INDIANA COUNTY OFFICE OF PLANNING & DEVELOPMENT

INDIANA COUNTY PLANNING COMMISSION

ACT 167 STORMWATER MANAGEMENT PLAN

PHASE I, SCOPE OF STUDY

Indiana County, Pennsylvania

March 2015

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Table of Contents

1. INTRODUCTION

Purpose

The Indiana County Office of Planning & Development and the Southwestern Pennsylvania Commission worked together to produce a Phase I Act 167 Stormwater Management Plan for the County. This report presents the results of the Phase I planning effort. There are three key components contained in this report. These include 1) a summary of Indiana County watershed characteristics (Section 2), 2) an inventory of existing stormwater problems in the County (Section 4), and 3) a proposed project scope, schedule and budget for completion of the Phase II of the Indiana County Stormwater Management Plan (Section 5).

Stormwater Runoff Problems and Solutions

Stormwater occurs when any precipitation, rain or snow melt, runs over the surface and into a body of water. Impervious surfaces, such as roads, parking lots, roof tops, and compacted land, do not allow for any stormwater infiltration into the ground. The presence of impervious surfaces results in an increase in the volume and rate of stormwater runoff and can also negatively impact water quality in local waterways. Increased volumes and rates of stormwater can cause a variety of problems, such as erosion, infrastructure damage, more frequent flooding events, and lack of groundwater recharge. Stormwater negatively impacts water quality in a variety of ways, including: discharging non-point source pollution such as trash, oils, heavy metals, bacteria, and nutrients to local waterways; sedimentation; and increased stream temperatures.

The effects of stormwater runoff are directly related to development. Conventional development practices include creating large amounts of impervious surfaces and clearing native vegetation. Historically, development was viewed as an independent project, tied to a single plot of land, and it only affected that area. However, the outcome of an individual project can affect everyone downstream in the watershed. Stormwater management is critical to preserve our local waterways, drinking water sources, and to avoid economic damages to infrastructure. Watersheds do not follow political boundaries, so in order to manage stormwater, a comprehensive approach needs to be taken.

Employing best management practices (BMPs) can prevent and mitigate problems related to stormwater. BMPs include mechanisms that control the volume, rate, and quality of stormwater. BMPs also include practices that prevent the creation of stormwater runoff and stormwater pollution. The most effective time to incorporate BMPs is during site planning, design, and development. This allows the opportunity to utilize non-structural BMPs, which are BMPs that prevent and/or minimize stormwater runoff. Structural BMPs, which are engineered systems designed to mitigate the impacts of stormwater runoff, can be incorporated during development or in retrofit situations. Coupling non-structural and structural BMPs during site development can greatly minimize stormwater problems while also increasing the marketability of a site.

Pennsylvania Stormwater Management Act (Act 167)

Since it is clear that stormwater runoff is a serious and growing problem, the Pennsylvania General Assembly enacted Act 167 in 1978. Act 167 clearly defines the close relationship between development, increased runoff, and floodplain management. Specifically, this statement of legislative findings points out that:

1. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases flood flows and velocity, 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 floodplain management and floodplain control efforts in downstream communities, reduces groundwater recharge, and threatens public health and safety.

2. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated runoff, is fundamental to the public health, safety, welfare, and the protection of the people of the Commonwealth, their resources, and their environment.

The policy and purpose of Act 167 is to:

1. Encourage planning and management of stormwater runoff in each watershed that is consistent with sound water and land use practices.

2. Authorize a comprehensive program of stormwater management designated to preserve and restore the flood carrying capacity of Commonwealth streams; to preserve to the maximum extent practicable natural stormwater runoff regimes and natural courses, current and cross-section of waters of the Commonwealth; and to protect and conserve ground waters and ground-water recharge areas.

3. Encourage local administration and management of stormwater consistent with the Commonwealth's duty as trustee of natural resources and the people's constitutional right to preservation of natural, economic, scenic, aesthetic, recreational and historic values of the environment.

Before Act 167, stormwater management was concerned primarily with the issues caused by stormwater immediately downstream. There was little consideration about what was happening further downstream. Stormwater management is usually regulated at a municipal level and not a watershed level. It is focused only on the effects of development within a municipal boundary. However, stormwater runoff does not follow political boundaries, it follows physical boundaries. In order to control for stormwater issues in the future, there needs to be a comprehensive plan to make regulation and enforcement more consistent.

Act 167 promotes a comprehensive approach that applies stormwater management planning at a watershed-level. The Act requires that counties prepare and adopt a stormwater management plan for each watershed within the county; and due to recent changes in PADEP Act 167 planning efforts, on a county-wide basis. These plans are to take into consideration all municipal perspectives and problems by including municipal representatives in a Watershed Plan Advisory Committee (WPAC). The plans are to provide technical standards and criteria for the management of stormwater runoff for new development throughout the County's watersheds. The plan must also address how to retrofit existing sites to improve water quality impairments and flooding problems.

The types and degree of controls that are recommended in the Stormwater Management Plan must be based on development patterns and hydrologic characteristics of each watershed. The end result of the planning process will be a comprehensive and practical implementation plan, developed with the overall needs of Indiana County municipalities in mind.

Act 167 Plans are typically developed in two phases. Phase I is the Scope of Study, and Phase II contains the actual plan content. Phase II content includes Technical Analysis, Standards and Criteria, and the Model Ordinance.

Act 167 Planning for Indiana County

Based on the requirements of Act 167, the countywide watershed planning process for Indiana County was designed with the individual watershed characteristics in mind, as well as the resources (technical, political, and economic) of the County. The *Indiana County Phase I Act 167 Stormwater Management Plan* presents the concept and approach that has been developed to fully meet these requirements, as well as the specific requirements of Act 167.

The goal of Indiana County's Act 167 planning process is to provide a countywide comprehensive program for the planning and management of stormwater. With the input of its 38 municipalities and many community based organizations, three general priority areas were collected: funding, enforcement, and outreach/education. With these three priorities in mind, Indiana County will create and adopt a stormwater management plan and associated stormwater ordinance that will serve as the framework for future stormwater management in the County. According to Act 167, all municipalities within the County must adopt this ordinance and enforce the ordinance as necessary in order to regulate future development in a manner consistent to the proposed Plan and the conditions of the Act.

Plan Benefits

The primary benefits of this Plan are threefold. First, the Plan will provide a comprehensive stormwater management plan with a consistent implementation strategy plan for the municipalities of Indiana County. Currently, stormwater in the county is being managed in a variety of ways at the local level. This Plan will establish minimum standards and provide a consistent way for municipalities to implement and enforce stormwater management requirements. It will do so by creating a technical and institutional support document to guide and/or support the consistency of regulations based on countywide and watershed-wide considerations. Additionally, it will create a framework to engage and inform citizens regarding why stormwater management is critically important to every county resident.

Secondly, the Plan will create a comprehensive set of stormwater data which can be used to inform other planning efforts. Through our Phase I and Phase II stormwater management planning processes, a great deal of data collected about stormwater and municipalities. This information can be used again in other planning efforts as well as help local municipalities target problem areas and plan on solutions.

Finally, this Plan will analyze and provide solutions for current problem areas. Specifically, the Plan will identify

existing problems (Phase I), provide potential innovative solutions designed to mitigate these issues with specific consideration of suitable funding programs (Phase II). These solutions will serve as templates for other communities facing similar issues.

Stormwater Management Planning Approach

A Watershed Planning Advisory Committee (WPAC) was formed to lead stormwater planning in the County. Primary objectives for the Committee were to engage local municipalities, conduct Phase I research, gather local knowledge, and satisfy Section 6(a) of Act 167. The Indiana County Office of Planning and Development, the Southwestern Pennsylvania Commission (SPC), the League of Women Voters, various municipal officials, and local watershed groups formed this WPAC to create connectivity when addressing stormwater management. Three (3) meetings were held during Phase I of the Plan to create objectives and goals and update all involved on progress and conditions.

To initially comprehend the scope of the project, the Indiana County Office of Planning & Development distributed a stormwater survey to each municipality. A total of 29 out of 38 municipalities participated in the survey that provided the planning process a strong understanding of current conditions for stormwater management in Indiana County.

The League of Women Voters provided assistance with community outreach and public engagement, a critical objective identified through WPAC meetings to approach the issue of stormwater management. Booths and presentations were open to the public and offered community feedback and participation at several events such as May Mart and Family Fun Fest in Indiana County. They all had diverse participants and differing audiences.

The approach for the stormwater management planning in Indiana County was a two-phase course of action:

1. Stormwater Management Plan: Phase I

    - Conduct surveys of watershed characteristics, issues and conditions,
    - Design a comprehensive strategy for public engagement,
    - Identify strategies for renovation and sustainability, and
    - Develop a comprehensive outline for Phase II.

2. Stormwater Management Plan: Phase II

- Technical assessment and development of model ordinance,
- Create Watershed specific goals and strategies,
- Development of technical standards and criteria for stormwater management,
- Create an implementation strategy.

Previous Stormwater Management and Related Planning Efforts

There has not been any prior stormwater management planning in Indiana County. However, there have been several related planning efforts such as the recently adopted Indiana County Comprehensive Plan (2012) and watershed conservation plans. The development and implementation of a County Stormwater Management Plan was a top recommendation of many of these plans, most notably the Indiana County Comprehensive Plan (2012).

Listed below are plans that are aligned with the stormwater planning in Indiana County and provide valuable information for the development of stormwater planning:

- Indiana County Comprehensive Plan (2012)
- Indiana County Open Space, Greenways, and Trails Plan (2010)
- Comprehensive Recreation, Park, and Open Space Plan (2006)
- Lower Mahoning Creek Regional Watershed Conservation Plan (2011)
- Lower Crooked Creek Watershed Conservation Plan (2004)
- Allegheny River Conservation Plan (2005)

2. GENERAL COUNTY DESCRIPTION

Indiana County covers 834square miles. According to the 2010 U.S. Census, the County had a population of 88,880 and a population density of 107 people per square mile, which reflects the County's rural character. The largest populations are found in White Township and Indiana Borough, with populations of 15,281 and 13,975, respectively.

Political Jurisdictions

The County is comprised of 38 independent municipalities, including 14 boroughs and 24 townships. All 38 Indiana County municipalities are listed in Table 1 and identified in Map 2.1.

Table 1: Indiana County Municipalities

Townships		Boroughs	
Armstrong	Grant	Armagh	Smicksburg
Banks	Green	Blairsville	Saltsburg
Blacklick	Montgomery	Cherry Tree	
Brush Valley	North Mahoning	Clymer	
Buffington	Pine	Creekside	
Burrell	Rayne	Ernest	
Canoe	South Mahoning	Glen Campbell	
Center	Washington	Homer City	
Cherryhill	West Mahoning	Indiana	
Conemaugh	West Wheatfield	Marion Center	
East Mahoning	White	Plumville	
East Wheatfield	Young	Shelocta	

NPDES Phase II Involvement

National Pollutant Discharge Elimination System (NPDES) Phase II requirements apply to operators of municipal separate storm sewer systems (MS4s) within urbanized areas as designated by the 2010 Census. Select municipalities outside of urbanized areas may also be designated as MS4 communities. There are no urbanized areas within Indiana County. Indiana Borough has been designated as an MS4 community.

General Development Patterns

The history of the County is closely linked to the production, processing and transportation of its abundant natural resources. In addition to being an agricultural County, vast resources of salt, coal, natural gas and timber contributed to the development and prosperity of the local economy. Whereas early settlements were usually located near these resources and/or along waterways, development became decentralized with the advent of the automobile and eventual highway network.

Development followed the expansion of the road networks. These influences contributed to the decentralization of our downtowns and encouraged housing growth in outlying townships. Approximately 30% of the County's housing stock was built prior to the end of World War II, and most of it is concentrated in its boroughs and coal towns. Over half of the County's housing stock was built after 1960, and is concentrated in its townships.

The number of housings units has grown as the County's population has decreased since the 1990s. This is largely due to smaller household sizes. As the economy shifted from the coal industry towards a service and technology-oriented economy, the County shifted its focus to the development of business/industrial parks. Recent commercial, office and retail developments have occurred along major transportation corridors.

Map 2.1 : Project Area

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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Miles

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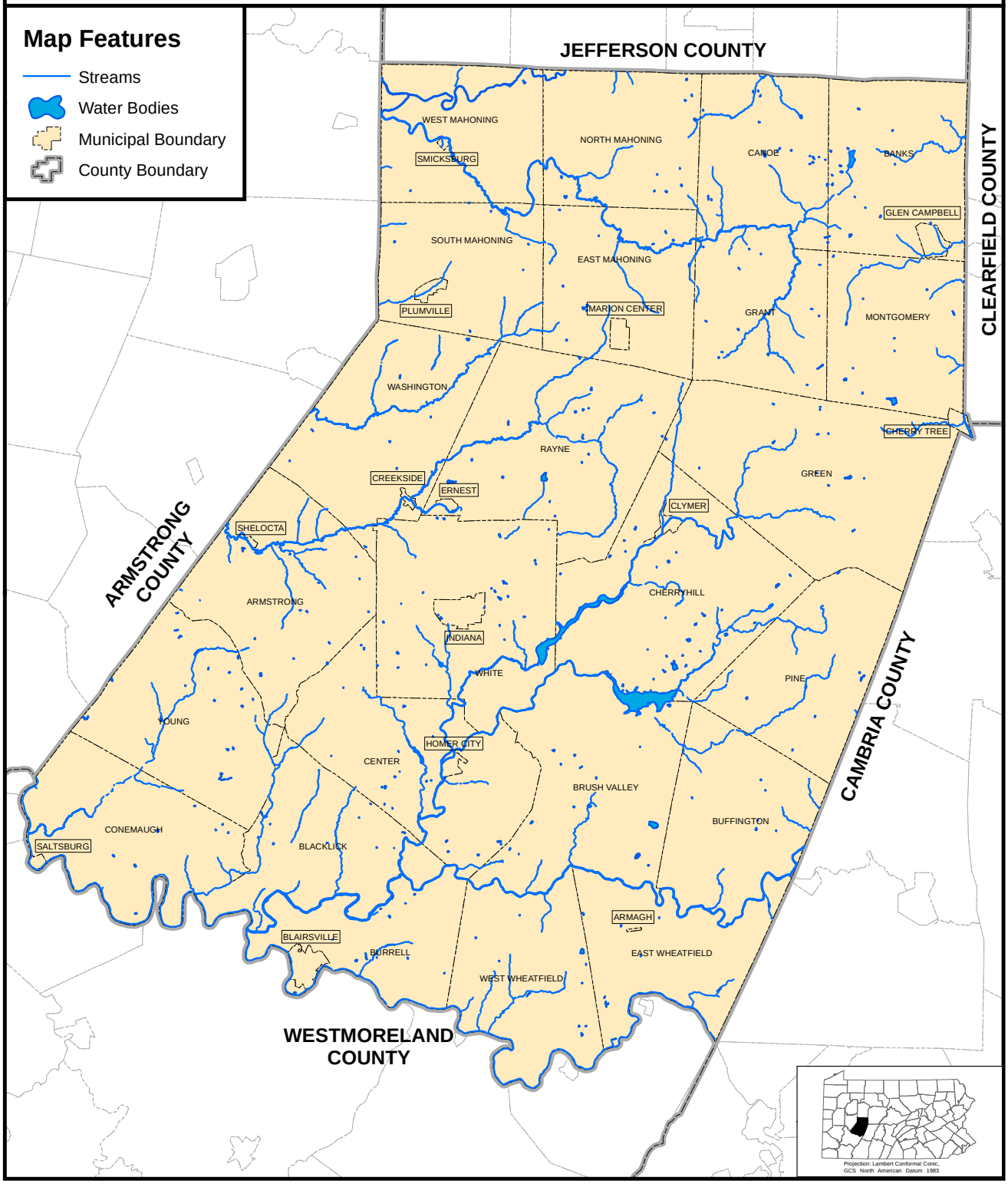
Date Created: February 25, 2015
Author: Indiana County Office of Planning & Development



The recent widening of US 119 and the widening and construction of safety improvements to US 22 have significantly affected land use. Continued development of the Indiana University of Pennsylvania (IUP) and the establishment of a technical school at the US 119/22 interchange have also had a notable impact on surrounding land use.

Historically, the transition between our urban and rural landscapes has been distinctive. However, like many other areas throughout the country, the County's most recent developments have been sprawling and low-density residential suburbs and commercial developments. The Indiana County Comprehensive Plan, adopted in 2012, seeks to encourage more deliberate and sustainable development patterns that align with the Keystone Principles, including redevelopment and concentrated development.

Land Use

Land use is directly tied to stormwater planning and management. The most recent available land use statistics (2006) are summarized in Table 2 and Map 2.2.

Table 2: Indiana County Land Use

Land Use	Square Miles	% of Total Area
Mixed Urban or Built Up	17.4	2.10%
Agriculture	217.8	26.10%
Barren Land	9.2	1.10%
Industrial	2.5	0.30%
Mixed Forest	473.8	56.80%
Mixed Rangeland	40.1	4.80%
Water	7.2	0.90%
Residential	66.1	7.90%
Total	834.2	100.00%

As illustrated in Table 2, the county is primarily undeveloped areas, accounting for 62.5% of the total land area. Agricultural areas are the second most common land-use, accounting for 26.1% of the total land area. Developed areas such as residential, mixed urban, and industrial account for 11.4% of the total land area.

