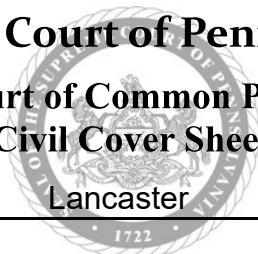


Supreme Court of Pennsylvania

Court of Common Pleas Civil Cover Sheet

Lancaster

County



Lancaster County Prothonotary E-Filed - 19 Jan 2024 10:16:10 AM

Case Number: CI-24-00440

For Prothonotary Use Only:

Docket No:

TIME STAMP

The information collected on this form is used solely for court administration purposes. This form does not supplement or replace the filing and service of pleadings or other papers as required by law or rules of court.

SECTION A

Commencement of Action:

- Complaint
 Writ of Summons
 Petition
 Transfer from Another Jurisdiction
 Declaration of Taking

Lead Plaintiff's Name:
City of Lancaster, Pennsylvania

Lead Defendant's Name:
Manheim Township, Pennsylvania

Are money damages requested? Yes No Dollar Amount Requested: within arbitration limits outside arbitration limits (check one)

Is this a *Class Action Suit*? Yes No Is this an *MDJ Appeal*? Yes No

Name of Plaintiff/Appellant's Attorney: Courtney L. Schultz, Esq. and John F. Stoviak, Esq.

Check here if you have no attorney (are a Self-Represented [Pro Se] Litigant)

SECTION B

Nature of the Case: Place an "X" to the left of the ONE case category that most accurately describes your **PRIMARY CASE**. If you are making more than one type of claim, check the one that you consider most important.

TORT (do not include Mass Tort)

- Intentional
 Malicious Prosecution
 Motor Vehicle
 Nuisance
 Premises Liability
 Product Liability (does not include mass tort)
 Slander/Libel/ Defamation
 Other: _____

MASS TORT

- Asbestos
 Tobacco
 Toxic Tort - DES
 Toxic Tort - Implant
 Toxic Waste
 Other: _____

PROFESSIONAL LIABILITY

- Dental
 Legal
 Medical
 Other Professional: _____

CONTRACT (do not include Judgments)

- Buyer Plaintiff
 Debt Collection: Credit Card
 Debt Collection: Other _____

 Employment Dispute: Discrimination
 Employment Dispute: Other _____

 Other: _____

REAL PROPERTY

- Ejectment
 Eminent Domain/Condemnation
 Ground Rent
 Landlord/Tenant Dispute
 Mortgage Foreclosure: Residential
 Mortgage Foreclosure: Commercial
 Partition
 Quiet Title
 Other: _____

CIVIL APPEALS

- Administrative Agencies
 Board of Assessment
 Board of Elections
 Dept. of Transportation
 Statutory Appeal: Other _____

 Zoning Board
 Other: _____

MISCELLANEOUS

- Common Law/Statutory Arbitration
 Declaratory Judgment
 Mandamus
 Non-Domestic Relations
 Restraining Order
 Quo Warranto
 Replevin
 Other: Environmental Rights Amendment

**PROTHONOTARY
CIVIL COVER SHEET**

PLEASE LIST NAMES AND ADDRESSES OF ADDITIONAL PARTIES ON A SEPARATE SHEET.

ALL PARTY INFORMATION IS REQUIRED INCLUDING ZIP CODES. ALL PARTY INFORMATION MUST MATCH THE PLEADING. PLEASE DO NOT STAPLE THE COVER SHEET TO THE PLEADING. IF AN EVENT NEEDS TO BE SCHEDULED, A CAO SCHEDULING COVER SHEET MUST ALSO BE ATTACHED.

For Prothonotary Use Only:

DOCKET No: CI -

TYPE OF ACTION: Civil

PARTY INFORMATION

PLAINTIFF'S NAME: City of Lancaster et al.

DEFENDANT'S NAME: Manheim Township et al.

ADDRESS: 120 North Duke Street
If confidential, use 2nd sheet
Lancaster, PA 17602

ADDRESS: 1840 Municipal Drive
Lancaster, PA 17601

MUNICIPALITY: Lancaster

MUNICIPALITY: _____

TWP/BOROUGH: _____

TWP/BOROUGH: Manheim

DOB: _____ TELEPHONE #: _____
(mm/dd/yyyy) (#####)

DOB: _____ TELEPHONE #: _____
(mm/dd/yyyy) (#####)

FILING ATTORNEY / FILING PARTY INFORMATION

FIRM/OFFICE: Saul Ewing LLP

FILING ATTORNEY/PARTY: Courtney L. Schultz & John F. Stoviak AOPC: (Attorney ID) #: 306479 & 23471

ADDRESS: 1500 Market St, Centre Square West CITY: Philadelphia STATE: PA ZIP CODE: 19102

TELEPHONE #: (215) 972-7777 EMAIL: courtney.schultz@saul.com
(#####)

TAX LIEN INFORMATION

MUNICIPALITY: _____ MAP REFERENCE: _____

DEED BOOK: _____ DEED PAGE: _____ DEED DATE: _____

SALE PRICE: _____ TAX YEAR: _____ TAX LIEN AMOUNT: _____

PROPERTY DESCRIPTION: _____

PFA/SVPO/PFI INFORMATION

HEARING DATE: _____ SOCIAL SECURITY #: (Defendant – Last 4 digits) _____

POLICE DEPARTMENT: _____

PREVIOUS PETITIONS: YES NO If 'YES', File Date: _____

ADDITIONAL PARTIES

PLAINTIFFS

Danene Sorace, MPP, Mayor of the City of Lancaster
120 North Duke Street, Lancaster, PA, 17602

DEFENDANTS

Stacey Morgan Brubaker, Esq., in her official capacity
1840 Municipal Drive, Lancaster, PA 17601

John C. Bear, MGA, in his official capacity
1840 Municipal Drive, Lancaster, PA 17601

Carol Gifford, in her official capacity
1840 Municipal Drive, Lancaster, PA 17601

Mary Jo Huyard, in her official capacity
1840 Municipal Drive, Lancaster, PA 17601

Celso Mesias, MDiv, in his official capacity
1840 Municipal Drive, Lancaster, PA 17601

Lisa A. Douglas, in her official capacity
1840 Municipal Drive, Lancaster, PA 17601

David Bednar, in his official capacity
1840 Municipal Drive, Lancaster, PA 17601

William "Bill" Sauers, P.E., in his official
capacity
1840 Municipal Drive, Lancaster, PA 17601

IN THE COURT OF COMMON PLEAS OF LANCASTER COUNTY, PENNSYLVANIA

CITY OF LANCASTER, PENNSYLVANIA :
120 North Duke Street, Lancaster, PA 17602, and :
DANENE SORACE, MPP, MAYOR, in her official :
capacity, :

Plaintiffs, :

v. :

MANHEIM TOWNSHIP, PENNSYLVANIA, :
1840 Municipal Drive, Lancaster, PA 17601, :
STACEY MORGAN BRUBAKER, ESQ., in her :
official capacity, :
JOHN C. BEAR, MGA, in his official capacity, :
CAROL GIFFORD, in her official capacity, :
MARY JO HUYARD, in her official capacity, :
CELSO MESIAS, MDiv, in his official capacity, :
LISA A. DOUGLAS, in her official capacity, :
DAVID BEDNAR, in his official capacity, and :
WILLIAM ("BILL") SAUERS, PE, in his official :
capacity, :

Defendants. :
)

TRIAL DIVISION – CIVIL

CIVIL ACTION

NO.: 24-00440

NOTICE

You have been sued in court. If you wish to defend against the claims set forth in the following pages, you must take action within twenty (20) days after this complaint and notice are served, by entering a written appearance personally or by attorney and filing in writing with the court your defenses or objections to the claims set forth against you. You are warned that if you fail to do so the case may proceed without you and a judgment may be entered against you by the court without further notice for any money claimed in the complaint or for any other claim or relief requested by the plaintiff. You may lose money or property or other rights important to you.

YOU SHOULD TAKE THIS PAPER TO YOUR LAWYER AT ONCE. IF YOU DO NOT HAVE A LAWYER, GO TO OR TELEPHONE THE OFFICE SET FORTH BELOW. THIS OFFICE CAN PROVIDE YOU WITH INFORMATION ABOUT HIRING A LAWYER.

IF YOU CANNOT AFFORD TO HIRE A LAWYER, THIS OFFICE MAY BE ABLE TO PROVIDE YOU WITH INFORMATION ABOUT AGENCIES THAT MAY OFFER LEGAL SERVICES TO ELIGIBLE PERSONS AT A REDUCED FEE OR NO FEE.

Lancaster Bar Association
Lawyer Referral Service
28 East Orange Street, Lancaster, PA 17602
Telephone: 717-393-0737

1/23/2024 024000916 \$205.00 RMD receipt 175191
51621348.1 1/24/2024 \$27.50 RMD receipt 175272

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courtney.schultz@saul.com

*Attorneys for Plaintiffs, City of Lancaster and
Danene Sorace, MPP, Mayor*

IN THE COURT OF COMMON PLEAS OF LANCASTER COUNTY, PENNSYLVANIA

CITY OF LANCASTER, PENNSYLVANIA	:	
120 North Duke Street, Lancaster, PA 17602, and	:	
DANENE SORACE, MPP, MAYOR, in her official:	:	
capacity,	:	
	:	TRIAL DIVISION – CIVIL
Plaintiffs,	:	
	:	
v.	:	CIVIL ACTION
	:	NO.: _____
MANHEIM TOWNSHIP, PENNSYLVANIA,	:	
1840 Municipal Drive, Lancaster, PA 17601,	:	
STACEY MORGAN BRUBAKER, ESQ., in her	:	
official capacity,	:	
JOHN C. BEAR, MGA, in his official capacity,	:	
CAROL GIFFORD, in her official capacity,	:	
MARY JO HUYARD, in her official capacity,	:	
CELSO MESIAS, MDiv, in his official capacity,	:	
LISA A. DOUGLAS, in her official capacity,	:	
DAVID BEDNAR, in his official capacity, and	:	
WILLIAM (“BILL”) SAUERS, PE, in his official	:	
capacity,	:	
	:	
Defendants.	:	

COMPLAINT

1. Plaintiff City of Lancaster, Pennsylvania (“Plaintiff City”) and Danene Sorace, MPP, in her official capacity as Mayor of the City of Lancaster (“Plaintiff Sorace”) (collectively,

“Plaintiffs”) bring this Complaint asserting claims for (a) Violations of Article I, Section 27 of the Pennsylvania Constitution – the Environmental Rights Amendment (“ERA”), (b) Public Nuisance, and (c) Declaratory Judgment against Defendants Manheim Township, Pennsylvania (“Township”), Stacey Morgan Brubaker, Esq., John C. Bear, MGA, Carol Gifford, Mary Jo Huyard, and Celso Mesias, MDiv, each of whom is sued in her or his official capacity as a member of the Manheim Township Board of Commissioners, Lisa A. Douglas and David Bednar in their official capacities as members of the Manheim Township Planning and Zoning Department, and William (“Bill”) Sauer, PE, in his official capacity as the Manheim Township Director of Public Works (Township and the individual defendants are collectively referred to herein as “Township Defendants”).

In support of these claims, Plaintiffs allege as follows.

INTRODUCTORY STATEMENT

2. Plaintiffs seek a Court Order requiring Township Defendants to meet their constitutional obligations under the ERA and remedy the ongoing public nuisance they have created by their failure to adequately limit and control stormwater created by Township Defendants’ approved developments and Combined Sewer Overflow (“CSO”) Outfalls—events which degrade and threaten to harm Pennsylvania’s waters and create a public nuisance that, among other things, adversely impacts Plaintiff City’s Combined Sewer Collection System, including Plaintiff City’s North Sewage Pumping Station, North Sewage Pumping Station Force Main, Combined Sewer Outfall 005, and Advanced Wastewater Treatment Plant (“AWWTP”) (collectively, “Combined Sewer Collection System”).

3. The Commonwealth of Pennsylvania, its cities, *its local governments*, and Pennsylvania agencies of all levels owe a duty to the people of this land: to act with prudence,

loyalty, and impartiality towards the preservation and protection of public natural resources.

4. Pursuant to the ERA, Pennsylvania's natural resources are the common property of all the people, and Township Defendants, as trustees of these resources, have a duty to conserve and maintain them for the benefit of all the people, and to protect the right of the people to "clean air, pure water," and "the preservation of the natural, scenic, historic, and esthetic values of the environment."

5. The excessive stormwater runoff emanating from within Township's boundaries is due in large part to Township Defendants' persistent failure to either: (a) require developers to install adequate stormwater controls in connection with the multitude of land-development approvals irresponsibly and unjustifiably approved by Township Defendants over a number of years; and/or (b) implement Township-funded infrastructure necessary to adequately control stormwater runoff emanating from within Township.

6. Township Defendants' irresponsible issuance of a multitude of land development approvals has materially increased the amount of impervious cover and the associated amount of stormwater runoff generated within areas of Township which drain into the Combined Sewer Collection System.

7. CSO events discharging sanitary wastewater and excessive stormwater have increased the amount of bacteria being discharged into receiving waters, which unreasonably degrade and threaten to harm public natural resources, including but not limited to degradation of waters such as the Conestoga River.

8. Township Defendants have acted in a manner that threatens and creates adverse impacts on the environment in order to obtain increased fees from land developers and significantly increase Township's tax base. In essence, Township Defendants have made an

affirmative choice to enhance Township's finances at the cost of degrading and threatening the environment, a choice which directly violates their duties as trustees under the ERA.

9. Township Defendants have refused multiple requests by Plaintiffs to address the excessive stormwater runoff from within Township's boundaries and draining into the Combined Sewer Collection System as part of their apparent strategy to force Plaintiffs to address the public nuisance and associated environmental threats and problems created by Township Defendants' actions and failures to act consistently with their duties as trustees of Pennsylvania's natural resources.

10. Under the requirements of the ERA, Township Defendants, as trustees of the environment, can no longer turn a blind eye to the damage caused by their prioritization of economic and developmental pursuits at the expense of protecting Pennsylvania's environment and water resources.

PARTIES

11. Plaintiff City is a municipality organized under the Third Class City Code, 11 Pa. C.S. §§ 10101 – 14702.

12. Plaintiff City's place of business is 120 North Duke Street, Lancaster, PA 17602 (*i.e.*, Lancaster County).

13. Plaintiff Sorace is the duly elected Mayor of Plaintiff City and brings this action in her official capacity.

14. Plaintiff Sorace's place of business is 120 North Duke Street, Lancaster, PA 17602.

15. Township is a municipality organized under the First Class Township Code, 53 P.S. §§ 55101 – 58502.

16. Township's place of business is 1840 Municipal Drive, Lancaster, PA 17601 (*i.e.*,

Lancaster County).

17. Defendant Stacey Morgan Brubaker, Esq., is the President of the Manheim Township Board of Commissioners, and she is sued in her official capacity. Her principal place of business as a member of the Manheim Township Board of Commissioners is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

18. Defendant John C. Bear, MGA, is the Vice President of the Manheim Township Board of Commissioners, and he is sued in his official capacity. His principal place of business as a member of the Manheim Township Board of Commissioners is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

19. Defendant Carol Gifford is a Commissioner of Manheim Township, and she is sued in her official capacity. Her principal place of business as a member of the Manheim Township Board of Commissioners is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

20. Defendant Mary Jo Huyard is a Commissioner of Manheim Township, and she is sued in her official capacity. Her principal place of business as a member of the Manheim Township Board of Commissioners is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

21. Defendant Celso Mesias, MDiv, is a Commissioner of Manheim Township, and he is sued in his official capacity. His principal place of business as a member of the Manheim Township Board of Commissioners is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

22. The Manheim Township Board of Commissioners, comprising of Defendant Stacey Morgan Brubaker, Esq., Defendant John C. Bear, MGA, Defendant Carol Gifford, Defendant

Mary Jo Huyard, and Defendant Celso Mesias, MDiv, is the governing body of Township. Its duties include the execution of the legislative, executive, and administrative powers of Township, and it is charged with managing Township and securing the health, safety, and welfare of the citizens of the community.

23. Defendant Lisa A. Douglas is the Director of Planning and Zoning for the Manheim Township Planning and Zoning Department, and she is sued in her official capacity. Her principal place of business as a member of the Manheim Township Planning and Zoning Department is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

24. Defendant David Bednar is the Zoning Officer for the Manheim Township Planning and Zoning Department, and he is sued in his official capacity. His principal place of business as a member of the Manheim Township Planning and Zoning Department is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

25. The Manheim Township Planning and Zoning Department exercises a variety of functions including, *inter alia*, coordinating work and analysis related to Township's Comprehensive Plan and other planning policies, preparing the subdivision, land development, zoning, and other ordinances, conducting technical reviews and making recommendations on land development and subdivision plan applications and zoning permits, processing and issuing building, zoning, and other development permits, and enforcement of Township zoning ordinances.

26. Defendant William ("Bill") Sauers, PE, is the Director of Public Works for the Manheim Township Public Works Department, and he is sued in his official capacity. His principal place of business as the Director of Public Works is the Manheim Township Municipal Building, 1840 Municipal Drive, Lancaster, PA 17601.

27. The Manheim Township Public Works Department is responsible for designing, constructing, and maintaining Township's infrastructure, including implementing stormwater management for Township's public system.

JURISDICTION AND VENUE

28. The Court of Common Pleas has subject matter jurisdiction over this matter pursuant to 42 Pa. C.S. § 931, which vests this Court with "unlimited original jurisdiction of all actions and proceedings" not otherwise provided for by law.

29. The Court of Common Pleas has personal jurisdiction over Township pursuant to 42 Pa. C.S. § 5301(a)(2) because Township is a municipal corporation incorporated under the laws of the Commonwealth of Pennsylvania.

30. The Court of Common Pleas has personal jurisdiction over the remaining Township Defendants, Defendants Brubaker, Bear, Gifford, Huyard, Mesias, Douglas, Bednar, and Sauers, pursuant to 42 Pa. C.S. § 5301.

31. Venue is appropriate in the Court of Common Pleas of Lancaster County pursuant to Pennsylvania Rule of Civil Procedure 2103(b) because this is an action against a political subdivision and its agencies and departments in the county in which the political subdivision and its agencies and departments are located.

FACTUAL BACKGROUND

A. Plaintiff City's Wastewater System.

32. Plaintiff City owns, operates, and maintains a publicly owned treatment works comprising the AWWTP and a subsurface collection system. The Combined Sewer Collection System (which, again, includes Plaintiff City's North Sewage Pumping Station, North Sewage Pumping Station Force Main, Combined Sewer Outfall 005, and AWWTP) accepts domestic sanitary wastewater from residential, commercial, and industrial sources located outside Plaintiff

City's geographical boundaries pursuant to a Tariff approved by the Pennsylvania Public Utility Commission ("Tariff"). A copy of the Tariff is attached hereto as **Exhibit "A"**.¹

33. Pursuant to the Tariff, Plaintiff City's Combined Sewer Collection System accepts and treats *sanitary wastewater* that certain other municipalities and utility authorities collect and convey to the AWWTP within the identified Service Area. The Service Area includes Plaintiff City and certain portions of the Townships of East Hempfield, East Lampeter, Lancaster, and Manheim.

34. The Tariff governs Plaintiff City's provision to Township of sewer services for *sanitary wastewater* only. *Id.* at First Revised Page 26.

35. "[D]omestic sanitary wastewater" is defined as "[n]ormal water carrying household and toilet wastes discharged from an improved property." *Id.* at First Revised Page 8A.

36. Sanitary wastewater and stormwater are not the same and are not treated the same under the Tariff.

37. Stormwater is defined as "[a]ny flow occurring during or following any form of natural precipitation, and resulting from such precipitation, including snowmelt." *Id.* at First Revised Page 8C.

38. Township is allowed to direct sanitary wastewater into Plaintiff City's Combined Sewer Collection System pursuant to the Tariff, but not stormwater, and Plaintiff City is not otherwise obligated to accept stormwater from the Service Area, including from Township.

39. Excess stormwater (such as that which Township Defendants allow to infiltrate Plaintiff City's Combined Sewer Collection System) brings excess water volume with more actual bacteria into the Combined Sewer Collection System and can cause CSO events which can

¹ Plaintiff City accepts domestic sanitary wastewater from sources located from inside Plaintiff City's limits too, which service is governed by ordinances.

transmit the increased bacteria into local waterways, such as the Conestoga River, Susquehanna River, and Chesapeake Bay.

40. Township Defendants control, and in some cases own, the surface utility service facilities and real property that convey stormwater to Plaintiff City's Combined Sewer Collection System. These utilities and properties are located within Township's boundaries and are hereinafter referred to as Township Defendants' "Area of Stormwater Control."

41. Pursuant to Section 402(a) of the Clean Water Act, 33 U.S.C. § 1342(a), and Section 202 of the Pennsylvania Clean Streams Law, 35 P.S. § 691.202, the Pennsylvania Department of Environmental Protection ("PADEP"), under authority delegated by the United States Environmental Protection Agency ("EPA"), issued Plaintiff City a National Pollutant Discharge Elimination System ("NPDES") Permit.

42. Plaintiff City is required to operate its publicly owned treatment works in compliance with the NPDES Permit.

43. The Combined Sewer Collection System is designed to discharge, under certain conditions specified in the NPDES Permit, through CSO Outfalls into the Conestoga River, which ultimately flows through to the Susquehanna River and later into the Chesapeake Bay.

B. CSO Events, Plaintiff City's Obligations Relating to CSO Events, and the 2017 Consent Decree.

44. A CSO event occurs when the amount of stormwater discharged into the Combined Sewer Collection System exceeds the system's capacity causing untreated or partially treated water to enter bodies of water.

45. CSO events need to be reduced or eliminated, and Township Defendants need to take all appropriate actions to stop their contributions to the occurrence of CSO events.

46. Discharges through CSO events are a potential source of water pollution to

receiving waters. The untreated or partially treated water that enters local waterbodies during CSO events contains additional bacteria that are harmful to the environment. As stormwater flows, it accumulates pollutants such as fertilizers, pesticides, and animal waste, as well as sediment.

47. Intruding stormwater from Township enters the Combined Sewer Collection System, and in certain circumstances—for example, during a heavy rainfall event—the Combined Sewer Collection System exceeds its capacity and must discharge untreated waters through outfalls or elsewhere. The excess volume of stormwater from Township contributes to these CSO events.

48. Township Defendants recognize the importance of meaningful and effective stormwater management in order to protect the waters of the Commonwealth and avoid CSO events because such CSO events periodically release overflow water into the Conestoga River.

49. Township’s website publishes an EPA publication titled “Protective Water Quality from Urban Runoff,” EPA 841-F-03-003, dated February 2023.² This very document published by Township explains that “stormwater runoff carries pollutants such as oil, dirt, chemicals, and lawn fertilizers directly to streams and rivers, where they seriously harm water quality. To protect surface-water quality and groundwater resources, development should be designed and built to minimize increases in runoff.” *Id.*

50. The Conestoga River flows to the Susquehanna River, which flows into the Chesapeake Bay. Stormwater runoff is a source of pollution of the Susquehanna River and the Chesapeake Bay, the latter of which is the target of one of the EPA’s highest-priority restoration efforts.

51. According to the EPA, the Susquehanna River provides approximately fifty percent

² See Manheim Township Government webpage, <https://www.manheimtownship.org/727/Stormwater-Management> (last visited January 11, 2024) (access by clicking on link titled “Home Info - Clean Water is Everyones ([sic] Business”).

of the freshwater flows into the Chesapeake Bay estuary, about half of the nitrogen, and more than a quarter of the phosphorous therein.³

C. Multiple Agreements and Ordinances Prohibit Township Defendants' Failure to Properly Control Stormwater Runoff Generated Within Township's Boundaries and Further Prohibit Township Defendants from Introducing, and Allowing Others to Introduce, Stormwater into Plaintiff City's Combined Sewer Collection System.

52. The Combined Sewer Collection System is neither intended to, nor designed to, process Township's stormwater runoff.

53. There is no agreement that allows Township Defendants to permit the release of stormwater into Plaintiff City's Combined Sewer Collection System.

54. There is no agreement that allows Township Defendants to permit others to release stormwater into Plaintiff City's Combined Sewer Collection System.

55. The Tariff, Plaintiff City's ordinances, and Township's ordinances prohibit any person from discharging or causing to be discharged any stormwater into Plaintiff City's sanitary sewer, *i.e.*, the Combined Sewer Collection System.

i. The Tariff Forbids Township Defendants from Discharging and Allowing Others to Discharge Stormwater into the Combined Sewer Collection System.

56. The Tariff expressly forbids Township Defendants from discharging and permitting the discharge of stormwater into the Combined Sewer Collection System. Tariff, **Exhibit "A"**, at Fourth Revised Page 10.

57. The Tariff itself contemplates at least one reason why additional stormwater cannot be added to the Combined Sewer Collection System: it has a damaging effect, the "restriction of the hydraulic capacity of the structures or system." *Id.* at First Revised Page 27.

³ See EPA, *EPA Funding to Accelerate Ag Pollution Reductions in Pennsylvania*, <https://www.epa.gov/newsreleases/epa-funding-accelerate-ag-pollution-reductions-pennsylvania> (last visited January 11, 2024).

58. Section 1.10 of the Tariff, titled “Prohibited Flow – Sanitary Sewage,” provides that “[n]o flow, other than sanitary sewage, shall be turned into or permitted to enter the City Sewer System, and no connection fixture, device, opening or condition shall be allowed to exist which would permit any flow, other than sanitary sewage, to enter the City Sewer System.” *Id.*

ii. Ordinances Governing Township Defendants Prohibit Them from Discharging and Allowing Others to Discharge Stormwater into the Combined Sewer Collection System.

59. Various ordinances prohibit the introduction of stormwater from Township into the Combined Sewer Collection System. *E.g.*, Manheim Township General Legislation Chapter 399, section 399-3(A) (incorporating by reference City of Lancaster, Part II, General Legislation, Chapter 249); City of Lancaster, Part II, General Legislation, Chapter 249, section 249-6(C).

60. City of Lancaster, Part II, General Legislation, Chapter 249, section 249-6(C) prohibits the unauthorized discharge of stormwater into the Combined Sewer Collection System. It provides:

No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, artesian well water, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters, swimming pool drainage, condensate, deionized water, noncontact cooling water, and unpolluted wastewater to any sanitary sewer [(defined)], unless specifically authorized by the Director. Where existing surface water or roof drains are connected to the sanitary sewers, they shall be removed within six months of receipt of notice from the City to remove such connection. In the event that such connection is not removed, the City shall cause it to be removed at the owner’s expense.

61. Township Defendants know their actions are in direct conflict with the Tariff and City of Lancaster, Part II, General Legislation, Chapter 249.

62. City of Lancaster, Part II, General Legislation, Chapter 249 applies to Township Defendants for at least the following reasons:

(a) Township is within Plaintiff City’s Service Area and, therefore, Plaintiff

City's ordinances prohibiting stormwater conveyance into the Combined Sewer Collection System must be applied and enforced by Township Defendants, not flouted.

(b) Through Manheim Township General Legislation Chapter 399, section 399-3(A), Township expressly adopted City of Lancaster, Part II, General Legislation, Chapter 249.

63. Manheim Township General Legislation Chapter 399, section 399-3(A), provides:

With respect to that portion of the sewer system which transports sewage and allowable industrial waste for treatment by the sewage treatment plant of the City of Lancaster, the Township specifically and expressly incorporates by reference, in its entirety, the Code of the City of Lancaster, Chapter 249, Sewers, as such rules and regulations are currently in effect and as the same may be amended from time to time.

64. City of Lancaster, Part II, General Legislation, Chapter 249 applies with equal force to Township Defendants through the Tariff, which provides:

Any municipality . . . which constructs or intends to construct a system of sewers or any extension of any existing system of sewers and who wishes to connect such sewers with the City Sewer System, either directly or indirectly, shall do so in accordance with the provisions of these rules and regulations, and the laws of the Commonwealth relating thereto.

Tariff, **Exhibit "A"**, at Fourth Revised Page No. 10 ("City Sewer System", as used above, refers to the Combined Sewer Collection System).

iii. Township Defendants Are Required to Apply Stormwater Management Ordinances which Are Intended to Properly Regulate and Control Stormwater Runoff Within Township's Boundaries.

65. Plaintiff City does not manage, own, or operate any of the surface features or conduits that convey stormwater into the Combined Sewer Collection System from Township. *See* 2017 Consent Decree between the EPA, PADEP, and Plaintiff City ("2017 Consent Decree"), ¶

7(y). A copy of the 2017 Consent Decree is attached hereto as **Exhibit “B”**.

66. Instead, Township Defendants control, and in some cases own, the surface utility service facilities and real property within Township Defendants’ Area of Stormwater Control that convey and release stormwater into Plaintiff City’s Combined Sewer Collection System.

67. A significant amount of stormwater runoff from Township Defendants’ Area of Stormwater Control connects to, and is released into, Plaintiff City’s Combined Sewer Collection System.

68. The stormwater measures that are supposed to apply, among others, to development in Township’s boundaries are found in the Stormwater Management Ordinance of Manheim Township (“SWM Ordinance”). Township Defendants are required by their own SWM Ordinance to regulate and adequately control stormwater runoff so as to avoid CSO events:

The [Commissioners] of Manheim Township are empowered to regulate these activities [(including stormwater management)] by the authority of the Act of October 4, 1978, P.L. 864 (Act 167), 32 P.S. § 680.1, et. seq., as amended, the ‘Stormwater Management Act’, Act 394 of 1937, as amended, 35 P.S. § 691.1 et. seq. the Pennsylvania Clean Streams Law, 53 P.S. § 55101 et. seq., and the First Class Township Code.

SWM Ordinance § 101.

69. Township Defendants are “also empowered to regulate land use activities that affect [runoff] by the authority of the Act of July 31, 1968, P.L. 805, No. 247, The Pennsylvania [Municipalities Planning Code] (MPC), as amended.” *Id.*

70. The SWM Ordinance was enacted pursuant to section 680.11, Chapter 32 of the Pennsylvania Statutes, which required that:

Within six months following adoption and approval of the watershed storm water plan, each municipality . . . shall implement such 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.

32 P.S. § 680.11.

71. One such example can be found in section 106 of the SWM Ordinance:

1. Notwithstanding any provision(s) of this [Ordinance], including exemptions and impervious credits, any landowner or any person engaged in the [alteration] or [development] of land which may affect [stormwater runoff] characteristics shall implement such measures as are reasonably necessary to protect other property. Such measures also shall include actions as are required to manage the rate, volume, direction, and quality of resulting [stormwater runoff] in a manner which otherwise adequately protects health, property, and water quality.

SWM Ordinance § 106.

D. Township Defendants Improperly Direct, Allow, and Permit Stormwater to Enter Plaintiff City's Combined Sewer Collection System and Cause and Contribute to CSO Events in Violation of the ERA, Various Agreements, Ordinances, and Measures. Township Defendants' Failures to Meet Their Obligations under the ERA Interfere with Plaintiff City's Efforts to Comply with the 2017 Consent Decree.

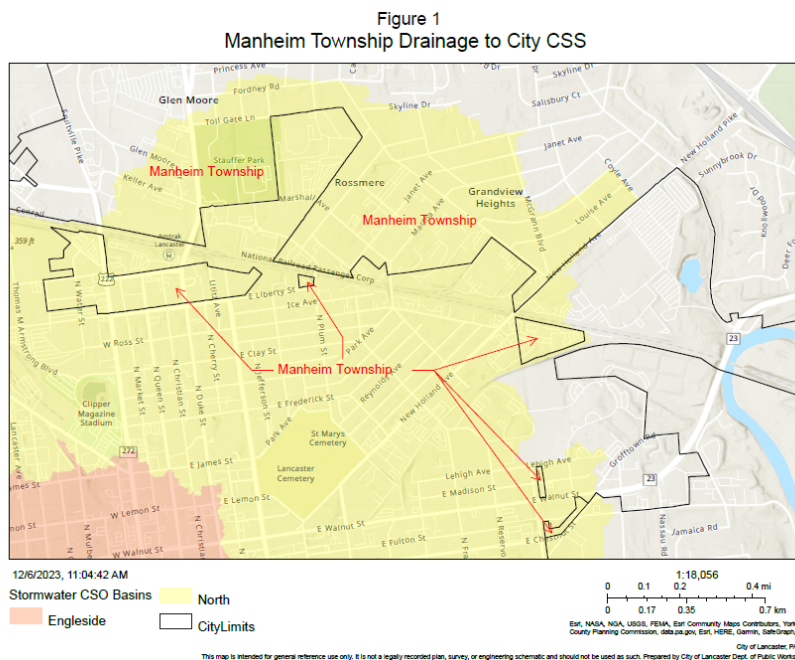
72. The Combined Sewer Collection System has experienced multiple CSO events, many of which were caused in whole or in part by stormwater flowing from Township.

73. These CSO events were, are, and will continue to be caused, in whole or in part, by Township Defendants' failure to properly address and comply with the stormwater management laws and regulations that they are required to apply and enforce for various land developments which they approve.

74. Township directs sanitary wastewater into the Combined Sewer Collection System for treatment at Plaintiff City's AWWTP. The actions and failures to act of Township Defendants have the effect of facilitating others to direct stormwater from Township into the Combined Sewer Collection System by allowing and approving land-development applications that improperly and unjustifiably contribute increased stormwater flow into the Combined Sewer Collection System.

These actions and failures to act by Township Defendants create and perpetuate a public nuisance, contribute to CSO events which degrade and threaten to harm the environment, and violate the ERA.

75. Upon information and belief, at least 339 acres of land within Township's boundaries and subject to Township Defendants' territorial control are involved in drainage of stormwater runoff into Plaintiff City's Combined Sewer Collection System, as generally depicted in Figure 1, below:



76. Figure 1, above, depicts certain areas of Township which are completely enveloped by Plaintiff City within the North Combined Sewer System drainage basin and an area of Township.

77. Stormwater runoff from Township in the areas depicted in Figure 1 ultimately—and improperly—enters the Combined Sewer Collection System through various means, including but not limited to: (a) public stormwater inlets connected directly to Plaintiff City's sewer pipes; (b) public stormwater inlets connected to Township's stormwater pipes which then connect to

Plaintiff City’s sewer pipes; (c) private property stormwater inlets connected directly to Plaintiff City’s sewer pipes; (d) private property stormwater inlets connected to Township’s stormwater pipes which then connect to Plaintiff City’s sewer pipes; (e) private property downspouts connected to Plaintiff City’s sewer pipes; (f) private property downspouts connected to Township’s stormwater pipes which then connect to Plaintiff City’s sewer pipes; (g) sheet flow (overland transport of stormwater in shallow, concentrated flows) from private property into Plaintiff City; and (h) sheet flow from Township’s streets into Plaintiff City.

78. Township Defendants have long known about these intrusions of stormwater into the Combined Sewer Collection System and their impacts. The impacts are significant enough that Plaintiff City and Township jointly commissioned a study to assess ways to address them. The study resulted in a final engineering report dated January 25, 2019, titled “Area-Wide Disconnection Feasibility Study” (“Study”). Exhibits 6 and 7 of the Study are depicted in Figures 2 and 3, below.

Figure 2



Figure 3



79. Upon information and belief, the following are some, but not all, of the streets in Township's boundaries that feature connections or conduits directly to the Combined Sewer Collection System:

- a. Skyline Drive;
- b. Tusitala Drive;
- c. Pleasure Road;
- d. Fountain Avenue;
- e. Janet Avenue;
- f. Martha Avenue;
- g. Marshall Avenue;
- h. Grandview Avenue;
- i. Helen Avenue;
- j. Cameron Avenue;
- k. Louise Avenue;
- l. Francis Avenue;
- m. New Holland Avenue;
- n. Manheim Avenue;
- o. Lincoln Street;
- p. North Water Street;
- q. North Charlotte Street;
- r. Jackson Street;
- s. North Prince Street; and
- t. North Duke Street.

80. Upon information and belief, the following list provides some, but not all, of the streets in Township's boundaries that feature public storm sewers that connect to the Combined Sewer Collection System:

- a. Keller Avenue;
- b. Marshall Avenue;
- c. Lititz Pike;
- d. Marshall Avenue;
- e. Pleasure Road; and
- f. Fountain Avenue.

81. Upon information and belief, the following list provides some, but not all, of the private properties in Township's boundaries that feature rainwater downspout locations that ultimately discharge into the Combined Sewer Collection System:

- a. 500, 600, 800, and 900 blocks of Pleasure Road;
- b. 700 block of Skyline Drive;
- c. 1100 block of Crest Lane;
- d. 700 block of Tusitala Drive;
- e. 700, 800, and 900 blocks of Janet Avenue;
- f. 1000 block of Frances Avenue;
- g. 800 and 900 blocks of Martha Avenue;
- h. 600, 700, 800, and 900 blocks of Grandview Boulevard;
- i. 700, 800, 900, and 1000 blocks of Helen Avenue;
- j. 800, 900, 1000, and 1100 blocks of Louise Avenue;
- k. 800, 900, 1000, and 1100 blocks of New Holland Avenue;
- l. 600, 700, 800, 900, and 1000 blocks of Fountain Avenue;
- m. 100 block of Manheim Avenue;
- n. 100 block of Lincoln Avenue;
- o. 100 and 200 blocks of Jackson Street;
- p. 1000 block of North Prince Street;
- q. 1000 block of North Queen Street;
- r. 1000 block of North Duke Street;
- s. 1000 block of Lititz Avenue;
- t. 1000 block of North Lime Street;
- u. 000 block of West Liberty;
- v. 000, 100, and 200 blocks of East Liberty; and
- w. 100, 200, and 300 blocks of North Broad Street.

82. Upon information and belief, the following list provides some, but not all, of the approved land development projects within Township's boundaries that contribute stormwater runoff to the Combined Sewer Collection System:

- a. 701 Tusitala Drive (2015);
- b. 800 New Holland Pike (2005);
- c. 802 New Holland Pike (2005);
- d. 806 New Holland Avenue (1997);
- e. Fountain Avenue Storm Sewer (1978);
- f. Grandview Plaza (1985);
- g. Grandview Plaza Lot 4 (1993);
- h. Grandview UMC Preliminary/Final Lot Add-on and Land Development Plan (2011);
- i. Grandview UMC Memorial Garden (1992);
- j. Grandview UMC Stormwater Management Plan (1991);
- k. Lititz Avenue Roadway Improvements (1996);
- l. Lititz Pike Bridge Amtrak (2014);
- m. Reconstruction of Marshall Avenue Marshall Avenue Storm Sewers (1971);
- n. McGovern Avenue Storm Sewer (1971);
- o. Post Office Annex (1994);
- p. Rossmere Area Sewers;
- q. Stauffer Park (1976);
- r. Stauffer Park (1976) 2nd Version;
- s. Stauffer Park Parking Lot (2014);
- t. Stauffer Park Restroom Facility (2009);
- u. Stockyards (2010);
- v. Stockyards Marshall Avenue Improvements (2016); and
- w. Technomic Publishing (1989).

83. The aforementioned locations that connect to and/or discharge stormwater into Plaintiff City's Combined Sewer Collection System were not approved by Plaintiffs and the aforementioned locations contribute to the CSO events that are the subject of this lawsuit.

84. These multiple sources of stormwater intrusion caused by development of the land were approved and permitted by Township Defendants. Despite approving and permitting developments that become improper sources of increased stormwater runoff from within Township's boundaries, Township Defendants refuse to provide for adequate stormwater control mechanisms and instead persist in allowing excessive stormwater to enter Plaintiff City's

Combined Sewer Collection System. Stormwater runoff allowed by Township Defendants causes CSO events that threaten ongoing harm and degradation of Pennsylvania's waters in violation of the ERA.

85. Each instance of stormwater inflow to the Combined Sewer Collection System violates the Tariff and City of Lancaster, Part II, General Legislation, Chapter 249, section 249-6, as incorporated into the Manheim Code pursuant to Manheim Township General Legislation Chapter 399, section 399-3(A).

86. Township Defendants' permitting and approval actions described herein are in violation of the very ordinances enacted by both Plaintiff City and Township Defendants prohibiting entry of stormwater from Township's boundaries into the Combined Sewer Collection System.

87. Contrary to their responsibilities and duties to regulate development in a manner that takes into account stormwater management under said ordinances, Township Defendants have unjustifiably allowed persistent and unmitigated stormwater flow to enter the Combined Sewer Collection System from a multitude of sources within their control and subject to their permitting approval and regulation.

88. Township Defendants' aforementioned actions and failures to act are contrary to the mandates of the ERA, the Tariff, and applicable ordinances. Township Defendants' actions and failure to create necessary stormwater management and control measures have allowed an ongoing public nuisance to exist.

E. Township Defendants Have Been on Notice That Their Actions Are Improper, Unlawful, and Harmful but They Still Refuse to Undertake the Necessary Actions.

89. Plaintiffs have notified Township Defendants of their failure to comply with the requirements of Plaintiff City's ordinances and Township's own ordinances.

90. Since at least 2013, and likely long before then, Township Defendants have had actual notice of how their permitting, development, and stormwater-related actions were causing stormwater discharge and CSO events in the Combined Sewer Collection System, unreasonably degrading and threatening Pennsylvania's public natural resources.

91. In 2013, Lancaster County transmitted to Township Defendants a public Municipal Stormwater Management Financing Feasibility Study that analyzed stormwater management practices that Township Defendants should implement and identified Township Defendants' Area of Stormwater Control as needing capital improvements related to stormwater management. A copy of the Municipal Stormwater Management Financing Feasibility Study is attached hereto as **Exhibit "C"**.

92. Plaintiffs have repeatedly and consistently sought Township Defendants' cooperation to eliminate stormwater flow from Township Defendants' Area of Stormwater Control into the Combined Sewer Collection System.

93. Even after years of notice, Township Defendants have allowed unauthorized discharges to the Combined Sewer Collection System. Township Defendants have approved, on information and belief, more than twenty development subdivisions, land development plans, and other such development activities unlawfully permitting additional, unauthorized stormwater discharges into Plaintiff City's Combined Sewer Collection System.

94. The Manheim Township Planning and Zoning Department has issued zoning approvals and other development approvals permitting additional, unauthorized stormwater discharges into Plaintiff City's Combined Sewer Collection System which have degraded and threatened to harm, continue to degrade and threaten to harm, and will in the future degrade and threaten to harm Pennsylvania's public natural resources.

95. In 2017, the EPA, PADEP, and Plaintiff City entered into the 2017 Consent Decree resolving certain alleged claims related to Plaintiff City's maintenance and operation of the Combined Sewer Collection System. 2017 Consent Decree, **Exhibit "B"**.

96. Pursuant to the 2017 Consent Decree, Plaintiff City is tasked with taking certain actions to reduce or eliminate CSO events in the Combined Sewer Collection System. These actions include pump station improvements, flow reduction projects, implementation of a green infrastructure program, and amendment and implementation of an updated Long-Term Control Plan.

97. The 2017 Consent Decree also requires Plaintiff City to

use its best efforts to obtain flow reductions from entities that discharge pumped groundwater flow to the Combined Sewer System and to reduce wet weather flow to the Combined Sewer System **from Manheim Township**. . . . [B]est efforts shall mean solicitation of cooperation and use of all legal means reasonably available to achieve the objectives of this Paragraph.

Id. ¶ 11 (emphasis added).

98. In accordance with the 2017 Consent Decree, Plaintiff City has first undertaken non-judicial means to reduce or cause Township Defendants to reduce wet weather flow to the Combined Sewer Collection System from Township Defendants' Area of Stormwater Control including, without limitation, by engaging in discussions with Township Defendants regarding undertaking the necessary actions, including capital improvements, to eliminate wet weather flow from Township Defendants' Area of Stormwater Control. However, Township Defendants have refused to make any commitments or take necessary actions to reduce or eliminate this unauthorized inflow.

99. Bringing this action is necessary for Plaintiff City to meet its obligations under the 2017 Consent Decree to use all legal means reasonably available to reduce wet weather flow to

the Combined Sewer Collection System from Township.

100. Township Defendants' refusal to constructively respond to Plaintiffs' request, choosing instead to persist in allowing excessive stormwater runoff with increased bacteria, degrades and threatens to harm Pennsylvania's waters and violates Township Defendants' duties as trustees under the ERA and perpetuates a public nuisance created by Township Defendants' actions and failures to act.

101. Ultimately, due to Township Defendants' refusal or failure to comply with the Tariff, ordinances, and measures applicable to them which prohibit stormwater discharges into Plaintiff City's Combined Sewer Collection System, Plaintiffs must now seek judicial relief to require Township Defendants to meet their duties under the ERA and eliminate the public nuisance they have created.

COUNT I
ENVIRONMENTAL RIGHTS AMENDMENT
(Plaintiffs v. All Defendants)

102. Each and every allegation contained in the foregoing Paragraphs of this Complaint is realleged and incorporated by reference as if set forth fully herein.

103. The ERA was adopted by the citizens of Pennsylvania on May 18, 1971, as part of the Constitution of the Commonwealth. It provides:

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.

Pa. Const., art. I, § 27.

104. Enactment of the ERA is reflective of the commitment and obligation of all members of the Commonwealth to the protection and preservation of natural resources for current

and future generations. The corpus of this trust is Pennsylvania's natural resources. The duties of trustee are imposed on the Commonwealth of Pennsylvania, including local governments and agencies, who are mandated as trustees to conserve and maintain those natural resources for the benefit of all the people, both now and for generations yet to come.

