

## **SECTION 7: Plan Implementation**

The existing institutional arrangements for the management of stormwater include state and county governments, as well as the sixteen municipalities within the Wissahickon Creek Watershed. All agencies are required to comply with the standards and criteria set forth in the Plan. This section outlines specific actions to be undertaken by those agencies.

Upon adoption of the Plan by the counties, the Plan will be submitted to the Pennsylvania Department of Environmental Protection (DEP). The DEP review process involves a determination that the Plan is consistent with the policies and requirements of Act 167. The DEP will also review the Plan for consistency with floodplain management requirements and other state programs, including those pertaining to dams, encroachments and other water obstructions.

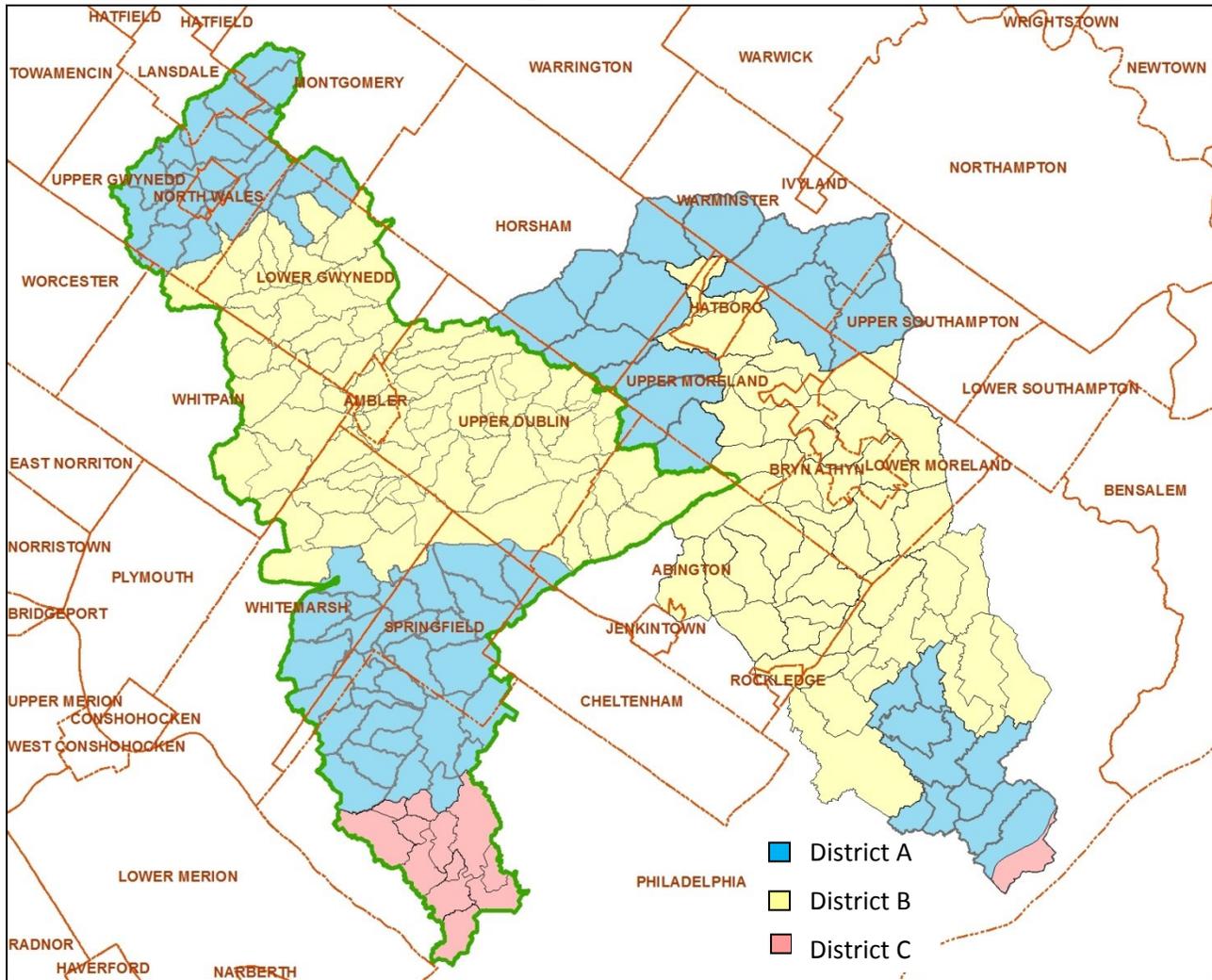
After DEP approval, the Philadelphia Water Department will publish the Plan and provide copies of the Plan to Montgomery County and the remaining fifteen municipalities.