Physiography

Indiana County is located in the Appalachian Plateaus Province. This Province is a highland that has been eroded by streams that have created topography with deep valleys and hills. The majority of the County is located in the Pittsburgh Low Plateau Section of the Appalachian Plateaus Province. This Section consists of a smooth and undulating upland surface cut by numerous narrow and relatively shallow valleys. The uplands are located over areas containing most of the bituminous coal in Pennsylvania. The landscape reflects this source of coal reserves by the presence of operating surface mines, abandoned mine lands, and reclaimed strip mine areas. Outstanding geologic and scenic features in this area include Suncliff, which is located along Little Yellow Creek in Brush Valley Township. Suncliff is a 100 to 200 foot cliff that reveals the exposed Brush Valley syncline and

Map 2.2 : Existing Land Use

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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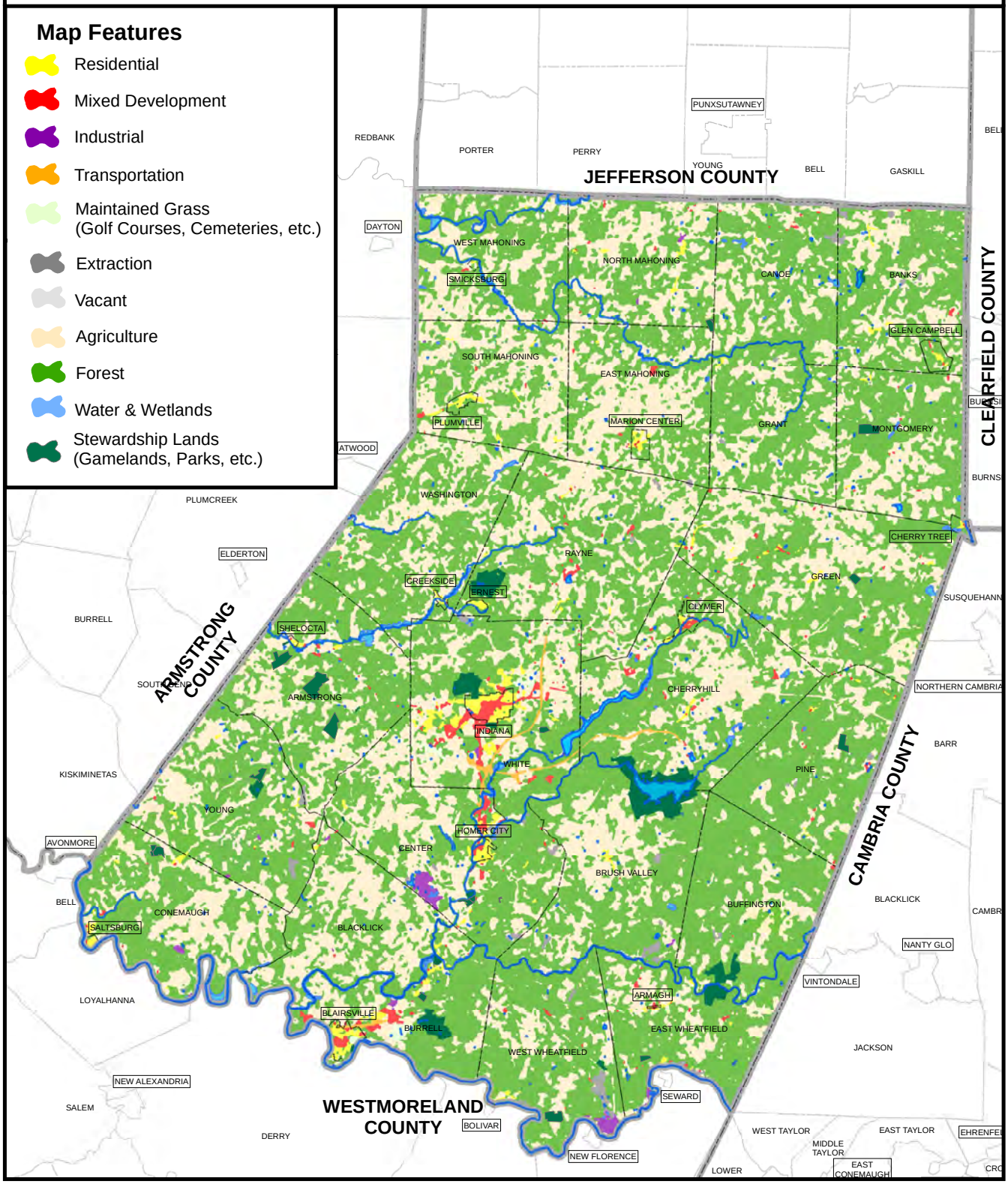

several layers of mineral resources. The southeastern region of the County is located in the Allegheny Mountain Section of the Appalachian Plateaus Province. This Section consists of broad and rounded ridges separated by broad valleys. The ridges decrease in elevation to the north. Outstanding geological and scenic features in this Section include the Conemaugh Gorge. It is the deepest gorge east of the Mississippi River.

The most prominent topographical feature in the County is the Chestnut Ridge. The Ridge is the western mountain range of the Allegheny Mountain Section, and it extends nearly 90 miles from southeast of Morgantown, West Virginia to northeast of Indiana Borough. It lies mainly in the central and southern parts of the County and rises several hundred feet above the general elevation of the area. The Ridge divides the County into two broad land patterns. The landscape east of the Ridge is characterized by higher elevations and plateau-like topography that includes broad flats and steep valley slopes. The landscape west of the Ridge is characterized by smooth and rolling hills.

Soils

There are eight (8) main soil associations and approximately 110 soil types identified in Indiana County. The soil associations are described below.

Gilpin-Weikert-Ernest Association: Medium-textured and moderately coarse textured soils on moderately sloping to steep valley slopes and narrow to broad, rolling ridge tops. This association makes up about 32% of the County.

Gilpin-Wharton-Cavode Association: Medium-textured soils on moderately sloping to moderately steep valley slopes and broad, gently sloping hilltops and benches. It covers about 19% of the County.

Gilpin-Clymer-Wharton Association: Medium-textured soils on broad, gently sloping and moderately sloping uplands. This association covers about 10% of the County.

Gilpin-Wharton-Upshur Association: Medium-textured moderately fine textured soils on broad, gentle uplands; on gently sloping and moderately sloping benches; on moderately sloping to moderately steep hills; and on narrow, rolling hilltops. It covers about 6% of the County.

Gilpin-Westmoreland-Guernsey Association: Medium-textured soils on moderately sloping to moderately steep valley slopes, gently sloping benches, and rolling hills. It is the smallest of the soils associations and occupies only about 1% of the County.

Dekalb-Clymer-Cookport Association: Medium-textured and moderately coarse textured soils on steep valley slopes, on ridges, and on broad, gently rolling ridge tops. It makes up about 14% of the County.

Dekalb-Clymer-Ernest Association: Very stony, medium-textured and moderately coarse textured soils on steep valley slopes, on ridges, and on broad, gently sloping or moderately sloping ridge tops. It covers about 11% of the County.

Monongahela-Allegheny-Pope-Philo Association: Medium-textured soils on terraces and floodplains. This association covers about 7% of the County

Water Resources

Rivers and creeks dominate the landscape of Indiana County. The Conemaugh River, a major tributary to the Allegheny River, marks its southern boundary. Most of the County's land area drains west of the Eastern Continental Divide toward the Ohio River basin, while the northeastern corner of the County drains east toward the Susquehanna River and the Chesapeake Bay (See Map 2.5).

The Indiana County Phase I Act 167 Stormwater Management Plan is built around the watersheds in the County (See Map 2.4). According to Act 167, there are 12 designated watersheds in Indiana County (See Map 2.5). However, three additional watersheds were identified and included in the Plan for a total of 15 watersheds. These three additional, more specific, watershed designations came from lengthy WPAC and Project Staff discussions and mapping analysis of the Two Lick and Crooked Creek Act 167 watersheds. The primary rational for adding the additional three sub-watersheds (Yellow Creek Lake, Cherry Run, and Dutch Run, See Map 2.4) within these two larger Act 167 watersheds was twofold. One, there was local "ownership" and interest in these smaller watersheds. Meaning, local residents and stakeholders self-identified themselves as being part of and having interests in these watersheds but not necessarily the larger Act 167 watersheds. Two, there were unique problems, characteristics, and possible solutions that could be more effectively identified and addressed by making these additional, more specific watersheds part of the final Plan. The 15 watersheds used in the Plan are listed in Table 3.

Table 3: Indiana County Watersheds & Drainage Basins

#	Indiana County Watersheds	Drainage Basin
1	Aultman Run \ Stewart Run	Ohio River
2	Blackleggs Creek	Ohio River
3	Blacklick Creek	Ohio River
4	Canoe Creek	Ohio River
5	Cherry Run (Added)	Ohio River
6	Conemaugh River	Ohio River
7	Cowanshannock Creek	Ohio River
8	Crooked Creek	Ohio River
9	Dutch Run (Added)	Ohio River
10	Kiskiminetas River	Ohio River
11	Little Mahoning Creek	Ohio River
12	Mahoning Creek	Ohio River
13	Two Lick Creek	Ohio River
14	West Branch Susquehanna River	Susquehanna River
15	Yellow Creek (Added)	Ohio River

Map 2.3 : Indiana County Watershed Basins

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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Date Created: February 25, 2015
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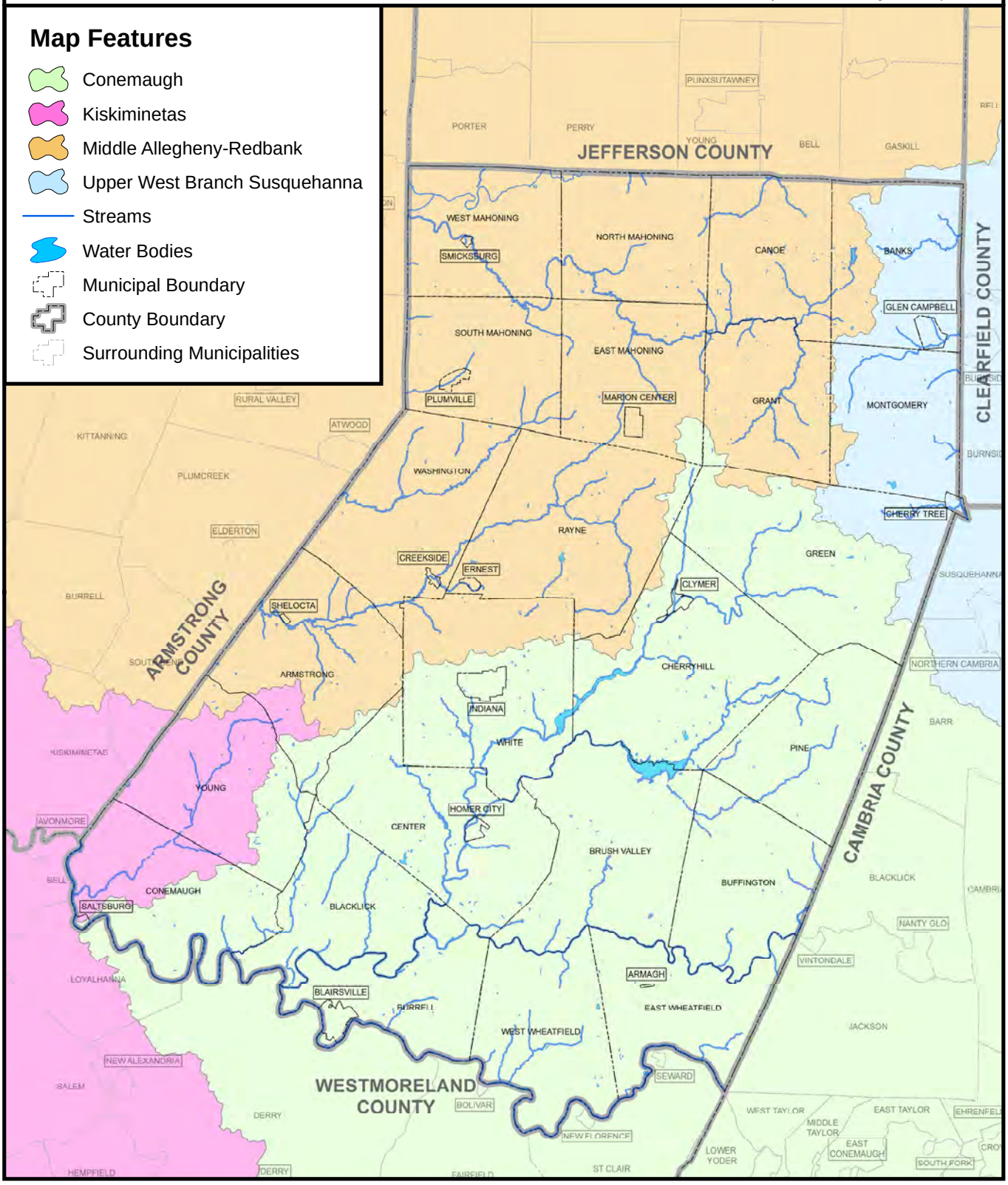
Map Features

- Conemaugh
- Kiskiminetas
- Middle Allegheny-Redbank
- Upper West Branch Susquehanna
- Streams
- Water Bodies
- Municipal Boundary
- County Boundary
- Surrounding Municipalities



Map 2.4 : Indiana County Watersheds

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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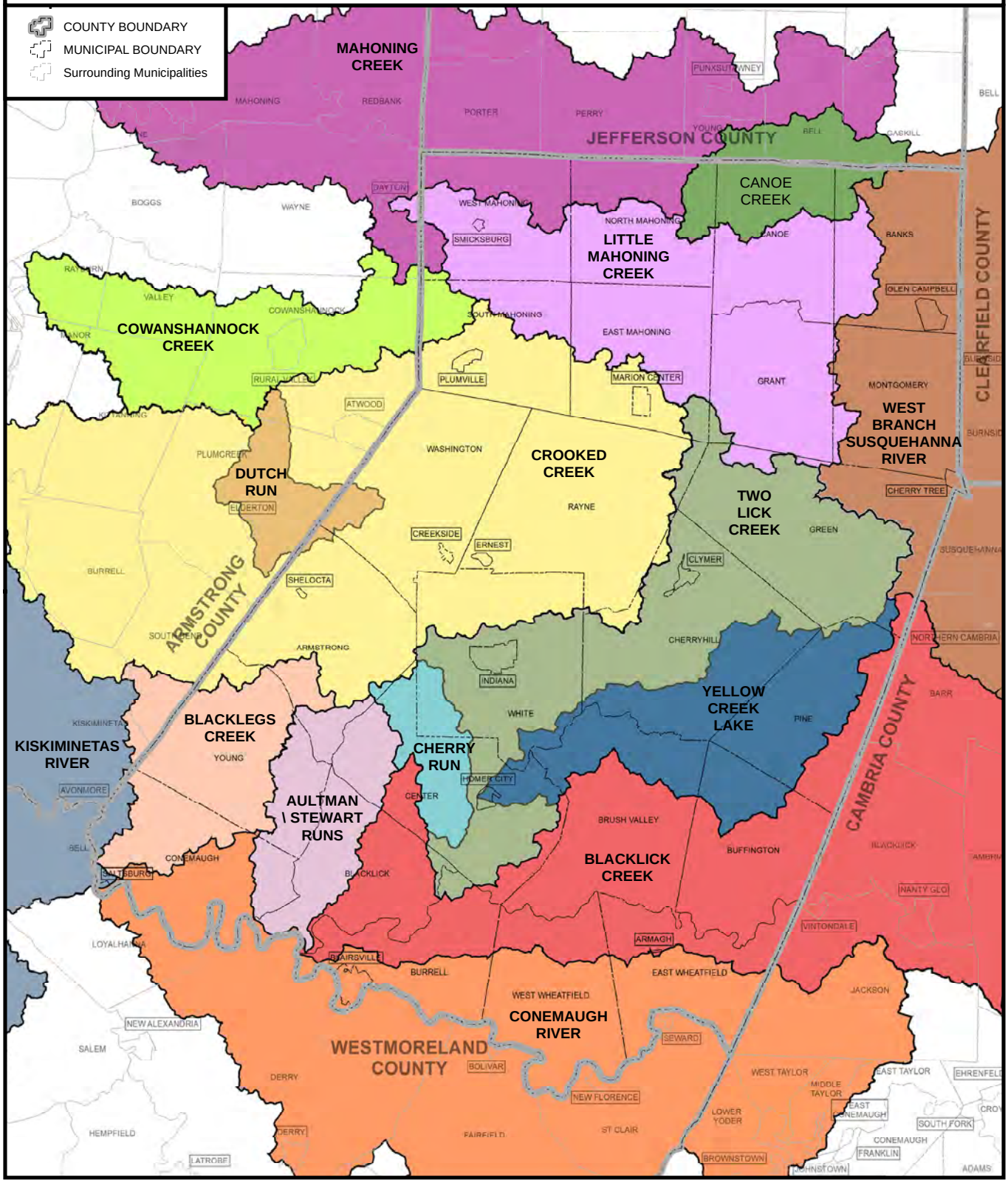

Map 2.5 : Local Designations and Act 167 Watersheds

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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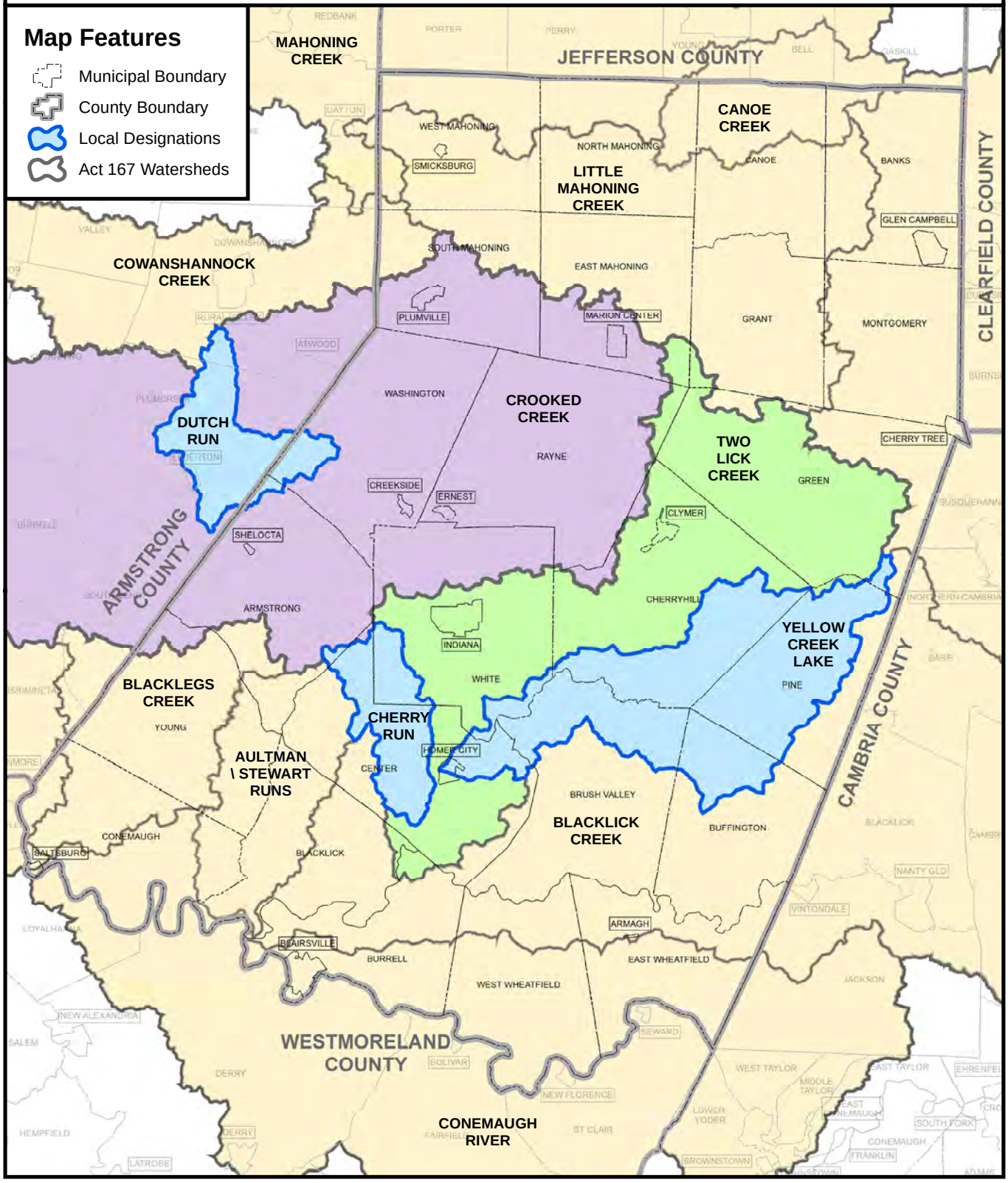

Of the 15 watersheds identified for the purpose of stormwater planning in Indiana County, the West Branch Susquehanna River Watershed is the only one that is part of the Susquehanna River Drainage Basin. The remaining 14 watersheds are part of the Allegheny River watershed, which ultimately is part of the Ohio River Drainage Basin (See Map 2.3).