105. The "Commonwealth," as obligated by the ERA, includes local entities and their agencies and departments.

106. As a local government entity and local government agencies and departments, Township Defendants are fiduciaries under the ERA. As such, it is incumbent on Township Defendants to fulfill their duties as trustees of the environment.

107. The ERA establishes two mandates for Township Defendants as trustees: (a) to conserve and maintain the public resources; and (b) to manage those resources for the benefit of all Pennsylvanians, now and in the future.

108. Township Defendants' obligation to conserve and maintain the public's natural resources for the benefit of all the people must be carried out so as to protect the people's "right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment" under the ERA.

109. Township Defendants are trustees of the environment within Township's boundaries, including the Area of Stormwater Control and the areas of Township falling within the Service Area.

110. As trustees, Township Defendants have the specific duties to conserve and maintain the natural resources that are a part of the Public Trust.

111. It is inherent in these duties to conserve and protect that as trustees, Township Defendants must, before taking any action or making any decision that will impact the natural

resources of the Public Trust, evaluate what that impact will be on the natural resources, on the benefits of those resources to the people of the Commonwealth, and to the people's rights to the natural resources.

112. Township Defendants' mandate to conserve and protect requires a thorough evaluation of the impact of development on Public Trust land and water. This evaluation must address the cumulative impacts of all development in Township on the Public Trust's natural resources, including the impacts on the use and enjoyment of these Public Trust resources by the public, both now and for future generations.

113. Township Defendants have failed to meet their obligations and duties under the ERA by making unjustifiable decisions to engage in, permit, and approve development within Township's boundaries, harming Plaintiff City and the environment.

114. Township Defendants breached their Constitutional obligations by ignoring the environmental impact of their actions when engaging in, approving, permitting, and regulating land development that impacts stormwater runoff and by failing to provide for Township installation and funding of the necessary infrastructure to properly control stormwater runoff resulting from Township-approved developments.

115. Development approved for monetary gain without properly considering or addressing its effects on stormwater causes multiple adverse consequences to the resources of Pennsylvania. These effects are immediate and long term, direct and indirect, specific and cumulative, and without justification. Abiding by development requirements, stormwater requirements, and other limitations and regulations is paramount for conserving the environment in Pennsylvania, and in particular its surface waters and groundwater.

116. Township Defendants have failed to properly assess and address the impacts of

their development approvals on the creation of excessive stormwater runoff which drains into the Combined Sewer Collection System threatening unreasonable degradation of public natural resources.

117. Township Defendants' actions and failures to properly act violate their duty to conserve and maintain Pennsylvania's waters and other public natural resources.

118. Township Defendants, by knowingly allowing the unauthorized inflow from the Area of Stormwater Control into Plaintiff City's Combined Sewer Collection System, have caused increases in the number and volume of CSO events that threaten unreasonable impairment of the waters, public resources, and the environment of the Commonwealth.

119. Township Defendants, by knowingly approving additional development, subdivisions, land development plans, and other such actions, have unlawfully permitted additional unauthorized stormwater discharges into the Combined Sewer Collection System and have caused CSO events that unreasonably degrade and threaten to harm the waters, public resources, and environment of the Commonwealth.

120. Township Defendants must take all necessary actions to properly address and manage stormwater runoff from within Township's boundaries, rather than allowing stormwater runoff to unjustifiably burden the Combined Sewer Collection System.

121. Township Defendants are obligated to restore the natural resources they harm and to restore or replace the rights of the people thereto.

122. Plaintiffs' rights under the ERA have been and will continue to be violated by the above actions of Township Defendants.

123. Township Defendants have made it clear that they intend to ignore the consequences of their actions and ignore their Constitutional duties under the ERA unless this

Court declares Township Defendants' acts and actions to be in violation of the ERA's Constitutional mandate.

124. This Court should establish through declaration the Constitutional rights of Plaintiffs and the Constitutional duties of Township Defendants under the Public Trust of the ERA relating to the controversies described above and herein.

125. Township Defendants' unlawful discharge of stormwater into the Combined Sewer Collection System and approvals of development that increase the number and volume of CSO events degrade and threaten to harm public natural resources, are violative of the ERA and of Township Defendants' obligations to Plaintiffs and the people of this Commonwealth.

WHEREFORE, Plaintiffs respectfully request that the Court issue judgment in their favor and against Township Defendants providing for injunctive relief or other equitable relief to cease the unauthorized inflow of stormwater from the Area of Stormwater Control into Plaintiff City's Combined Sewer Collection System including, without limitation, by ordering that Township Defendants be required to: (a) timely develop a robust compliance plan and program providing adequate corrective actions which plan must include detailed plans for raising the necessary funds to implement all such corrective measures; (b) provide funding for the installation of necessary infrastructure and capital improvements designed to adequately control stormwater runoff; (c) cease the approval of additional connections within the Service Area; and (d) restrict further development activities within Township that would cause additional stormwater discharge into Plaintiff City's Combined Sewer Collection System. In addition, Plaintiffs respectfully request such other and further relief as the Court deems just and appropriate, including an award of attorneys' fees and costs to Plaintiffs.

COUNT II
PUBLIC NUISANCE
(Plaintiffs v. All Defendants)

126. Each and every allegation contained in the foregoing Paragraphs of this Complaint is realleged and incorporated by reference as if set forth fully herein.

127. Under Pennsylvania’s Storm Water Management Act, 32 P.S. §§ 680.1 – 680.17, any activity that violates the provisions of the Storm Water Management Act, any watershed stormwater plan, or any regulations or ordinances adopted pursuant to the Storm Water Management Act constitutes a public nuisance *per se*. *Id.* § 680.15(a).

128. Under City of Lancaster, Part II, General Legislation, Chapter 249, section 249-19(J), as incorporated by reference into the Manheim Code pursuant to Manheim Township General Legislation Chapter 399, section 399-3(A), “any violation of the prohibitions or effluent limitations of this regulation or any permit issued hereunder is hereby declared a public nuisance and may be corrected or abated as directed by [Plaintiff City].”

129. Township Defendants’ discharge of stormwater into the Combined Sewer Collection System and approval of developments have created unauthorized stormwater incursions into the Combined Sewer Collection System which violate Plaintiff City’s and Township’s ordinances adopted to manage stormwater, including but not limited to City of Lancaster, Part II, General Legislation, Chapter 249.

130. As such, Township Defendants’ actions constitute a public nuisance *per se* under both the Lancaster Code and the Storm Water Management Act.

131. The Storm Water Management Act provides that any “affected . . . municipality” may bring suit to “restrain, prevent or abate violation of this act or of any watershed storm water plan, regulations or ordinances adopted hereunder.” 32 P.S. § 680.15(b).

132. Plaintiff City is an “affected municipality” because it has been and continues to be harmed by Township Defendants’ repeated and ongoing discharge of stormwater constituting a public nuisance.

133. The Storm Water Management Act empowers this Court to require immediate abatement of unlawful conduct. *Id.* § 680.15.

134. Despite Plaintiffs’ years-long outreach and proposed collaborative solutions, Township Defendants have refused and failed to take any meaningful action to abate the public nuisance, choosing instead to exacerbate the problems associated with the public nuisance.

135. Township Defendants have caused an ongoing public nuisance for which Plaintiffs are entitled to judicial relief including, but not limited to, abatement of the nuisance.

WHEREFORE, based upon the foregoing, Plaintiffs respectfully request that this Honorable Court enter judgment in their favor and against Township Defendants providing for injunctive relief or other equitable relief in order to abate the public nuisance with respect to unauthorized inflow of stormwater from the Area of Stormwater Control into Plaintiff City’s Combined Sewer Collection System including, without limitation, by ordering that Township Defendants be required to: (a) timely develop a robust compliance plan and program providing adequate corrective actions which plan must include detailed plans for raising the necessary funds to implement all such corrective measures; (b) provide funding for the installation of necessary infrastructure and capital improvements designed to adequately control stormwater runoff; cease approval of additional connections within the Service Area; and (c) restrict further development activities within Township that would cause additional stormwater discharge into Plaintiff City’s Combined Sewer Collection System. In addition, Plaintiffs respectfully request such other and further relief as the Court deems just and appropriate, including an award of attorneys’ fees and

costs to Plaintiffs.

COUNT III
DECLARATORY JUDGMENT
(Plaintiffs v. All Defendants)

136. Each and every allegation contained in the foregoing Paragraphs of this Complaint is realleged and incorporated by reference as if set forth fully herein.

137. The Declaratory Judgments Act, 42 Pa. C.S. §§ 7531-41, provides that this Court “shall have power to declare rights, status, and other legal relations whether or not further relief is or could be claimed.” *Id.* § 7532.

138. The Declaratory Judgments Act also sets forth that any “person interested” may obtain a declaration of rights “to direct . . . trustees to do or abstain from doing any particular act in their fiduciary capacity.” *Id.* § 7535.

139. Plaintiffs are interested persons because Township Defendants’ discharge of stormwater and approvals of developments that discharge more stormwater into the Combined Sewer Collection System harm Plaintiffs and the resources of the Commonwealth.

140. Plaintiff Sorace is an interested person because, in her official capacity as Mayor of Plaintiff City, she is charged with executing and enforcing Plaintiff City’s ordinances, including the ordinances prohibiting the flow of stormwater into the Combined Sewer Collection System.

141. As set forth in Count I, Township Defendants are breaching their duties as trustees of the environment under the ERA by discharging stormwater into the Combined Sewer Collection System and approving new development that causes stormwater to enter the Combined Sewer Collection System.

142. There is a live case and controversy ripe for determination now because each future stormwater discharge into the Combined Sewer Collection System from the Area of Stormwater

Control and resulting CSO events adversely affect Plaintiff City and the resources of the Commonwealth.

143. Plaintiff City has enacted ordinances that restrict and prohibit the introduction of stormwater into its Combined Sewer Collection System and apply to Township Defendants via Township's incorporation by reference of Plaintiff City's Sewer Code (ordinances) into Township Code.

144. Township Defendants have allowed persistent and unmitigated stormwater flow from multiple sources within the Area of Stormwater Control to enter Plaintiff City's Combined Sewer Collection System in violation of City of Lancaster, Part II, General Legislation, Chapter 249, section 249-6, as incorporated into Township Code pursuant to Manheim Township General Legislation Chapter 399, section 399-3(A).

WHEREFORE, Plaintiffs respectfully request that the Court enters judgment in their favor and against Township Defendants, declaring that Plaintiffs are entitled to the cessation of the unauthorized inflow of stormwater from Township Defendants' Area of Stormwater Control into Plaintiff City's Combined Sewer Collection System including, without limitation, by ordering that until Township Defendants provide for capital improvements or take other measures to eliminate stormwater discharge into Plaintiff City's Combined Sewer Collection System, Township Defendants be required to: (a) fulfill their fiduciary duties as trustees of natural resources; (b) be bound by a compliance plan setting forth adequate corrective actions; (c) cease and desist the allowance of any additional connections within the Service Area; and (d) restrict any further development activities in Township's boundaries that would cause additional stormwater discharge into Plaintiff City's Combined Sewer Collection System. In addition, Plaintiffs respectfully request such other and further relief as the Court deems just and appropriate, including

an award of attorneys' fees and costs to Plaintiffs.

Dated: January 19, 2024.



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*Attorneys for Plaintiffs, City of Lancaster and
Danene Sorace, MPP, Mayor*

VERIFICATION

I, Stephen Campbell, Director of Public Works for the City of Lancaster, am authorized to make this verification on behalf of the City of Lancaster, and do hereby verify that the facts set forth in the foregoing Complaint are true and correct, to the best of my knowledge, information, and belief. I understand that false statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

Dated: January 19, 2024.



CERTIFICATE OF COMPLIANCE

I certify that this filing complies with the provisions of the *Case Records Public Access Policy of the Unified Judicial System of Pennsylvania* that require filing confidential information and documents differently than non-confidential information and documents.

Submitted by: /s/ Courtney L. Schultz

Courtney L. Schultz
Attorney No. 306479

EXHIBIT A

City of Lancaster

Lancaster, Pennsylvania

CITY OF LANCASTER

RATES AND RULES GOVERNING THE FURNISHING

OF SEWAGE SERVICE BY THE CITY OF LANCASTER,

OUTSIDE THE CORPORATE LIMITS OF SAID CITY,

IN PORTIONS OF THE TOWNSHIPS OF EAST LAMPETER,

EAST HEMPFIELD, LANCASTER, MANHEIM AND MANOR,

ALL LOCATED IN LANCASTER COUNTY, PENNSYLVANIA.

By: Patrick Hopkins
Business Administrator
Lancaster, Pennsylvania

NOTICE

THIS SUPPLEMENT MAKES INCREASES TO EXISTING RATES.
(SEE PAGE NO. 2)

Issued: March 13, 2020

Effective: March 14, 2020

CITY OF LANCASTER
Lancaster, Pennsylvania

Supplement No. 41 to
Sewer – PA P.U.C. No. 7
Twenty-Fourth Revised Page No. 2
Cancelling Twenty-Third Revised Page No. 2

**LIST OF INCREASES AND CHANGES
MADE BY THIS TARIFF**

INCREASES:

Supplement 41 increases rates to produce additional revenue of \$499,916. Please refer to the nineteenth revised page 5.

The minimum charge; volumetric charge and industrial waste surcharge were increased or decreased.

CITY OF LANCASTER
Lancaster, Pennsylvania

Lancaster County Prothonotary E-Filed - 19 Jan 2024 10:16:10 AM
Case Number: CI-24-00440

Supplement No. 41 to
Sewer – PA P.U.C. No. 7
Second Revised Page No. 2A
Cancelling First Page No. 2A

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CITY OF LANCASTER
Lancaster, Pennsylvania

Supplement No. 41 to
Sewer – PA P.U.C. No. 7
Twenty-Second Revised Page No. 3
Cancelling Twenty-First Revised Page No. 3

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CITY OF LANCASTER
Lancaster, Pennsylvania

Supplement No. 41 to
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Lancaster, Pennsylvania

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Territories Served (C)

Serving portions of the Townships of East Lampeter, East Hempfield, Lancaster, Manheim and Manor located in Lancaster County.

(C)-Indicates Change

Issued: March 13, 2020

Effective: March 14, 2020

CITY OF LANCASTER
 Lancaster, Pennsylvania

Supplement No. 41 to
 Sewer – PA P.U.C. No. 7
 Twenty-First Revised Page No. 5
 Cancelling Twentieth Revised Page No. 5

PART I - SCHEDULE OF CHARGES

1. General Service

Charges for wastewater treatment service shall be as follows: (I)

Consumption of Water in Gallons per Month/ Quarter		Rate per Thousand Gallons of Water
First	25,000/ 75,000	\$5.8720 (I)
Next	308,333/ 925,000	\$4.0750 (I)
All Over	333,333/ 1,000,000	\$3.1980 (I)

Minimum charges: (I)

Size of Meter	Minimum Charge per Month/ per Quarter
5/8" or 3/4"	\$5.87/\$17.62 (I)
1"	\$17.62/\$52.85 (I)
1 1/2"	\$35.23/\$105.70 (I)
2"	\$58.72/\$176.16 (I)
3"	\$117.44/\$352.32 (I)
4"	\$167.18/\$501.53 (I)
6"	\$289.43/\$868.28 (I)
8"	\$485.03/\$1,455.08 (I)
10"	\$660.25/\$1,980.75(I)
12"	\$982.18/\$2,946.53 (I)

(C) – Indicates Change

(I) - Indicates Increase

2. **RETURNED CHECK CHARGE (C)(I)**

A charge of thirty dollars (\$30.00) will be assessed any time a check which has been presented to the City for payment on account has been returned by the payer's bank for any reason. For a jurisdictional customer who receives both water and wastewater services only one returned check fee of thirty (\$30.00) will be charged for each instance of a returned check. (C) (I)

3. **LATE PAYMENT CHARGE (C) (I)**

A late payment charge will be assessed to any customer who fails to pay all of the amounts invoiced by the City in a timely manner as prescribed in **Part III Rule 3.6**. A late payment charge of one and fifty one-hundredths percent (1.50%) per billing period on any overdue amount will be assessed in the City's subsequent invoice. (C) (I)

4. **BILLING SERVICE RESTORATION CHARGE (C)(I)**

A customer who only receives sewer services from the City and is discontinuing service remains a customer for purposes of paying a billing service restoration charge pursuant to Part III, Rules 2.5 and 2.6. A charge for restoring billing service shall be eighty-three dollars (\$83.00) payable in advance. (C) (I)

5. **PROHIBITED INFILTRATION/INFLOW WATERS CHARGE (C)(I)**

The owner of an improved property who fails to repair or correct the defects causing infiltration/ inflow waters to flow into the wastewater system within ninety (90) days, after having received proper notice from the City, will be assessed a penalty of one hundred dollars (\$100.00) per day, until such remedial action is satisfactory completed. (C) (I)

(C) – Indicates Change

(I) - Indicates Increase

A customer could challenge the imposition of such a penalty by showing cause why the proposed action should not be taken. This challenge should be directed to the Control Authority. The Control Authority is defined as, "The individual employed by the City of Lancaster as the Director of Public Works or a qualified authorized deputy, agent or representative of the Director of Public Works." All challenges to penalties shall be in writing and shall be filed with the Director of Public Works within 20 days from the date that the City took the action which is the subject matter of appeal. The appeal shall contain the following information: 1. The name, address and telephone number of the appellant, 2. The date on which the City took the action which is the subject matter of the appeal, 3. The reason(s) for such appeal and specification of objections setting forth the manner in which the appellant is aggrieved, 4. A statement detailing the relief demanded by the appellant. If the differences between the Control Authority and customer can not be resolved, the matter shall be resolved by a Hearing Board appointed by the Mayor.

(C) – Indicates Change

(I) - Indicates Increase

6. **FAILURE TO CLEANUP AND REMEDY PROHIBITED DISCHARGES CHARGE (C)(I)**

Failure of the owner of an improved property and/or customer to satisfactorily clean up and remedy any prohibited discharge by act or omission, willfully, recklessly or negligently as characterized in Part III, Rule 1.13.2 within twenty-four (24) hours, will result in a penalty of five hundred dollars (\$500.00), plus an additional one hundred dollars (\$100.00) for each day thereafter of non-compliance. The owner and/or customer shall additionally be responsible for payment of the remedial cleanup costs, as well as any costs to or damages or losses suffered by the City as a result of any interference in operation of the wastewater system. (C) (I)

A customer could challenge the imposition of such a penalty by showing cause why the proposed action should not be taken. This challenge should be directed to the Control Authority. The Control Authority is defined as, "The individual employed by the City of Lancaster as the Director of Public Works or a qualified authorized deputy, agent or representative of the Director of Public Works." All challenges to penalties shall be in writing and shall be filed with the Director of Public Works within 20 days from the date that the City took the action which is the subject matter of appeal. The appeal shall contain the following information: 1. The name, address and telephone number of the appellant, 2. The date on which the City took the action which is the subject matter of the appeal, 3. The reason(s) for such appeal and specification of objections setting forth the manner in which the appellant is aggrieved, 4. A statement detailing the relief demanded by the appellant. If the differences between the Control Authority and customer can not be resolved, the matter shall be resolved by a Hearing Board appointed by the Mayor.

7. **CONNECTION PERMIT APPLICATION AND CUSTOMER SERVICE LINE INSPECTION CHARGE (C)(I)**

A charge of seventy-five dollars (\$75.00) will be assessed to the owner of an improved property to cover the costs incidental to the processing of a Connection Permit Application and the inspection of the customer service line following installation. This charge shall be payable when the Connection Permit Application is filed. (C) (I)

(C) – Indicates Change

(I) - Indicates Increase

CITY OF LANCASTER
Lancaster, Pennsylvania

Supplement No. 38 to
Tariff Sewer – PA P.U.C. No. 7
Fourth Revised Page No. 8
Cancelling Third Revised Page No. 8

PART II. DEFINITIONS (C)

1. **Applicant**: Any person, association, partnership, corporation, society, trust, religious organization or other group or entity, including municipalities, authorities, school districts, state or federal government agencies and other units of government, who has an interest in improved property located within the service territory, including property owners, tenants renting under a lease of one year or longer, persons who have entered into an agreement, or other persons having a similar interest, who applies to become a customer of the City in accordance with Part III Section 1. The term does **not** include a customer who, within sixty (60) days after termination or discontinuance of service, seeks to transfer service within the service territory or to reinstate service at the same address. (C)
2. **Average Monthly Limit (AML)**: The concentration limit established in the Prohibitive Standards and Pollutant Limitations, which applies to the average of at least two sampling events conducted within a calendar month. When only one sampling event occurs within a calendar month or a more extended period (such as quarterly), the average monthly limit shall apply. (C)
3. **Baseline Monitoring Report**: Refers to the report required in 40 CFR Part 403.12, to be submitted by all industrial uses subject to national pretreatment standards. (C)
4. **B.O.D. (Biochemical Oxygen Demand)**: The quantity of dissolved oxygen consumed in the biochemical oxidation of the organic matter in waste under standard laboratory procedure in five (5) days at twenty degrees Celsius (20°C) expressed in milligrams per liter (mg/l). It shall be determined by one of the acceptable methods described in 40 CFR Part 136. (C)
5. **City**: Shall mean City of Lancaster.
6. **City Sewer System**: Shall mean sewer mains, pumping stations, sewer force mains, sewage treatment plants and all appurtenant facilities operated by the City of Lancaster in furnishing sewage service. (C)
7. **City Service Line**: The wastewater line from the collection facilities of the City which connects to the customer service line at the hypothetical or actual curb line or actual property line.(C)
8. **Commercial Establishment**: A property which is intended to be used for the purpose of carrying on a trade, business or profession or for social, religious, educational, charitable or public uses. (C)
9. **Commercial Waste**: Any and all wastes discharged from a commercial establishment other than domestic sanitary wastewater. (C)

(C) – Indicates Change

10. Commission: The Pennsylvania Public Utility Commission (“PA PUC”). (C)
11. Control Authority: The individual employed by the City of Lancaster as the Director of Public Works or a qualified deputy, agent or representative of the Director of Public Works. (C)
12. Customer Service Lines: The wastewater line extending from the end of the City Service Line or connection to the point of connection at the customer’s premise. (C)
13. Customer: A natural person or entity who is an owner of an improved property connected to the City’s wastewater system or lessee of the property and who contracts with the Company for or receives wastewater collection, treatment and/or disposal service whether or not such contract is in writing. (C)
14. Domestic Sanitary Wastewater: Normal water carrying household and toilet wastes discharged from an improved property. (C)
15. Dwelling Unit: Any room, group of rooms, house trailer, apartment, condominium, cooperative or other enclosure connected, directly or indirectly, to the City’s wastewater system and occupied or intended for occupancy as living quarters by an individual, a single-family or other discrete group of persons, excluding institutional dormitories. (C)
16. Extension: An addition to the wastewater collection system to extend service into the City’s territory in order to accommodate more than one connection. (C)
17. Industrial User: Any connected user which is not a domestic user. (C)
18. Industrial Waste: Solids, liquids or gaseous substances or forms of energy ejected or escaping in the course of any industrial, manufacturing, trade or business process or in the course of development, recovering or processing of natural resources, or any wastes having any of the characteristics described in the Prohibitive Standards and Pollutant Limitations as distinct from but not sewage. (C)
19. Industrial Waste Discharge Permit: A permit issued to an industrial user in accordance with the Prohibitive Standards and Pollutant Limitations. (C)
20. Infiltration: Any groundwater entering the Customer Service Lines through defective joints and cracks in pipes. (C)

(C) – Indicates Change

CITY OF LANCASTER
Lancaster, Pennsylvania

Supplement No. 38 to
Tariff Sewer – PA P.U.C. No. 7
First Revised Page No. 8B
Cancelling Original Page No. 8B

21. Interference: A discharge which, alone or in conjunction with a discharge from other sources, results in a violation of any requirement of the sewage treatment plant's NPDES permit or prevents sludge use or disposal in compliance with state statutes or regulations, Section 405 of the Clean Water Act (33 U.S.C. § 1345 et seq.) or any criteria, guidelines or regulations developed pursuant to the Solid Waste Substances Control Act (15 U.S.C. § 2601 et seq.) applicable to the method of disposal or use employed by sewage treatment plant, or which causes a pass-through or disruption of operations at the sewage treatment plant. (C)
22. Meter: Any device for the purpose of measuring and recording water consumption or the volume of wastewater discharged. (C)
23. National Pollutant Discharge Elimination System Permit (NPDES Permit): A permit issued under the National Pollutant Discharge Elimination System (NPDES) for discharge to the navigable waters of the United States pursuant to Section 402 of the Clean Water Act. (C)
24. National Pretreatment Standard, Pretreatment Standard or Standard: Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307(b) and (c) of the Clean Water Act, the general and specific prohibitions found in 40 CFR, Part 403, and categorical pretreatment standards. (C)
25. Nuisance: A public nuisance as known in common law or in equity jurisprudence; whatever is dangerous to human life or detrimental to health. (C)
26. pH: The logarithm of the reciprocal of the concentration of hydrogen ions, in grams per liter of solution, indicating the degree of acidity or alkalinity of a substance. The measurement of pH shall be determined by one of the accepted methods described in 40 CFR Part 136. (C)
27. Pollutants: Any material that, when added to water, shall render that water (either because of the nature or quantity of the material) unacceptable for its original intended use, including but not limited to dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, chemical wastes, biological materials, radioactive materials, heat, sand, cellar dirt and industrial, municipal and agricultural wastes. (C)
28. Pretreatment: The reduction of the amount of pollutants, the elimination of pollutants or the alteration of the nature of pollutant properties in waste to less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into the sewerage system. The reduction or alteration can be obtained by physical, chemical or biological processes or by process changes by other means. (C)

(C) – Indicates Change

CITY OF LANCASTER
Lancaster, Pennsylvania

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First Revised Page No. 8C
Cancelling Original Page No. 8C

29. Pretreatment Requirement: Any substantive or procedural requirement related to pretreatment, other than a national pretreatment standard, imposed on an industrial user. (C)
30. Pretreatment Program: A program administered by the City that has been approved by the Environmental Protection Agency under 40 CFR 403.11 (related to approval procedures for pretreatment programs and granting of removal credits). (C)
31. Residential Service: Wastewater service supplied to an individual, single-family residential dwelling unit, including service provided to a commercial establishment if concurrent service is provided to a residential dwelling attached thereto. Wastewater service provided to a hotel or motel is not considered residential service. (C)
32. Sanitary Sewage: Shall mean spent water, together with human and household wastes ordinarily removed by water carriage and also industrial wastes. Such definition expressly excludes the effluent from septic tanks or cesspools, as well as rain, storm and ground water which could in any way enter the sewer system as well as roof or surface drainage, drainage of percolating or seeping waters or accumulations thereof, whether underground or in cellars or basements. (C)
33. Sludge Load or Sludge Discharge: Any discharge at a flow rate or concentration which could cause a violation of the prohibited discharge standards in this tariff. A sludge discharge is any discharge of a non-routine, episodic nature, including but not limited to accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass-through or in any way violate the POTW's regulations, local limits or permit conditions. (C)
34. Storm Water: Any flow occurring during or following any form of natural precipitation, and resulting from such precipitation, including snowmelt. (C)
35. Storm Water Collection System: A separate network of gutters, ditches, swales, pipes and inlets which receives discharges of storm water and/or conveys surface water, subsurface drainage or storm water from buildings, grounds, parking lots, streets, etc. but excludes wastewater. (C)
36. Suspended Solids: Total suspended matter that either floats on the surface of, or is suspended in, wastewater and that is removable by laboratory filtering as prescribed in 40 CFR Part 136. (C)

(C) – Indicates Change

37. Tariff: All of the service rates, charges, rules and regulations issued by the City together with any supplements or revisions thereto, officially approved by the Commission and contained in this document. (C)
38. Total Solids: Solids determined by evaporating at one hundred (100) degrees centigrade a mixed sample of wastewater as determined pursuant to the procedures set forth in 40 CFR 136. Total Solids include floating solids, suspended solids, settled solids and dissolved solids. (C)
39. Toxic Substance: Any substances where gaseous liquid or solid waste which, when discharged to the City's facilities in sufficient quantities, will be detrimental to any biological wastewater treatment process, constitute a hazard to human beings or animals, inhibit aquatic life, or create a hazard to recreation in receiving waters of the effluent from the wastewater treatment plant, or as defined pursuant to PL 92-500 (Federal Water Pollution Control Act Amendments of 1972) or its amendments. (C)
40. Waste: Refers to any sewage, industrial waste or holding tank waste, or any substance defined as waste by state or federal regulations. (C)
41. Wastewater: A combination of the water-carried wastes from an improved property, together with such ground, surface and storm water as may be present in the City's sewer system. (C)
42. Wastewater System: All facilities, at any particular time, acquired, constructed, operated, and/or owned by the City, for collecting, transporting, pumping, treating and disposing of wastewater. (C)

(C) – Indicates Change

PART III. RULES AND REGULATIONS

1.0 CONDITIONS OF SERVICE

1.1 Compliance with Rules and Regulations

No connection shall be made, either directly or indirectly, to the City Sewer System until all requirements of the rules and regulations have been met. No connection or Customer Service Line, through which sanitary sewage does or may enter the City Sewer System, shall be constructed, altered, repaired, or allowed to exist, which does not comply with the rules and regulations.

1.2 Application for Service

All applications for sewage service must be made, in writing, on a form provided by the City. The application and its acceptance by the City shall constitute a contract between the City and the applicant, obligating the applicant to pay rates, as established from time to time, and to comply with rules and regulations, as established from time to time. Connection permits shall be issued by the City upon approval of the application for sewage service.

1.3 Change in Ownership or Tenancy

A new application must be made to the City upon any change in ownership where the owner of the property is the customer, or upon any change in the identity of a lessee where the lessee of the property is the customer. The City shall have the right to discontinue or otherwise interrupt wastewater service in accordance with 52 Pa. Code § 56.91, if a new application has not been made and approved for the new customer. (C)

(C) – Indicates Change

1.4 Application Form:

An Application for Service form can be obtained at the City’s local business office, presently located at 39 West Chestnut Street. (C)

1.5 Temporary Service:

In the case of temporary service for short-term use, the City may require the customer to pay all costs of making the City service lateral connection and for its removal/abandonment after the service has been discontinued, or to pay a fixed amount in advance to cover such expenses. (C)

1.6 Requirement for Customer Service Lines

Sewage service shall be furnished through the City Sewer System under the following conditions: (1) the owner of premises to be served shall have installed a Customer Service Line, at the owner's expense, and (2) the Control Authority shall have inspected said Customer Service Line and approved such facilities as complying with the rules and regulations. (C)

1.7 Individual Customer Service Lines

Each property must have its own individual Customer Service Line. Each side of a double house shall be considered separate property. (C)

(C) – Indicates Change

1.8 Maintenance and Repair of Customer Service Lines

All Customer Service Lines shall be maintained and repaired at the cost of the owner of the premises served, and such repairs shall be subject to the direction, approval and inspection of the Control Authority. (C)

1.9 Inspection of Customer Service Lines and Sewage

The City, by its agents and employees, shall have the right, at all reasonable times, to enter any premises connected with or about to be connected with the City Sewer System, to inspect Customer Service Lines, sources and nature of sewage and all fixtures and facilities from which sanitary sewage may be discharged into the City Sewer System in order to enforce compliance with the rules and regulations. (C)

1.10 Prohibited Flow - Sanitary Sewage

No flow, other than sanitary sewage, shall be turned into or permitted to enter the City Sewer System, and no connection fixture, device, opening or condition shall be allowed to exist which would permit any flow, other than sanitary sewage, to enter the City Sewer System.

1.11 Connection to City Sewer System or Extension of Existing Sewer System

Any municipality, person, firm, or corporation which constructs or intends to construct a system of sewers or any extension of any existing system of sewers and who wishes to connect such sewers with the City Sewer System, either directly or indirectly, shall do so in accordance with the provisions of these rules and regulations, and the laws of the Commonwealth relating thereto. Before any such connection or addition shall be made, two copies of the maps or drawings of such system or addition to a system, must be furnished to the Control Authority and must be approved by the Control Authority. All properties served by such system, connected with the City Sewer System, shall become subject to the provisions contained in the rules and regulations, and the furnishing of sewage service to such properties shall be at the rates and charges provided in the tariffs of the City. (C)

(C) – Indicates Change

1.12 Customer Service Lines (C)

1.12.1 Plans and Specifications

Before connecting any proposed drainage or sewers directly or indirectly with the City Sewer System or before making any material alterations of existing drainage or sewers, connected directly or indirectly with the City Sewer System, plans and specifications shall be submitted to the Control Authority, unless such requirement is waived by the Control Authority, showing proposed construction or existing plumbing, as applicable, and, in the case of commercial or industrial establishments, a statement as to the nature of sanitary sewage to be drained shall also be submitted. The Control Authority shall approve or reject such plans and specifications (in writing, if requested) within seven (7) days where reasonably practicable. If the plan is rejected the applicant will have to file a new application. If the plan is approved the approval will last up to one year. If the connection has not been completed within twelve (12) months, the approval will lapse and applicant will have to submit a new approval request. (C)

The size, slope, alignment and materials of construction of a building sewer and the methods to be used in excavating, placing of the pipe, joining, testing and backfilling the trench shall all conform to the requirements of the Uniform Building Code and Plumbing Code and other applicable rules and regulations deemed necessary by the City. The Control Authority may require reconstruction of any work done improperly that in the City's opinion does not meet the recognized standards. (C)

1.13 Special Devices and Treatment (C)

1.13.1 Requirement of Special Devices

All sewage and authorized industrial waste may be discharged to the sewerage system, except those which are deemed harmful to the system by the Control Authority or are specifically prohibited by this section. (C)

If any proposed or present discharge of waste to the sewerage system containing the substances or possessing the characteristics enumerated in this section which, in the judgment of the Control Authority, may have deleterious effect upon the sewerage system, receiving water or sludge management practices or which otherwise creates a hazard to life or constitutes a public

(C) – Indicates Change

nuisance, the Control Authority may, upon giving notice to the discharger: (C)

- a) Reject the waste. (C)
- b) Require pretreatment to reduce characteristics to maximum limits permitted by those regulations. (C)
- c) Require control over the quantities and rates of discharge. (C)
- d) Require immediate discontinuance of the waste discharge until such time as it meets the requirements of those regulations. (C)

No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary sewer. Where existing surface water or roof drains are connected to the sanitary sewers they shall be removed within six months of receipt of notice from the City to remove such connections. In the event that such connection is not removed, the City shall cause it to be removed at the owner's expense. Groundwater from site contamination cleanup may be authorized by the Control Authority subject to the sewer system regulations as industrial waste. (C)

1.13.2 Prohibited Wastes - Special Treatment (C)

A. Except as hereinafter provided no person shall discharge (or cause or permit to be discharged) into the sewerage system (including any sanitary sewer, storm sewer or combined sewer) any sewage, industrial waste or other matter or substance possessing the following characteristics and properties: (C)

1. That could cause interference or pass-through, alone or in conjunction with a waste or wastes from other sources. (C)
2. Has a temperature higher than 150° Fahrenheit, or contains heat in amounts which will inhibit biological activity in the sewer treatment plant resulting in interference, but in no case heat in such quantities that the temperature of the influent to the sewage treatment plant exceeds 104° Fahrenheit, or inhibits the biological activity of the sewer treatment plant. (C)
3. Contains more than 300 mg/l of oil and grease, of which no more than 100 mg/l of oil and grease if the oil and grease is of unknown or petroleum origin, or more than 200 mg/l of oil or grease, if the oil and grease is determined to be of an animal or vegetable origin. The differentiation between oil and grease of animal or vegetable origin and

(C) – Indicates Change

those petroleum origin shall be made by the control authority according to approved procedures outlined in 40 CFR Part 136. (C)

4. Contains any gasoline, benzene, naphtha, fuel oil, paint products, acid or other flammable or explosive liquids, solids or gases. (C)

5. Has a closed cup flashpoint of less than 140° Fahrenheit. as determined by a method listed under 40 CFR Part 261.21. At no time shall two successive readings on an explosion hazard meter at the point of discharge into the system (or at any point in the system) be more than 5%, nor any single reading over 10%, of the lower explosive limit (LEL) of the meter. (C)

6. Contains unground garbage. (C)

7. Contains but is not limited to any ashes, cinders, sand, clay, mud, straw, shavings, metals, glass, rags, feathers, tar, plastics, wood, whole blood entrails, manure, lye, building materials, rubber, hair, bones, leather, proclaim, china, ceramic wastes or other solid or viscous substance capable of causing obstruction or other interference with the operation of the sewerage system. (C)

8. Has a pH, stabilized, lower than 5.5 or higher than 11.0 or has any other corrosive or scale-forming properly capable of causing damage or hazard to structures, equipment, bacterial action or personnel involved with the sewerage facility. (C)

9. Contains any pollutant or oxygen demand (biological or chemical) discharged at such a flow rate that could cause interference or pass-through. (C)

10. Contains total solids, no filterable residue or BOD of such character or quantity that unusual attention or expense is required to handle such materials in the sewerage system except as may be authorized by the Control Authority; may require analytical characterization to define the nature of the total solids. (C)

11. Contains any noxious or malodorous gas or substance which, alone or by interaction with other wastes, is capable of creating a public nuisance or hazard to life or preventing entry into sewers for their maintenance and repair. The discharge of wastes that result in gases, vapors or fumes in quantities that could cause worker health or safety problems at the sewer treatment plant is specifically prohibited. (C)

12. Contains any dye, pigment or coloration that could cause interference or pass-through. (C)

(C) – Indicates Change

13. Contains radioactive substances and or isotopes of such half-life or concentration as may exceed limits in compliance with applicable state or federal regulations. (C)
14. Has a chlorine demand in excess of 12 mg/l. (C)
15. Is prohibited by any permit issued by the Department of Environmental Protection or the Environmental Protection Agency. (C)
16. Contains wastes that are not amenable to biological treatment or reduction in existing treatment facilities, specifically non-biodegradable complex carbon compounds. (C)
17. Constitutes a sludge discharge as defined in the definition section of this tariff or violates Section 1.14.3. Sludge Discharge Control and Notification. (C)
18. Contains wastes which may cause the sewage treatment plant sludge or other residues to be unsuitable for reclamation, reuse or disposal by land application for agricultural utilization in normal farming operations in accordance with sludge use or disposal criteria, guidelines or regulations as are currently in effect (or any future updates or additions thereto) and are applied to or imposed upon the City by DEP and/or EPA and applicable to such land application of sludge or such other sludge management method used by the City. (C)
19. Contains any of the following pollutants in excess of these technically based local limits, as determined by one of the acceptable methods described in 40 CFR Part 136:

Parameter	Maximum Daily Limit (mg/l)
Arsenic	0.3
Cadmium	0.2
Chromium	2.6
Copper	4.8
Cyanide	0.6
Lead	1.2
Mercury	0.005
Molybdenum	0.9
Nickel	3.1
Selenium	0.4
Silver	2.1
Zinc	4.7

(C) – Indicates Change

20. Contains any substance that will cause sewage treatment plant's effluent to violate the NPDES permit under which it operates or the water quality standards established for the Conestoga River. (C)

B. Industrial waste may be subject to national pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties which may be discharged to the sewerage system by existing or new industrial users in specific industrial subcategories. These categorical standards, established in separate regulations under 40 CFR Chapter I, Subchapter N Parts 405 to 471, are hereby incorporated into these regulations and shall be in addition to any pretreatment standards and requirements stated explicitly in these regulation. The Control Authority may apply the following provisions where appropriate to modify the manner in which the categorical pretreatment standards are applied: (C)

1. Categorical pretreatment standards expressed only in terms of either mass or concentration of a pollutant in waste may be covered to equivalent concentration or mass limits in accordance with 40 CFR Part 403.6(c); (C)

2. The combined waste stream formula may be used to impose alternative limits in accordance with 40 CFR Part 403.6(e); (C)

3. Variance from categorical pretreatment standards may be obtained in cases of fundamentally different factors regarding limits developed by EPA, if proven by the user in accordance with 40 CFR Part 403.13; (C)

4. A net gross adjustment to a categorical pretreatment standard may be obtained by the user in accordance with 40 CFR Part 403.15. (C)

C. If the Control Authority determines that a waste from any significant industrial user poses a potential for pass-through or interference due to quality or quantity of the discharge, the Control Authority may place special requirements or limits, in addition to or more stringent than those contained in this article, in any industrial waste discharge permit to prevent such pass-through or interference. Such individual control limits may include but are not limited to solvent/organic management plans (STOMPs), toxic reduction evaluation plans (TREs), hazardous waste disposal plans, sludge discharge control plans or more stringent specific numerical limitations on substances. (C)

(C) – Indicates Change

D. Where preliminary treatment flow equalizing facilities are provided for any water or wastes, they shall be maintained continuously in satisfactory and effective operation by the owner, at his expense, and shall be accessible for inspection and testing by the Control Authority. (C)

E. No person shall ever increase the use of process water or in any way attempt to dilute a discharge as a partial or complete substitute for adequate pretreatment to achieve compliance with the limitations contained in the national pretreatment standards or in any other pollutant-specific limitation developed by the City. (C)

F. Except as otherwise provided, discharge of gas trap wastes in quantities that could, in the opinion of the City, cause interference or pass-through at the sewage treatment plant or could otherwise cause operational problems at the sewage treatment plant (including its collection system) is prohibited. In addition, petroleum oil, no biodegradable cutting oil or products of mineral oil origin in amounts causing interference or pass-through at the sewage treatment plant is prohibited. (C)

G. Grease, oil and sand interceptors or traps shall be provided where, in the opinion of the Control Authority, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts or any flammable wastes, sand or other harmful ingredients. All interceptors shall be of a type and capacity acceptable to the Control Authority and shall be located as to be readily and easily accessible for cleaning and inspection. (C)

H. The use of mechanical garbage grinders producing a finely divided mass, properly flushed with an ample amount of water, shall be permitted upon the condition that no such mechanical garbage grinder to serve premises used for commercial purposes shall be installed until permission for such installation shall have been obtained from the Control Authority upon written application therefore. (C)

I. Holding tank waste containing more than 2,000 mg/l solids may be classified as septage or industrial sludge and shall meet the current Pennsylvania guidelines for agricultural use of sewage sludge in order to be accepted. Acceptance of this material may be contingent on the status of any special equipment or operations required for treatment, and the decision of acceptance shall be made by the Control Authority. (C)

(C) – Indicates Change

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1.13.3. Sludge Discharge Control and Notification

A. All significant industrial users shall provide and maintain, at their own expense, facilities adequate, in the judgment of the Control Authority, to prevent accidental discharge of prohibited and/or regulated substances and/or sludge discharges and to protect the sewerage system from damages caused by such substances. No industrial user which commences discharge to the sewerage system after the effective date of this section shall be permitted to introduce pollutants into the sewerage system until the Control Authority has reviewed and approved that user's accidental discharge prevention or sludge prevention procedures (if those procedures are required by the Control Authority). If the Control Authority decides that a sludge control plan is needed, the plan shall contain, at a minimum, the elements required in 40 CFR Part 403.8(f)(2)(vii).

B. In the case of an accidental discharge to the sewerage system of any prohibited or regulated substance in such quantity or concentration that may result in violation of this regulation, the user shall immediately telephone and notify the Control Authority of the accident. The notification shall include information regarding the location of the discharge, the type of pollutants involved, the concentration and volume of the discharge and corrective actions taken and/or contemplated.

C. Within five (5) working days following an accidental discharge, the user shall submit to the Control Authority a detailed written report describing the cause of the discharge and measures to be taken by the user to prevent similar future occurrences. Such notification shall not relieve the user of any expense, loss, damage or other liability which may be incurred as a result of damage to the sewerage system, fish kills or any other damage to person or property, nor shall such notification relieve the user of any fines, civil penalties or other liability which may be imposed by this article or other applicable law. 1.13.3.

Sludge Discharge Control and Notification

1.13.4 Industrial Waste Surcharges (I)(C)

In the event that the City agrees to accept the discharge of industrial waste from a customer or waste generator into the sewer system which has a biochemical oxygen demand (BOD) concentration greater than 250 milligrams (C) per liter and/or a total suspended solids (SS) concentration greater than 250 milligrams per liter and/or a total nitrogen (TN) concentration greater than 30 milligrams per liter and/or a total phosphorous (TP) concentration greater than 10 milligrams per liter, the following

- (C) – Indicates Change
- (I) – Indicates Increase

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surcharge shall be applicable for the BOD in excess of 250 milligrams (C) per liter, SS in excess of 250 milligrams per liter, TN in excess of 30 milligrams per liter and TP in excess of 10 milligrams per liter:

- a) BOD: \$0.38 per pound (I)
- b) SS: \$0.23 per pound (D)
- c) TN: \$0.68 per pound (I)
- d) TP: \$0.68 per pound (I)

The surcharge shall be computed in accordance with the following formula: (C)(I)(D)

- a) BOD surcharge: (I)

Volume of discharge (gallons) x 0.00000834 x \$0.38 x (quarterly average concentration – 250 mg/L) (C)

- b) SS surcharge: (D)

Volume of discharge (gallons) x 0.00000834 x \$0.23 x (quarterly average concentration – 250 mg/L)

- c) TN surcharge: (I)

Volume of discharge (gallons) x 0.00000834 x \$0.68 x (quarterly average concentration – 30 mg/L)

- d) TP surcharge: (I)

Volume of discharge (gallons) x 0.00000834 x \$0.68 x (quarterly average concentration – 10 mg/L)

1.13.5 Sampling and Analysis

A. When required by the Control Authority, the owner of any improved property serviced by a public sewer carrying industrial waste shall install, at his expense, a suitable control manhole, together with any such necessary meters or appurtenances to facilitate observation, sampling and measurement of the waste.