### **7.1 Municipal Adoption of Ordinance or Regulations to Implement the Plan**

As set forth in Act 167, within six months following the adoption and approval of the Plan by the DEP, each municipality shall adopt or amend, and shall implement such ordinances and regulations, including zoning, subdivision and land development (SALDO), building code, and erosion and sedimentation ordinances, as are necessary to regulate development within the municipality in a manner consistent with the Plan. Table 7.1.A summarizes the status of ordinances for the watershed municipalities as of December 1, 2013.

The project team recommends that the municipalities adopt the model ordinance or regulations in their entirety, or integrate these provisions into existing ordinances or regulations. If the municipality lies in more than one watershed, the applicable release rates should be identified for the different watersheds. An example map showing the Pennypack and Wissahickon watersheds and how municipalities are affected by release rate districts is shown in Figure 7.1.A

**Figure 7.1.A Comparison of Wissahickon and Pennypack Watershed Peak Rate Management Districts**



**Table 7.1.A Status of Municipal Ordinances**

Category	Abington	Ambler Borough	Cheltenham	Horsham Township	Lansdale Borough	Lower Gwynedd Township	Montgomery Township	North Wales Borough	Springfield Township	Upper Dublin Township	Upper Gwynedd Township	Whitemarsh Township	Whitpain Township	Worcester Township
Ordinance	Stormwater Mgmt Ordinance	SALDO, Stormwater Mgmt Ordinance, Ch. 110, 260, & 295	SALDO, Stormwater Mgmt Ordinance, Ch. 110, 260, & 295	SALDO, Stormwater Mgmt Ordinance, Zoning Ordinance	SALDO, Stormwater Mgmt Ordinance, Ch. 1290, Zoning Ordinance	SALDO, Stormwater Mgmt Ordinance, Ch. 1290, Zoning Ordinance	SALDO, Stormwater Mgmt Ordinance	SALDO, Stormwater Mgmt Ordinance, Zoning	SALDO, Stormwater Mgmt Ordinance Ch. 13, 28, 95, 111, & 114	SALDO, Stormwater Mgmt Ordinance, Zoning Section	SALDO, Stormwater Mgmt Ordinance	SALDO Ord. 789	Ord. 4-40	SALDO
Reparian Buffer	Yes	Yes, 20 feet	Yes, 50 feet	Yes	NO	Yes, 25 feet Ch. 1298	NO	NO	Yes, at least 25 feet	Yes, 1 foot above 100 year floodplain or 50 feet from high bank, whichever is greater	No	Yes, 20 feet	NO	No
Wetland Protection	Yes	Yes	Yes	Yes	No, but there was wording about wildlife refuges in ch. 122	Yes	Yes	Yes	Yes	Yes	Yes	Yes	125-27, mention of it, but need more	Yes
Water course, lake, pond protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Intermittent Stream protection
Floodplain Regulation	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District, Ch. 1290	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District, Ch. 255	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District	Floodplain Conservation District
Percent protected for 100-yr floodplain	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100% **	100%*
Limit development on 100-yr floodplain fringe	Yes	Yes	Yes	Yes	Yes	Yes	Yes, 30 feet	Yes	Yes, Detailed in SALDO	Yes	Yes	Yes	YES **	Yes
Stormwater Ordinance	Yes, Ch. 142	Yes, Ch. 26	Yes, Ch. 290	Yes, Ch. 190	Yes, Ch. 1241	Yes, Ch. 1241	Yes, Ch. 205	Not a separate one on its own, but included in SALDO (184-15)	Yes, Ch. 88	Yes, ch. 206	Yes, ch. 162	Yes, ch. 58	Yes, ch. 125	Yes, in SALDO
Runoff equals pre and post development	Yes but with exceptions	Yes, ch 26 Appendix A, Attachment #1	Yes	Yes, with strict exceptions, Ch. 198	NO	Yes	Yes	Yes, in SALDO	No, there is no specific language found	No, there is language about controlling post amounts	Yes	Unclear	Yes	Yes
Erosion and sediment control	Yes	Yes	Yes	Yes	Yes	Yes	Yes, DEP Regulations	Yes	Yes, DEP Regulations	Yes, DEP Regulations	Yes	YES	YES	Yes in BMP
Best Management Practices (BMPs)	Yes	Yes	Yes	Yes	Only in the definitions in Ch. 99	Yes	Yes	Yes	Yes, Ch. 88	Yes	Yes, ch. 162	YES, Ch. 58	YES, Ch. 125	Yes

