

**COUNTY-WIDE ACT 167
STORMWATER MANAGEMENT
PLAN ADDENDUM**

to

Watersheds
**An Integrated Water Resources Plan for
Chester County, PA and Its Watersheds**

March 27, 2013

Adopted March 27, 2013
Chester County Board of Commissioners
Ryan Costello
Kathi Cozzone
Terence Farrell

Approved July 2, 2013
Pennsylvania Department of Environmental Protection
Harrisburg, PA

**COUNTY-WIDE ACT 167
STORMWATER MANAGEMENT
PLAN ADDENDUM**

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Watersheds
**An Integrated Water Resources Plan for
Chester County, PA and Its Watersheds**

**A Functional Element of
LANDSCAPES2
Chester County Comprehensive Policy Plan**

prepared for:

Chester County Board of Commissioners
Ryan Costello
Kathi Cozzone
Terence Farrell

prepared by:

Chester County Water Resources Authority
Chester County Planning Commission
Chester County Conservation District

March 27, 2013

RESOLUTION No. 08-13

Resolution of the Chester County Board of Commissioners adopting the “*County-wide Act 167 Stormwater Management Plan for Chester County, Pennsylvania*” (“*Plan*”) in accordance with Act 167; and amending “*Watersheds, An Integrated Water Resources Plan for Chester County, PA and Its Watersheds*” (“*Watersheds*”) and “*Landscapes2*” to incorporate the “*County-wide Act 167 Stormwater Management Plan Addendum to Watersheds, An Integrated Water Resources Plan for Chester County, PA and Its Watersheds*” (“*Addendum*”) in accordance with Act 247.

WHEREAS, “*Landscapes2*” is the Chester County comprehensive policy plan that was previously adopted by the Chester County Board of Commissioners in accordance with Act 247; and

WHEREAS, “*Watersheds*” is the water resources functional element of “*Landscapes2*” that was previously adopted by the Chester County Board of Commissioners in accordance with Act 247; and

WHEREAS, “*Watersheds*” and “*Landscapes2*” recognize the need to reduce stormwater runoff and flooding in Chester County’s watersheds, and encourage implementation of municipal stormwater management criteria, plans, and regulations, among the other policies set out to protect and restore water quality and reduce runoff and flooding; and

WHEREAS, the Pennsylvania Stormwater Management Act (“Act 167”) of 1978 requires that each county prepare and adopt a watershed stormwater management plan for each designated watershed and provides for the regulation of land and water use for flood control and stormwater management; and

WHEREAS, Chester County has prepared the “*Plan*” to fulfill the requirements of the Act 167, including to set forth design criteria and standards for stormwater management systems and facilities that shall be utilized within Chester County and its watersheds; and

WHEREAS, the purpose of the “*Plan*” is to protect public health, safety, and property, to protect water quality of the waters of the Commonwealth, and to prevent or mitigate the adverse impacts related to the conveyance of excessive rates and volumes of stormwater runoff and associated pollutants by providing for the management of stormwater runoff and control of erosion and sedimentation; and

WHEREAS, the “*Plan*” is comprised of “*Watersheds*” and the “*Addendum*”; and

WHEREAS, the importance of the implementation of the "Plan" to Chester County and its municipalities warrants its further incorporation into "Watersheds" and "Landscapes2" as County policy.

NOW, THEREFORE, BE IT RESOLVED that on the 27 day of March, 2013, in accordance with the Pennsylvania Stormwater Management Act ("Act 167"), the Chester County Board of Commissioners hereby adopts the "County-wide Act 167 Stormwater Management Plan for Chester County, Pennsylvania", including all volumes, figures, maps, charts, textual matters, and appendices and, further, directs that the Chester County Water Resources Authority submit this "Plan" to the Pennsylvania Department of Environmental Protection for its approval as required by Act 167; and

FURTHER, BE IT RESOLVED that in accordance with the Pennsylvania Municipalities Planning Code (Act 247), the Chester County Board of Commissioners hereby amends "Watersheds, An Integrated Water Resources Plan for Chester County, PA and Its Watersheds" and "Landscapes2", the Chester County comprehensive policy plan, to incorporate the "County-wide Act 167 Stormwater Management Plan Addendum to Watersheds, An Integrated Water Resources Plan for Chester County, PA and Its Watersheds" in its entirety, including all volumes, figures, maps, charts, textual matter, appendices, and other matters intended to form.

CHESTER COUNTY BOARD OF COMMISSIONERS

Attest:

Janice Swab
Chief Clerk

3.27.13
Date

Ryan Costello
Ryan Costello, Chair

Kathi Cozzone
Kathi Cozzone, Commissioner

Terence Farrell
Terence Farrell, Commissioner

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ACKNOWLEDGEMENTS

The County of Chester and the Chester County Water Resources Authority gratefully acknowledge all of the *Chester County municipalities and their representatives* and the *representatives of numerous stakeholder organizations*, and the *staff of the Pennsylvania Department of Environmental Protection* for their participation in the Watershed Plan Advisory Committee (WPAC) and for their contribution and valuable input in the development of this *County-wide Act 167 Stormwater Management Plan for Chester County, PA*. In addition, the County of Chester and the Chester County Water Resources Authority wish to acknowledge and thank the individuals listed below for contributing their professional support and technical assistance in the development of this *County-wide Act 167 Plan for Chester County, PA*:

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Chester County Water Resources Authority wishes to thank the Chester County Planning Commission and the Chester County Conservation District for their extensive staff support and collaboration to all aspects of the planning process.

Part 1. Purpose and Legislative Authority

The purpose of this *County-wide Act 167 Stormwater Management Plan Addendum* is to update ***Watersheds – An Integrated Water Resources Plan for Chester County, PA and Its Watersheds*** (***Watersheds*** Plan) to serve as the County-wide Act 167 Stormwater Management Plan for Chester County, PA. This *Addendum* has been adopted by the Chester County Board of Commissioners as an amendment to the ***Watersheds*** Plan and an amendment to ***Landscapes2*** – the Comprehensive Policy Plan for Chester County, PA. This *Addendum* and the ***Watersheds*** Plan together have been adopted by the Chester County Board of Commissioners as the County-wide Act 167 Plan for Chester County, PA.

The purpose of the County-wide Act 167 Plan for Chester County is to fulfill the requirements of the Act of October 4, 1978, 32 P.S., P.L. 864 (Act 167) Section 680.1 et seq., as amended, “The Storm Water Management Act,” (PA Act 167) and to reduce stormwater runoff and flooding, and improve water quality in all watersheds of Chester County. The Purpose of Policy statement of Section 3 of PA Act 167 states:

- *“Encourage planning and management of stormwater runoff in each watershed which is consistent with sound water and land use practices;*
- *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 course, current and cross-section of waters of the Commonwealth; and to protect and conserve groundwater and groundwater recharge areas;*
- *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 the preservation of natural, economic, scenic, aesthetic, recreational, and historic values of the environment.”*

The Pennsylvania Municipalities Planning Code (MPC or PA Act 247) authorizes Pennsylvania’s counties, cities, boroughs, and townships to prepare comprehensive plans for community development, zoning ordinances, subdivision and land development ordinances, and accompanying regulations. PA Act 247 enables municipalities to create plans and regulations that include provisions for drainage and stormwater management; however, it does not mandate the nature or extent of controls that are to be implemented by the municipalities. Furthermore, under PA Act 247, there is no obligation for local governments to consider the effects of runoff beyond their boundaries in the development of their stormwater management regulations.

PA Act 167 provides for the regulation of land and water use for flood control and stormwater management purposes. It imposes duties on and confers powers to the Pennsylvania Department of Environmental Protection (PADEP), municipalities and counties, and provides for the enforcement and appropriations for items related to stormwater management planning. In watersheds with approved PA Act 167 plans, any individuals or entities involved with altering the stormwater runoff characteristics from the land within the watershed are required to implement measures to manage the quantity, velocity and direction of stormwater runoff in a manner that adequately protects the health of the public and property from possible damage.

PA Act 167 requires counties to prepare and adopt stormwater management plans for each watershed located in the county. Most importantly, these plans are to be prepared in consultation with municipalities and stakeholders, working through a Watershed Plan Advisory Committee (WPAC). The plans are to provide for consistent technical standards and criteria throughout a watershed for management of

stormwater runoff from regulated development. Municipalities must implement the PA Act 167 plan through the adoption of a stormwater ordinance (or adoption of equivalent stormwater standards) as developed as part of the plan.

The County-wide Act 167 Stormwater Management Plan for Chester County, PA fulfills the requirements of PA Act 167. Further, it provides information to assist municipalities with stormwater planning and management, provides municipalities with stormwater standards and a Model Ordinance, and assists municipalities with meeting certain National Pollutant Discharge Elimination System (NPDES) Phase II small municipal separate storm sewer system (MS4) requirements related to ordinance standards. In order to effectively preserve and restore existing water resources within the County's watersheds, while facilitating sound development and redevelopment, this Plan presents an integrated strategy of stormwater best management practices (BMPs) and site design considerations to effectively manage stormwater runoff, control flooding, reduce streambank erosion and sedimentation, promote groundwater recharge, and maintain or improve the water quality of receiving streams.

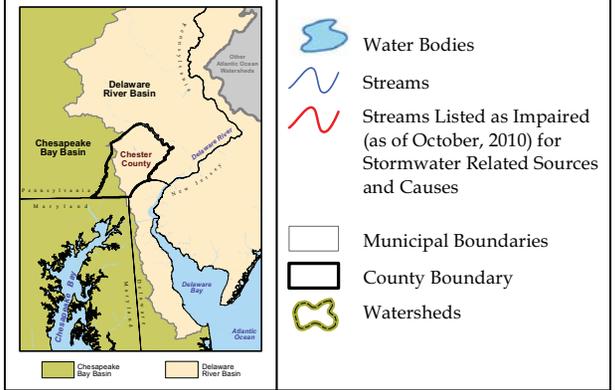
Part 2. Overview

Based on geospatial data sets available to Chester County Water Resources Authority (CCWRA), the following summarizes stormwater and flooding related conditions within Chester County and its watersheds:

- There are 2,348 miles of streams in Chester County, including -
 - 469 stream miles (20%) listed by PADEP as impaired by one or more stormwater runoff pollutants (see Figure 1);
 - 325 square miles (42%) of Chester County land area drain to those stormwater-impaired streams;
 - The stormwater impairments referenced above include nutrients, siltation, turbidity, suspended sediments, pathogens, other habitat alterations, water/flow variability, and “cause unknown”; and “industrial point source” and “municipal point source” sources were excluded;
- There are 397 square miles (51%) of Chester County included in watersheds that have established stormwater TMDLs requiring mandatory implementation (see Figure 1), including -
 - Chesapeake Bay TMDLs (sediment, nitrogen and phosphorus);
 - Goose Creek TMDL (phosphorus);
 - Christina Basin TMDLs (sediment, nitrogen and phosphorus);
- There are 357 square miles (47%) of Chester County included in watersheds designated as Exceptional Value (EV) or High Quality (HQ) watersheds (see Figure 2);
- There are 655 square miles (84%) of Chester County that are within watersheds that are source waters to public water supplies;
- There are 58 of the County's 73 municipalities (79%) currently required to comply with small Municipal Separate Storm Sewer (MS4) regulations (see Figure 3); this number is expected to increase in 2013 due to expansion of the Urbanized Area;
- Currently, 265 square miles (34 %) of Chester County's land area is included within the Urbanized Area (see Figure 3) in which stormwater discharges from MS4s must meet regulatory standards, and this area is expected to increase to 352 square miles (45%) in 2013;
- There are over 256 known point locations of flood problems within Chester County (see Figure 4); and

Figure 1. Impaired (Stormwater) Streams and Areas with Stormwater TMDLs, Chester County, PA

Chester County Water Resources Authority - September 26, 2012



The Pennsylvania Department of Environmental Protection (PADEP) has an ongoing program to assess the quality of waters in Pennsylvania and identify streams and other bodies of water that do not meet water quality standards as "impaired." Water quality standards are comprised of the uses (including antidegradation) that waters can support and goals established to protect those uses. Uses include aquatic life, fish consumption, potable water supply, and recreation. The goals are numerical or narrative water quality criteria that express the in-stream levels that must be achieved to support the uses. Periodic reports on the quality of waters in the Commonwealth are required under section 305(b) of the federal Clean Water Act.

Section 303(d) of the Clean Water Act requires states to list all impaired waters not supporting uses even after appropriate and required water pollution control technologies have been applied.