- (C) – Indicates Change
- (I) – Indicates Increase
- (D) – Indicates Decrease

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The control manhole shall be accessible at all times to the Control Authority or designated representatives. In cases where the City has made no special requirement for a control manhole, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected. The control manhole shall allow the sampling of the discharge from an individual user, separate from any combined flow from any upstream users. (C)

B. All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made in this article shall be determined in accordance with procedures contained in 40 CFR Part 136 and shall be determined by or under the direct supervision of a qualified analyst at the control manhole provided or upon suitable samples taken at such control manhole. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewerage system and to determine the existence of hazards to life, limb or property. The particular analysis involved will determine whether a composite of all outfalls on a premises is appropriate or whether a grab sample or samples be taken. Sampling shall be done as to provide data representative of conditions occurring during any particular time within the period covered by the self-monitoring report. All sampling performed shall be done on different days of the week than was done during the previous calendar quarter for the self-monitoring report. (C)

1) Except as indicated in subsections B(2) and (3) below, the user must collect wastewater samples using twenty-four-hour flow proportional composite sampling techniques, unless time-proportional composite sampling or grab sampling is authorized by the Control Authority. Where time-proportional composite sampling or grab sampling is authorized by the Control Authority, the Samples must be representative of the discharge. Using protocols (including appropriate preservation) specified in 40 CFR Part 136 and appropriate EPA guidance, multiple grab samples collected during a twenty-four-hour period may be composited prior to the analysis as follows: for cyanide, total phenols and sulfides, the samples may be composited in the laboratory or in the field; for volatile organics and oil and grease, the samples may be composited in the laboratory. Composite samples for other parameters unaffected by the compositing procedures as documented in approved EPA methodologies may be authorized by the Control Authority, as appropriate. In addition, grab samples may be required to show compliance with instantaneous limits. (C)

(C) – Indicates Change

2) Samples for oil and grease, temperature, pH, cyanide, total phenols, sulfides and volatile organic compounds must be obtained using grab collection techniques. (C)

3) For sampling required in support of baseline monitoring and ninety-day compliance reports required in 40 CFR Part 403.12(b) and (d), a minimum of four grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide and volatile organic compounds for facilities for which historical sampling data do not exist; for facilities for which historical sampling data are available, the Control Authority may authorize a lower minimum. For the reports required by 40 CFR Part 403.12(e) and (h), the user is required to collect the number of grab samples necessary to assess and assure compliance with applicable pretreatment standards and requirements. (C)

C. If sampling performed by an industrial user indicates a violation, the user shall notify the City within 24 hours of becoming aware of the violation. The user shall also repeat the sampling and analysis and submit the results of the repeat analysis to the City within 30 days after becoming aware of the violation, except if notified by the Control Authority that an alternative re-sampling and analysis frequency is required. (C)

D. The owner of any improved property connected to the sewerage system shall provide the Control Authority or designated representatives and agents the opportunity of access at any time to any part of any improved property served by the sewerage system as shall be required for purposes of inspection, measurement, sampling and testing and for performance of other functions relating to service rendered by the City in regard to the sewerage system. (C)

E. The foregoing provisions and requirements for sampling, flow measurements, testing and inspection shall apply to discharges to sanitary sewers, storm sewers and combined sewers. Fees for inspection, sampling and testing shall be as established by the City. (C)

1.13.6 Penalties (C)

The City reserves the right to deny wastewater service for violation of any provision of these regulations, subject to PA PUC rules and regulations. (C)

(C) – Indicates Change

1.13.7 Damage to System and Indemnification (C)

In the event of any damage to the City’s wastewater system caused by a customer, such damage shall be immediately reported to the City and said customer shall reimburse the City for the costs and repairs. (C)

1.13.8 Emergency Termination of Service (C)

If a violation consists of the discharge of an explosive or flammable material or any other material which is highly toxic or creates a toxic gas so that there is imminent danger to the personnel, property or treatment process of the City, or to the public or the environment, then the City shall take whatever action is necessary in order to halt service and to protect life and property. (C)

In the event of a prohibited discharge into the City’s system the customer should immediately report such discharge to the Customer Service Line at (717) 735-3425. The customer will be responsible for any system repairs caused by the prohibited discharge. (C)

1.13.9 Approval of Pretreatment Devices (C)

All grease traps, sand traps, or other devices for pretreatment of sanitary sewage or industrial wastes shall be subject to the approval of the Control Authority prior to installation.

2.0 DISCONTINUANCE, TERMINATION AND RESTORATION OF SERVICE (C)

2.1 Sewer Rental Charges - Discontinuance of Service (C)

Sewer rental charges shall accrue and be payable for all periods during which sewage service is furnished. Any customer may discontinue sewage service by giving the City notice not less than twenty-four (24) hours prior to such discontinuance and shall continue to be responsible for all sewer rental charges until such notice is given. (C)

2.2 Termination by City (C)

Service to the customer may be terminated for good cause, including, but not limited to the following:

(C) – Indicates Change

- (a) making an application for service that contains material misrepresentations; (C)
- (b) failure to repair any known leaks in customer service line; (C)
- (c) connecting, or failure to remove the connection, of any source of storm water, surface water, ground water, roof runoff and/or uncontaminated water from air-conditioning system, swimming pools and so forth; (C)
- (d) tampering with any customer service line, lateral connection, or installing or maintaining any unauthorized connection; (C)
- (e) theft of service, which shall include taking service without having made a proper application for service under **Part III Rule 1**; (C)
- (f) failure to pay, when due, any charges accruing under this tariff; (C)
- (g) discharge of any prohibited substance listed in the tariff under **Part III Rule 1.13.2** into the City's system; (C)
- (h) failure to allow the City reasonable access to customer's property to inspect, investigate, read, sample, notify, maintain, repair, shutoff, etc.; (C)
- (i) receipt by the City of any order or notice from the Department of Environmental Protection, a health agency, local code enforcement officer, or other similar authority, to terminate service to the property served on the grounds of violation of any law or ordinance, or upon notice to the City from any such authority that it has ordered an existing violation on the property to be corrected and that such order has not been complied with; (C) or
- (j) material violation of any provision of this tariff. (C)

2.3 Notice (C)

The City will notify the customer in writing when a condition(s) that warrants termination is discovered. Notice of termination will be given in such a manner as may be specified in the Commission Regulations 52 Pa. Code §§56.91-56.100 (C)

(C) – Indicates Change

2.4 Timing (C)

Service will be terminated without notice for violation of Rule 2.2(d) and (e) of this Section. A reasonable time will be allowed to investigate, correct or cure the condition(s) specified when the customer provides written notification to the City of a realistic time schedule. A customer who does not notify the City is subject to having its service terminated without further notice from Monday through Friday. The termination of service may also include the termination of water service to the premise. (C)

Restoration of Service (C)

2.5 Conditions of Restoration (C)

Whenever service is discontinued by termination pursuant to **Rule 2.2** of this Section, service shall be permitted by the City upon payment by the customer of a billing service restoration charge and/or the curing of the problem(s) that gave rise to the termination. (C)

2.6 Timing (C)

When service to a customer has been terminated and, provided the Customer has met applicable conditions, the City shall reconnect service by close of the next business day unless there are extenuating circumstances. (C)

2.7 Damages (C)

The City shall not be liable for any damage or expense, occurring to or within any premises, resulting from leaks or stoppage in the City Sewer System or from any other cause. (C)

3.0 TERMS (C)

3.1 Quarterly Bill Delinquency as a Cause for Termination of Service (C)

Bills shall be rendered and shall be due and payable for sewage service rendered during the previous period, in accordance with the City's filed rates. If bills are not paid within thirty-five (35) days after they have been rendered, said bills shall be considered delinquent, and the City may, after due notice, in accordance with 52 Pa.

(C) – Indicates Change

Code §56.81, shut off water service to such property and shall restore water service upon payment of all delinquent bills, together with a charge of \$83.00 for restoring sewage service. For a jurisdictional customer who receives both water and wastewater services only one restoration charge of \$83.00 will be charged when the City restores service. (C)

3.2 Late Payment Charge (C)

A late payment charge will be assessed to any customer who fails to pay all of the amount invoiced by the City in a timely manner as prescribed in **Section 3.1**. A late payment charge of one and fifty one-hundredths percent (1.50%) per billing period, not to exceed eighteen percent (18%) per annum, on any overdue amount will be assessed in the City's subsequent invoice. (C)

3.3 Billing Address (C)

The Billing Address is the current address on file with the City for the wastewater service account. (C)

3.4 Change in Billing Address (C)

Where a customer fails to notify the City of a change in billing address, the customer shall remain responsible to remit payment by the billing due date. (C)

3.5 Return Check Charges (C)

The customer will be responsible for the payment of a charge, for each time a check, presented to the City for payment on a customer's utility bill, for either wastewater or non-wastewater service, is returned by the payer bank for any reason including, but not limited to, insufficient funds, account closed, payment stopped, two signatures required, post-dated, stale date, account garnished, or unauthorized signature. This charge is in addition to any charge which may be assessed against the customer by his or her bank. (C)

3.6 Disputed Bills (C)

In the event of a dispute between the customer and the City with respect to any bill, the City will promptly make such investigation as may be required by the particular case and report the result to the customer. The customer is not obligated to pay the disputed amount during the pendency of the City's investigation.

(C) – Indicates Change

4.0 **DEPOSITS** (C)

4.1 **Residential Customers** (C)

(a) **New Applicants:** The City will provide service without requiring an initial deposit unless the applicant was terminated for nonpayment within the prior twelve (12) months or has an unpaid balance for prior service from the City. The amount of the deposit will not be greater than an estimated average bill for one (1) billing period plus the estimated bill for one (1) additional month's service. (C)

(b) **Existing Customers:** If a customer has paid late on two (2) consecutive occasions or a total of three (3) times within the prior twelve (12) month period, the City may send a letter informing the customer that a deposit may be required if another late payment is received within the next twelve (12) months. An existing customer may be required to pay a deposit as a condition to having service restored after termination for non-payment or for failure to comply with a payment agreement. The amount of the deposit will not be greater than an estimated average bill for one (1) billing period plus the estimated bill for one (1) additional month's service. (C)

(c) **Deposit Refunds:** A deposit will be refunded if service is discontinued and the final bill is paid or if the customer has paid the bills for the prior twelve (12) month period without having been late on more than two (2) occasions and is not currently delinquent. Interest on deposits will be paid at the rate governed by 52 Pa. Code §56.57. On deposits held for more than a year, the City will pay to the depositor, at the end of each calendar year, the interest accrued thereon.(C)

4.2. **Non-residential Customers** (C)

(a) **New Applicants:** An initial deposit may be required from any new applicant who does not have prior satisfactory credit history with the City. The amount of the deposit will not be greater than an estimated average bill for one (1) billing period plus the estimated bill for one (1) additional month's service. (C)

(b) **Existing Customers:** Deposit requirements for existing non-residential customers shall be as established for residential customers in Rule 4.1 of this Section. (C)

(C) – Indicates Change

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(c) **Deposit Refunds:** A deposit will be refunded if the customer pays all bills on time over a twelve (12) month period or if service is discontinued and the final bill has been paid. There will be no interest paid on deposits for nonresidential accounts.(C)

5.0 **SERVICE CONTINUITY** (C)

5.1 **Regularity of Service** (C)

The City may, at any time, interrupt service in case of accident or for the purpose of making connections, alterations, repairs or changes, or for other reasons. The City will, pursuant to Commission regulations at 52 Pa. Code § 67.1 and as circumstances permit, notify customer to be affected by service interruptions. The City reserves the right to restrict the use of wastewater collection service whenever the public welfare may require it. (C)

5.2 **Liability for Damages** (C)

(a) Responsibility for Owner's and Customer's Facilities – The City shall not be liable for any loss or damage caused by reason of any breaks, leaks, stoppages or other defects in a customer service line, pipes, joints, fixtures or other installations except where the expense or damage is a result of the negligence or willful misconduct of the City, its employees or agents. (C)

(b) Limitation of Damages for Service Interruptions – The City's liability to a customer for any loss or damage from any deficiency in the wastewater collection service due to any cause other than negligent or willful misconduct by the City, its employees or agents, shall be limited to an amount no more than the minimum charge per month bill or per quarter bill for the period in question. The City will undertake to use reasonable care and diligence in order to prevent and avoid interruptions in service, but does not guarantee that such will not occur. (C)

6.0 **WAIVER** (C)

The City may at its sole discretion, waive any of the Rules contained herein that operate for the benefit of the City, provided that no such waiver shall be valid unless in writing and signed by an authorized representative of the City, and provided that no waiver shall be allowed where the waiver would constitute a violation of the Public Utility Code, the regulations of the Commission or of any other applicable statute, law or regulation. (C)

(C) – Indicates Change

**7.0 INDUSTRIAL AND COMMERCIAL ESTABLISHMENTS SERVICE
LIMITATIONS (C)**

The U.S. Environmental Protection Agency (EPA) Regional Administrator has determined that the City needs a Pretreatment Program meeting the criteria established in Title 40 Code of Federal Regulations (CFR) Part 403. Therefore, the City's NPDES permit currently does require it to administer an approved Pretreatment Program to control the discharges from non-domestic sources. All industrial and commercial waste proposed for discharge into the City's system shall be studied to determine the degree of pretreatment, if any, necessary, in order that the waste will not adversely affect the collection system and/or the wastewater treatment facilities. The City will have the authority to properly control any waste discharged into its system by regulating the rate of any waste discharge, by requiring necessary equalization and/or pretreatment, and by excluding certain waste, if necessary, to protect the integrity of the system. (C)

7.1 Customer Limitations (C)

No commercial or industrial waste, whether pretreated or not, may be discharged without prior written authorization from the City. Customers specifically agree that service applies exclusively for domestic sanitary wastewater. If any customer discharges industrial or commercial waste that: (C)

- (a) the existing wastewater treatment plant is unable to satisfactorily treat; (C) or,
- (b) is not in compliance with discharge permit standards, disrupts the normal functioning of the existing wastewater treatment plant; (C) or,
- (c) is more costly to treat than typical domestic sanitary wastewater; (C) or,
- (d) requires the utilization of more wastewater treatment plant capacity per gallon of effluent than that required by average typical domestic sanitary wastewater, then; (C)

the customer shall provide at the customer's own expense, such primary treatment as may be necessary before such waste is discharged into the City's mains. (C)

7.2 City Limitations (C)

The City will not be liable nor bound to increase wastewater treatment plant capacity and/or operations to accommodate industrial or commercial waste. (C)

(C) – Indicates Change

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7.3 Specific Dangers (C)

In general, any waste will be considered harmful to the City wastewater system if it may cause any of the following damaging effects: (C)

(a) chemical reaction either directly or indirectly with the materials of construction of the system in such a manner as to impair the strength or durability of the structures; (C)

(b) mechanical action that will destroy the structures; (C)

(c) restriction of the hydraulic capacity of the structures or system; (C)

(d) restriction of the normal inspection or maintenance of the structures or system; (C)

(e) danger to public health and safety; (C) or

(f) noxious condition contrary to public interest. (C)

8.0 AMENDMENT OF COMMISSION REGULATIONS (C)

Whenever Commission regulations in Title 52 of the Pennsylvania Code are duly amended in such a way as would produce a difference between Commission regulations and this tariff, this tariff is deemed to be amended so as to be consistent with the amendments to the regulations, except that if application of the amendment to Title 52 is discretionary this tariff will remain unchanged. (C)

9.0 PRIVILEGE TO INVESTIGATE/RIGHT OF ACCESS (C)

The City's authorized representatives or agents of the City shall have the right to access and/or enter at all reasonable hours the customer's private property including the access to all parts of any premise connected to the system, for the purpose of examining and inspecting connections and fixtures, including the water and/or wastewater metering arrangement, or for the disconnecting service for any proper cause. The inspections of premises will occur on a regular basis. The inspection of Commercial Establishments and Industrial Users may also occur at any hour the facility is in operation to aid in compliance monitoring. (C)

(C) – Indicates Change

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10.0 RULE VARIANCE (C)

No employee of the City can vary these Rules and Regulations, and no authorized representatives, agent or employee of the City can bind it by an agreement or representation except when authorized in writing by the City delinquent account exceptions not withstanding. (C)

11.0 SEWER MAIN EXTENSIONS

11.1 General Provisions

(a) The Utility shall agree to the extension of existing sewer mains for any bona fide prospective Customer or Developer making application for sewerage service therefrom for a period of one (1) year or more under these Rules and Regulations. Such extensions will be made at the cost of such Customer(s) subject to the provisions of Subsection (b) below.

(b) When an extension to serve a bona fide prospective Customer or Developer is required or requested, such extension will be made under the terms of a "Non-Refundable Contribution Agreement," as hereinafter set forth. The Utility shall have the exclusive right to determine the type and size of mains to be installed and the other facilities required to render adequate service. All estimated or actual cost figures referred to in the "Non-Refundable Contribution Agreement" shall include a reasonable allowance for overhead costs.

The bona fide prospective Customer or Developer will either deposit with the Utility, upon notice that the Utility is prepared and able to go forward with the work, an amount in cash equal to the Estimated Cost, or alternatively, at the discretion of the Utility, the prospective Customer will be required to construct the main extension to the City's specifications and, after inspection and approval by the City, to transfer to the City said mains, free and clear. In the event that the Utility performs the work, the Estimated Cost of the Deposit shall include estimates of the cost of said main(s) and of any other facilities which the Utility shall have decided are required to render adequate service.

In the event that the bona fide prospective Customer or Developer performs the work, the Customer shall agree to indemnify and hold harmless the Utility concerning construction of the main extension.

(C) – Indicates Change

(c) For the purpose of this rule: (C)

"Bona fide prospective customer" shall mean any owner or lessee who is or will be the occupant of an existing developed premise abutting on that part of a street or public highway in which there is, or is to be, located a sewer main of the Utility, who shall file a signed application for a new sewer lateral to such premises and for sewerage service to begin immediately following installation for the sewer lateral. This definition does not include applicants for temporary service. (C)

"Developer" shall mean any owner, promoter, broker, builder, or contractor or similar individual or entity engaged in the development or improvement of real estate or in the construction of residences, as opposed to a person who will occupy the subject property or premises at the time permanent sewer service is established. (C)

"Sewer lateral" shall mean a pipe with appurtenances used to collect sewage from the customer's premises to the sewer main. (C)

(e) Sewer lateral serving a premises shall not pass through or across any premises or property other than that to be supplied, and no laterals or plumbing in any premises shall be extended therefrom to adjacent or other premises. Sewer lateral connections will not be permitted to cross intervening properties even with the protection of easements. Only Customers owning property in fee which directly abuts a street wherein there is an existing main of the Utility will be permitted to attach a sewer lateral connection to the Utility's main for the purpose of discharging sewage. It is understood that such property owned in fee by the said prospective Customer shall be a complete standard building lot which complies with the existing zoning laws and regulations of the municipality in which such property is located. It is further understood that if such property owned in fee by a Customer is subsequently sold, the purchaser of such property will be entitled to receive sewer service upon compliance with all of the provisions of this tariff. (C)

(C) – Indicates Change

EXHIBIT B

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA,)	
)	
and)	
)	Civil Action No. 17-cv-5684
COMMONWEALTH OF PENNSYLVANIA,)	
DEPARTMENT OF ENVIRONMENTAL)	Notice of Lodging
PROTECTION)	Consent Decree
)	
v.)	
)	
CITY OF LANCASTER, PENNSYLVANIA)	
_____)	

NOTICE OF LODGING OF PROPOSED CONSENT DECREE

The United States of America is lodging with the Court a proposed Consent Decree resolving the liability of defendant City of Lancaster, PA, for violations alleged in the Complaint filed in this action. The Complaint, filed on behalf of the United States Environmental Protection Agency (EPA) and co-plaintiff Commonwealth of Pennsylvania Department of Environmental Protection (PADEP), alleges violations of the Clean Water Act, 33 U.S.C. §§ 1251, the Pennsylvania Clean Streams Law, 35 P.S. §§ 691.1-691.1001, and the defendant’s National Pollutant Discharge Elimination System (NPDES) Permit. The Complaint alleges that Lancaster violated its National Pollutant Discharge Elimination System (“NPDES”) permit and the Act by failing to develop and implement an adequate Long Term Control Plan (“LTCP”), violating effluent limits, failing to comply with the Nine Minimum Control Requirements, and discharging sanitary sewer overflows. The terms of the settlement are set forth in the proposed Consent Decree filed with the Court with this Notice of Lodging.

The United States respectfully requests that the Court not sign the proposed Consent Decree and not take any action on the proposed Consent Decree at this time. Consistent with

Department of Justice regulations codified at 28 C.F.R. § 50.7, the United States will publish in the _____ a notice that the proposed Consent Decree has been lodged with the Court. The notice will solicit public comment for a period of thirty (30) days. No action by the Court is necessary in response to this Notice of Lodging and for the duration of the public comment period. After the close of the comment period, the United States and the Pennsylvania Department of Environmental Protection will evaluate any comments received and will thereafter request the Court to take appropriate action regarding the proposed Consent Decree.

Dated: December 19, 2017

RESPECTFULLY SUBMITTED,

JEFFREY H. WOOD
Acting Assistant Attorney General
U.S. Department of Justice
Environment and Natural Resources Division
Washington, D.C.

/s/ Donna D. Duer
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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

_____)	
UNITED STATES OF AMERICA,)	
)	
and)	
)	Civil Action No. 17-cv-5684
COMMONWEALTH OF PENNSYLVANIA,)	
DEPARTMENT OF ENVIRONMENTAL)	Judge
PROTECTION)	
Plaintiffs,)	
)	
v.)	
)	
CITY OF LANCASTER, PENNSYLVANIA,)	
)	
Defendant.)	
_____)	

CONSENT DECREE

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WHEREAS, the Defendant, City of Lancaster (“Lancaster” or “City”), is a municipality organized under the Third Class City Code, Act of June 23, 1931, P.L. 932, as amended, 53 P.S. §§ 35101 ., that owns, operates, and maintains a publicly owned treatment works (“POTW”) that includes a wastewater treatment plant known as the Advanced Wastewater Treatment Plant (“WWTP”) and a collection system (“Collection System”) that collects stormwater and wastewater from residential, commercial, and industrial sources. Certain portions of the Collection System are a Combined Sewer System and other portions are a Sanitary Sewer System. Pursuant to contractual arrangements, Lancaster also treats wastewater at the WWTP that has been collected and conveyed to the WWTP from Tributary Municipalities and Tributary Authorities;

WHEREAS, the Lancaster Collection and Treatment System includes force mains, sewer lines, and other real and personal property and appurtenances thereto designed to collect and convey to the WWTP combined wastewater, including sewage and stormwater;

WHEREAS, Lancaster’s Collection and Treatment System is designed to discharge, under certain conditions specified in NPDES Permit No. PA0026743, through Combined Sewer Overflow (“CSO”) Outfalls, into the Conestoga River, which ultimately flows into the Chesapeake Bay;

WHEREAS, discharges through CSO Outfalls are a source of water pollution to receiving waters;

WHEREAS, pursuant to Section 402(a) of the Clean Water Act, 33 U.S.C. § 1342(a), and Section 202 of the Clean Streams Law, 35 P.S. § 691.202, the Pennsylvania Department of Environmental Protection (“PADEP”) issued to Lancaster NPDES Permit No. PA0026743,

which was most recently re-issued on July 28, 2010, and effective on August 1, 2010 (“NPDES Permit”);

WHEREAS, the NPDES Permit requires Lancaster to implement a Long Term Control Plan (“LTCP”) for the purpose of achieving compliance with the Pennsylvania Water Quality Standards and consistent with the United States Environmental Protection Agency’s (“EPA”) “Combined Sewer Overflows Guidance for Long Term Control Plan” (EPA 832-B-95-002) and CSO Policy, as defined herein;

WHEREAS, on September 5, 2008, EPA issued an Administrative Order and Information Request to the City of Lancaster, In the Matter of City of Lancaster Sewer Authority, Findings of Violation and Order for Compliance, EPA Docket No. CWA-03-2008-0390-DN;

WHEREAS, on July 9, 2009, Lancaster submitted to PADEP and EPA a revised LTCP, and by letter dated April 28, 2010, EPA provided comments to Lancaster on the July 9, 2009 LTCP, and Lancaster responded;

WHEREAS, in October 2010, Lancaster submitted to EPA a status report on Lancaster’s 2009 Amended LTCP, and by letter dated August 31, 2011, EPA provided comments to Lancaster on its October 2010 Amended LTCP Status Report (“2010 Amended LTCP”), and Lancaster responded;

WHEREAS, on June 11, 2011, Lancaster submitted to EPA a Green Infrastructure Plan (“2011 GI Plan”) which planned and implemented projects designed or intended to reduce CSOs. The 2011 GI Plan also evaluated approaches to adding green infrastructure throughout the City within 5-year and 25-year timeframes; estimated the water quality benefits of such green infrastructure; and articulated a series of policy, outreach, and technical recommendations for

implementing green infrastructure in the City. EPA Region III reviewed Lancaster's 2011 GI Plan and provided comments in a February 12, 2012 letter;

WHEREAS, Lancaster was selected to be a recipient of EPA's green infrastructure technical assistance program, intended to advance the adoption of GI in almost 40 communities across the country and develop knowledge and tools for a national audience. The focus of the technical assistance was to estimate the value of several co-benefits associated with Lancaster's GI Plan. The principles, methods, and projects built as a result of Lancaster's 2011 GI Plan served as the basis for the EPA report entitled, "Economic Benefits of Green Infrastructure (EPA 800-R-14-007, February 2014). This report highlights the importance of including the multiple benefits of green infrastructure in cost-benefit assessments;

WHEREAS, Plaintiff United States of America, by the authority of the Attorney General of the United States and through its undersigned counsel, acting at the request and on behalf of the Administrator of the EPA, and PADEP have filed a complaint in this action, seeking injunctive relief and civil penalties pursuant to the Clean Water Act, 33 U.S.C. §§ 1251 ("Clean Water Act" or "Act"), specifically Section 309 of the Clean Water Act, 33 U.S.C. § 1319, and the Clean Streams Law, Act of June 22, 1937, P.L. 1987, as amended ("Clean Streams Law"), specifically Sections 601 and 604 of the Clean Streams Law, 35 P.S. §§ 691.601 and 695.605;

WHEREAS, the United States and PADEP allege that Lancaster has violated and continues to violate Section 301 of the Clean Water Act, 33 U.S.C. § 1311, and Sections 3, 202, and 401 of the Clean Streams Law, 35 P.S. §§ 691.3, 691.202, and 691.401, by failing to comply with the requirements of the NPDES Permit;

WHEREAS, by entering into this Consent Decree, Lancaster does not admit any liability to the Plaintiffs arising out of the transactions or occurrences alleged in the Complaint;

WHEREAS, the measures to be set forth in the Amended LTCP are required to attain compliance with the NPDES Permit, the Clean Water Act, and the Pennsylvania Water Quality Standards, 25 Pa. Code Chapter 93;

WHEREAS, the Parties enter into this Consent Decree to establish, through judicial order, enforceable schedules and requirements for the amendment to the Lancaster LTCP and the implementation of the Amended LTCP and associated tasks necessary to achieve compliance with the Clean Water Act;

WHEREAS, the Parties agree, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated in good faith and will avoid litigation, and that this Consent Decree is fair, reasonable, and in the public interest;

NOW, THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law, except as provided in Section I of this Consent Decree, and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action and over the parties, pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and Section 309(b) of the Clean Water Act, 33 U.S.C. § 1319(b). This Court has supplemental jurisdiction over the State law claims asserted by PADEP pursuant to 28 U.S.C. § 1367. Venue lies in this District pursuant to Section 309(b) of the Clean Water Act, 33 U.S.C. § 1319(b), and 29 U.S.C. §§ 1391(b) and 1395(a). Lancaster is

located in this judicial district and the violations alleged in the Complaint are alleged to have occurred in this judicial district. For purposes of this Consent Decree, or any action to enforce this Consent Decree, Lancaster consents to the Court's jurisdiction over this Consent Decree and any such action and over Lancaster and consents to venue in this judicial district.

2. For purposes of this Consent Decree, Lancaster agrees that the Complaint states claims upon which relief may be granted pursuant to Sections 309(b) and 309(d) of the Clean Water Act, 33 U.S.C. § 1319(b), (d). As a co-plaintiff, PADEP has actual notice of commencement of this action.

II. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon Lancaster, its directors, employees, agents, servants, successors, assigns, or any other entities bound by law, and on the United States and PADEP. No transfer of ownership or operation of the Treatment Plant and/or Collection System, or any portion thereof, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve Lancaster of its obligation to ensure that the terms of the Consent Decree are implemented. From the date of lodging of this Consent Decree until its termination, at least thirty (30) Days prior to such transfer, Lancaster shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the proposed written agreement, to PADEP, EPA Region III, the United States Attorney for the Eastern District of Pennsylvania, and the United States Department of Justice, in accordance with Section XVII of this Consent Decree (Notices). Any attempt to transfer ownership or operation of the WWTP and/or Collection System, or any portion thereof, without complying with this Paragraph

constitutes a violation of this Consent Decree. In the event of any such transfer of ownership or other interest, Lancaster will not be released from the obligations of this Consent Decree unless:

- (i) the transferee has the technical and financial ability to assume these obligations and liabilities;
- (ii) the United States and PADEP have agreed in writing to release Lancaster from the obligations and liabilities; (iii) the United States, PADEP, and the transferee have jointly moved to substitute the transferee as Lancaster to this Consent Decree; and (iv) the Court has approved the substitution. The transferee shall apply for modification and/or transfer of the NPDES Permit under applicable law.

4. Lancaster shall provide a copy of this Consent Decree to all officers, employees, and agents of Lancaster whose duties might reasonably include compliance with any provision of this Consent Decree, as well as to any contractor retained to perform Work required under this Consent Decree. The foregoing requirement may be satisfied by hard copy, electronic copy, or by providing on-line access with notice to persons identified in this Paragraph 4. Lancaster shall condition any such contract upon performance of the Work in conformity with the terms of this Consent Decree.

5. In any action to enforce this Consent Decree, Lancaster shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree. Nothing in this Paragraph 5 prevents Lancaster from invoking Section XII of this Consent Decree (Force Majeure), provided that the event meets the definition of force majeure included in Paragraph 98 of this Consent Decree.

III. PURPOSE

6. The purpose of the Parties entering into this Consent Decree is to ensure that Lancaster undertakes measures necessary to comply with the Clean Water Act, including, but not limited to, 33 U.S.C. § 1342(q) and the regulations promulgated thereunder, and the Clean Streams Law and the regulations promulgated thereunder. The obligations in this Consent Decree, or resulting from the activities required by this Consent Decree, have the objective of causing Lancaster to achieve and thereafter maintain, full compliance with the terms and conditions of its NPDES Permits, the Clean Water Act, the Clean Streams Law, and to meet the objectives of EPA's April 1994 "Combined Sewer Overflow (CSO) Control Policy," as these terms are defined in Section IV (Definitions) of this Consent Decree.

IV. DEFINITIONS

7. Unless otherwise defined herein, terms used in this Consent Decree shall have the meanings given to those terms in the Clean Water Act, 33 U.S.C. §§ 1251, the regulations promulgated thereunder, and EPA's CSO Policy. Terms not defined in the Clean Water Act, its regulations, or EPA's CSO Policy shall have the meanings given in the NPDES Permit. Terms not defined in any of the above shall have the meanings given in the Pennsylvania Clean Streams Law, 35 P.S. §§ 691.1-691.1001. All other words shall be given their ordinary meaning.

Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

a. "Amended Long Term Control Plan" or "Amended LTCP" shall mean the plan that Lancaster develops and implements pursuant to Section VI (Clean Water Act Compliance Requirements) of this Consent Decree.

b. “Building/Private Property Backup” shall mean a wastewater release or backup into a building or onto private property that is caused by blockages, flow conditions, or other malfunctions in the Lancaster Collection System. A wastewater backup or release that is caused by blockages, flow conditions, or other malfunctions of a Private Lateral is not a Building /Private Property Backup.

c. “Collection Area” shall mean the geographic area contained within the City of Lancaster and the Tributary Authorities and Tributary Municipalities that convey wastewater to the WWTP.

d. “Complaint” shall mean the complaint filed by the United States and PADEP in this action.

e. “Combined Sewer Overflow Control Policy” or “CSO Policy” shall mean the policy issued by EPA regarding combined sewer overflows, entitled “Combined Sewer Overflows (CSO) Control Policy,” 59 Fed. Reg. 18688 (April 19, 1994), and as identified in Section 402(q) of the Clean Water Act, 33 U.S.C. §1342(q).

f. “Combined Sewer Overflow” or “CSO” shall mean a discharge of sanitary wastewater and stormwater from a discharge point located within the Lancaster Collection and Treatment System and identified as a CSO Outfall in the NPDES Permit or from a discharge point located within the Lancaster Collection and Treatment System which has not previously been identified as a CSO Outfall in the NPDES Permit in any previous permit application

g. “Combined Sewer System” shall mean the portion of Lancaster’s Collection System designed to convey municipal sewage and wastewaters (domestic, commercial, and industrial) and stormwater in the same system of pipes to the WWTP or to CSO Outfalls.

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“Consent Decree” or “Decree” shall mean this Decree and all appendices attached hereto (listed in Section XXVI hereto).

“CSO Control Measure” shall mean each term CSO control selected in Lancaster’s Amended Long Term Control Plan approved pursuant to the Consent Decree, including, but not limited to, construction, control measures, and other activities. The term CSO Control Measure includes Gray Infrastructure Control Measures and Green Infrastructure Control Measures.

“CSO Outfall” shall mean an outfall in the Combined Sewer System from which combined sewage and stormwater are discharged to designated the applicable NPDES Permit.

“Day” shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next business day.

“Design Criteria” shall mean the numerical and/or narrative specifications included in the Amended Long Term Control Plan that must be met in designing and constructing selected CSO Control Measures as required in this Consent Decree.

“Dry Weather Overflow” shall mean a discharge that occurs at a permitted CSO Outfall without an accompanying precipitation event or snowmelt. .

“EPA” shall mean the United States Environmental Protection Agency and any of its successor departments or agencies.

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“Effective Date” shall have the definition provided in Section XVII (Effective Date).

“Field Acceptance Testing” shall mean an assessment performed by the contractor to demonstrate that the completed GI Project satisfies the contract’s Design Criteria.

“Gray Infrastructure Control Measures” shall mean engineered structural control practices to control CSO discharges that are Green Infrastructure CSO Control Measures as defined in this Consent Decree. “Gray Infrastructure Control Measures” may include, but are not limited to, tunnel systems, storage tanks, in-storage facilities, sewer lines, and high rate clarification treatment facilities.

“Green Infrastructure Control Measures” shall mean the range of individual stormwater control practices that use plant/soil systems, permeable pavement, stormwater harvest and reuse, or native landscaping to store, infiltrate, and/or evapo-transpire stormwater and reduce flows to the sewer systems or to surface waters. Green Infrastructure Control Measures may include, but are not limited to, bio-retention, extended detention wetland areas, green roofs and permeable pavement. Green Infrastructure Control Measures may also include control measures to harvest and reuse stormwater, such as rain barrels and cisterns.

“Green Infrastructure Monitoring” or “GI Monitoring” shall mean those processes and procedures necessary to evaluate the performance of GI Projects over time. Green Infrastructure Monitoring shall include physical testing, data collection, recordation in an asset management system, and long-term analysis to evaluate the infiltration (volume reduction) performance of GI Projects within the City’s Combined Sewer System. Green Infrastructure Monitoring shall include Field Acceptance Testing, Performance Baseline Testing, and Ongoing

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Field Performance Testing. Monitoring may also include sample collection, advanced chemical testing, or biological studies

“Green Infrastructure Project” (or “Project” or “GIP”) shall mean a unique construction project intended to serve a specific site that employs one or more Green Infrastructure Control Measures.

“Green Infrastructure Plan” or “GI Plan” shall mean the Green Infrastructure Plan that Lancaster is required to develop and implement pursuant to Section VI of this Consent Decree.

“Infiltration” shall have the meaning set forth at 40 C.F.R. § 35.2005(b) (20).

“Inflow” shall have the meaning set forth at 40 C.F.R. § 35.2005(b) (21).

“Lancaster” or “the City” shall mean Defendant City of Lancaster, Pennsylvania.

“Lancaster Collection and Treatment System” or “Lancaster Collection System” shall mean the Wastewater Treatment Plant (“WWTP”) and all force mains, pump stations, sewer lines, and other real and personal property appurtenances thereto owned and/or operated by Lancaster and designed to collect and convey sanitary wastewater (including sewage) only, or sanitary wastewater (including sewage) and stormwater to the WWTP, excluding any pipes, sewer lines, and/or other real and personal property and appurtenances thereto owned and/or operated by an entity other than Lancaster pursuant to separate permits issued by PADEP.

“MGD” shall mean million gallons per Day.

“Nine Minimum Controls” shall have the definition provided in the CSO Control Policy.

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“Ongoing Field Performance Testing” shall mean an assessment performed to determine the performance of a GI Project over the service life of the Project.

“PADEP” shall mean the Pennsylvania Department of Environmental Protection.

“Paragraph” shall mean a portion of the Decree identified by an Arabic numeral.

“Parties” shall mean the United States, the Pennsylvania Department of Environmental Protection and Lancaster.

“Pennsylvania Water Quality Standards” shall mean the water quality standards for the Commonwealth of Pennsylvania as set forth in Title 25, Chapter 93, of the Pennsylvania Code, 25 Pa. Code §§ 93.1-93.9.

“Performance Baseline Testing” shall mean the testing to determine the baseline performance of GI Projects upon completion of construction. Lancaster shall perform such tests in accordance with applicable American Society for Testing and Materials (“ASTM”), including but not limited to C1701 (ASTM 2009) and C1781 (ASTM 2013), as soon as reasonably feasible following completion of construction in order to establish a performance baseline against which future performance shall be evaluated.

“Performance Criteria” shall mean the numeric and narrative specifications included in the Amended Long Term Control Plan that must be met to achieve the Purpose of this Consent Decree as described in Section I of the Consent Decree, following Lancaster’s completion of construction of the selected CSO Control Measures.

“Plaintiffs” shall mean the United States and PADEP.

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“Private Lateral” shall mean pipes and any other appurtenances not owned or operated by Lancaster or the Tributary Authorities and Tributary Municipalities that are used to convey wastewater from a building or buildings to the Lancaster Collection System.

“Receiving Water(s)” shall mean the portion of a waterbody that receives or is impacted by the discharges from one or more CSOs, including the Conestoga River.

“Sanitary Sewer Overflow” or “SSO” shall mean an overflow, spill, diversion, or release of wastewater from or caused by the Sanitary Sewer System. This term shall include: (i) discharges to waters of the Commonwealth of Pennsylvania or United States from the Sanitary Sewer System and (ii) any release of wastewater from the Sanitary Sewer System to public or private property that does not reach waters of the United States or the Commonwealth of Pennsylvania, including Building/Private Property Backups.

“Sanitary Sewer System” shall mean the current and future portion of the Lancaster Collection and Treatment System designed to convey municipal sewage and wastewaters (domestic, commercial, and industrial) conveyance system that is isolated from and operates independently from the stormwater conveyance system.

“Section” shall mean a portion of this Decree identified by a roman numeral.

“Sensitive Areas” shall have the meaning set forth in Section II.C.3 of the CSO Policy, and shall be determined in accordance with Paragraph 15, below.

“State” shall mean the Commonwealth of Pennsylvania.

“Typical Year” shall mean the precipitation volume, frequency, duration, and intensity determined pursuant to Paragraph 16, below.

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“Tributary Authorities” shall mean the sewer authorities that send sanitary wastewater (including sewage) directly to the WWTP or through the Lancaster Collection and Treatment System for treatment at the WWTP and shall include the Lancaster Area Sewer Authority, East Lampeter Sewer Authority, Suburban Lancaster Sewer Authority, and Leola Sewer Authority.

“Tributary Municipalities” shall mean the municipalities that, pursuant to contract with Lancaster, send sanitary wastewater (including sewage) directly to the WWTP or to the Lancaster Collection and Treatment System for treatment at the WWTP, and shall include East Hempfield Township, Lancaster Township, Manheim Township, Manor Township, East Lampeter Township, West Lampeter Township, Pequea Township, Upper Leacock Township, West Earl Township, Strasburg Township and the Borough of Strasburg.

“Unauthorized Release” shall mean any overflow, spill, diversion, or release of wastewater from or caused by the Combined Sewer System at a location other than a CSO Outfall designated in the NPDES Permit. This term shall include any release of wastewater from the Combined Sewer System to public or private property that does not reach waters of the Commonwealth or United States, including Building/Private Property Backups.

“United States” shall mean the United States of America, acting on behalf of EPA.

“WWTP” shall mean the advanced waste water treatment plant owned and operated by the City of Lancaster, located at 1220 New Danville Pike, Lancaster, Pennsylvania 17602.

ww. “Work” shall mean all activities Lancaster is required to perform under this Consent Decree.

V. FUNDING

8. Lancaster’s compliance with the terms of this Consent Decree is not conditioned on the receipt of federal or state grant or loan funds or upon Lancaster’s financial capabilities. In addition, Lancaster’s failure to comply is not excused by the lack of federal or state grant or loan funds, or by the processing of any applications for the same, or by Lancaster’s financial capabilities. Application for construction grants, State revolving loan funds, or any other grants or loans, or delays caused by inadequate facility planning or plans and specifications on the part of Lancaster shall not be cause for extension of any required compliance date in this Consent Decree.

VI. CLEAN WATER ACT COMPLIANCE REQUIREMENTS

A. Obligation to Perform Work

9. Beginning on the Effective Date, Lancaster shall implement the Work pursuant to this Consent Decree. All Work shall be performed using sound engineering practices to ensure that construction, management, operation, and maintenance of the Lancaster Collection System complies with the CWA. Sound engineering practices include applicable provisions of Handbook: Sewer System Infrastructure Analysis and Rehabilitation, EPA/625/6-91/030, 1991; Existing Sewer Evaluation and Rehabilitation, WEF MOP FD-6, 3rd edition, 2009; Recommended Standards for Wastewater Facilities, Health Education Services (a Division of Health Research, Inc.), 2014; Code of Practice for the Hydraulic Modeling of Sewer Systems Version 3.001, December 2002, prepared by The Chartered Institution of Water and

Environmental Management (CIWEM, formerly WaPUG); and Prevention and Control of Sewer System Overflows, Water Environment Federation (WEF) Manual of Practice (MOP) FD-17, 3rd edition, 2011; Guidance: Coordinating CSO Long-Term Planning with Water Quality Standards Reviews, EPA-833-R-01-002, 2001 (“EPA 2001 CSO/WQS Guidance”); Combined Sewer Overflows Guidance for Long-Term Control Plan, EPA 832-B-95-002, August 1995 (“EPA 1995 CSO LTCP Guidance”); Combined Sewer Overflows Guidance for Monitoring and Modeling, EPA 832-B-99-002, January 1999 (EPA 1999 CSO Monitoring and Modeling Guidance”); CSO Post Construction Compliance Monitoring Guidance, May 2012 (“EPA 2012 Post Construction Guidance”); Pennsylvania Stormwater Best Management Practices (BMP) Manual, PADEP, 2006 (“PA BMP Manual”).

B. Continuing System Improvements

10. North Pump Station. To improve wet weather performance of the Combined Sewer System for the North Combined Sewer District, Lancaster has upgraded the North Pump Station. The upgrade included installing a new diversion chamber, screening, and grit removal, and the replacement of flow metering devices. Lancaster completed construction and placed the upgraded pump station into full operation in December 2016.

11. Flow Reduction Projects. Lancaster shall use its best efforts to obtain flow reductions from entities that discharge pumped groundwater flow to the Combined Sewer System and to reduce wet weather flow to the Combined Sewer System from Manheim Township. For purposes of this Paragraph, best efforts shall mean solicitation of cooperation and use of all legal means reasonably available to achieve the objectives of this Paragraph. Lancaster shall include a

description of its efforts in each Semi Annual Report submitted pursuant to Paragraph 70 of this Consent Decree.

C. Amended Long Term Control Plan and Nine Minimum Control Requirements

12. Pre-LTCP Green Infrastructure. Since 2010, the City has implemented, and is continuing to implement, an integrated green infrastructure program through which it has constructed or initiated construction 45 GI Projects throughout Lancaster (“hereinafter “Pre-LTCP Green Infrastructure Program”). The City may continue to implement its Pre-LTCP Green Infrastructure Program in collaboration with other interested local agencies, non-governmental organizations, citizens, and private entities. Within twelve (12) months after the Effective Date, the City shall submit to EPA and PADEP the documents described in Appendix A that relate to the Pre-LTCP Green Infrastructure Program. Pursuant to the requirements of Paragraph 34, below, the City may elect to include Green Infrastructure as part of its Amended LTCP.

