater Management Guidance Manual*. Section 4.2.2: Integrated Site Design. Philadelphia, PA.

Section VIII - Priorities for Implementation

The Fayette County Stormwater Management Plan for the Youghiogheny Watershed, Monongahela Watershed, and Cheat Lake Watershed is complete with Fayette County's adoption of the Plan and submission to PADEP for approval.

At the time of PADEP's approval, each municipality will be notified (in writing by PADEP) of the County Plan being approved and the schedule for the municipality to adopt the stormwater ordinance and/or to make amendments to existing municipal ordinances. It is strongly advised each municipality is to consult with their Solicitor on adopting the stormwater ordinance and/or amending any existing ordinances.

Upon PADEP approval, the County will provide two copies (one bound and one digital) to each municipality. The Plan includes Phase II, appendices, figures, and Model Ordinance.

The stormwater management criteria assigned to the three watersheds should be enacted within the municipal stormwater ordinance so the requirements for management of stormwater will be applicable to all changes in land use and not only limited to activities which are subject to subdivision and land development regulations.

Coordination between the County and Municipality

Coordination between the County and the individual municipality is essential for implementation of and management of the Stormwater Management Plan and the administration of the adopted municipal stormwater ordinance.

In working with the County, the individual municipality will adopt the stormwater ordinance and perform the review for compliance on a new land development and/or change in land use. The Office of Planning, Zoning and Community Development does not have an engineer on staff or under contract to perform the technical review.

The process to review new development/change in land use will be similar to the County's existing procedure for approval of subdivision and land development plans and/or issuance of a zoning and/or building permit. The County will require a letter from the municipality indicating the property owner/developer is in compliance with the stormwater ordinance and is consistent with the County Plan.

Existing Drainage Problems

By adopting the Plan, the County has established a framework for the correction of existing drainage problems. The stormwater management ordinance is to prevent the worsening of existing drainage problems and prevent the creation of new drainage problems.

As previously identified, the County prioritized the obstruction areas and problem areas to be addressed in subsequent revisions of the Plan.

By identifying problem areas and obstruction areas in the Plan, along with the adoption

of the stormwater management plan and stormwater ordinance, grant applications to correct the identified problem areas and obstruction areas will receive “credit/points” for being identified and evaluated in the County Plan. As grant monies become even more limited and competitive, the adopted Plan will assist the County and its municipalities in securing monies to solve drainage problems within each watershed.

Section IX - Plan Review Adoption and Updating Procedures

Adoption of Plan

Fayette County provided a copy of the Plan and Stormwater Ordinance to the municipalities for review and comment prior to the Plan being adopted.

In addition to the municipalities receiving a copy of the Plan, the Fayette County Planning Commission and the ten individual Planning Commissions were given the opportunity to review and comment. The review by municipal officials, Planning Commissions, and others is to evaluate the Plan's consistency with other plans and programs affecting their specific watershed. The comments were submitted back to the Office of Planning, Zoning and Community Development to allow for review and response.

Fayette County scheduled a public hearing. A notice for the hearing was published two weeks prior to the hearing date. The notice contained a summary of the principal provisions of the Plan and identifies where the Plan can be reviewed. Comments received at the public hearing are to be addressed and the Plan will be amended accordingly.

For the purpose of adoption, the Board of Commissioners passed a Resolution. The resolution references the text of the Plan, maps, plates, and model ordinance. Being approved at a public meeting, the resolution was recorded in the meeting minutes.

Once the resolution is passed, Fayette County will forward the Plan to PADEP, comments received and response to those comments, public hearing notice and minutes, and the resolution adopted by the Board of Commissioners.

Revision of Plan

The Stormwater Management Act requires the Stormwater Management Plan be updated at least every five years. In updating the Plan, the County shall consider changes in land use, obstructions and problems, flood control projects, and floodplains within each watershed.

As a result of the accelerated Phase II Plan, the Office of Planning, Zoning and Community Development should collect and manage data during the year(s) between an update to better understand what has or is happening in each municipality. In addition to data collected, the revision will include an assessment and analysis of the priorities of problem areas and obstruction areas, as identified in Section III of the Plan.

The Office of Planning, Zoning and Community Development shall coordinate their planning efforts for revisiting the Plan with the Fayette County Conservation District, watershed organizations, and other state/federal agencies that have an interest in stormwater management.

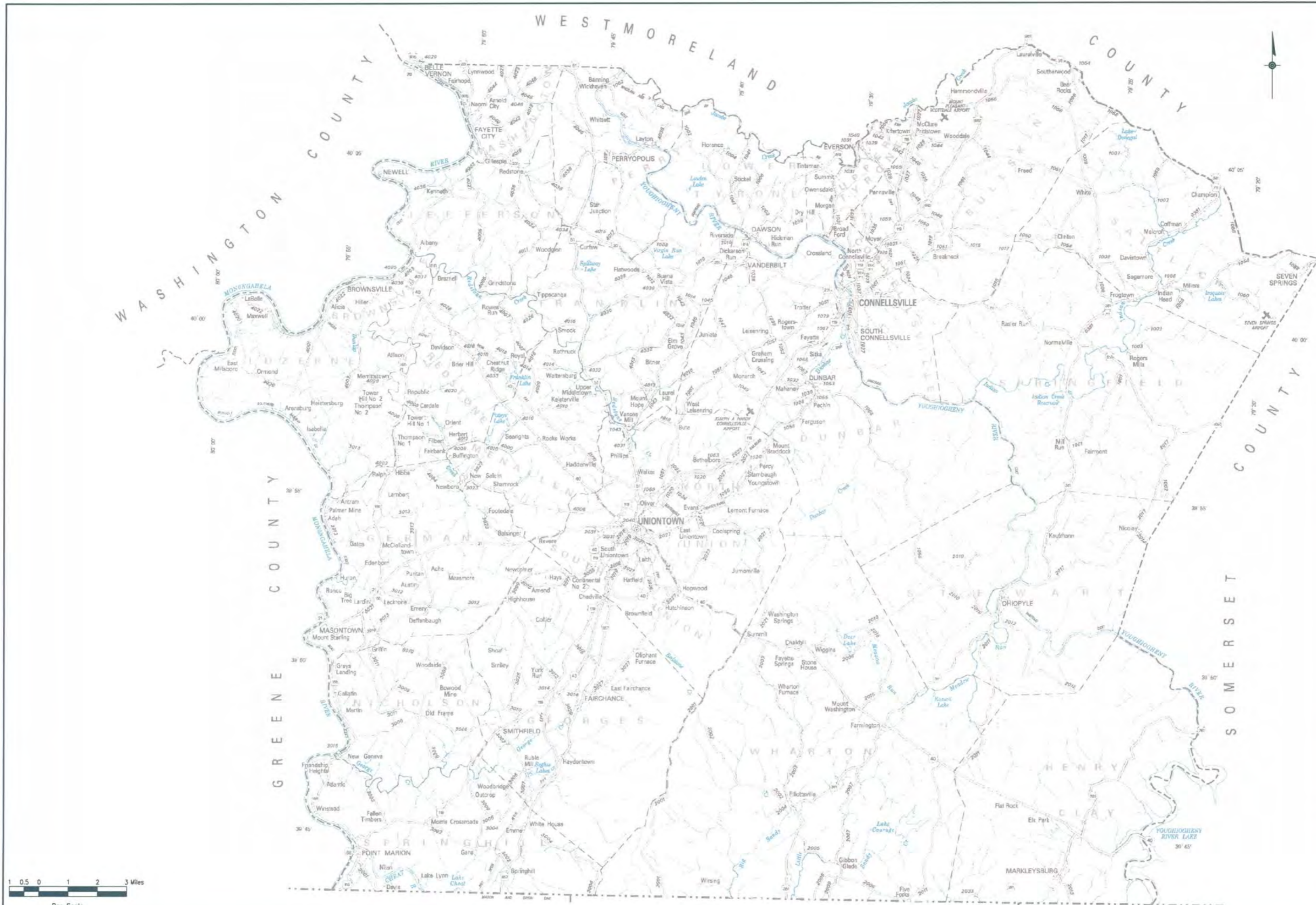
As the Office of Planning, Zoning and Community Development receives information from the municipalities, the Plan Advisory Committee (PAC) convene to discuss the new data collected, how effective the Plan and municipal ordinances have been thus far, and

what should be addressed in the subsequent revisions of the Plan. The PAC can convene biannually or as needed to review the Plan assuring the result of the Plan is truly minimizing the runoff impacts of new development.

During a review to revise the Plan, whether it is determined to revise or not to revise the Plan, the Board of Commissioners will adopt a resolution indicating such action and forward to the Department of Environmental Protection. The County is to follow the same procedure for a revision as it did in the original adoption of the County's Stormwater Management Plan.