Since 2004, PADEP has adopted an integrated format for Clean Water Act Section 305(b) reporting and section 303(d) listing. The 2010 report, "2010 Pennsylvania Integrated Water Quality Monitoring and Assessment Report", can be found at the PADEP website:

http://www.portal.state.pa.us/portal/server.pt/community/water_quality_standards/10596/integrated_water_quality_report_-_2010/682562

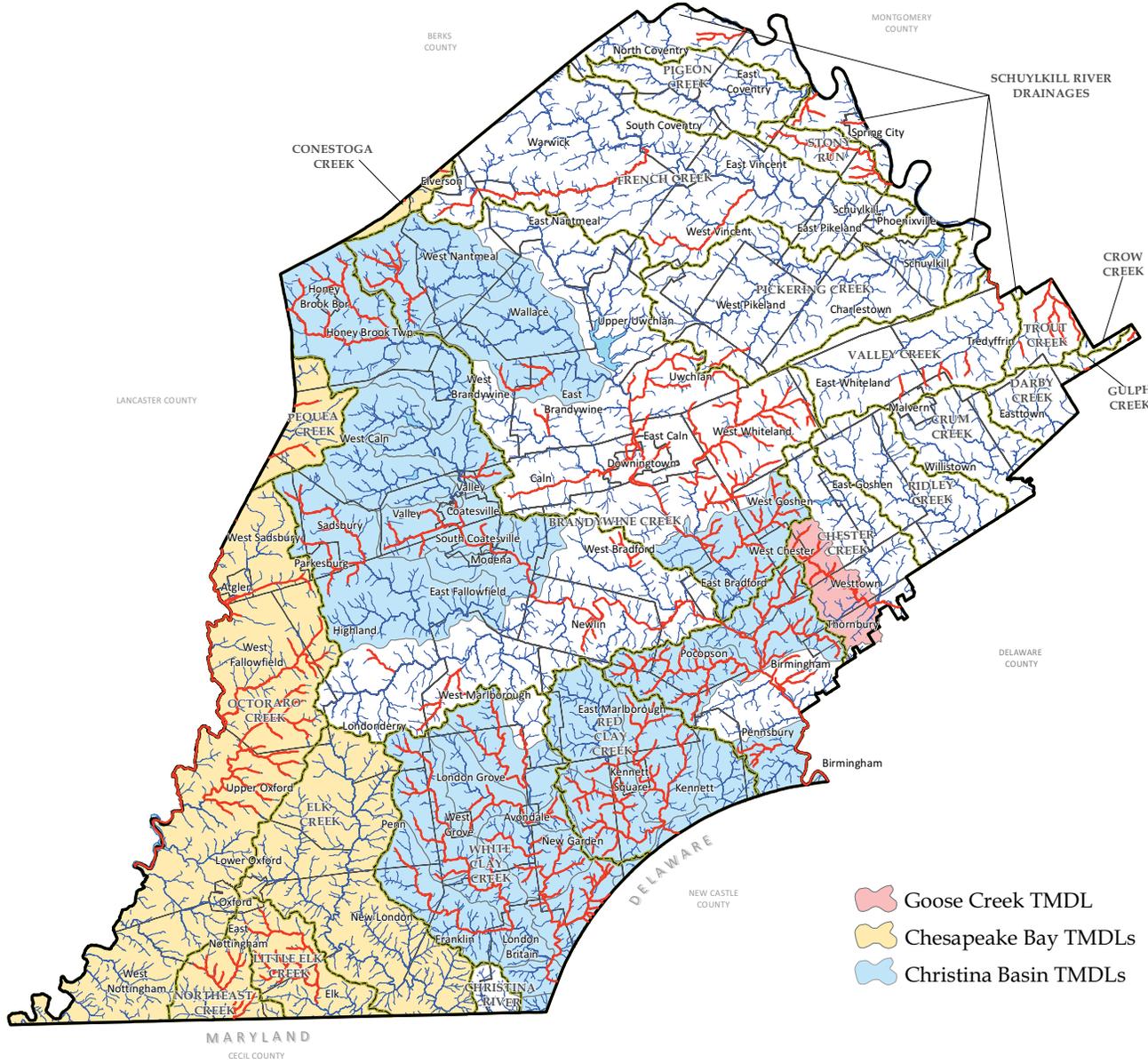


DATA SOURCES: Impaired Streams - "Integrated List Non-Attaining", Pennsylvania Spatial Data Access (PASDA) Data for Pennsylvania Department of Environmental Protection, October, 2010
Administrative Boundaries, Watersheds, Streams and Waterbodies - Chester County

DISCLAIMER: This map was generated using the best information available at the time of publication. This map should not be relied upon as the sole basis of determination of regulatory requirements or responsibilities. The relevant PADEP reports and other documents should be consulted for official designations and associated regulatory information. Should any conflicts exist between this map and the PADEP reports and regulations, the latter supersede this map.

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- Goose Creek TMDL
- Chesapeake Bay TMDLs
- Christina Basin TMDLs

Figure 2. Water Protected Use Designations For Streams in Chester County, PA

Chester County Water Resources Authority - February 10, 2011

Pennsylvania Code Title 25, Chapter 93 Water Quality Standards

Water quality criteria are used to protect designated water uses, such as fish and aquatic life, recreation, and water supply. Designated uses establish the reason for protection and the water quality criteria define the criteria required to protect that benchmark. Use designations and water quality criteria together, constitute Pennsylvania Water Quality Standards as defined in Title 25 Environmental Protection, Department of Environmental Protection, Chapter 93.

These GIS data (which are not part of the Water Quality Standards) are offered to provide a spatial representation of the Aquatic Life Use Tiers (Exceptional Value and High Quality) contained in the portion of the Pennsylvania Code referenced above. These spatial representations are intended to supplement the Water Quality Standards but should not be substituted for the official version of the standards found in the Pennsylvania Code.

Stream Use Designations for this map apply to the waterways shown. When there is one designation in a sub-watershed, that designation applies to the entire sub-watershed. If there are multiple designations, the designation with a superscript (1) applies to the mainstem and land areas that drain directly to the mainstem. Other designations apply to the tributaries and their drainage basins.

Special Protection Waters

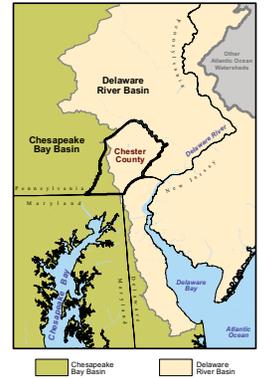
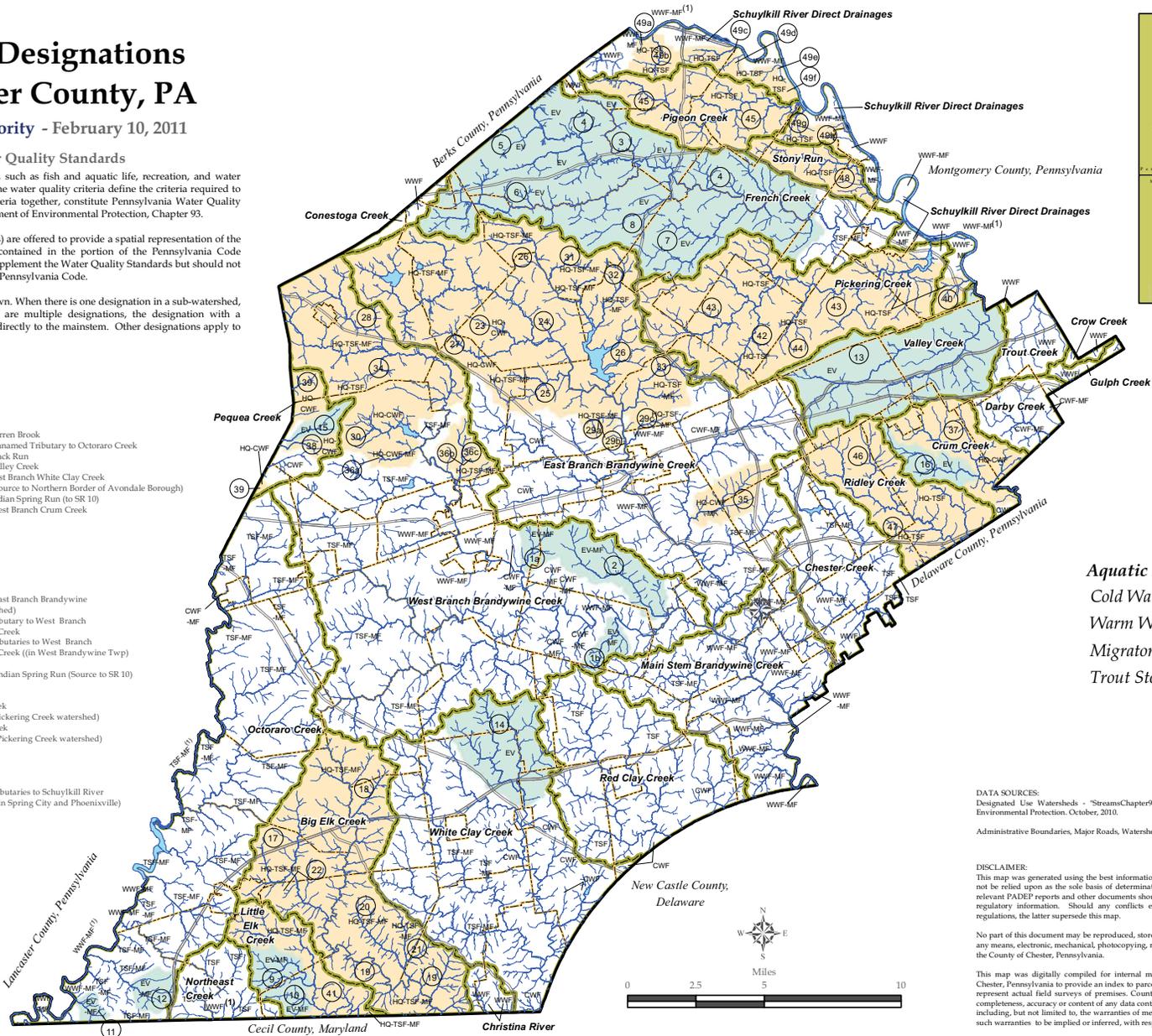
Exceptional Value Waters (EV)

- | | | | |
|-------|--|----|---|
| 1 a-b | - Unnamed Tributary to West Branch Brandywine Creek | 10 | - Barren Brook |
| 2 | - Broad Run (West Branch Brandywine Creek watershed) | 11 | - Unnamed Tributary to Octoraro Creek |
| 3 | - Rock Run (French Creek watershed) | 12 | - Black Run |
| 4 | - French Creek | 13 | - Valley Creek |
| 5 | - Pine Creek (French Creek watershed) | 14 | - East Branch White Clay Creek
(Source to Northern Border of Avondale Borough) |
| 6 | - South Branch French Creek | 15 | - Birch Run (French Creek watershed) |
| 7 | - Birch Run (French Creek watershed) | 16 | - West Branch Crum Creek |
| 8 | - Beaver Run (French Creek watershed) | | |
| 9 | - Jordan Run | | |

High Quality Waters (HQ)

- | | | | |
|--------|---|--------|--|
| 17 | - West Branch Big Elk Creek | 35 | - Broad Run (East Branch Brandywine Creek watershed) |
| 18 | - East Branch Big Elk Creek | 36 a-c | - Unnamed Tributary to West Branch Brandywine Creek |
| 19 | - Big Elk Creek | 36 b-c | - Unnamed Tributaries to West Branch Brandywine Creek ((in West Brandywine Twp) |
| 20 | - Hodgson Run | 37 | - Crum Creek |
| 21 | - Ways Run | 38 | - Tributary to Indian Spring Run (Source to SR 10) |
| 22 | - McDonald Run | 39 | - Pequea Creek |
| 23 | - North Branch Indian Run | 40 | - Jug Hollow |
| 24 | - East Branch Brandywine Creek | 41 | - Little Elk Creek |
| 25 | - Culbertson Run | 42 | - Pine Creek (Pickering Creek watershed) |
| 26 | - Marsh Creek | 43 | - Pickering Creek |
| 27 | - Indian Run | 44 | - Unnamed Tributaries to East Branch Brandywine Creek (in East Brandywine Twp) |
| 28 | - West Branch Brandywine Creek | 45 | - Ridley Creek |
| 29 a-b | - Unnamed Tributaries to East Branch Brandywine Creek (in Uwhchtan Twp) | 46 | - Hunters Run |
| 29 c | - Unnamed Tributaries to East Branch Brandywine Creek (in Uwhchtan Twp) | 48 | - Stony Run |
| 30 | - Birch Run (Brandywine Creek watershed) | 49 a-h | - Unnamed Tributaries to Schuylkill River (except those in Spring City and Phoenixville) |
| 31 | - Lyons Run | | |
| 32 | - Black Horse Creek | | |
| 33 | - Shamona Creek | | |
| 34 | - Two Log Run | | |

- Water Bodies
- Streams
- Municipal Boundaries
- County Boundary
- Watersheds
- Major Roads



Aquatic Life Designations
Cold Water Fishes (CWF)
Warm Water Fishes (WWF)
Migratory Fishes (MF)
Trout Stocking (TSF)

DATA SOURCES:
Designated Use Watersheds - "StreamsChapter93DesignatedUse201010", Pennsylvania Department of Environmental Protection, October, 2010.