13. Amended Long Term Control Plan Development and Submission. If EPA approves the use of the Presumption Approach pursuant to Paragraph 25, below, then by no later than twelve months after the date of EPA’s approval of the Presumption Approach, Lancaster shall complete and submit an Amended LTCP to EPA and PADEP for review, and approval by EPA after consultation with PADEP. In the alternative, if EPA approves the use of the Demonstration Approach pursuant to Paragraph 25, below, then by no later than 12 months after EPA approval of the Water Quality Model Report required by Paragraph 27 of this Consent Decree, Lancaster shall complete and submit an Amended LTCP to EPA and PADEP for review, and approval by EPA after consultation with PADEP. The Amended LTCP required by this Paragraph 13 shall include, at a minimum, a detailed analysis and discussion of each item required by Paragraphs 15

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through 38 of this Decree, and shall include proposed schedules, milestones, and deadlines for implementing each component of the Amended LTCP. The Amended LTCP shall conform to the requirements of EPA's CSO Policy and EPA 1995 CSO LTCP Guidance. The selected CSO Control Measures set forth in the Amended LTCP shall be designed to limit CSOs as required by Section II.C.4.a of the CSO Policy ("Presumption Approach") or to demonstrate that the selected control program is adequate to meet the water quality-based requirements of the Clean Water Act as required by Section II.C.4.b of the CSO Policy ("Demonstration Approach"), as well as to meet the following overarching goals:

- a. bringing all CSO Outfalls into full compliance with the technology-based and water quality-based requirements of the CWA;
- minimizing the impacts of CSOs on water quality, aquatic life, and human health; and
- maximizing the benefits to the Receiving Waters and Lancaster through the use of Green Infrastructure, adaptive management, and other innovative practices, in addition to conventional Gray Infrastructure, to achieve the goals of this Paragraph 13.

14. Development of the Amended LTCP required by Paragraph 13, above, shall include each of the requirements listed in this Paragraph 14 as described in further detail in Paragraphs 15 through 38 of this Consent Decree:

- a. Identification of Sensitive Areas, as required by Section II.C.3 of the CSO Policy, and identification of pollutants and parameters of concern ("PoCs"), consistent with the EPA

1995 CSO LTCP Guidance and the EPA 1999 CSO Monitoring and Modeling Guidance, and in accordance with the requirements of Paragraph 15, below;

- b. Identification of a Typical Year rainfall record in accordance with the requirements of Paragraph 16, below;
- c. Ongoing updating, validating, and re-calibrating the Hydrologic and Hydraulic Model (“H&H Model”) in accordance with the requirements of Paragraphs 17-22, below;
- d. Characterization of the Collection Area and the Receiving Waters as required by the CSO Policy Paragraph II.C.1 and associated guidance, and in accordance with the requirements of Paragraph 23, below;
- e. Development and implementation of a Public Participation Plan in accordance with CSO Policy Paragraph II.C.2 and associated guidance, and in accordance with the requirements of Paragraph 24, below;
- f. Coordination with EPA and PADEP to determine the approach to Alternatives Evaluation to be used in Lancaster’s Receiving Waters, as required by Paragraph II.C.4 of the CSO Policy, and in accordance with the requirements of Paragraph 25, below;
- g. If Lancaster utilizes the Demonstration Approach as provided for in Section II.C.4.b. of the CSO Policy, development and implementation of a Demonstration Approach Water Quality Model Plan, and development of a Water Quality Model Report in accordance with the requirements of Paragraph 26 and 27, below;
- h. Development of a Financial Capability Assessment (“FCA”) and an implementation schedule for the proposed CSO controls in accordance with CSO Policy, Paragraph II.C.8 and “Combined Sewer Overflows – Guidance for Financial Capability

Assessment and Schedule Development,” EPA 832-B-97-004, February 1997, and EPA’s Financial Capability Assessment Framework, issued on November 24, 2014, and in accordance with the requirements of Paragraph 28, below;

i. Alternatives Evaluation and selection of proposed CSO long term controls and other CSO control measures as required by CSO Policy, Paragraph II.C.4, and in accordance with the EPA 1995 CSO LTCP Guidance, and the requirements of Paragraphs 29-32, and Paragraph 33, below;

j. Development of Green Infrastructure Documents for the LTCP, as required by Paragraph 34, below;

k. Development of an implementation schedule, in accordance with Paragraph 35, below;

l. If Lancaster’s selected CSO Control Measures include wet weather bypassing of any portion of the WWTP, development of a No Feasible Alternatives Analysis in accordance with CSO Policy, Paragraph II.C.7, 40 CFR Part 122.41(m), and in accordance with the requirements of Paragraph 36, below.

m. Development and implementation of a post-construction monitoring plan in accordance with CSO Policy, Section II.C.9, and the EPA 2012 Post Construction Monitoring Guidance, and in accordance with the requirements of Paragraph 37, below; and

n. Revision of the Lancaster Collection System operation and maintenance plan to reflect the implementation of the CSO Control Measures, as required by CSO Policy, Paragraph II.C.6, and associated guidance, and in accordance with the requirements of Paragraph 38, below.

15. Identification of Sensitive Areas and Pollutants of Concern (“PoCs”). Within ninety (90)

Days after the Effective Date, Lancaster shall submit to EPA and PADEP for review and approval by EPA after consultation with PADEP, a report or technical memorandum that identifies all PoCs and Sensitive Areas, as required by Section II.C.3 of the CSO Policy, for its Receiving Waters consistent with the EPA 1995 CSO LTCP Guidance, and the EPA 1999 CSO Monitoring and Modeling Guidance. To identify Sensitive Areas and PoCs, Lancaster shall:

a. Contact appropriate agencies, access available data sources, and collect available data as necessary to identify Sensitive Areas. Lancaster shall document all such contacts and the associated responses, and all additional investigations performed to identify Sensitive Areas.

Lancaster shall also identify any additional areas that, while not Sensitive Areas, have been identified by Lancaster as being appropriate for prioritization (“Priority Areas”);

b. Conduct community outreach and studies to determine whether and to what extent primary contact recreation is occurring within the Receiving Waters, and document its outreach and study methods, and its findings; and

c. Review existing water quality data and recent PADEP CWA § 303(d) listings to identify PoCs. Even if a water body has not been formally listed as out of compliance with its water quality standards and designated uses, if available data indicate such impairment exists and such impairment involves pollutants associated with CSOs, Lancaster shall consider the associated pollutants when identifying PoCs.

16. Typical Year Rainfall Record. Lancaster has submitted a June 6, 2013 technical memorandum identifying a Typical Year to be used for Amended LTCP development purposes.

17. Hydrologic and Hydraulic Model ("H&H Model") Ongoing Updates and Recalibration

Plan. On January 31, 2017, Lancaster submitted a report entitled "Hydrogeologic & Hydraulic Model – 2016 Calibration & Validation Report ("2016 H&H Model Report") to EPA and PADEP. By letter dated April 27, 2017, EPA approved the H&H Model Report.

18. If Lancaster recalibrates or revalidates its H&H Model, then the City shall do so in accordance with Code of Practice for the Hydraulic Modeling of Sewer Systems Version 3.001, December 2002, CIWEM and WEF MOP 17 Table 5.2. Within thirty (30) Days of completion of the H&H Model recalibration/revalidation, Lancaster shall submit to EPA and PADEP, an update of its 2016 H&H Model Report identifying the wastewater collection system physical characteristics and flowrate/rainfall data that prompted the H&H Model update, including, but not limited to:

- a. additional flow data assessment and additional rainfall and flow monitoring performed after October 1, 2016;
- b. updated dry weather flow calibration, including quantitative and qualitative calibration criteria;
- c. updated wet weather flow calibration, including quantitative and qualitative calibration criteria; and
- d. updated model validation, where the allowable variation between modeled and measured flow rates and volumes shall conform to the tolerances presented in WEF MOP FD-17 Table 5.2 as closely as is practicable.

19. The updated H&H Model shall specifically include hydrologic representation of all areas tributary to the Lancaster Collection System, as well as all areas tributary to all municipal

wastewater collection and transmission systems that are hydraulically connected to, or that directly or indirectly influence flow to, the CSOs and/or the WWTP, regardless of who owns or operates the system.

20. The updated H&H Model shall accurately represent the response of the Collection Area to wet weather events, including the flows that result from wet weather events to and from Lancaster's CSOs and to the WWTP. To accomplish this, the updated H&H Model shall explicitly include all interceptors, diversion structures, CSOs, pump stations, and major trunk sewers within the Lancaster Collection System, as well as such pipes and appurtenances within the areas outside the Lancaster Collection System that are needed to ensure adequate H&H Model accuracy. The average Combined Sewer System sub-catchment area represented in the H&H Model shall not exceed 8.5 acres and the maximum Combined Sewer System sub-catchment area represented in the H&H Model shall not exceed 13 acres for those areas where Green Infrastructure is planned to be implemented.

21. Lancaster shall perform any rainfall and flow monitoring in accordance with current industry practice, including the EPA 1999 CSO Monitoring and Modeling Guidance and the Code of Practice for the Hydraulic Modeling of Sewer Systems Version 3.001, December 2002, prepared by The Chartered Institution of Water and Environmental Management (CIWEM, formerly WAPUG).

22. For additional rainfall and flow monitoring performed in support of efforts to update and recalibrate/revalidate the H&H Model, Lancaster shall submit to EPA and PADEP semiannual technical memoranda documenting the results and quality of the rainfall and flow monitoring

data. The semiannual technical memoranda required by this Paragraph 22 shall be submitted with the Semi Annual Reports required by Paragraph 70 of this Consent Decree.

23. Existing Collection Area Characterization. No later than ninety (90) Days after EPA approves in writing the report or technical memorandum required to be submitted pursuant to Paragraph 15, above (Identification of Sensitive Areas and Pollutants of Concern), Lancaster shall submit a characterization of its Collection Area to EPA and PADEP for review and comment. The characterization required by this Paragraph 23, shall be consistent with Section II.C.1 of the CSO Policy, and with the EPA 1995 CSO LTCP Guidance, particularly Chapter 2 of aforesaid Guidance, and shall include all of the information required by Section II.C.1 of the CSO Policy. The characterization submitted pursuant to this Paragraph 23 shall include the Collection Area, including the hydrology (i.e. runoff) from and within the Collection Area. The characterization required by this Paragraph 23 shall also include, but not be limited to, the following:

- a. use of the H&H Model, to characterize the expected volume, frequency, and duration of CSO discharge events from each CSO during the Typical Year, based on an inter-event period of twenty four (24) hours;
- b. incorporation of the results of the identification of Sensitive Areas required by Paragraph 15, above; and
- c. characterization of current water quality in Receiving Waters, based upon all available data, and Lancaster's efforts to identify PoCs. The characterization may include water quality modeling as a tool for predicting Combined Sewer System response to various wet weather events and assessing water quality impacts of

CSOs on Receiving Water quality. The Collection Area characterization required by this Paragraph 23 shall be consistent with Section II.C.1 of the CSO Policy, the EPA 1995 CSO LTCP Guidance and the EPA 1999 CSO Monitoring and Modeling Guidance.

24. Public Participation Plan. Within three (3) months after submittal of the Existing Collection Area Characterization under Paragraph 23, above, Lancaster shall submit a Public Participation Plan to EPA and PADEP for review, and approval by EPA after consultation with PADEP. The Public Participation Plan shall include, at a minimum, the following elements:

- a. The means by which Lancaster will make information pertaining to the development of the Amended LTCP available to the public. These means may include website development, neighborhood meetings, newsletters, media outreach, and special events;
- b. The means by which the City will solicit comments from the public on development of the Amended LTCP, including efforts to reach, at a minimum, homeowners, commercial businesses, industrial businesses, community groups and neighborhood associations, civic organizations and clubs, business and trade associations, schools, service organizations, and the media; and
- c. A program for consideration of comments provided by the public during the City's development of the Amended LTCP and for providing the public with the City's response to comments from the public.

25. Identification of Lancaster's Proposed Alternatives Evaluation Approach. No later than thirty (30) Days after its submits the Existing Collection Area Characterization required by

Paragraph 23, above, Lancaster shall, in accordance with Section II.C.4 of the CSO Policy, submit to EPA and PADEP, for approval by EPA after consultation with PADEP, a written explanation, supporting Lancaster's proposal to use either the Demonstration or Presumption approach to controlling CSOs in Receiving Waters. Use of the Presumption Approach will be allowed only if EPA, after consultation with PADEP, agrees in writing that the specific presumption(s) to be used for the Receiving Waters are reasonable pursuant to Section II.C.4.a of the CSO Policy. If EPA, after consultation with PADEP, determines that the City's presumptions are not reasonable, Lancaster shall use the Demonstration Approach identified in Section II.C.4.b of the CSO Policy.

26. Demonstration Approach Water Quality Model Plan. Within ninety (90) Days after EPA approves an Alternatives Evaluation Approach pursuant to Paragraph 25, above, if Lancaster will be using the Demonstration Approach identified in Section II.C.4.b of the CSO Policy, Lancaster shall submit to EPA and PADEP a Water Quality Model Plan for review, and approval by EPA after consultation with PADEP. Lancaster shall commence implementation of the approved Water Quality Model Plan within thirty (30) Days of receipt of EPA's written approval. For the Receiving Waters in which the Demonstration Approach is to be used, the Water Quality Model Plan shall be developed in accordance with the EPA 1999 CSO Monitoring and Modeling Guidance, and Appendix C to this Consent Decree.

27. Water Quality Model Report. Within sixty (60) Days after Lancaster completes all requirements of the Water Quality Model Plan approved pursuant to Paragraph 26, above, Lancaster shall submit to EPA and PADEP a Water Quality Model Report for review, and approval by EPA after consultation with PADEP, which shall report the results of Lancaster's

water quality modeling and shall specifically address each item set forth in Paragraph 26 and Appendix C of this Consent Decree.

28. Financial Capability Assessment. Within three (3) months after the Effective Date, Lancaster shall submit to EPA and PADEP for review and comment, a draft Financial Capability Assessment ("FCA") that assesses Lancaster's baseline financial condition and capability in accordance with CSO Policy Section II.C.8, "Combined Sewer Overflows - Guidance for Financial Capability Assessment and Schedule Development," EPA 832-B-97-004, February 1997 ("FCA Guidance"), and EPA's Financial Capability Assessment Framework, issued on November 24, 2014 ("Financial Capability Assessment Framework"), https://www.epa.gov/sites/production/files/2015-10/documents/municipal_fca_framework.pdf, including but not limited to information on sewer rate setting and median household income and number of households in the Collection Area, as well as information on all other financial resources available to Lancaster. Concurrent with the submission of the Amended LTCP required by Paragraph 13 of this Consent Decree, Lancaster shall submit to EPA and PADEP for review and approval, a proposed final FCA, including an implementation schedule for the proposed CSO control measures in accordance with CSO Policy Section II.C.8 and the FCA Guidance and the Financial Capability Assessment Framework.

29. Alternatives Evaluation. If EPA approves use of the Presumption Approach pursuant to Paragraph 25, above, then no later than six (6) months after EPA's written approval, Lancaster shall complete and submit to EPA and PADEP for review and comment an Alternatives Evaluation that complies with the requirements of the CSO Policy Section II.C.4, and that is consistent with the EPA1995CSO LTCP Guidance. In the alternative, if EPA approves use of

the Demonstration Approach, pursuant Paragraph 25, above, then no later than 6 months after EPA approves the Water Quality Model Report required by Paragraph 27, above, Lancaster shall complete and submit to EPA and PADEP for review and comment an Alternatives Evaluation that complies with the requirements of the CSO Policy Section II.C.4, and that is consistent with the EPA1995CSO LTCP Guidance. The Alternatives Evaluation shall consist of:

- a. a technology screening process as provided for in Paragraph 30, below;
- b. a detailed evaluation of specific CSO control alternatives, as provided for in Paragraphs 31 and 32, below; and
- c. the selection of an appropriate range of proposed Gray Infrastructure and Green Infrastructure CSO control technologies to achieve compliance with the Clean Water Act as provided in Paragraph 33, below.

Lancaster shall also evaluate the feasibility of eliminating or relocating all CSO Outfalls that discharge to Sensitive Areas. Lancaster shall give priority to the control of those CSO Outfalls that discharge to Priority Areas (as defined in Paragraph 15.a, above), and those that have the highest frequency or greatest volume of discharge of wastewater.

30. Screening of Available CSO Control Technologies. Lancaster shall assess the technical feasibility of the use of a wide range of demonstrated CSO control technologies consistent with the CSO Policy and associated guidance, and shall provide descriptions of the following types of CSO control technology - source controls (e.g., Green Infrastructure), collection system controls, storage technologies, and treatment technologies. Lancaster shall also assess the feasibility of applying each technology type for long-term CSO control in the Collection Area, based on existing and anticipated future conditions affecting the Collection Area. This evaluation is not

intended to consider cost or cost effectiveness, but rather to exclude control technologies that are not technically or physically applicable to the Collection Area. Partial and complete separation of sewers in each CSO Outfall tributary area, near-surface inline storage, near-surface off-line storage, and deep tunnel storage, shall be considered feasible technologies for this purpose and shall be considered for further evaluation. Expansion of the primary and secondary capacity of the WWTP shall also be considered feasible technologies for this purpose and be considered for further evaluation, as required by Section II.C.4 of the CSO Policy.

31. Development of CSO Control Alternatives. Applying sound engineering practices and its knowledge of the Collection Area, Lancaster shall, based upon the results of the CSO technology screening required by the preceding Paragraph 30, above, identify a wide range of technically feasible CSO controls for detailed evaluation, regardless of the cost of each technically feasible CSO control. Based on the characteristics of the Collection Area, these CSO controls shall be CSO-specific, specific to clusters of CSOs, and specific to larger portions of the Collection Area, including system-wide controls (e.g., all CSOs located along one bank of a water body).

Lancaster may apply engineering judgment to limit its evaluation of functionally equivalent CSO controls.

32. Evaluation of CSO Control Alternatives. Where two CSO controls provide identical benefits (e.g., same sized surface and near-surface storage units, or consolidated storage that is the same volume as multiple storage units), and there is a clear cost difference between the two options, Lancaster may evaluate the lower cost option. For each technically feasible CSO control, Lancaster shall evaluate:

- a. the size of each CSO control necessary to reduce the number of untreated CSOs in a Typical Year on an annual basis to the following frequencies: 0, 2, 4, 6, and 8;
- b. the estimated capital costs and annual O&M costs, expressed in present value, consistent, year-specific dollars, used to determine the total "project costs," as that term is described in Section 3.4.1 of the EPA CSO LTCP Guidance;
- c. "knee of the curve" cost-performance for each CSO control that will allow for the comparison of the costs to: a) the reduction in volume of the CSOs; b) the reduction in the frequency of CSOs; c) the reduction in PoC loading from CSOs; and (d) allow for the optimization of costs, benefits, and risks;
- d. for CSO controls applied to CSOs that discharge to Receiving Waters for which Lancaster has selected the Demonstration Approach pursuant to Paragraph 25, above, Lancaster shall utilize its calibrated H&H Model and Demonstration Approach Water Quality Model to assess the impact of each CSO control alternative on compliance with water quality standards within the Typical Year;
- e. for CSO controls applied to CSOs that discharge to Receiving Waters for which the Presumption Approach was determined by EPA pursuant to Paragraph 25, above, to be appropriate, Lancaster shall evaluate a range of sizes for those controls;
- f. in analyzing the selection of CSO controls, the Amended LTCP shall include an analysis of the Amended LTCP's impact on communities that have historically borne a disproportionate share of the negative environmental consequences resulting from Lancaster's CSOs, including an explanation of how the Amended LTCP ensures that the selected CSO Control Measures will mitigate those historical consequences and will not impose a

disproportionate share of negative environmental consequences on such communities in the future.

33. Selection of CSO Control Measures. Lancaster shall select specific Gray Infrastructure and/or Green Infrastructure CSO Control Measures that:

a. will result in its remaining CSOs complying with the CWA as demonstrated by its water quality modeling activities (in Demonstration Approach Receiving Waters); and as demonstrated by its H&H Modeling activities (in Presumption Approach Receiving Waters); and

b. are technically implementable; and

c. are cost effective.

34. Requirements for Inclusion of GI Projects as Selected CSO Control Measures in the

Amended LTCP. If Lancaster evaluates Green Infrastructure as part of the Alternatives Evaluation required by Paragraph 29, above, and includes GI Projects in the selected CSO Control Measures in the Amended LTCP (“LTCP GI Projects”), then Lancaster shall submit as part of the Amended LTCP, updated versions of the green infrastructure documents required by Appendix A to this Consent Decree. The documents required by this Paragraph shall include an explanation of how the selected LTCP GI Projects will contribute toward compliance with the criteria set forth in Paragraph 33, above, of the Consent Decree (Selection of CSO Control Measures), including but not limited to:

a. an estimate of the cumulative retention and storage volume of the LTCP GI Projects (both identified and future projects);

- b. the anticipated cumulative effect of the LTCP GI Projects (both identified and future) on frequency and volume of CSOs; and
- c. a description of the location and sizing of identified LTCP GI projects.

Lancaster shall also include documentation describing the process by which Lancaster will evaluate and monitor LTCP GI Projects not constructed by the City to demonstrate the initial and continued performance of such Projects. The documents required by this Paragraph and Appendix A of this Consent Decree shall be consistent with “Greening CSO Plans: Planning and Modeling Green Infrastructure for Combined Sewer Overflow (CSO) Control,” EPA 832-R-14-001, March 2014.

35. Schedule. The Amended LTCP shall include a schedule for implementation of the Amended LTCP with interim milestones, including, for each CSO Control Measure, deadlines for:

- a. initiating design;
- b. commencement of construction;
- c. commencement of full operation.

All CSO Control Measures shall be constructed and commence operation as soon as possible, but in no event later than twenty (20) years after the date of lodging.

36. No Feasible Alternatives Analysis. If Lancaster's proposed CSO Control Measures include bypassing at the WWTP, Lancaster shall perform a No Feasible Alternatives Analysis in accordance with Section II.C.7 of the CSO Policy and shall include such analysis in the Amended LTCP required by Paragraph 13 of this Consent Decree.

37. Post Construction Compliance Monitoring Plan. The Amended LTCP required by Paragraph 13 of this Consent Decree shall include a Post-Construction Compliance Monitoring Plan to: (a) evaluate the effectiveness of the CSO Control Measures; and (b) to verify Lancaster's compliance with water quality-based CWA requirements and consistency with CSO Policy, Paragraph II.C.9, and the EPA 2012 Post Construction Guidance. Lancaster shall implement the Post Construction Compliance Monitoring Plan upon completion of construction of all CSO Control Measures and shall report the results of post construction monitoring in the Semi Annual Reports required by Paragraph 70 of this Consent Decree.

38. Revision of Operation and Maintenance Plans. The Amended LTCP required by Paragraph 13 of this Consent Decree shall identify any CSO Control Measures that require a revised operation and maintenance plan (“O&M Plan”). The revised O&M Plan required by this Paragraph 38 need not include Green Infrastructure Control Measures that are covered by the GI Operation and Maintenance Plan required by Paragraph 34 and Appendix A of this Consent Decree. The Amended LTCP shall also include a procedure for the revision and dissemination of such O&M Plans within sixty (60) Days of the date each CSO Control Measure commences operation consistent with its design parameters. Each revised O&M Plan shall be consistent with Paragraph II.C.6 of the CSO Policy and associated guidance, and shall be provided to EPA and PADEP upon written request.

39. Incorporation and Implementation of Amended LTCP. After approval by EPA of the Amended LTCP and associated schedules required to be submitted pursuant to Paragraph 13, above, pursuant to Section IX (Review and Approval of Submissions), the approved Amended LTCP, including all of its component parts required by this Consent Decree in Paragraphs 15

through 38, shall be incorporated by reference into this Consent Decree. Lancaster shall immediately commence implementation of the approved Amended LTCP and, within thirty (30) Days of EPA approval of the Amended LTCP, Lancaster shall seek any required modifications to its NPDES Permit that are necessary to implement the Amended LTCP.

40. Nine Minimum Controls. No later than twelve (12) months after the Effective Date, Lancaster shall submit to EPA and PADEP for review, and approval by EPA after consultation with PADEP, a revised and updated Nine Minimum Controls Plan (“NMC Plan”). The NMC Plan shall evaluate and document the current level of implementation of the NMCs within the Combined Sewer System, and shall identify actions necessary for achieving compliance with the CSO Policy for all NMCs and include an implementation schedule for completing those actions. The identified actions shall be in accordance with the CSO Policy and the “Guidance for Nine Minimum Controls,” EPA 832-13-95-003, May 1995. At a minimum, Lancaster shall include in its NMC Plan a specific plan to control Fats, Oil, and Grease (“FOG Plan”) within the Lancaster Collection System. Lancaster shall also include solids and floatable controls for all CSO outfalls, in accordance with the Guidance for Nine Minimum Controls,” EPA 832-13-95-003, May 1995. Such controls may include baffles, screens, catch basin modifications, nets and racks, booms, and skimmer boats.

D. General Clean Water Act Compliance Requirements

41. Effluent Limits. Commencing on the Day that Lancaster signs this Consent Decree, Lancaster shall comply with all final effluent limits set forth in the NPDES Permit, as updated or amended.

42. Dry Weather Overflows.

- a. All Dry Weather Overflows from the Lancaster Collection System are prohibited.
- b. Lancaster must immediately report any Dry Weather Overflows to PADEP by telephone at 866-825-0208 and must provide written notification to PADEP and EPA within five (5) Days of when Lancaster becomes aware of the Dry Weather Overflow.
- c. In the event that Lancaster detects a Dry Weather Overflow, Lancaster shall begin corrective action immediately. Lancaster shall inspect the outfall(s) from which the Dry Weather Overflow occurred each subsequent Day until the overflow has been eliminated.
- d. Lancaster shall summarize all Dry Weather Overflows in the Semi Annual Reports required by Paragraph 70, below. Nothing in this Section shall eliminate or minimize any additional notification or reporting required by the NPDES Permit.

43. Sanitary Sewer Overflows. All SSOs from the Lancaster Collection System are prohibited.

44. Unauthorized Releases. All Unauthorized Releases from the Combined Sewer System are prohibited.

45. Reporting Planned Changes and Non-Compliance. Lancaster shall comply with the provisions of its NPDES Permit requiring the reporting of anticipated and unanticipated non-compliance with the NPDES Permit. Whenever written notice of non-compliance is required to

be given to PADEP pursuant to Lancaster's NPDES Permit, Lancaster shall simultaneously notify EPA in accordance with Section XVI (Notices).

46. Public Notification. The Amended LTCP shall include a visual notification system designed to notify the public of the occurrence of CSOs based on flow monitoring at Lancaster's CSO Outfalls. The visual system shall consist of fixed signs, to be installed at each CSO Outfall, in a form substantially similar to the example attached hereto as Appendix D, and fixed signs to be installed at each public access point that has been designated by the Lancaster County Parks Department that is downstream of Lancaster's CSO Outfalls, in a form substantially similar to the example attached as Appendix E hereto. In addition, Lancaster shall install a CSO event indicator warning light system at each CSO Outfall, to advise the public of CSOs. Such warning light system shall provide for red lights during a CSO occurrence and yellow lights for 24 hours after the CSO has stopped. The warning lights shall be operated by signals from Lancaster's CSO Outfalls. Lancaster shall include the details of the public notification system (e.g. location and explanation of visual signs and warning lights) in the Amended LTCP required by Paragraph 13 of this Consent Decree and on the City's website.

47. NPDES Permits. Lancaster shall comply with all terms and conditions of the NPDES Permit and any revisions, modifications, or reissued versions of that permits issued pursuant to 25 Pa. Code Chapter 92.a, unless compliance is stayed or suspended by a court of competent jurisdiction or the Pennsylvania Environmental Hearing Board. Nothing in this Consent Decree authorizes any discharge from the Lancaster Collection and Treatment System other than those discharges authorized by the NPDES Permit or any subsequent applicable NPDES Permit.

48. Failure of Compliance. Notwithstanding the review or approval by any agency of the United States of any plans, reports, policies or procedures formulated pursuant to the Consent Decree, Settling Defendant will remain solely responsible for compliance with the terms of the Consent Decree, all applicable permits, and all applicable federal, state, regional, and local laws and regulations, except as provided in Section XII (Force Majeure) of this Decree.

VII. SUPPLEMENTAL ENVIRONMENTAL PROJECT

49. Lancaster shall implement the supplemental environmental project (SEP) described in Appendix F of this Decree in accordance with all provisions of this Article and Appendix F.

50. Lancaster is responsible for the satisfactory completion of the SEP in accordance with the requirements of this Decree. As used in this Paragraph 50, “satisfactory completion” means completion of items IV.A through IV.C of Appendix F and items V.A through V.C of Appendix F.

51. With regard to the SEP, Lancaster certifies the truth and accuracy of each of the following:

- a. that all cost information provided to EPA in connection with EPA’s approval of the SEP is complete and accurate;
- b. that, as of the date of executing this Decree, Lancaster is not required to perform or develop the SEP by any federal, state, or local law or regulation and is not required to perform or develop the SEP by agreement, grant, or as injunctive relief awarded in any other action in any forum;

- c. that the SEP is not a project that Lancaster was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Decree;
- d. that Lancaster has not received and will not receive credit for the SEP in any other enforcement action;
- e. that Lancaster will not receive any reimbursement for any portion of the SEP from any other person; and
- f. that Lancaster is not a party to any open federal financial assistance transaction that is funding or could fund the same activity as the SEP described in Appendix F.

52. SEP Completion Report. No later than sixty (60) Days after completion of the SEP as required by Paragraphs 49 and 50, above, Lancaster shall submit a SEP Completion Report to the United States, EPA, and PADEP, in accordance with Section XIV of this Consent Decree (Notices). The SEP Completion Report shall contain the following information:

- a. a detailed description of the SEP as implemented;
- b. a description of any problems encountered in completing the SEP and the solutions thereto;
- c. an itemized list of all eligible SEP costs expended;
- d. certification that the SEP has been fully implemented pursuant to the provisions of this Decree; and

- e. a description of the environmental and public health benefits resulting from implementation of the SEP (with a quantification of the benefits and pollutant reductions, if feasible).
53. EPA may, in its sole discretion, require information in addition to that described in the preceding Paragraph 52, in order to evaluate Lancaster’s Completion Report.
54. After receiving the SEP Completion Report, the United States, after consultation with PADEP, shall notify Lancaster as to whether Lancaster has satisfactorily completed the requirements of Article VII and items IV.A through IV.C and items V.A through V.C of Appendix F of this Consent Decree. If EPA determines that Lancaster has not satisfactorily completed the SEP in accordance with this Consent Decree, stipulated penalties may be assessed under Section XI of this Consent Decree.
55. Disputes concerning the satisfactory performance of the SEP and the amount of eligible SEP costs may be resolved under Section XIII of this Decree (Dispute Resolution). No other disputes arising under this Section (Supplemental Environmental Project) shall be subject to Dispute Resolution.
56. Each submission required under this Section shall be signed by an official with knowledge of the SEP and shall bear the certification language set forth in Paragraph 74 of this Consent Decree.
57. Any public statement, oral or written, in print, film, or other media, made by Lancaster making reference to the SEP described in this Section VII of this Decree shall include the following language: “This project was undertaken in connection with the settlement of an

enforcement action, _____, taken on behalf of the Environmental Protection Agency under the Clean Water Act.”

58. For federal income tax purposes, Lancaster agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the SEP.

VIII. CIVIL PENALTY

59. Within thirty (30) Days after the Effective Date, Lancaster shall pay the sum of \$135,000.00 as a civil penalty, together with interest accruing from the date on which the Consent Decree is lodged with the Court, at the rate specified in 28 U.S.C. § 1961 as of the date of lodging. Of this sum, Lancaster shall pay the amount of \$67,500.00 to the United States, and the amount of \$67,500.00 to PADEP.

60. Lancaster shall pay the civil penalty due to the United States by FedWire Electronic Funds Transfer (“EFT”) to the U.S. Department of Justice in accordance with written instructions to be provided to Lancaster, following entry of the Consent Decree, by the Financial Litigation Unit of the U.S. Attorney’s Office for the Eastern District of Pennsylvania, 615 Chestnut Street, Suite 1250, Philadelphia, PA 19106. At the time of payment, Lancaster shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, which shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in _____ and shall reference the civil action number and DOJ case number 90-5-1-1-11135, to the United States in accordance with Section XVII of this Decree (Notices); by email to acctstreivable.CINWD@epa.gov; and by mail to:

EPA Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, Ohio 45268

61. Lancaster shall not deduct any penalties paid under this Decree pursuant to this Section or Section XI (Stipulated Penalties) in calculating its federal income tax.
62. No later than thirty (30) Days after the Effective Date, Lancaster shall pay the civil penalty of \$67,500.00 to PADEP.
63. Payments required to be made to PADEP pursuant to the requirements of this Consent Decree shall be made by corporate check or similar instrument to the Commonwealth of Pennsylvania, with a note on the memo line stating "Clean Water Fund," and sent to the address set forth in Paragraph 125 of this Consent Decree.

IX. REVIEW AND APPROVAL OF SUBMISSIONS

64. Approval of Submissions. After review of any plan, report, or other item that is required to be submitted pursuant to this Consent Decree for approval, EPA, after consultation with PADEP, shall in writing: a) approve the submission; b) approve the submission upon specified conditions; c) approve part of the submission and disapprove the remainder; or d) disapprove the submission.
65. If the submission is approved pursuant to Paragraph 64.a, above, Lancaster shall take all actions required by the plan, report, or other document, in accordance with the schedules and requirements of the plan, report, or other document, as approved. If the submission is conditionally approved or approved only in part, pursuant to Paragraph 64.b or .c, Lancaster shall, take all actions required by the approved plan, report, or other item that EPA determines are technically severable from any disapproved portions, subject to Lancaster's right to dispute

only the specified conditions or the disapproved portions, under Section XIII of this Decree (Dispute Resolution).

66. If the submission is disapproved in whole or in part pursuant to Paragraph 64.c or d, Lancaster shall, within forty-five (45) Days or such other time as the Parties agree to in writing, correct all deficiencies and resubmit the plan, report, or other item, or disapproved portion thereof, for approval, in accordance with the preceding Paragraphs. If the resubmission is approved in whole or in part, Lancaster shall proceed in accordance with the preceding Paragraph 65.

67. Any stipulated penalties applicable to the original submission, as provided in Section XI (Stipulated Penalties) of this Decree, shall accrue during the 45-Day period or other specified period, but shall not be payable unless the resubmission is untimely or is disapproved in whole or in part; provided that, if the original submission was so deficient as to constitute a material breach of Lancaster's obligations under this Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

68. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in whole or in part, EPA, after consultation with PADEP, may again require Lancaster to correct any deficiencies, in accordance with the preceding Paragraphs, or may itself correct any deficiencies, and Lancaster shall implement the corrected submission, subject to Lancaster's right to invoke Dispute Resolution and the right of EPA and PADEP to seek stipulated penalties as provided in the preceding Paragraphs.

69. Permits. Where any compliance obligation under Section VI (Clean Water Act Compliance Requirements) requires Lancaster to obtain a federal, state, or local permit or

approval, Lancaster shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. If Lancaster has submitted timely and complete applications and has taken all other actions necessary to obtain all such permits or approvals, Lancaster may seek relief under the provisions of Section XII of this Consent Decree (Force Majeure) for any delay in the performance of any such compliance obligation resulting from an inability to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, due to the action or inaction, of the federal, state, or local entity responsible for issuing the permit or approval at issue.

X. REPORTING REQUIREMENTS

70. On January 30 and July 30 of each year, Lancaster shall submit a Semi Annual Report for the preceding six-month period (January 1 to June 30 and July 1 to December 31), with the first such report submitted for the first full six-month period after the Effective Date. The Semi Annual Reports required by this Paragraph 70 shall include the status of any construction or compliance measures; completion of milestones; problems encountered or anticipated, together with implemented or proposed solutions; status of permit applications; operation and maintenance; and reports to state agencies; and including, at a minimum:

- a. a statement setting forth the deadlines and other terms that Lancaster was required by this Consent Decree to meet since the date of the last Semi Annual Report, whether and to what extent Lancaster has met these requirements, and the reasons for any noncompliance;

- b. a general description of the Work completed within the reporting period, and a projection of Work to be performed pursuant to this Consent Decree during the next or succeeding reporting period;
- c. a summary of all contacts with EPA and PADEP during the reporting period relating to CSOs, SSOs, or implementation of this Consent Decree;
- d. a statement of any exceedances of NPDES Permit limitations during the reporting period;
- e. a summary of all CSOs (including Dry Weather Overflows), SSOs, and Unauthorized Releases occurring within the period covered by the Semi Annual Report, including the actual or estimated frequency, duration, and volume of each CSO (including Dry Weather Overflows), SSO, and Unauthorized Release; and
- f. a summary of costs incurred since the previous Semi Annual Report.

71. The Semi Annual Reports required by Paragraph 70, above, shall also include a description of any violation of the requirements of this Consent Decree and an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If Lancaster violates, or has reason to believe that it may violate, any requirement of this Consent Decree, Lancaster shall notify the United States and PADEP of such violation and its likely duration, in writing, within ten (10) Days of the date Lancaster first becomes aware of the violation, with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the time the report is due, Lancaster shall so state in the report. Lancaster shall investigate the cause of the violation and shall then submit an amendment

to the report, including a full explanation of the cause of the violation, within thirty (30) Days of the date Lancaster becomes aware of the cause of the violation. Nothing in this Paragraph 71 nor the following Paragraph 72 relieves Lancaster of its obligation to provide the notice required by Section XII of this Consent Decree (Force Majeure).

72. Whenever any violation of this Consent Decree or of Lancaster's NPDES Permit, or any other event affecting Lancaster's performance under this Decree, or the performance of the Lancaster Collection and Treatment System, may pose an immediate threat to the public health or welfare or the environment, Lancaster shall notify PADEP orally as soon as possible, but no later than four (4) hours after Lancaster first knew of the violation or event. Such notice shall be made by telephone to 866-825-0208. This procedure is in addition to the requirements set forth in Paragraph 71, above.

73. All reports shall be submitted to the persons designated in Section XVII of this Consent Decree (Notices).

74. Each submission by Lancaster under this Section shall be signed by a Lancaster official and include the following certification:

I certify under penalty of law that I am authorized to sign this document on behalf of the City of Lancaster, Pennsylvania, and that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge, information, and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

This certification requirement does not apply to emergency or similar notifications where compliance would be impractical.

75. The reporting requirements of this Consent Decree do not relieve Lancaster of any reporting obligations required by the Clean Water Act or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

76. Any information provided pursuant to this Consent Decree may be used by the United States and/or PADEP in any proceeding to enforce the provisions of this Consent Decree and as otherwise permitted by law.

XI. STIPULATED PENALTIES

77. Lancaster shall be liable for stipulated penalties to the United States and PADEP for violations of this Consent Decree as specified below, unless excused under Section XII (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

78. Late Payment of Civil Penalty. If Lancaster fails to pay the civil penalty required to be paid under Section VIII of this Decree (Civil Penalty) when due, Lancaster shall pay a stipulated penalty of \$5,000 per Day for each Day that the payment is late.

79. Reporting Requirements. For each failure to submit a timely and adequate plan, report, schedule, written notice, or other submission required by this Consent Decree, except the revised and Amended LTCP required by Paragraph 13, Lancaster shall pay the following stipulated penalties to Plaintiffs per violation per Day:

<u>Period of Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$1,500
Days 31-60	\$2,000
Days 61- and over	\$4,000

80. For each failure to submit the Amended LTCP required by Paragraph 13 of this Consent Decree:

<u>Period of Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$5,000
Days 31-60	\$7,000
Days 61 and over	\$8,000

81. Consent Decree Submittals:. For each failure to submit timely the documents required by Paragraphs 22 (H&H Model technical memoranda), 23 (Existing Collection Area Characterization), 24 (Public Participation Plan), 25 (Identification of Lancaster's Proposed Alternatives Evaluation Approach), 26 (Demonstration Approach Water Quality Model Plan), 27 (Water Quality Model Report), 28 (Financial Capability Assessment, draft and final), 29 (Alternatives Evaluation), 52 (SEP Completion Report) of this Consent Decree:

<u>Period of Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$3,000
Days 31-60	\$5,000
Days 61 and over	\$8,000

82. Compliance Milestones. For each failure to comply with any deadline set forth in the implementation schedule developed and approved pursuant to the approved Amended LTCP Lancaster shall pay the following stipulated penalties to Plaintiffs per violation per Day:

<u>Period of Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$4,500

Days 31-60	\$5,500
Days 61- and over	\$6,500

83. Nine Minimum Controls. For each failure to comply with a requirement of, or meet a deadline in, the Nine Minimum Controls Plan pursuant to Paragraph 40, above, (Nine Minimum Controls Plan), Lancaster shall pay the following stipulated penalties to Plaintiffs per violation per Day:

<u>Period of Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$1,000
Days 31-60	\$2,000
Days 61 and over	\$3,000

84. For each Dry Weather Overflow, SSO, and/or Unauthorized Release, Lancaster shall pay a stipulated penalty of \$2,000 per violation per Day.

85. Effluent Limits. For each failure to comply with Paragraph 41 of this Consent Decree (Effluent Limits), Lancaster shall pay the following stipulated penalties to Plaintiffs:

<u>Type of Permit Limit:</u>	<u>Penalty per violation:</u>
Daily or Instantaneous	\$1,000
Weekly	\$3,000
Monthly	\$5,000

86. For each failure to provide telephonic notification in compliance with Paragraph 42.b, Lancaster shall pay a stipulated penalty of \$2,000 per occurrence.

87. For each failure to comply with Paragraphs 42.c and d, Lancaster shall pay the following stipulated penalties to Plaintiffs per violation per Day:

<u>Period of Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$1,000
Days 31-60	\$2,000
Days 61-and over	\$4,000

88. Access Requirements. For each failure of Lancaster to allow the United States and/or PADEP access to the WWTP and the Lancaster Collection System in accordance with Section XIV (Information Collection and Retention), below, Lancaster shall pay stipulated penalties of \$5,000 to Plaintiffs per Day.

89. SEP. For each failure of Lancaster to satisfactorily meet a SEP implementation deadline set forth in item IV.A through IV. C of Appendix F, Lancaster shall pay the following stipulated penalties to Plaintiffs per violation per day:

<u>Period of Noncompliance</u>	<u>Penalty per Day per Violation</u>
Days 1-30	\$500
Days 31-60	\$1,000
Days 61 and over	\$2,000

90. Stipulated penalties under this Section XI shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree .

91. Lancaster shall pay stipulated penalties to the United States and PADEP within 30 Days of a written demand by either Plaintiff. Lancaster shall pay 50 percent of the total stipulated penalty amount due to the United States and 50 percent to PADEP. The Plaintiff making a demand for payment of a stipulated penalty shall simultaneously send a copy of the demand to the other Plaintiff.

92. Upon the Effective Date, the stipulated penalty provisions of this Decree shall be retroactively enforceable to the date Lancaster signed this Decree, with regard to any and all violations that have occurred after Lancaster signed, provided that stipulated penalties that may have accrued prior to the Effective Date may not be collected unless and until this Consent Decree is entered by the Court.

93. Either Plaintiff may in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

94. Stipulated penalties shall continue to accrue as provided in Paragraph 90, during any Dispute Resolution, but need not be paid until the following:

- a. If the dispute is resolved by agreement or by a decision of EPA or PADEP that is not appealed to the Court, Lancaster shall pay accrued penalties determined to be owing, together with interest, to the United States or PADEP within thirty (30) Days of the effective date of the agreement or the receipt of EPA' s or PADEP's decision or order.
- b. If the dispute is appealed to the Court and the United States or PADEP prevails in whole or in part, Lancaster shall pay all accrued penalties determined by the Court to be owing, together with interest, within sixty (60) Days of receiving the Court's decision or order, except as provided in subparagraph c, below.
- c. If any Party appeals the District Court's decision, Lancaster shall pay all accrued penalties determined to be owing, together with interest, within fifteen (15) Days of receiving the final appellate court decision.

95. Lancaster shall pay stipulated penalties owing to the United States and PADEP in the manner set forth and with the confirmation notices required by Section VIII of this Consent Decree (Civil Penalty), except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

96. If Lancaster fails to pay stipulated penalties according to the terms of this Consent Decree, Lancaster shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph 96 shall be construed to limit the United States or PADEP from seeking any remedy otherwise provided by law for Lancaster's failure to pay any stipulated penalties.

97. Subject to the provisions of Section XV of this Consent Decree (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States and/or PADEP for Lancaster's violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of the Clean Water Act, Lancaster shall be allowed a credit for any stipulated penalties paid against any statutory penalties imposed for such violation.

XII. FORCE MAJEURE

98. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Lancaster, of any entity controlled by Lancaster, or of Lancaster's contractors, agents, or consultants that delays or prevents the performance of any obligation under this Consent Decree despite Lancaster's best efforts to fulfill the obligation. The requirement that Lancaster exercise "best efforts to fulfill the obligation" includes using best

efforts to anticipate any potential force majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force majeure" does not include Lancaster's financial inability to perform any obligation under this Consent Decree. In addition, failure to apply for a required permit or approval or to provide in a timely manner all information required to obtain a permit or approval that is necessary to meet the requirements of this Consent Decree, or failure of Lancaster to approve contracts, shall not, in any event, be considered a force majeure event.

99. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, Lancaster shall provide notice orally or by electronic or facsimile transmission to EPA and PADEP within 48 hours of when Lancaster first knew or should have known that the event might cause a delay.. Within seven (7) Days thereafter, Lancaster shall provide in writing to EPA and PADEP an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Lancaster's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of Lancaster, such event may cause or contribute to an endangerment to public health, welfare or the environment. Lancaster shall include with any notice all available documentation supporting the claim that the delay was attributable to a force majeure event. Failure to comply with the above requirements shall preclude Lancaster from asserting any claim of force majeure for that event for the period of time of such failure to

comply, and for any additional delay caused by such failure. Lancaster shall be deemed to know of any circumstance of which Lancaster, any entity controlled by Lancaster, or Lancaster's contractors knew or should have known.