APPENDIX A

Fayette County Map
Fayette County Watershed Map
Stormwater Obstruction Map
Stormwater Problem Area Map
Stormwater Management Facility Map
Fayette County Release Rate Map



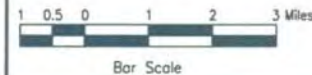
NO.	DESCRIPTION	DATE	BY

ACT 167 STORMWATER MANAGEMENT PLAN
 PREPARED FOR
FAYETTE COUNTY
 FAYETTE COUNTY
 PENNSYLVANIA

FAYETTE COUNTY
MAP

**	2009-21
RHH	10/26/09 JS 10/26/09
RHH	10/26/09 TEM 10/26/09

1" = 3 Miles



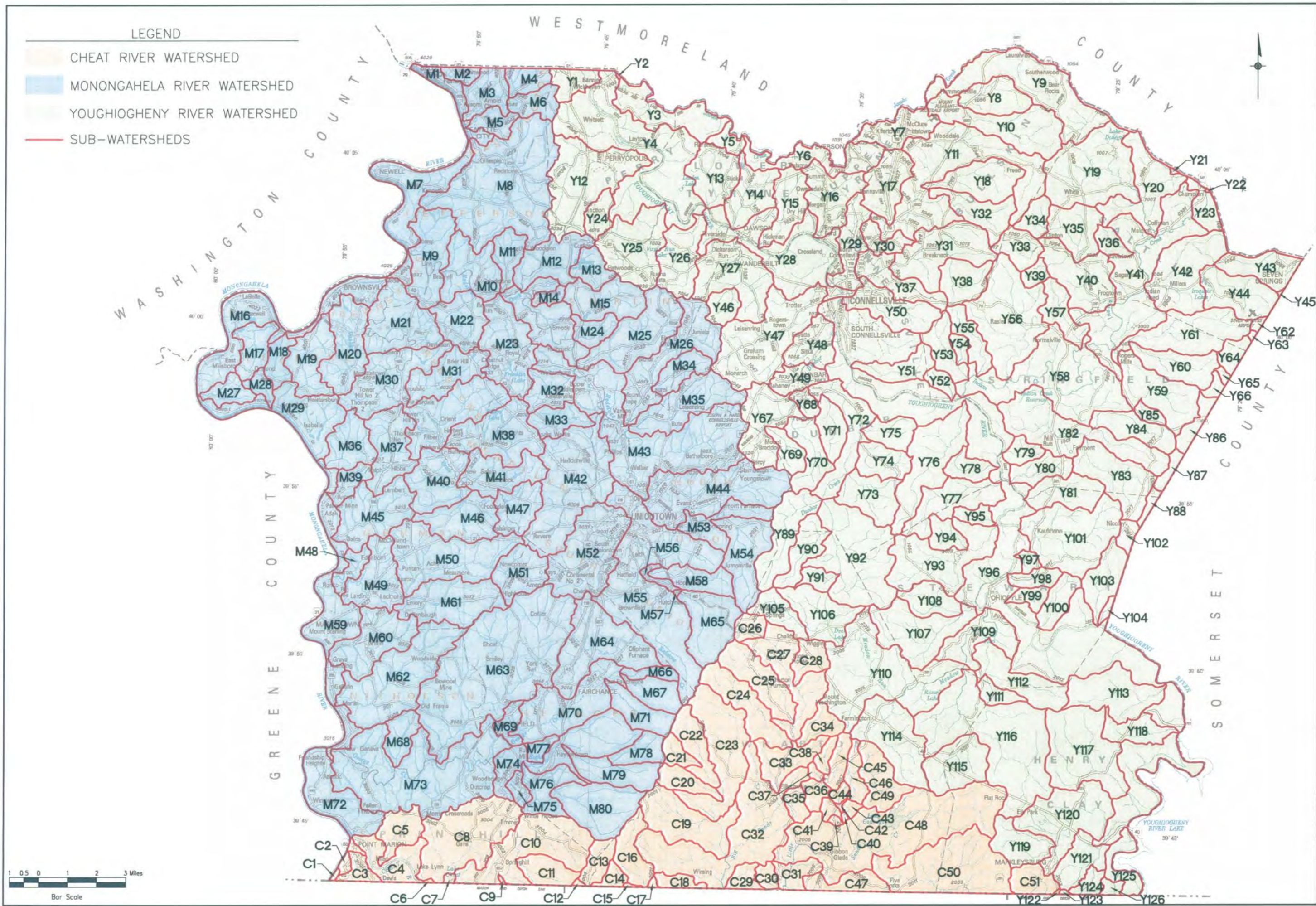
NO.	DESCRIPTION	DATE	BY

ACT 167 STORMWATER MANAGEMENT PLAN
 PREPARED FOR
FAYETTE COUNTY
 FAYETTE COUNTY
 PENNSYLVANIA

FAYETTE COUNTY
 WATERSHED MAP

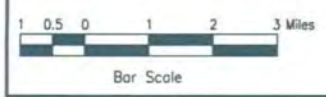
**	2009-21
RHH	10/26/09 JS 10/26/09
RHH	10/26/09 TEM 10/26/09