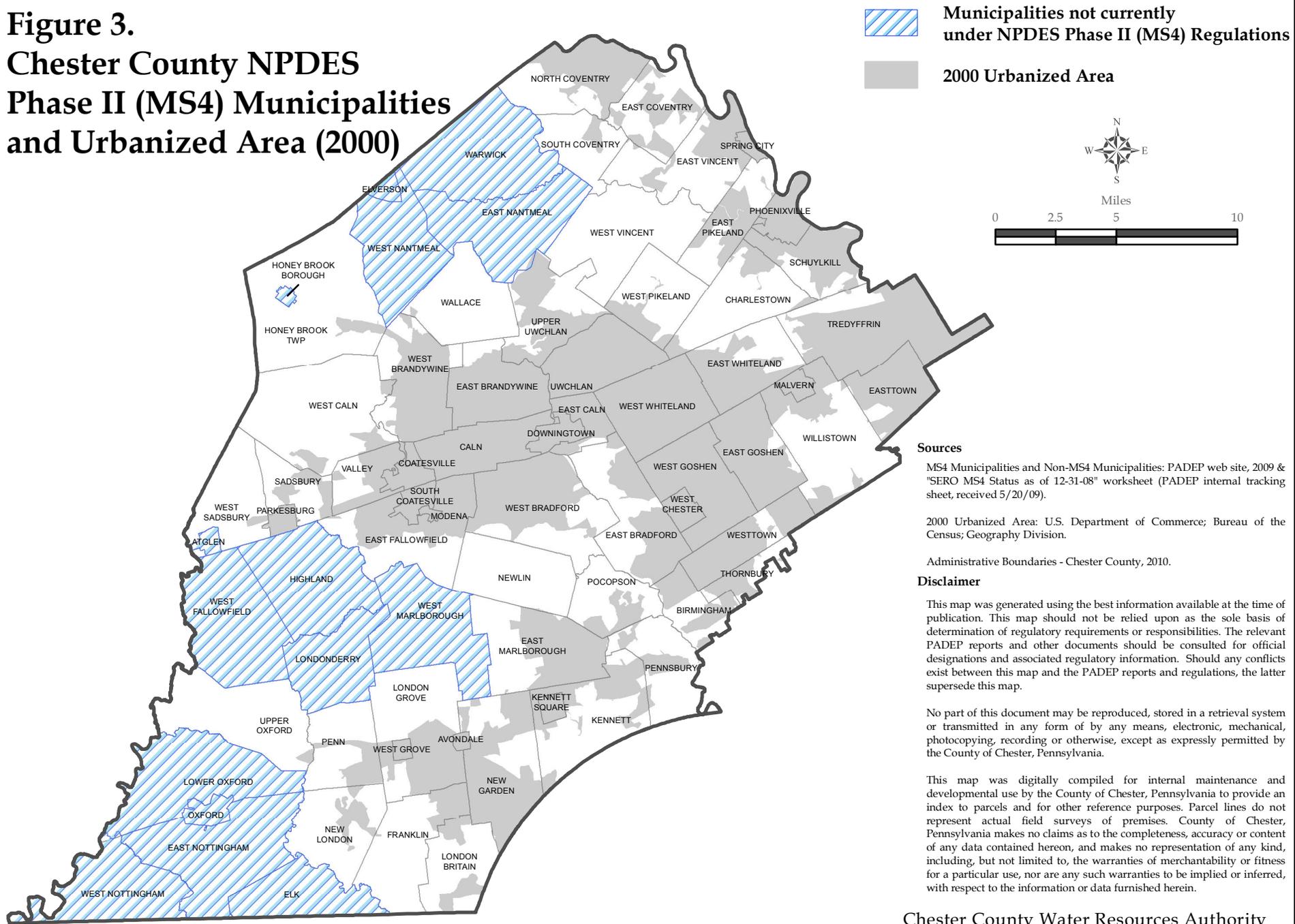
Administrative Boundaries, Major Roads, Watersheds, Streams and Waterbodies - Chester County

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**Figure 3.
Chester County NPDES
Phase II (MS4) Municipalities
and Urbanized Area (2000)**



Sources

MS4 Municipalities and Non-MS4 Municipalities: PADEP web site, 2009 & "SERO MS4 Status as of 12-31-08" worksheet (PADEP internal tracking sheet, received 5/20/09).

2000 Urbanized Area: U.S. Department of Commerce; Bureau of the Census; Geography Division.

Administrative Boundaries - Chester County, 2010.

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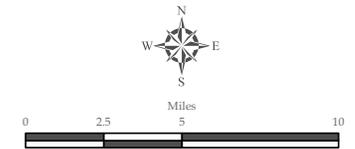
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Chester County Water Resources Authority
August 1, 2012

Figure 4. County-wide Inventory of Flooding Problems

Chester County Water Resources Authority
September 26, 2012

- Observed Flooding Locations
 - ▭ Municipalities
 - ▣ County Boundary
 - ~ Streams
 - ☪ Water Bodies
 - ⬭ Watersheds
- Major Roads:**
- Interstates
 - PA State Roads
 - US Routes



Data Sources:

Water Bodies, Streams, Administrative Boundaries, Watersheds, Roads - Chester County, 2010.

Flooding Locations - Chester County Water Resources Authority, 2012

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- Cumulatively, 675 square miles (86%) of Chester County drain to either a stormwater-impaired stream, an EV or HQ water body, and/or have stormwater TMDLs established with mandatory implementation.

The widespread presence of these stormwater and flood management needs within Chester County presents compelling justification for addressing stormwater management on a county-wide basis. Further, addressing runoff problems and management needs across the County through a county-wide plan approach provides greater consistency of management practices and requirements throughout each of the County's watersheds.

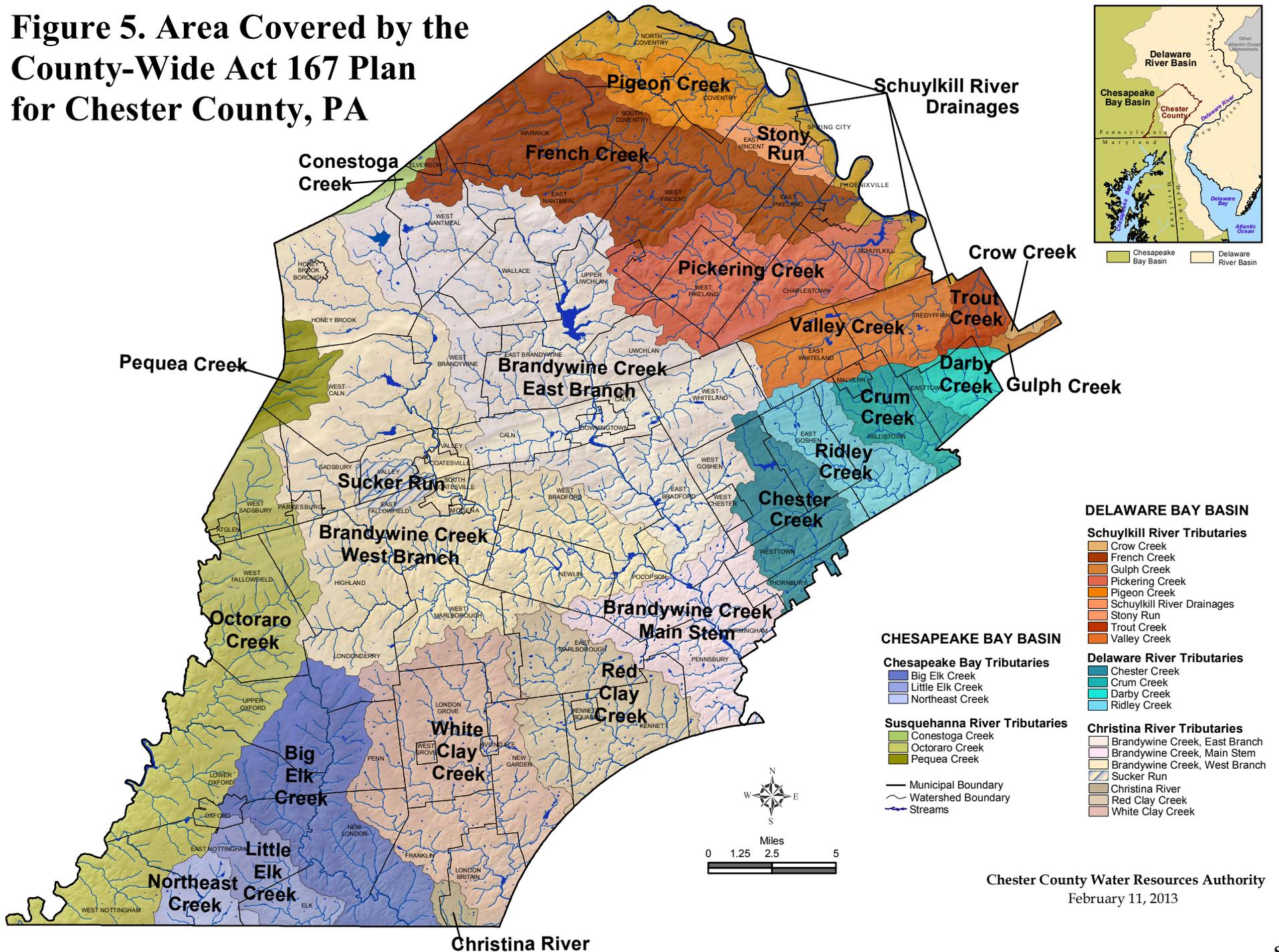
This County-wide Act 167 Plan covers the entire land area and all watersheds and portions of watersheds that are located within the political boundaries of the County of Chester (see Figure 5). The County-wide Act 167 Plan for Chester County, PA consists of ***Watersheds - An Integrated Water Resources Plan for Chester County, Pennsylvania and Its Watersheds*** (as adopted and published 2002) and this Addendum. The following documents were previously published and provide supporting information for the ***Watersheds*** Plan:

- ***Watersheds*** “Executive Summary” (2002);
- “Chester County, Pennsylvania Water Resources Compendium” (2001);
- Watershed Action Plans (2002) for Brandywine Creek, Chester Creek, Crum Creek, Darby Creek, Elk Creek, French Creek, Octoraro Creek, Pickering Creek, Pigeon Creek, Red Clay Creek, Ridley Creek, Stony Run, Trout Creek, (East) Valley Creek, and White Clay Creek watersheds; and
- “Reducing Stormwater and Flooding – 10 Principles of Effective Stormwater Management” (2004).

The *County-wide Act 167 Plan for Chester County – Phase I Report* (2010) was completed by Chester County and approved by the Pennsylvania Department of Environmental Protection in 2010. The *Phase I Report* documents that all of the technical requirements of PA Act 167 are fulfilled by the ***Watersheds*** Plan, and identifies the following items are needed to complete the County-wide Act 167 Plan for Chester County (*Phase I Report*, page 31):

- Purpose;
- Overview of County-wide Act 167 Plan;
- Watershed Plan Advisory Committee (WPAC) members and summary of activities;
- Minimum stormwater management provisions (Matrix of Standards);
- Revised Model Ordinance;
- Applicability to (or standards for) State-funded projects;
- Christina Basin Implementation Plan (C-TIP);
- Provisions for Adoption, Implementation and Update;
- WPAC final review comments;
- Public Hearing Announcement;
- Summary of Public Hearing;
- Resolution of Adoption by the Chester County Board of Commissioners;
- Eligible costs for reimbursement for preparation of the Watersheds Plan; and
- Appendices (as needed).