100. If EPA, after a reasonable opportunity for review and comment by PADEP, agrees in writing that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA, for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify Lancaster in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

101. If EPA, after a reasonable opportunity for review and comment by PADEP, does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify Lancaster in writing of EPA's decision.

102. If Lancaster elects to invoke the dispute resolution procedures set forth in Section XIII (Dispute Resolution), it shall do so no later than fifteen (15) Days after receipt of EPA's written notice. In any such proceeding, Lancaster shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Lancaster complied with the requirements of Paragraphs 98 and 99,

above. If Lancaster carries this burden, the delay at issue shall be deemed not to be a violation by Lancaster of the affected obligation of this Consent Decree identified to EPA and the Court.

XIII. DISPUTE RESOLUTION

103. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. Lancaster's failure to seek resolution of a dispute under this Section shall preclude Lancaster from raising any such issue as a defense to an action by the United States and/or PADEP to enforce any obligation of Lancaster arising under this Decree.

104. The issuance, renewal, modification, denial or revocation of a permit and the issuance of orders or other actions of PADEP, including but not limited to decisions with respect to water quality standards, are not subject to dispute resolution under this Decree, but, rather, shall be subject to challenge before the Pennsylvania Environmental Hearing Board.

105. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Lancaster sends the United States and PADEP a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed thirty (30) Days from the date the dispute arises, unless that period is modified by written agreement of all Parties. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless, within thirty (30) Days after the conclusion of the informal negotiation period, Lancaster invokes formal dispute resolution procedures as set forth below.

106. Formal Dispute Resolution. Lancaster shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph by serving on the United States and PADEP a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Lancaster's position and any supporting documentation relied upon by Lancaster.

107. The United States shall serve its Statement of Position within forty-five (45) Days of receipt of Lancaster's Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on Lancaster, unless Lancaster files a motion for judicial review of the dispute in accordance with the following Paragraph.

108. Lancaster may seek judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XVII of this Consent Decree (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within twenty (20) Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of Lancaster's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

109. The United States shall respond to Lancaster's motion within the time period allowed by the Local Rules of this Court. Lancaster may file a reply memorandum, to the extent permitted by the Local Rules.

110. Standard of Review

a. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, in any dispute brought under Paragraph 103 pertaining to the adequacy or appropriateness of plans, procedures to implement plans, schedules or any other items requiring approval by EPA under this Consent Decree, the adequacy of the performance of Work undertaken pursuant to this Consent Decree and disputes regarding stipulated penalties, Lancaster shall have the burden of demonstrating, based on the administrative record, that the position of the United States is arbitrary and capricious or otherwise not in accordance with law.

b. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under Paragraph 105, Lancaster shall bear the burden of demonstrating that its position complies with this Consent Decree and better furthers the purposes of the Consent Decree.

111. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Lancaster under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 94. If Lancaster does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XI (Stipulated Penalties).

XIV. INFORMATION COLLECTION AND RETENTION

112. The United States, PADEP, and their representatives, including attorneys, contractors, and consultants, shall have the right of entry into any facility covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

- a. monitor the progress of activities required under this Consent Decree;
- b. verify any data or information submitted to the United States or PADEP in accordance with the terms of this Consent Decree;
- c. obtain samples and, upon request, splits of any samples taken by Lancaster or its representatives, contractors, or consultants;
- d. obtain documentary evidence, including photographs and similar data;
- e. inspect and evaluate any portion or portions of the WWTP and/or the Collection System;
- f. inspect and review any records required to be kept under the terms and conditions of the Consent Decree, Lancaster's NPDES Permit, any future modifications or renewals thereof, and the Clean Water Act; and
- g. assess Lancaster's compliance with this Consent Decree.

113. Upon request, Lancaster shall provide EPA and PADEP or their authorized representative splits of any samples taken by Lancaster. Upon request, EPA and PADEP shall provide Lancaster splits of any samples taken by EPA or PADEP.

114. Until five (5) years after the termination of this Consent Decree, Lancaster shall retain, and shall instruct its contractors and agents to preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic

form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate in any manner to Lancaster's performance of its obligations under this Consent Decree. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States or PADEP, Lancaster shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

115. At the conclusion of the information-retention period provided in the preceding Paragraph, Lancaster shall notify the United States and PADEP at least ninety (90) Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States or PADEP, Lancaster shall deliver any such documents, records, or other information to EPA or PADEP. Lancaster may assert that certain documents, records, or other information is privileged under the attorney-client privilege or any other privilege recognized by federal law. If Lancaster asserts such a privilege, it shall provide the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of each author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Lancaster. However, no documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

116. If Lancaster seeks to claim that any information required to be provided under this Section is protected as Confidential Business Information (“CBI”) under 40 C.F.R. Part 2, Lancaster shall follow the procedures set forth in 40 C.F.R. Part 2.

117. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or PADEP pursuant to applicable federal or Commonwealth laws, regulations, or permits, nor does it limit or affect any duty or obligation of Lancaster to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XV. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

118. This Consent Decree resolves the civil claims of the United States and PADEP for the violations alleged in the Complaint filed in this action through the date of lodging of this Consent Decree.

119. The United States and PADEP reserve all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 118, above. This Consent Decree shall not be construed to limit the rights of the United States or PADEP to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal or Commonwealth laws, regulations, or permit conditions, except as expressly specified in Paragraph 118. The United States and PADEP further reserve all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, the Lancaster Collection and Treatment System, whether related to the violations addressed in this Consent Decree or otherwise.

120. In any subsequent administrative or judicial proceeding initiated by the United States or PADEP for injunctive relief, civil penalties, other appropriate relief relating to the Lancaster's violations of the NPDES permit or Lancaster's Collection and Treatment System, Lancaster shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or PADEP in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 118 of this Section.

121. This Consent Decree is not a permit, nor a modification of any permit, under any federal, State, or local laws or regulations. Lancaster is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits; and Lancaster's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States and PADEP do not, by their consent to the entry of this Consent Decree, warrant or aver in any manner that Lancaster's compliance with any aspect of this Consent Decree will result in compliance with provisions of the Act, 33 U.S.C. §§ 1251 et seq. or with any other provisions of federal, State, or local laws, regulations, or permits. The Commonwealth of Pennsylvania, Department of Environmental Protection, is a plaintiff and a signatory to this Consent Decree, and pursuant to Section 309(e) of the Clean Water Act, 33 U.S.C. § 1319(e), Pennsylvania is required to be joined as a party to this action. PADEP shall have no liability under this Consent Decree except, as set forth in Section 309(e), to the extent that the laws of the Commonwealth of Pennsylvania prevent Lancaster from raising revenues needed to comply with

this Consent Decree. PADEP represents that its current laws do not prevent Lancaster from raising revenues needed to comply with this Consent Decree. PADEP reserves all defenses to any claims pursuant to Section 309(e), including among other defenses that Pennsylvania law does not prevent Lancaster from raising revenues needed to comply with this Consent Decree. This Consent Decree does not authorize or approve the construction of any physical structure or facilities, or the modification of any existing treatment works or sewer system.

122. This Consent Decree does not limit or affect the rights of Lancaster or of the United States or PADEP against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Lancaster, except as otherwise provided by law.

123. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XVI. COSTS

124. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States and PADEP shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Lancaster.

XVII. NOTICES

125. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

To the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Box 7611 Ben Franklin Station
Washington, D.C. 20044-7611
Re: DOJ No. 90-5-1-1-11135

To EPA:

Chief
NPDES Enforcement Branch (3WP42)
Water Protection Division
U.S. Environmental Protection Agency, Region 3
1650 Arch St.
Philadelphia, PA 19103-2029

and

Douglas Frankenthaler
Office of Regional Counsel (3RC20)
U.S. Environmental Protection Agency, Region 3
1650 Arch St.
Philadelphia, PA 19103-2029
215-814-2472

To PADEP:

Program Manager
Clean Water Program
Pennsylvania Department of Environmental Protection
909 Elmerton Avenue
Harrisburg, PA 17110-8200
717-705-4795
717-705-4760 (telefax)

To Lancaster:

Director of Public Works
City of Lancaster
120 North Duke Street
City of Lancaster, Pennsylvania
(717) 291-4739
(717) 291 4721 (fax)

126. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

127. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XVIII. EFFECTIVE DATE

128. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket; provided, however, that Lancaster hereby agrees that it shall be bound to perform duties scheduled to occur prior to the Effective Date. In the event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall terminate.

XIX. RETENTION OF JURISDICTION

129. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XII (Dispute Resolution) and XIX (Modification), or effectuating or enforcing compliance with the terms of this Decree.

XX. MODIFICATION

130. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Lancaster's request for modification may be based, among other things, on: (a) an integrated plan developed in

accordance with EPA's Integrated Municipal Stormwater and Wastewater Planning Approach Framework, issued on June 5, 2012; or (b) a current Financial Capability Assessment (per EPA's Financial Capability Assessment Framework, issued on November 24, 2014). If either the Integrated Municipal Stormwater and Wastewater Planning Approach Framework or the Financial Capability Assessment Framework is modified after the Effective Date, Lancaster's request for modification shall be based on the version of the Framework(s) that is in effect on the Day that the request for modification is submitted to the Plaintiffs.

131. Any modification of this Consent Decree, or any documents that are developed pursuant to the requirements of this Decree and that become a part of the Decree, that effect a material change to the terms of the Decree shall become effective upon a subsequent written agreement signed by all Parties and approved by the Court. Any schedule that is included in this Decree or in any document developed pursuant to the Decree may be extended, modified, or revised upon written agreement of the Parties, without Court approval, unless the schedule extension effects a material change to the terms of this Decree.

132. Any disputes concerning modification of this Decree shall be resolved pursuant to Section XIII of this Decree (Dispute Resolution). However, instead of the burden of proof provided by Paragraph 110, above, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XXI. TERMINATION

133. After Lancaster has completed the requirements of Section VI (Clean Water Act Compliance Requirements) of this Decree and thereafter maintained satisfactory compliance

with this Consent Decree and with NPDES Permit No. PA0026743 for a period of three (3) years, has complied with all other requirements of this Consent Decree, and has paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree, Lancaster may serve upon the United States and PADEP a Request for Termination, stating that Lancaster has satisfied those requirements, together with all necessary supporting documentation.

134. Following receipt by the United States and PADEP of Lancaster's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether Lancaster has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States, after consultation with PADEP, agrees that the Decree may be terminated, the United States shall submit, for the Court's approval, a motion to terminate the Consent Decree.

135. If the United States, after consultation with PADEP, does not agree that the Decree may be terminated, Lancaster may invoke Dispute Resolution under Section XIII (Dispute Resolution) of this Decree. However, Lancaster shall not seek Dispute Resolution of any dispute regarding termination, under Paragraph 103 of Section XIII (Dispute Resolution), until 120 Days after service of its Request for Termination. Lancaster shall have the burden of proof that the conditions for termination of the Decree have been satisfied. This Consent Decree shall remain in effect pending resolution of the dispute by the Parties or the Court in accordance with Section XIII (Dispute Resolution) of this Consent Decree.

XXII. PUBLIC PARTICIPATION

136. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United

States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Lancaster consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified Lancaster in writing that it no longer supports entry of the Decree.

XXIII. SIGNATORIES/SERVICE

137. Each undersigned representative of Lancaster, the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice, and the Southcentral Region Office Environmental Program Manager of PADEP, certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

138. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Lancaster agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XXIV. INTEGRATION

139. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein, other than submissions that are subsequently submitted and

approved pursuant to this Decree. No other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

XXV. FINAL JUDGMENT

140. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States and PADEP, and Lancaster.

XXVI. APPENDICES

141. The following appendices are attached hereto and incorporated into this Consent Decree:

Appendix A – City of Lancaster Green Infrastructure Program

Appendix B - Outlines of Green Infrastructure Program Documents

Appendix C – Receiving Water Quality Model for Demonstration Approach

Appendix D – Public Notification Sign for CSO Outfalls

Appendix E – Public Notification Sign for Public Access Points

Appendix F – Supplemental Environmental Project Requirements

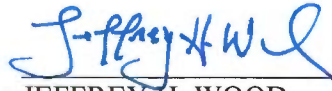
SO ORDERED THIS ____ DAY OF _____, 2018

UNITED STATES DISTRICT JUDGE

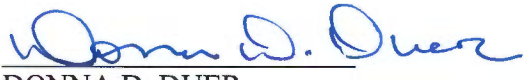
THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States and Commonwealth of Pennsylvania Department of Environmental Protection v. City of Lancaster*

ON BEHALF OF THE UNITED STATES:

12/18/17
Date


JEFFREY H. WOOD
Acting Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice


12/18/17
Date


DONNA D. DUER
Trial Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, DC 20044
Phone: (202) 514-3475
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Donna.Duer@usdoj.gov
DC Bar No. 414056


THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States and Commonwealth of Pennsylvania Department of Environmental Protection v. City of Lancaster*

ON BEHALF OF THE ENVIRONMENTAL PROTECTION AGENCY:


11-30-2017
Date


COSMO SERVIDIO
Regional Administrator
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

11/29/17
Date



MARY B. COE
Regional Counsel
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

11/28/17
Date



DOUGLAS FRANKENTHALER
Assistant Regional Counsel
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States and Commonwealth of Pennsylvania Department of Environmental Protection v. City of Lancaster*

12.8.17
Date


MARK POLLINS
Director, Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency

12/8/17
Date


CATHLEEN GILLEN TIERNEY
Attorney-Advisor
U.S. Environmental Protection Agency
Headquarters
1200 Pennsylvania Ave., NW
Washington, DC 20460

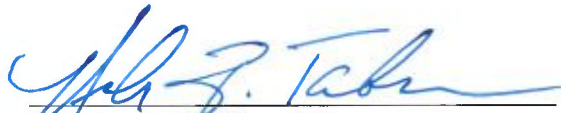
12/8/2017
Date


SARAH GONZALEZ
Attorney-Advisor
U.S. Environmental Protection Agency
Headquarters
1200 Pennsylvania Ave., NW
Washington, DC 20460


THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States and Commonwealth of Pennsylvania Department of Environmental Protection v. City of Lancaster*

ON BEHALF OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION:

11/29/2017
Date


NELS J. TABER
PA Supreme Court I.D. No. 44486
Office of Chief Counsel
PA Department of Environmental Protection
909 Elmerton Avenue
Harrisburg, PA 17110-8200
Phone: 717-705-4817
ntaber@pa.gov

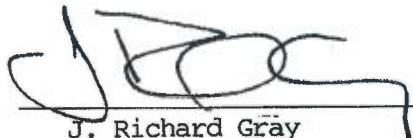
11/29/17
Date


MARIA D. BEBENEK, P.E.
Environmental Program Manager
Southcentral Regional Office
PA Department of Environmental Protection
909 Elmerton Avenue
Harrisburg, PA 17110-8200
Phone: 717-705-4795
mbebenek@pa.gov

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of *United States and Commonwealth of Pennsylvania Department of Environmental Protection v. City of Lancaster*

ON BEHALF OF THE CITY OF LANCASTER, PENNSYLVANIA:

11-28-17
Date



J. Richard Gray
Mayor
120 N. Duke Street
Lancaster, PA 17602

APPENDIX A to Consent Decree
United States and Commonwealth of Pennsylvania v. City of Lancaster

City of Lancaster Green Infrastructure Program

I. Introduction

Since 2010, the City has been implementing an integrated Green Infrastructure Program (“GI Program”) that allows it to incorporate green infrastructure in a cost-effective, adaptive, and systematic manner into public capital improvement projects and into private projects that are identified outside of formal public capital improvement planning.

Under this consent decree, the City shall document and continue to use an integrated approach to green infrastructure implementation, under which it will utilize green infrastructure in appropriate situations, in addition to gray infrastructure controls to reduce CSO discharges. The City shall implement the GI Program in collaboration with other interested local agencies, non-governmental organizations, citizens, and private entities.

II. Green Infrastructure Program

Within twelve (12) months after the Effective Date of the Consent Decree, the City shall submit to EPA and PADEP the Green Infrastructure plans and manuals described below. These documents shall follow the outlines contained in Appendix B of the Consent Decree.

A. Green Infrastructure Plan

The City shall submit to EPA and PADEP an updated Green Infrastructure Plan (“GI Plan”). The Updated GI Plan shall include the following elements:

(a) GI Program Update. The City shall provide written documentation of its GI Program, including the following elements:

- (1) summary of GI Program from 2010-2016;
- (2) completed ordinance updates, and a schedule for periodic reassessments;
- (3) public education efforts;
- (4) public participation procedures; and
- (5) project ranking/selection criteria and processes.

(b) Green Infrastructure Project Types. The GI Plan shall identify planned capital improvement projects by type (e.g., parks, roads/alleys, public schools, parking lots) and shall identify appropriate green infrastructure for each project type. These project types will be evaluated at a conceptual planning level of detail using Geographic Information System (GIS) data, pavement condition assessment data, project costs from GI constructed during the pilot phase, and planned projects

determined in cooperation with City Departments, the School District of Lancaster, and other agencies as appropriate so that the City and its residents benefit from the continued integration of GI projects with other necessary Civic improvements. The GI Plan shall also identify the CSO sewersheds where the GI projects will be located.

(c) Green Infrastructure Maintenance Schedule. The City shall provide a schedule of maintenance activities for each green infrastructure type in accordance with the Green Infrastructure Operation and Maintenance Plan to be developed as required below.

B. Green Infrastructure Design Manual

The City shall submit to EPA and PADEP a Green Infrastructure Design Manual (“GI Design Manual”), which shall contain the following elements:

- (a) schematics for each GI type;
- (b) standard details or drawings for each GI type;
- (c) standard material specifications;
- (d) technical standards, including a description of how each GI Project Type will meet a minimum 1.0-inch retention standard, which is the presumptive minimum retention standard, unless a higher or lower minimum retention standard is determined to be appropriate for a Project Type, in which case that revision shall be submitted as part of the annual GI Performance Report outlined in Section III of Appendix A;
- (e) installation practices; and
- (f) construction considerations, including field acceptance testing requirements.

In describing these elements, the GI Design Manual may include or refer to relevant industry standards and PADEP regulations and guidance. The GI Design Manual shall include technical standards for the planning, design, and construction of the types of GI built by the City to date and considered in the GI Plan. The GI Design Manual may be revised as new/innovative practices are discovered, piloted, and installed in the City. In such event, the City shall submit the revised GI Design Manual to EPA and PADEP for review and comment as part of the annual GI Performance Report outlined in Section III of Appendix A.

C. Green Infrastructure Operation and Maintenance Plan

The City shall submit to EPA and PADEP a comprehensive green infrastructure operation and maintenance plan (“GI O&M Plan”). This GI O&M Plan shall include the following elements:

- (a) recommended maintenance activities for each green infrastructure type proposed;
- (b) a recommended schedule by which maintenance activities are to be performed for each GI Project Type;

- (c) documentation that the Field Performance Testing results are being used to develop and/or update Green Infrastructure maintenance schedules;
- (d) documentation of the City's use of a computerized maintenance management system (CMMS) to schedule, track, report on and update maintenance activities;
- (e) forms and reports to document activities performed in accordance with the GI O&M Plan.

D. Green Infrastructure Monitoring Plan

The City shall submit to EPA and PADEP a Green Infrastructure Monitoring Plan (“GI Monitoring Plan”) to evaluate the performance of representative Green Infrastructure Projects constructed by the City. The selection of representative Projects shall be performed in accordance with Section II.E, of this Appendix A. The GI Monitoring Plan shall include the following elements to be performed for the term of this consent decree:

- (a) Field Acceptance Testing, Performance Baseline Testing, and Ongoing Field Performance Testing protocols and procedures to confirm compliance with design criteria and technical standards for representative GI Project types included in the GI Plan;
- (b) A schedule for Field Acceptance Testing and Performance Baseline Testing, which shall be performed at each GI Project within sixty (60) Days after completion of construction of the GI Project;
- (c) A schedule for long-term Ongoing Field Performance Testing, which shall be performed at each GI Project no less frequently than once every five (5) years after the completion of construction of the GI Project;
- (d) Monitoring plan and quality assurance protocols for collecting data (e.g. infiltration testing) at the representative sites;
- (e) Inspection protocols for use in the Operation and Maintenance Plan to confirm operation and continued function of GI controls through ongoing maintenance inspections.
- (f) Forms for documenting results of monitoring activities performed in accordance with the GI Monitoring Plan.

E. Selection of Representative Sites

The City shall select representative sites that will include (at a minimum) one site each to monitor the range of project types (e.g. streets, parks, schools, etc.) and the range of GI Project types (e.g. bioretention, porous pavements). The City shall monitor one (1) combination of each type to ensure data for each green infrastructure technology and site type are used to represent the entire program.

The City shall use the following criteria to select representative sites:

- (a) coverage or representative GI Project types to be monitored (bioretention systems, tree trenches, and porous pavement);
- (b) time period required to accomplish initial monitoring requirements verification of draindown time for green infrastructure facilities through visual observation of surface ponding or observation wells);
- (c) specific locations for measuring the flows entering and leaving the green infrastructure facility, plus performing water quality sampling of the influent and effluent

As part of the site selection and pre-monitoring planning process, the City shall complete a site and treatment characterization worksheet. The worksheet will document the specific site characteristics, contributing land use characteristics, field points to be monitored, and site security information. Further data to be collected in the treatment characterization section will include the following:

- (a) hydraulic loading rate at design capacity/flow;
- (b) for filtration systems, media type (media samples will be taken at the beginning and end of the clogging of the media);
- (c) for vegetated systems, vegetation type and age;

III. Green Infrastructure Performance Reports

The City shall submit to EPA and PADEP a GI Performance Report annually, and coincident with Annual CSO status reporting required to be submitted to EPA and PADEP on March 31st of each calendar year. The GI Performance Report shall include the following:

- (a) a narrative description of activities undertaken, progress made, problems encountered and resolutions, and other relevant developments in the Lancaster GI Program;
- (b) a summary of all construction projects completed in the previous 12 months;
- (c) a description of the results of implementation of the GI Monitoring Plan required by Section D of this Appendix A, including the results of all Ongoing Field Performance Testing performed in the previous 12 months;
- (d) for each CSO Outfall sewershed, an estimate of the volume of stormwater that will be controlled by GI Projects and thus diverted from the Combined Sewer System and from discharge as CSO;
- (e) an estimate of the CSO reduction attributed to the GI Projects;
- (f) a summary of maintenance and inspection tasks completed in the previous 12 months;
- (g) a summary of Field Performance Testing results from representative sites completed since the Effective Date of the consent decree, including an

explanation of any deviation from the 1.0-inch retention standard require by Section B(b), above;

- (h) a description of any impediments to green infrastructure implementation and actions taken by the City to overcome such impediments, as well as these or similar impediments might be avoided in the future (lessons learned for future GI Projects);
- (i) a summary of any corrective actions planned;
- (j) a summary of costs incurred since the previous report; and
- (k) a list of GI Projects planned for construction within the next year.

APPENDIX B to Consent Decree
United States and Commonwealth of Pennsylvania v. City of Lancaster

Outlines of Green Infrastructure Program Documents

Green Infrastructure Plan

1. Executive Summary
 2. Introduction
 - 2.1. Background
 - 2.2. History
 - 2.3. Organization
 3. GI Plan Update
 4. Program Goals
 5. Existing Conditions
 - 5.1. Impervious Area Analysis
 - 5.2. Socio-Economic Analysis
 6. GI Planning and Evaluation
 - 6.1. Public GI Strategies
 - 6.1.1. Parks
 - 6.1.2. Schools
 - 6.1.3. Right of Way
 - 6.1.4. Greenways
 - 6.2. Private GI Strategies
 - 6.2.1. Ordinances
 - 6.2.2. Stormwater Management Fee, Credit, and Rebate Incentives
 - 6.2.3. Enforcement
 - 6.3. Analysis of Benefits
 - 6.3.1. Implementation Levels
 - 6.3.2. Runoff Reduction
 - 6.3.3. CSO Reduction - SWMM Model Analysis
 - 6.3.4. Basis of Cost Estimating
 - 6.3.5. Triple-Bottom Line Evaluation
 7. Recommendations for CSO Alternative Evaluation
 - 7.1. Green Infrastructure Project Prioritization Methodology
 - 7.2. Green Infrastructure Potential Project Lists
 8. Appendix
 - 8.1. GI Project Concept Plans
 - 8.2. Green Infrastructure Technology Fact Sheets
 - 8.3. Lancaster City Stormwater Ordinance Summaries
 - 8.3.1. Stormwater Management Ordinance
 - 8.3.2. First Flush Requirements
 - 8.3.3. Parking Lot Ordinance
 - 8.4. DCNR Urban Tree Canopy Assessment
- References
City of Lancaster Green Infrastructure Plan

Lancaster Parks Master Plan
City of Lancaster Pavement Condition Assessment and Management Plan 2016
City of Lancaster Bike Plan

Design Manual

1. Introduction
2. Regulatory Requirements
3. Integrating Site Design and Stormwater Management
4. GI Design Guidelines
 - 4.1. Include section for each GI type built by the City to date and considered in the GI Plan with each section to include:
 - 4.2. Design Standards/Design Considerations
 - 4.3. Plan Layout Schematics
 - 4.4. Standard details
 - 4.5. Material standards
 - 4.6. Construction considerations
 - 4.7. Operation and Maintenance considerations
5. Construction Guidance & Documentation
 - 5.1. Construction considerations including contractor testing GI requirements
 - 5.2. Installation practices
 - 5.3. Standard construction specifications
6. Operation and Maintenance
7. Project Examples
8. References
 - Appendix
 - A.1 Infiltration Setbacks from Structures
 - A.2 BMP Coordination with other Utilities
 - A.3 Soil Testing
 - A.4 Infiltration System Design and Construction Guidelines

GI Operation and Maintenance Plan

1. Introduction & Purpose
2. Stormwater Management and Green Infrastructure Background
 - 2.1. City of Lancaster goals for Runoff water quality and quantity Management
 - 2.2. Regulatory requirements
 - 2.3. Relationship to Design Standards/Manual
 - 2.4. Relationship/connection to Green Infrastructure Performance Monitoring Program
3. Green Infrastructure Asset Maintenance Data Scheme
 - 3.1. Computerized Maintenance Management System (CMMS) Description
 - 3.2. GI Asset Category Descriptions
 - 3.3. Asset discretization and hierarchy
 - 3.4. Workflow diagrams
 - 3.5. Cost Tracking
 - 3.6. Performance Indicators

4. Standard Maintenance and Inspection Procedures (SMPs)
 - 4.1. Overview of SMPs and User Instructions
 - 4.2. List of GI Asset Categories and Technologies
 - 4.3. List of SMPs Applicable to GI Assets
 - 4.4. Recommended Maintenance Frequency Based on Service Level
 - 4.5. Green Infrastructure Inspection SMPs
 - 4.6. General Inspection SMP
5. GI O&M Forms, Logs, and Reports
 - 5.1. Overview of Reporting Forms and Logs
 - 5.2. Discussion of Required Tracking Needs
 - 5.3. Follow up procedures, tracking
 - 5.4. Standard Reports
 - 5.5. Notifications
 - 5.6. Standard Inspection and Maintenance Job Forms
6. Maintenance Scheduling
 - 6.1. Scheduling routine and non-routine maintenance for stormwater assets
 - 6.2. Scheduling follow-up maintenance/inspection when required
 - 6.3. Corrective Actions
 - 6.4. Adding new assets to schedule
 - 6.5. Capital Replacement – Adding a project to the CIP
7. Budget Requirements
 - 7.1. Personnel and equipment requirements
 - 7.2. Budget requirements for GI O&M based on staff and equipment needs

Appendix 1 – Standard Maintenance Procedures by GI Type**

- 1.1. Bioretention Systems Inspection SMP
- 1.2. Wetlands/Wet Ponds Inspection SMP
- 1.3. Streambanks Inspection SMP
- 1.4. Green Infrastructure Routine Maintenance Task SMPs
- 1.5. Green Infrastructure Non-Routine Maintenance Task SMPs

Appendix 2 - Reporting Forms and Logs and User Instructions

- 2.1 Stormwater Control Measures Inspection Forms
- 2.2 Stormwater Control Measures Routine and Non-Routine Maintenance Logs

GI Monitoring Plan

1. Definitions
2. Introduction
 - 2.1. Contact Information
 - 2.2. Strategy Objectives and Approach
 - 2.3. GI Facility Construction Activities
 - 2.4. Documentation and Records
3. Evaluation and Program
 - 3.1. Selection of Monitoring Sites
 - 3.2. Data Quality Objectives

- 3.3. Flow Monitoring
- 3.4. Visual Inspections
- 3.5. Performance Testing
 - 3.5.1. Field Acceptance Testing
 - 3.5.2. Performance Baseline Testing
 - 3.5.3. Ongoing Field Performance Testing
- 4. Data Management
 - 4.1. Data Assessment Procedures
 - 4.2. Data to be Included in Database Records

Annual GI Performance Report

- 1. Report Schedule
- 2. List of Green Infrastructure Projects Constructed (Calendar Year)
 - 2.1. CSO Outfall sewershed in which the Project was constructed
 - 2.2. GI Type
 - 2.3. Impervious area managed
 - 2.4. Estimate of the average annual stormwater flow reduced by each project
- 3. GI Performance Plan Results
 - 3.1. Summary of Representative Green Infrastructure Project testing
 - 3.1.1. Field Acceptance & Performance Baseline Testing for representative sites
 - 3.1.2. Field Performance Testing
 - 3.2. O&M Inspections
- 4. Planned Projects - A list of Green Infrastructure Projects of which the City is aware that are planned for construction in the next year
- 5. Recommendations
 - 5.1. A narrative summary describing other significant events, progress made, problems encountered, or other relevant developments to the Lancaster Green Infrastructure program
 - 5.2. Changes to O&M program
 - 5.3. GI Design and Technical Standards - A description of any substantive change in the GI Technical Standards
 - 5.4. Changes to GI Monitoring

APPENDIX C to Consent Decree
United States and Commonwealth of Pennsylvania v. City of Lancaster

Receiving Water Quality Model for Demonstration Approach

1. If Lancaster proceeds with the Demonstration Approach in accordance with Paragraph 26 of the Consent Decree, then Lancaster shall develop a water quality model to characterize impacts on the Receiving Water from Combined Sewer Overflows. The water quality model shall be consistent with EPA's 1999 CSO Monitoring and Modeling Guidance and the requirements of this Appendix C.
2. Not later than 90 Days after EPA approves the use of the Demonstration Approach pursuant to Paragraph 25 of the Consent Decree, Lancaster shall submit to Plaintiffs for review, and approval by EPA after consultation with PADEP, a Receiving Water Quality Model Plan and a schedule for the development and implementation of one or more model(s) to characterize the effects of Combined Sewer Overflows from the Collection System on water quality in the Receiving Water.
3. Lancaster shall utilize the water quality model(s) to characterize these effects under existing conditions. In addition, should Post Construction water quality monitoring performed in accordance with this Consent Decree not demonstrate to the satisfaction of EPA and PADEP that the Receiving Water is in attainment with the applicable Water Quality Standards for all pollutants of concern (PoC), then Lancaster shall also utilize the model(s) to characterize the effects of Combined Sewer Overflows from the Collection System on Receiving Water quality under the conditions existing at the time of completion of construction of the remedial controls and implementation of the remedial activities required under the approved LTCP.
4. In its Receiving Water Quality Model Plan, Lancaster shall propose one or more appropriate computer model(s) to assess flow and water quality in the Receiving Water. Lancaster shall utilize appropriate models, described in EPA's 1999 CSO Monitoring and Modeling Guidance. Lancaster shall select appropriate water quality model(s) that are suitable for the hydraulic characteristics of the Conestoga River and that provide an accurate and representative assessment of water quality and impacts associated with discharges from the combined sewer overflows. The selected model(s) shall use appropriate time frames to evaluate impacts, consider the appropriate magnitude, duration, and frequency of the water quality criteria to be evaluated, account for the various biological and physical processes that may significantly impact each parameter, and be otherwise appropriate for the water quality parameters to be modeled, consistent with EPA's 1999 CSO Monitoring and Modeling Guidance.
5. In its Receiving Water Quality Model Plan, Lancaster shall provide the following information regarding each of the specific model(s) it proposes to use:
 - a. a description of the water quality model(s), including responses to the following questions:
 - i. has the model been developed and/or approved by EPA?
 - ii. is the model publicly available?

- iii. is the model widely accepted by the technical community?
- b. if the response is “NO” to any of questions 5.a.i, 5.a.ii, or 5.a.iii, provide the following additional information:
 - i. a description of the model’s attributes and suitability for purpose;
 - ii. a description of the model’s characteristics and limitations; and
 - iii. the base algorithms for each major computational function within the model.
- c. a description of the model configuration process that will assure that the model is representative, accurate, and verifiable;
- d. a description and the rationale for all input parameters, constants, and assumed values;
- e. a description of the model outputs and how they will be evaluated;
- f. the computer hardware required to run the model;
- g. for any model of the Receiving Water, a digital map that illustrates the portions of the Receiving Water included in the proposed model and that illustrates how it will be broken down into segments;
- h. for any model of the Receiving Water, a description of how the model will be applied to simulate and predict stream flow and water quality, including:
 - i. the process for assuring data accuracy and representativeness;
 - ii. the configuration of the proposed model;
 - iii. the procedures and protocols for the performance of sensitivity analyses how the proposed model responds to changes in the technical input parameters and variables);
 - iv. procedures for calibrating the model using independent sets of spatially and temporally representative flow and rainfall data;
 - v. procedures for validating the proposed model's ability to adequately predict accurate, representative stream flows and water quality; and
 - vi. procedures for evaluating compliance with water quality criteria, considering magnitude, frequency, and duration of each parameter to be evaluated.

6. In developing the Receiving Water Quality Models in accordance with the approved Receiving Water Quality Model Plan, Lancaster shall utilize, among other information, flow monitoring, rainfall monitoring, Combined Sewer Overflow PoC monitoring, and the H&H Model required by Paragraph 17 of the Consent Decree, and shall ensure that the Receiving Water Quality Models are capable of simulating and predicting the following:

- a. the effect of Discharges from the Collection System on Receiving Water quality in the Receiving Water for both individual storm events and for Typical Year simulations, including, an assessment whether the remedial controls and activities identified in

Amended LTCP will be sufficient to bring Lancaster into compliance with the Clean Water Act;

- b. the duration of exceedance of all applicable Water Quality Standards at any specified point in the Receiving Water during individual storms and Typical Year simulations, and the effect of Combined Sewer Overflows from the Collection System upon the duration, frequency, magnitude, and spatial extent of any such exceedances;
- c. the effect that PoCs contributed by sources other than Lancaster have upon water quality in the Receiving Water under current conditions and under conditions existing after the implementation of the Amended LTCP, for both individual storm events and for Typical Year simulations;
- d. The effect of Combined Sewer Overflows remaining after implementation of the control program on Water Quality Standards assuming all other sources causing non-containment were controlled;
- e. spatial and temporal changes in concentrations for PoCs;
- f. the duration of exceedance of all applicable Water Quality Standards at any specified point in the Receiving Water during individual storms and long term simulations, and the effect of CSOs upon the duration, frequency, and magnitude, and special extent of any such exceedances;
- g. resuspension of bacteria from sediment sources; and
- h. sediment oxygen demand and algal effects.

7. Lancaster shall also ensure that all Receiving Water Quality Models used are capable of simulating and predicting numerical values for each PoC, through the following:

- a. continuous simulation of a Typical Year which shall be based on the recorded rainfall volume and frequency of storms in Lancaster and its immediate environs;
- b. continuous simulation, with statistical significance, of storms of sufficient duration and having sufficient rainfall intensities so as to result in significant activation of the Combined Sewer Outfalls and in representative storm water contribution to Combined Sewer Overflow pollutant loads, based on actual monitored temporal rainfall distribution data appropriate to Lancaster and its immediate environs; and
- c. continuous simulation, with statistical significance, of storms of varying duration and intensity, including: (i) a 10-year return interval, 24 –hour duration storm, and (ii) a two-year return interval, 24 hour duration storm, based on actual temporal rainfall distribution data appropriate to the Collection System.

APPENDIX D to Consent Decree

United States and Commonwealth of Pennsylvania v. City of Lancaster



WARNING

PRECAUCIÓN

COMBINED SEWER OVERFLOW AREA

DESBORDAMIENTO DEL SISTEMA DE ALCANTARILLADO COMBINADO AREA

AVOID CONTACT WITH WATER DURING AND FOLLOWING RAINFALL EVENTS
EVITE EL CONTACTO CON EL AGUA DURANTE Y DESPUÉS DE LAS PRECIPITACIONES PLUVIALES



*If you see a discharge during dry weather, please call the City of Lancaster Stormwater Bureau:
Si es testigo de un desbordamiento durante la temporada de sequía, repórtelo por favor a City of Lancaster Stormwater Bureau:*

Learn More / Aprenda Más
www.SaveItLancaster.com

717-293-5533



WARNING SIGN DESIGN

36" x 36"

APPENDIX E to Consent Decree

United States and Commonwealth of Pennsylvania v. City of Lancaster

WARNING
THE RIVERBANK ALONG LANCASTER IS A COMBINED SEWER OVERFLOW AREA

COMBINED SEWER OVERFLOWS
 Conestoga River

AVOID CONTACT WITH WATER DURING AND FOLLOWING RAINFALL EVENTS

Learn More / Aprenda Más @ SaveltLancaster.com
 If you see a discharge during dry weather, please call the City of Lancaster Stormwater Bureau:
 Si es testigo de un desbordamiento durante la temporada de sequía, repórtelo por favor a City of Lancaster Stormwater Bureau:
 717-735-0350

SAVE IT!
 YOUR WATER. YOUR MONEY. YOUR CITY.
www.saveltLancaster.org

CITY OF LANCASTER
 A City Authentic

WARNING / EDUCATION SIGN DESIGN

36" x 48"

APPENDIX E to Consent Decree

United States and Commonwealth of Pennsylvania v. City of Lancaster

WHAT ARE COMBINED SEWER OVERFLOWS (CSOs)?

In a combined sewer system (CSO), stormwater mingles with sewage. During light rainfall events, both stormwater and sewage are carried to a water pollution control plant for treatment before being released to a waterway.

During moderate to heavy rainfall events, the combined system reaches capacity, and a mixture of sewage and stormwater overflows into rivers and streams.

HOW YOU CAN HELP

- PREVENT CONTAMINATION**
 Do your part by reducing contaminants that wash into rivers and streams. Pick up pet waste, keep your car maintained to reduce leaks, and dispose of hazardous waste properly.
- REUSE, REDUCE, RECYCLE!**
 Install a rain barrel to reuse your rainwater for watering your plants. Go even further and install a compost bin to recycle your yard waste.
- IMPROVE WATER & AIR QUALITY**
 Plant a tree or install a planter on your property to improve air and water quality. Planting a tree that shades your home can even reduce your electricity bill in warmer months!
- STOP THE DROP**
 Never pollute our city with litter, and if you see litter, take the time to pick it up. Join the citywide Adopt-A-Block and help our city become litter free.

Save It! Your Water. Your Money. Your City | **WHAT WE'RE DOING TO REDUCE COMBINED SEWER OVERFLOWS**

- » Regular Maintenance and Monitoring Of CSO Outfalls
- » Educating The Community About Stormwater, CSOs, And Green Stormwater Infrastructure
- » Updating Sewer and Stormwater Infrastructure to Hold and Treat More Stormwater
- » Installing Community Greening Projects to Keep Rainwater Out of Our Sewers and Beautify Our Communities

SAVE IT!
YOUR WATER. YOUR MONEY. YOUR CITY.
www.saveitlancaster.org

Learn More / Aprenda Más @ [SaveltLancaster.com](https://www.facebook.com/SaveltLancaster.com)

If you see a discharge during dry weather, please call the City of Lancaster Stormwater Bureau:
Si es testigo de un desbordamiento durante la temporada de sequía, repórtelo por favor a City of Lancaster Stormwater Bureau:

717-735-0350

CITY OF LANCASTER
A City Authentic

EDUCATION SIGN DESIGN

36" x 48"

APPENDIX F to Consent Decree
United States and Commonwealth of Pennsylvania v. City of Lancaster

City of Lancaster Supplemental Environmental Project

I. Introduction

A. Early United States Geological Survey maps (prior to 1940), showed Groff's Run was located in the Northeast quadrant of the City of Lancaster. This small stream had a drainage basin of approximately 3 square miles. As this quadrant of the City grew over the past 100 years, much of Groff's Run baseflow was enclosed and incorporated into the City's Combined Sewer System.

B. The historic Groff's Run stream channel still exists and currently is maintained as a grassed swale located just north of the Lancaster City McCaskey East High School (McCaskey School) campus. There are several areas of existing pocket wetlands and a small volume baseflow within the current channel that would help restore and maintain, at a minimum, an ephemeral baseflow through the restored stream.

II. Description of the SEP

A. The Groff's Run Daylighting and Restoration Supplemental Environmental Project (SEP) will daylight and restore a segment of Groff's Run (leading from the McCaskey School property to the Conestoga River, shown on Figure 1) to an ephemeral, urban headwater stream.

B. The SEP will restore approximately 1,350 linear feet of urban stream channel, reconnect wetlands to the Conestoga River, and establish additional habitat for micro- and macro-biota, thereby enhancing water quality. The SEP will also improve water quality by reconnecting existing springs, seeps and local separate drainage to pocket wetlands and a restored natural stream channel.

C. The SEP will also help reduce localized flooding from unmanaged impervious areas by providing additional stream capacity and flow rate attenuation above the confluence of the Conestoga River.

III. SEP Costs

The cost to design and construct the 1,350 daylighting and restoration project is estimated between \$1.8 and \$2.3 million.

A. Eligible SEP costs are only the costs of performing design, permitting, and construction work, either by City employees or private contractors. Lancaster may utilize

its own employees and equipment to perform the design and restoration work (including associated administrative and incidental costs), provided that such work is not work that otherwise would have been performed by Lancaster's employees. Any such work must be supported by time and expense records, which are subject to review by EPA.

B. Lancaster shall not use any federal government funds, grants, or contracts in the development or implementation of the SEP.

IV. SEP Implementation

A. Within 8 months of the Effective Date, Lancaster shall:

1. Develop scopes of work, forms, and contracts for design and implementation of the SEP;
2. Identify eligible contractors or Lancaster departments to perform the SEP;
3. Complete design of the SEP, including but not limited to:
 - a) topographic delineation of the watershed;
 - b) survey of existing channel conditions, culvert/crossing conditions, and existing hydraulic function;
 - c) geologic testing to direct channel and cross-section design, bank stability considerations, and vegetation recommendations; and
 - d) hydrologic and hydraulic assessment of the proposed design to ensure long term stability and function.
4. Submit timely and technically complete applications for, and make best efforts to obtain, all necessary permits, including Pennsylvania Chapter 102 (NPDES) and Chapter 105 permits, local permits, and, if necessary, an Army Corps of Engineers PASPGP-4 permit.

B. Within 8 months of receiving the last of the permits identified in item IV.B of this Appendix F, Lancaster shall complete construction of the SEP.

C. Once every five (5) years after completion of the construction of the SEP, until termination of the Consent Decree, Lancaster shall inspect the SEP site to confirm the ongoing function of the restored Groff's Run, and the environmental benefits associated therewith, and shall take corrective actions if the SEP is not functioning as designed.

V. SEP Recordkeeping and Reporting

A. Lancaster shall maintain records of all work performed and an accurate accounting of all costs expended to perform the SEP, whether the work is performed by Lancaster or by contractors.

B. During design, permitting, and construction of the SEP, Lancaster shall submit SEP progress reports with the Semi Annual Reports required to be submitted pursuant to

Paragraph 70 of the Consent Decree. The SEP progress reports shall include a description of all SEP work performed, photographs of the SEP site, and a summary of costs expended for the work.

C. Lancaster shall submit a SEP Completion Report described in Paragraph 51 of the Consent Decree within sixty (60) Days of completion of construction of the SEP. The SEP Completion Report shall include all of the information required by Paragraph 51 of the Consent Decree.

D. Following completion of construction of the SEP, Lancaster shall submit SEP inspection reports with the Semi Annual Reports required to be submitted pursuant to Paragraph 70 of the Consent Decree. The SEP inspection reports shall include a description of all inspections completed and the results thereof and a description of all corrective action taken, as required by item IV.C of this Appendix F.