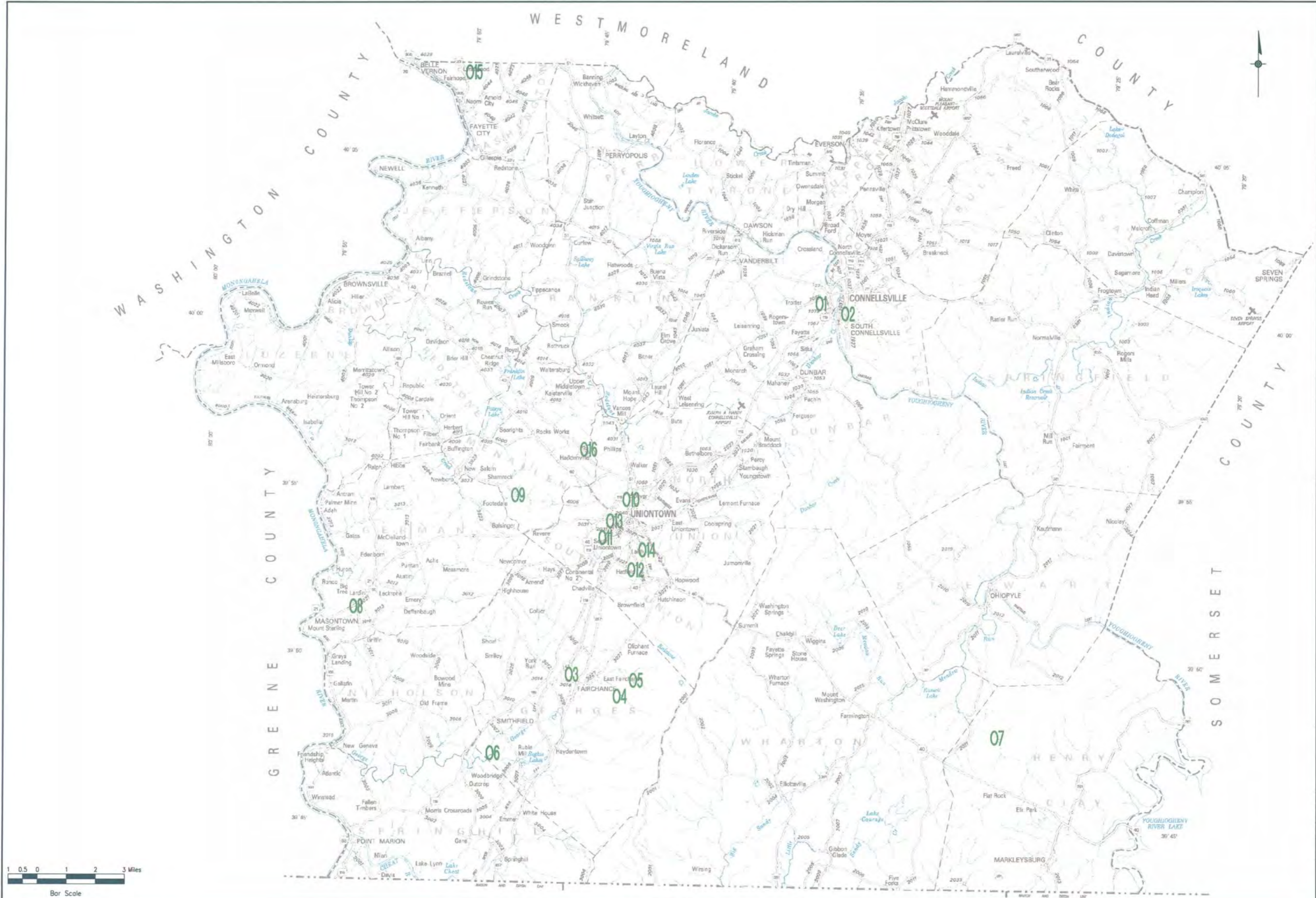
1" = 3 Miles



LEGEND

- CHEAT RIVER WATERSHED
- MONONGAHELA RIVER WATERSHED
- YOUGHIOGHENY RIVER WATERSHED
- SUB-WATERSHEDS





NO.	DESCRIPTION	DATE	BY

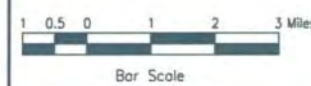
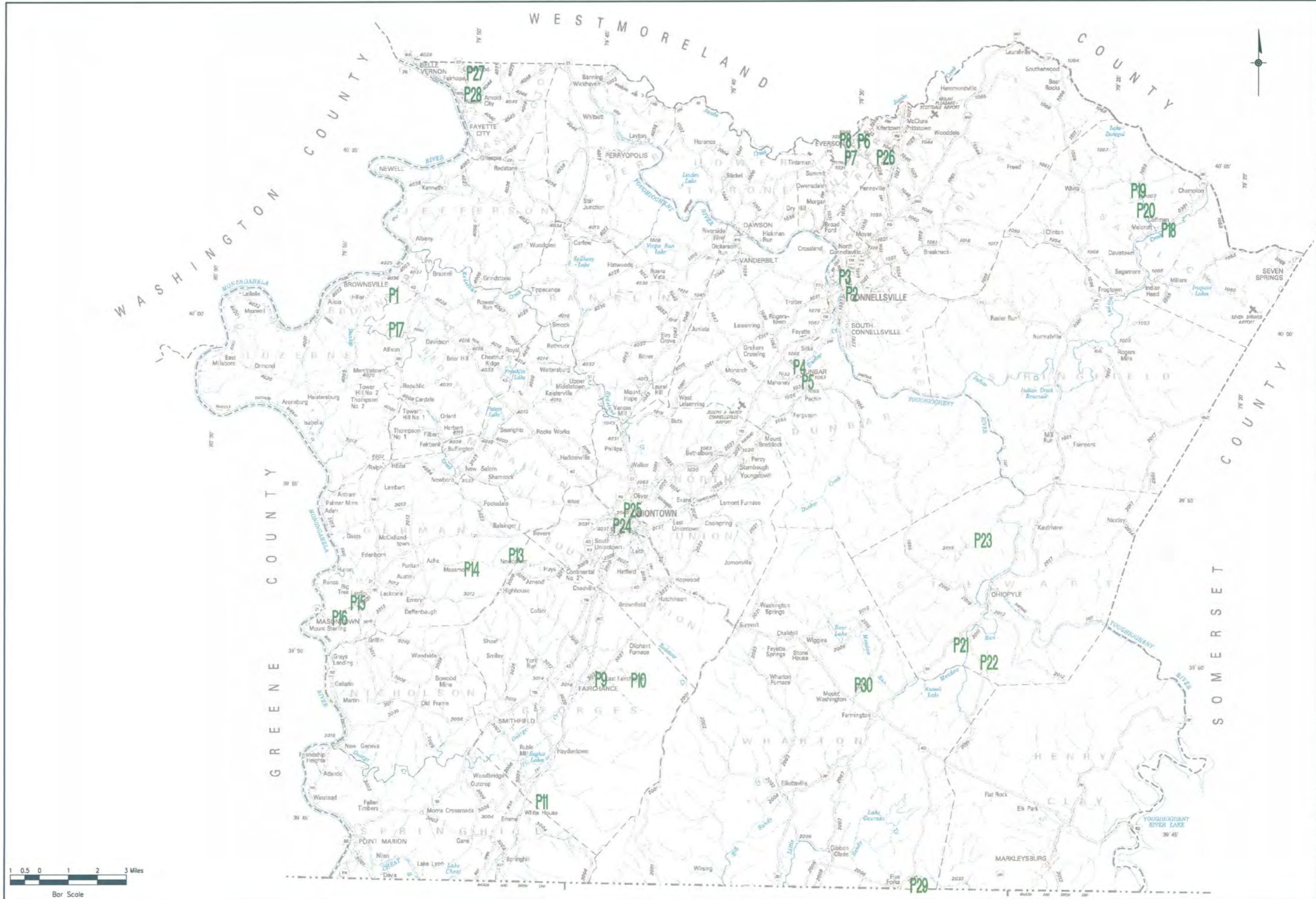
ACT 167 STORMWATER MANAGEMENT PLAN
 PREPARED FOR
FAYETTE COUNTY
 FAYETTE COUNTY
 PENNSYLVANIA

STORMWATER OBSTRUCTION MAP

**	2009-21
RHH	10/26/09 JS 10/26/09
RHH	10/26/09 TEM 10/26/09

1" = 3 Miles
1

© 2009, 2008-21, M&P, 2008-21 - Obstruction Map



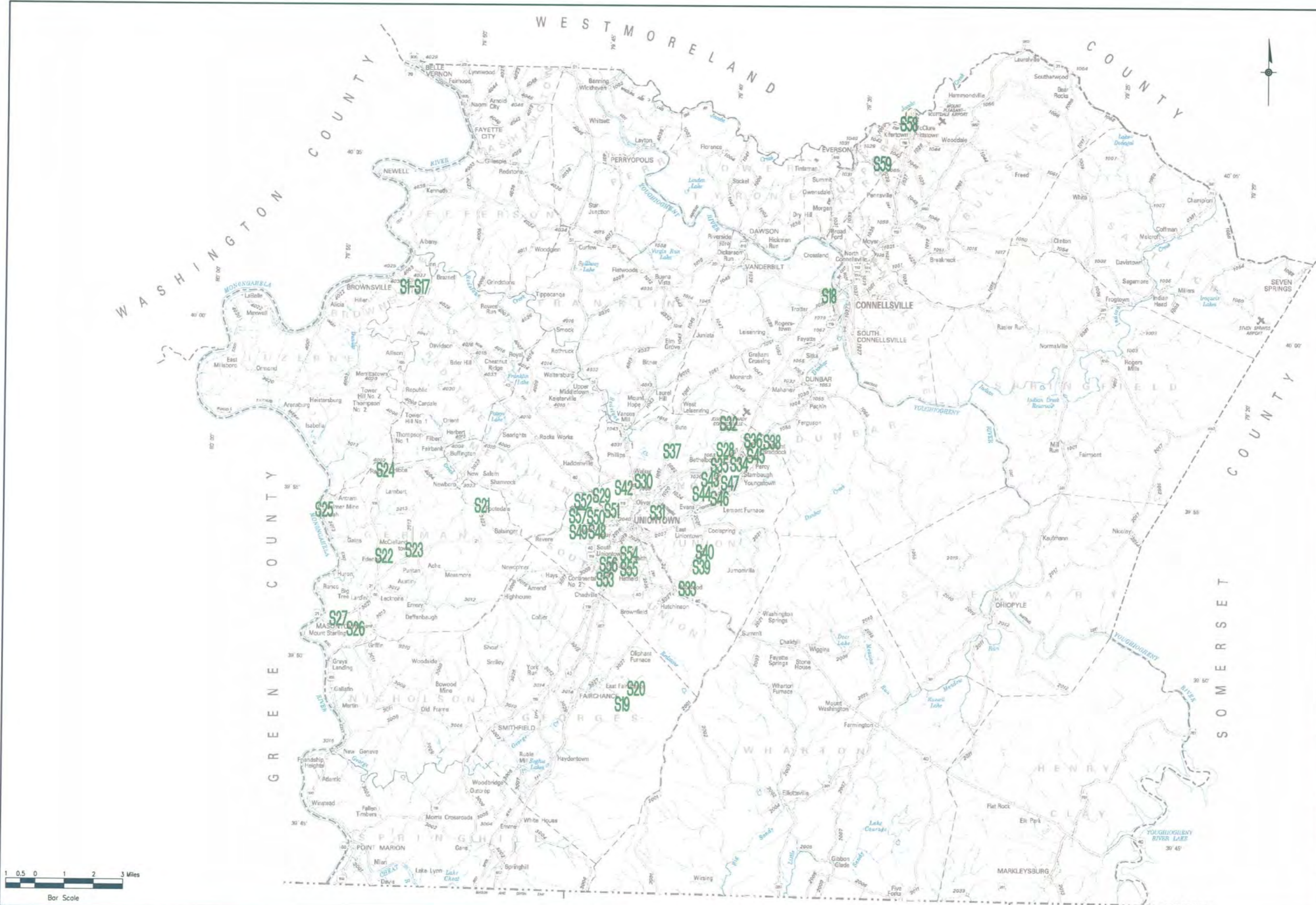
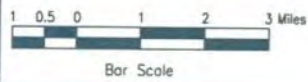
NO.	REVISIONS	DESCRIPTION	DATE	BY