Figure 5. Area Covered by the County-Wide Act 167 Plan for Chester County, PA



The *Phase I Report* also identified the following objectives for completion of the County-wide Act 167 Plan, all of which have been fulfilled in the preparation of this *Addendum*:

- Determine the final set of mandatory minimum ordinance provisions;
- Prepare a revised County-wide Stormwater Model Ordinance consistent with the final set of standards;
- Achieve final adoption of the County-wide Act 167 Plan by Chester County Board of Commissioners;
- Obtain PADEP approval of County-wide Act 167 Plan;
- Facilitate municipal implementation of the County-wide 167 Plan;
- Determine whether the intended outcomes and objectives of Phase II were achieved; and
- Prepare a Voluntary TMDL Implementation Strategy for the Christina River Basin.

As described in the *Phase I Report*, the County-wide Act 167 Plan, including the *Watersheds* Plan and this *Addendum*, are consistent with PADEP's Comprehensive Stormwater Management Policy. The development of *Watersheds* and the County-wide Model Ordinance and Matrix of Standards focus on upholding the PADEP Stormwater Management Policy through the development of stormwater planning initiatives and the promotion of BMP implementation that minimize the adverse effects of stormwater discharges.

As an integrated water resources management plan, the *Watersheds* Plan planned for all of the County's watersheds and subwatersheds, undertook a comprehensive analysis of issues affecting flood carrying capacity, examined natural stormwater runoff regimes and ground and surface water quality, identified groundwater recharge and protection strategies, and led to the development of individual Watershed Action Plans as tools for local municipal and County management of stormwater. To address water resource issues, the County undertook detailed analyses and surveys of runoff characteristics, stream stability, alternative land development patterns, projected development, peak flows, drainage problems, water quality, groundwater recharge, existing and proposed storm water systems, alternative runoff control techniques, existing and proposed county-wide flood control projects, county-wide flood plains, local and regional environmental and land use plans, standards for new development, standards to protect public health, priorities for implementation, and provisions for plan revisions and updates. The *Watersheds* Plan was adopted by resolution by the Chester County Board of Commissioners in 2002 as a functional element of the Chester County Comprehensive Plan *Landscapes2*, under the provisions of PA Act 247, the Pennsylvania Municipalities Planning Code.

Through the implementation of this County-wide Act 167 Plan, additional protective measures will be put in place to provide a more comprehensive and consistent approach to managing stormwater runoff from land disturbance and land development. In addition, as required by PA Act 167, projects owned or financed in whole or in part by funds from the Commonwealth must be conducted in a manner consistent with the County-wide Act 167 Plan.

Only the standards for stormwater management contained in Parts 5 and 6 of this *Addendum* (and those included in the (East) Valley Creek Act 167 Plan) are mandatory for implementation by municipalities or State projects. Municipal or State implementation of all other components and content of this County-wide Act 167 Plan (including the *Watersheds* Plan and this *Addendum*) are voluntary.

Part 3. Previous Act 167 Plans

PA Act 167 stormwater management plans have been completed, adopted and approved for the portions of Chester County that are located within the following five watersheds (see Figure 6):

- Chester Creek Act 167 Plan (approved by PADEP 3/13/03);
- Conestoga River Act 167 Plan (approved by PADEP 10/24/05);
- Crum Creek Act 167 Plan (approved by PADEP 2/27/12);
- Darby Creek 167 Plan (approved by PADEP 10/24/05); and
- (East) Valley Creek 167 Plan (approved by PADEP 2/4/11).

The previously approved (East) Valley Creek Act 167 Plan (as approved 2011) is hereby incorporated by reference, in its entirety, as a component of this County-wide Act 167 Plan, and all stormwater management standards, results, supporting documentation, and implementation requirements of the (East) Valley Creek Act 167 Plan remain in effect for the land area located within the (East) Valley Creek watershed of Chester County. For land areas within the East Valley Creek watershed where there appears to be conflict between the (East) Valley Creek Act 167 Plan and the content of this County-wide Act 167 Plan, the (East) Valley Creek Act 167 Plan shall apply.

The previously approved Act 167 Plans for Chester Creek, Conestoga River, Crum Creek, and Darby Creek watersheds are hereby superseded and replaced by this County-wide Act 167 Plan, except that the following stormwater standards are carried forward by reference from each corresponding watershed Act 167 Plan into this County-wide Act 167 Plan and must be implemented for the land areas of Chester County that are located within each of the four corresponding watersheds:

- Stormwater peak runoff rate reduction standards (and associated ground cover assumptions to be used to calculate peak runoff rates);
- The maximum size of proposed impervious cover and proposed earth disturbance eligible for exemption from provisions of the Model Ordinance (or corresponding standards) requiring design, municipal approval, construction, and operation and maintenance of stormwater management facilities; and
- Riparian buffer standards.

Part 4. Municipal and Public Participation Process

Municipal and public participation has been an integral part of the County-wide Act 167 Plan process and occurred through three approaches:

- Establishing and working with the County-wide Act 167 Watershed Plan Advisory Committee (WPAC);
- Formation and reliance on an Ordinance/Standards Committee (comprised of volunteer professional engineers and a volunteer professional environmental planner) to provide professional engineering and planning expertise; and
- Public outreach via website posting of all materials, numerous stakeholder and public meetings, and a press release.

The WPAC was formed in 2010 and was re-engaged for Phase II. WPAC meetings were held to provide essential input throughout the County-wide Act 167 Plan process. Appendix A presents listings of

Figure 6. PA Act 167 Stormwater Management Plans Previously Completed in Chester County, PA



Act 167 Plans Completed and Approved by PADEP:

Chester Creek (2003), Conestoga Creek (2005), Darby Creek (2005), Valley Creek (2011), Crum Creek (2012)



Phase II WPAC representatives and WPAC meetings and communications. The WPAC representatives were asked to review draft documents and submit written feedback on numerous occasions and their input was extremely valuable in shaping the stormwater management standards and ordinance provisions included in this County-wide Act 167 Plan. Supporting materials for the WPAC meetings are on file.

The County-wide Act 167 Plan Phase II was initiated in August 2011 in an expedited effort to complete the County-wide Act 167 Plan and its Model Ordinance and ordinance standards in time for NPDES Phase II (MS4) municipalities to adopt the ordinance standards to comply with the requirements of their MS4 permit renewal applications. Due to the extreme limitations of time and resources, professional engineering and planning consulting services were not available. The Chester County Engineers Association offered professional assistance to CCWRA by forming a committee of volunteer professional engineers with extensive experience in land development and stormwater management design and municipal engineering to provide the technical and engineering expertise needed to assist CCWRA in formulating the ordinance standards and provisions. In addition, a professional planner provided environmental planning expertise on a volunteer basis as a member of the committee. This committee (the Ordinance/Standards Committee) worked closely and extensively with staff from CCWRA, Chester County Conservation District and Chester County Planning Commission throughout the Phase II process on developing the stormwater management standards and ordinance provisions included in this County-wide Act 167 Plan. An attorney experienced in municipal and land use law was also consulted for review of the ordinance and input on its provisions. Listings of the participants of the Ordinance/Standards Committee and their meeting dates are presented in Appendix B.

Throughout the County-wide Act 167 Plan process, materials have been posted regularly on a publicly accessible dedicated County-wide Act 167 Plan webpage (accessed through www.chesco.org/water). All materials were posted on the website that were provided to WPAC meeting attendees, to municipalities, or presented to or handed out at public and stakeholder meetings. Posted materials included updated documents, compilations of municipal and stakeholder review comments, meeting summaries, agendas, presentation slides and handouts, etc. In addition, CCWRA staff provided presentations on the County-wide Act 167 Plan at several public and stakeholder meetings. A listing of these public and stakeholder meetings is presented in Appendix C.

A completed draft of the *Addendum* was provided for review to the official planning agency and governing body of each municipality, the County Planning Commissions, and School Districts within and contiguous to Chester County, and the Delaware Valley Regional Planning Commission for consistency with other plans and programs affecting the watersheds covered by this County-wide Act 167 Plan. The comments received from this final draft review were reviewed and incorporated as appropriate within the final *Addendum*.

Part 5. Stormwater Management Standards for Implementation by Municipalities

Municipalities within the Commonwealth of Pennsylvania are authorized and required to regulate activities that affect stormwater runoff by the authority of PA Act 167. To fulfill the requirements of PA Act 167, mandatory stormwater standards and a Model Ordinance were developed for municipal implementation. The County-wide Act 167 Model Ordinance (Appendix D) incorporates mandatory stormwater management standards and related ordinance provisions that were developed with extensive municipal input (gathered through the combined Phase I and Phase II County-wide Act 167 Plan process), input received from the Ordinance/Standards Committee; input received from the public and stakeholder

meetings; and input received from review by legal professionals with extensive experience in land use and municipal law within Chester County.

The County-wide Act 167 Model Ordinance, or an ordinance with equivalent or more stringent standards, must be adopted by each municipality in Chester County within six (6) months of final approval by PADEP of this County-wide Act 167 Plan. For those municipalities who choose to do so, the Model Ordinance is provided for their use and includes several options with which the municipality can tailor the ordinance to best address its specific needs and interests. For those municipalities that choose to amend their existing stormwater management ordinance (rather than adopt the Model Ordinance), a Matrix of Minimum Mandatory Ordinance Standards for Municipal Act 167 Ordinances is presented in Appendix E to assist in determining what revisions are needed to ensure their final adopted ordinance is consistent with this County-wide Act 167 Plan. The Matrix is cross-referenced to the Model Ordinance and indicates those provisions of the Model Ordinance that are mandatory, optional, or informational.

Part 6. Stormwater Management Standards for Implementation by State Projects

Section 11(a) of PA Act 167 states the following:

“After adoption and approval of a watershed storm water plan in accordance with this act, the location, design and construction within the watershed of storm water management systems, obstructions, flood control projects, subdivisions and major land developments, highways and transportation facilities, facilities for the provision of public utility services and facilities owned or financed in whole or in part by funds from the Commonwealth shall be conducted in a manner consistent with the watershed storm water plan.”

Thus, any State-owned or financed project to be constructed within Chester County must be designed with stormwater management controls that are consistent with this County-wide Act 167 Plan. General types of State-owned or financed projects that are affected by this include:

- Land development (non-transportation) projects;
- Highways and transportation projects.

Oversight and implementation of this County-wide Act 167 Plan for State-owned or financed projects is described in Part 12 of this *Addendum*.

As presented in Part 3, the previously approved (East) Valley Creek Act 167 Plan (as approved 2011) is hereby incorporated by reference, in its entirety, as a component of this County-wide Act 167 Plan, and all stormwater management standards, results, supporting documentation, and implementation requirements of the (East) Valley Creek Act 167 Plan (as approved 2011) remain in effect for the land area located within the (East) Valley Creek watershed of Chester County. For land areas within the (East) Valley Creek watershed where there appears to be conflict between the (East) Valley Creek Act 167 Plan and the content of this County-wide Act 167 Plan, the (East) Valley Creek Act 167 Plan shall apply.

State Land Development (Non-Transportation) Projects

For any project to be located in the (East) Valley Creek watershed, the requirements listed in Chapter 7 of the Valley Creek 167 Plan shall apply. For any project to be located in any other location of Chester County, the requirements of this County-wide Act 167 Plan shall apply.

Any State-owned or financed land development project not otherwise required to comply with the requirements of the stormwater management ordinance of the municipality in which the project is to be located, must be designed to be consistent with the stormwater management standards presented in the Model Ordinance (Appendix D), excluding requirements related to submission to, review by, approval of, enforcement by, and penalties by municipalities. State agencies are encouraged to submit the stormwater and land development design plans to the municipality in which the project will be located for review and comment prior to finalization of the design plans in effort to provide an opportunity for the municipality to be aware of the pending project, and to allow for coordination and communication of any potential adverse impacts or concerns.

State Transportation Projects

This section on State transportation projects was prepared in close consultation with the Pennsylvania Department of Transportation (PennDOT) and PADEP.

For any State-owned or financed roadway project to be located in the (East) Valley Creek watershed, the requirements listed in Chapter 8 of the Valley Creek Act 167 Plan shall apply. For any project to be located in any other location of Chester County, the requirements of this County-wide Act 167 Plan shall apply.