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA,)	
)	
and)	
)	
COMMONWEALTH OF PENNSYLVANIA,)	
DEPARTMENT OF ENVIRONMENTAL)	17-cv-5684
PROTECTION)	
)	
v.)	
)	
CITY OF LANCASTER, PENNSYLVANIA)	
_____)	

CERTIFICATE OF SERVICE

I, Euodia Jeremy, hereby certify that on Tuesday, December 19, 2017, I caused true and correct copies of the Complaint, Notice of Lodging, and Consent Decree (including Appendices A through F), which are available for viewing and downloading via the ECF system, to be served by first class mail on the following:

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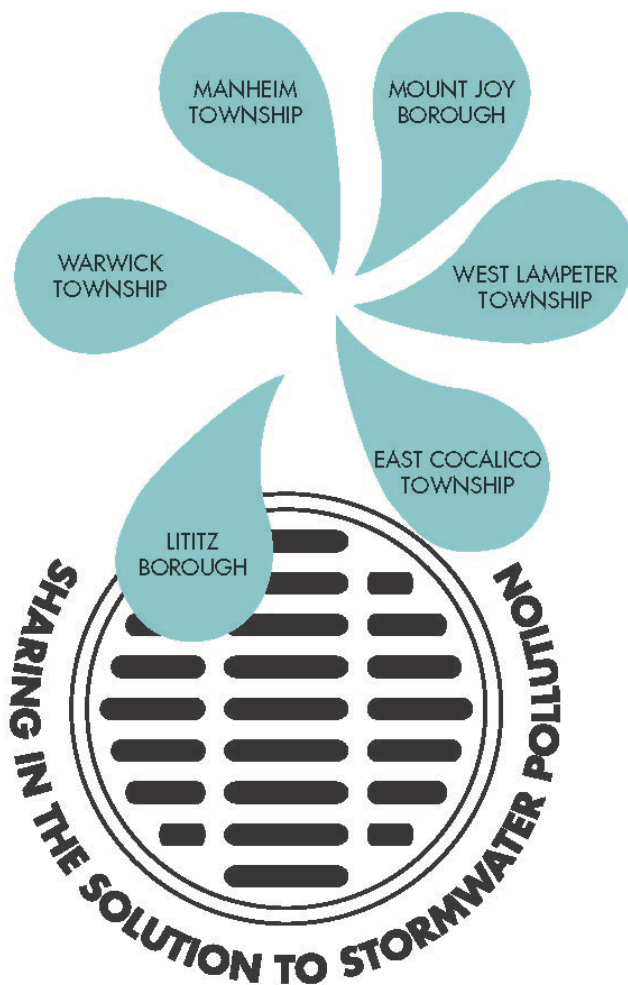
s/ Euodia Jeremy _____
Legal Assistant
Environmental Enforcement Section
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, DC 20004

EXHIBIT C



2013

Lancaster County Municipal Stormwater Management Financing Feasibility Study



Prepared for

East Cocalico Township

Lititz Borough

Manheim Township

Mount Joy Borough

Warwick Township

West Lampeter Township

Prepared by the Environmental Finance

Center for the National Fish & Wildlife

Foundation and the Lancaster County Clean

Water Consortium

October 2013



This report was prepared by the Environmental Finance Center with support from the National Fish & Wildlife Foundation's Chesapeake Bay Stewardship Fund, Local Government Capacity Building Initiative.

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Executive Summary

Background

Throughout the Chesapeake Bay watershed, communities are facing more significant nutrient reduction expectations as a result of National Pollutant and Discharge Elimination System Municipal Separate Storm Sewer System (NPDES MS4) Permits, Total Maximum Daily Load (TMDL) allocations, and Watershed Implementation Plans (WIPs). The majority of these communities already struggle with the challenge of balancing addressing aging and long-neglected stormwater infrastructure systems in desperate need of maintenance and a host of other costly community priorities. Few of these communities have dedicated revenue streams for stormwater management, leaving local governments little in the way of resources to support stormwater program needs.

In Pennsylvania, permitted communities, which tend to be significantly smaller and carry the additional constraint of developing a Chesapeake Bay Pollutant Reduction Plan (CBPRP), seem to be at a particular disadvantage. Stormwater programming that meets local priorities and addresses local infrastructure needs and pending requirements is expensive, and many Pennsylvania communities are coming to recognize that collaboration with neighbors, nongovernmental organizations, state agencies, and the private sector will be necessary to accomplish stormwater goals efficiently and effectively.

It was this very challenge that led the Lancaster County Clean Water Consortium (LCCWC) to request the technical assistance of the Environmental Finance Center (EFC) at the University of Maryland. The EFC was asked to work with six municipalities located in Lancaster County – East Cocalico, Manheim, Warwick, and West Lampeter Townships and Lititz and Mount Joy Boroughs – to conduct a stormwater management financing feasibility study.

Because of breadth of diversity among the municipalities in terms of geography, hydrology, community priorities, regulatory requirements, and political climates, each jurisdiction's stormwater financing strategy needed to be as unique as the location it serves, reflecting the nature and characteristics of the community. With support from the National Fish and Wildlife Foundation (NFWF), the EFC worked directly with these six municipalities over the course of a year. The objective of this effort was to identify the current level of stormwater service, determine the future level of service needed to deliver a comprehensive stormwater management program, and highlight any and all opportunities to work collaboratively across the collective municipalities.

And, while the goal of the stormwater management financing study was to enhance each municipality's existing program and help them meet state and federal requirements more thoroughly, it was equally important that community water quality priorities were also properly addressed as all prepared for increased future nutrient reduction expectations. The EFC's approach included conducting in-depth interviews, data collection, and analysis of stormwater-related activities and expenses for each of the participating municipalities. The project also included a collection of outreach activities that helped to educate, inform, and engage citizens, businesses, and elected officials about the need to properly manage stormwater locally.

From the onset, the municipalities mutually agreed that the most important outcome of the stormwater management financing feasibility study should be the identification of an equitable, adequate, and sustainable financing structure to properly manage stormwater beyond 2013. The communities were also eager to learn of ways that the municipalities could generate cost savings by working collaboratively.

Findings

Based on the Project Team's evaluation, it was determined that there were several ways in which each municipality could improve their stormwater program. Some of the recommendations were straightforward and require very little change to implement while other recommendations were found to be more costly in terms of additional resources needed to achieve future improvements. There were easily attainable opportunities for collaboration identified that would achieve some cost-effective improvements. It was determined that all six municipalities would benefit from having a dedicated funding mechanism put in place specifically for stormwater, although the recommendations for each municipality varied based on their past stormwater activities. The highlighted recommendations made for each municipality are described below:

Manheim Township – As Manheim Township prepares for their new MS4 Phase II permit requirements, a significant rise in future costs in order to maintain their existing stormwater system is anticipated. After carefully reviewing all of Manheim Township's permit obligations and conducting a very thorough analysis of their entire stormwater program, the Project Team found current budgeting practices to be adequate in meeting the existing regulatory requirements but insufficient to meet anticipated future expenditures if they are to continue to deliver a comprehensive program.

Based on the needs identified by the Project Team, Manheim Township will incur approximately \$10.1 million in stormwater expenses over the next five years. The Project Team recommends a dedicated stormwater user fee be implemented to distribute the costs of paying for repairs and improvements, with a flat rate fee for residential parcels estimated to be between \$70 and \$85 per property per year and a 4-tiered rate structure for non-residential properties based on the estimated impervious surface of a total parcel. The estimated revenue generated from a fee over five years would be adequate to cover anticipated future costs and will generate between approximately \$9 million and \$11 million.

Warwick Township – By staying on their current path, Warwick Township should be able to manage stormwater properly in the future providing they continue to make regular repairs and replace infrastructure as their system ages. As they prepare for their new permit requirements, however, maintaining the existing stormwater system will have significant future costs that will not be sufficiently covered by general funds and grants alone. In order to maintain the high level of service they have provided in the past and be able to deliver a more comprehensive stormwater management program in the future, the Township will need to support its program using a variety of funds and not rely so heavily on grants as it has in the past.

After assessing available resources, reviewing stormwater program data, and analyzing current and future spending, it was determined that the best course of action for Warwick Township would be to continue to pay for other costs to implement the stormwater program using general fund appropriations and grants as they have been doing for the last several years. In addition, the Project Team found an estimated revenue stream totaling \$639,268 over five years needed to support a municipal stormwater asset management reserve program, and it is recommended that the Township utilize a dedicated user fee to support very specific, yet essential tasks that would include the costs of repairing and replacing the entire storm sewer pipe system and maintaining and renovating all municipally-owned best management practices (BMPs).

The Project Team recommends a dedicated stormwater user fee be implemented to support an infrastructure repair and replacement program, with a flat rate fee for residential parcels estimated to be between \$15 and \$20 per property per year and a 4-tiered rate structure for non-residential properties based on the estimated impervious surface of a total parcel. The estimated revenue

generated from a fee over five years would be adequate to cover anticipated future costs to support an asset management reserve program and will generate between approximately \$678,000 and \$687,000.

East Cocalico Township, Lititz Borough, Mount Joy Borough, and West Lampeter Township – After conducting a thorough analysis of each municipal stormwater management program, it became evident that these four municipalities lacked specific data needed to estimate stormwater management costs accurately. Thus, many of the recommendations contained in this report focus on programmatic improvements that will lead to each municipality being able to determine costs as their programs advance. In the meantime, the Project Team utilized data provided by Manheim and Warwick Townships to estimate costs for East Cocalico and West Lampeter Townships and Lititz and Mount Joy Boroughs. The stormwater management program costs for each municipality over five years was estimated between \$267,000 and \$545,000 using Warwick Township’s approach and between \$2 million and \$4 million using Manheim Township’s approach.

The Project Team recommends each municipality implement a dedicated stormwater user fee to begin the investment of properly managing stormwater locally, with a flat rate fee for residential parcels starting at a minimum of \$15 per property per year and a 4-tiered rate structure for non-residential properties based on the estimated impervious surface of a total parcel. Given the size and current capacity of the four municipalities, a proposed fee would not need to be at the level recommended for Manheim Township and would be closer to that recommended for Warwick Township. If the fee is set at the minimal rate, the estimated revenue generated from a fee over five years for each municipality is between \$329,000 and \$566,300.

Opportunities for Multi-Jurisdictional Collaboration

Multi-jurisdictional collaboration is nothing new to the water service industry; it has been practiced effectively for years in the wastewater and drinking water sectors and is quickly moving towards being a proven practice for stormwater, particularly for small capacity and resource strapped communities like the ones in this study. Adopting aspects of regionalization where possible is an appropriate approach for many Lancaster County municipalities to adopt as they grapple with rising costs and increased regulatory expectations. Working collaboratively and restructuring aspects of each jurisdiction’s stormwater program will create efficiencies that translate to reduced implementation costs over time.

The differences in size, location, overall need, and current program structure would make it difficult for the six municipalities to immediately begin to work jointly on all aspects of their program. However, there are several areas where some level of multi-jurisdictional collaboration could be implemented relatively easily and could prove to be an effective first step and establish a foundation for a greater level of collaboration on more complex aspects of stormwater management in the future. These include:

- Capacity
- Education
- Outreach/Public events
- Written material
- Equipment
- Develop procedures and shared documents
- Monthly meetings, either formal or informal
- Trainings
- Grants
- Contractor and vendors
- Studies

Conclusions

There was great diversity in how the six municipalities in this study currently approach their stormwater management activities, yet they shared enough common threads that they are undeniably tied to one another. Perhaps the strongest, and most fortunate, commonality was the determination to improve the way stormwater was being managed and elevate its priority locally. Each is willing to being more proactive moving forward and understood that program deficiencies must be addressed.

The internal structure, size, geographic makeup, and age of all of their systems made each municipality unique, yet there were clearly ways they could cooperate, collaborate, and reduce implementation costs in the future. A dedicated fee for stormwater programming needs, tailored to the local nature, characteristics, and need of each community, will enable these municipalities to improve the level of stormwater management and ensure that local priorities as well as state and federal expectations are met consistently. Most importantly, though, these improvements strengthen the quality of life for residents and businesses alike.

Chapter 1: Introduction

Background

Effectively managing stormwater is one of the greatest resource management challenges faced by communities throughout the region. Like all infrastructure, stormwater management systems can have significant upfront capital costs and require long-term management and maintenance to function effectively. As communities struggle to best allocate limited resources, stormwater management systems are frequently overlooked until an emergency occurs, costing millions in damages and repairs, or until a mandate forces a community to take action.

While most communities rely on general funds for stormwater management activities, this means stormwater programs compete for dollars with other critical community priorities like emergency services, planning and zoning, and roads. Having a dedicated revenue stream that is specifically set aside for maintenance and upgrades is often critical to the effective management of stormwater systems at the local level.

The significance of this looms even larger as Chesapeake Bay communities constantly face more stringent regulations, from National Pollutant and Discharge Elimination System Municipal Separate Storm Sewer System (NPDES MS4) Permits to Total Maximum Daily Load (TMDL) allocations to Watershed Implementation Plans (WIPs). In Pennsylvania, MS4 permitted communities in the Bay watershed must also create Chesapeake Bay Pollutant Reduction Plans (CBPRP) and implement stormwater management plans. Although often an effective driver, federal and state mandates are not always accompanied by the type of technical assistance, information, and resources needed to successfully guide the development and implementation of sustainable stormwater management plans and programs.

Compounding this is the fact that the Chesapeake Bay region lags far behind the rest of the country in terms of the total number of communities who have established a how-to-pay plan for their stormwater management, yet now has some of the greatest nutrient reduction expectations in the country. The local political landscape in Pennsylvania further complicates a locality's ability to manage stormwater, since there are 961 municipalities with MS4s located in urbanized areas¹ across the state, each with significant looming costs to manage their stormwater. These communities strive to serve their stakeholders with limited resources while preserving their autonomy and local pride.

As a result, municipalities across Pennsylvania have begun to realize that collaboration is necessary in order to cost-effectively address regulatory mechanisms and manage stormwater. Since Lancaster County has been deemed one of the major contributors to the poor health of the Chesapeake Bay, municipalities in the County know they need to properly manage stormwater to help improve local water quality, and in turn the Bay and its tributaries. In Lancaster County alone there are 46 municipalities who hold a MS4 permit.²

These factors led the Lancaster County Clean Water Consortium (LCCWC) to request the technical assistance of the Environmental Finance Center (EFC) at the University of Maryland on behalf of six municipalities located in Lancaster County – East Cocalico, Manheim, Warwick, and West Lampeter Townships and Lititz and Mount Joy Boroughs – to conduct a stormwater financing feasibility study.

¹ MS4s within Urbanized Areas in Pennsylvania, Grouped by Region, Commonwealth of Pennsylvania Department of Environmental Protection, Bureau of Watershed Management, Retrieved from: http://www.portal.state.pa.us/portal/server.pt/community/stormwater_management/10628/npdes_ms4%2C%A0information/669119.

² Ibid.

Because of differences in geography, hydrology, community priorities, regulatory requirements, and political climates, each stormwater financing strategy is as unique as the location it serves, and financing recommendations must also be specifically designed to reflect the nature and characteristics of a jurisdiction. This report chronicles the EFC's work with the six municipalities, identifying the needed level of service for a comprehensive stormwater program for each individual municipality, as well as highlighting opportunities to work collaboratively across municipalities.

Goals of the Lancaster County Municipal Financing Initiative

The goal of EFC's stormwater efforts in Lancaster County was to enhance each municipality's existing program, thus raising the level of service in a way that helps meet state and federal requirements more thoroughly, addressing community water quality priorities, and preparing for future nutrient reduction expectations. In addition, the goal of this project was to identify ways in which municipalities in Lancaster County and beyond can work collaboratively to manage stormwater, as a way to enhance each individual stormwater program while reducing the long-term costs collectively.

It is imperative that municipalities in the County enhance their existing stormwater management programs and position themselves to meet the existing requirements and more stringent future requirements when they are imposed. Stormwater programs of this nature will require the support of a more robust and reliable funding stream than current practices provide. The following outlines the project approach, objectives, and criteria used by the EFC Project Team to help ensure that the long-term stormwater program goals for the participating municipalities are met.

Project Approach

The Project Team took an in-depth approach to helping each municipality plan for a sustainable stormwater management program. This approach included both technical and outreach processes. While the Project Team looked at each municipality individually, a comparison across the six municipalities was also completed to identify ways in which the municipalities (participating in this study and beyond) can work together to manage stormwater.

The technical process began with an assessment of each municipality's current stormwater management program. The Project Team gathered all relevant data from appropriate staff and consultants and worked with municipal staff to evaluate the existing program structure, determine current capacity, and identify trends in funding levels. Once the Project Team assessed the current program, the team conducted a gap analysis to develop a projected level of service that detailed the stormwater management program components needed to achieve a comprehensive program, which included collaborative recommendations with neighboring municipalities where appropriate.

While the original intention was to assign costs to the components of each municipal program, the Project Team found it difficult to collect the data necessary to provide accurate costs the municipalities. In some cases, the Project Team was able to identify estimated costs of a stormwater program, and utilized these estimates as a basis for the municipalities who did not have specific cost data available.

Once costs were identified, the Project Team retrieved parcel data from the Lancaster County Planning Commission (LCPC) to conduct a rate structure analysis to estimate the revenues needed to support the enhanced level of service for each municipality. The final recommendations reflect the needed revenue based on the cost estimates for each municipality to sustain a comprehensive stormwater management program.

Providing residents and businesses the opportunity to understand and have a voice in the development of the stormwater management program is an integral part of the process. The Project

Team worked closely with municipal staff to craft an outreach and marketing plan, provide educational materials, a project logo, attend existing events, and present the project's progress to the public and elected officials throughout the year. See Chapter 4 for more details on specific outreach activities conducted throughout the study.

Project Objectives and Criteria

The purpose of this study was to develop an equitable, adequate, and sustainable financing structure for each municipality to properly manage stormwater beyond 2013, which included ways in which the municipalities could generate cost savings by working collaboratively. This must take into account the escalating costs associated with meeting TMDL and WIP obligations, as well as the new MS4 permits anticipated to be issued in the fall of 2013 by the Pennsylvania Department of Environmental Protection (DEP).

Although all of the participating municipalities currently fund stormwater management primarily through general fund appropriations, this source of funding is not sufficient to cover the costs anticipated with a comprehensive stormwater management program, and is not necessarily the fairest method for addressing this need. As part of the study, the Project Team developed the following set of objectives and criteria for stormwater management financing:

Objective 1. To allocate the costs associated with managing stormwater in a way that is fair and equitable to all residents and businesses located within the municipality.

- Criteria: Allocate costs relative to use of the stormwater system by each property regardless of tax-exempt status and based on contribution to the problem.

Objective 2. Generate an adequate estimate of revenue on an average yearly basis needed to maintain an appropriate level of service for managing stormwater.

- Criteria: Fund stormwater in a way that does not negatively impact other services or raise property taxes, while at the same time is estimated to yield enough revenue to meet current and future stormwater obligations.

Objective 3. Recommend a funding level that is accountable, appropriately sufficient, and realistic.

- Criteria: Fund stormwater management in a way that enables property owners to fully understand the level of service realistically necessary to meet current and future obligations towards managing stormwater.
- Criteria: Provide a clear accounting based on best available data of recommended expenditures needed beyond 2013.

Objective 4. Engage each community in a way that allows for information sharing, data gathering, and education about the need for adequately managing and funding stormwater in the future.

- Criteria: Host multi-municipal gatherings and conduct outreach activities as deemed appropriate throughout the year.

With the above objectives and criteria guiding the Project Team's approach throughout this study, the EFC has developed recommendations designed to assist the public, community leaders, and elected officials with a better understanding of the current funding and capacity of managing stormwater in each municipality to date; the level of service and costs associated with future stormwater management; and the best and most appropriate way to finance stormwater management in the long-term in order to meet the proposed level of service needed for each municipality.

Project Funding

This effort was funded by the National Fish and Wildlife Foundation's (NFWF) Chesapeake Bay Stewardship Fund. Through this fund, NFWF has piloted the Chesapeake Bay Local Government Capacity Building Initiative (LGCBI), which connects communities with appropriate technical assistance providers to assist in the implementation of projects that improve water quality in local and regional streams. The EFC intends to use the experiences of working with six communities in Lancaster County through the LGCBI as a model for other interested communities in Pennsylvania and eventually throughout the Mid-Atlantic region.

Chapter 2: Regulatory Requirements Governing Stormwater in Pennsylvania

There are numerous state and federal regulations that mandate that control measures be put in place in order to properly manage and treat stormwater. However, these regulations require communities to bring their stormwater management programs to a level of service that they have neither the capacity nor the funds to manage effectively. The following is a description of the stormwater-related regulations that municipalities must balance with other municipal obligations and costs.

Total Maximum Daily Loads (TMDLs)

The Clean Water Act (CWA) requires that impaired waterways be regulated with pollution diets of the substance responsible for impairing the body of water.³ In the Chesapeake Bay region, nitrogen, phosphorus, and sediment have been deemed as the primary culprits to declining water quality. In order to satisfy the commitment made by the Obama Administration under Executive Order 15308 to protect and restore the Chesapeake Bay, TMDLs establish load allocations for nitrogen, phosphorus, and sediment for impaired waterways. Sources of pollution include run-off from agriculture, wastewater facilities, septic systems, and stormwater.

Watershed Implementation Plans (WIPs)

In order to address the TMDLs, WIPs are required by jurisdictions to account for how they plan to meet their pollution allocations.⁴ The Phase II WIPs require the states to subdivide the allocation loads to the county level, allowing for a more localized approach to reduction.⁵ The counties are then responsible for implementing and financing best management practices (BMPs) to meet reduction goals.

Municipal Separate Storm Sewer System (MS4) Permits

As precipitation flows over impervious surfaces, it picks up chemicals, debris, sediment, and other pollutants that left untreated, could harm local waterways. Municipalities often convey their stormwater through MS4 systems, which discharge untreated runoff into local waterways. As part of the CWA, the NPDES Stormwater Program regulates stormwater discharge from municipal sources.⁶ Municipalities must then obtain MS4 permits from the state regulatory agency to discharge stormwater and prevent other harmful pollutants from entering a MS4. The MS4 permit addresses and attempts to curtail non-point pollution on the urban side responsible for water quality.

MS4 permits are further divided by what type of community they cover, namely Phase I or Phase II. Phase I communities are medium and large cities or counties with a population density of 100,000 or more and obtain individual permits.⁷ Phase II communities are smaller communities in or outside urbanized areas and are regulated by general permits. All six municipalities in this project are Phase

³ Total Maximum Daily Loads, US EPA, Retrieved from: <http://www.epa.gov/reg3wapd/tmdl/>.

⁴ Frequently Asked Questions about the Bay TMDL, US EPA, Retrieved from: <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/FrequentlyAskedQuestions.html>.

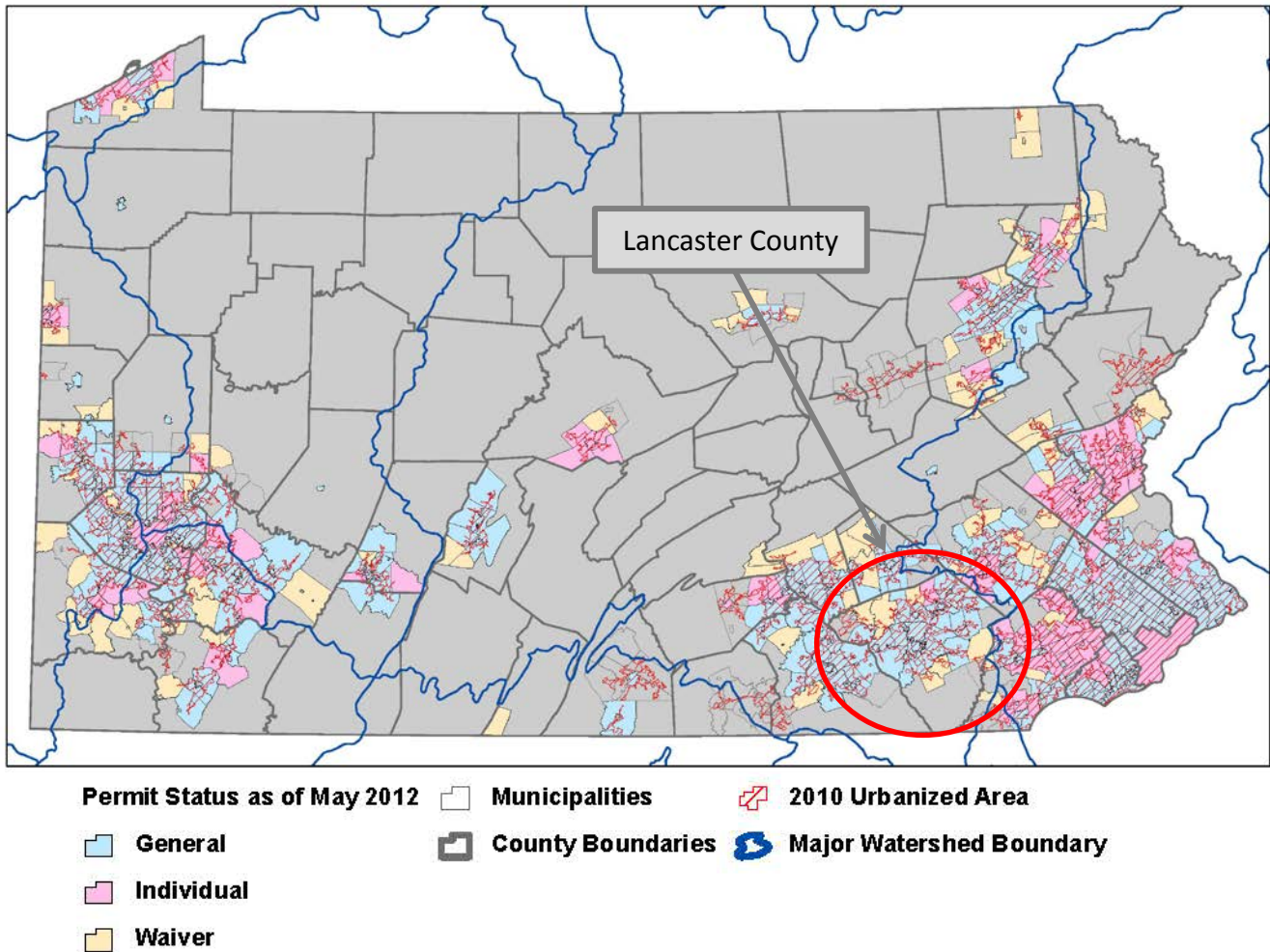
⁵ Pennsylvania Chesapeake Watershed Implementation Plan Phase II, Prepared by Pennsylvania DEP, March 30, 2012, Retrieved from: http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/PhaseIIWIPS/PAFINALPhase2WIP3-30-2012.pdf.

⁶ Stormwater Basic Information, US EPA, Retrieved from: <http://cfpub.epa.gov/npdes/stormwater/swbasicinfo.cfm>.

⁷ Stormwater Discharges From MS4s, US EPA, Retrieved from: <http://cfpub.epa.gov/npdes/stormwater/munic.cfm>.

II communities with general MS4 permits. Figure 1 shows all of the Phase I and Phase II municipalities in Pennsylvania.

Figure 1: Map of all MS4 Permitted Municipalities in Pennsylvania, 2010⁸



Chesapeake Bay Pollution Reduction Plans (CBPRPs)

The Pennsylvania MS4 permit program requires MS4s that discharge into waterways that drain to the Chesapeake Bay to also prepare and implement a CBPRP. In order to meet the load allocations required by the TMDLs, the submitted CBPRP must include the implementation of BMPs to reduce nitrogen, phosphorous, and sediment. The CBPRP is what connects the MS4 permit to the TMDL regulation, ensuring nutrient and sediment reduction from the urban sector.

Chapter 102: The Erosion and Sediment Standards

In addition to the CBPRP, another requirement in the MS4 is taken from Chapter 102 in the Pennsylvania Code. The purpose of Chapter 102 is to protect Pennsylvania's surface waters from sediment and stormwater pollution.⁹ This is achieved through BMPs that decrease erosion and

⁸ Map of Pennsylvania's NPDES MS4 Permitting Program, Pennsylvania Department of Environmental Protection, Retrieved from:

http://files.dep.state.pa.us/Water/BNPNSM/StormwaterManagement/MS4_2010_UA.pdf.

⁹ Erosion and Sediment Control and Stormwater Management, Title 25 Pa. Code Chapter 102, Retrieved from: <http://www.portal.state.pa.us/portal/server.pt?open=18&objID=504340&mode=2>.

sedimentation as well as managing post construction stormwater runoff. Chapter 102 is incorporated in the MS4 permit via minimum control measures (MCMs) 4 and 5, construction site stormwater run-off control and post-construction stormwater management in new development and redevelopment, respectively.

Act 167: Stormwater Management Plan

Pennsylvania Act 167, known as the stormwater management plan, provides regulation for land and water use for flood control and stormwater management purposes.¹⁰ The plan requires counties to prepare, update, and adopt plans for stormwater management.¹¹ Implementation of a stormwater plan under Act 167 helps municipalities meet their MS4 permit regulations, namely their MCMs. Having a written plan is integral to a successful stormwater management program in order to fully comprehend the requirements of the MS4 permit and the steps necessary to achieve compliance. Lancaster County has developed a countywide Act 167 Plan, and municipalities in the County will adopt an ordinance consistent with the plan as approved by the PA DEP.

Senate Bill 351 (SB 351)

On July 9th, 2013 Governor Corbett of Pennsylvania signed SB 351 into law after a 49-1 victory in the Senate and a 135-66-1 vote for the bill in the House.¹² SB 351 serves to amend Title 53, which lays out the general rights and authorities of municipalities in Pennsylvania. In particular, SB 351 provides municipality with the legal authorization to create stormwater authorities whereas before municipalities were reluctant to create an authority due to threat of litigation and non-legitimacy.¹³

The passage of SB 351 paves the way for municipalities to implement a stormwater authority that would be able to collect revenue from users in order to pay for the maintenance of stormwater conveyance systems and install and maintain BMPs to treat the stormwater. Having a dedicated revenue stream to stormwater is important for municipalities in which stormwater system maintenance does not receive adequate funding from general funds or grants. Therefore, it is important that municipalities have the option to take care of stormwater management in terms of both compliance and environmental stewardship.

Agricultural Regulations

Agriculture production remains a large part of Lancaster County's identity, with nearly 6,000 farms that contribute more than \$4 billion to the local economy each year.¹⁴ Agricultural activity is also a large contributor to the poor health of local streams and the Chesapeake Bay.¹⁵ Thus, all farms are required to have Conservation Plans and Manure Management Plans in place with measures that attempt to curtail non-point pollution on the agricultural side responsible for water quality.

¹⁰ Pennsylvania Act 167, Lancaster County Government Online, Retrieved from:
<http://www.co.lancaster.pa.us/lanco/cwp/view.asp?Q=468968>.

¹¹ The Pennsylvania Stormwater Management Act 167 Planning Program, Pennsylvania DEP, Retrieved from:
<ftp://ftp.dot.state.pa.us/public/Bureaus/BOMO/3930-FS-DEP1840.pdf>.

¹² Regular Session 2013-2014 Senate Bill 351, Pennsylvania General Assembly, Retrieved from:
http://www.legis.state.pa.us/cfdocs/billinfo/bill_history.cfm?year=2013&ind=0&body=S&type=B&bn=351.

¹³ PennFuture Praises State Senate Passage of Stormwater Legislation, PR Newswire, April 16th, 2013, Harrisburg, PA, Retrieved from: <http://www.prnewswire.com/news-releases/pennfuture-praises-state-senate-passage-of-stormwater-legislation-203273951.html>.

¹⁴ Farming in Lancaster County, Lancaster Farmland Trust, Retrieved from:
<http://www.lancasterfarmlandtrust.org/heritage/farming-lancaster.html>.

¹⁵ Act 167 Storm Water Management Plan for Lancaster County, Technical Report, June 2006, Retrieved from:
<http://files.dep.state.pa.us/water/Watershed%20Management/WatershedPortalFiles/StormwaterManagement/Approved%20Plans/Act%20167%202006%20Lancaster%20Countywide.pdf>.

Although agriculture is not the primary focus of this report, the Project Team recognizes the importance of this community's role in improving water quality. Each of the participating municipalities with an agricultural community continues to foster relationships with farmers to educate this community on their role in improving water quality and the agricultural regulations that govern the Chesapeake Bay restoration effort.

Chapter 3: Initial Findings

Access to Available Information and Resources

The way municipalities manage stormwater has changed significantly over the last decade. With these new changes comes tighter reporting and tracking on MS4 permits, TMDL requirements, as well as an understanding of WIP obligations. More than ever, there is a need for municipal staff to drastically increase their level of education and understanding of the rules, requirements, and guidelines to effectively manage stormwater. There are many websites where information can be easily accessed, although searching for the best resources may be time consuming for an already heavily burdened staff. When the time to understand the expectations and requirements of local, state, and federal regulations is at its greatest, it is also the time of most confusion in terms of how best to access the right information, what applies to each municipality, and what the expectations are regarding the level of performance needed to meet the new regulatory changes. In this study, the Project Team found some municipalities to be proactive in their plans to better manage stormwater, but these municipalities were unable to acquire necessary approval by state authorities to move forward on certain plans. Such was the case of the TMDL Update and Chesapeake Bay Pollution Reduction Plan for Lititz Run completed by LandStudies, Inc. in February 2013 for Lititz Borough and Warwick Township¹⁶. They could not submit a completed plan because of uneasiness by the state to provide approval of the plan before exact requirements were firmly established. This example demonstrates the willingness by some municipalities to plan ahead and their eagerness to comply with all requirements. All six in this study demonstrated this enthusiasm but were frustrated by the lack of information and guidance they received at the state and federal level in moving forward at a pace that would produce results.

All six municipalities were affected in some way by the limited information available. Municipal staff members were found to have many other responsibilities beyond stormwater and had very limited time to search for answers needed to prioritize certain aspects of their program. All municipalities rely heavily on engineering consultants but this costs money that could otherwise be allocated for design and construction of stormwater projects. The Project Team found that transforming the way stormwater is managed can be done much more easily if there were places to quickly access data such as internet forums, consolidated resources, and access to one-on-one guidance on their actions. This includes getting timely answers from state and federal authorities on issues of compliance that may be particular to a municipality rather than a general question. All six did a very commendable job of using what limited information was available and doing what they could with very limited resources dedicated for stormwater.

Recommendation for Improvements

Information sharing among municipalities should be encouraged on a regular basis. This can be done in several ways. First, the six municipalities working together on this project will now be very knowledgeable about each other's programs and program needs. A network (either formal or informal) can be set up between these six to share information either through a list-serve, a simple shared Dropbox site, or even a shared website. It can also be done through monthly informal lunch meetings simply to touch base using a system of round robin-style updates. All six can also improve utilization of existing resources such as StormwaterPA.org or US EPA's NPDES MS4 Webpage. All should enlist the support of organizations such as the LCCWC, which they are all members of, as the ideal organization to disseminate information, share in trainings, and compare questions and approaches with each other. By forming a network of municipalities working as a group, state and

¹⁶ TMDL Update and Chesapeake Bay Pollution Reduction Plan, Lititz Run, Lancaster County, PA, February 1st, 2013, Prepared by LandStudies, Inc.

federal agencies are much more likely to have the capacity to readily respond collectively rather than answer each individual community who has the same questions and concerns.

Level of Understanding of Overall Stormwater Program Requirements

Recently, one of the participating municipalities summed up their earlier understanding of overall stormwater program requirements prior to the study with the following statement: “We didn’t know what we didn’t know.” This simple statement accurately describes the Project Team’s assessment of the level of understanding most municipalities have regarding what is required of them to be in compliance with their MS4 permit and meet their program needs. In other words, four out of six of the municipalities were generally unclear about the precise level of work necessary to meet all elements of the program requirements. One thing was clear among those involved in this project – all seemed to have significantly benefited from the study’s process over the course of one year by learning in much more detail exactly what each municipality needed to do to improve its stormwater program. This also coincided with several workshops that were held in Lancaster County and all six municipalities participated as much as possible.

The Project Team found that the municipalities were limited in areas of internal tracking and proper documentation, which are required in order to effectively meet the six MCMs found in their MS4 permit. During the course of the year, each municipality has taken important steps to improve the ways they meet certain MCMs, but without more direct support and additional financial resources dedicated to stormwater, they may continue to fall short of where each needs to be with the issuance of their new MS4 Permit and meeting other state and federal requirements.

It should be noted that Manheim Township had sufficient capacity on staff through the use of their engineers to get access to the most appropriate and up to date stormwater information necessary to manage their program in the past. Manheim Township also has a larger tax base than the other five municipalities, which allows for on-going support of their stormwater program even though it is not dedicated toward stormwater and remains relatively insufficient in meeting future stormwater needs. Although Warwick Township does not have the same tax base compared to Manheim Township, they do have strong leadership through their Township Manager, who makes it a point to embed stormwater into many elements of other Township-related activities. This allows for integration of stormwater across other departments and leverages other activities within the Township to lower stormwater program costs. It also helps to keep a larger number of municipal staff well informed about stormwater. The other municipalities were not as fortunate to have an adequate tax base, capacity, or strong leadership, so the learning curve during the early part of the project was greater for those municipalities.

Mount Joy Borough is a good example of overall program improvement after being informed of areas for improvement within their existing program. The Borough recently was successful in receiving grant funding to set up a demonstration rain garden site on the Borough property that has positively influenced the direction of their entire stormwater program. Mount Joy Borough is becoming more like Warwick Township in terms of integrating and prioritizing stormwater throughout many of their other programs. Before this study began, Mount Joy Borough did not fully recognize the importance of meeting MCMs in terms of tracking and reporting. By going through in greater detail exactly what was required and discussing ways to improve deficiencies, the stormwater staff quickly made adjustments and redirected their priorities to avoid falling short. They made measurable strides in their program without additional capacity or without any dedicated revenue but through willingness to improve and through public education. Although Mount Joy Borough has made progress throughout the year, it stands to reason that much more could be achieved throughout the Borough with additional support and more dedicated resources which would keep them on track to meet state and federal requirements as well significantly

improve water quality. Mount Joy Borough municipal staff have also taken advantage of every training opportunity and made an effort to get as many members of their team to attend trainings as was possible. The Borough stands as a community that is on the path to be one of the more notable in the Lancaster area given the political support and appreciation of the staff's increased understanding and improved management of their stormwater program.

It should also be noted that some communities have been known to fear the level of exposure that these six participating municipalities have had throughout the intense analysis undertaken this year on their stormwater program. All six started this process with the same understanding that by ignoring the fact that gaps exist within the stormwater program and not disclosing all aspects of their program, very few improvements could be made that will help them in the long run. As almost every MS4 permitted community across the country knows, there are always some ways to improve a program. Our overall assessment is that each municipality had gaps and deficiencies within various aspects of their program. Each community learned ways in which to improve their program by more strategically planning for the long term, and each has committed to developing a more sustainable and comprehensive stormwater program if provided with the support to do so.

Recommendation for Improvements

All of the municipalities can benefit from attending training in all areas related to stormwater. Elected officials should encourage as many staff members working on anything related to stormwater to attend these trainings that take place in Lancaster County, more so than any other surrounding county. They are usually free and require only a short time commitment. Elected officials should ask for regular updates from staff on various improvements made to the program so they remain knowledgeable and informed on progress made. Municipal stormwater staff would benefit from taking sections in this report dedicated to their specific municipality (Chapters 5-10) and focusing on suggested areas for improvement and develop a timeline for making improvements.

Relaying the Importance of Stormwater Management to Elected Officials, General Public, and Businesses

Relaying the message to a community on the importance of proper stormwater management can often be one of the greatest challenges facing municipal staff. The six participating municipalities were no exception. At a time when the level of stormwater services being provided by a MS4 Phase II municipality are rapidly changing, municipal staff are required to quickly respond to an inordinate amount of questions and concerns from citizens and elected officials, sometimes without the understanding of why managing stormwater locally needs to be done at all. When a Board of Supervisors or Commissioners is not fully supportive of managing the increasing costs associated with implementing proper stormwater management, it adds additional challenges and requires time to convince the general public and businesses of the need for a more comprehensive program. Municipal staff found the public's attitude of "my cost, their gain" to be difficult to overturn. Considerable staff effort is required to demonstrate the need to care about stormwater issues among elected officials, general public, businesses and in particular, developers.

One of the ways in which improved stormwater management gets adequate attention, particularly from elected officials, is when a MS4 permit is renewed or when word spreads of other municipalities getting audited or inspected. This was the case in recent years when many municipalities in Pennsylvania were audited or inspected and several were penalized for deficiencies within their program. This publicity tends to bring greater awareness to the need for improving stormwater programs but this awareness does not typically trickle down to citizens and businesses or result in any additional resources for the staff. The resulting action is often reactive rather than being a proactive approach by a municipality. Additionally, the incentive to properly manage stormwater through other municipalities being penalized often creates disdain and angst toward

state and federal regulatory agencies. Instead, municipal staff should focus on highlighting the costs of not managing stormwater (flooding, poor water quality, emergency-related costs) versus the benefits of managing stormwater (stream restoration, conservation, recreation, economic activity, beautification).

Another way that stormwater management often gets local attention is when funds are being sought for capital improvement projects by municipal staff to address a problem. Unfortunately, this only attracts the attention of local officials for a short period of time. Stormwater services will always compete with other public issues that require action and attention by elected officials unless approved resources are designated to the program and these resources are managed by informed and well-trained municipal staff.

Within the six participating municipalities, the Project Team found almost all elected officials were very supportive of this study. For example, the Manheim Township Commissioners were very receptive and well informed on stormwater. They also understood the importance of informing and educating the public on proper stormwater management and how it helps the municipality continue its work in the future. The well-informed elected officials in Manheim Township may be the direct result of the stormwater staff efforts to consistently update and inform the Commissioners on their program activities. The Project Team found that the majority of elected officials in the six municipalities were very supportive and informed of the study.

Sometimes tying the message of stormwater to an important feature, element, or characteristic of a community may be more beneficial in conveying the message of stormwater across the jurisdiction. Warwick Township, for example, made stormwater a local priority and raised its understanding and importance by tying it to fly fishing, something quite important to the community in terms of its recreational value as a water quality issue rather than a compliance issue. People resonated with clean streams and fishing and valued it more in Warwick Township and more easily understood the connection to stormwater. Mount Joy Borough was also successful at pushing the idea of beautification, the environment, and the economy by promoting a rain garden and rain barrel program. Citizens connect the value of these programs to the aesthetic value of their community and are becoming more engaged and aware of stormwater because of these efforts.

In Lancaster County, agriculture is a major component of the history, culture, and economy that should not be overlooked when educating and informing the general public. West Lampeter Township, for example, has a current project working with the Lancaster Farmland Trust, which connects directly with the farming community within the municipality. The goal of the project managed by the Trust is to help farmers create conservation plans and manure management plans, and identify BMPs on their farms with credit and support going back to the Township. With the large farming population within the Township, this is a more specific targeted approach that will engage an important sector of the local population who does not always associate with stormwater concerns. In fact, the Project Team attended a meeting on January 31st, 2013 that was attended by approximately 100 area farmers, an unusually large number, who are involved in this effort strengthening a stronger partnership between the municipality and the community, as well as providing an opportunity to educate citizens on stormwater.

Recommendation for Improvements

One way to better communicate the importance of stormwater to decision makers and the public may be to invite speakers and credible experts from outside municipal staff. Additional ways to bolster community support includes installing signs that explain what a new stormwater project site is or by better marketing efforts at local events such as the Watershed Expo hosted by the Chiques Creek Watershed Alliance and held every year in Rapho Township. By conveying a consistent

message of the importance of managing stormwater across neighboring jurisdictions, support will eventually increase for each municipality.

West Lampeter and East Cocalico Townships were found to be the most limited of the six municipalities in terms of staff to help educate the general public and elected officials, but intend to make use of what other jurisdictions are doing within Lancaster to partner to the extent that is practical. It is also recommended that these two municipalities make it a stronger priority to educate and inform elected officials on a regular basis, as well as gain public buy-in through public meetings and disseminating information at local events. Since elected officials must always balance community priorities, it is important for municipal staff to take the lead in keeping the elected officials informed of stormwater regulations, as well as opportunities to manage stormwater cost efficiently.

Since it is clear that state-level support to provide more technical assistance to municipalities is not expected to increase significantly over the next five years, it is more important than ever that all six municipalities use their jurisdictional partnerships to educate and inform elected officials and citizens on the importance of proper stormwater management during the next permit cycle. The more communities that act together through a regional approach that crosses jurisdictional boundaries, the more access they will have to educate the public and share information. The six municipalities should also be sure to utilize the services of the Lancaster County Conservation District's (LCCD) educational materials available for promotion.

Stormwater Management Training for Municipal Staff

Not uncommon to Pennsylvania or even in the Mid-Atlantic region, the Project Team found that training expressly related to the MS4 permit was generally lacking. Although all of the municipalities took advantage of the workshops offered by the LCCWC, LCPC, and the Lancaster Inter Municipal Committee (LIMC), this training does not typically include all personnel working on the various stormwater functions for each jurisdiction. It was stated by some that it was difficult to devote entire staff time to attend the ample trainings offered. Training is particularly important with the new MS4 permit under the MCM 6 entitled "Pollution Prevention/ Good Housekeeping" that requires documentation of regular trainings for stormwater staff.

Warwick Township does a good job of training staff on how to handle reports of illicit discharge but there was no organized effort to organize trainings within the six municipalities. There are small efforts underway by local organizations, but there is no designated leader in the area to lead and coordinate this effort currently.

Recommendations for Improvements

Part of the concern of devoting more time to training beyond the compliance factor is the limitations on understanding the exact value that these trainings will provide to the stormwater staff. One way to improve in this area would be for engineers, road crews, stormwater managers, and other staff to coordinate trainings among multiple jurisdictions; acquire training videos that could be shared or copied; and plan regular set brief meetings at a break room or other convenient location to quickly review, update, and coordinate information between all personnel. Locations and compiled listings of all trainings could be housed in places like stormwaterpa.org or organizations like the Alliance for the Bay, who can even take on implementing short trainings or make videos that could be housed on their website given small amounts of funding available. This makes the case for greater collaboration across municipalities, as it will be easier to garner funding for a group of municipalities to all gain access to the same informational materials and trainings.