PA Chapter 93 Stream Classifications

Table 4 is a summary table of the 2013 PA Chapter 93 stream water quality classifications for streams in Indiana County.

Table 4: PA Chapter 93 Stream Classifications

Chapter 93 Classification	Length (Miles)	Percentage
Cold Water Fisheries (CWF)	1,229.00	65.30%
High Quality – Cold Water Fisheries (HQ-CWF)	420.8	22.30%
Trout Stocking (TSF)	139.4	7.40%
Warm Water Fisheries (WWF)	93.8	5.00%
Total	1,883.00	100.00%

Impaired Waterways

The following table lists the sources of water quality impairments and extents for those streams within Indiana County that are on the PADEP 2014 Integrated Non-Attaining List. Per PADEP, this list represents stream assessments for the Clean Water Act Section 305(b) reporting and Section 303(d) listing. PA DEP protects four stream water uses: aquatic life, fish consumption, potable water supply, and recreation. This information includes stream segments that have been evaluated for attainment of those uses. If a stream segment is not attaining any one of its uses, it is considered impaired.

There are 601.9 miles of impaired streams in Indiana County. These are detailed in Table 5.

Table 5: Indiana County Impaired Waterways

Primary Cause of Impairment	Stream / Reach Name	Impaired Length (Miles)
Abandoned Mine Drainage	Aultmans Run	3.06
	Blackleggs Creek	2.17
	Conemaugh River	11.18
	Craig Run	0.06
	Crooked Creek	0.41
	South Branch Bear Run	32.63
	Straight Run	15.49
	Two Lick Creek	5.24
	Unnamed	4.19
	Weirs Run	19.33
	West Branch Susquehanna River	7.75
	Yellow Creek	206.73
	Total	308.23

Table 5: Indiana County Impaired Waterways (Continued)		
Primary Cause of Impairment	Stream / Reach Name	Impaired Length (Miles)
Agriculture	Crooked Creek	9.77
	Reddings Run	6.08
	Roaring Run	31.19
	Two Lick Creek	13.06
	Unnamed	3.34
	Total	63.45
Bank Modifications	Curry Run	2.63
	Pine Run	2.51
	Stoney Run	22.66
	Twomile Run	0.47
	Total	28.28
Channelization	Whites Run	5.7
	Total	5.7
Construction	Unnamed	0.49
	Total	0.49
Crop-Related Agriculture	Stewart Run	87.48
	Unnamed	6.93
	Total	94.41
Erosion from Derelict Land	Long Run	0.58
	Total	0.58
Grazing-Related Agriculture	Dark Hollow Run	1.14
	South Branch Plum Creek	7.21
	Yellow Creek	14.42
	Total	22.77
Highway, Road, & Bridge Construction	Walker Run	0.94
	Total	0.94
Municipal Point Source	Stoney Run	0.78
	Total	0.78
On site Wastewater	Leisure Run	1.03
	Unnamed	0.71
	Total	1.75

Table 5: Indiana County Impaired Waterways (Continued)		
Primary Cause of Impairment	Stream / Reach Name	Impaired Length (Miles)
Removal of Vegetation	Anthony Run	2.39
	Cheese Run	1.34
	Total	3.73
Road Runoff	Ferrier Run	3.12
	Mahoning Creek	2.6
	Total	5.72
Small Residential Runoff	Unnamed	0.54
	Total	0.54
Source Unknown - Cause Unknown	Ramsey Run	11.28
	Total	11.28
Source Unknown - Pathogen	Crooked Creek	18.64
	Total	18.64
Source Unknown - PCB	Conemaugh River	3.53
	Total	3.53
Source Unknown - Siltation	Canoe Creek	0.13
	Total	0.13
Upstream Impediment	Kiskiminetas River	2.74
	Laurel Run	8.27
	Total	11.01
Urban Runoff / Storm Sewers	Harpers Run	6.07
	Marsh Run	1.99
	McCarthy Run	7.62
	Unnamed	4.19
	Total	19.86

Dams and Impoundments

Existing permitted dam locations are listed in Table 6 and identified in Map 2.6.

Table 6: Indiana County Dams and Impediments

PA DEP Permit No.	Dam Name	Municipality	Water Feature
PA_32-085	Altemus	Brushvalley Township	TR Brush Creek
PA_32-052	Barr	CherryHill Township	Little Laurel Run
PA_32-089	Brookwood Estates	White Township	TR Stoney Run
PA_1194837	Buffington Dam	East Wheatfield	-
PA_1194893	Cherry Run Dam	Center Township	-
PA_PA01554	Conemaugh Equalization Pond	West Wheatfield	TR Conemaugh River
PA_PA00289	Cummings	Rayne Township	TR Crooked Creek
PA_1194963	Depression Storage Area Dam	White Township	-
PA_PA83501	Dilltown Facility	Brushvalley Township	-
PA_32-036	Edwards	Center Township	TR Two Lick Creek
PA_PA00281	Elroy Face	CherryHill Township	TR Yellow Creek
PA_32-012	Ernest Borough Water Authority	Ernest Borough	McKee Run
PA_32-025	Graceton	Center Township	TR Two Lick Creek
PA_32-071	Intake	White Township	Yellow Creek
PA_32-073	Kelly NO. 1	Young Township	Big Run
PA_32-077	Kelly NO. 2	Young Township	TR Big Run
PA_1195001	Mckeage Dam	Cherry Tree Borough	-
PA_PA00287	Musser Forests	Rayne Township	McKee Run
PA_PA00830	Oneida Mining Company	Brushvalley Township	TR Brush Creek
PA_32-069	Pine Run Camp	Green Township	Repine Run
PA_PA00431	Pioneer Lake	Montgomery Township	Hazelet Run
PA_1194898	Pond Number Four Dam	Brushvalley Township	-
PA_1194965	R and P Coal Company Mine Waste Bank Dam	White Township	-
PA_32-090	Rager's Pond	Blacklick Township	TR Two Lick Creek
PA_32-047	Reisinger Run	East Wheatfield	Reisinger Run
PA_PA01080	Rossiter	Canoe Township	TR Canoe Creek
PA_32-014	Sample Run	CherryHill Township	Sample Run
PA_32-082	Seph Mack	CherryHill Township	TR Yellow Creek
PA_PA00283	Straight Run	Banks Township	Straight Run
PA_PA00285	Two Lick Creek	White Township	Two Lick Creek
PA_32-044	VFW Bennett	White Township	McCarthy Run
PA_PA00282	Yellow Creek	CherryHill Township	Yellow Creek

Map 2.6 : Indiana County Dam Locations

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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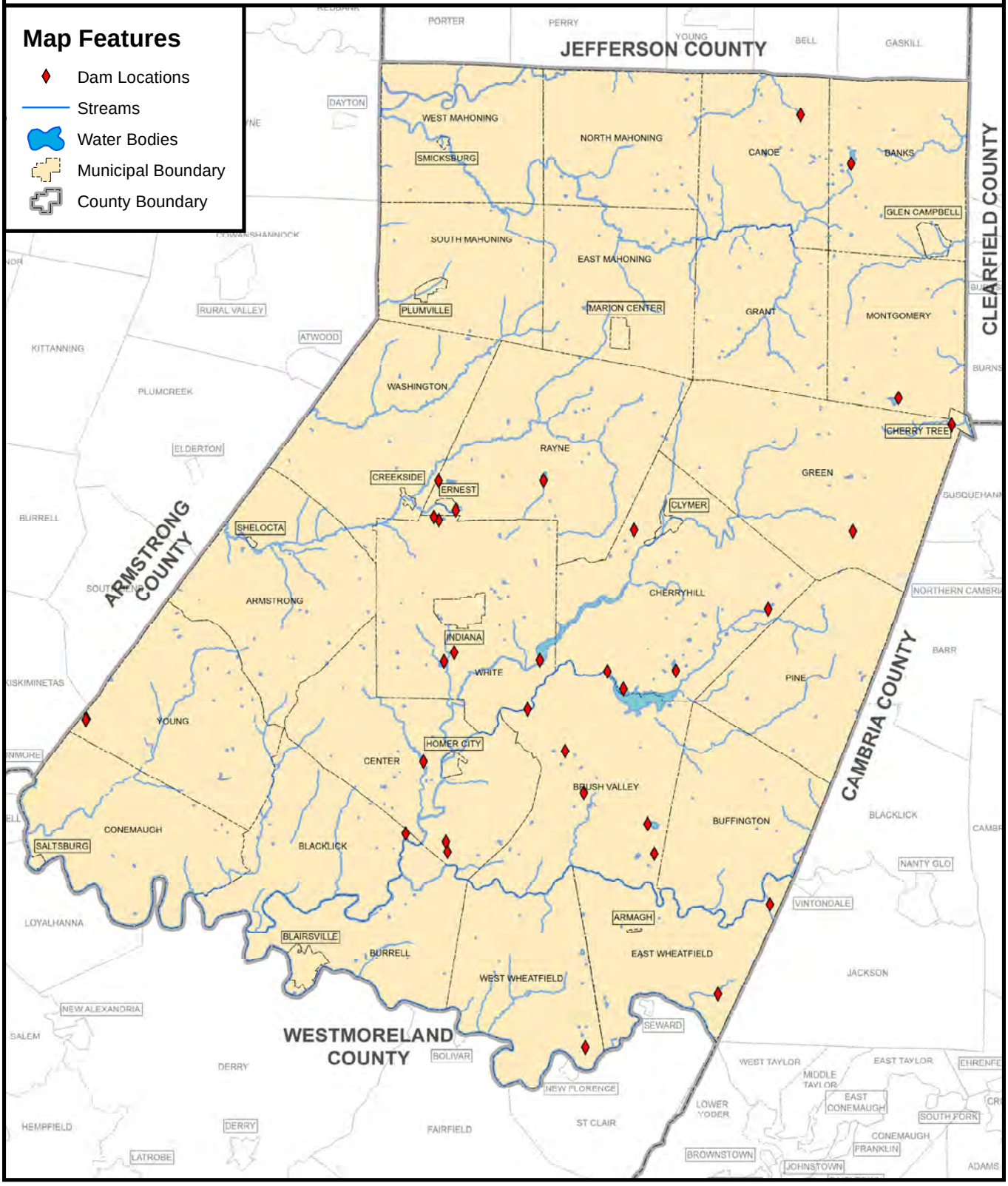
Date Created: February 25, 2015
Author: Indiana County Office of Planning & Development



Abandoned Mine Discharges (AMD)

Both locally and statewide, Acid Mine Drainage (AMD) is the largest single contributor to impaired water quality. Hundreds of coal mines in the region that stopped providing coal decades ago are still polluting the environment. Water flows through these mines and undergoes chemical reactions with the rocks and minerals exposed by coal extraction. The result is AMD. AMD-polluted water can turn streams orange and/or white, kill aquatic life, contaminate drinking water sources, and hinder local economies. A total of 308.23 miles of Indiana County streams are classified as impaired by AMD. The remediation of streams impacted by AMD is being undertaken by groups such as the Indiana County Conservation District, Evergreen Conservancy, and Blacklick Creek Watershed Association. Remediation efforts in the county include both active and passive treatment systems.

There are many active watershed groups in Indiana County whose aim is to improve water quality across the region. For example, the Central Indiana County Water Authority has recently partnered with the PA Department of Environmental Protection to identify pollution locations in and around Yellow Creek in central Indiana County. Efforts like this should be linked to future Indiana County's Act 167 Phase II Stormwater Management planning proces.

Floodplains

Indiana County has over 27,250 flood-prone acres within the 100 year floodplain. All 38 Indiana County municipalities participate in the National Flood Insurance Program.

Climate

The humid, continental climate of Indiana County is characterized by warm summers and cold winters. Most of the major pressure systems that affect this area are from prevailing winds from the west. A majority of air currents are from the polar region. Air currents also come from the Gulf of Mexico during the summer and result in humid, warm weather. These also occasionally come during the winter and cause alternating cycles of freezing and thawing.

Local variations in climate exist throughout the county due to considerable variations in slope and elevation within short distances. The valleys differ from the higher elevations in several ways, including slightly higher temperatures, slightly less precipitation, typically lower wind speeds, later freezing temperatures in the Spring, and earlier freezing temperatures in the Fall.

The average annual precipitation is 44.3 inches. The wettest months are typically April through July, when precipitation averages over 4 inches. January and February are typically the snowiest months, with average snow depths of 8.5 inches and 9.8 inches, respectively. Monthly temperatures vary widely, with the average high in January of 37 degrees and average high in July of 83 degrees.

3. ACT 167 PLANNING FOR INDIANA COUNTY, PHASE I PLANNING PROCESS

The following sections present the planning process developed to meet the Act 167 requirements for the Indiana County Phase I Act 167 Stormwater Management Plan. The County's stormwater planning process is presented in five (5) sections, each providing detail regarding key aspects of Phase I planning initiative. Below is an overview of the process, presented in chronological order, and the titles of each of the following sections:

Indiana County / Southwestern Pennsylvania Commission Joint Efforts

PADEP and Indiana County Letter of Intent (LOI)

Survey Creation and Distribution

Watershed Plan Advisory Committee (WPAC)

Watershed Plan Advisory Committee Meetings

Indiana County / Southwestern Pennsylvania Commission Joint Efforts

The Indiana County Phase I Act 167 Stormwater Management Plan was developed without consultant services. The Plan was initiated and completed by the ICOPD with key technical assistance provided through a partnership between the ICOPD and the Southwestern Pennsylvania Commission (SPC). SPC is the regional planning body or Metropolitan Planning Organization for Indiana County. The County is one of the ten (10) member counties, and the City of Pittsburgh, in the SPC region. This partnership was well timed due to the prioritization of regional water planning as part of SPC's recently adopted Project Region and the newly created Water Resource Center (WRC) at SPC. The partnership was designed to leverage important technical resources offered by the WRC in the development of the Indiana County Plan.

PADEP and Indiana County Letter of Intent (LOI)

A Letter of Intent for the Indiana County Phase I Act 167 Stormwater Management Plan was drafted and submitted to the Pennsylvania Department of Environmental Protection at the start of this project. The purpose of this LOI was to inform PADEP of the County's intention to develop Phase I of the Plan. The letter briefly outlined the project scope, key partners, and timeline. The letter was signed and submitted on April 1, 2014. A copy of the LOI is included in Appendix E.

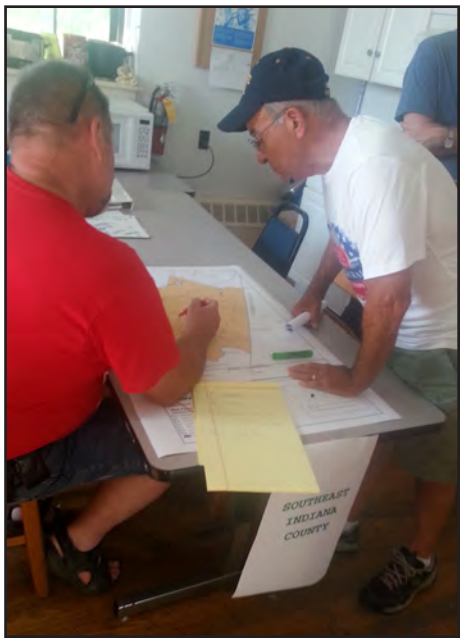
It is important to note that the LOI submitted met Act 167/PADEP requirements absent grant funds for the project. A review of other county stormwater plans revealed the inclusion of a Phase I Watershed Stormwater Management Plan Grant Agreement. However, this was not necessary due to the development of the Plan by the Indiana County Office of Planning & Development without grant funds.

Survey Creation and Distribution

The Indiana County Office of Planning & Development created a two-part stormwater management survey, which was distributed to municipalities with the Comprehensive Plan early in the Phase I planning process. All municipalities were encouraged to fill out the survey and assistance was offered. There were a number of follow-

ups conducted by the county via e-mail and phone calls after the deadline for submission. The first section of the survey was used to collect information about the municipality as well as their concerns about stormwater and the types of issues they were having. The second section of the survey was in map form and was used to reveal where problems were occurring as well as where significant obstructions and stormwater management facilities were located.

Watershed Plan Advisory Committee (WPAC)



The purpose of the WPAC was to create a place where local leaders can learn, ask questions and provide input about stormwater issues during the planning process. The WPAC was created by the Indiana County Office of Planning & Development with the help of the Southwestern Pennsylvania Commission and includes the Indiana County Conservation District, the required municipalities, and other agencies and groups that were willing to participate. Many of the WPAC members declared their interest on the stormwater survey. In addition, letters were mailed to each municipality requesting the appointment of at least one person from their municipality. The Indiana County Board of Commissioners appointed the members of the WPAC in May 2014.