ACT 167 STORMWATER MANAGEMENT PLAN
 PREPARED FOR
FAYETTE COUNTY
 FAYETTE COUNTY
 PENNSYLVANIA

**STORMWATER
 PROBLEM AREA
 MAP**

**	2009-21
RHH	10/26/09 JS 10/26/09
RHH	10/26/09 TEM 10/26/09

1" = 3 Miles



NO.	DESCRIPTION	DATE	BY

ACT 167 STORMWATER MANAGEMENT PLAN
 PREPARED FOR
FAYETTE COUNTY
 FAYETTE COUNTY
 PENNSYLVANIA

STORMWATER
 MANAGEMENT
 FACILITY MAP

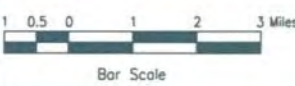
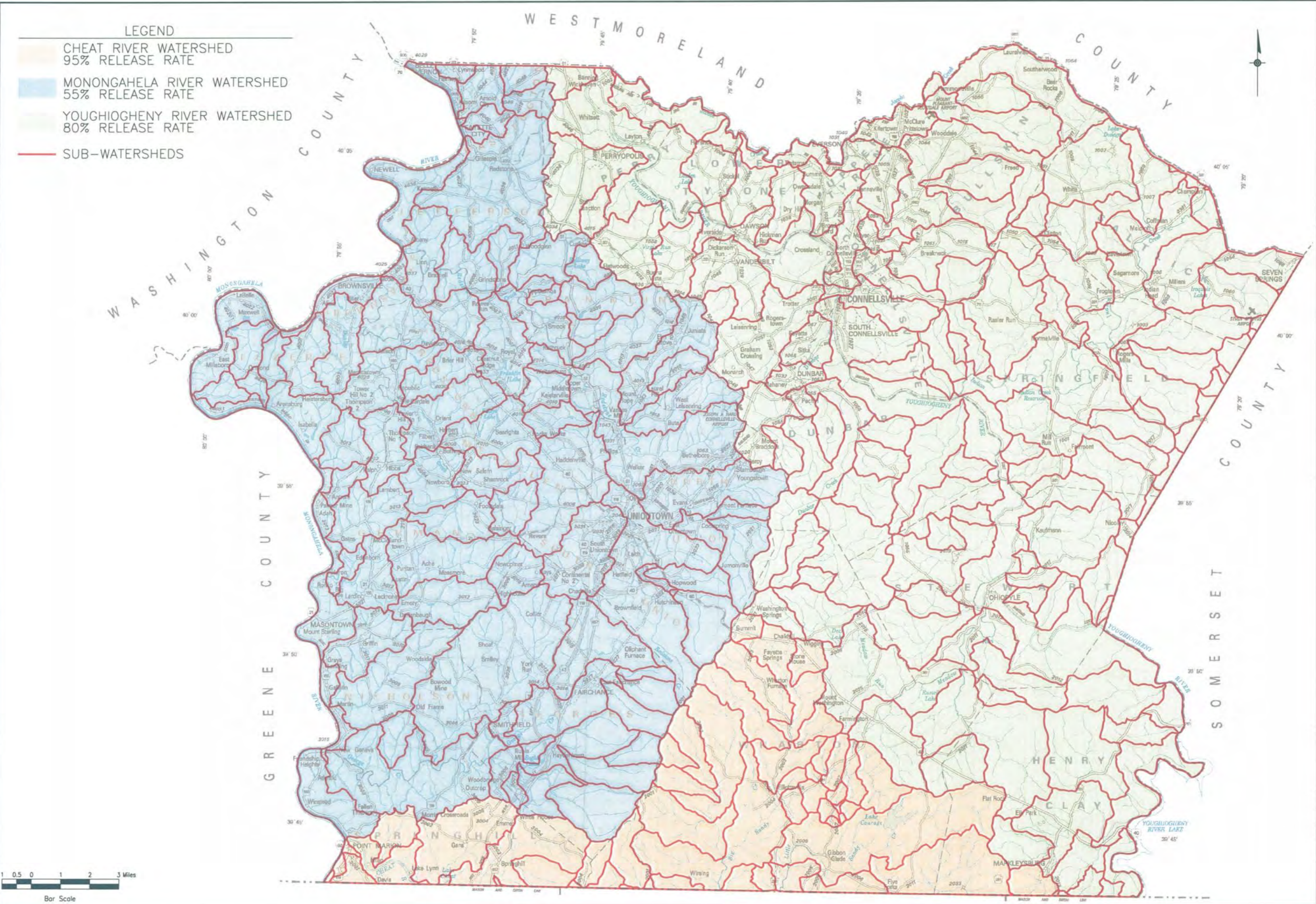
**	2009-21
RHH	10/26/09 JS 10/26/09
RHH	10/26/09 TEM 10/26/09

1" = 3 Miles

C:\2009\2009-21\MAPS\2009-21-Stormwater Facility Map

LEGEND

- CHEAT RIVER WATERSHED
95% RELEASE RATE
- MONONGAHELA RIVER WATERSHED
55% RELEASE RATE
- YOUGHIOGHENY RIVER WATERSHED
80% RELEASE RATE
- SUB-WATERSHEDS



NO.	REVISIONS	DESCRIPTION	DATE	BY

ACT 167 STORMWATER MANAGEMENT PLAN
 PREPARED FOR
FAYETTE COUNTY
 FAYETTE COUNTY
 PENNSYLVANIA

**FAYETTE COUNTY
 RELEASE RATE
 MAP**

**	2009-21
RHH	10/26/09 JS 10/26/09
RHH	10/26/09 TEM 10/26/09

1" = 3 Miles

APPENDIX B

Model Stormwater Ordinance

STORMWATER MANAGEMENT ORDINANCE

ORDINANCE NO. _____

MUNICIPALITY OF

_____ COUNTY, PENNSYLVANIA

Adopted at a Public Meeting Held on

_____, 20____

Article I - General Provisions

- Section 101. Short Title
- Section 102. Statement of Findings
- Section 103. Purpose
- Section 104. Statutory Authority
- Section 105. Applicability
- Section 106. Repealer
- Section 107. Severability
- Section 108. Compatibility with Other Requirements

Article II - Definitions

Article III - Stormwater Management Standards

- Section 301. General Requirements
- Section 302. Exemptions
- Section 303. Volume Controls
- Section 304. Rate Controls

Article IV - Stormwater Management Site Plan Requirements

- Section 401. Plan Requirements
- Section 402. Plan Submission
- Section 403. Plan Review
- Section 404. Modification of Plans
- Section 405. Resubmission of Disapproved Stormwater Management Site Plans
- Section 406. Authorization to Construct and Term of Validity
- Section 407. As-Built Plans, Completion Certificate and Final Inspection

Article V - Operation and Maintenance

- Section 501. Responsibilities of Developers and Landowners
- Section 502. Operation and Maintenance Agreements

Article VI - Fees and Expenses

- Section 601. General

Article VII - Prohibitions

- Section 701. Prohibited Discharges and Connections
- Section 702. Roof Drains
- Section 703. Alteration of SWM BMPs

Article VIII - Enforcement and Penalties

- Section 801. Right-of-Entry
- Section 802. Inspection
- Section 803. Enforcement
- Section 804. Suspension and Revocation
- Section 805. Penalties
- Section 806. Appeals

Article IX - References

Appendix A: Operation and Maintenance Agreement

Appendix B: Disconnected Impervious Area (DIA)

ARTICLE I - GENERAL PROVISIONS

Section 101. Short Title

This Ordinance shall be known and may be cited as the “(Name of municipality and name of watershed plan, if applicable) Stormwater Management Ordinance.”

Section 102. Statement of Findings

The governing body of the municipality finds that:

- A. Inadequate management of accelerated runoff of stormwater resulting from development throughout a watershed increases flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of streams and storm sewers, greatly increases the cost of public facilities to carry and control stormwater, undermines flood plain management and flood control efforts in downstream communities, reduces groundwater recharge, threatens public health and safety, and increases nonpoint source pollution of water resources.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, and welfare and the protection of people of the Commonwealth, their resources, and the environment.
- C. Stormwater is an important water resource, which provides groundwater recharge for water supplies and base flow of streams, which also protects and maintains surface water quality.
- D. Federal and state regulations require certain municipalities to implement a program of stormwater controls. These municipalities are required to obtain a permit for stormwater discharges from their separate storm sewer systems under the National Pollutant Discharge Elimination System (NPDES).

Section 103. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within the municipality and its watershed by minimizing the harms and maximizing the benefits described in Section 102 of this Ordinance, through provisions designed to:

- A. Meet legal water quality requirements under state law, including regulations at 25 Pa. Code 93 to protect, maintain, reclaim, and restore the existing and designated uses of the waters of this Commonwealth.
- B. Preserve the natural drainage systems as much as possible.
- C. Manage stormwater runoff close to the source.
- D. Provide procedures and performance standards for stormwater planning and management.
- E. Maintain groundwater recharge to prevent degradation of surface and groundwater quality and to otherwise protect water resources.

- F. Prevent scour and erosion of stream banks and streambeds.
- G. Provide proper operation and maintenance of all SWM BMPs that are implemented within the municipality.
- H. Provide standards to meet NPDES permit requirements.

Section 104. Statutory Authority

A. Primary Authority:

The Municipality is empowered to regulate land use activities that affect stormwater impacts by the authority of the *[cite relevant sections of the applicable municipal code (e.g., 53 P.S. §§ 55101 et seq. — First Class Township Code — confer with municipal solicitor)]*.

B. Secondary Authority:

The municipality also is empowered to regulate land use activities that affect runoff by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania Municipalities Planning Code, as amended.

Section 105. Applicability

All regulated activities and all activities that may affect stormwater runoff, including land development and earth disturbance activity, are subject to regulation by this Ordinance.

Section 106. Repealer

Any other ordinance provision(s) or regulation of the municipality inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

Section 107. Severability

In the event that a court of competent jurisdiction declares any section or provision of this Ordinance invalid, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

Section 108. Compatibility with Other Requirements

Approvals issued and actions taken under this Ordinance do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other code, law, regulation, or ordinance.

ARTICLE II - DEFINITIONS

For the purposes of this Ordinance, certain terms and words used herein shall be interpreted as follows:

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word “includes” or “including” shall not limit the term to the specific example but is intended to extend its meaning to all other instances of like kind and character.
- C. The words “shall” and “must” are mandatory; the words “may” and “should” are permissive.

Agricultural Activity – Activities associated with agriculture such as agricultural cultivation, agricultural operation, and animal heavy use areas. This includes the work of producing crops including tillage, land clearing, plowing, disking, harrowing, planting, harvesting crops or pasturing and raising of livestock and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity.

Applicant - A landowner, developer, or other person who has filed an application to the municipality for approval to engage in any regulated activity at a project site in the municipality.