Tracking, Documentation, and Record Keeping of Stormwater Management Activities

Almost universal across all jurisdictions was the lack of proper tracking and record keeping. The way in which documentation was recorded varied considerably for each municipality. Proper tracking is important for several reasons. The first is to ensure consistency between various departments regarding duties performed, the number of inspections occurring, and tracking progress made. The state and federal requirements are much more stringent about this beginning with the new MS4 permit. Centralized systems for documentation and tracking are important for the purposes of writing complete annual reports and showing all progress and potential problems within a particular aspect of the program. Improvements in record keeping, tracking, and proper documentation are highly recommended for all municipalities, as it is the cheapest and easiest improvement that could be made to each program.

The Project Team found it difficult to collect information throughout this project. Many times the information did not exist, it was not in a central location, or it was not recorded on paper. This limited the Project Team's ability to readily identify program gaps and make recommended improvements. Designing a better system now will go a very long way to identifying future levels of service needed to meet all state and federal regulations.

Recommendations for Improvements

One way to greatly improve the efficiency of developing and managing a stormwater program would be to designate a new position of a stormwater utility manager or stormwater coordinator. By assigning the responsibility of MCM tracking and documentation to a single person, instead of piecing information from various sources, a better sense of the state of the stormwater program can be assessed in addition to centralizing the knowledge base. The Project Team recommends each municipality consider purchasing software to help address the administrative components of the MS4 permit. An example is a software program called MS4Web Permit Manager, which facilitates a municipality's stormwater tracking, recording, and documentation needs. With additional field technology, the software provides the ability to record and track while out in the field, which could be instrumental to aid in quickly assimilating annual reports and could introduce the concept of asset management for the entire conveyance system.

Limited Capacity to Manage Stormwater

All six municipalities currently suffer from limited capacity. Most of the municipal staff had stormwater as just one component of their total work responsibility and within each municipality several staff members were assigned some part of stormwater. This required a balance of adding more work to an already heavy workload. The Project Team found that greater coordination and regular communication between the different staff members managing stormwater is needed. Fragmentation was found among certain personnel who may have the added responsibility of managing one aspect of the program without clear coordination with another person who may have a similar responsibility. There is a sense of "no new hires" pervasive throughout the six municipalities, but perhaps due to the limited understanding by elected officials as to the tremendous level of work needed by the stormwater staff to deliver a level of service that meets the required permit obligations.

Recommendations for Improvements

There are cost efficiencies to be gained in the long run by having a dedicated person in charge of communication and coordination between various departments responsible for stormwater. Another recommendation would be to house stormwater under one department such as is suggested for Manheim Township's approach rather than have its duties fragmented between different divisions.

Through dedicated stormwater funds, a program could gain a stormwater coordinator or share one between multiple municipalities in order to develop templates, protocols, and procedures for all.

Long Term Planning for Implementation of Stormwater Projects

Of the six municipalities involved in the stormwater study, only one had done any long term planning for capital improvements, operations and maintenance, green infrastructure, or an assessment of future capacity needs. The reason that most do not have any type of projections is primarily due to very limited funds dedicated towards stormwater that go beyond regular maintenance or emergency repair work. The exception to this was Manheim Township, which had capital improvement projects and a good understanding of where they needed to be for the foreseeable future. This level of planning helped the Project Team identify, categorize, and estimate where others needed to be to begin budgeting and planning more accurately. Another exception, although very different in their approach, is Warwick Township, who needed dedicated funding to support long-term capital improvement projects. However, the Township wanted to maintain their current level of funding from the General Fund for stormwater and where possible, keep any additional revenue necessary to support the full stormwater program to a minimum.

Recommendations for Improvements

Many communities across the United States operate their stormwater program at a minimal level, mainly due to the lack of understanding as to the importance it has on water quality and community infrastructure improvements. Long term planning does not play as large a role as it should in stormwater. This is analogous to the wastewater and drinking water industry in the past. The value of understanding all of the current assets or infrastructure along with a condition assessment and replacement or repair schedule is not appreciated as it should be until the costs of last minute repairs are compared to prioritizing and planning for necessary upgrades to an aging system. It is the Project Team's recommendation that the participating municipalities consider adopting an asset management program for stormwater. This recommendation is rather a new concept for the Mid-Atlantic in terms of managing stormwater but can significantly benefit these and other municipalities at minimal cost with the potential for significant savings, similar to what was achieved in other water resource departments.

Chapter 4: Public Outreach

It is very difficult to surmise the value of a resource if that value is unknown to its users. Therefore, public outreach and education is an important step towards gaining community buy-in for a stormwater management program. Effective public outreach and education is not only necessary for a successful campaign toward better stormwater management, but it is a required regulatory component of the MS4 permit.

In order to gain public support on the value of proper stormwater management, the Project Team engaged residents, elected officials, and municipal staff of the six communities. While public outreach and education was not a large component of the funding received for the project, the Project Team was still able to take advantage and participate in activities already planned by municipalities. The goal of this project's outreach effort was to supply the communities with readily available materials and tools to use for their own stormwater education.

The Project Team began its public outreach component of the study with its "kick-off" outreach meeting at West Lampeter Township on November 20th, 2012. The purpose of this meeting was to determine the educational and outreach goals of the project, review the outreach and marketing timeline, discuss the project logo, and brainstorm other outreach materials. The marketing timeline may be found in Appendix A.

Project Logo

With the input and guidance of the six municipalities, the Project Team enlisted the help of a graphic designer to help create a logo to brand the project. The logo was based on Lancaster City's raindrop logo for the "Save It!" campaign, aimed at increasing public awareness of stormwater issues.¹⁷ The Project Team received permission from Lancaster City municipal staff to use their logo as a model for the project. One advantage of basing the logo on Lancaster City's design is the added recognition the project logo received due to public familiarity. Lancaster City's logo and the logo for the six municipalities are depicted in Appendix B.

The Project Team printed the logo on stickers and magnets for each community's respective Public Works Department (PWD) vehicles. The purpose of this was to raise public awareness for the project, inform the public works staff, and show unity among the participating municipalities.

Outreach Materials

In addition to the logo, the Project Team also created a general stormwater management fact sheet for all municipalities and more detailed residential handout for each municipality to disseminate to the public, found in Appendix C. The purpose of these materials was to provide the municipalities with information to share with the community that was uniform across the municipalities. The municipalities and the Project Team felt that uniformity among the communities was important to the success in educating the public and generating the necessary community buy-in to help improve each individual municipal stormwater program.

While uniformity is key in some aspects of stormwater education, so too are creating materials unique to each municipality. The residential handouts were customized for each community and also included the raindrop logo. The residential handouts included information on how residents contributed to stormwater and BMPs available specifically to homeowners to decrease the volume of stormwater generated on residential properties. The handout cited practices such as installing a rain barrel and lawn care tips. At the request of Manheim Township's elected officials, a more

¹⁷ Website for the "Save It!" stormwater campaign and logo, Retrieved from:
<http://www.saveitlancaster.com/>.

specific handout was created to include detailed information on soil tests and fertilizer selection (See Appendix C).

Public Works Department Talking Points

A successful outreach campaign is dependent on educating those who interact with the public. Therefore, it was imperative to provide the public works staff for each municipality simple talking points when engaging the public on stormwater issues. The Project Team provided a script to the municipalities that described the meaning of the project logo, a quick definition of stormwater, why stormwater is an issue, and ways for residents to become involved with stormwater management. A copy of this script is provided in Appendix D.

Council Meetings

In order to keep elected official abreast of study findings, the Project Team was available to make presentations at council meetings. The Project Team presented a project update and/or project findings and recommendations to the following groups of elected officials:

- West Lampeter Board of Supervisors on January 7th, 2013;
- Mount Joy Borough Public Works Committee on January 14th, 2013;
- Lititz Borough Council on February 26th, which prompted local press coverage for the project¹⁸;
- Manheim Township Board of Commissioners on June 24th, 2013;
- Warwick Township Board of Commissioners on October 2nd, 2013; and
- East Cocalico Board of Commissioners on October 16th, 2013.

Bringing stormwater to the attention of elected officials helps facilitate a stormwater dialogue between municipal staff and elected officials. By engaging and educating the elected officials, the importance of proper stormwater management can more easily make its way on future council agendas.

Agricultural Community Engagement

The farming community is an important sector in Lancaster County and one that needs to be kept part of the stormwater conversation. Therefore, the Project Team presented at the West Lampeter Township Farmers Meeting on January 31st, 2013 to a large group of farmers alongside the LCCD, Lancaster Farmland Trust, and other local agricultural outreach organizations. The purpose of this meeting was to educate farmers on the plans and practices required of them (Conservation Plans and Manure Management Plans), provide resources to help farmers implement such plans and practices, and get feedback directly from farmers. The Project Team found that this type of information sharing and giving the agricultural community a chance to voice their opinions and concerns is essential to successfully engaging this sector and ensuring they do their part in managing stormwater.

Public Engagement

The Project Team was invited to events hosted by the municipalities, which served two purposes – to act as a stormwater educational presence at events *and* to learn how communities promote environmental stewardship. For example, on May 14th, 2013 the Project Team attended Warwick Township’s annual Watershed Day. The Watershed Day serves as an educational event for all 5th

¹⁸ Press coverage in the Lancaster Intelligencer Journal/Lancaster New Era on February 28th, 2013, Retrieved from: http://lancasteronline.com/article/local/820429_Lititz-welcomes-Coollest-Small-Town-title.html.

graders in the Warwick Township School District (which includes residents of Lititz Borough) and also helps fulfill MCMs 1 & 2 for both municipalities. This is one example of how neighboring municipalities that share a school district and local stream benefit from participating in watershed days.

While the Warwick Township Watershed Day was geared towards 5th graders, the Project Team also attended events that engaged the general public as a whole. On June 14th, 2013 the Project Team set up a booth at Lititz Borough's 2nd Friday event. On this particular Friday, the event was dedicated to the Borough's Fire and Police Departments. The Project Team was given a table to share with the Borough's public works staff, which was showcasing a newly purchased inlet cleaning truck. The Project Team engaged the public by providing a fishing game for children and speaking with parents about general stormwater education and passing out the residential handouts. Pictures from the events may be found in Appendix E.

The Project Team also attended events that were in neighboring municipalities. On June 19th, 2013 the Project Team was given a table at the Chiques Creek Watershed Expo, which was hosted by the Chiques Creek Watershed Alliance and located at the Lancaster Leiderkranz in Rapho Township. While Rapho Township is not one of the communities participating in this project, the Little Chiques Creek flows through Mount Joy Borough and directly into Chiques Creek. This event is another example of how communities in the same local watershed can share public outreach events and fulfill MCM requirements. The project team provided general stormwater education and solicited feedback from the public. Pictures from the Watershed Expo may be found in Appendix E.

The Project Team was invited to attend Mount Joy Borough's volunteer day in which the Boy and Girl Scouts helped the Borough staff and landscapers plant flowers and trees in the Borough's demonstration rain garden located on municipal property. Borough staff and councilmen pitched in and worked alongside the Scouts. Pictures from the event may be found in Appendix E.

Local Partner Meetings

The EFC's technical assistance was provided to the six municipalities because the LCCWC sponsored this regional partnership. The Project Team provided monthly updates to the LCCWC throughout the project and attended a LCCWC Steering Committee Meeting to provide a project update to this group, which is made up of many local municipal representatives and local water resource stakeholders throughout Lancaster County.

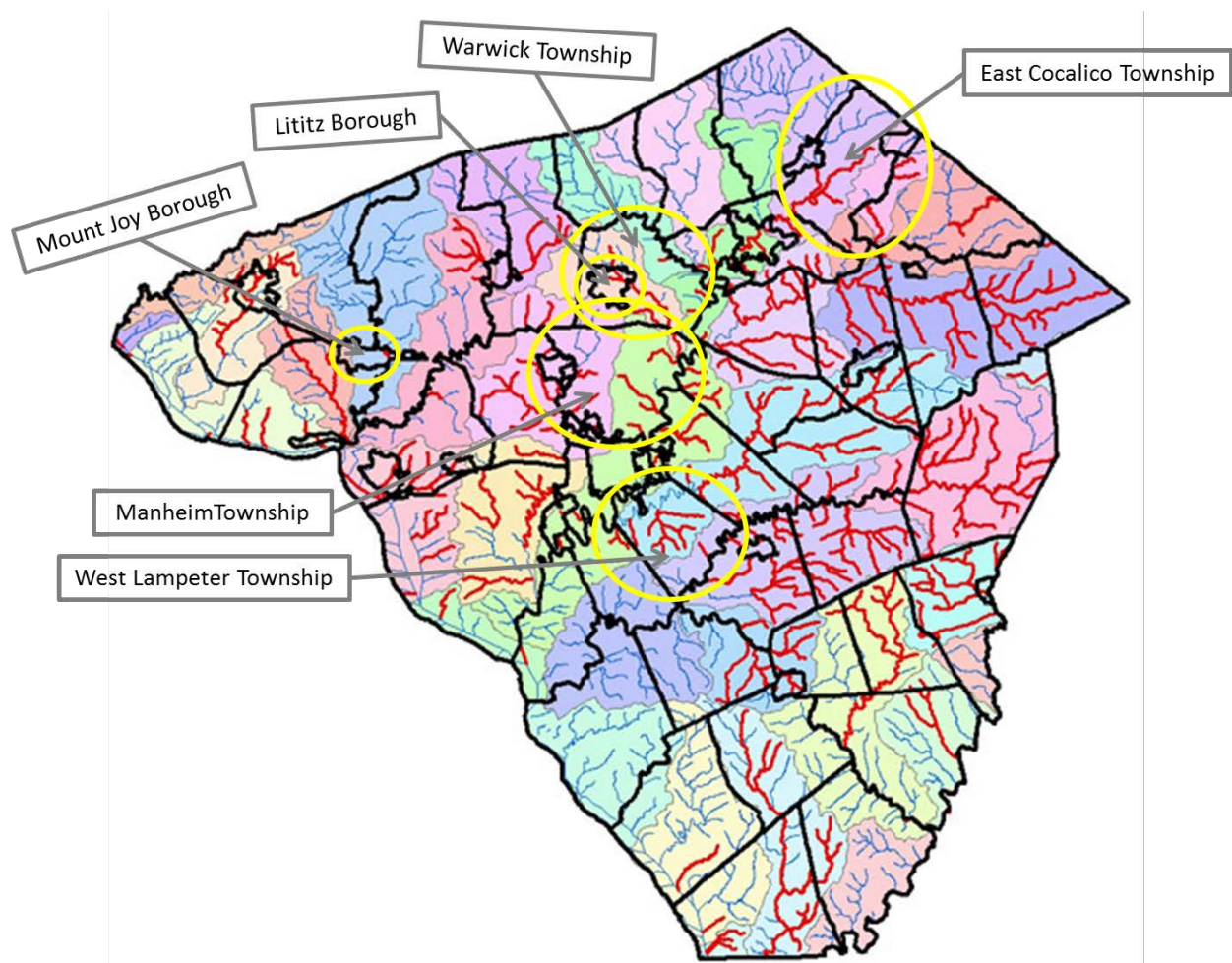
The Project Team quickly realized at the beginning of the study that in addition to the LCCWC, there are many local partners in the County working toward managing stormwater and providing resources to municipalities. Therefore, the Project Team found it essential to meet with local partners to get a better sense of the legal, political, environmental, social, and economic landscape in the community surrounding stormwater. In addition to meeting with the LCCWC periodically, the Project Team met with the following organizations:

- LIMC
- LCPC
- Lancaster County Conservancy/Live Green
- Lancaster City
- LCCD
- Multiple engineering, landscape architecture, and consulting firms

The Project Team also participated in two watershed forums hosted by the LCPC, which brought together a vast array of water resource stakeholders, including many of the participating municipalities in the study. This proved valuable in the Project Team's understanding of the landscape in the County and what resources, constraints, and collaborative opportunities exist.

Chapters 5 through 10 outline the findings and recommendations for each of the six participating municipalities' stormwater management programs. Figure 2 shows the map of impaired streams in Lancaster County (according to the PA DEP) and highlights the location of each of the six participating municipalities.

Figure 2: Lancaster County Impaired Streams Map¹⁹



¹⁹ Lancaster County Watersheds, What is a Watershed?, Lancaster County Conservation District, Retrieved from: <http://lancasterwatersheds.org/whatis.php>.

Chapter 5: Individual Municipal Analysis – East Cocalico Township

East Cocalico Township is located in the Northern section of Lancaster County and serves as a connection point for many commuters and travelers, alike. Located at the intersection of the Pennsylvania Turnpike and Route 222, the community has attracted residential and industrial growth throughout the years. With a population of 10,304²⁰, it is one of the mid-range municipalities of the six who participated in this study. Growth is anticipated to continue due to the Township's access and proximity to many urban centers in the region.

At the beginning of the study, each municipality was asked to provide their priorities, needs, and goals to the Project Team. East Cocalico Township provided the following:

Priorities

1. Develop an understanding of true costs associated with inventorying, routinely evaluating, maintaining and replacing the Township's stormwater infrastructure and complying with the current and future regulatory requirements.
2. Inventorying all public and private stormwater facilities (swales, pipes, detention facilities, BMP's, conservation areas, etc.) and all related discharges within the Township and clarifying the ownership, maintenance, and monitoring responsibilities.
3. Develop a method for documenting and highlighting all the various voluntary and required stormwater improvements and BMPs implemented by the Township, private residents, farmers and businesses to ensure appropriate credit is acknowledged towards future permit compliance.
4. Develop an understanding of the protocols and costs involved in implementing a regular testing program to evaluate the water quality in the streams entering and exiting the Township so that the effectiveness of the Township's overall program can be documented over time.
5. Through public education and outreach determine what non-municipal resources such as schools, watershed associations and/or other volunteers could assist in reducing costs and/or providing resources to assist with inventorying, testing, etc.
6. Educate the public on the current and future potential regulatory requirements and solicit feedback on ways to most effectively improve water quality in our streams and waterways and maintain the stormwater infrastructure.
7. Develop a method to address the impacts of future proposed linear roadway improvement projects such as road widening by the Township, Pennsylvania Department of Transportation (PennDOT), or the Turnpike Commission in an efficient and cost-effective way.
8. Develop a method for evaluating maintenance of private stormwater management facilities and BMPs for compliance with prior approved plans and commitments relative to maintenance.

²⁰ 2011 US Census Bureau ACS 5-year Estimates, used the advanced search option to search population ACS 5-year population estimates by municipality using:
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.

9. Develop a method for evaluating agricultural operations with respect to farming methods, stream bank protection, compliance with conservation plans, compliance with nutrient management plans, etc.

Goals

1. Develop financing method to create a self-sustaining stormwater management program that addresses the needs, priorities & goals of the Township.
2. Understand potential financial impacts to the Township if future laws or regulatory requirements result in the Township being responsible for any portion of stormwater facilities that are currently the legal responsibility of PennDOT, private property owners, homeowners associations or businesses.
3. Identify existing underutilized stormwater management facilities and evaluate an effective method for encouraging or incentivizing the retrofitting of these existing private stormwater management facilities to maximize the effectiveness of these facilities and the land areas currently dedicated to them to attenuate peak flows and improve water quality.
4. Improving the quality of the water within the streams and waterways in the Township and reducing the Township's contribution of contaminants to these watersheds and downstream receiving waterways.
5. Reducing the volume and rate of runoff discharged to the streams within the Township during storm events and encourage on-site reuse of runoff.²¹

Since the EFC's focus was to look at how each municipality *finances* its stormwater management activities and then provide recommendations about how to improve the program with greater cost efficiency, the goal of the study transpired to help East Cocalico Township assess its current municipal stormwater program and provide the Township with financing recommendations to help them improve their current program and implement cost-saving measures to create a comprehensive and sustainable stormwater program. This goal ensures that the Township has the resources and capacity to improve and maintain a higher level of service to its residents and businesses and address all stormwater-related compliance activities.

Assessment of East Cocalico Township's Current Stormwater Program

In the new NPDES MS4 permit being issued to all Phase II municipalities in Pennsylvania, there will be six MCMs consistent with those found in the old permit. Although the purpose of each MCM will be the same as previous permit cycles, the requirements to meet each MCM are anticipated to be more stringent in the future permit. The following six MCMs are the elements contained in the NPDES MS4 permit that outline specific areas the community must address:

1. Public Education & Outreach
2. Public Participation & Involvement
3. Illicit Discharge Detection & Elimination (IDD&E)
4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

²¹ Information provided by East Cocalico Township directly to the Project Team.

For each MCM, there are specific stormwater BMPs that East Cocalico Township can implement to comply with its permit. Although there is flexibility to implement BMPs that fit the needs and resources within the community, there are significant costs associated with addressing each MCM.

The Project Team worked closely with municipal staff and the Township engineer to determine the current level of service for each MCM. A discussion of the findings is below.

Overall Stormwater Program Findings

Stormwater Infrastructure

East Cocalico Township is diverse in its makeup, comprised of both large and small industry and commerce, residential neighborhoods, historic Reamstown, and a large agricultural sector. The Township has experienced steady growth since its housing boom in the 1970/80s, and due to its location serves as a commuter-friendly suburb for residents and easy access point for businesses.

With the housing boom came an extensive conveyance system in the 1980s. While developments have widespread cross pipes and drainage, there is still a large portion of the Township that remains rural. The Township staff shared with the Project Team that the East Cocalico Water Authority has been unable to provide water to new developments in the past few years, and there has been a lag in demand. Since such a large portion of the Township remains agricultural, it is essential to connect this sector's contribution to the health of local water quality and educate farmers about the importance of sound agricultural practices. The Project Team found that there is a strong connection in the Township to agriculture and its impact on local and regional water quality.

Although there are no TMDLs in the Township, one of the major concerns is the water quality in local streams. Since the Township is located in the Northern part of the County, the soil is wet and erosive, and as growth has been steady in recent years, urban stormwater runoff has become a contributor to poor water quality in addition to agriculture. Since this issue was identified by the Township staff, the Project Team strongly recommends the Township develop more stringent policies so growth is limited in areas where water contamination is already high. The Project Team found that the Township has strong enforcement procedures in place for new and redevelopment, and promotes the use of green infrastructure (GI) and low impact development (LID) practices to minimize stormwater runoff in any growth areas.

The Project Team found that while they have all outfalls mapped, like many communities, the Township still does not have the entire conveyance system mapped. The Township staff expressed that they are working to upgrade their mapping system, and the Project Team recommends that this task be prioritized. In the latest meeting with the Township, the Project Team learned that this task has advanced tremendously throughout the year. Once the existing system is fully mapped, the Township will have a much better understanding of the characteristics of the system and begin to develop a strategic repair and replacement plan before the system becomes too old to maintain and must all be replaced. The commitment to addressing stormwater issues through implementation of new projects and maintenance of existing infrastructure is a necessary component to ensuring a robust and comprehensive stormwater management program.

Current Funding for Stormwater

Preparing for new permit requirements and maintaining the existing stormwater system bears significant costs. Currently, funding for the Township's stormwater program comes from general funds, a practice common throughout the country. Based on the available data collected by the Project Team during the study, capital spending on large projects has either been pushed back or funded through general fund appropriations.

The Project Team found that the Township invests minimally in stormwater management through its General Fund. The Road Department receives minimal funding to manage stormwater through general fund appropriations, and in the most recent budget (2013) sets aside these funds for MS4 reporting, a small flood plain project, and mapping.²² Although these are necessary expenditures for the Township to manage stormwater, there are additional costs that must be set-aside to pay for stormwater-related activities.

The Project Team found Township staff eager to invest more thoroughly in meeting stormwater requirements. Since 2008, stormwater management has been competing against other public requirements like public safety and roadway maintenance for limited Township resources, which are not growing, due to the effects of the recent recession, as fast as demanded. Participation in this study and the improved knowledge the staff has gained over the year will help staff work with elected officials to educate them on the importance of investing in stormwater management.

Current Capacity for Handling Stormwater

At the beginning of this study, the Project Team found that the Township staff did not fully understand what is needed to properly manage stormwater, from both an administrative (tracking, documentation, developing written procedures, etc.) and technical perspective (baseline stream health, prioritized list of projects, etc.). Through participation in this study, and the staff's commitment to improving its municipal program, the Project Team found that the staff's knowledge improved quickly. Throughout the project, the Township has improved its documentation by compiling a binder that incorporates all stormwater-related activities, which will help the Township more fully understand what is needed to improve the existing program.

The Project Team found that many of the essential staff currently works on stormwater, whether or not it is part of their job description. However, it should be noted that of the six municipalities participating in this study, East Cocalico Township has the fewest staff working on stormwater-related tasks. The Township Manager works closely with the Roadmaster, Zoning Officer, and contracted engineer through Becker Engineering to help address the administrative and technical components of the MS4 permit.

The Road Department is comprised of five crew members, including the Roadmaster. In meeting with the Township staff, the Project Team found that the Roadmaster is very knowledgeable of the system, yet this institutional knowledge was not well documented. While the Roadmaster believes that the entire crew knows the system well, the Project Team was unable to determine whether the current staff is adequate in meeting the technical components of the MS4. After reviewing the findings in this report, Township staff should meet internally to determine whether additional road staff should be hired to improve the stormwater program's level of service.

In order to adequately address the administrative components of the MS4 permit, the Township should invest in hiring a stormwater coordinator, either on its own or shared between neighboring municipalities. If done so collectively, the Township should bring together neighboring municipalities to develop an intergovernmental agreement. Either way, hiring a stormwater coordinator will allow staff who currently have taken on all of the stormwater-related tasks the time to focus on other Township functions, creating greater efficiency at the Township overall.

²² East Cocalico Township 2013 General Fund Budget, Final Budget, Retrieved from: [http://www.co.lancaster.pa.us/eastcocalicotwp/lib/eastcocalicotwp/01-general_fund_-_final_\(done_12-20-12\).pdf](http://www.co.lancaster.pa.us/eastcocalicotwp/lib/eastcocalicotwp/01-general_fund_-_final_(done_12-20-12).pdf).

MCM Findings: 1. Public Education & Outreach

The Project Team found that East Cocalico Township currently provides a minimal level of service to its community regarding public education and outreach. The Township has been focused on disseminating stormwater education to a broad audience, and plans to move toward the direction of a more targeted approach. The Township has a partial list of its target audience, sends out a newsletter three times a year with stormwater information always included, and has a portion of its website dedicated to stormwater education and resources.

There are many ways in which the Township can improve its level of service, but in order to do so existing staff must work with a new stormwater coordinator or the Cocalico Creek Watershed Association (CCWA) to help implement activities required for MCM 1. The Project Team also recommends continuing to share information with neighboring municipalities and the other five municipalities who participated in this study, as it was found invaluable to all participants to hear what others were doing and whether these activities were a success.

In order for East Cocalico Township to increase its level of service regarding MCM 1, the Township should work with a coordinator and/or local groups to develop a written Public Education & Outreach Plan, finalize its list of target audience groups, work with neighboring municipalities to share materials and information and plan regional events, and track all its activities related to MCM 1. In addition, the Township staff should plan regular meetings with elected officials and the public to educate them on why stormwater needs to be managed locally, which will facilitate the necessary dialogue for the Township to support a greater investment in stormwater management. The Project Team found that in other municipalities, effective outreach means targeting specific groups such as elected officials, developers, farmers, businesses, schools, and home owners associations (HOAs), as different messages resonate with each audience.

MCM Findings: 2. Public Participation & Involvement

The Project Team found that East Cocalico Township is in the beginning phases of developing an adequate level of service to its community regarding public involvement and participation. In meeting with the Township staff, the Project Team learned that they are interested in utilizing high school students to help monitor streams, working more closely with the CCWA, and currently working with the Boy Scouts for National Night Out. The Project Team recommends the Township continue tapping into these local groups to help engage different audiences. For example, the Township should become more involved with the CCWA's stream clean-up day and work with local schools and/or youth groups. As an example, the Township should consider hosting an annual watershed day for younger students, which has been very successful in Warwick Township (see Chapter 9 for more details).

In order for the Township to improve its level of service for MCM 2 into the future, it should continue reaching out to local groups through a more targeted approach that resonates with different stakeholder groups. The Township should also develop a written Public Participation & Involvement Plan, which should include a dedicated annual public meeting for stormwater where the public can give their input, at least one annual public event such as a stream clean-up, tree planting, or watershed day, and tracking system for all activities related to MCM 2.

MCM Findings: 3. Illicit Discharge Detection & Elimination

The Project Team found that East Cocalico Township currently provides a minimal level of service to its community regarding IDD&E. While the Township inspects at least 20% of its outfalls each year, the Township needs to develop a more formal process for handling IDD&E and public notification. The Township staff identified mapping as one of its weaknesses, not uncommon among some of the participating municipalities. Since mapping was written into the 2013 budget, the Project Team

recommends this task be completed as soon as possible, since this baseline understanding is necessary for the Township to strategically and cost-efficiently manage stormwater.

In order to increase the level of service for MCM 3, the Township needs to develop a more formal process for handling illicit discharge complaints. The Township could easily develop a procedure for public notification of IDD&E and tracking system for inspections and complaints. One of the recommended tasks of a stormwater coordinator should be to develop formal procedures for IDD&E. It is anticipated that when the new MS4 permits are issued, more stringent requirements will be incorporated for this MCM. At this time, Township staff should consider hiring additional staff to ensure all screening and inspections are completed each year.

MCM Findings: 4. Construction Site Runoff Control

The Project Team found that East Cocalico Township currently provides a high level of service to its community regarding construction site runoff control. In Pennsylvania, the county conservation districts review and approve all Erosion & Sediment Control Plans for new development and are tasked with inspecting construction sites. Thus, municipalities are limited by the resources at the conservation district to meet this MCM. It is important to note, however, that while the conservation district typically reviews, approves, and inspects all new development, the municipality is still held accountable for this MCM. Because of this, municipalities should inspect sites in addition to the conservation district and file all projects separately to help with their MS4 annual reporting.

The Project Team found that East Cocalico Township has an exceptional relationship with the LCCD, so much so that the LCCD gave the Township and Becker Engineering its first annual Conservation Agency Award in 2012, based on their partnership on conservation issues.²³ During the pre-construction meeting, developers and design engineers are trained on the stringent standards that the Township enforces. During construction, the Zoning Officer and contracted engineer coordinate with the Township's LCCD representative to inspect all sites.

In order to maintain the level of service for this MCM, the Project Team recommends the Township staff develop a tracking system in-house for all construction projects with stormwater components. The Project Team found Township staff eager to be accountable on their own in order to maintain the high level of service for this MCM.

MCM Findings: 5. Post Construction Site Runoff Control

The Project Team found that East Cocalico Township currently provides a medium/high level of service to its community regarding post construction site runoff control. The Township has a limited number of post construction stormwater management (PCSM) BMPs which are relatively easy to maintain. For all BMPs, the Township has a written plan to document the installation and maintenance, and the Township staff and/or contracted engineer inspects all PCSM BMPs to ensure they are built as designed. LID standards are encouraged within the Act 167 ordinance as developed by Lancaster County.

The main challenge the Township staff expressed to the Project Team was that the owners of facilities do not know what maintenance is needed. The Project Team encourages the Township to provide more sufficient training to developers and HOAs as well as create a long-term inspection schedule so there is follow-up to ensure maintenance occurs regularly. In order to stay on top of the publically-owned BMPs, Township staff must develop an ongoing inventory list of all post

²³ Hummer, Alice, East Cocalico scores first place win, *The Ephrata Review*, April 4, 2012, Retrieved from: <http://ephratareview.com/2012/04/east-cocalico-scores-first-place-win/>.

construction stormwater management (PCSM) BMPs (public, private, and agricultural) and formalize a process for maintaining Township-owned BMPs over time.

In order to maintain the level of service for this MCM, the Township must have an inventory of all BMPs; continue its written operations and maintenance (O&M) program for Township-owned facilities; provide training opportunities to ensure developers are up to date on all stormwater management regulations, LID and GI alternatives; continue inspecting sites to ensure PCSM BMPs were implemented as designed; and track all inspections and maintenance activities.

MCM Findings: 6. Pollution Prevention/ Good Housekeeping

The Project Team found that East Cocalico Township currently provides a minimal level of service to its community regarding pollution prevention and good housekeeping. The Road Department implements the Township's O&M program by maintaining their limited number of publically-owned BMPs; manually cleans inlets by prioritizing flood-prone and contaminated areas; annually contracts with a private company to sweep streets; trains new hires; and provides each road crew member with the LIMC Good Housekeeping Manual. Although the Township meets its requirements, they must develop more strategic plans for this MCM.

The Township staff shared with the Project Team that they put aside funding each year in the Capital Reserve Fund to purchase new equipment. The Project Team recommends the Township invest in new equipment to help improve the efficiency of the Road Department's tasks. The Project Team found that the Township currently cleans ditches and drains manually and does not have a street sweeper. In order to keep costs low, the Project Team recommends the Township meet with neighboring municipalities to determine existing equipment and develop a list of equipment needed, all of which could be shared through intergovernmental agreements and purchased cooperatively.

In meeting with municipal staff, the Project Team found staff eager to develop a more comprehensive program to better meet its MCM 6 goals by improving internal capacity and investing in shared equipment. The Township must also develop better tracking of all stormwater-related activities, continue to map the entire storm sewer system with the goal of ultimately developing an infrastructure repair and replacement program, and regularly train staff in different components of stormwater-related good housekeeping measures. In addition, the Township needs to determine the baseline stream health and prioritized projects list based on cost efficiency.

Anticipated Changes to the MS4 Permit

The PA DEP requires all MS4 permitted municipalities in the Bay watershed to develop a CBPRP by the summer of 2014. The purpose of this plan is to help municipalities strategically implement projects that improve local and regional water quality. The Project Team found that the municipalities typically contract the plan out to their engineer, and there has been minimal guidance provided to municipalities about what should go into the plan.

In addition to developing a CBPRP, it is anticipated that more stringent requirements will take effect when the new MS4 permits are issued in the fall of 2013. In Maryland, the Department of the Environment (MDE) included a new requirement in its new permit cycle – a **20%** impervious area restoration requirement. It is anticipated that this impervious area restoration, designed to increase the level of runoff managed from existing impervious areas, will require implementing a number of stormwater BMPs. These BMPs will be either nonstructural practices (like diverting runoff from impervious areas to vegetated areas, bioswales, and tree planting) or more traditional structural practices (i.e. stormwater ponds, bio-retention facilities). Based on information received from MDE and Maryland municipalities, it is anticipated that a similar requirement be included in Pennsylvania.

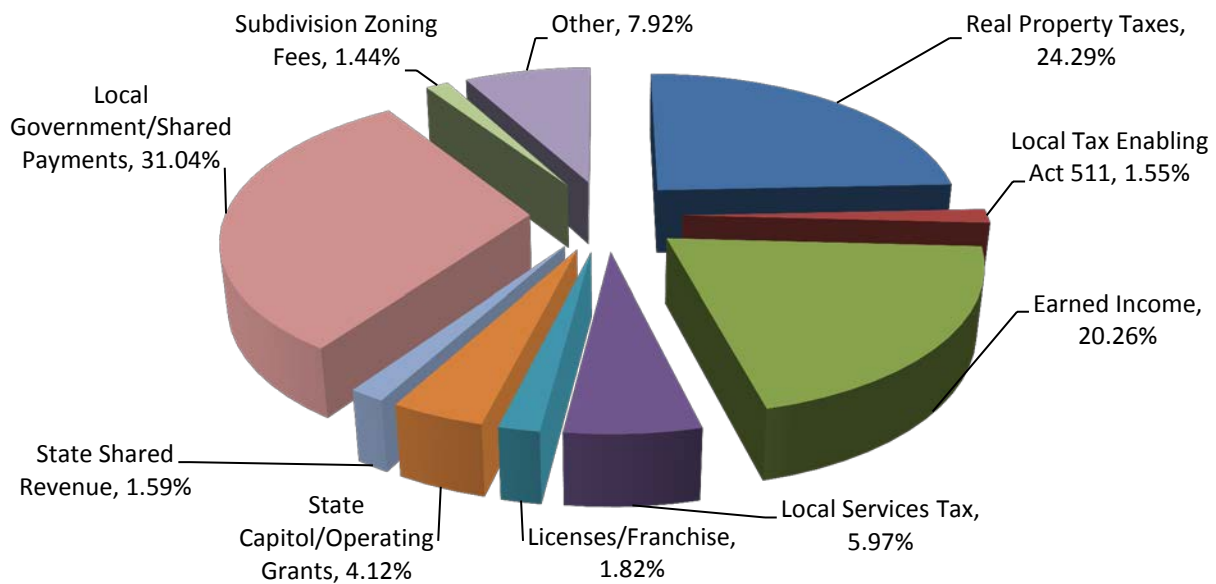
Consideration of Funding Methods for Stormwater in East Cocalico Township

Properly managing stormwater is considered an essential service, but one that is often unseen or misunderstood by residents and businesses in a community. Stormwater infrastructure requires upgrades and maintenance that is on par with the needs, costs, and annual maintenance as similar services such as wastewater, drinking water, or transportation. However, stormwater is rarely funded to the extent that any of these other services typically are, thus leaving a considerable gap in a stormwater program’s level of service to the community.

Current Method of Funding Stormwater

The current method of funding stormwater in East Cocalico Township is partially through grant funding and leveraging relationships with local organizations, but with the majority of the revenue derived from general fund appropriations. There is also minimal funding set aside each year for equipment purchases in the Township’s Capital Reserve Fund. East Cocalico Township’s general fund comes from several sources such as real property taxes, local tax enabling act taxes, licenses, and permits (see Figure 3 for breakdown). This revenue is then distributed to sources as appropriate and deemed necessary, such as personnel, police, fire/emergency management, general government expenses, and roads.²⁴

Figure 3: East Cocalico Township’s 2013 General Fund Revenue Breakdown²⁵



Currently, general fund allocations for stormwater programming in East Cocalico Township are not adequate for the Township to properly manage stormwater in the near and long terms. As priorities shift and costs rise, the Township needs to determine a more sustainable plan to pay for stormwater.

In order to enhance the level of service to meet future anticipated regulatory requirements, the Township must more aggressively invest in administration, operations & maintenance, and capital projects to repair and replace its infrastructure. The Township should consider supplementing its current funding approach with a dedicated stormwater fee to support a more strategic and comprehensive stormwater program.

²⁴ East Cocalico Township 2013 General Fund Budget, Final Budget.

²⁵ Ibid.

Assessment of Possible Revenue Sources and Funding Methods

Recognizing that the current funding method of having stormwater compete for general fund appropriations with other community priorities and relying on occasional grant awards is clearly not sustainable, the Project Team explored the possibility of using other revenue and funding sources. Although many financing options were explored, only a few cover the costs of capital and operations and maintenance, as highlighted in Table 1 below:

Table 1: Funding Sources, Coverage of Costs, and Features

Funding Source	Coverage of Cost Type		Features
	Capital Improvements	Operations & Maintenance	
Grants	Yes	No	Not guaranteed, highly competitive, not sustainable in the long-term
PENNVEST Loan Program	Yes	No	Not guaranteed, highly competitive, must repay often with interest
Bond Financing	Yes	No	Dependent on fiscal capacity, can utilize for large, long-term expenditures, must repay with interest
General Fund	Yes	Yes	Not equitable, competes with other community priorities, changes from year-to-year
Permit Review Fees	No	No	Not significant revenue, may deter development
Inspection Fees	No	No	Not significant revenue, may deter development
Stormwater Utility Fee	Yes	Yes	Generates ample revenue, sustainable, dependable, equitable, requires significant public dialogue

While a host of fee systems exist to pay for local stormwater programs, not all provide sufficient revenue to support the large costs associated with a comprehensive stormwater management program. While all of the above were found to be useful in funding a specific portion of the entire stormwater management program in each municipality, only the **general fund appropriation** and a **stormwater utility fee** were considered by the Project Team as large enough pots of money to be capable of funding the entire program.

Consideration for Using General Fund Appropriations for Stormwater

As mentioned above, reliance on the general fund as the primary resource for East Cocalico Township’s stormwater program means that stormwater continues to compete with other higher community priorities leaving the program vulnerable to budget cuts, particularly in future years when new stormwater regulations and nutrient reduction requirements will increase the price tag significantly. The general fund is derived primarily from taxes and the issue of equity and fairness of who pays for stormwater and how much they pay is not taken into consideration. In other words, those paying into the general fund are not paying based on their contribution to the problem of stormwater. In fact, many large properties, such as churches, schools, and government properties are not paying any taxes and therefore not paying anything towards services related to stormwater.

With general funds fluctuating from year to year and the revenue sources that make up the general fund varying in amount, stormwater management is unlikely to ever be adequately funded solely from this source. This does not mean, however, that current funding levels for various activities now being covered by general fund dollars should be lessened or eliminated in future budgets; it means that in addition to using some general fund appropriations, another reliable and dedicated source of funding will be required for East Cocalico Township to properly manage stormwater. The ultimate financing strategy will require a combination of funding sources to fully round out and adequately fund the entire recommended program to the extent that is needed in the future. The most appropriate mechanism to consider in addition to using some general funds and seeking grants whenever possible is through implementation of a stormwater utility fee.

Consideration of a Stormwater Utility Fee

Since the 1970s, one of the most popular methods of paying for stormwater has been a stormwater utility fee. A stormwater utility fee, sometimes called a service charge, is a separate accounting structure with a dedicated source of funds collected and used only for the purpose of managing stormwater. In its most recent report, the Western Kentucky University Stormwater Utility Survey identified more than 1,400 stormwater utilities nationwide.²⁶

The national trend has been to move away from relying solely on taxes for these programs and charge a fee that is stable, adequate to cover the costs of managing the program, and most importantly, equitable. A utility has increasingly become the choice for supporting stormwater *programs* because it is the clearest way to connect level of service/use (runoff) with the fee to be imposed. This type of fee-for-service has been implemented successfully for water, sewer, and solid waste/recycling programs, and has proven highly effective for stormwater, as well.

The Project Team believes that a stormwater utility, known in Pennsylvania as a stormwater authority, is the most equitable financing mechanism because it distributes program costs associated across all properties that contribute in some way to stormwater. Taxes and other fee systems often exclude certain properties from paying, such as those that are tax exempt, yet these properties are still contributing runoff to the system, and often at a rate far greater than that of the average residence.

How a Stormwater Fee Works

The basic premise behind a community's stormwater program is that all property owners receive some benefit from the system being maintained; therefore, all properties should be required to participate in the cost of maintaining that service. Most stormwater fee rates are therefore based on the size, or footprint, of the structural part of a property. This physical part of the property is known as *impervious surface* and includes all of the hard surfaces of a property such as a roof, patio, paved area, or sidewalk. The reason for basing a fee on impervious surface is that a hard surface does not allow water to infiltrate into the ground, thereby increasing the volume and flow of stormwater that a community must manage.

Effective stormwater fees make a direct connection between the anticipated expenses to properly manage the system and the revenue generated. In other words, the fee should be determined by the level of revenue needed to deliver stormwater management services to the community, with some allowance for the level to which a property contributes to runoff.

²⁶ Campbell, C. Warren (2013). Western Kentucky University 2013 Stormwater Utility Survey, Western Kentucky University, Bowling Green, page 1.

There are several ways to calculate a stormwater utility rate. The most simple, fair, and common method is based on a parcel’s amount of impervious surface – the extent to which a parcel contributes to runoff. When implemented, the fee may take the form of a flat or tiered rate structure, or some combination of both. An Equivalent Residential Unit (ERU) is a unit of measure based on either the average impervious surface of a single family dwelling or residential parcel. A specific fee level is attached to an ERU, and the number of ERUs on a given property often serves as the basis for the stormwater charge.

In many cases for residential properties, a flat fee is often recommended over exact parcel based measurements due to the level of program development and administrative burden that would be involved. This flat fee becomes the rate charge for non-residential properties, since it is assumed that the typical residential property is 1 ERU. Determining the fee for non-residential parcels is typically done by calculating the exact amount of impervious surface on the site and then dividing the amount of impervious surface that was calculated for residential properties to determine the number of ERUs for a particular property. The property is then charged a rate (often the same as the residential flat rate) per ERU.

Implementing a stormwater user fee is a national trend on the increase in the US, primarily because these fee structures, if designed correctly, will collect a sufficient amount of revenue to support program costs in the most equitable manner possible. Also, utility-based stormwater programs tend to be more efficient, as the responsibility for managing stormwater is coordinated in one program rather than piecemeal across several departments. In the case of East Cocalico Township, a utility, or in Pennsylvania known as an authority, would create an adequate and stable source of funding dedicated solely to stormwater and allow for a comprehensive program, consistent in funding from year to year, and meets all regulatory requirements, nutrient reduction needs, and community goals. Table 2 below shows current stormwater user fees in Pennsylvania, including their ERU rate and total revenue collected.

Table 2: Stormwater User Fee Examples in Pennsylvania²⁷

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Meadville, Crawford County (2012)	13,616	Single family detached residential = \$90/year All other developed non-single family detached parcels = \$90/year/ERU, where 1 ERU = 2,660ft ² impervious surface Reference: Meadville Stormwater Management User Fee Ordinance	Unknown
Mount Lebanon, Allegheny County (2011)	33,137	Single family, townhouse, or duplex = \$8/month All other properties = \$8/month/ERU, where 1 ERU = 2,400ft ² impervious surface Reference: Mt. Lebanon Stormwater Fee Ordinance	Unknown

²⁷ Data came from each individual municipality’s website and the Western Kentucky University 2013 Stormwater Utility Survey.