Outreach was extended to every municipality. If they chose not to participate, a representative was not appointed to the WPAC. All of the WPAC meetings were open to the public, and meeting notices were posted on the ICOPD website (icopd.org) and social media platforms. During our public comment period, a draft plan was distributed to all municipalities for feedback along with a multi-week public comment period. Table 7 is a list of WPAC members and the organizations they represent.

Table 7: Indiana County Watershed Planning Advisory Committee

#	WPAC Member		Organization
	First Name	Last Name	
1	PJ	Ackerson	East Mahoning
2	Chris	Anderson	White Township
3	Tom	Baltz	PA Dept. Transportation
4	Rob	Barto	Clymer Borough
5	Mike	Bertolino	Conemaugh Township
6	Mike	Bertolino	Young Township
7	Vera	Bonnet	League of Women Voters
8	Tom	Borellis	Indiana University of Pennsylvania
9	James	Brendlinger	Armagh Borough
10	William	Burba	Montgomery Township
11	Mike	Duffalo	Blackleggs Creek
12	Dr. Robert	Eppley	Blacklick Creek

Table 7: Indiana County Watershed Planning Advisory Committee (continued)

#	WPAC Member		Organization
	First Name	Last Name	
13	Tim	Evans	Blairsville Borough
14	Jeff	Fliss	PA Department of Environmental Protection
15	Dennis	Hawley	Crooked Creek
16	Larry	Henry	Burrell Township
17	Mike	Holiday	Little Mahoning Creek Watershed Association
18	PJ	Hruska	Saltsburg Borough
19	Bob	Kossak	Kiski Watershed Association
20	Don	Lancaster	Indiana Borough Council
21	Anthony	Mano	Rayne Township
22	Pam	Meade	Cowanshannock Creek
23	Rob	Nymick	Homer City Borough
24	David	Osgood	Marion Center Borough
25	David	Overdorff	Brush Valley Township
26	Tracy	Pearce	Banks Township
27	Cindy	Rogers	Evergreen Conservancy
28	Chris	Schaney	AWARE
29	Gail	Smith	Creekside Borough
30	Dave	Smyers	Center Township
31	John	Somonick	Indiana County Planning Commission
32	Timothy	Stewart	Black Lick Township
33	Terry	Stiffler	Cherryhill Township
34	Dana	Turgeon	Indiana Borough
35	Patty	Yamrick	Earnest Borough
36	John/Joanne	Ferraro	West Wheatfield Township
37	John	Dudash	Senior Environmental Corp
38	Jenifer	Christman	Western Pennsylvania Conservancy
39	Brooke	Esarey	Evergreen Conservancy
40	Dennis	Remy	Blacklick Creek Watershed Assoc.
41	Tom	Stutzman	Indiana County Emergency Services
Staff	Adam	Cotchen	Indiana County Conservation District
Staff	Sarah	Koenig	Southwestern Pennsylvania Commission, Water Resource Center
Staff	Erin	Kepple	Southwestern Pennsylvania Commission, Water Resource Center
Staff	Jeff	Raykes	ICOPD
Staff	Zach	Norwood	ICOPD
Staff	Jess	Bruckhart	ICOPD, Student Planner
Staff	Crew	Newcomer	ICOPD, Student Planner
Staff	Byron	Stauffer Jr.	Indiana County Office of Planning & Development

Watershed Plan Advisory Committee (WPAC) Meetings

There were a total of three WPAC meetings were held in the Phase I planning process (See Table 8). These three (3) meetings were designed to encourage attendance and participation during the planning process. WPAC Meeting 1 presented the local, county, and state stormwater planning context and mapped the planning process for Phase 1. During WPAC Meeting 2 the group explored the movement of stormwater across Indiana County with a special concentration on watersheds. The group also was introduced to information collected through the Indiana County Stormwater Management Survey which informed a discussion around stormwater problem areas and regulatory enforcement challenges. Meeting 2 was held in two locations to make attendance easier for WPAC members from northern and southern regions of the County. The focus of WPAC Meeting 3, the final WPAC meeting in Phase I, was feedback on the first draft of the final plan and planned next steps.

Table 8: Watershed Planning Advisory Committee Meetings

Meeting	Meeting Focus	Date	Location
WPAC Meeting 1	Introduction to Stormwater Management and Act 167 Planning	4/30/2014	Homer Center High School, Homer City, PA
WPAC Meeting 2 (South)	Discussion and Presentation of: Preliminary Survey Results, Stormwater Ordinance Enforcement, Education, and Outreach	6/30/2014	Blairsville Borough Municipal Building, Blairsville, PA
WPAC Meeting 2 (North)	Discussion and Presentation of: Preliminary Survey Results, Stormwater Ordinance Enforcement, Education, and Outreach	7/1/2014	Marion Center High School, Marion Center, PA
WPAC Meeting 3	Phase I Draft and Next Steps	1/28/2015	Indiana Junior High, Indiana, PA

4. INDIANA COUNTY STORMWATER MANAGEMENT SURVEY RESULTS

Generally speaking, the purpose of the Indiana County Stormwater Management Survey was developed to gather input from municipalities and other stakeholders in Indiana County regarding specific stormwater-related problems and obstructions, priority considerations, and other important topics related to stormwater management. The Survey was mailed to all municipalities in May 2013, prior to holding any WPAC meetings. Project Staff followed up with municipalities and related stakeholders via phone calls, emails, and during WPAC meetings throughout the Phase I planning process. A copy of the Indiana County Stormwater Management Survey is included in Appendix A.

Each Survey contained a map of the specific municipality associated with that Survey. Survey participants were asked to use the map to identify locations and types of obstructions, problem areas, and proposed stormwater management facilities. During the second set of WPAC meetings, municipalities and stakeholders were given an

additional opportunity to include this information on a larger set of maps.

The information gathered in the Survey and subsequent follow-up will be used to guide the scope of Phase II planning. Additionally, the information will be used to inform the county regarding the frequency, scale, and location of stormwater-related issues. A County goal beyond the scope of the Act 167 Stormwater Management Planning process is to assist interested municipalities in obtaining funding and technical assistance to mitigate existing issues that were identified during this process.

Completed Surveys were received from 29 of the 38 municipalities in Indiana County. This represents a 76% response rate. Extensive outreach was conducted by Project Staff to ensure multiple opportunities were available for municipalities interested in completing a Survey. A total of three emails/phone calls/face-to-face visits to each of the 9 non-participating municipalities were made to encourage participation. However, to date, no Survey has been received from the municipalities listed in Table 9.

Table 9: Incomplete Indiana County Stormwater Management Surveys

Municipalities		
Banks Township	Glen Campbell Borough	Plumville Borough
Canoe Township	Green Township	Shelocta Borough
Cherry Tree Borough	Montgomery Township	West Mahoning Township

Additional information regarding problem areas and obstructions was obtained from the Indiana County Conservation District, the Western Pennsylvania Conservancy, the Evergreen Conservancy, and the Pennsylvania Senior Environmental Corps. A database was created to compile and analyze survey results. Later, a geo-database was developed to enable spatial analysis and mapping of survey information.

Stormwater Problem Prioritization

An analysis of Survey results showed that the three most common stormwater problem types are generalized property flooding, stream flooding and sediment in local streams. The top three causes of these issues, according to Survey results, were increased runoff, poor or insufficient drainage, and undersized stormwater infrastructure (structures).

Although a primary focus of Phase II will be addressing the stormwater problems identified in the previous paragraph, it is important to note that the focus of the Phase II planning effort will also include further refinement and prioritization of these problems and include both solutions and mitigation strategies.

These further refinements and problem prioritizations will be based on input from the WPAC and further review of Survey information collected as part of Phase I (See Appendix B). The purpose of identifying these problems

early in the Phase I planning process is to enable more comprehensive assessments of both problems and management controls needed in the future.

Modeling Needs Assessment

The following paragraph and Table 10 provide a summary and rationale for the Modeling Needs Assessment as required in any stormwater planning process. The Assessment used three layers of data to identify modeling needs in the County (See Map 4.1). These layers were: 1) the concentration of stormwater problem areas identified in the survey and WPAC mapping activities, 2) the concentration of 2013 building permits, and 3) the concentration of high-density development areas identified in the Future Land-Use Plan (See Map 4.2), Indiana County Comprehensive Plan (2012). Map 4.1 includes all three layers of information. The 2013 building permit data is used to signify development pressures and designated growth areas identified in the Comprehensive Plan are used to signify possible future development pressure.

Using this assessment framework, four (4) Indiana County watersheds have been identified as possibly needing or benefiting from stormwater modeling (See Map 4.3). However, the recommended modeling needs are not included in the scope of work for Phase II of this study. This work should be included considered in future updates to the Plan as funding is available for these components.

Table 10: Indiana County Watershed Modeling Assessment

#	Indiana County Watersheds	Detailed Modeling Necessary?	Rationale
1	Aultman Run	No	Absence of stormwater problems and lack of current and projected growth pressure
2	Blackleggs Creek	No	Absence of stormwater problems and lack of current and projected growth pressure
3	Blacklick Creek	Yes—Partial	Recurring Stormwater problems, Moderate growth pressure, Designated growth areas along US Rt. 119 Corridor
4	Canoe Creek	No	Absence of stormwater problems and lack of current and projected growth pressure
5	Cherry Run	No	Absence of stormwater problems and lack of current and projected growth pressure
6	Conemaugh River	Yes	Recurring stormwater problems, Considerable growth pressure, Designated growth areas along south US Rt. 119 Corridor
7	Cowanshannock Creek	No	Absence of stormwater problems and lack of current and projected growth pressure
8	Crooked Creek	Yes—Partial	Recurring stormwater problems, Light growth pressure, Some designated growth areas around Indiana

Table 10: Indiana County Watershed Modeling Assessment (Continued)			
#	Indiana County Watersheds	Detailed Modeling Necessary?	Rationale
9	Dutch Run	No	Absence of stormwater problems and lack of current and projected growth pressure
10	Kiskiminetas River	No	Absence of stormwater problems and lack of current and projected growth pressure
11	Little Mahoning Creek	No	Absence of stormwater problems and lack of current and projected growth pressure
12	Mahoning Creek	No	Absence of stormwater problems and lack of current and projected growth pressure
13	Two Lick Creek	Yes	Heavy concentration of recurring stormwater problems, Considerable growth pressure, Multiple designated growth areas around Indiana
14	West Branch Susquehanna River	No	Some stormwater problems, Light growth pressure, Presence of designated growth areas around Indiana
15	Yellow Creek	No	Few stormwater problems and light current and projected growth pressure

5. PHASE II SCOPE DISCUSSION

During Phase I, general input was taken regarding the design of the Phase II planning process and product. This input was provided through analysis of Survey results, WPAC meeting small and large group discussions, and focused interactions with key project stakeholders. Through these feedback loops Project Staff developed and refined the project scope for Phase II of the project. Table 11 represents a general outline of the Phase II scope and a more detailed description of general tasks and subtasks has been included in Appendix C.

It is important to note developing a focus or scope for Phase II stormwater planning was the principle aims of Phase I. Those involved in leading and participating in the Phase I planning process recognized that these focus areas would guide the development of the County's Stormwater Plan, program, and regulatory structures necessary for implementation of the Plan. The focus areas around which this project scope was developed is threefold: Enforcement, Outreach/Education, and Funding.

Enforcement

Phase II will include the creation of a Model Ordinance. This Ordinance will include the standards and provisions of the Plan. An important part of the Model Ordinance will be the inclusion of regulations for activities impacting stormwater runoff. These regulations are not meant to discourage the activities, but instead make sure they are completed in a proper manner with due regard to stormwater management.

During Phase I the WPAC voiced considerable concern regarding the enforcement of any regulations necessary to implement this Plan. Primary concerns were lack of capacity at municipal level, negative impacts on development, and enforcement costs. Understanding these concerns, Staff collected information from surrounding counties (Clarion and Jefferson counties) regarding enforcement strategies and operations, and this

Map 4.1 : Indiana County Stormwater Problem Areas and Development Pressures

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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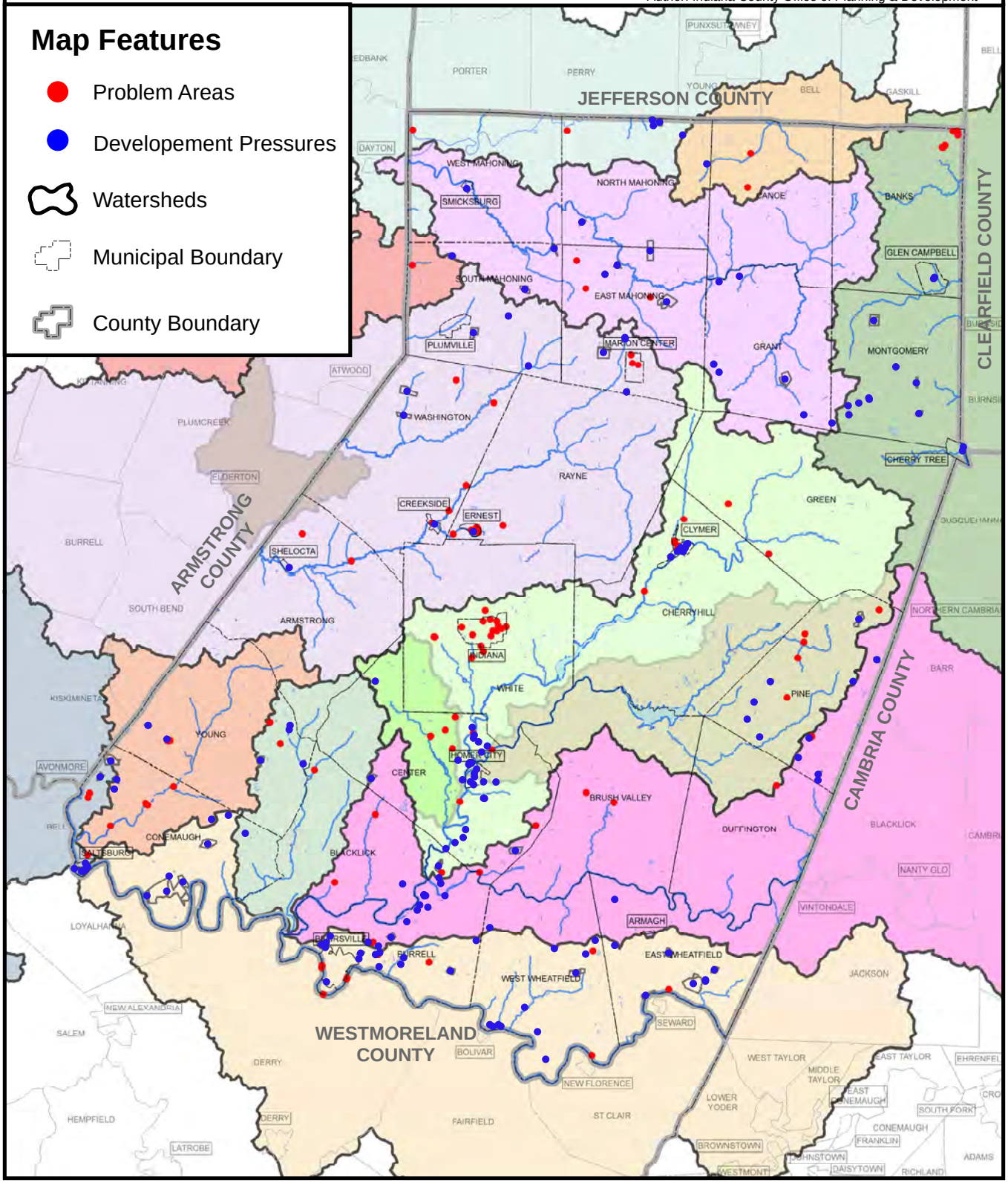
Date Created: February 25, 2015
Author: Indiana County Office of Planning & Development



Map 4.2 : Future Land Use

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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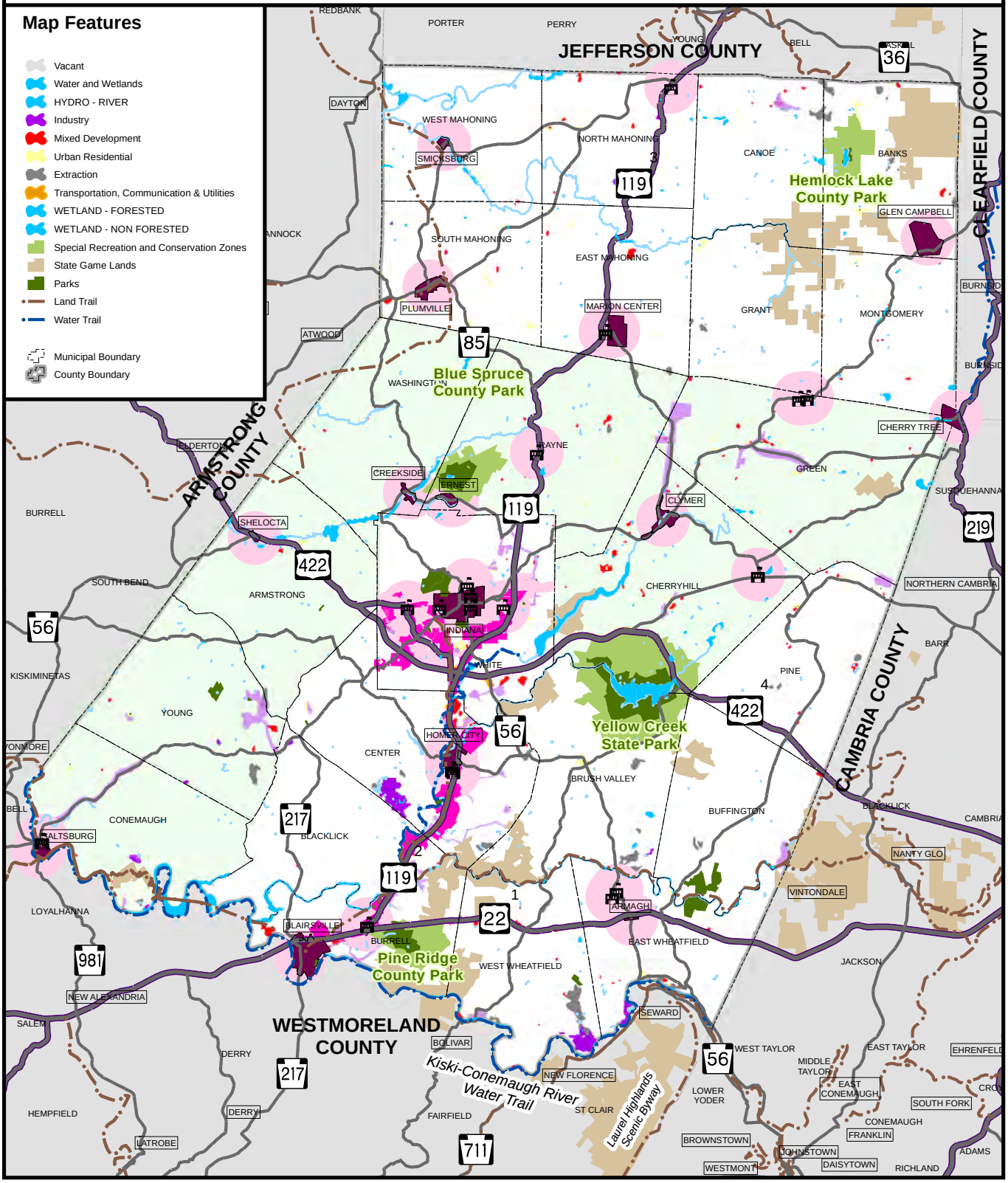
Date Created: February 25, 2015
Author: Indiana County Office of Planning & Development