PennDOT is exempt from complying with municipal ordinances for its roadway projects. Under the Administrative Code, PennDOT has exclusive jurisdiction over all designated State transportation facilities (71 P.S. § 512(a)(10)). The Administrative Code further provides PennDOT with the authority “[t]o mark, build, rebuild, relocate, fix the width of, construct, repair, and maintain State designated highways and transportation facilities and rights of way” and “[t]o superintend, supervise and control the work of constructing, reconstructing, maintaining and repairing State designated highways, and other transportation facilities and rights of way” (71 P.S. §§ 512(a)(8) and (11)). PennDOT’s exclusive jurisdiction over transportation facilities is supported by the enabling legislation of the municipalities which exempts PennDOT projects (53 P.S. §§ 55103, 65103, 45102, and 46737). The Municipalities Planning Code (MPC, or PA Act 247) contains a provision that specifically exempts the application of its provisions to PennDOT projects (53 P.S. § 11202). The exemption also extends to ordinances enacted under the NPDES MS4 program. PennDOT has a statewide individual NPDES MS4 permit for its facilities located in regulated urbanized areas and has developed policies to address stormwater runoff associated with its projects to satisfy its obligations under the NPDES MS4 program.

The following language describes PennDOT’s responsibilities with regard to implementation of PA Act 167 Plans in Chester County and in other parts of the state:

For purposes of this Act 167 Stormwater Management Plan (Act 167 Plan), the standards pertaining to stormwater management facilities for State roadways and associated facilities are provided in Sections 13.7 (Antidegradation and Post Construction Stormwater Management Policy) of PennDOT Publication No. 13M, Design Manual Part 2, as developed, updated, and amended in consultation with PADEP. DM-2.13.7.B (Policy on Antidegradation and Post Construction Stormwater Management) was developed as a cooperative effort between PennDOT and PADEP. DM-2.13.7.C (Project Categories) discusses the anticipated impact on the quality, volume, and rate of stormwater runoff.

For purposes of this Act 167 Plan, road maintenance activities and bridge replacements on State roadways are regulated under 25 PA Code Chapter 102.

PennDOT's "Antidegradation and Post Construction Stormwater Management Policy" includes guidance that PennDOT considers for its design of projects, and categorizes its projects into four categories or "levels" (Levels 1, 2, 3 and 4). The increased level of projects corresponds to increased runoff and water quality impact generated by the type of project categorized in that level, and each level has one or more stormwater management "targets" assigned.

The linear and narrow nature of highway and roadway corridors creates significant challenges for physically incorporating stormwater management BMPs and facilities within the space constraints, and therefore the policy provides flexibility for whether or not implementation of the stormwater design target is achieved for any given project. State-owned highway and roadway projects typically are designed to balance the need for the transportation facilities to:

- Safely accommodate all roadway and highway users;
- Effectively manage stormwater runoff from roadways and highways to reduce the impacts of peak rate, volume and pollutants on receiving lands and streams; and
- Minimize project costs.

Stormwater systems that cannot be accommodated within the existing State-owned right-of-way for these projects may create the need for State condemnation of additional private properties to expand the right-of-way. Further, the design and construction of additional stormwater systems, and obtaining lands on which to construct them, increase the cost of the transportation project.

Level 1 projects are generally considered roadway "maintenance" projects and therefore Level 1 has no stormwater management "target" and minimal stormwater management consideration as the activities conducted would be working with existing roadways and not expanding the "footprint" of the roadway. Level 2 projects generally include bridge replacements, turning lanes, and other projects that are considered to have either minimal impact on the rate, volume and water quality of stormwater runoff or that involve relatively small area of disturbance and area of expansion of impervious cover, and that have very limited space for installing BMPs. Level 3 generally includes projects that increase capacity of roadways (new roads or additional travel lanes) and are considered to have sufficient impact to the rate, volume and water quality of stormwater runoff to have a more significant stormwater management "target" assigned. Level 4 provides the most protective stormwater "targets" and applies to any project that discharges to "sensitive areas", which includes High Quality (HQ) and Exceptional Value (EV) waters and wetlands; watersheds with impaired streams; combined sewer overflows; and threatened and endangered species and critical habitat.

There are 3,885 total miles of roadways in Chester County, including 1,349 miles (35%) of PennDOT roadways and 2,536 miles (65%) of non-PennDOT roadways. The extensive area of impervious surfaces associated with roadways contributes significant stormwater runoff to the lands and streams in Chester County. Many of these roadways traverse across natural drainage systems and necessarily concentrate and redirect natural flows and water courses into constructed conveyance systems to pass the runoff under the roadway and protect the travel surface from dangerous runoff from adjacent lands during storm events. These hydrologic alterations of the natural watershed system create additional impacts to down gradient streams. In addition, as noted in Part 2 of this *Addendum*, 675 square miles (or 86%) of Chester County's land area drains to either a stormwater-impaired stream, an EV or HQ water body, and/or have stormwater TMDLs established with mandatory implementation, all of which are considered "sensitive areas" in PennDOT's guidance and for which Level 4 stormwater management "targets" apply. As with other land uses, existing State roadways and highways may contribute to these stormwater runoff, erosion and water quality problems that are currently experienced in Chester County.

Given the extensive network of PennDOT roadways within Chester County, their drainage systems to streams and watersheds, and the widespread distribution of water quality and watershed management needs throughout 86% of Chester County, it is important that future State transportation projects consider including provisions to:

- Minimize additional stormwater runoff impacts; and
- Reduce the impacts caused by existing transportation drainage facilities.

Listed below are stormwater management priorities related to State roadways that have been identified through development of the County-wide Act 167 Plan. These are provided to assist PennDOT and PADEP in evaluating and selecting opportunities, when or if they arise, for their inclusion in stormwater management designs for future transportation projects that are not considered road maintenance activities under 25 PA Code Chapter 102:

- *Improve awareness, coordination and communication with municipalities regarding proposed projects.* This priority could be addressed by submittal of stormwater management design plans to the municipality in which the project is to be located providing an opportunity for a 60-day period to comment on the plan and its consistency with this Part 6 of the County-Wide Act 167 Plan prior to finalizing the plans.
- *Protect “sensitive areas” from additional stormwater-related impairments.* This priority could be addressed by achieving any or all of the following for Level 3 and 4 projects -
 - Permanently remove the net increase in runoff from the 2-year, 24-hour storm from at least all net new impervious area (assuming that at least 20% of the existing impervious area over which new impervious area is being constructed has a ground cover of meadow for pre-construction volume calculations), and consistent with 25 PA Code Chapter 102;
 - Apply Level 4 “targets” for all projects located in Chester County that discharge within a “sensitive area”; and
 - Attempt to remove through infiltration or evapotranspiration at least one-half inch of runoff from the net new impervious area in non-karst areas.
- *Protect downgradient streams and properties from increased flooding and erosion from future projects.* This priority could be addressed by achieving the following peak rate controls for Level 2 (when applicable), 3 and 4 projects, as presented in this County-wide Act 167 Plan:
 - For projects located in the Chester Creek, Conestoga River, Crum Creek and Darby Creek watersheds, meet or exceed the peak rate control standards (and Predevelopment land cover assumptions) from the previously approved Act 167 plan for the corresponding watershed.
 - For projects located outside of the Chester Creek, Conestoga River, Crum Creek, Darby Creek, and (East) Valley Creek watershed, meet or exceed the post-construction peak flow rates of the predevelopment peak flow rates for the 2, 10, 50, and 100-year, 24-hour storm event (at a minimum), or the peak rate control performance standards and corresponding predevelopment ground cover assumptions consistent with the “Redevelopment” performance standards presented in Subsections 308.A, 308.C and 309.D.2 of the Model Ordinance (Appendix D).
 - Projects located within the (East) Valley Creek watershed must be consistent with the standards presented in the (East) Valley Creek Act 167 Plan (as approved 2011).
- *Reduce the occurrence of widespread problems caused by high velocities and erosion from discharges from existing PennDOT outfalls.* This priority could be addressed when a Level 1, 2, 3

or 4 project is undertaken that involves installing or replacing a piped outfall or other stormwater outfall by also installing permanent energy dissipation device(s) sufficient to protect the receiving property or stream channel from erosion at the location where discharge leaves the PennDOT drainage feature. For example:

- Maintain inlet and outlet ditches as far as necessary to achieve free flow of drainage to and from the outlet pipe, while avoiding excessive volume or velocity of water discharged onto private property; and
 - Provide outlet protection or a drop structure for the following locations where outlet velocities exceed the capacity of downstream areas to resist erosion: storm drains, sediment traps, sediment basins, stormwater management basins, temporary slope pipes, ditches or channels (temporary or permanent), etc.
- *Improve ineffective or insufficient control of stormwater from existing transportation infrastructure.* Older stormwater and drainage systems may not provide the level of stormwater management now known to be required to reduce flooding, erosion and water quality impacts. This priority could be addressed by improving some of the existing conveyance and control infrastructure and making more functional use of available space within the existing right-of-way. For example:
 - When new projects are planned for construction in areas where existing stormwater conveyances or features exist, first evaluate the condition, function and effectiveness of the existing conveyance and/or BMPs and include improvements to address any shortcomings to those features as part of the overall proposed project.
 - For limited access highways, cloverleaf areas often are already designed to collect and convey runoff. These could be improved to provide better and more efficient rate, volume, or water quality control. A riser could be added, soils amended, and/or appropriate plantings installed to provide improved stormwater treatment while reducing mowing costs.
 - Existing vegetated areas within the right-of-way could be better utilized, such as implementing check dams, biologs, or similar measures along with appropriate plantings to slow down runoff rates, and allow for some volume reduction by either infiltration or evapotranspiration.
 - Improvements to or within other existing swales, channels and outfalls could include implementing plunge pools or level spreaders at outfalls to reduce the erosive velocities of discharges; and existing swales and conveyances could be improved with amended soils, check dams, etc.

Pennsylvania Turnpike Commission Projects

For any project to be constructed by the Pennsylvania Turnpike Commission (PTC) within the (East) Valley Creek watershed, the requirements for PTC projects as discussed in Chapter 8 of the Valley Creek 167 Plan shall apply. For any project to be located in any other location of Chester County, the requirements of this County-wide Act 167 Plan shall apply.

Unlike PennDOT, the Pennsylvania Turnpike Commission must comply with the requirements of municipal ordinances. Therefore, projects undertaken by the PTC must be designed to meet the requirements of adopted municipal Act 167 stormwater ordinances within the municipalities in which their future projects are located. As with State-owned roadways and highways, given the extensive PTC roadway within Chester County, the existing impacts of this roadway system and its drainage systems to receiving streams and watersheds, and the widespread distribution of water quality and watershed management needs throughout 86% of Chester County (as presented in Part 2), it is important that future PTC projects, whenever possible and to the extent practicable, include provisions to:

- Minimize additional stormwater runoff impacts; and
- Reduce the impacts caused by existing transportation drainage facilities.

In addition, the stormwater management priorities listed above for State transportation projects also relate to PTC projects, in particular:

- *Reduce the occurrence of widespread problems caused by high velocities and erosion from discharges from existing PTC outfalls.*
- *Improve ineffective or insufficient control of stormwater from existing transportation infrastructure.*

The other three stormwater management priorities will be addressed by PTC projects through compliance with the municipality's adopted Act 167 ordinance requirements.

Part 7. Stormwater Total Maximum Daily Load (TMDL) Implementation

Christina Basin TMDL Implementation Plan – MS4 TMDL Strategy Template

The United States Environmental Protection Agency (EPA) established stormwater TMDLs for sediment, nitrogen, and phosphorous for the Brandywine, Red Clay and White Clay Creeks watersheds (within the Christina River Basin) in 2005 and 2006. Those TMDL reports listed several Chester County municipalities as responsible for implementing required pollutant load reductions to achieve the TMDL pollutant goals. The Christina TMDL Implementation Plan Partnership was formed by Brandywine Valley Association (BVA) and their planning consultant Gaadt Perspectives, in conjunction with Chester County Water Resources Authority and Chester County Conservation District. The Partnership consists of the thirty-two (32) Chester County municipalities within the Christina Basin TMDL watersheds that voluntarily joined the Partnership through letters of understanding with BVA (see Appendix F). The purpose of the Partnership was to assist these municipalities in: understanding the TMDLs; formulating a coordinated watershed-based TMDL implementation plan; and developing individual MS4 TMDL implementation plans consistent with a watershed-based approach.

The Partnership met monthly for nearly three (3) years to work together on developing a practical, effective and achievable implementation plan that would comply with the limitations and requirements of PADEP and EPA. Numerous meetings, conference calls, submittals and correspondences were held with PADEP and EPA (see chronology presented in Appendix F). The final results of the planning effort were limited by regulatory jurisdiction constraints established by the boundaries of the Urbanized Area which significantly limited the land area within the TMDL watersheds in which implementation projects could be located, and the lack of an approved PADEP policy on "offsets" for stormwater mitigation projects. However, the Partnership was successful in establishing a defensible method of re-calculating the municipal waste load allocations and required pollutant load reductions, consistent with the EPA guidance presented in the TMDL reports.