Best Management Practice (BMP) - Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to meet state water quality requirements, to promote groundwater recharge, and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one of two broad categories or measures: “structural” or “nonstructural.” In this Ordinance, nonstructural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices, from large-scale retention ponds and constructed wetlands, to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the project site.

Conservation District - A conservation district, as defined in Section 3(c) of the Conservation District Law (3 P. S. § 851(c)) that has the authority under a delegation agreement executed with DEP to administer and enforce all or a portion of the regulations promulgated under 25 Pa. Code 102.

Design Storm - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 5-year storm) and duration (e.g., 24 hours) used in the design and evaluation of stormwater management systems. Also see Return Period.

Detention Volume - The volume of runoff that is captured and released into the waters of this Commonwealth at a controlled rate.

DEP - The Pennsylvania Department of Environmental Protection.

Development Site (Site) - See Project Site.

Disconnected Impervious Area (DIA) - An impervious or impermeable surface that is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area, which allows for infiltration, filtration, and increased time of concentration as specified in Appendix B, Disconnected Impervious Area.

Disturbed Area - An unstabilized land area where an earth disturbance activity is occurring or has occurred.

Earth Disturbance Activity - A construction or other human activity which disturbs the surface of the land, including, but not limited to: clearing and grubbing; grading; excavations; embankments; road maintenance; building construction; and the moving, depositing, stockpiling, or storing of soil, rock, or earth materials.

Erosion - The natural process by which the surface of the land is worn away by water, wind, or chemical action.

Existing Condition - The dominant land cover during the 5-year period immediately preceding a proposed regulated activity.

FEMA - Federal Emergency Management Agency.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable FEMA maps and studies as being a special flood hazard area. Also includes areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania DEP Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by DEP).

Floodway - The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the 100-year flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year floodway, it is assumed--absent evidence to the contrary--that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Forest Management/Timber Operations - Planning and activities necessary for the management of forestland. These include conducting a timber inventory, preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation, and reforestation.

Hydrologic Soil Group (HSG) - Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into four HSGs (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The NRCS defines the four groups and provides a list of most of the soils in the United States and their group classification. The soils in the area of the development site may be identified from a soil survey report that can be obtained from local NRCS offices or conservation district offices. Soils become less pervious as the HSG varies from A to D (NRCS ^{3,4}).

Impervious Surface (Impervious Area) - A surface that prevents the infiltration of water into the ground. Impervious surfaces (or areas) shall include, but not be limited to: roofs; additional indoor living spaces, patios, garages, storage sheds and similar structures; and any new streets or sidewalks.

Decks, parking areas, and driveway areas are not counted as impervious areas if they do not prevent infiltration.

Karst - A type of topography or landscape characterized by surface depressions, sinkholes, rock pinnacles/uneven bedrock surface, underground drainage, and caves. Karst is formed on carbonate rocks, such as limestone or dolomite.

Land Development (Development) - Inclusive of any or all of the following meanings: (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Municipality - (municipality name), (county name) County, Pennsylvania.

NRCS - USDA Natural Resources Conservation Service (previously SCS).

Peak Discharge - The maximum rate of stormwater runoff from a specific storm event.

Pervious Area - Any area not defined as impervious.

Project Site - The specific area of land where any regulated activities in the municipality are planned, conducted, or maintained.

Qualified Professional - Any person licensed by the Pennsylvania Department of State or otherwise qualified by law to perform the work required by this Ordinance.

Regulated Activities - Any earth disturbance activities or any activities that involve the alteration or development of land in a manner that may affect stormwater runoff.

Regulated Earth Disturbance Activity - Activity involving earth disturbance subject to regulation under 25 Pa. Code 92, 25 Pa. Code 102, or the Clean Streams Law.

Retention Volume/Removed Runoff - The volume of runoff that is captured and not released directly into the surface waters of this Commonwealth during or after a storm event.

Return Period - The average interval, in years, within which a storm event of a given magnitude can be expected to occur one time. For example, the 25-year return period rainfall would be expected to occur on average once every 25 years; or stated in another way, the probability of a 25-year storm occurring in any one year is 0.04 (i.e., a 4% chance).

Runoff - Any part of precipitation that flows over the land.

Sediment - Soils or other materials transported by surface water as a product of erosion.

State Water Quality Requirements - The regulatory requirements to protect, maintain, reclaim, and restore water quality under Title 25 of the Pennsylvania Code and the Clean Streams Law.

Stormwater - Drainage runoff from the surface of the land resulting from precipitation or snow or ice melt.

Stormwater Management Facility - Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical stormwater management facilities include, but are not limited to: detention and retention basins; open channels; storm sewers; pipes; and infiltration facilities.

Stormwater Management Plan - The (name of stormwater management plan) for managing stormwater runoff adopted by the county of (county name) as required by the Act of October 4, 1978, P.L. 864, (Act 167), as amended, and known as the “Storm Water Management Act.”

Stormwater Management Best Management Practices - Is abbreviated as **BMPs** or **SWM BMPs** throughout this Ordinance.

Stormwater Management Site Plan - The plan prepared by the developer or his representative indicating how stormwater runoff will be managed at the development site in accordance with this Ordinance. **Stormwater Management Site Plan** will be designated as **SWM Site Plan** throughout this Ordinance.

Subdivision - As defined in The Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247.

USDA - United States Department of Agriculture.

Waters of this Commonwealth – Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

Watershed - Region or area drained by a river, watercourse, or other surface water of this Commonwealth.

Wetland - Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.

ARTICLE III - STORMWATER MANAGEMENT STANDARDS

Section 301. General Requirements

- A. For all regulated activities, unless preparation of an SWM Site Plan is specifically exempted in Section 302:
 - 1. Preparation and implementation of an approved SWM Site Plan is required.
 - 2. No regulated activities shall commence until the municipality issues written approval of an SWM Site Plan, which demonstrates compliance with the requirements of this Ordinance.
- B. SWM Site Plans approved by the municipality, in accordance with Section 406, shall be on site throughout the duration of the regulated activity.
- C. The municipality may, after consultation with DEP, approve measures for meeting the state water quality requirements other than those in this Ordinance, provided that they meet the minimum requirements of, and do not conflict with, state law including, but not limited to, the Clean Streams Law.
- D. For all regulated earth disturbance activities, erosion and sediment control BMPs shall be designed, implemented, operated, and maintained during the regulated earth disturbance activities (e.g., during construction) to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code and the Clean Streams Law. Various BMPs and their design standards are listed in the *Erosion and Sediment Pollution Control Program Manual (E&S Manual)*², No. 363-2134-008 (April 15, 2000), as amended and updated.
- E. For all regulated activities, implementation of the volume controls in Section 303 is required.
- F. Impervious areas:
 - 1. The measurement of impervious areas shall include all of the impervious areas in the total proposed development even if development is to take place in stages.
 - 2. For development taking place in stages, the entire development plan must be used in determining conformance with this Ordinance.
 - 3. For projects that add impervious area to a parcel, the total impervious area on the parcel is subject to the requirements of this Ordinance; except that the volume controls in Section 303 and the peak rate controls of Section 304 do not need to be retrofitted to existing impervious areas that are not being altered by the proposed regulated activity.
- G. Stormwater flows onto adjacent property shall not be created, increased, decreased, relocated, or otherwise altered without written notification of the adjacent property owner(s). Such stormwater flows shall be subject to the requirements of this Ordinance.

- H. All regulated activities shall include such measures as necessary to:
1. Protect health, safety, and property;
 2. Meet the water quality goals of this Ordinance by implementing measures to:
 - a. Minimize disturbance to floodplains, wetlands, and wooded areas.
 - b. Maintain or extend riparian buffers.
 - c. Avoid erosive flow conditions in natural flow pathways.
 - d. Minimize thermal impacts to waters of this Commonwealth.
 - e. Disconnect impervious surfaces by directing runoff to pervious areas, wherever possible.
 3. To the maximum extent practicable, incorporate the techniques for Low Impact Development Practices described in the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual)¹.
- I. The design of all facilities over karst shall include an evaluation of measures to minimize adverse effects.
- J. Infiltration BMPs should be spread out, made as shallow as practicable, and located to maximize use of natural on-site infiltration features while still meeting the other requirements of this Ordinance.
- K. Normally dry, open top, storage facilities should completely drain both the volume control and rate control capacities over a period of time not less than 24 and not more than 72 hours from the end of the design storm.
- L. The design storm volumes to be used in the analysis of peak rates of discharge should be obtained from the Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 2, Version 3.0, U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, Hydrometeorological Design Studies Center, Silver Spring, Maryland. NOAA's Atlas 14⁵ can be accessed at: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.
- M. For all regulated activities, SWM BMPs shall be designed, implemented, operated, and maintained to meet the purposes and requirements of this Ordinance and to meet all requirements under Title 25 of the Pennsylvania Code, the Clean Streams Law, and the Storm Water Management Act.
- N. Various BMPs and their design standards are listed in the BMP Manual¹.

Section 302. Exemptions

- A. Regulated activities that create DIAs smaller than 1000 sq. ft. are exempt from the peak rate control and the SWM Site Plan preparation requirement of this Ordinance.