\*\*Approximate 100-yr floodway area where no Flood Insurance Study has been performed

\* The language says it is overflow that covers the 100 year, and is designed for 50 year

## 7.2 Municipal Implementation of Stormwater Improvements

While not required by Act 167, the municipalities are encouraged to construct the stormwater improvements identified in Section 6 and Appendix C. This can be done by increasing each municipality's capital improvement program funding. The various improvements are assigned a priority according to their location, cost-effectiveness and capture potential, and municipalities can use this ranking as a basis for funding projects over a long-term period, for example ten years. PennVEST funding can be sought to jump start a stormwater improvement program.

With respect to drainage problems, the project team recommends the construction of stormwater improvements to increase storage and reduce stormwater flows and volumes as the first consideration in addressing such problems. For cases where increased culvert capacity is the only viable means for solving a drainage problem, an evaluation of potential increases in downstream flood peaks should be performed to prevent adverse flooding or stream channel impacts. In addition, such actions might require municipalities to modify their flood insurance rate maps to outline additional areas subject to inundation during more extreme flood events.

An alternative approach for funding stormwater improvements and culvert capacity projects is to implement them through existing municipal water or wastewater authorities, which can collect parcel-based stormwater fees similar to those collected by the Philadelphia Water Department as part of its Green City Clean Waters Program. Recent state legislation enables authorities to impose and collect stormwater fees. A recent survey identified 1,112 stormwater utilities located in 38 states and the District of Columbia. The average monthly single family residential fee was \$4.12 and the median fee was \$3.50.<sup>1</sup> A similar program could be instituted by the municipal authorities in the Wissahickon Creek Watershed.

Municipalities also can consider a pooled watershed approach for constructing stormwater improvements given that improvements vary according to their effectiveness. Section 6 and Appendix C outline 538 acre-feet of additional storage reduction potential in the watershed. Using land area within the basin as baseline criterion, volume reduction targets can be established and used as credits towards achieving this overall reduction amount. Potential volume reduction targets are set forth on Table 7.2.A.

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<sup>1</sup> Stormwater Utility Survey 2010. Western Kentucky University, Bowling Green, Kentucky.

**Table 7.2.A Reduced Volume Reduction Targets**

<b>Municipality</b>	<b>Land Area (sq. miles)</b>	<b>Land Area %</b>	<b>Volume Reduction (acre/feet)</b>
Abington Township	3.58	5.66	30.47
Ambler Borough	0.85	1.34	7.21
Cheltenham Township	0.13	0.21	1.13
Horsham Township	0.01	0.01	0.54
Lansdale Borough	0.71	1.12	6.03
Lower Gwynedd Township	8.29	13.11	70.53
Montgomery Township	1.55	2.45	13.18
North Wales Borough	0.57	0.90	4.84
Philadelphia City	10.49	16.59	89.25
Springfield Township	6.40	10.12	54.45
Upper Dublin Township	12.00	18.98	102.11
Upper Gwynedd Township	5.01	7.92	42.61
Upper Moreland Township	0.03	0.05	0.27
Whitemarsh Township	8.22	13.00	69.94
Whitpain Township	5.29	8.37	45.03
Worcester Township	0.09	0.14	0.75
<b>TOTAL</b>	<b>63.22</b>	<b>100%</b>	<b>538</b>