A "Christina Basin TMDL Implementation Plan (CTIP) MS4 TMDL Strategy Template" (Appendix G) was prepared to present the required material, documentation, approach, re-calculation of required load reductions, planned TMDL BMPs, and other supporting documentation needed to satisfy the PADEP MS4 TMDL Plan requirements. The Template was provided to the Partnership for voluntary use by municipalities that are required to implement TMDLs in completing the Notice of Intent or permit renewal application (September 2012) for renewal of their NPDES Phase II MS4 permit.

This MS4 TMDL Strategy has been developed after significant coordination with both EPA and PADEP over more than a three year period. A letter from PADEP (included as an appendix in the Template), provides support for the approach taken in this MS4 TMDL Strategy, and more specifically, offers concurrence with the general concept for revising the Christina Basin TMDL MS4 Allocations. This MS4 TMDL Strategy is based on several analyses of the data and results published in the Christina Basin stormwater TMDL Reports and current conditions that have been previously reviewed by PADEP.

The Template was prepared by Brandywine Valley Association, Chester County Water Resources Authority, and Chester County Conservation District and it represents the best understanding and information available from EPA and PADEP documents and correspondence. The Template was provided to the municipalities as an informational document and provides sample text and a series of Excel worksheets with embedded formulas and calculation processes that may assist CTIP municipalities in recalculating their TMDL load allocations and load reductions, and in preparing their MS4 TMDL implementation plans for Christina Basin stormwater TMDLs. The Template was provided for voluntary use by CTIP municipalities.

This Template is based on, and consistent with the Christina Basin TMDLs and is organized to follow and respond to the instructions presented in the PADEP General Permit PAG-13 and Individual Permit instruction packages.

The Template was prepared as a part of this County-wide Act 167 Plan because of the direct role and implications of the Christina Basin stormwater TMDLs for many of Chester County's municipalities. It is included as a component of the County-wide Act 167 Plan for voluntary use by any interested municipality.

Goose Creek TMDLs

Stormwater TMDL water quality requirements have also been established that affect five (5) municipalities in the Goose Creek watershed (see Figure 1), including the Borough of West Chester, Westtown, West Goshen, and Thornbury Townships in Chester County, and Thornbury Township in Delaware County. This TMDL requires these municipalities to reduce the total phosphorus loading from the portion of their MS4s that drain to Goose Creek by 53.9%. The municipalities will implement these reductions based on MS4 TMDL plans required by MS4 regulations to be included in the submittal of their NPDES MS4 permit renewal NOIs or applications (September 2012). Affected municipalities were provided with the CTIP Template as a resource that could be adapted for use with the Goose Creek TMDL. The phosphorus stormwater TMDL pollutant load reductions were developed in conjunction with phosphorus point source TMDL requirements and pollutant load reductions in the Goose Creek watershed.

Chesapeake Bay TMDLs

In 2010, EPA published nonpoint source TMDLs for the Chesapeake Bay watershed in effort to expedite remediation of the impaired waters of the Bay and its tributaries for nitrogen, phosphorus and sediment pollutants. PADEP has submitted a Watershed Implementation Plan (WIP) and received EPA approval for achieving the pollutant load reductions assigned to Pennsylvania. Approximately 15% (117 square miles) of Chester County land area is included in the Chesapeake Bay watershed (see Figure 1). The implementation of this County-wide Act 167 Plan will assist in meeting pollutant load reductions, notably through the municipal adoption of stormwater ordinances consistent with or more restrictive than the County-wide Act 167 Model Ordinance.

Although no stormwater pollutant load reductions have been assigned to individual municipalities, all MS4 municipalities that have portions of their MS4s discharging to Chesapeake Bay tributaries must prepare and submit for approval a pollution reduction plan by 2014, and then will be responsible to

implement the actions in their plan. To date, very few Chester County municipalities have been affected by MS4 Chesapeake Bay TMDL requirements because of the limited extent of the MS4 regulated area (i.e., Urbanized Area) that currently exists within the Chesapeake Bay drainage area in Chester County. The number of municipalities impacted by MS4 TMDLs for Chesapeake Bay is expected to increase in 2013 and beyond as the 2010 Urbanized Area is transitioned into the MS4 program by PADEP. Several municipalities are proactively engaging in individual and joint watershed restoration and water quality project planning in effort to recognize and address the existing impairments that are impacting their community streams and waterways.

PADEP is also working through the conservation districts across the Chesapeake Bay watershed to educate and encourage agricultural operators to achieve and maintain compliance with 25 PA Code Chapter 102 erosion and sediment control regulations as one key strategy for reducing nonpoint source pollutants from Pennsylvania watersheds. PADEP is also implementing pollutant reductions through wastewater discharge permit requirements.

Part 8. NPDES Phase II Stormwater Regulatory Framework Update

Subsequent to the completion of the *Watersheds* Plan, PADEP designated municipalities that were required to obtain approval to discharge stormwater from their municipal separate storm sewer systems (MS4s) to waters of the Commonwealth, pursuant to the Federal Clean Water Act. As of March 9, 2003, those listed municipalities were required to have applied for an MS4 permit and to have received PADEP authorization to discharge stormwater in compliance with the terms and conditions of those permits. Those municipalities required to obtain MS4 permits were designated by PADEP based on the U.S. Census Bureau's 2000 Census Urbanized Area delineation. Figure 3 presents the boundary of the 2000 Urbanized Area within Chester County and the municipalities that are currently required to comply with the NPDES Phase II MS4 regulations.

The U.S. Census Bureau has recently completed revision and publication of the Urbanized Area boundary based on the 2010 census. It is anticipated that in 2013, this new delineation will be used by PADEP to update and expand the list of municipalities required to comply with NPDES Phase II MS4 regulations. The 2000 Urbanized Area encompasses 265 square miles (34%) of Chester County and portions of 58 municipalities. The 2010 Urbanized Area encompasses 352 square miles (45%) of Chester County and is expected to cause several additional Chester County municipalities to be required to obtain NPDES Phase II MS4 permits to discharge stormwater from their municipal separate storm sewer systems.

The PADEP MS4 regulations include certain requirements for permitted municipalities to adopt ordinance provisions to address erosion and sediment control, post-construction stormwater management, and prohibited discharges. The Model Ordinance and Matrix of Minimum Standards included in this County-wide Act 167 Plan satisfy the MS4 regulatory requirements for ordinance provisions.

Part 9. Areas of Karst and Carbonate Geology in Chester County Update

Significant portions of Chester County are underlain by carbonate geologic units. Some of these units are prone to formation of karst features, such as sink holes. These features present significant risks and challenges that can be overcome and avoided with careful stormwater management design. Where karst-prone carbonate geology is present, municipalities must take precautions to require adequate site characterization and site design to avoid concentrated flows and infiltration features that may exacerbate existing subsurface karst features or that may create new karst features. The presence of karst-prone

carbonate geology may not need to preclude the use of infiltration BMPs. Such infiltration features should be based on sufficient site investigation and design techniques to ensure protection of the stormwater facilities and all built features from risk of sinkhole formation and ground subsidence. Figure 7 presents data published in 2007 that was gathered by Pennsylvania Topographic and Geologic Survey that consists of locations of identified subsidence and sinkholes in south-central and south-eastern Pennsylvania. This map is presented to provide municipalities with basic information indicating where karst features are known to form in the carbonate geologic units within Chester County.

Part 10. County-wide Flood Management and Mitigation Update

The *Watersheds* Plan states that key planning issues in Chester County include the need to reduce the impacts of stormwater runoff and reduce the frequency and magnitude of flooding, and specifically includes Goal 5: Reduce Stormwater Runoff and Flooding. Since the adoption of the *Watersheds* Plan in 2002, many initiatives continue to be undertaken by Chester County to meet this goal and to address flood mitigation priorities and reduce flood impacts throughout the County.

Six county agencies are implementing programs to provide flood protection, mitigation and community risk reduction – Chester County Department of Emergency Services (CCDES), Chester County Water Resources Authority (CCWRA), Chester County Conservation District (CCCD), Chester County Department of Community Development (CCDCD), Chester County Department of Open Space Preservation (CCDOSP), and Chester County Planning Commission (CCPC). Key county-wide flood mitigation efforts currently underway by Chester County are summarized below.

County-wide Inventory of Flood Problems

The *Watersheds* Plan's Figure 1-2 shows locations of regional flooding impacts as identified prior to the adoption of the *Watersheds* Plan in 2002. To update the regional flooding impacts, a database was created to document and map the current extent of known flooding problems and identify additional flood-prone areas throughout Chester County (see Figure 4). The updated inventory was compiled through several activities:

- Locations of flood problems were identified in discussions between CCWRA, CCCD, and certain Chester County municipalities experiencing frequent flooding (December 2003);
- In August, 2011, Chester County municipalities were requested to submit lists or maps containing locations that had flooded as a result of Hurricane Irene or other areas deemed “flooding hotspots”; and
- CCDES documented reported flood-related incidents received when the Emergency Operations Center was operating during Tropical Storm Nicole (October 2010), Hurricane Irene (August 2011), and Tropical Storm Lee (September 2011).

CCWRA combined these sources of information into a database and cataloged 256 locations that have experienced recent flood events or known flooding problems. Most of the locations are associated with flooded roads or transportation infrastructure, as these types of locations are frequently reported and documented during floods. This database and associated maps can help direct the focus of flood mitigation efforts towards the areas that experience numerous or repetitive flood impacts. It is intended that this database will be updated after future flood events so that mitigation efforts continue to be directed towards the most flood prone areas of the County.

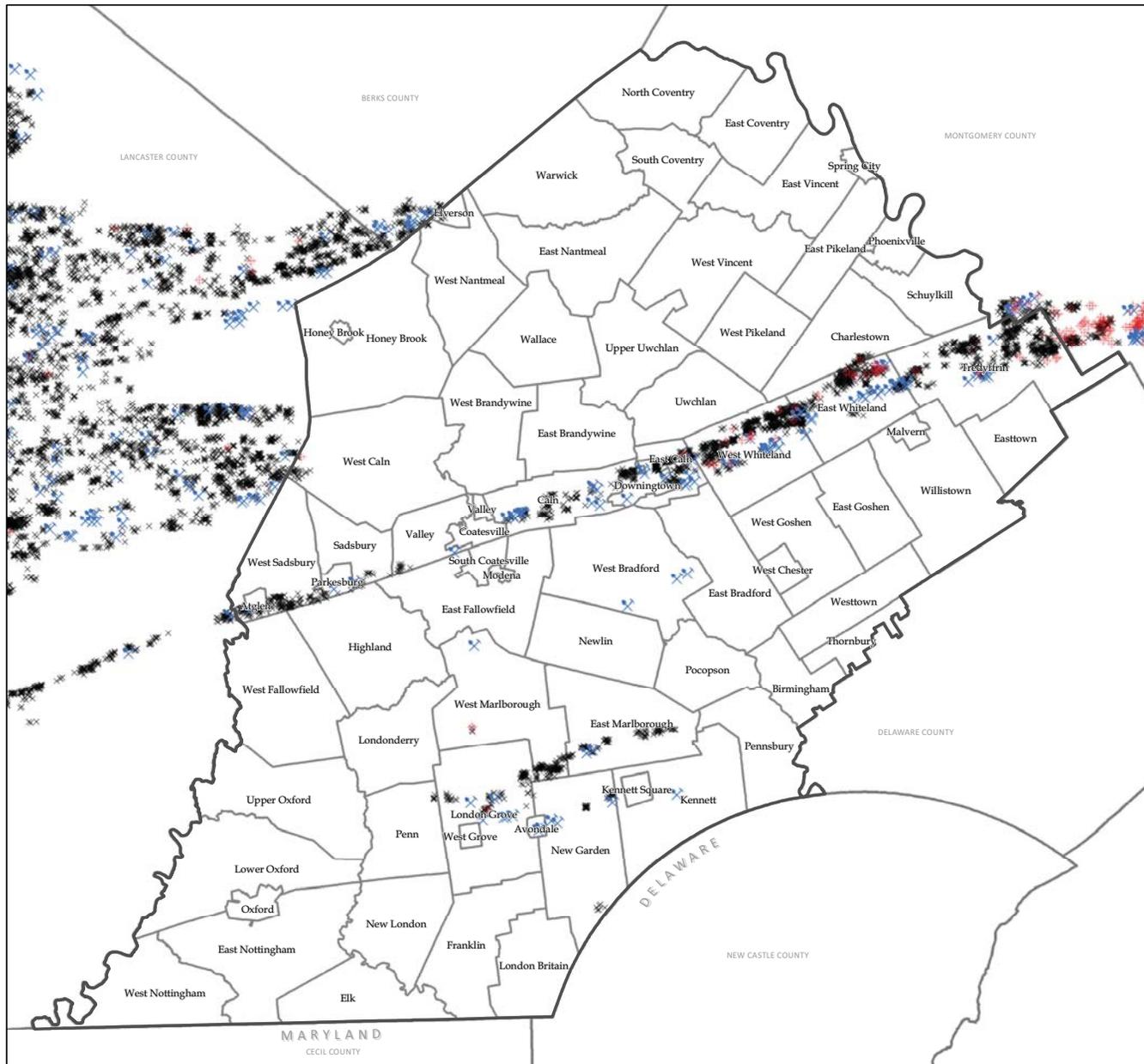
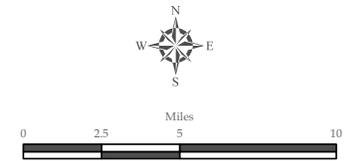


Figure 7.
Digital Data Set of Mapped Karst Features
in South-Central and Southeastern
Pennsylvania

Originator: Bureau of Topographic and Geologic Survey,
 PA Department of Conservaton and Natural Resources
 Publication Date: 2007



✕ **Surface Depression = 2,420**

A surficial landscape feature of negative relief, generally bowl-shaped, with shallow to moderate sidewalls; it may be of various size and depth.