- B. Regulated activities that create DIAs equal to or greater than 1000 sq. ft. and less than 5000 sq. ft. are exempt only from the peak rate control requirement of this Ordinance.
- C. Agricultural activity is exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code 102.
- D. Forest management and timber operations are exempt from the rate control and SWM Site Plan preparation requirements of this Ordinance provided the activities are performed according to the requirements of 25 Pa. Code 102.
- E. Exemptions from any provisions of this Ordinance shall not relieve the applicant from the requirements in Sections 301.D. through L.

Section 303. Volume Controls

The low impact development practices provided in the BMP Manual¹ shall be utilized for all regulated activities to the maximum extent practicable. Water volume controls shall be implemented using the *Design Storm Method* in Subsection A or the *Simplified Method* in Subsection B below. For regulated activity areas equal or less than 1 acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors.

- A. The *Design Storm Method* (CG-1 in the BMP Manual¹) is applicable to any size of regulated activity. This method requires detailed modeling based on site conditions.
 - 1. Do not increase the postdevelopment total runoff volume for all storms equal to or less than the 2-year 24-hour duration precipitation.
 - 2. For modeling purposes:
 - a. Existing (predevelopment) nonforested pervious areas must be considered meadow in good condition.
 - b. 20% of existing impervious area, when present, shall be considered meadow in good condition in the model for existing conditions.
- B. The *Simplified Method* (CG-2 in the BMP Manual¹) provided below is independent of site conditions and should be used if the *Design Storm Method* is not followed. This method is not applicable to regulated activities greater than 1 acre or for projects that require design of stormwater storage facilities. For new impervious surfaces:
 - 1. Stormwater facilities shall capture at least the first 2 inches of runoff from all new impervious surfaces.
 - 2. At least the first 1 inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow--i.e., it shall not be released into the surface waters of this Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.

3. Wherever possible, infiltration facilities should be designed to accommodate infiltration of the entire permanently removed runoff; however, in all cases at least the first 0.5 inch of the permanently removed runoff should be infiltrated.
4. This method is exempt from the requirements of Section 304, Rate Controls.

Section 304. Rate Controls

- A. Areas not covered by a release rate map from an approved Act 167 Stormwater Management Plan:

Postdevelopment discharge rates shall not exceed the predevelopment discharge rates for the 2-, 10-, 25-, and 100-year 24-hour storms. If it is shown that the peak rates of discharge indicated by the postdevelopment analysis are less than or equal to the peak rates of discharge indicated by the predevelopment analysis for 2-, 10-, 25-, and 100-year, 24-hour storms, then the requirements of this section have been met. Otherwise, the applicant shall provide additional controls as necessary to satisfy the peak rate of discharge requirement.

- B. Areas covered by a release rate map from an approved Act 167 Stormwater Management Plan:

For the 2-, 10-, 25-, and 100-year storms, the postdevelopment peak discharge rates will follow the applicable approved release rate maps. For any areas not shown on the release rate maps, the postdevelopment discharge rates shall not exceed the predevelopment discharge rates.

ARTICLE IV - STORMWATER MANAGEMENT (SWM) SITE PLAN REQUIREMENTS

Section 401. Plan Requirements

The following items shall be included in the SWM Site Plan:

- A. Appropriate sections from the municipal's Subdivision and Land Development Ordinance, and other applicable local ordinances, shall be followed in preparing the SWM Site Plans. In instances where the municipality lacks Subdivision and Land Development regulations, the content of SWM Site Plans shall follow the county's Subdivision and Land Development Ordinance.
- B. The municipality shall not approve any SWM Site Plan that is deficient in meeting the requirements of this Ordinance. At its sole discretion and in accordance with this Article, when a SWM Site Plan is found to be deficient, the municipality may either disapprove the submission and require a resubmission, or in the case of minor deficiencies, the municipality may accept submission of modifications.
- C. Provisions for permanent access or maintenance easements for all physical SWM BMPs, such as ponds and infiltration structures, as necessary to implement the Operation and Maintenance (O&M) Plan discussed in Item E.9 below.
- D. The following signature block for the municipality:

“(Municipal official or designee), on this date (date of signature), has reviewed and hereby certifies that the SWM Site Plan meets all design standards and criteria of the Municipal Ordinance No. (number assigned to the Ordinance).”
- E. The SWM Site Plan shall provide the following information:
 - 1. The overall stormwater management concept for the project.
 - 2. A determination of site conditions in accordance with the BMP Manual. A detailed site evaluation shall be completed for projects proposed in areas of carbonate geology or karst topography, and other environmentally sensitive areas, such as brownfields.
 - 3. Stormwater runoff design computations, and documentation as specified in this Ordinance, or as otherwise necessary to demonstrate that the maximum practicable measures have been taken to meet the requirements of this Ordinance, including the recommendations and general requirements in Section 301.
 - 4. Expected project time schedule.
 - 5. A soil erosion and sediment control plan, where applicable, as prepared for and submitted to the approval authority.
 - 6. The effect of the project (in terms of runoff volumes, water quality, and peak flows) on surrounding properties and aquatic features and on any existing stormwater conveyance system that may be affected by the project.

7. Plan and profile drawings of all SWM BMPs, including drainage structures, pipes, open channels, and swales.
8. SWM Site Plan shall show the locations of existing and proposed on-lot wastewater facilities and water supply wells.
9. The SWM Site Plan shall include an O&M Plan for all existing and proposed physical stormwater management facilities. This plan shall address long-term ownership and responsibilities for O&M as well as schedules and costs for O&M activities.

Section 402. Plan Submission

- A. ____ (Typically 5) copies of the SWM Site Plan shall be submitted as follows:
 1. ____ (Typically 2) copies to the municipality.
 2. ____ (Typically 1) copy to the municipal engineer (when applicable).
 3. ____ (Typically 1) copy to the County Conservation District.
 4. ____ (Typically 1) copy to the County Planning Commission/Office.
- B. Additional copies shall be submitted as requested by the municipality or DEP.

Section 403. Plan Review

- A. SWM Site Plans shall be reviewed by the municipality for consistency with the provisions of this Ordinance.
- B. The municipality shall notify the applicant in writing within 45 days whether the SWM Site Plan is approved or disapproved. If the SWM Site Plan involves a Subdivision and Land Development Plan, the notification shall occur within the time period allowed by the Municipalities Planning Code (90 days). If a longer notification period is provided by other statute, regulation, or ordinance, the applicant will be so notified by the municipality.
- C. If the municipality disapproves the SWM Site Plan, the municipality will state the reasons for the disapproval in writing. The municipality also may approve the SWM Site Plan with conditions and, if so, shall provide the acceptable conditions for approval in writing.

Section 404. Modification of Plans

A modification to a submitted SWM Site Plan that involves a change in SWM BMPs or techniques, or that involves the relocation or redesign of SWM BMPs, or that is necessary because soil or other conditions are not as stated on the SWM Site Plan as determined by the municipality shall require a resubmission of the modified SWM Site Plan in accordance with this Article.

Section 405. Resubmission of Disapproved SWM Site Plans

A disapproved SWM Site Plan may be resubmitted, with the revisions addressing the municipality's concerns, to the municipality in accordance with this Article. The applicable review fee must accompany a resubmission of a disapproved SWM Site Plan.

Section 406. Authorization to Construct and Term of Validity

The municipality's approval of an SWM Site Plan authorizes the regulated activities contained in the SWM Site Plan for a maximum term of validity of 5 years following the date of approval. The municipality may specify a term of validity shorter than 5 years in the approval for any specific SWM Site Plan. Terms of validity shall commence on the date the municipality signs the approval for an SWM Site Plan. If an approved SWM Site Plan is not completed according to Section 407 within the term of validity, then the municipality may consider the SWM Site Plan disapproved and may revoke any and all permits. SWM Site Plans that are considered disapproved by the municipality shall be resubmitted in accordance with Section 405 of this Ordinance.

Section 407. As-Built Plans, Completion Certificate, and Final Inspection

- A. The developer shall be responsible for providing as-built plans of all SWM BMPs included in the approved SWM Site Plan. The as-built plans and an explanation of any discrepancies with the construction plans shall be submitted to the municipality.
- B. The as-built submission shall include a certification of completion signed by a qualified professional verifying that all permanent SWM BMPs have been constructed according to the approved plans and specifications. If any licensed qualified professionals contributed to the construction plans, then a licensed qualified professional must sign the completion certificate.
- C. After receipt of the completion certification by the municipality, the municipality may conduct a final inspection.

ARTICLE V - OPERATION AND MAINTENANCE

Section 501. Responsibilities of Developers and Landowners

- A. The municipality shall make the final determination on the continuing maintenance responsibilities prior to final approval of the SWM Site Plan. The municipality may require a dedication of such facilities as part of the requirements for approval of the SWM Site Plan. Such a requirement is not an indication that the municipality will accept the facilities. The municipality reserves the right to accept or reject the ownership and operating responsibility for any portion of the stormwater management controls.
- B. Facilities, areas, or structures used as Stormwater Management BMPs shall be enumerated as permanent real estate appurtenances and recorded as deed restrictions or conservation easements that run with the land.
- C. The O&M Plan shall be recorded as a restrictive deed covenant that runs with the land.
- D. The municipality may take enforcement actions against an owner for any failure to satisfy the provisions of this Article.