Map 4.3 : Indiana County Modeling Needs Assessment

Phase I Stormwater Management Plan

Indiana County, Pennsylvania

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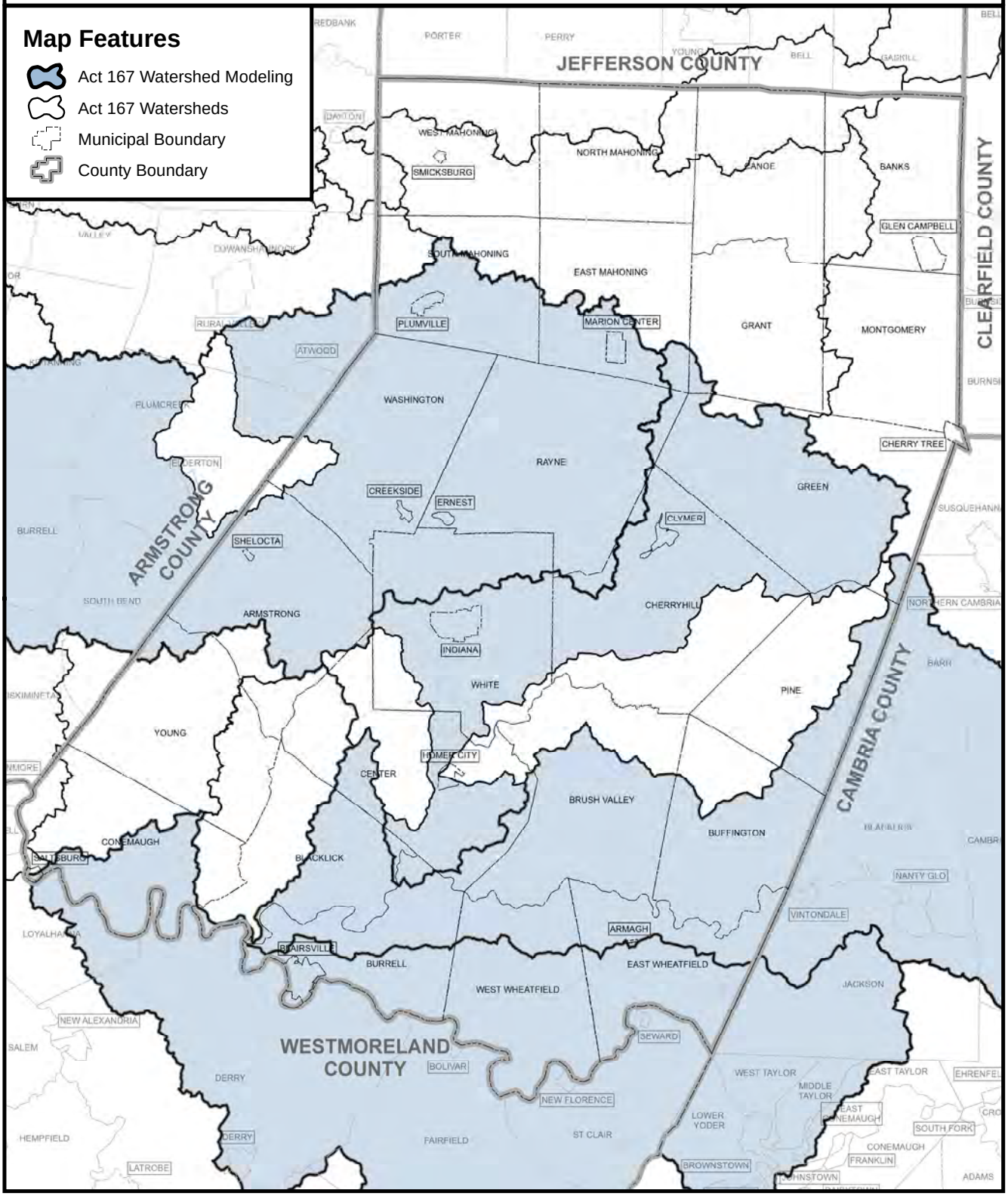
Date Created: February25, 2015

Author: Indiana County Office of Planning & Development



information was shared during WPAC meetings two and three. During these discussions, preliminary support was voiced for some form of county-level enforcement of the Model Ordinance. Where municipal capacity issues exist, the group discussed working with the Indiana County Conservation District (ICCD) to provide assistance with some aspects of municipal enforcement, such as stormwater management plan review.

However, WPAC members and Project Staff concur that more information is needed, and careful consideration of enforcement should be included at key decision points during the development of Phase II to ensure that the Plan squares with the enforcement approach.

Outreach/Education

The emerging priority of outreach and education was identified early in the project. WPAC members recognized the importance of building a shared understanding of stormwater and management strategies among their general constituencies. Building this understanding will enable municipal officials to engage issues and gather support for priority project. Phase II should be designed with specific outreach and education components. Therefore, the resulting completed Plan will reflect the municipalities' desires in addressing stormwater management consistent with Act 167 requirements.

The ICCD could play an important outreach and educational role during Phase II planning. Currently the ICCD offers a wide range of educational sessions to property owners, municipal officials, and other stakeholders. Collaborations with the ICCD could expand these offerings and leverage existing expertise to deliver outreach and educational components of the Plan. Other possible outreach and educational partnerships include the Stormwater Education Partnership also led by the ICCD.

The planning approach for Phase II will include an expansion of the WPAC assembled during Phase I, multiple workshops and educational sessions, and intentional efforts to distribute relevant stormwater information to stakeholders. These efforts will inform the Phase II planning process and enable a more comprehensive and effective implementation phase.

Funding

Identifying high-priority projects and highly-effective land-use and regulatory strategies are only part of a much larger stormwater management approach. Those involved in stormwater planning in Phase I have identified the need to find ways to attract funding to projects and planning. As such, both the WPAC and Project Staff have made this one of the three focus areas for Phase II. This focus could include activities such as funding workshops and interactions with successful stormwater project sponsors and funding agencies.

General Workplan

Phase II Agreement

Upon completion and submission of the Phase I report to PADEP, Indiana County will begin seeking funding to complete Phase II of the project

Table 11: General Summary of Phase II Scope of Work	
Element & Task #	Description
Major Work Element 1	Project Organization & Administration
Major Work Element 2	Preparation of the Plan
General Task 2.01	Data Collection, Reviews, Preparation, and Analysis
Subtask 2.01.1	Data Collection
Subtask 2.01.2	Municipal Ordinance Reviews/Evaluations
Subtask 2.01.3	Data Preparation for Technical Analysis
Subtask 2.01.4	Technical Analysis
Subtask 2.01.5	Modeling
Subtask 2.01.6	Compilation of All Technical Standards
Subtask 2.01.7	Implementation of Technical Standards and Criteria
Subtask 2.01.8	Conceptual Solutions for Existing Problem Areas, Including Innovative Stormwater Management Designs and/or Best Management Practices
Subtask 2.01.9	Priority Project and Funding Identification
General Task 2.02	Plan Preparation and Adoption
Subtask 2.02.1	Plan Report Preparation
Subtask 2.02.2	Model Ordinance Preparation and Enforcement Model Development
Subtask 2.02.3	Plan Adoption and Submission to DEP
Major Work Element 3	Public & Municipal Participation
General Task 3.01	Plan Advisory Committee, Public Participation, and Implementation Workshops
Subtask 3.01.1	Watershed Plan Advisory Committee (WPAC)
Subtask 3.01.2	Educational Materials
Subtask 3.01.3	Municipal Implementation & Funding Workshop(s)
Subtask 3.01.4	Public Education Workshop(s)

Survey

During the Phase II, the County and/or Consultant shall address items listed in Act 167 Section 5(b) and 5(c) where appropriate.

Watershed Plan Advisory Committee (WPAC)

During the Phase I process, a WPAC was formed that was comprised of municipal representatives, the Indiana County Conservation District, watershed groups, and other stakeholders. During this process, each municipality was invited to participate and asked to appoint at least one representative to the WPAC. During Phase II, it is intended that the WPAC members will continue to serve as the primary contact for their respective municipalities and/or organizations. Municipalities that chose not to participate in the Phase I planning process will be invited again to participate in the WPAC.

WPAC Engineering Meetings

Some Phase II WPAC meetings will be more technical in nature. These meeting topics may include, but are not limited to: technical analysis and the development of management criteria. For these meetings, municipal engineers and the core WPAC members will be encouraged to attend.

WPAC Legal Meetings

Some Phase II WPAC meetings will be more legal in nature. These meeting topics may include, but are not limited to: ordinance development, adoption, and enforcement. For these meetings, municipal solicitors and the core WPAC members will be encouraged to attend.

Standards

The Plan will include criteria for a comprehensive stormwater management strategy that includes two elements: Peak Rate Control Management and Volume Control Management. Peak Rate Controls may be developed for various sub-watersheds based on collected data, modeling, engineering judgment, and Committee input. Volume Controls will be based on Control Guidance 1 and Control Guidance 2 from the Pennsylvania Stormwater Best Management Practices Manual.

Consultant Selection

It is recommended that Indiana County secure a professional planning/engineering consultant to assist in completing at least the technical analysis task of the Phase II project. A qualified consultant knowledgeable in the Act 167 process (including adoption and implementation procedures), stormwater issues in the County, and municipalities within the County will benefit the County during the Phase II process.

Work Schedule

The work schedule will be developed early in the Phase II process. Key elements of the work schedule will include, but are not limited to: target dates for report completion, submittal to DEP, approval by DEP, and municipal ordinance implementation.

6. REFERENCES

1. Acid Mine Drainage, Indiana County Parks & Trails, October 2010 http://www.indianacountyparks.org/parks/ww/amd.htm
2. Beaver County Act 167 Scope of Study for Beaver County Stormwater Management Plan, June 2010
3. Indiana County Natural Heritage Inventory, February 2011
4. Indiana County Comprehensive Recreation, Park, and Open Space Plan, May 2006
5. Indiana County Open Space, Greenways and Trails Plan, September 2012
6. Pennsylvania Municipalities Planning Code (MPC), Act 1968, P.L. 805, No. 247
7. Pennsylvania Stormwater Best Management Practices Manual, Pennsylvania Department of Environmental Protection – Bureau of Watershed Management, December 2006
8. Soil Survey of Indiana County, Pennsylvania, United States Department of Agriculture Soil Conservation Service, 1968.
9. Where We Live…A Comprehensive Plan for Indiana County, Pennsylvania, Indiana County Board of Commissioners and Indiana County Planning Commission, 2012 update of 1968 Plan

APPENDIX A - STORMWATER SURVEY FORM

INDIANA COUNTY
Stormwater Management Survey

PLEASE COMPLETE THE FOLLOWING AND RETURN THE QUESTIONNAIRE AND MARKED UP MAP TO:	
Jeff Raykes, Chief Planner	(An addressed envelope with postage is provided for your convenience.)
Indiana County Office of Planning and Development	
801 Water Street	
Indiana, PA 15701	

PERSON COMPLETING QUESTIONNAIRE:	
Municipality	Blairsville Borough
Name	
Title	
Phone	
e-mail	
Date completed	

1. REGION DESIGNATION: TO ASSIST THE PLANNING PROCESS IT IS NECESSARY TO IDENTIFY WHICH OF THE REGIONS LISTED ENCOMPASS YOUR MUNICIPALITY. THE MAP OF THE WATERSHEDS LOCATED IN INDIANA COUNTY IS PROVIDED TO AID YOU IN IDENTIFYING THE REGIONS YOUR MUNICIPALITY IS LOCATED IN AND HELP YOU IDENTIFY WHO YOU MIGHT NEED TO WORK WITH IN DEVELOPING THE PLAN. IT ALSO ACTS AS A WAY TO GIVE YOUR MUNICIPALITY A VOICE IN THE PLANNING PROCESS. BY SELECTING ONE PERSON FROM YOUR MUNICIPALITY TO SERVE ON THE WATERSHED PLAN ADVISORY COMMITTEE, IT WILL ALLOW US TO COMMUNICATE DIRECTLY WITH YOU AS OUR PLANNING PROCESS MOVES ALONG. USING THE MAP, **PLEASE SELECT THE REGION** THAT YOUR MUNCIPALITIY FALLS WITHIN.

	Region 1: Twolick, Yellow Creek and Cherry Run	**X**	**Region 4:** Blacklick Creek and Conemaugh River
	Region 2: Little Mahoning and Cowanshannock Creek		**Region 5:** Crooked and Plum Creek
	Region 3: West Branch Susquehanna River		**Region 6:** Blacklegs Creek, Aultman/ Stewart Run, and Kiskiminetas River

2. WATERSHED PLAN ADVISORY COMMITTEE: THE PENNSYLVANIA STORMWATER MANAGEMENT ACT (SECTION 6) REQUIRES THE MUNICIPAL AND PUBLIC PARTICIPATION IN WATERSHED PLANNING. INDIANA COUNTY IS FURTHERING ITS STORMWATER MANAGEMENT INITIATIVE (ACT 167) BY REQUIRING EACH MUNICIPALITY TO PROVIDE **AT LEAST ONE REPRESENTATIVE** TO SERVE ON THE PROPOSED WATERSHED PLAN ADVISORY COMMITTEE. IN ADDITION TO MUNICIPAL REPRESENTATIVE(S), A REPRESENTATIVE FROM THE COUNTY CONSERVATION DISTRICT IS ALSO REQUIRED TO SERVE ON THE PROPOSED ADVISORY COMMITTEE.

THIS REGIONAL COMMITTEE WILL BE RESPONSIBLE FOR ASSISTING IN THE PLANNING PROCESS BY EVALUATING PROPOSED PLANS, PROJECT ALTERNATIVES, COORDINATING WATERSHED STORMWATER PLANS WITH OTHER MUNICIPAL PLANS AND PROGRAMS, AND, REVIEWING PROPOSED PLANS PRIOR TO PUBLIC ADOPTION. ***AT LEAST ONE REPRESENTATIVE WILL BE NEEDED IN THE NEAR FUTURE TO SERVE ON THE WATERSHED PLAN ADVISORY COMMITTEE.***

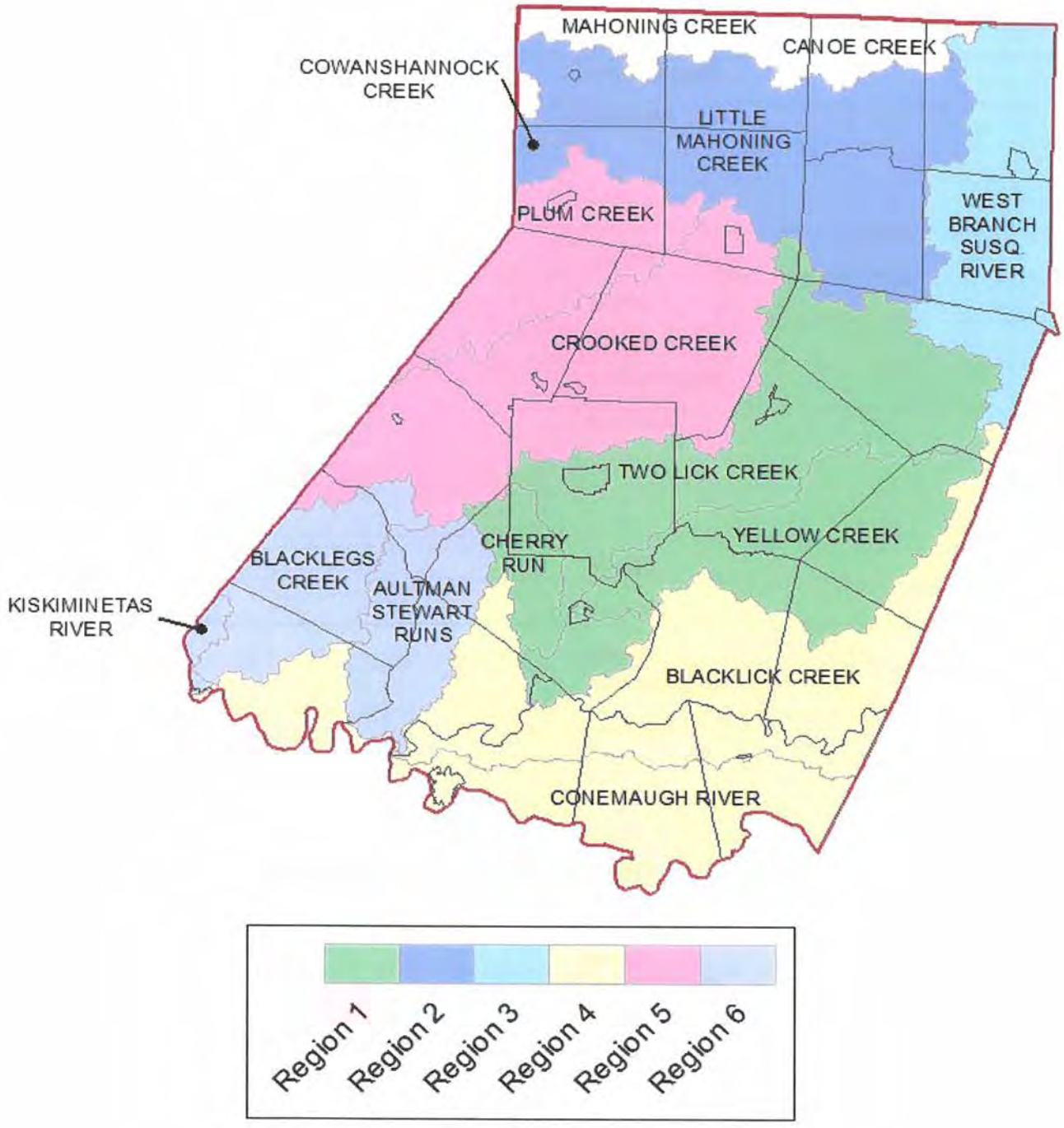
WILL YOUR MUNICIPALITY/AGENCY ATTEND WATERSHED PLAN ADVISORY COMMITTEE MEETINGS? MEETINGS ARE EXPECTED TO BE HELD APPROXIMATLY 4 TIMES PER YEAR FOR 2 YEARS. (PLEASE CIRCLE ONE)

Yes	No

If yes, who will attend meetings on behalf of your municipality or organization?