⊕ **Sinkhole = 50**

A surficial landscape feature of negative relief, generally circular in outline, but can be variable in length, width and depth; differentiated from surface depressions by exhibiting a distinct breaking of the ground surface and generally steep to near vertical sidewalls.

⚒ **Surface Mine = 77**

A surficial excavation (i.e., quarry, pit) used for the extraction of non-metallic or metallic resources.

⌵ **Cave = 0**

A natural underground open space, generally with a connection to the surface and large enough for a person to enter.

Chester County Water Resources Authority
August 1, 2012

Based on an evaluation of the flood problems and locations included in the county-wide flood problems inventory, five categories of flood mitigation need have been identified:

- Repeated flooding of built features located within the floodplain and constructed at elevations below frequent flood levels.
- Urbanized areas with dense development that have insufficient stormwater drainage/conveyance systems.
- Rural or suburban areas that experience high stormwater runoff due to runoff from agricultural lands or suburban lands with a high percentage of turf cover.
- Transportation infrastructure (roads, bridges, railroads) that are blocking or altering natural drainage patterns and reducing efficiency of conveyance of runoff via natural swales, channels and waterways due to undersized or repeatedly blocked culverts, etc.
- Rural floodplains that experience severe flooding but that currently experience few if any repeat flooding of built structures, and that should be protected from future development.

Municipal Floodplain Management Ordinance Implementation

Of the 73 municipalities in Chester County, 72 have floodplains mapped on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), and have adopted floodplain management ordinances. FEMA last required municipalities to review and update their floodplain management ordinances in 2006 when the most recent Chester County FIRM revisions were put into effect. Implementation of municipal floodplain management ordinances is a high priority because it is the most effective strategy for reducing and avoiding flood impacts to the built environment, and to protect the flood-carrying capacity of the floodplains of Chester County, to improve conveyance, and to reduce downstream damages.

US Army Corps of Engineers (USACE) Regional Watershed Improvement Project

The US Army Corps of Engineers (USACE), in collaboration with PADEP, has undertaken a Regional Watershed Improvement Project for Chester, Delaware, and Montgomery Counties (as authorized under the Federal Water Resources Development Act). Within Chester County, the project area includes the Brandywine Creek watershed, as well as all watersheds draining to the Schuylkill and Delaware Rivers. This project has been authorized to develop, design, and construct watershed improvement projects related to flooding, water quality, and environmental restoration, and has been broken into seven phases, which will be cost-shared by 75% federal and 25% local funding. Federal and State funding have been allocated for Phases 1 through 3, and work on those phases was completed in May 2012.

Work completed through Phase 3 as of August 1, 2012 is documented in the “Final Prioritization Report” and includes the development of a customizable, GIS-based, decision support tool to identify and prioritize areas for watershed improvements. This tool has been provided to Chester, Montgomery and Delaware Counties and the documentation regarding the tool and maps of the results of several baseline prioritization exercises has been made available to the public via the USACE website (www.nap.usace.army.mil/Projects/spe/). Subsequent phases 4 through 7 will use the tool to identify one or two regional projects to be pursued for design and construction by the USACE (with local cost share funding). The funding for phases 4 through 7 is dependent on the future availability of Federal, State, and local funds. Planning is underway for pursuing funding for subsequent phases.

FEMA RiskMAP Program

The Federal Emergency Management Agency (FEMA) Risk Mapping, Assessment, and Planning (RiskMAP) program is an extension and enhancement of the flood map modernization efforts that are already underway at FEMA. In collaboration with local communities, RiskMAP will develop products and flood hazard maps that provide stakeholders with quality flood risk data, increase public awareness

and understanding of flood risks, and lead to actions that reduce risk to life and property. Chester County is fortunate to have the majority of its watersheds covered by four RiskMAP Watershed Projects: 1) Brandywine-Christina, 2) Lower Delaware, 3) Lower Susquehanna, and 4) Schuylkill. The Risk MAP Projects are in the second year of a 3 to 5 year project timeline. The “Discovery” phase which includes data mining, collection, and analysis, was undertaken by FEMA and has been completed for all four watershed projects. A “Discovery Report” for each watershed is available online (www.rampp-team.com/pa/htm). Once the RiskMAP tools, products, and datasets are finalized by FEMA they will be provided to Chester County for use by CCDES and CCWRA for community outreach and information on local flood hazard mitigation opportunities and needs, and other actions to mitigate flood risks.

Regional Flood Control Facilities

Five (5) regional flood control facilities have been built and continue to be operated in the Brandywine Creek watershed to reduce flooding to municipalities along the Brandywine Creek and its floodplains. CCWRA owns and operates four regional flood control facilities (see Figure 8) with a combined flood storage of 1.1 billion gallons:

- Robert G. Struble, Sr. Dam and Regional Flood Control Facility (191 million gallons) (East Branch Brandywine Creek watershed);
- Beaver Creek Regional Flood Control Facility (170 million gallons) (East Branch Brandywine Creek watershed);
- Barneston Regional Flood Control Facility (511 million gallons) (East Branch Brandywine Creek watershed; and
- Hibernia Regional Flood Control Facility (257 million gallons) (West Branch Brandywine Creek watershed).

In addition, the Marsh Creek Dam (at Marsh Creek State Park) is also a regional flood control facility, located in the East Branch Brandywine Creek watershed. These five facilities were designed to work as a combined system to reduce flooding in the Brandywine Creek watershed.

The four facilities owned and operated by CCWRA provide flood reduction for all or portions of over 4,100 properties along the Brandywine Creek with an estimated cumulative assessed property value of approximately \$427 million. The Authority implements a rigorous management and maintenance program to maintain the structural and operating integrity of the structures consistent with their design standards. Through the U.S. Department of Agriculture, Natural Resources Conservation Service, Hibernia Dam and Beaver Creek Dam are undergoing National Dam Rehabilitation Program Planning Studies to evaluate the potential benefits and costs of rehabilitation efforts to extend their performance life.

Multi-Jurisdiction Hazard Mitigation Plan

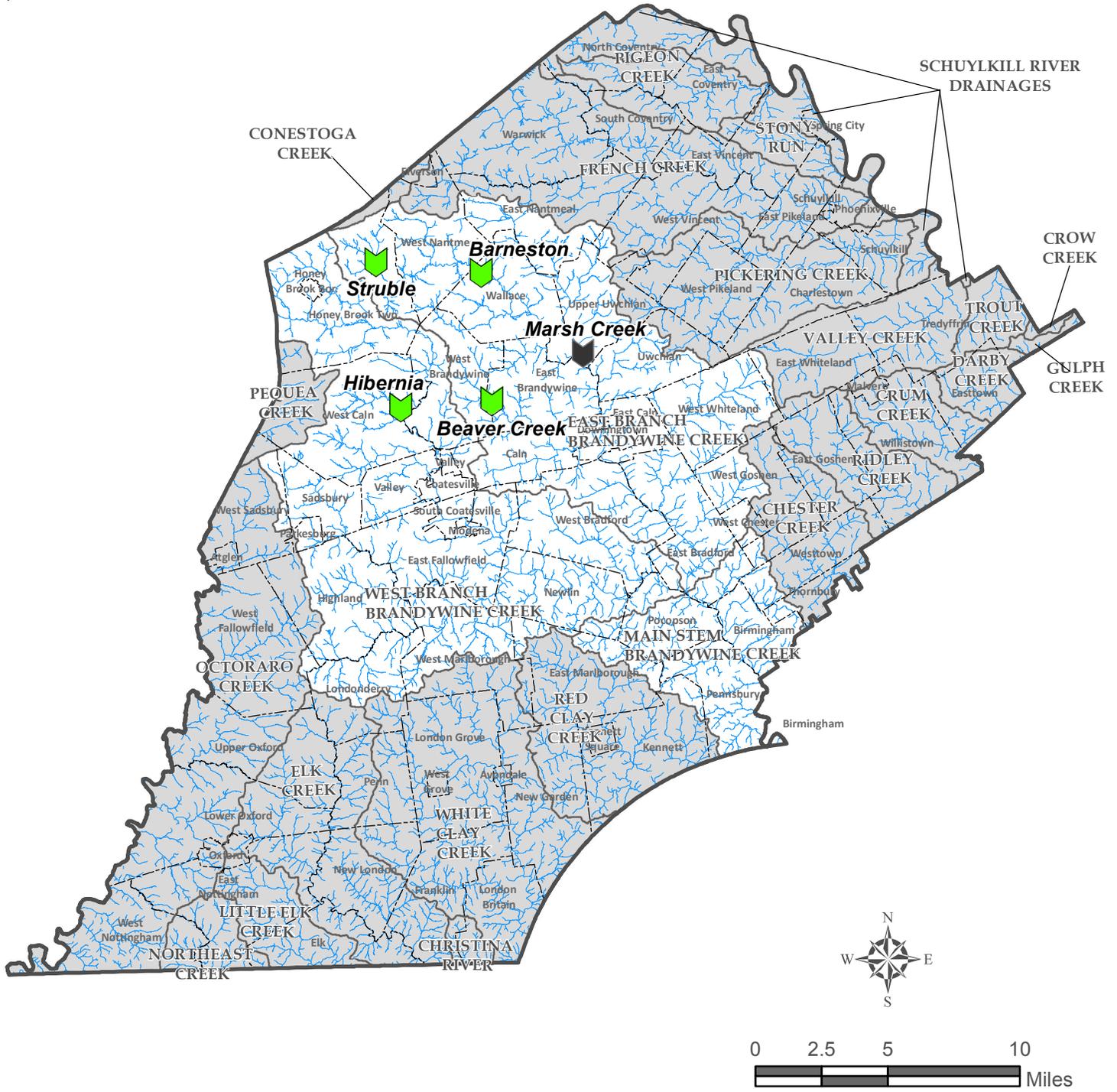
The “Multi-Jurisdiction Hazard Mitigation Plan” was prepared by CCDES in 2011 and constitutes the Chester County Hazard Mitigation Plan (CCHMP). The plan was developed in compliance with FEMA guidelines and the Disaster Mitigation Act of 2000. Chester County is faced with numerous natural hazard risks, from drought and extreme heat events to flooding and winter storms. The County has experienced losses to local economies, property, infrastructure and human life from numerous natural hazard events. The plan, with endorsement by FEMA and the Pennsylvania Emergency Management Agency (PEMA), will help the County prioritize and implement mitigation projects.