Section 502. Operation and Maintenance Agreements

- A. Prior to final approval of the SWM Site Plan, the property owner shall sign and record an Operation and Maintenance (O&M) Agreement (see Appendix A) covering all stormwater control facilities which are to be privately owned.
 - 1. The owner, successor and assigns shall maintain all facilities in accordance with the approved maintenance schedule in the O&M Plan.
 - 2. The owner shall convey to the Municipality conservation easements to assure access for periodic inspections by the Municipality and maintenance, as necessary.
 - 3. The owner shall keep on file with the Municipality the name, address, and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information shall be submitted by the owner to the Municipality within ten (10) working days of the change.
- B. The owner is responsible for operation and maintenance (O&M) of the SWM BMPs. If the owner fails to adhere to the O&M Agreement, the municipality may perform the services required and charge the owner appropriate fees. Nonpayment of fees may result in a lien against the property.

Section 503. Performance Guarantee

For SWM Site Plans that involve subdivision and land development, the applicant shall provide a financial guarantee to the Municipality for the timely installation and proper construction of all stormwater management controls as required by the approved SWM Site Plan and this Ordinance in accordance with the provisions of Sections 509, 510, and 511 of the Pennsylvania Municipalities Planning Code.

ARTICLE VI - FEES AND EXPENSES

Section 601. General

The municipality may include all costs incurred in the review fee charged to an applicant.

The review fee may include, but not be limited to, costs for the following:

- A. Administrative/clerical processing.
- B. Review of the SWM Site Plan.
- C. Attendance at meetings.
- D. Inspections.

ARTICLE VII - PROHIBITIONS

Section 701. Prohibited Discharges and Connections

- A. Any drain or conveyance, whether on the surface or subsurface, that allows any nonstormwater discharge including sewage, process wastewater, and wash water to enter the waters of this Commonwealth is prohibited.
- B. No person shall allow, or cause to allow, discharges into surface waters of this Commonwealth which are not composed entirely of stormwater, except (1) as provided in Subsection C below and (2) discharges allowed under a state or federal permit.
- C. The following discharges are authorized unless they are determined to be significant contributors to pollution to the waters of this Commonwealth:

- Discharges from firefighting activities	- Flows from riparian habitats and wetlands
- Potable water sources including water line flushing	- Uncontaminated water from foundations or from footing drains
- Irrigation drainage	- Lawn watering
- Air conditioning condensate	- Dechlorinated swimming pool discharges
- Springs	- Uncontaminated groundwater
- Water from crawl space pumps	- Water from individual residential car washing
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used	- Routine external building wash down (which does not use detergents or other compounds)
- Diverted stream flows	

- D. In the event that the municipality or DEP determines that any of the discharges identified in Subsection C significantly contribute to pollution of the waters of this Commonwealth, the municipality or DEP will notify the responsible person(s) to cease the discharge.

Section 702. Roof Drains

Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs and to the maximum extent practicable satisfy the criteria for DIAs.

Section 703. Alteration of SWM BMPs

No person shall modify, remove, fill, landscape, or alter any SWM BMPs, facilities, areas, or structures without the written approval of the municipality.

ARTICLE VIII - ENFORCEMENT AND PENALTIES

Section 801. Right-of-Entry

Upon presentation of proper credentials, the municipality may enter at reasonable times upon any property within the municipality to inspect the condition of the stormwater structures and facilities in regard to any aspect regulated by this Ordinance.

Section 802. Inspection

SWM BMPs should be inspected by the landowner, or the owner's designee (including the municipality for dedicated and owned facilities), according to the following list of minimum frequencies:

1. Annually for the first 5 years.
2. Once every 3 years thereafter.
3. During or immediately after the cessation of a 10-year or greater storm.

Section 803. Enforcement

- A. It shall be unlawful for a person to undertake any regulated activity except as provided in an approved SWM Site Plan, unless specifically exempted in Section 302.
- B. It shall be unlawful to violate Section 703 of this Ordinance.
- C. Inspections regarding compliance with the SWM Site Plan are a responsibility of the municipality.

Section 804. Suspension and Revocation

- A. Any approval or permit issued by the municipality pursuant to this Ordinance may be suspended or revoked for:
 1. Non-compliance with or failure to implement any provision of the approved SWM Site Plan or O&M Agreement.
 2. A violation of any provision of this Ordinance or any other applicable law, ordinance, rule, or regulation relating to the Regulated Activity.
 3. The creation of any condition or the commission of any act during the Regulated Activity which constitutes or creates a hazard, nuisance, pollution, or endangers the life or property of others.
- B. A suspended approval may be reinstated by the municipality when:
 1. The municipality has inspected and approved the corrections to the violations that caused the suspension.
 2. The municipality is satisfied that the violation has been corrected.

- C. An approval that has been revoked by the municipality cannot be reinstated. The applicant may apply for a new approval under the provisions of this Ordinance.
- D. If a violation causes no immediate danger to life, public health, or property, at its sole discretion, the municipality may provide a limited time period for the owner to correct the violation. In these cases, the municipality will provide the owner, or the owner's designee, with a written notice of the violation and the time period allowed for the owner to correct the violation. If the owner does not correct the violation within the allowed time period, the municipality may revoke or suspend any, or all, applicable approvals and permits pertaining to any provision of this Ordinance.

Section 805. Penalties

[Municipalities should ask their solicitors to provide appropriate wording for this section.]

- A. Anyone violating the provisions of this Ordinance shall be guilty of a summary offense, and upon conviction, shall be subject to a fine of not more than \$_____ for each violation, recoverable with costs. Each day that the violation continues shall be a separate offense and penalties shall be cumulative.
- B. In addition, the municipality may institute injunctive, mandamus, or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus, or other appropriate forms of remedy or relief.

Section 806. Appeals

- A. Any person aggrieved by any action of the municipality or its designee, relevant to the provisions of this Ordinance, may appeal to the municipality within 30 days of that action.
- B. Any person aggrieved by any decision of the municipality, relevant to the provisions of this Ordinance, may appeal to the County Court of Common Pleas in the county where the activity has taken place within 30 days of the municipality's decision.

ARTICLE IX - REFERENCES

1. Pennsylvania Department of Environmental Protection. No. 363-0300-002 (December 2006), as amended and updated. *Pennsylvania Stormwater Best Management Practices Manual*. Harrisburg, PA.
2. Pennsylvania Department of Environmental Protection. No. 363-2134-008 (April 15, 2000), as amended and updated. *Erosion and Sediment Pollution Control Program Manual*. Harrisburg, PA.
3. U.S. Department of Agriculture, National Resources Conservation Service (NRCS). *National Engineering Handbook*. Part 630: Hydrology, 1969-2001. Originally published as the *National Engineering Handbook*, Section 4: Hydrology. Available from the NRCS online at: <http://www.nrcs.usda.gov/>.
4. U.S. Department of Agriculture, Natural Resources Conservation Service. 1986. *Technical Release 55: Urban Hydrology for Small Watersheds*, 2nd Edition. Washington, D.C.
5. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Hydrometeorological Design Studies Center. 2004-2006. *Precipitation-Frequency Atlas of the United States, Atlas 14*, Volume 2, Version 3.0, Silver Spring, Maryland. Internet address: <http://hdsc.nws.noaa.gov/hdsc/pfds/>.

(Ordinance Name)

(Ordinance Number)

ENACTED and **ORDAINED** at a regular meeting of the

on this _____ day of _____, 20_____.

This Ordinance shall take effect immediately.

(Name)

(Title)

(Name)

(Title)

(Name)

(Title)

ATTEST:

Secretary

APPENDIX A

**OPERATION AND MAINTENANCE (O&M) AGREEMENT
STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (SWM BMPs)**

THIS AGREEMENT, made and entered into this _____ day of _____, 20____, by and between _____, (hereinafter the “Landowner”), and _____, _____ County, Pennsylvania, (hereinafter “Municipality”);

WITNESSETH

WHEREAS, the Landowner is the owner of certain real property as recorded by deed in the land records of _____ County, Pennsylvania, Deed Book _____ at page _____, (hereinafter “Property”).

WHEREAS, the Landowner is proceeding to build and develop the Property; and

WHEREAS, the SWM BMP Operation and Maintenance (O&M) Plan approved by the Municipality (hereinafter referred to as the “O&M Plan”) for the property identified herein, which is attached hereto as Appendix A and made part hereof, as approved by the Municipality, provides for management of stormwater within the confines of the Property through the use of BMPs; and

WHEREAS, the Municipality, and the Landowner, his successors and assigns, agree that the health, safety, and welfare of the residents of the Municipality and the protection and maintenance of water quality require that on-site SWM BMPs be constructed and maintained on the Property; and

WHEREAS, the Municipality requires, through the implementation of the SWM Site Plan, that SWM BMPs as required by said SWM Site Plan and the Municipal Stormwater Management Ordinance be constructed and adequately operated and maintained by the Landowner, successors, and assigns.

NOW, THEREFORE, in consideration of the foregoing promises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Landowner shall construct the BMPs in accordance with the plans and specifications identified in the SWM Site Plan.
2. The Landowner shall operate and maintain the BMPs as shown on the SWM Plan in good working order in accordance with the specific operation and maintenance requirements noted on the approved O&M Plan.
3. The Landowner hereby grants permission to the Municipality, its authorized agents and employees, to enter upon the property, at reasonable times and upon presentation of proper credentials, to inspect the BMPs whenever necessary. Whenever possible, the Municipality shall notify the Landowner prior to entering the property.
4. In the event the Landowner fails to operate and maintain the BMPs per paragraph 2, the Municipality or its representatives may enter upon the Property and take whatever action is deemed necessary to maintain said BMP(s). It is expressly understood and agreed that the

Municipality is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Municipality.