(Representative 1) Name	
Address	
Phone	
e-mail	
(Representative 2, if needed) Name	
Address	
Phone	
e-mail	

Stormwater Management Regions



3. ADDITIONAL REPRESENTATIVES: WOULD YOU SUGGEST ANY OTHER AGENCIES OR ORGANIZATIONS THAT SHOULD BE INCLUDED ON THE WATERSHED PLAN ADVISORY COMMITTEE? THESE AGENCIES OR ORGANIZATIONS COULD INCLUDE PLANNING COMMISSIONS, CONSERVATION ASSOCIATIONS, REGIONAL AND STATE AGENCIES, SURROUNDING COUNTIES, AND NEARBY INSITUTIONS (I.E. IUP). IF SO, PLEASE GIVE CONTACT INFORMATION BELOW:

Name	
Organization	
Address	
Phone	
e-mail	
Name	
Organization	
Address	
Phone	
e-mail	
Name	
Organization	
Address	
Phone	
e-mail	
Name	
Organization	
Address	
Phone	
e-mail	

4. DOES YOUR MUNICIPALITY HAVE?			
	Yes	No	Location/Date
Comprehensive Plan	X		
Zoning Ordinance	X		
Subdivision/Land Development Ordinance	X		
Floodplain Regulations *			
Stormwater Management Regulations *			
Erosion Control Regulations *			
Drainage Regulations *			

*For the above regulations, please list where the regulation is found in the "Location" column.

Use the following abbreviations:

CP = comprehensive plan ZO = zoning ordinance

BC = building code SO = separate ordinance

SL = subdivision/land development ordinance

5. IS YOUR MUNICIPALITY CONSIDERED AN MS4 MUNICIPALITY UNDER THE CURRENT NPDES PHASE II STORMWATER REGULATIONS? (PLEASE CIRCLE ONE)	
Yes	No
IF YES, IS YOUR MS4 MUNICIPALITY CURRENTLY IN COMPLIANCE WITH THE NPDES PHASE II PERMIT?	
Yes	No
IS YOUR MS4 MUNICIPALITY INTERESTED IN COOPERATING WITH OTHER MS4 MUNICIPALITIES?	
Yes	No

6. THE WATERSHED PLAN WILL ADDRESS FIVE KEY STORMWATER CONSIDERATIONS. THESE FIVE ARE LISTED BELOW. PLEASE INDICATE HOW IMPORTANT YOU BELIEVE IT IS TO ADDRESS EACH CONSIDERATION.						
CONSIDERATION		Very Important 5	4	3	2	Not Important 1
Peak Flows	Increased flows from stormwater runoff contribute to stream erosion, localized ponding and flooding, may cause damage to infrastructure (roads, sewers, etc.).					
Water Quality	Dissolved and un-dissolved pollutants washed off the land surface – negative impacts to recreation, aesthetics and in-stream habitat.					
Groundwater Recharge	Increased runoff decreases amount of rain that becomes groundwater; decreased groundwater supplies may have negative effects on well water supplies and decrease or dry up stream base flow in dry periods.					
Stream Erosion	Eroding banks and beds may undercut roads and utilities, damages in-stream habitat, clog culverts and bridges.					

7. WOULD YOU LIKE TO SEE MORE INFORMATION ON ANY OF THE FOLLOWING PRESENTED AT A WATERSHED PLAN ADVISORY COMMITTEE MEETING?			
	Yes	Maybe	No
Best Management Practices			
Model/Implemented Ordinances			
Information on Act 167 reimbursements			
Other topics you would like to have considered:			

Flooding	Larger scale overbank flows such as the 100-year flood associated with extreme storm events					

8. WHAT IS THE MOST IMPORTANT STORMWATER RELATED ISSUE TO YOUR MUNICIPALITY?

9. THE FOLLOWING LISTS THE TYPES OF STORMWATER RELATED PROBLEMS YOUR MUNICIPALITY MAY BE EXPERIENCING. FOR EACH PROBLEM TYPE, PLACE A CHECK MARK IN THE COLUMN THAT BEST DESCRIBES THE SEVERITY, FREQUENCY AND CAUSE. IF YOUR MUNICIPALITY IS EXPERIENCING A PROBLEM NOT LISTED, PLEASE LIST IT IN THE SPACE MARKED "OTHER".

PROBLEM	SEVERITY			FREQUENCY (YEARS)				CAUSE				
	Severe	Moderate	None	<1	1-2	3-6	>6	Increased Runoff	Poor/No Drainage	Undersized Structure	Floodplain Development	Unknown
Stream Flooding												
Street Flooding												
Property Flooding												
Soil Erosion												
Sediment in Streams												
Stream Bed/Bank Erosion												
Scour at Outfalls												
Property/Infrastructure Damage												
Pollution												
Habitat/Resource Damage												
Other												

10. STORMWATER MANAGEMENT PLANS ARE REQUIRED UNDER THE PA STORMWATER MANAGEMENT ACT, ACT 167. AUTHORIZATION TO PROCEED WITH THIS PLAN AS REQUIRED BY ACT 167 HAS BEEN GIVEN BY THE COUNTY. THE LONG-TERM GOAL OF THIS PLAN WILL BE TO MAINTAIN EXISTING HYDROLIC CONDITIONS INCLUDING GROUNDWATER LEVELS, WATER QUALITY, STREAM BASE FLOW AND STREAM STORM FLOWS. WITH THIS IN MIND, WHAT LEVEL OF SUPPORT WILL YOUR MUNICIPALITY OR AGENCY PROVIDE FOR THIS PROJECT?

Strongly Support				Strongly Oppose
5	4	3	2	1

11. DO YOU KNOW OF ANY EXISTING OR PROPOSED FLOOD CONTROL PROJECTS IN YOUR MUNICIPALITY? (PLEASE CIRCLE ONE)

Yes	No

If yes, please describe the project(s) below:

12. ARE EXISTING (PUBLIC OR PRIVATE) STORMWATER MANAGEMENT FACILITIES (OUTFALLS, BASINS, ETC.) BEING MAINTAINED (I.E. REMOVAL OF DEBRIS FROM OUTLET STRUCTURES, ADEQUATE CONTROL OF VEGETATION, CAPACITY MAINTENANCE, ETC.)? (PLEASE CIRCLE ONE)

Yes	No

If yes, please describe the locations(s) below:

13. PLEASE PROVIDE ANY INPUT YOU FEEL IS RELEVANT REGARDING CURRENT WATERSHED MANAGEMENT PROCEDURES.

14. THE FOLLOWING TABLE REQUESTS INFORMATION ON PROBLEM AREAS AND OBSTRUCTIONS. PLEASE PLACE A CHECK MARK IN THE "PROBLEM" COLUMN IF THE SITE IS A PROBLEM AREA OR PLACE A CHECK MARK IN THE "OBSTRUCTION" COLUMN IF THE SITE IS AN OBSTRUCTION. LOCATE THE PROBLEM AND OBSTRUCTIONS BY PLACING THE NUMBER CORRESPONDING TO EACH SITE AT THE APPROPRIATE LOCATION ON THE ENCLOSED MAP OF YOUR MUNICIPALITY.

Problem Areas - Areas of ponding or flooding, erosion, stream channel or bank erosion, property damage, safety concerns, etc.

Obstructions - Bridges, pipes, culverts, dams or other physical barriers to stream flow that restrict the channel flow and typically cause ponding or flooding upstream of the structure.

In the "Description" column describe the type, location, & size of the Problem Area or Obstruction, (i.e. "undersized 36-inch CMP where Main Street crosses Sandy Creek". For each site listed, place the Number of the site at the appropriate location on the enclosed map of your Municipality (attached at the end of this packet). If a solution to the Problem Area or Obstruction is proposed, describe the solution in the "Solution" column. Please copy this sheet if additional space is needed.

Number	Problem	Obstruction	Description	Solution
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Please copy this sheet if additional space is needed.

15. THE FOLLOWING REQUESTS INFORMATION ON EXISTING OR PROPOSED STORM SEWER SYSTEMS OR MANAGEMENT FACILITIES. THESE ARE STORM SEWER SYSTEMS, PERMANENT STORMWATER DETENTION PONDS, UNDERGROUND DETENTION FACILITIES OR OTHER SYSTEMS OR FACILITIES INTENDED TO COLLECT, CONVEY OR DETAIN STORMWATER. PLEASE LETTER EACH SITE SEQUENTIALLY AND PLACE THE LETTER CORRESPONDING TO EACH SITE AT THE APPROPRIATE LOCATION ON THE ENCLOSED MAP OF YOUR MUNICIPALITY. PLEASE COPY THIS SHEET IF ADDITIONAL SPACE IS NEEDED.

Letter	Description
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	

Please copy this sheet if additional space is needed

APPENDIX B -
STORMWATER SURVEY SUMMARY

Municipality	Survey Questions																			
	Q 4							Q5			Q 6					Q 7				
	Comp Plan	Zoning Ord	Subdivisiou / LDO	Floodplain Regs	Stormwater Mgmt Regs	Erosion Control Regs	Drainage Regulations	MS4	MS4 Compliant	Interested in Cooperate w/ Other MS4 Munis	Peak Flows	Water Quality	Groundwater Recharge	Stream Erosion	Flooding	BMPs	Model / Implemented Ordinances	Act 167 Reimbursements / Funding	Other Topics
Armagh	N	N	N					N		N									
Armstrong	N	N	N	N				N			3	3	4	5		M	M	M	
Banks																			
Black Lick	Y	N	N	Y				N		Y	5	5	5	5		Y	Y	Y	
Blairsville	Y	Y	Y	N	Y	Y	Y	N			5	3	4	5		Y	Y	Y	
Brush valley	N	N	N	Y	N	N	N	N			4	4	4	4		Y	N	M	
Buffington	N	N	N	N	N	N	N	N		N	5	5	4	5	3	M	M	Y	
Burrell	Y	N	Y					N			5	4	4	5		Y	M	Y	
Canoe																			
Center	Y	N	N	NS	N	N	NS	N			5	5	5	5		Y	Y	Y	
Cherry tree																			
Cherryhill	N	N	N	Y	N	N	N	N			5	4	4	4		Y	M	M	
Clymer	Y			Y			Y	N			5	4	2	3	5	Y	M	Y	
Conemaugh	Y							N			3	5	3	5	5	Y	M	Y	
Creekside	N	N	N																
East Mahoning	N	N	N					N			5	5	5	5		Y		Y	
East Wheatfield	N	N	Y	Y	N	N	N	N			4	3	3	3		M	N	M	CP[1]
Ernest	N	N	N	Y	N	N	N			Y	5	5	5	5		Y	Y	Y	
Glen Campbell																			
Grant	N	N	N					N			5	4	4	4	4				
Green																			
Homer City	Y	Y	Y	Y	N	N	Y	N		Y	5	5	3	3	5	M	Y	Y	
Indiana	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	3	4	2	3	4	Y	Y	M	
Marion Center	N	N	N	Y				N			5	3	4	3		Y	Y	Y	
Montgomery																			
North Mahoning	Y	N	N	Y															
Pine	N	N	N	Y	N	N	N				5	4	5	5					
Plumville																			
Rayne	N	N	N	Y	N	N	N	N	N	Y	5	5	5	5	5	Y	M	Y	
Saltsburg	Y	N	N					N			5	5	5	5	5	Y	Y	Y	
Shelocta																			
Smicksburg																			
South Mahoning	N	N	N	N	N	N	N	N	N	N	5	5	4	5		N	N	N	
Washington	N	N	N	Y	N	N	N	N			4	4	5	4		M	M	M	
West Mahoning																			
West Wheatfield	N	N	Y	Y	N	N	N	N	N	N	1	3	5	3	1	N	N	N	
White	Y	N	Y	Y	Y	Y	Y	N			5	5	5	5	5	Y	M	M	
Young	N	N	N	Y	Y	Y	Y	N			5	3	2	4		M	M	Y	

Question Key	
Q4	Does your municipality have the following regulations?
Q5	Is your municipality considered an MS4 Municipality under current NPDES Phase II Stormwater Regulations? If yes, is your MS4 municipality currently in compliance with the NPDES Phase II permit? Is your MS4 municipality interested in cooperating with other MS4 municipalities?
Q6	Please indicate how important the following issues are (5 = Very Important, 1 = Not Important)
Q7	Would you like to see more information on the following topics during WPAC meetings? Y = Yes, N = No, NS = Not Sure, M = Maybe

[1] Comprehensive Plan and 100 Year Floodplain

Municipality	Survey Questions Continued
	Q8: What is the most important stormwater-related issue to your municipality?
Armagh	
Armstrong	Runoff from private driveways and access roads
Banks	
Black Lick	Flooding due to the increase of sediment in our local streams
Blairsville	CSO-DEP issues & funding for improvements to storm system
Brush valley	Erosion control, flooding basements during heavy rains, more drainage on roadways
Buffington	Basic drainage dealing with heavy rainfall. Over the past years, our township has installed several new parallel / cross pipes / underdrains.
Burrell	Funding projects to contain stormwater and prevent flooding
Canoe	
Center	Some flooding, runoff, basement flooding
Cherry tree	
Cherryhill	
Clymer	Twolick Creek and Dixon Run Flooding
Conemaugh	Flooding
Creekside	Flooding in the borough from Crooked Creek
East Mahoning	To keep water off roads so they flow to ditch or culverts
East Wheatfield	PennDOT constructed three sections of Rt. 22 with very little or small unused retention ponds. Th
Ernest	Drainage, property flooding, road erosion
Glen Campbell	
Grant	Clogged culverts
Green	
Homer City	Water levels in Two Lick & Yellowcreek rise quickly during rain due to increased development along Two Lick. Also drainage of agricultural areas into roadside ditches has increased the speed and volume of water.
Indiana	Control peak flows, reduce sediment loads in Marsh Run, flooding impacts (houses in floodplain), & improving stormwater collection system
Marion Center	Control of runoff from borough border areas and businesses.
Montgomery	
North Mahoning	
Pine	Erosion/Storm runoff
Plumville	
Rayne	Water control- Tanoma Road- Rayne Church roadway sloughing off
Saltsburg	Currently a combined sewage system, part of the town has already been seperated. We are in the process or steps of getting a new sewer plant, which will have a tank for stormwater (for when we get a lot of rain or snow melt). We have 5 CSOs that we monitor.
Shelocta	
Smicksburg	
South Mahoning	
Washington	Crooked Creek flooding State Road 954 North
West Mahoning	
West Wheatfield	None
White	Localized flooding - flash flooding with high rain amounts in a short period
Young	Undersize drainaged or runoff in the town of Iselin

Municipality	Survey Questions Continued																	
	Q9																	
	Stream Flooding Severity	Stream Flooding Frequency	Stream Flooding Cause	Street Flooding Severity	Street Flooding Frequency	Street Flooding Cause	Property Flooding Severity	Property Flooding Frequency	Property Flooding Cause	Soil Erosion Severity	Soil Erosion Frequency	Soil Erosion Cause	Sediment in Streams Severity	Sediment in Streams Frequency	Sediment in Streams Cause	Stream Bed/Bank Erosion Severity	Stream Bed/Bank Erosion Frequency	Stream Bed/Bank Erosion Cause
Armagh																		
Armstrong	M	3-6	IR	M	3-6	IR	M	3-6	IR	N			N	N	N	N		
Banks																		
Black Lick	M	<1	PND, US	N			M	<1	PND	N			S	<1	IR	N		
Blairsville	M	1-2	IR	M	1-2	PND, US	M	1-2	PND, US	N	<1	IR	M	1-2	IR	M	<1	IR
Brush valley	M	3-6		M	>6	PND, US				M		IR						
Buffington		>6	UN		>6	FD	M	<1	US	M	<1	IR	N	3 - 6	IR	N		
Burrell	M	1-2	IR	S	<1	IR, US	S	<1	IR, US	M	1-2	IR	M	1-2	IR, US	M	1-2	IR
Canoe																		
Center	M	1-2	IR				M	1-2										
Cherry tree																		
Cherryhill	M	1-2	UN	M	<1	IR	M	<1	IR	N			N			M	1-2	UN
Clymer	M	>6	UN	N			M	>6	IR	N			S	<1	UN	M	1-2	US
Conemaugh	M	1-2	US	M	1-2		M	1-2		N			M	1-2		M	<1	
Creekside	S	1-2											S	1-2				
East Mahoning	M	1-2		M	<1		M	<1		M	1-2		M	<1		M	<1	
East Wheatfield				N			M		PND	N			M		UN	N		
Ernest	N			M		IR, PND	M		IR, PND	M		IR, PND	N			N		
Glen Campbell																		
Grant				M														
Green																		
Homer City	M	1-2	IR	M	<1	PND, US	M	<1	US	N		IR	M		IR	N		IR
Indiana	M	1-2	IR, PND, FD	M	3-6	IR, PND, US	M	>6	IR, PND, US	M	1-2	IR	M	1-2	IR, PND, UN	M	1-2	IR, PND, UN
Marion Center	M	3-6	US, UN	M	<1	IR, PD, UN	M	<1	PND, UN	M	<1	IR, US	M					
Montgomery																		
North Mahoning																		
Pine	M	3-6	IR	M	<1	IR, PND	M	3-6	IR, PND	S	<1	IR	M	<1	IR	S		IR
Plumville																		
Rayne	M	<1	IR	N			N			M	<1	IR	N			M	<1	IR
Saltsburg	N			N			N						M	>6	IR	M	>6	IR
Shelocta																		
Smicksburg																		
South Mahoning	M	3-6	IR	N			M	3-6	IR	N			M		IR	N		
Washington	M	1-2	UN	N			M	1-2	IR	M		IR				M	3-6	IR
West Mahoning																		
West Wheatfield	N			N			N			N			M	>6	UN	N		
White	M	<1	SC[1]	N			M		PD, SR[2]	N			S			M		
Young	M	1-2	IR, PND	S	<1	IR, PND, US	N			M	1-2	IR, PND	M	1-2	IR, PND	M	<1	IR, PND, US