The CCHMP establishes a comprehensive framework of community goals and objectives for mitigating the human, property and monetary losses associated with natural hazards in Chester County. The CCHMP identifies the natural hazards posing the greatest threat to Chester County, overviews appropriate

Figure 8. Regional Flood Control Facilities in Chester County

 Chester County Water Resources Authority
Flood Control Projects

 State - Owned Flood Control Project



Chester County Water Resources Authority
August 1, 2012

mitigation measures, and provides a detailed Action Plan for five principal loss-mitigation goals. The CCHMP includes Hazard Profiles that describe a broad range of natural hazards that have either historically impacted Chester County or may present a threat to the County in the future. The natural hazard profiles include: hazard identification, facility and infrastructure identification, event history and loss estimation within Chester County. The natural hazards typically experienced by Chester County and addressed by the CCHMP are:

- Floods;
- Earthquakes;
- Winter storms;
- Tornadoes, hurricanes and windstorms; and
- Drought and water supply deficiencies.

Severe Flooding Emergency Plan

In recognition of the frequent impacts of flooding in Chester County, CCDES dedicates significant resources towards protecting public health and safety during and after flood events. In 2011, CCDES published its “Severe Flooding Emergency Plan”, which is a useful resource for emergency workers, municipal planners, and others interested in opportunities for flood impact mitigation actions. This document is an excellent source of local information about flooding risks to communities and infrastructure, observed impacts on local communities and resources, and the associated costs.

Chester County FEMA Floodplain Structure Atlas

The Chester County FEMA Floodplain Structure Atlas (2009) is a series of maps that show the locations of structures and important community features in relation to the FEMA floodplains and water bodies. These maps are a valuable tool to assist emergency responders during flood emergencies, and contain useful information about flood risk, which is an important element that serves as the foundation of the flood mitigation planning process.

Chester County Flood Mitigation Funding Programs

The Chester County Board of Commissioners provides several funding assistance programs through CCDES, CCDCD, CCDOSP, CCCD and CCPC for municipalities or land owners to implement planning or projects to reduce stormwater and flooding impacts. In some cases, these agencies (e.g., CCDES, CCCD, CCDCD) assist municipalities or land owners in accessing State or Federal funding. In addition, the Board of Commissioners currently provides grant funding to municipalities through the Chester County Vision Partnership Program (administered by CCPC), Community Revitalization Program (administered by CCDCD), and Land Preservation Program (administered by CCDOSP) that can be used to:

- Improve stormwater infrastructure for boroughs and the City of Coatesville;
- Prepare comprehensive planning and other planning, zoning and ordinances to reduce flooding and stormwater impacts from land development and redevelopment; and
- Protect and preserve flood prone lands from future development.

Part 11. Public Hearing and County Adoption

Because the *Watersheds* Plan is an adopted component of *Landscapes2*, the County-wide Act 167 Plan was prepared for adoption by the Chester County Board of Commissioners to fulfill the requirements of PA Act 167, and also for adoption by the County Commissioners under PA Act 247 as an amendment to the *Watersheds* Plan and as an amendment to *Landscapes2*. As required by PA Act 247, a forty-five (45)

day public comment period was provided; the public comment period took place between October 12, 2012 and November 26, 2012. As required by PA Act 167, the planning commissions and governing bodies of the municipalities and the County, and the Delaware Valley Regional Planning Commission were provided opportunity to review the County-wide Act 167 Plan during this review period. As required by PA Act 247, a public meeting was held on November 14, 2012 in conjunction with the Chester County Planning Commission. As required by PA Act 167 and PA Act 247, the public hearing was held on March 27, 2013 in the Chester County Board of Commissioners Board Room to present the final revised County-wide Act 167 Plan to the public. A notice for the hearing was published two weeks prior to the hearing date, as required by PA Act 167, and again seven (7) days prior to the public hearing, as required by Act 247.

The published notices of the public meeting with the Chester County Planning Commission and the public hearing are on file at CCWRA. Also on file are the comments received during the public comment period and at the public hearing. The comments were reviewed and incorporated as appropriate into the County-wide Act 167 Plan.

The final County-wide Act 167 Plan was presented to the Chester County Board of Commissioners for adoption on March 27, 2013 and the Board of Commissioners officially adopted the County-wide Act 167 Plan by resolution on March 27, 2013, as required to fulfill the County's requirements under PA Act 167 and as required under PA Act 247 to amend the *Watersheds* Plan and *Landscapes2* to incorporate the County-wide Act 167 Plan. A copy of the signed resolution adopted by the Chester County Board of Commissioners is included in this *Addendum* immediately after the title page. As required by the PA Act 167, the resolution includes references to all volumes, figures, maps, and appendices included in the Plan; and the adoption of the resolution was recorded in the corresponding minutes of the regular meeting of the Chester County Board of Commissioners.

Part 12. County-wide Act 167 Plan Implementation

Implementation by Municipalities

PA Act 167 requires that “within six months following adoption and approval of the watershed storm water plan, each municipality shall adopt or amend and implement ordinances and regulations, including zoning, subdivision and development, building code, and erosion and sedimentation ordinances, as are necessary to regulate development within the municipality in a manner consistent with the applicable watershed storm water plan and the provisions of this act.” Specifically, municipalities must review their current ordinances and adopt a revised ordinance that is consistent with the Matrix of Mandatory Minimum Ordinance Standards for Municipal Act 167 Ordinances (Appendix E), or adopt the County-wide Act 167 Model Ordinance (Appendix D). In addition:

- Municipalities that have land area within the Chester Creek, Conestoga River, Crum Creek, or Darby Creek watersheds must carry forward the standards indicated in Part 3 from the previously approved Act 167 plan(s) into their final County-wide Act 167 ordinance.
- Municipalities that include portions of the (East) Valley Creek watershed must also include the standards required in the Valley Creek Act 167 Plan for those portions of their municipality that are within that watershed.

Municipalities may adopt or retain stormwater standards and ordinance provisions that are more restrictive and more protective than those included in this County-wide Act 167 Plan, but they cannot be less restrictive or less stringent.

The following outlines the process required to be followed by municipalities for implementation of the County-wide Act 167 Plan following final adoption by the Chester County Board of Commissioners and final approval of the Plan by PADEP:

- PADEP will issue letters to all Chester County municipalities indicating its final approval of the Plan, and requiring that the municipalities adopt, within 6 months of the date of PADEP approval of the Plan, municipal ordinance(s) or ordinance provisions consistent with this County-wide Act 167 Plan.
- The County will host an implementation workshop to assist municipalities in understanding the process needed for adopting and implementing their Act 167 stormwater ordinances, and review the available information regarding PADEP reimbursement process and status of reimbursement funding availability.
- Following municipal adoption of their Act 167 ordinance or ordinance revisions, each municipality must submit to PADEP the Certification of Ordinance Adoption (Appendix H), signed by a professional licensed by the Commonwealth.

Implementation for State Projects

Per the provisions of Section 11(a) of PA Act 167, any State-funded or State-owned project located within Chester County must be consistent with this County-wide Act 167 Plan (or the (East) Valley Creek Act 167 Plan if located within that watershed). Immediately upon final approval of this Plan by PADEP, implementation of this County-wide Act 167 Plan for State projects will be undertaken as follows:

PADEP Review of State Projects

For all State projects that are not subject to municipal ordinance requirements – roadway and non-roadway – PADEP will be the lead agency conducting the review and approval of the proposed project plans for consistency with this County-wide Act 167 Plan, and will undertake that consistency evaluation as part of the review of a permit application, Notice of Intent (NOI), or other request for approval for an NPDES, Chapter 102, Chapter 105, joint permit, 401 water quality certification or other permit or approval, or as otherwise authorized by law. For projects that do not require a PADEP permit or approval, the State agency that is planning the project will implement the appropriate standards under its own review.

Land Development (Non-Roadway) State Projects

Any entities conducting non-roadway projects within the Chester County watersheds that are State-financed or State-owned (and not otherwise subject to the requirements of municipal ordinances) will implement this County-wide Act 167 Plan by conducting those projects in a manner consistent with this County-wide Act 167 Plan as described in Part 6.

Pennsylvania Turnpike Commission (PTC) projects

The Pennsylvania Turnpike Commission is required to comply with requirements of municipal ordinances. Therefore, projects undertaken by the PTC will implement this County-wide Act 167 Plan by complying with the municipal ordinance requirements in place within the municipality(ies) of Chester County in which its project(s) is(are) located and the municipality is responsible for review and approval of the proposed project plans in accordance with the provisions of its ordinance.

Pennsylvania Department of Transportation (PennDOT) projects

PennDOT will implement this County-wide Act 167 Plan by conducting its projects that are located within Chester County consistent with Part 6 of this County-wide Act 167 Plan and subject to review and approval for consistency with this County-wide Act 167 Plan by PADEP during permit application review, as described above.

Projects Underway Prior to Approval of this County-wide Act 167 Plan

Neither this County-wide Act 167 Plan nor its mandatory minimum standards applies to State roadway projects for which preliminary design has been completed and has received internal approval by the agency conducting the project prior to the date of PADEP approval of this County-wide Act 167 Plan.

Implementation for County and Municipal Roadway Projects

Whether or not they involve State or Federal funding, municipal- and county-owned (or sponsored) roadway, bridge and trail (built with impervious surfaces) projects are generally subject to review by the municipality in which the project is located for consistency with the minimum stormwater standards included in that municipality's ordinance. As with State roadway projects, neither this County-wide Act 167 Plan nor its mandatory minimum standards applies to any county or municipal roadways, bridges or trails projects for which preliminary design has been completed and has received internal approval by the agency conducting the project prior to the date of PADEP approval of this County-wide Act 167 Plan.

Part 13. Provisions for Future Updates and Revisions

Section 5(a) of PA Act 167 requires that the County "shall periodically review and revise such plan at least every five years" and sets out in Section 5(b)(13) that each plan shall include "provisions for periodically reviewing, revising and updating the plan." For this County-wide Act 167 Plan, the County will:

- Periodically coordinate with the WPAC to assess the effectiveness of the County-wide Act 167 Plan standards, the progress of implementation of mandatory actions, and to evaluate the need for review or update of the County-wide Act 167 Plan to better serve the needs of the municipalities and the watersheds;
- Periodically coordinate with PADEP to learn of any significant policy or regulatory changes that should be considered in evaluating the need for review or update of the County-wide Act 167 Plan; and
- Consider the following carry-forward issues when a County-wide Act 167 Plan revision is undertaken:
 - Stormwater management concerns related to solar panels;
 - Stormwater management concerns related to railway corridor/projects;
 - Implementation of stormwater TMDLs;
 - Stormwater management concerns related to State roadways;
 - Inclusion of stormwater management and TMDL "offsets" and "trading" options or opportunities that may be allowed by PADEP at that time;
 - Whether the thresholds of applicability of/exemption from the ordinance standards can/should be adjusted;
 - Opportunities to reduce the overall costs and burden to applicants and municipalities to implement the ordinance provisions;
 - Opportunities to reduce the cost and effort needed to comply with the ordinance provisions for small projects;
 - Opportunities to reduce the requirements for recordation of BMPs, responsible entity, access, preservation, and O&M plans;
 - Whether the level of discretion given to the "municipal engineer" for approval/disapproval of adequacy and functioning of a BMP has limited or prohibited the opportunity for challenge by landowner; and

- Potential list of and design templates for acceptable BMPs that can be used by applicants for projects with more than 2,000 square feet and less than 10,000 square feet of proposed impervious surface without need for engineering services to be obtained by the applicant.

Part 14. Eligible Costs for Reimbursement

PA Act 167 requires that when appropriated by the General Assembly, 75% of the administrative and plan preparation, enforcement, and implementation costs incurred by any county or municipality be reimbursed in accordance with Chapter 111 - Stormwater Management Grants and Reimbursement Regulations (adopted by the Environmental Quality Board August 27, 1985). PADEP guidance for municipal reimbursements is available on the County-wide Act 167 Plan website for municipalities. Municipalities are responsible for tracking their costs and for submitting their reimbursement requests directly to PADEP; however it is recognized that at the present time there is no funding appropriated for reimbursement of costs related to Act 167 activities.

As approved in the *Phase I Report*, Chester County will include eligible costs incurred by the County for preparation of the **Watersheds** Plan and its supporting documents as well as the eligible costs incurred for completion of Phase I and Phase II of this County-wide Act 167 Plan. A majority of the costs incurred in the completion of Phase I have been reimbursed by the Commonwealth, although an outstanding balance of unreimbursed costs that have been submitted to PADEP remains to be paid.

Due to the lack of funding for the PA Act 167 program, no grant funding was available for Chester County for Phase II. The County has continued to submit quarterly reimbursement invoices to PADEP for eligible costs including: the outstanding reimbursement balance from Phase I; all reimbursements due for Phase II (including development of the Christina Basin TMDL Implementation Plan); and the eligible costs for the **Watersheds** Plan (as presented in and approved as part of the *Phase I Report*).