5. In the event the Municipality, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner shall reimburse the Municipality for all expenses (direct and indirect) incurred within 10 days of receipt of invoice from the Municipality.
6. The intent and purpose of this Agreement is to ensure the proper maintenance of the onsite BMPs by the Landowner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability of any party for damage alleged to result from or be caused by stormwater runoff.
7. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the Municipality from all damages, accidents, casualties, occurrences, or claims which might arise or be asserted against said employees and representatives from the construction, presence, existence, or maintenance of the BMP(s) by the Landowner or Municipality.
8. The Municipality intends to inspect the BMPs at a minimum of once every three years to ensure their continued functioning.

This Agreement shall be recorded at the Office of the Recorder of Deeds of _____ County, Pennsylvania, and shall constitute a covenant running with the Property and/or equitable servitude, and shall be binding on the Landowner, his administrators, executors, assigns, heirs, and any other successors in interests, in perpetuity.

ATTEST:

WITNESS the following signatures and seals:

(SEAL)

For the Municipality:

For the Landowner:

ATTEST:

_____ (City, Borough, Township)

County of _____, Pennsylvania

I, _____, a Notary Public in and for the county and state aforesaid, whose commission expires on the _____ day of _____, 20____, do hereby certify that _____ whose name(s) is/are signed to the foregoing Agreement bearing date of the _____ day of _____, 20____, has acknowledged the same before me in my said county and state.

GIVEN UNDER MY HAND THIS _____ day of _____, 20_____.

NOTARY PUBLIC

(SEAL)

APPENDIX B

DISCONNECTED IMPERVIOUS AREA (DIA)

B.1. Rooftop Disconnection

When rooftop downspouts are directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the rooftop may qualify as completely or partially DIA and a portion of the impervious rooftop area may be excluded from the calculation of total impervious area.

A rooftop is considered to be completely or partially disconnected if it meets the requirements listed below:

- The contributing area of rooftop to each disconnected discharge is 500 square feet or less, and
- The soil, in proximity of the roof water discharge area, is not designated as hydrologic soil group “D” or equivalent, and
- The overland flow path from roof water discharge area has a positive slope of 5% or less.

For designs that meet these requirements, the portion of the roof that may be considered disconnected depends on the length of the overland path as designated in Table B.1.

Table B.1: Partial Rooftop Disconnection	
Length of Pervious Flow Path * (ft)	Roof Area Treated as Disconnected (% of contributing area)
0 – 14	0
15 – 29	20
30 – 44	40
45 – 59	60
60 – 74	80
75 or more	100

* Flow path cannot include impervious surfaces and must be at least 15 feet from any impervious surfaces.

B.2. Pavement Disconnection

When pavement runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration, the contributing pavement area may qualify as a DIA that may be excluded from the calculation of total impervious area. This applies generally only to small or narrow pavement structures such as driveways and narrow pathways through otherwise pervious areas (e.g., a walkway or bike path through a park).

Pavement is disconnected if the pavement, or area adjacent to the pavement, meets the requirements below:

- The contributing flow path over impervious area is not more than 75 feet, and
- The length of overland flow is greater than or equal to the contributing length, and
- The soil is not designated as hydrologic soil group “D” or equivalent, and
- The slope of the contributing impervious area is 5% or less, and
- The slope of the overland flow path is 5% or less.

If the discharge is concentrated at one or more discrete points, no more than 1,000 square feet may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. For nonconcentrated discharges along the edge of the pavement, this requirement is waived; however, there must be a provision for the establishment of vegetation along the pavement edge and temporary stabilization of the area until vegetation becomes stabilized.

REFERENCE

Philadelphia Water Department. 2006. *Stormwater Management Guidance Manual*. Section 4.2.2: Integrated Site Design. Philadelphia, PA.

APPENDIX C

Comments/Responses During Review Process

Appendix C

Comments/Questions received during review period:

Received June 1, 2010

1. In the Model Ordinance, Article II, Section 304 "Rate Controls" there is mention of release rate maps and no such maps are included. Have they been developed?
The Release Maps are included in the Appendix of the County Plan.
2. Appendix A- Operations and Maintenance Agreement- There should be a separate notary blocks for the landowner and the municipality. The current location of the notary block indicates that they are notarizing both signatures and it is almost impossible for that to happen. (The Office was provided a sample DEP form that allows for individual landowners in different locations with two notaries and landowner being a corporation). *The model ordinance performance criteria and regulations are the minimum that is to be adopted by each municipality. In no way is a municipality permitted to adopt a less restrictive stormwater management ordinance. As for the Operation and Maintenance Agreement between Developer and Municipality, the municipal solicitor should advise as to any appropriate changes regarding the signature and notary seal for municipality and Developer.*

Received June 2, 2010

1. Page 12- Land Development: Does this cover well drilling, strip mining and windmills? If it doesn't I think it should. They surely disturb the land surface and water flow, quality, etc. *The Municipal Ordinance Reviews and Evaluations is a summary of the three municipalities and the County Subdivision and Land Development Ordinance that currently has an adopted stormwater ordinance. The three municipalities are administering their respective adopted Ordinance and the County Subdivision and Land Development Ordinance has Article IX Stormwater Management Ordinance for land development and subdivisions that are submitted for approval. As the third party engineering firms that review land development plans and minor or major subdivision plans, the engineering firm is reviewing the stormwater plan that is submitted for compliance with the County Ordinance. For those municipalities that have an adopted stormwater ordinance, the individual municipality and their engineer reviews the stormwater plan and provides approval or denial to the County Planning Office. The specific uses listed are regulated in other legislation/laws adopted by the Commonwealth.*
2. Page 7- Reference to the Comprehensive Plan appears several times. The Plan is now out of date. Will there be a new one that accounts for the current use of county land and water issues? *As noted on Page 7, the County recognizes the County Comprehensive Plan as a valuable resource, it is stated the Plan needs updated. Furthermore, it states coordination with the individual municipalities and*

Planning Office will coordinate to determine existing land use in each watershed. While the County agrees the Comprehensive Plan needs to be updated, it is not a project being undertaken at this time. HOWEVER, when the County Comprehensive Plan is updated, and the Planning Office/County is preparing to revisit/amend the Stormwater Plan, the changes in land use should be addressed in the revised Stormwater Plan. The County is to review/revisit/amend at least every five years with the Stormwater Plan; however, if the County Comprehensive Plan is updated in 2011 or 2012, the Planning Office and municipalities can determine to address the necessary amendments to the Stormwater Plan based on the updated Comprehensive Plan.

3. Page 23- Why aren't farming and timbering included from the controls on other businesses/developments? *The Stormwater Ordinance is provided as a sample by PADEP and this Model Ordinance provides for certain uses to be exempt for rate control. Chapter 102 of the PA Code requires these uses to submit an Erosion and Sedimentation Control Plan, as provided for in other state regulations.*
4. Page 25- Construction land development is covered by the Uniform Construction Guide. What covers all the other types of land development- drilling, timbering, mining, etc. *The adopted Stormwater Ordinance, administered and enforced at the local level, will be complied with for any change in land use. Any individual engaged in construction activities in the watershed is required to implement stormwater management measures consistent with the County Plan. Drilling, timbering, and mining have to meet all other local, state and federal regulations.*
5. Section on Enforcement—this is too broad. Who exactly is going to be responsible for enforcement? Who in the municipality or the county? *Stated on Page 25, the County does not have an engineer or staff and the individual municipality will be responsible for administering and enforcing their adopted stormwater ordinance. The same procedure would be followed between the Planning Office and municipality as with sewage approval. The developer will work with the municipality for compliance with the stormwater ordinance and the municipality will be providing the Planning Office with a letter that compliance has been met. If compliance is not met, the land development, subdivision, zoning permit, and/or building permit will not be issued until approval is granted by the municipality. Act 167 requires the municipality to adopt, administer, and enforce the stormwater management ordinance.*
6. Section VIII Priorities for Implementation- paragraph 4—I like the phrase “applicable to all changes in land use.” This needs to be more prominently displayed. If it is to be done for all land use, someone better make a big point of this. Otherwise it will be lost in the millions of works contained in this plan. *Each municipality is mandated to adopt a Stormwater Ordinance after PADEP approves the County Plan.*

7. Do we really need this much verbiage in a plan/ordinance? Ill take bets that no one will read this or use it unless a specific problem comes up and some attorney will say "Oh, this is covered in page 28, Appendix G, of the supplemental plan labeled D, Section 45, part a thru p. If you don't believe me, get an attorney. *The County Plan must meet the criteria as set forth in Act 167. Keep in mind, the County completed an accelerated Phase II; thus, allowing the Plan to reference specific components as compared to a full analysis to be included in the Plan. The Planning Commission and municipalities are reviewing the County Stormwater Plan. The Ordinance provided is a model ordinance from PADEP. The individual municipality is having their attorney review the model ordinance and will recommend the final stormwater ordinance to their municipality for adoption. The stormwater ordinance is to be consistent with the County Plan.*