Answer Key

S = Severe, M = Moderate, N = None

IR = Increased Runoff, PND = Poor/No Drainage, US = Undersized Structure, FD = Floodplain Development, UN = Unknown

[1]Stream channel filled in

[2]Stream related

Municipality	Survey Questions Continued														
	Q9 Continued													Q10	Q11
	Scour at Outfalls Severity	Scour at Outfalls Frequency	Scour at Outfalls Cause	Property / Infrastructure Damage Severity	Property / Infrastructure Damage Frequency	Property / Infrastructure Damage Cause	Pollution Severity	Pollution Frequency	Pollution Cause	Habitat / Resource Damage Severity	Habitat / Resource Damage Frequency	Habitat / Resource Damage Cause	Other	Act 167 Support	Flood Control Projects
Armagh															N
Armstrong	N			M	>6	IR	N			N				3	N
Banks															
Black Lick	N			N			N			N				5	N
Blairsville	M	<1	IR	M	1-2	PND, US	M	<1		N	<1			4	N
Brush valley	N			M	3-6	UN	N								N
Buffington	N						M	<1	IR	N				4	N
Burrell	M	<1	IR, US	M	<1	IR	N			N				4	Y[3]
Canoe															
Center														4	Y[4]
Cherry tree															
Cherryhill	N			N			N			N				5	N
Clymer	N			N			M			N				5	N
Conemaugh	M	1-2		N	>5		N			N				4	N
Creekside													SRD[1]		N
East Mahoning							N							3	N
East Wheatfield	N			N			N			N				3	N
Ernest				M		IR, PND							C[2]	5	N
Glen Campbell															
Grant														3	N
Green															
Homer City	N		IR	M		IR	M		IR	N		IR		5	N
Indiana	M	1-2	IR, PND, UN	M	3-6	IR, PND, US, FD, UN	N			M	1-2	IR, PND, US, FD, UN		3	Y[5]
Marion Center														5	N
Montgomery															
North Mahoning															
Pine				N			N			N				3	N
Plumville															
Rayne	N			N			N			N			N	3	N
Saltsburg	N			N			M	>6	R[7]	M		IR		4	N
Shelocta															
Smicksburg															
South Mahoning	N			N			M		UN	N			N	3	N
Washington	M	1-2	US	N			N			N				2	N
West Mahoning															
West Wheatfield	N			N			N			N				2	N
White	N			N			N			N				4	N[6]
Young				M	3-6	IR, PND, US	N			M	1-2	IR, PND, US		5	No

Answer Key

S = Severe, M = Moderate, N = None

IR = Increased Runoff, PND = Poor/No Drainage, US = Undersized Structure, FD = Floodplain Development, UN = Unknown

[1]Severe Road Damage

[2]Creek needs to be cleaned out and dredged

[3]Currently Working on engineering and looking for funding a project in the Smith Plan of lots. Looking for options for a portion of Stratford Rd. which regulary sees flooding

[4]Stormwater Detention Pond/Roberts Addition

[5]Flood Control imporvements outlined in Marsh Run Study & will be done as funding becomes available

[6]Only private Development meeting the requirements or ordinance No. 982

[7] Comes down the river from heavy rain

Question Key

Q10 - What level of support will your municipality provide for Act 167 Planning Process (5 = strongly support, 1 = strongly oppose)?

Q11 - Do you know of any existing or proposed flood control projects in your municipality?

Municipality	Survey Questions Continued
	Q12: Are existing (public or private) stormwater management facilities (outfalls, basins, etc) being maintained (i.e. removal of debris from outlet structures, adequate control of vegetation, capacity mainenance, etc)? If yes, please describe.
Armagh	
Armstrong	No
Banks	
Black Lick	Yes, the township maintains the stormwater facilities that it is responsible for on a regular basis. Those facilities include catch basins, outlet pipes and storm sewer swales located adjacent to their roadways. The catch basins and outlet pipes are cleared.
Blairsville	Yes
Brush valley	Yes, all culvert pipes in township.
Buffington	No
Burrell	Yes, we regularly clean out falls and basins in areas known to be trouble spots.
Canoe	
Center	Not enough, stormwater detention ponds.
Cherry tree	
Cherryhill	No
Clymer	Yes, various locations throughout the borough.
Conemaugh	Yes, high school.
Creekside	
East Mahoning	Yes, try to keep culverts cleaned out.
East Wheatfield	No, PennDOT's small ponds are full of weeds and are not being maintained.
Ernest	Yes, Ditches and drains are periodically maintained.
Glen Campbell	
Grant	No
Green	
Homer City	No
Indiana	Yes, 1st and water maintained on alternating basis with White Township and the Borough.
Marion Center	Yes, storm grates throughout community.
Montgomery	
North Mahoning	
Pine	Yes, Heilwood, Aluerda, Twp Roads.
Plumville	
Rayne	No
Saltsburg	Yes, We have 5 CSOs in one system since we are a combined system. They are at the end of each trunk line before they go into the main trunk line to the sewer plant.
Shelocta	
Smicksburg	
South Mahoning	No
Washington	Yes, township wide.
West Mahoning	
West Wheatfield	No
White	Yes, Township has maintenance schedule; Private-have signed maintenance agreements/inspections.
Young	Yes, Ditches and pipes are cleared as routine road maintenance.

Municipality	Survey Questions Continued
	Q13: Please provide any input you feel is relevant regarding current watershed management procedures.
Armagh	
Armstrong	
Banks	
Black Lick	
Blairsville	
Brush valley	Any changes in land use should have stormwater addressed along with problem areas now
Buffington	
Burrell	
Canoe	
Center	
Cherry tree	
Cherryhill	
Clymer	
Conemaugh	
Creekside	
East Mahoning	
East Wheatfield	Everyone should comply by a strict standard 100 year Floodplain, not just some.
Ernest	The drainage system in the borough is inadequate and outdated.
Glen Campbell	
Grant	
Green	
Homer City	Gas wells drilled in TwoLick-Yellow Creek Watersheds has drastically increased the amount of sedimentation in our watersheds as well as CICWA water intake dam on Yellow Creek.
Indiana	Indiana Borough agressively persuing stormwater fee to establish a revenue to fund future stormwater imporvements.
Marion Center	
Montgomery	
North Mahoning	
Pine	
Plumville	
Rayne	
Saltsburg	
Shelocta	
Smicksburg	
South Mahoning	
Washington	
West Mahoning	
West Wheatfield	
White	
Young	

Municipality	Survey Questions Continued	
	Q14: List problem areas and obstructions.	
	Problem type	Description
Armagh		
Armstrong		
Banks		
Black Lick	1) Sedimentation 2) Sedimentation	1) Sediment built up near culvert, cause stream flood 50-100 yr event 2) Sediment built up near culvert, cause stream flood 50-100 yr event
Blairsville		
Brush valley		
Buffington	1) Inadequate Infrastructure	1) In Winter months, pipe can't handle amount of water
Burrell	1) Inadequate Infrastructure 2) Flooding 3) Accelerated Erosion 4) Inadequate Infrastructure	1) Natural Swale piped in undersized pipe by resident 2) Development along 22 has caused flooding Strongford Rd 3) Road very steep, stormwater causes ditch erosion 4) Low lying/flat, stormwater can't get away fast, cause basement flooding
Canoe		
Center		
Cherry tree		
Cherryhill		
Clymer	1) Sedimentation 2) Sedimentation	1) Sedimentation along Two Lick Creek 2) Sedimentation along Dixon Run
Conemaugh	1) Sedimentation 2) Flooding 3) Inadequate Infrastructure 4) Sedimenation 5) Flooding 6) Sedimentation	1) Sediment around bridge 2) Ponding on 286 3) Plugged up pipe 4) Sediment around bridge 5) Flooding 6) Sediment around bridge
Creekside	1) Flooding	1) Creek overflows, floods basements & land
East Mahoning		
East Wheatfield		
Ernest	1) Flooding 2) Flooding 3) Flooding 4) Flooding 5) Flooding 6) Flooding	1) Excessive runoff, cause erosion / flooding, inadequate storm drains 2) Excessive runoff, cause erosion / flooding, inadequate storm drains 3) Excessive runoff, cause erosion / flooding, inadequate storm drains 4) Excessive Runoff from Main St, erosion/ homes flooding 5) Excessive runoff, cause erosion / flooding, inadequate storm drains 6) Excessive runoff, cause erosion / flooding, inadequate storm drains
Glen Campbell		
Grant		
Green		
Homer City		

Municipality	Survey Questions Continued	
	Q14 Continued: List problem areas and obstructions.	
	Problem type	Description
Indiana	1) Stream Channel Culverted 2) Accelerated Erosion 3) Accelerated Erosion 4) Accelerated Erosion 5) Obstruction in Conveyance System 6) Inadequate Infrastructure	1) Marsh Run forced undergroun through 4x4 opening, too small 2) Streambank erosion 3) Streambank erosion 4) Streambank erosion 5) Possible obstruction in tunnel 6) Storm pipe failure
Marion Center	1) Flooding 2) Flooding & Sedimentation 3) Flooding & Sedimentation	1) No maintenance on business property 2) Runoff from Gas Well Road from farm land 3) Runoff along road
Montgomery		
North Mahoning		
Pine	1) Inadequate Infrastructure 2) Accelerated Erosion 3) Inadequate Infrastructure 4) Flooding 5) Beaver Dams	1) Water not making it to storm drains 2) Steep banks, runoff of debris onto road 3) Steep banks, runoff of debris onto road 4) Stream swells over road / runoff steep bank other side of road 5) Beaver Dams
Plumville		
Rayne		
Saltsburg		
Shelocta		
Smicksburg		
South Mahoning		
Washington		
West Mahoning		
West Wheatfield		
White		
Young	1) Inadequate Infrastructure	1) Undersized Pipe in Iselin

APPENDIX C -
PHASE II SCOPE OF WORK

APPENDIX C

PHASE II SCOPE OF WORK

(ACTUAL SCOPE MAY DIFFER WHEN ISSUED BY THE PADEP)

Phase II Scope of Work
There are three (3) major work elements required to prepare the PLAN. These are 1) Project Organization & Administration, 2) Preparation of the PLAN, and 3) Public & Municipal Participation. Those responsible for delivering, assisting, or approving these elements are identified below.

The Indiana County Planning Commission shall be considered as the COUNTY and shall assume all responsibilities deemed to be assumed by the COUNTY. The COUNTY, with the help of the selected consultant, will accomplish the technical and non-technical components of the PLAN.

The final Act 167 Phase II Report and associated Model Ordinance shall be considered as the PLAN.

The Pennsylvania Department of Environmental Protection shall be considered as the DEPARTMENT.

The selected planning/engineering firm shall be considered as the CONSULTANT.

The Phase II contract between the COUNTY and the DEPARTMENT shall be considered as the AGREEMENT.

Major Work Element 1 Project Organization & Administration

The COUNTY, with input from the CONSULTANT, is responsible for overall *project organization* such as developing a workplan, identifying and convening project committees and workgroups responsible for guiding and overseeing the planning process. The primary task of these committees and workgroups (i.e. WPAC) will be to continue meeting during the project and ensure the overall success of the project. The role of the COUNTY will be project management, public process development and delivery, and project administration.

The CONSULTANT will assist in ensuring the effective functioning of these committees and workgroups, developing internal and external communication processes, establishing decision-making frameworks, coordinating work plan(s), and facilitating meetings through project completion.

The COUNTY and appointed committees and workgroups will be responsible for media relations with support from the CONSULTANTS.

The COUNTY, with support from the CONSULTANTS, is responsible for the overall *project administration* necessary to complete the PLAN. This includes but is not limited to the tasks outlined below:

1. Ensure a sound organizational structure to include the appointment of committees and workgroups prior to the start of the project.
2. Develop the structure and timeline for the three major tasks and subtasks necessary to prepare the PLAN.
3. Organize and/or attend meetings, virtual meetings, and conference calls.

4. Manage budgeting, invoicing, organizational, and scheduling matters.
5. Manage coordination between the DEPARTMENT and the COUNTY.
6. If the COUNTY employs a consultant, the COUNTY will select the consultant, prepare, and initiate contracts with the CONSULTANT.
7. Facilitate meeting process and communication between the consultant (if used), the DEPARTMENT, and the COUNTY.
8. Participate, where necessary, in other aspects of the preparation and implementation of the PLAN.

Major Work Element 2 Preparation of the Plan

General Task 2.01 Data Collection, Reviews, Preparation, and Analysis

Subtask 2.01.1 Data Collection

This task will involve gathering, reviewing, and analyzing the data required to complete the technical and institutional planning steps for the PLAN. The CONSULTANT and COUNTY will work to collect the data from appropriate sources such as local and state agencies. Data for both current and future conditions will be collected. The Survey Form (Phase I), information collected from committees and workgroups, and public outreach activities will be key sources for data that is critical to this process.

Data to be collected will include, but may not be limited to (and will be based on available information and/or survey results):

1. Comprehensive land use and watershed plans.
2. Existing municipal ordinances.
3. Stormwater-related problem areas, including quantity and quality, and previously proposed conceptual solutions.
4. Existing and proposed flood control projects.
5. 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, an estimate of the design capacity and costs of such 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.
6. Storm sewer outfalls.
7. Soils.
8. Geology.
9. Significant flow obstructions.
10. Topographic and other readily available mapping.
11. Aerial photographs.
12. Existing engineering and planning studies.
13. Stream flow and rain gauge data

14. Water quality information
15. FEMA FIS floodplain information.

Technical data that is collected will be reviewed for suitability. Where necessary, field investigations may be conducted to gather and/or confirm data.

Problem Areas and Obstructions Inspection/Summary/Proposed Solutions

- Where necessary, field investigations will be performed to evaluate 'significant' problem areas identified during Phase I.
- The PLAN will summarize these problem areas and obstructions, identify and evaluate potential solutions, and will specify possible sources of funding to pursue for implementation.
- The PLAN will make suggestions for other programs/activities to manage and mitigate existing problems that were identified during the planning process.
- The identification of the problem areas will help in assessing the stormwater management rate controls needed for the subwatersheds.

Through the cataloging of existing problems, conceptual solutions to categories of problems, development and implementation of ordinances, and identification of potential funding streams, this process establishes the administrative process to avoid creating future stormwater problems and address existing ones.

Review of Existing Plans/Studies/Reports/Programs
A synchronized list will be developed through the review of related documents and programs, and their associated goals and objectives.

Goals and Requirements of the PLAN
The goals and requirements for the PLAN will incorporate the policy, purpose, and requirements outlined in Act 167. Special consideration will be given to the concerns and problems identified by the COUNTY and the WPAC. The PLAN shall be prepared in a manner consistent with the Scope of Work, ultimately meeting the requirements of Act 167 and providing a base for future water resource-related planning and implementation efforts.

Anticipated Product
The product will include the information listed above, organized and stored in a user-friendly manner that will facilitate future municipal and county stormwater planning and related efforts. Additionally, a matrix of the data and potential funding sources will be created.

Subtask 2.01.2 Municipal Ordinance Reviews/Evaluations

This task involves the assessment, comparison, and synopsis of existing municipal ordinances. This table will succinctly present a summary of necessary changes to implement the PLAN as required by Act 167. This table and feedback from municipalities that do have stormwater provisions in their ordinances will support the preparation of the Model Ordinances for the PLAN.

Anticipated Product
The product will be a complete matrix of stormwater management ordinance provisions for the municipalities, which identify the status of ordinance provisions as they relate to stormwater management.

Subtask 2.01.3 Data Preparation for Technical Analysis

This task involves the work necessary to prepare and integrate the information collected under Subtask 2.01.1 for use in technical analyses and graphical tasks. Geographic Information Systems (GIS) will be the platform that this subtask is performed in.

The GIS data layers will include:

- **Base Mapping** – Existing base map information (roads, streams, municipal boundaries, text, etc.) will be compiled into a base map. All data will be projected into the coordinate system utilized by Indiana County.
- **Land Use/Land Cover Information** – Existing aerial maps will be utilized to prepare and/or refine existing map data in an appropriate format for hydrologic modeling, where necessary. Recent land developments will be added as needed.
- **Future Land Use Conditions** – Maps of estimated future land use will be developed based on zoning information and the County Comprehensive Plan. The planning horizon used for this task will be 10 years from the development of the PLAN.
- **Soils Information** – NRCS soil data that is available digitally will be utilized. Overlay mapping may be utilized where necessary to prepare the hydrologic soils group information for modeling.
- **Digital Elevation Models** – Existing USGS digital elevation models (DEMs) will be used to obtain elevation and slope information for areas where detailed hydrologic modeling will be necessary.
- **Digital Raster Graphics (DRGs)** – Existing ortho digital USGS topographical maps will be used for further analysis of problem areas where necessary.
- **Geology** – Existing maps and data will be used to extract geologic information pertinent to the hydrologic models where necessary.
- **Obstructions** – Locations and critical attributes of obstructions will be shown on the appropriate base map.
- **Problem Areas, Flood Control Structures, Stormwater Management Facilities** – These items will be located on the appropriate base map and data or attributes will be recorded appropriately.
- **Floodplains** – Available FEMA FIS floodplain data will be displayed with the development in Indiana County.
- **Environmental Characteristics** – Features that produce a significant impact on stormwater runoff, such as open space, will be included on the base map where necessary.

A summary of data sources will be supplied (simplified Metadata) and will include data type (shapefile, raster, hard copy, etc), source, projection, and date of production.

Delineation of Subwatersheds

Watersheds will be delineated on a base map at a scale that results in a manageable map size and adequate detail. When necessary for preparation of the PLAN, subwatersheds and subareas will be delineated in a manner consistent with the guidance associated with the model. The target size of subareas delineated for modeling purposes should be no less than 5 square miles. Exceptions in size will be made where warranted by engineering judgment.