As noted in Sections 3 and 5, ten stream segments in the Wissahickon Creek Watershed have been included in Pennsylvania’s 303(d) list due to nutrient impairments. Twenty one stream segments in the watershed have been included on Pennsylvania’s 303(d) list due to siltation impairments. In 2003, the U.S. Environmental Protection Agency (EPA) Region III established TMDLs for nutrients and siltation in the watershed. In 2006, the US EPA initiated a reevaluation of the nutrient TMDL (EPA 2006). The stormwater improvements recommended in Appendix C for the Southampton Creek subwatershed can provide a starting point for addressing the siltation TMDL.

### **7.3 County-Wide Coordination**

The Montgomery County Planning Commission will be available upon request to assist municipalities in the adoption of the model ordinance provisions to fit particular municipal ordinance structures. The primary county level activity will be the establishment of review procedures for evaluating stormwater management proposals for development sites and erosion and sediment control plans, the latter being the responsibility of the county conservation districts.

The counties are the primary local contact for stormwater management programs. County personnel provide the needed linkage between federal and state programs and local implementation. For example, counties can ensure that the requirements of federal wetland regulatory programs have been incorporated into land development decisions. The counties should maintain a database of information to assist the municipalities in their regulation of stormwater.

## **7.4 Commonwealth of Pennsylvania Actions**

As set forth in Act 167: "After adoption and approval of a watershed stormwater plan in accordance with this act, the location, design and construction within the watershed of stormwater 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 stormwater plan." Therefore, with the support of the DEP, state agencies constructing roads, highways, buildings and other facilities shall comply with the standards and criteria within the Plan as they pertain to stormwater management.

The PennVEST Act of 1988, as amended, provides low interest loans to governmental entities for the construction, improvement or rehabilitation of stormwater projects including the transport, storage, and infiltration of stormwater, and best management practices to address non-point source pollution associated with stormwater. In order to qualify for a loan under PennVEST, the municipality or county must be located in a watershed in which there is an existing county-adopted and DEP-approved stormwater plan with enacted stormwater ordinances consistent with the plan, or have enacted a stormwater control ordinance consistent with the Stormwater Management Act. With the adoption of the Plan, all local agencies will be eligible for low interest loans through PennVEST.

## **7.5 Landowners' and Developers' Responsibilities**

As noted in Act 167, "Any landowner and any person engaged in the alteration or development of land which may affect stormwater runoff characteristics shall implement such measures consistent with the provisions of the applicable watershed stormwater plan as are reasonably necessary to prevent injury to health, safety or other property. Such measures shall include such actions as are required:

- (1) to assure that the maximum rate of stormwater runoff is no greater after development than prior to development activities; or
- (2) to manage the quantity, velocity and direction of resulting stormwater runoff in a manner which otherwise adequately protects health and property from possible injury."

## **7.6 Plan Review**

The City of Philadelphia and Montgomery County Planning Commission shall monitor the administration and enforcement of the Plan and meet at least annually to coordinate the results of this monitoring. The Plan should be updated in five years.

## 7.7 Milestones

Table 7.7.A presents the primary milestones for implementing the Wissahickon Creek Watershed Act 167 Plan.

**Table 7.7.A Milestones for Implementing the Wissahickon Watershed Act 167 Plan**

<b>Milestone Action</b>	<b>Time Frame</b>	<b>Lead Agency</b>
Conduct Public Hearing	Winter 2014	PWD
Adopt Plan	Spring 2015	Counties, DEP
Adopt and Enforce Ordinances	Six Months after DEP Adoption	Municipalities
Construct Improvements	2014-2019	Municipalities
Monitor Plan and Ordinances	Annual	Counties
Update Plan	2019	Counties