The follow shall guide the delineation of sub-watersheds and sub-areas:

1. Sound engineering judgment and the guidelines associated with the chosen model.
2. The location of identified problems and obstructions related to the purpose of the PLAN.
3. Other points of interest, such water quantity and quality monitoring stations, locations of water quality impairment, or anticipated future flood project sites.

Where stormwater runoff is significantly affected, this task also may include delineation and mapping of:

1. Existing storm sewer systems.
2. Existing Federal, State, and local flood protection and stormwater management facilities.
3. Stormwater facilities proposed for construction within the 10-year planning period.
4. Stormwater related problems, such as areas indicated in municipal survey and/or identified during WPAC, in state water quality assessments, or streams with TMDLs, as being susceptible to flooding problems or as not meeting state water quality standards.

Anticipated Product
The product will be completed GIS watershed data layers and maps.

Subtask 2.01.4 Technical Analysis

The technical analysis entails developing alternative strategies to manage stormwater runoff in development, redevelopment, and other activities that may affect stormwater runoff. This will be accomplished under the following subtasks.

The PLAN will likely utilize DEP's draft Model Ordinance to meet water quality, peak flow, stream stability, and groundwater recharge requirements. If other methods are to be utilized, the PLAN shall provide:

1. A water quality capture volume computational methodology acceptable to DEP to meet State Water Quality Standards pursuant to Chapter 93 regulations;
2. A streambank erosion standard (for example, detain 1 year, 24-hr storm event and discharge over 24-hr to 72-hour period from the end of the storm). This work may involve an analysis of the erodibility of soils in and along streams and their channels within the watersheds;
3. Methodologies for computing stormwater capture volumes for groundwater recharge and infiltration;
4. Methodologies for control of peak runoff rates for the 1-, 2-, 5-, 10-, 25-, 50- and 100-year storm events.

In addition to being applicable for use in post construction stormwater management, methodologies must also be appropriate for retrofit situations. The methodologies need to ensure that stormwater management methods for retrofits, development, and redevelopment are consistent with the purpose of the PLAN.

Subtask 2.01.5 Modeling

This task is not included in the budget for this study. This task involves the evaluation of watershed and/or subwatershed runoff characteristics under current and future conditions. The goal will be to evaluate solutions to existing and anticipated stormwater problems and to meet the purpose of the PLAN. Hydrologic models and other quantitative tools will be used to conduct this analysis. Stormwater quality and peak rate controls will be evaluated for the 1-, 2-, 5-, 10-, 25-, 50- and 100-year 24-hour events. Sub-areas delineated for use in modeling should not be less than 5 square miles in area; however, areas of less than 5 square miles may be used when necessary based on engineering judgment.

Data required for modeling, such as rainfall, will be obtained from the most quality source publically available. Hydrologic models should be calibrated using rain gage records, stream gage records, USGS regression models for Pennsylvania, and anecdotal historical information.

The purposes of the modeling subtask include the creation, assessment, and selection of standards for the regulation of activities (such as development) that affect stormwater runoff for areas where implementation of DEP's draft Model Stormwater Management Ordinance alone may not be sufficient to meet the PURPOSE of the PLAN.

Subtask 2.01.6 Compilation of All Technical Standards

Standards and criteria will be compiled and presented to show:

1. A detailed list of specific standards and criteria for stormwater control;
2. If varying standards and criteria are developed, where within watersheds and sub-watersheds the various requirements apply;
3. A list of applicable stormwater management controls methodologies and associated design procedures;
4. Performance criteria for design of stormwater management facilities;
5. Locations where regional-scale stormwater management facilities will be required;
6. A listing of potential grant and low-cost loan sources for new projects and facilities;
7. An evaluation of what problems will, and what problems will not, be solved by implementation of the PLAN; and
8. Evaluation of existing floodplain ordinances, with suggested modifications where necessary.

Subtask 2.01.7 Implementation of Technical Standards and Criteria

The final standards and criteria will be incorporated into a model stormwater management ordinance that will be included in the PLAN. If necessary, the ordinance requirements will be varied to meet differing provisions or needs, among the watersheds and municipalities in the COUNTY. If necessary, more than one model ordinance may be developed.

Subtask 2.01.8 Conceptual Solutions for Existing Problem Areas, Including Innovative Stormwater Management Designs and/or Best Management Practices

This subtask entails developing a inventory of conceptual solutions for existing problem areas in the County. Over the course of the development of the County's Phase I Plan the WPAC and Project Staff identified the need to introduce innovative stormwater management designs and/or best management practices across the County. Reasons cited included cost effectiveness, sustainability, and context sensitivity. Nationwide, innovative solutions are gaining momentum and credence. This subtask will build on this momentum by including connecting these innovative stormwater management designs and best practices to stormwater management planning in the County.

Anticipated Product

The product will be a graphics based inventory of applicable innovative stormwater management designs and best practices that is linked to existing stormwater problems in the County.

Subtask 2.01.9 Priority Project and Funding Identification

The comprehensive collection, review, and analysis of the stormwater conditions in Indiana County detailed in the previous sections, along with land-use planning considerations will be used to identify and evaluate current and future stormwater projects in the County. Evaluation criteria will be developed to enable the quantitative prioritization of stormwater projects countywide. Additionally, current stormwater project funding agencies and programs will be identified and aligned with this prioritized list of potential stormwater projects.

Anticipated Product

The product will be a quantitative evaluation framework that can be used to prioritize stormwater projects. This framework will be used to prioritize current stormwater project needs along with possible funding agencies and/or programs.

General Task 2.02 Plan Preparation and Adoption

Subtask 2.02.1 Plan Report Preparation

The products of the above tasks will be included in the PLAN. The PLAN will include measures as necessary to meet the purpose of the PLAN. Components of the PLAN shall comply with the requirements of Act 167. For each watershed and sub-watershed, the level of detail should be commensurate with the purposes of the PLAN and the strategies anticipated for managing stormwater runoff in a manner consistent with the PLAN. At a minimum, the PLAN must include or provide reference to (where existing) the following list of items paraphrased from Section 5 of Act 167. In cases where the information is available from existing sources, the PLAN may include the required content either by reference or by copy:

1. A survey of existing runoff characteristics in small as well as large storms, including the impact of soils, slopes, vegetation and existing development;
2. A survey of existing significant obstructions and their capacities that significantly affect stormwater management and flooding within the watershed(s);
3. An assessment of projected and alternative land development patterns in the watershed(s), and the potential impact of runoff quantity, velocity and quality;
4. An analysis of present and projected development in the flood hazard areas, and its sensitivity to damages from future flooding or increased runoff;
5. A survey of existing drainage problems and proposed solutions;
6. A review of existing and proposed stormwater collection systems and their impacts on flooding or stormwater runoff;
7. An assessment of alternative runoff control techniques and their efficiencies in each watershed identified;
8. An identification of existing and proposed State, Federal and local flood control projects located in the watersheds and their design capacities;
9. A designation of those areas to be served by stormwater 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;
10. An identification of flood plains and flood hazard areas within the watersheds;
11. Criteria and standards for the control of stormwater runoff from existing and new development which are necessary to minimize dangers to property and life and carry out the purposes of the Act;
12. Priorities for implementation of action within each watershed identified;
13. Provisions for periodically reviewing, revising and updating the PLAN;
14. Provisions as are reasonably necessary to manage stormwater 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; and
15. Consider and be consistent with other existing municipal, county, regional and State environmental and land use plans.

In addition, the PLAN will identify what stormwater-related issues will not be solved by the implementation of the PLAN.

Recommended Outline
The recommended outline for the PLAN is as follows:

Volume I

1. Introduction
2. Watershed Level Stormwater Management Planning and Implementation
3. Indiana County Description
    a. Watershed Characteristics
    b. Present Land Use
    c. Projected Land Developments & Projected Land Use
    d. Problems and Obstructions
4. Technical Analysis (Narrative)
    a. Quality and Quantity of Present and Future Stormwater Runoff
5. Results of Analysis
    a. Interpretation and Evaluation of Analysis
    b. Technical Standards and Criteria for Control of Stormwater Runoff
    c. Analysis of Existing Municipal Ordinances
6. Runoff Control Strategies
7. Review and Update Procedures for the PLAN
8. Priorities and Next Steps
    a. An analysis of what stormwater-related issues will not be solved by the implementation of the PLAN
    b. Priorities beyond PLAN

Volume II
1. Model Ordinance

Maps
1. Base Map (watersheds, political boundaries, etc)
2. Existing Land Use
3. Future Land Use
4. Hydrologic soil groups and floodplains
5. Development
6. Obstructions, problem areas, and areas prone to flooding
7. Storm sewers and outfalls
8. Watershed subareas delineated for modeling purposes

Tables
1. Watershed and subwatershed Runoff characteristics
2. Rainfall values for various frequency durations
3. Management strategy information, by subarea

VOLUME III, Appendices
The following data will be included in Volume III:
1. Recommended design for storms and significant obstructions;

2. Information regarding significant stormwater obstructions including their locations, sizes, and any related useful information;
3. Any special information concerning stormwater control facilities, BMPs, and other issues;
4. Background hydrologic data.

Anticipated Product
The final product will be the adopted and approved COUNTY Stormwater Management PLAN. The report and all supporting data will be submitted to DEP by the COUNTY in hard copy and in digital format.

Subtask 2.02.2 Model Ordinance Preparation and Enforcement Model Development

A Model Ordinance that includes the provisions and standards developed during Phase II will be created consistent with the DEPARTMENT's Model Stormwater Management Ordinance. The WPAC will make a determination on whether drainage and construction standards will be included. Further, specific attention will be given to aligning enforcement model/framework with existing municipal capacity and recommendations regarding possible fee schedules will also be included in the PLAN.

Anticipated Product
The product will be the final Model Ordinance. The Model Ordinance will be prepared in both digital and paper formats.

Subtask 2.02.3 Plan Adoption and Submission to DEP

Prior to the COUNTY's public hearing, the COUNTY will provide an electronic copy of the PLAN to each member of the WPAC as well as the DEP. The COUNTY will provide DEP with two hard copies of the PLAN. Review will be conducted by the WPAC members, municipalities, and the DEPARTMENT; review comments will be accepted for a 90 day period. The COUNTY will document and provide a response to each comment. After consideration of the comments and responses, the COUNTY will revise the PLAN as needed.

The COUNTY will then hold a WPAC meeting to present the final version of the PLAN.

A public hearing will be held; the notice will be published at least two weeks prior to the hearing date. Information included in the notice will include, but will not be limited to, a brief summary of the principal content and requirements of the PLAN and a listing of where a copy of the PLAN can be reviewed and/or obtained. The COUNTY will document and review the comments received at the public hearing and modify the plan where necessary. Specific attention will be given to public comment requirements identified in the most recent version of the PA Municipalities Planning Code (MPC)

The COUNTY Board of Commissioners will vote on the PLAN as a resolution, for the purpose of adoption. The resolution needs to be carried by an affirmative vote of at least a majority of the members of the governing body, and must refer expressly to the maps, charts, textual matter and other materials that constitute the Plan. This action will be recorded on the adopted PLAN.

After adoption, the COUNTY will submit to DEP the following:

- Letter of transmittal,
- Two paper copies,
- One electronic media copy of the adopted PLAN,
- Comments received from the official planning agency and governing body of each municipality,
- Comments from the County Planning Commission,
- Comments from regional planning agencies (Section 6(c) of Act 167),

- Responses-to-comments document prepared by the COUNTY,
- Public hearing notice and minutes of the public hearing (Section 8(a) of Act 167), and
- Resolution of adoption of the PLAN by the COUNTY (Section 8(b) of Act 167).

The letter of transmittal will state that the COUNTY has complied with all requirements of Act 167 and it will request official approval of the adopted PLAN. Once approved by DEP, the final PLAN will be made available electronically through the COUNTY and Conservation District websites. Hard copies will be made available as well.

The final PLAN will be provided to DEP in hard copy and digital format. The final electronic copy will include all supporting data. The COUNTY will retain backup material such as technical analyses in hard copy format.

Anticipated Product
The product of this task will include the official documentation regarding PLAN adoption and implementation process, including the necessary documentation from the COUNTY certifying the adoption of the PLAN, and the actual adopted PLAN.

Major Work Element 3 Public & Municipal Participation

The following information describes the various activities that will be conducted by the COUNTY to facilitate public and municipal participation in the preparation and implementation of the PLAN. These activities include meetings of the WPAC, the public hearing conducted by the COUNTY, the municipal workshops, public outreach, and educational materials for both the public and municipal officials. The relative timing and purpose of these activities are summarized in Table 1.

The COUNTY will continue to conduct outreach and provide educational materials regarding the PLAN, innovative stormwater management, and best management practices (BMPs).

General Task 3.01 Plan Advisory Committee, Public Participation, and Implementation Workshops

Subtask 3.01.1 Watershed Plan Advisory Committee (WPAC)

As established during Phase 1, WPAC meetings will continue in order to allow a forum for valuable feedback from stakeholders regarding plan content, implementation, and outreach. Members will include municipal officials, the Conservation District, watershed and environmental groups, and other key stakeholder groups.

The COUNTY will conduct WPAC meetings to provide information on the Phase II planning process and to gather data and advice from the members of the WPAC to ensure that the PLAN is consistent with the purpose of the PLAN and the needs of the municipalities and the COUNTY.

Subtask 3.01.2 Educational Materials

Educational materials regarding the PLAN, stormwater BMPs, green stormwater infrastructure, and more will be created. These items will be made available in electronic format on the COUNTY website and social media. Materials may also be in hard copy form at various related events.

Subtask 3.01.3 Municipal Implementation & Funding Workshop/s

With an understanding of the fiscal and capacity challenges that many municipalities face, the COUNTY began municipal education and discussion of ordinance implementation and funding during the second WPAC meeting of the Phase 1 (Scope of Study) process. Coming away from these meetings, Project Staff researched and met with similar counties with Act 167 Plans to identify opportunities and challenges connected to implementation and enforcement. Building on this, following the adoption of the PLAN, the COUNTY will hold workshop/s for Indiana County and other nearby municipalities to provide information regarding local implementation and enforcement of the Model Stormwater ordinance, possible funding strategies for priority projects, and the larger PLAN. Topics also covered in the workshop will include modification and administration of the ordinance as well as responsibilities, beyond the ordinance, associated with the PLAN. Regional and County-wide models for ordinance enforcement will be presented and discussed. Funding agencies and program will be introduced and contact information shared.

The COUNTY will conduct at least one municipal implementation workshop within three months following DEP's approval of the PLAN.

Subtask 3.01.4 Public Education Workshop/s

The COUNTY will conduct educational workshops for the public on topics including the PLAN, stormwater management, and BMPs. Workshop/s will be similar to the event conducted by the Indiana County League of Women Voters in March of 2015. The purpose and design of these public education events will revolve around creating awareness of stormwater, best management practices, and resources. Also covered will be goals and benefits of the PLAN and responsibilities and methods for residents to meet the PLANs requirements.

APPENDIX D -
PROPOSED PHASE II SCHEDULE

APPENDIX D

PROPOSED PHASE II SCHEDULE

Proposed Phase II Schedule

Key Phase II Milestones	Estimated Completion Date
Execute PADEP/Indiana County Phase II Agreement	Unknown Start Date
Finalize Phase II Workplan	0 – 2 Months
Identify and Appoint additional WPAC members	0 – 2 Months
WPAC Meeting 1	3 – 4 Months
Collection of Data outlined in Subtask 2.01.1	4 – 8 Months
Assessment and Analysis of Problem Areas	3 – 6 months
Problem Area Field Visits	5 – 8 Months
Stormwater Management ordinance matrix	6 – 10 Months
GIS Base Layers Development and Mapping (see Subtask 2.01.3)	4 – 10 Months
Inventory of Innovative Stormwater Management Practices	10 -12 Months
WPAC Meeting 2	10 -12 Months
Draft Stormwater Management Model Ordinance	13 - 14
Draft Phase II Plan	14 – 16 Months
WPAC Meeting 3	16 -18 Months
Finalize Phase II Report, Model Ordinance, and Exhibits	18 – 23 Months
Public Comment / Hearing	24 – 28 Months
Planning Commission Approval / County Commissioner Adoption	28 -30 Months
Municipal Implementation & Funding Workshop / Public Education Workshop	30 -36 Months
PADEP / Indiana County Agreement Deadline	36 Months

APPENDIX E -
PA DEP LETTER OF INTENT

Indiana County
Office of Planning & Development

EXECUTIVE DIRECTOR

Byron G. Stauffer, Jr.

ASSISTANT DIRECTOR

George R. Urban

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Indiana, Pennsylvania 15701-1705

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COUNTY COMMISSIONERS

Rodney D. Ruddock, Chairman

Michael A. Baker

Patricia A. Evanko

April 1, 2014

Rita A. Coleman, Program Manager
Pennsylvania Department of Environmental Protection
Southwest Regional Office
Waterways and Wetlands Program
400 Waterfront Drive
Pittsburgh, PA 15222-4745

Re: Indiana County Act 167 Stormwater Management Planning – Phase 1

Dear Ms. Coleman:

This letter has been prepared to notify the Pennsylvania Department of Environmental Protection (DEP) that the Indiana County Commissioners, acting through the Indiana County Office of Planning & Development is beginning the Act 167 Stormwater Management, Phase 1 planning process.

The Indiana County Office of Planning & Development is working in cooperation with the Southwestern Pennsylvania Commission, Water Resource Center to complete the Phase 1 Stormwater Management Plan.

It is our intention to work closely with DEP to ensure that the Phase 1 Stormwater Plan is completed in a timely manner and consistent with the established Phase I Guidance. With this in mind, we would like to schedule a meeting or a conference call in the near future to discuss the details of the Phase I Plan submittal and review process upon completion.

We look forward to working with you on this project in the coming months. We will be contacting you in the near future to schedule a time that is convent for you to discuss the completion of the plan.

Thank you in advance for your consideration of this request, and please do not hesitate to contact me if you have any questions or require additional information. I may be reached at 724-465-3870 x3161 or via e-mail at byronjr@ceo.co.indiana.pa.us.

Sincerely,

Byron G. Stauffer, Jr.
Executive Director

Cc: Rodney D. Ruddock, George Urban, Erin Kepple, Jeff Raykes