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Philadelphia (2010)	1,536,471	Residential = \$13.48/month Non-residential = Gross Area: \$0.526/500ft ² Impervious Area: \$4.145/500ft ² Monthly Billing: \$2.53 per account Reference: PWD Stormwater Billing & Stormwater Fact Sheet	\$655,000
City of Lancaster, Lancaster County (2013)	59,263 ²⁸	Single-family residential = \$4-\$12/quarter Multi-family residential = \$12-\$19/quarter Typical commercial = \$237/quarter Tiered rate structure for all properties where 1 ERU = 1,000ft ² Reference: The Cost of Dealing with Stormwater	Not implemented yet
Jonestown Borough, Lebanon County, PA (2012)	1,329 ²⁹	Single-family, townhouse, or duplex = \$70/year in year 1; \$80/year in years 2-4 All other properties = \$70/year/ERU in year 1; \$80/year/ERU in years 2-4, where 1 ERU = 3,100ft ² Reference: Stormwater Information	Unknown

Legal Basis in Pennsylvania Enabling Stormwater Authorities

The five stormwater user fee examples listed above are the only known stormwater utilities within Pennsylvania, and are in various stages of development and implementation. Historically, paying for stormwater has been a contentious issue within the state, since it is unclear whether such dedicated fees are enabled by state legislation.

In PA, utilities are typically regulated by the Pennsylvania Utility Commission (PUC), and the PUC will not at this time regulate stormwater. Thus, the creation of dedicated fees for stormwater often comes under the guise of an *authority*.

The contention, then, lies in the language written into the Pennsylvania Municipality Authorities Act, which states:

“§5607. Purposes and powers

(a) Scope of projects permitted.--Every authority incorporated under this chapter shall be a body corporate and politic and shall be for the purposes of financing working capital; acquiring, holding, constructing, financing, improving, maintaining and operating, owning or leasing, either in the capacity of lessor or lessee, projects of the following kind and character and providing financing for insurance reserves:

²⁸ 2011 US Census Bureau ACS 5-year Estimates.

²⁹ Ibid.

- (1) Equipment to be leased by an authority to the municipality or municipalities that organized it or to any municipality or school district located wholly or partially within the boundaries of the municipality or municipalities that organized it.
- (2) Buildings to be devoted wholly or partially for public uses, including public school buildings, and facilities for the conduct of judicial proceedings and for revenue-producing purposes.
- (3) Transportation, marketing, shopping, terminals, bridges, tunnels, flood control projects, highways, parkways, traffic distribution centers, parking spaces, airports and all facilities necessary or incident thereto.
- (4) Parks, recreation grounds and facilities.
- (5) Sewers, sewer systems or parts thereof.
- (6) Sewage treatment works, including works for treating and disposing of industrial waste...³⁰

The Act does not differentiate between *sanitary* and *storm* sewer systems, thus creating much debate over the years as to whether storm sewer systems can be financed through an authority. A further discussion as to the legality of stormwater authorities is essential within a locality before imposing a stormwater fee, however, not the focus of this report.

In April 2013, historic legislation (Senate Bill 351) passed by a vote of 49-1 that enables stormwater authorities at the municipal level. Without this legislation, municipalities were reluctant to move forward in setting up a dedicated stormwater fee. This legislation paves way for municipalities to implement dedicated fees to ensure that stormwater is managed adequately and more cost efficiently in the long run, and it is anticipated that stormwater user fees will begin to develop more rapidly in the state than ever before due to SB 351.

East Cocalico Township's Stormwater Financing Recommendations

Program Funding Needs

To identify the necessary components of an enhanced stormwater program for East Cocalico Township, the Project Team worked with municipal staff to conduct a comprehensive review of all aspects of current spending on stormwater management. When considering the level of stormwater management service identified as necessary in the Township, the Project Team found that current budgeting practices are not adequate in meeting the existing regulatory requirements. With tighter fiscal budgeting and more stringent permit requirements anticipated in the future, the Project Team and municipal staff agreed that a more comprehensive program will ensure a more viable stormwater management program for the future.

Two of the municipalities who participated in this study, Manheim and Warwick Townships, worked with the Project Team to determine the estimated costs projected over five years that is needed to properly manage stormwater. Each of these municipalities took a vastly different approach to estimating costs. Since the Project Team found it difficult to collect meaningful cost data for the other four participating municipalities, including East Cocalico Township, the team utilized Manheim

³⁰ Purdon's Pennsylvania Statutes and Consolidated Statutes, Title 53 Pa. C.S.A. Municipalities Generally, Part V. Public Improvements, Utilities and Services, Subpart A. General Provisions, Chapter 56. Municipal Authorities, Retrieved from: http://www.municipalauthorities.org/wp-content/uploads/2008/11/Title_53_Ch_56_MAA_01-13.pdf.

and Warwick Townships’ approaches to develop cost estimates. A discussion of these approaches and how they were adapted for East Cocalico Township follows.

Manheim Township’s Approach

Manheim Township, the largest of the municipalities participating in this study, plans to develop a separate Stormwater Department within the Township. All stormwater-related costs, even if currently paid for using general fund appropriations, will be moved to a stormwater budget. This budget will be supported through a dedicated stormwater user fee. The Project Team found that in Manheim Township a 5-year revenue stream totaling approximately \$10.1 million, when adjusted for inflation at a rate of 2.5% per year, will be needed to fully support a comprehensive stormwater program housed in the Stormwater Department.³¹ See Chapter 7 for the full analysis of Manheim Township’s financing structure.

Using population as the factor, East Cocalico Township’s costs were estimated at approximately \$2.8 million over five years if the Township uses Manheim Township’s approach to managing stormwater (see Table 3).

Table 3: East Cocalico Township’s Budget using Manheim Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Manheim Township	37,768	1.00	\$10,085,237	\$2,017,047
East Cocalico Township	10,304	0.27	\$2,751,490	\$550,298

Warwick Township’s Approach

Warwick Township, often hailed as the most proactive Township managing stormwater in the County, plans to continue supporting most of its stormwater-related costs using general fund appropriations and grants. The Township wants to utilize a dedicated stormwater user fee to support an asset management program that focuses on two components – (1) the costs of repairing and replacing the entire storm sewer pipe system and (2) the costs of maintaining and renovating all municipally-owned BMPs. The Project Team found that a 5-year revenue stream totaling \$639,268, when adjusted for inflation at a rate of 2.5% per year, will be needed to support a municipal stormwater asset management program for Warwick Township.³² See Chapter 9 for the full analysis of Warwick Township’s financing structure.

Using population as the factor, East Cocalico Township’s costs were estimated at approximately \$373,795 over five years if the Township uses Warwick Township’s approach to managing stormwater (see Table 4).

³¹Inflation was taken into account for all expenditures in years 2-5; Inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The percent change in the annual average CPI between 2003-2012 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from:

<ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>.

³²Ibid.

Table 4: East Cocalico Township’s Budget using Warwick Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Warwick Township	17,622	1.00	\$639,268	\$127,854
East Cocalico Township	10,304	0.58	\$373,795	\$74,759

It must be noted that the Project Team only supports this approach for Warwick Township because of the high level of service being provided to the community currently. Since East Cocalico Township needs to increase its level of service, the Township should utilize Warwick Township’s approach as a jumping off point and include additional costs associated with properly managing stormwater in its stormwater budget.

Recommendations for East Cocalico Township’s Level of Service Expenditures

Given the size of the Township, it is likely not feasible (or necessary) to develop a Stormwater Department. Therefore, Manheim Township’s costs represent the “Cadillac” version of stormwater management. On the flip side, Warwick Township’s costs represent a low cost estimate to managing stormwater since the costs only factor in asset management *and* the costs are based on the useful life of materials. This means that Warwick Township will bring in annual reserves through its dedicated fee to pay for its asset management program over time. Thus, the Project Team recommends that East Cocalico Township use a blended approach that uses Warwick Township as its baseline, and then includes additional costs necessary for the Township to properly manage stormwater. Further discussion is required by Township staff to determine how best to allocate costs. The following provides a discussion of the additional costs that the Township must invest in to meet its current and future state and federal regulations:

Personnel costs

The Project Team recommended earlier in this chapter that the Township invest in hiring a stormwater coordinator. In many respects, simply hiring a coordinator will allow the Township to meet most, if not all, of its administrative compliance components, allowing existing staff to focus on more pertinent tasks. The Township could hire a coordinator on its own or as a shared position with neighboring municipalities. The Township must engage neighboring municipalities to determine if a shared coordinator should be hired. Either way, the Project Team recommends investing in a coordinator to help with administrative MS4 permit tasks and keep the Township on track with meeting its MCMs.

The Project Team also recommended earlier in this chapter that the Township meet internally to determine if additional road crew members are needed to adequately address the technical components of the MS4 activities. In order for the Township to meet existing and future regulatory requirements, the Township should strongly consider hiring additional road crew members.

Capital costs

The \$373,795 estimated 5-year costs using Warwick Township’s approach supports an asset management program, including a pipe infrastructure repair and replacement program (assuming the average useful life of the pipes is 30 years) and a BMP renovation (assuming the average useful life is 20 years) and maintenance (assuming maintenance every 5 years) program. The Project Team highly recommends the Township invest in an asset management program and sets up its dedicated fee to generate at a minimum \$373,795 over five years.

The Project Team recommends the Township also invest in a study to determine the baseline health of its streams and thus, the most cost-effective water quality improvement projects (which will

result in additional capital costs once projects are identified). The Township staff identified a project conducted at the CCWA that prioritized 27 projects along the Cocalico Creek. This study can be used in place of investing in an additional study. However, if utilized, the Township staff should work with their contracted engineer to determine which of these 27 projects are located in the Township, and which of those should be implemented and specify in which year the project will be implemented. Once the Township identifies which projects to implement and when, the costs should be written into a stormwater budget and a dedicated fee (or grants where possible) should be used to support water quality improvement project costs.

Lastly, the Project Team recommended earlier in this chapter that the Township consider investing in equipment. In order to keep costs low, the Project Team recommends the Township meet with neighboring municipalities to determine all existing equipment and develop a list of equipment needed, all of which could be shared through intergovernmental agreements and purchased cooperatively.

Operations & Maintenance costs

If the Township purchases new equipment, there will be annual O&M costs associated with this equipment that will need to be factored into the stormwater program's costs. These costs will be included once it is determined what equipment, if any, will be purchased.

The Township must develop a more comprehensive understanding of its pipes in order to implement an asset management program properly. If the current funding allocated for mapping does not cover the entire cost, the Township should invest funds until the map is complete.

There are additional costs that are fairly minimal compared to the large capital and personnel costs needed to properly manage stormwater that the Township must consider. These costs include outreach materials, contract fees (namely for engineer's time), and hosting outreach and engagement events³³. See Chapter 7 for Manheim Township's costs associated with these activities, which could be used as a reference for East Cocalico Township.

Stormwater User Fee Rate Structure Analysis

Why This Study is Recommending a Stormwater User Fee for East Cocalico Township

Although the Project Team was unable to develop a specific estimated budget for East Cocalico Township, the Project Team recommends the Township create a dedicated stormwater user fee that will distribute the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to stormwater management needs.

As discussed earlier, the more impervious surface that a property has, the more stormwater it generates and the more responsible the property owner is to help the community manage stormwater. As private driveways, parking lots, swimming pools, decks, and other such structures allow residents and businesses to enjoy additional living and working conveniences, the burden of maintaining and repairing the infrastructure that supports those additional structures and surfaces should be shared by those contributing to the problem rather than the community at large. Just as a property owner is responsible for paying its share of waste disposal, water use, or electricity consumed, so should they recognize and be accountable for the stormwater created from their built environment.

³³ Warwick Township estimated that their annual Watershed Day costs \$2,225.

Once it became clear that there was a significant need to have a dedicated funding source to cover the stormwater costs in East Cocalico Township, the Project Team considered what financing mechanism would be most appropriate to generate these funds. The Project Team initially considered assessing a property tax, but since the value of a property is not an indicator of the amount of runoff, the property tax was not seen to be the most equitable way to pay for a stormwater program.

A stormwater user fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem. Since it is anticipated that development and growth continue in the Township, increasing the amount of impervious surface, it is appropriate to charge properties that contribute significant runoff more and properties that contribute insignificant runoff less. The major concern with this approach is the investment required by the Township to assess properties based on their exact contribution to stormwater runoff (i.e. parcel-based impervious surface calculations). Therefore, the fee calculations will begin more simply and transition over time to a more accurate method, balancing the administrative burden of billing with an equitable distribution of charges.

Billing Recommendations

Since enabling legislation was passed very recently in Pennsylvania, there are few examples that exist in the state to use as a model for implementing dedicated stormwater user fees. In Pennsylvania, the government structure creates so many small, autonomous municipalities with unique circumstances based on municipality type. In the past, cities, boroughs, and home rule municipalities have had an easier time passing ordinances to set up stormwater fees in the state. Since East Cocalico is a Township, it will need to set up a stormwater fee by either creating a new authority or utilizing its existing authority to bill its customers for stormwater.

The East Cocalico Township Authority (ECTA) provides a safe water supply and sanitary sewer conveyance and treatment to customers within the Township. The Authority has expanded to also collecting and transmitting sewage to the Ephrata Borough plants and the Adamstown Borough plant for treatment. If the existing Authority adds stormwater to its bill, the Authority must first amend its articles of incorporation to include the scope of its entire stormwater program and related activities.³⁴ Since this Authority has a billing system in place and serves the entire Township, the Project Team recommends utilizing the existing Authority. Since it will be up to the existing Authority to administer this program, the Project Team recommends the Township discuss internally whether it is easier to administer a stormwater authority with an existing authority or by establishing a new authority.

Since the Township currently works with Ephrata and Adamstown Boroughs, it is also recommended that the Township meet with these municipalities to determine whether they are interested in setting up a dedicated stormwater fee. If that is the case, the municipalities and existing Authority will need to determine whether setting up a new regional stormwater authority generates fewer transaction costs and should be considered, as well.

Based on the experience of other communities, it is recommended that the Township set up a strong administrative structure to deal with public questions and concerns, particularly when the user fee is first launched. Other communities who have implemented stormwater utilities report

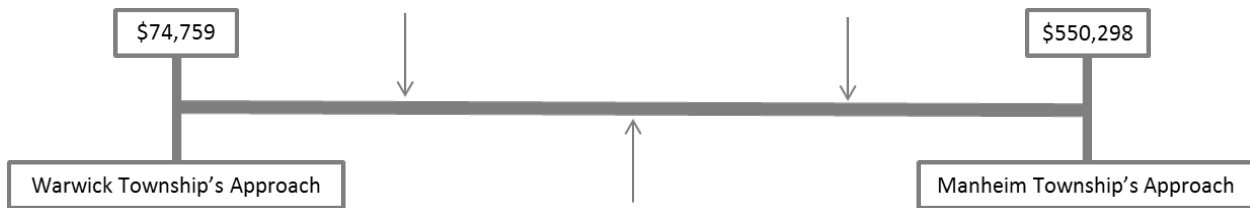
³⁴ McClintock, Robert, *Amendment to the Municipal Authorities Act Allows Municipal Authorities to Manage Storm Sewer Systems*, Municipal Law Alert, July 27th, 2013, Retrieved from: <http://www.lambmcerlane.com/blog/895453853-amendment-municipal-authorities-act-allows-municipal-authorities-manage-storm-water>.

that the outreach need is very high at first but declines as the utility rolls out. A help line and Township staff members should be made available to quickly address customer concerns.

Rate Structure Analysis

Although a specific cost estimate was not generated, the Project Team recommends implementing a fee to improve the current level of service. This fee could be set low to begin generating revenue, and once the Township has a better understanding of its costs, the rate structure should be reevaluated. In all likelihood, the Township’s true costs lie somewhere in between the estimates provided using Warwick and Manheim Townships’ approaches, shown in Figure 4.

Figure 4: The Spectrum of East Cocalico Township’s Estimated Annual Stormwater Costs



In determining an equitable funding strategy for collecting revenue to pay for stormwater related expenditures, the Project Team reviewed available data on all parcels located in the Township provided by GIS staff at the LCPC. The Project Team calculated potential revenue using a flat rate fee for parcels classified residential, and a combination of a tiered fee and ERU-based fee structure for all parcels classified as non-residential³⁵. The Project Team worked with the LCPC’s land use codes, as this framework will be easy for East Cocalico Township to implement moving forward.

Summary of recommended rate structure for residential properties

The decision to recommend a flat rate fee for residential properties reflects a balance between equity and administrative burden. After reviewing the large number of residential units and the many different types of residential properties located within the Township, the Project Team became concerned that a parcel-specific fee structure would require additional capacity on the part of the Township to properly estimate the total impervious surface for all residential properties in the community. Based on our experience working in other communities, it was agreed that calculating the level of impervious surface on every residential property would cause significant administrative burden. In addition to this being an overwhelming effort, the Project Team agreed that the risk of errors on bills could cause confusion about the billing calculation and increase the risk of complaints from the residential population. Additionally, the Project Team found that there was not a large enough spread among the sizes of the residential units to make taking on the task of developing unique bills for 3,140 residential parcels worthwhile. A distribution of all the residential properties in the Township is depicted in Figure 5. All multi-family residences are classified by LCPC as commercial, and therefore will be billed based on the non-residential fee structure discussed below. This means that an apartment building’s management firm will be billed as a commercial property and can then determine how best to recuperate these costs from their buildings’ residents.

³⁵ Multi-family units are classified commercial in the LCPC land use codes. The Project Team kept these properties in the non-residential category.

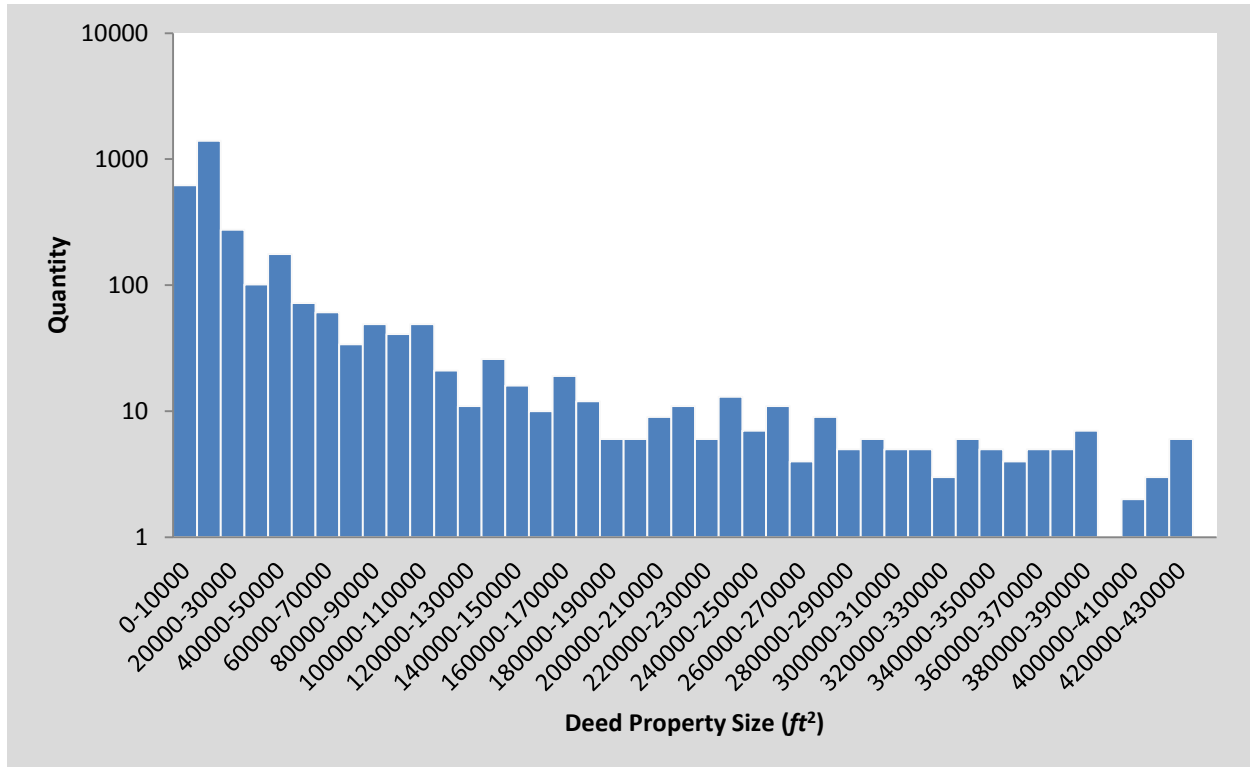


Figure 5. Distribution of Residential Property Sizes in East Cocalico Township. The median residential property is 14,375 ft². This figure shows the property sizes are skewed to the left, indicating the distribution is composed of more small properties than large.

Summary of recommended rate structure for non-residential properties

Because the size and nature of non-residential units vary widely, the Project Team suggests that a parcel-based rate structure that takes a parcel’s specific level of impervious surface into account to be the fairest method of assessing the stormwater fee on these properties. However, due to the time and capacity needed to develop the mapping and administrative processes to bill non-residential properties accurately, it is recommended that the Township utilize a tiered system that is based on average impervious surface estimates in the beginning years of the program. The Project Team learned that Lancaster City is also using a tiered system based on actual impervious data for their stormwater utility fee. The Project Team recommends consistency among municipalities in the County to increase the probability of community support for a fee.

For all 419 non-residential parcels, it is recommended that a user fee be assessed based on the categorical average impervious surface. Research conducted by the Project Team found that many communities utilize a tiered system for residential and/or non-residential properties. For example, Lancaster City seeks to charge a typical commercial property \$237 per quarter and increases its fee in increments of 1,000 ft² of impervious surface.³⁶ The Project Team recommends using a similar method for East Cocalico Township. Using a tiered system, the land area will be assessed based on categorical impervious surface estimates to calculate the property owner’s bill. It is then recommended, following the first few years of utilizing a tiered system, the Township invest in getting more accurate impervious surface data for all non-residential properties and then assess the fee based on each property’s total impervious surface.

³⁶ The Cost of Dealing with Stormwater, Lancaster City, Retrieved from: <http://www.saveitlancaster.com/thecost/>.

After conducting a sensitivity analysis³⁷ using various fee structures, the Project Team found that there are many options for the Township to set its initial rates. It is recommended that the ERU be set at 6,632 ft^2 since that number represents the average residential impervious surface in the Township³⁸. Depending on how much the Township wants to continue utilizing general fund appropriations and grants to supplement the user fee, the rate should be set at a minimum of \$15 per year per ERU. With so many questions still left unknown, it is recommended that the fee be reviewed and adjusted as needed after each year. Another variable to be considered in terms of rate adjustment is the impact of a credit system, if it is implemented as recommended later in this document.

Estimated total revenue from all properties

The estimated total revenue generated is distributed between residential and non-residential properties and is calculated as follows:

Residential – The residential properties should be assessed a flat fee starting at \$15 per year to generate the minimal revenue needed (based on Warwick Township’s approach). The final rate chosen by East Cocalico Township should be consistent with the non-residential rate. Although many of the rate scenarios analyzed by the Project Team brought in adequate revenue to pay for stormwater-related expenses, it will be up to the Township to determine what should be supported through the dedicated fee and thus, where to set its rates. Table 5 shows the revenue yield for all rate scenarios developed by the Project Team.

Table 5: Annual Residential Property Revenue Generated (3,140 Residential Properties x Rate)

\$15	\$20	\$25	\$30	\$35
\$47,100	\$62,800	\$78,500	\$94,200	\$109,900
\$40	\$45	\$50	\$55	\$60
\$125,600	\$141,300	\$157,000	\$172,700	\$188,400
\$65	\$70	\$75	\$80	\$85
\$204,100	\$219,800	\$235,500	\$251,200	\$266,900

The residential fee is based on the assumption that an average property has approximately 6,632 ft^2 of impervious surface and, therefore, all properties are billed for 1 ERU per year. The fee at which 1 ERU is set will be determined once the Township determines which costs should be supported using a dedicated user fee.

Non-Residential – According to data provided by the LCPC, there are 419 non-residential properties in East Cocalico Township. This data included the land area of each property, and the average

³⁷ A sensitivity analysis is defined as “a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions.” (Source: <http://www.investopedia.com/terms/s/sensitivityanalysis.asp#axzz24Ck0N3rj>). In order to determine the appropriate fee structure to raise the amount of revenue necessary to fund a comprehensive stormwater management program, the Project Team created different scenarios using different rates and ERUs, therefore conducting a sensitivity analysis.

³⁸ The average impervious surface for residential properties is based on LCPC data provided to the Project Team (the average sum of building footprint and driveways on residential properties), which was determined using GIS data based on aerial photography.

impervious surface data by categorical land use (industrial, commercial, community service, cultural activity, and agricultural) for all properties.

To determine each tier, the Project Team first took all non-residential properties by category to determine each property’s estimated impervious surface using categorical averages. The average percent impervious surface by category is shown in Table 6 below.

Table 6: Average Percent Impervious Surface by Parcel Type

Parcel type	Average impervious surface (%)
Industrial	23.70
Commercial	44.49
Community Service	12.47
Cultural Activity	5.33
Agricultural	2.45

Each non-residential property was then organized by parcel type and each individual parcel’s land area was multiplied by the appropriate average impervious surface percentage. For example, a commercial property that is 20,000 *ft*² has an estimated 44.49% impervious area. This property will then be billed for 8,898 *ft*² of impervious surface (20,000 *ft*² x 44.49%). Once the estimated impervious surface was calculated for each property, the Project Team conducted a statistical analysis to determine the tiered structure. A quartile system was utilized to divide the tiers into four equal groups. Table 7 shows the quartiles for the sum of all non-residential parcels using their estimated impervious surface calculations.

Table 7: Non-Residential Statistical Data to Determine Tiers

Quartiles	Quartile Impervious Surface Upper Bound (<i>ft</i> ²)	Tier (<i>ft</i> ²)
Percentage (25%) (Q1)	14,514	<=15,000
Median (Q2)	30,879	>15,000 & <=31,000
Percentage (75%) (Q3)	68,736	>31,000 & <=69,000
Upper Bound (Q4)	2,917,636	>69,000

Using this 4-tiered system, the Project Team then determined the number of properties that fell into each tier. Then, the upper bound of each tier for quartiles 1-3 was divided 6,632 *ft*² to determine the number of ERUs that parcels in each tier will pay. So that parcels in the fourth quartile (Q4) were not all paying as if they were the upper bound, the median of all parcels in Q4 (105,000 *ft*²³⁹) was divided by 6,632 *ft*² to determine the number of ERUs that parcels in Q4 will pay. The final ERU for each tier was then multiplied by the flat fee scenarios and then again by the number of parcels in each tier to determine the total revenue generated from non-residential parcels. Table 8 shows the summary of this analysis below.

³⁹ The median of all parcels in Q4 in East Cocalico Township is 104,651 *ft*², which was rounded to 105,000 *ft*² for ease of administration.

Table 8: Annual Non-Residential Property Revenue Generated by Tier

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /6,632 ft ²)	ERU x \$ x Number of Parcels				
			\$15	\$20	\$25	\$30	\$35
First tier: <=15,000	113	2.26	\$3,834	\$5,112	\$6,389	\$7,667	\$8,945
Second tier: >15,000 & <=31,000	97	4.67	\$6,801	\$9,068	\$11,335	\$13,602	\$15,869
Third tier: >31,000 & <=69,000	104	10.40	\$16,230	\$21,641	\$27,051	\$32,461	\$37,871
Fourth tier: >69,000	105	15.83	\$24,936	\$33,248	\$41,560	\$49,872	\$58,184
Total Non-Residential Revenue			\$51,801	\$69,068	\$86,335	\$103,602	\$120,869

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /6,632 ft ²)	ERU x \$ x Number of Parcels				
			\$40	\$45	\$50	\$55	\$60
First tier: <=15,000	113	2.26	\$10,223	\$11,501	\$12,779	\$14,057	\$15,335
Second tier: >15,000 & <=31,000	97	4.67	\$18,136	\$20,403	\$22,670	\$24,937	\$27,204
Third tier: >31,000 & <=69,000	104	10.40	\$43,281	\$48,691	\$54,101	\$59,511	\$64,922
Fourth tier: >69,000	105	15.83	\$66,496	\$74,808	\$83,120	\$91,432	\$99,744
Total Non-Residential Revenue			\$138,136	\$155,403	\$172,670	\$189,937	\$207,204

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /6,632 ft ²)	ERU x \$ x Number of Parcels				
			\$65	\$70	\$75	\$80	\$85
First tier: <=15,000	113	2.26	\$16,613	\$17,891	\$19,168	\$20,446	\$21,724
Second tier: >15,000 & <=31,000	97	4.67	\$29,472	\$31,739	\$34,006	\$3,627	\$38,540
Third tier: >31,000 & <=69,000	104	10.40	\$70,332	\$75,742	\$81,152	\$86,562	\$91,972
Fourth tier: >69,000	105	15.83	\$108,056	\$116,368	\$124,680	\$132,992	\$141,304
Total Non-Residential Revenue			\$224,472	\$241,739	\$259,006	\$243,627	\$293,540

The total revenue potential for all fee structures is shown in Table 9 below.

Table 9: Total Revenue Potential

	\$15	\$20	\$25	\$30	\$35
Residential	\$47,100	\$62,800	\$78,500	\$94,200	\$109,900
Non-Residential	\$51,801	\$69,068	\$86,335	\$103,602	\$120,869
Total Revenue (1-year)	\$98,901	\$131,868	\$164,835	\$197,802	\$230,769
Total Revenue (5-year)	\$494,506	\$659,341	\$824,176	\$989,011	\$1,153,846
	\$40	\$45	\$50	\$55	\$60
Residential	\$125,600	\$141,300	\$157,000	\$172,700	\$188,400
Non-Residential	\$138,136	\$155,403	\$172,670	\$189,937	\$207,204
Total Revenue (1-year)	\$263,736	\$296,703	\$329,670	\$362,637	\$395,604
Total Revenue (5-year)	\$1,318,682	\$1,483,517	\$1,648,352	\$1,813,187	\$1,978,022
	\$65	\$70	\$75	\$80	\$85
Residential	\$204,100	\$219,800	\$235,500	\$251,200	\$266,900
Non-Residential	\$224,472	\$241,739	\$259,006	\$243,627	\$293,540
Total Revenue (1-year)	\$428,572	\$461,539	\$494,506	\$494,827	\$560,440
Total Revenue (5-year)	\$2,142,858	\$2,307,693	\$2,472,528	\$2,474,136	\$2,802,198

For the fee to be adequate as well as equitable, the total expenditures should as closely equal the total revenue as possible. The Township must first determine which expenditures should be included in the stormwater program budget, and which aspects of the program it wants to invest before assigning a fee structure.

It is important to note that if East Cocalico Township funds this program entirely by the user fee, then the fee would need to be set higher to pay for existing costs and the additional investments needed to support an adequate stormwater management program. It is highly recommended by the Project Team that the Township continue to supplement the program using general fund appropriations and grant funds where possible. This will decrease the user fee, minimizing any community backlash.

Lastly, it is difficult to estimate the effect of a credit system being imposed on the program. However, based on a credit system imposed in later years, revenues may decrease depending on the parameters of the system, how many residents participate, and to what extent. An estimate of the impact of these credits must be considered in future years, and the rate structure must be reevaluated to ensure that a credit system does not infringe on meeting revenue needs. It is unclear just how effective the credit system will be and there are no data that supports an average amount to consider. For more information about a credit system, please see Chapter 11.

Chapter 6: Individual Municipal Analysis – Lititz Borough

Lititz Borough has a population of 9,350⁴⁰, making it the second smallest of the six municipalities who participated in this study. Similar to Mount Joy Borough, Lititz considers itself a “Main Street Community,” made up of many local, small businesses clustered on Main Street. The Borough’s historic industry and small town charm have generated lots of tourism, so much so that the Borough was recently voted “Coolest Small Town in America”⁴¹. The Borough is also comprised of a close-knit residential community that takes great pride in its historical preservation and environmental conservation efforts.

At the beginning of the study, each municipality was asked to provide their priorities, needs, and goals to the Project Team. Lititz Borough provided the following:

Priorities

1. MS4:
 - a) TMDL Plan
 - b) Chesapeake Bay Pollutant Reduction Plan
 - c) Storm basin inspection procedure / repair notifications
2. Education:
 - a) General outreach
 - b) Storm inlet markers
3. Stream bank protection
4. Infrastructure:
 - a) Identifying areas of street flooding
 - b) Mapping storm piping /sizes
 - c) replacement of old piping

 - d) Street catch basin conditions

Goal

- Improve the quality of discharge into waterways within the Borough.

Needs

1. Federal and state regulatory guidelines;
2. Evaluation of entire storm sewer system;
3. Inventory of private swales and maintenance responsibilities;
4. Education assistance;

⁴⁰ 2011 US Census Bureau ACS 5-year Estimates, used the advanced search option to search population ACS 5-year population estimates by municipality using:

<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.

⁴¹ America’s Coolest Small Towns 2013, Budget Travel, Retrieved from:

<http://www.budgettravel.com/contest/americas-coolest-small-towns-2013,14/#candidate-detail12246>.

5. Survey existing conditions of waterways; and
6. Funding.⁴²

Since the EFC's focus was to look at how each municipality *finances* its stormwater management activities and then provide recommendations about how to improve the program with greater cost efficiency, the goal of the study transpired to help Lititz Borough assess the current municipal stormwater program and provide the Borough with financing recommendations to help them improve their current program and implement cost saving measures to create a comprehensive and sustainable stormwater program. This goal ensures that the Borough has the resources and capacity to improve and maintain a higher level of service to its residents and businesses and address all stormwater-related compliance activities.

Assessment of Lititz Borough's Current Stormwater Program

In the new NPDES MS4 permit being issued to all Phase II municipalities in Pennsylvania, there will be six MCMs consistent with those found in the old permit. Although the purpose of each MCM will be the same as previous permit cycles, the requirements to meet each MCM are anticipated to be more stringent in the future permit. The following six MCMs are the elements contained in the NPDES MS4 permit that outline specific areas the community must address:

1. Public Education & Outreach
2. Public Participation & Involvement
3. Illicit Discharge Detection & Elimination (IDD&E)
4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

For each MCM, there are specific stormwater BMPs that Lititz Borough can implement to comply with its permit. Although there is flexibility to implement BMPs that fit the needs and resources within the community, there are significant costs associated with addressing each MCM.

The Project Team worked closely with municipal staff and the Borough engineer to determine the current level of service for each MCM. A discussion of the findings is below.

Overall Stormwater Program Findings

Stormwater Infrastructure

Lititz Borough was founded in 1756, and prides itself on preserving its rich history through its focus on beautification, natural resource protection, and supporting the many small, often family-owned businesses. The Borough is made up of mostly a residential population, and the largest industries include Johnson & Johnson, Wood Stream, and Wilbur Chocolate. Since the community is so old, the conveyance system is likely also extremely old; however the Borough does not have a good understanding of the characteristics of its system.

At the beginning of the project, the Borough staff told the Project Team that an interior inspection of its infrastructure was one of its biggest needs because the potential for emergency repairs is much greater with such an old system in place. The Project Team recommends the Borough invest in pipe inspections and simultaneously develop a comprehensive map of its system as soon as

⁴² Information provided by Lititz Borough directly to the Project Team.

possible. These two tasks must be completed so that the Borough can move forward developing an infrastructure repair and replacement program that is strategic and cost-efficient.

Current Funding for Stormwater

Preparing for new permit requirements and maintaining the existing stormwater system bears significant costs. Currently, funding for the Borough's stormwater program primarily comes from general funds, a practice common throughout the country. In addition, the Borough relies heavily on public and private grants. The Borough has been very successful with receiving grants that pay for capital improvements and green infrastructure (GI) projects. There are a number of environmental and engineering firms located in Lititz Borough and Warwick Township that work closely with both municipalities to help access grants. Because of this success, the Borough has been able to keep costs low for taxpayers. In an article on the local newspaper website, Lititz Borough Council President stated that the Borough has the second lowest real estate tax rate in Lancaster County.⁴³

Although commendable for its success in getting grant funds, in order to maintain a comprehensive stormwater management program over time, the Borough needs to support its program using a variety of funds and not rely so heavily on grants. The Project Team found that while the Borough has a good framework for handling the operations & maintenance components of the MS4, capital spending occurs only when grant funds are available. It is important to note that the Project Team was unable to collect data in a meaningful way on stormwater capital projects, which was seen across the board with all six municipalities.

The primary reason for this in most of the municipalities is that capital projects are completed when funds become available and not in a way where cost information can be easily verified. The Borough sets aside minimal funding for stormwater management to cover engineering costs, stormwater maintenance, and specific project costs. The Project Team found that the general fund appropriations do not adequately cover the administrative and capital costs to properly manage stormwater.

The Project Team found Borough staff eager to invest more thoroughly in meeting stormwater requirements. In the past, the Borough staff has been stifled by elected officials who are hesitant to use sparse resources on stormwater management. Participation in this study and the improved knowledge the staff has gained over the year will help staff work with elected officials to educate them on the importance of investing in stormwater management.

Current Capacity for Handling Stormwater

At the beginning of this study, the Project Team found that the Borough staff did not fully understand what is needed to address the administrative components of the MS4 permit. Through participation in this study, and the staff's commitment to improving its municipal program, the Project Team found that the staff's knowledge improved quickly.

The Project Team found that many of the essential staff currently works on stormwater, whether or not it is part of their job description. Throughout the study, this staff showed a commitment to learning about best practices and improving their program. This "all-hands-on-deck" approach witnessed by the Project Team shows a true commitment to the community, however, is not sustainable over time.

In order to adequately address the administrative components of the MS4 permit, the Borough should invest in hiring a stormwater coordinator, either on its own or shared between neighboring

⁴³ Knowles, Laura, Lititz council adopts 2013 budget, welcomes student, *Intelligencer Journal/Lancaster New Era*, Retrieved from: http://lancasteronline.com/article/local/794703_Lititz-council-adopts-2013-budget--welcomes-student.html.

municipalities. If done so collectively, the Borough should bring together neighboring municipalities to develop an intergovernmental agreement. Either way, hiring a stormwater coordinator will allow staff who currently have taken on all of the stormwater-related tasks the time to focus on other Borough functions, creating greater efficiency at the Borough overall.

The PWD receives the majority of funding for stormwater from the general fund, since much of the technical components of the MS4 permit are conducted in-house. This staff is comprised of six road crew staff plus the Superintendent. All PWD staff receive regular training, and attended many of the project meetings. Although the existing staff is trained well, the Project Team found that likely additional PWD staff is needed to handle the more stringent requirements anticipated with the new MS4 permit cycle beginning in the fall of 2013. After reviewing the findings in this report, Borough staff should meet internally to determine whether additional public works staff should be hired to improve the stormwater program's level of service.

MCM Findings: 1. Public Education & Outreach

The Project Team found that Lititz Borough currently provides a minimal level of service to its community regarding public education and outreach. While the Borough shares MS4 education in the newspaper, they otherwise follow Warwick Township's leadership in educating the public about stormwater. Because the Warwick Township School District is located in the Borough, all 5th grade students participate in Warwick Township's annual Watershed Day, which targets students and parents.

While Lititz Borough's partnership with Warwick Township affords them the ability to participate in many events, the Borough should take on a more active role in educating its residents. The Project Team found that the Borough staff were very committed to improving stormwater outreach, however, needed additional training on how to implement the BMPs for MCM 1. The Project Team encourages the Borough to hire a stormwater coordinator to take on many of the administrative functions associated with MCM 1.

During the project, the Borough purchased new equipment for the PWD. On a Lititz Borough 2nd Friday event, the Project Team participated with the PWD staff to display the new equipment and host a table disseminating information and talking with residents about the impact of stormwater runoff. These types of local events that take place regularly in the Borough are essential to utilize for educating the public.

In addition to general public outreach, the Project Team found that the Lititz Borough Council was well informed about stormwater and the need to invest in its proper management. When the Project Team presented the study to the Council, they were very receptive and engaged. The Borough staff should continue to update the Council and generate their feedback in order to help tailor the stormwater program to the needs of the community.

In order for Lititz Borough to increase its level of service regarding MCM 1, the Borough needs to develop a written Public Education & Outreach Plan, develop a list of its target audience, play a more active role in partnering with Warwick Township and/or the Lititz Run Watershed Alliance (LRWA) to host events, continue sharing stormwater education with the public and elected officials, and track all public outreach and education activities.

MCM Findings: 2. Public Participation & Involvement

The Project Team found that Lititz Borough currently provides a minimal level of service to its community regarding public involvement and participation. Similar to MCM 1, Borough residents participate in many local events, such as Warwick Township and the LRWA's stream clean-up and Watershed Day, as well as other events hosted by Trout Unlimited. While the residents in the

Borough are highly engaged when it comes to environmental conservation and water quality, the Borough has not been a leader in this effort. The Project Team found that the Borough staff was committed to improving the level of service for this MCM, but like MCM 1 needed additional training to understand what was required for MCM 2.

In order to improve the level of service for this MCM, the Project Team recommends hiring a stormwater coordinator to help the Borough develop a written Public Participation & Involvement Plan, schedule an annual public meeting for stormwater where the public can give their input, develop materials and disseminate stormwater education to residents, businesses, and elected officials, and track all activities related to MCM 2.

A stormwater coordinator will also be able to help plan local events, which will enhance the event for all participating groups and lower the cost. The Project Team encourages the Borough to meet with Warwick Township once they have reviewed the findings and recommendations in this report. Warwick Township serves as a model for this MCM. Given the existing partnership between the Township and Borough, Lititz should begin working more closely with Warwick to learn from their success.

MCM Findings: 3. Illicit Discharge Detection & Elimination

The Project Team found that Lititz Borough currently provides a minimal level of service to its community regarding IDD&E. While the Borough inspects at least 20% of its outfalls each year, the Borough needs to develop a more formal process for handling IDD&E and public notification. The Project Team found that the Borough staff is currently working with their contracted engineer through ARRO Consulting, Inc. to develop a comprehensive map of the conveyance system, which is needed in order to strategically repair and replace the Borough's infrastructure. This task should be prioritized until the full map is complete.

The Borough could easily develop a procedure for public notification of IDD&E and tracking system for inspections and complaints. One of the recommended tasks of a stormwater coordinator should be to develop formal procedures for IDD&E. It is anticipated that when the new MS4 permits are issued, more stringent requirements will be incorporated for this MCM. At this time, Borough staff should consider hiring additional public works staff to ensure all screening and inspections are completed each year.

MCM Findings: 4. Construction Site Runoff Control

The Project Team found that Lititz Borough currently provides a medium level of service to its community regarding construction site runoff control. In Pennsylvania, the county conservation districts review and approve all Erosion & Sediment Control Plans for new development and are tasked with inspecting construction sites. Thus, municipalities are limited by the resources at the conservation district to meet this MCM. It is important to note, however, that while the conservation district typically reviews, approves, and inspects all new development, the municipality is still held accountable for this MCM. Because of this, municipalities should inspect sites in addition to the conservation district and file all projects separately to help with their MS4 annual reporting.

The Project Team found that Lititz Borough works with their contracted engineer to inspect construction sites. Both the LCCD representative for the Borough and the Borough's engineer review all stormwater and Erosion & Sediment Control Plans. The engineer keeps track of all projects in an MS4 file.

In order to improve the level of service regarding MCM 4, the Project Team recommends the Borough begin tracking all projects in-house. By filing MS4-related projects into a separate system

and tracking projects in-house, the time needed to compile the MS4 Permit Annual Report will be minimized and the Borough's will improve its organizational efficiency.

MCM Findings: 5. Post Construction Site Runoff Control

The Project Team found that Lititz Borough currently provides a minimal level of service to its community regarding post construction site runoff control. The Borough has a procedure in place for inspecting all post construction stormwater management (PCSM) BMPs to ensure they were implemented as designed; the PWD Superintendent and engineer are working on finalizing the inventory of all public and private BMPs; and the public works crew maintains all Borough-owned stormwater basins and conducts operations and maintenance (O&M) as needed.

The Borough staff identified the biggest problem they have regarding this MCM was communication between the developer and homeowner. A few other municipalities who participated in this study expressed similar concerns. The Project Team recommends the Borough staff develop a more formal maintenance agreement that clearly defines who is responsible for maintaining a PCSM BMP. This agreement should be clearly conveyed to all parties during the pre-construction meeting, and again during the post-construction meeting. The Borough staff mentioned to the Project Team their interest in penalizing homeowners who do not maintain their BMPs. This minimal revenue could be used to support part of the stormwater program.

The Borough staff encourages Low Impact Development (LID) and green practices, and push for developers to further their implementation of these practices. In order to improve the Borough's current level of service, the Borough should continue with the practices in place, and include educational information for municipal staff, developers who work in the Borough, and residents to ensure that they are up to date on all stormwater management regulations, LID and GI alternatives.

MCM Findings: 6. Pollution Prevention/ Good Housekeeping

The Project Team found that Lititz Borough currently provides a medium level of service to its community regarding pollution prevention and good housekeeping. The Borough is currently developing a process for maintaining publically-owned BMPs; cleans all inlets, ditches, and drains both manually and with their new jet vac; are currently working with their engineer to map the conveyance system; sweeps streets at least twice annually; trains all PWD staff on a regular basis; and has been very successful at receiving grant funding to implement water quality improvement projects, many with a GI component. Although the Borough meets its requirements, a dedicated fee for an asset management repair and replacement program will provide the resources necessary to increase the level of service for MCM 6.

The Project Team found that the Borough has the most advanced equipment of all the municipalities who participated in this study. The Borough has a street sweeper that is used for their streets, and services are exchanged between the Borough and Warwick Township to sweep Warwick's streets, as well. As mentioned previously in this chapter, the Borough purchased a new jet vac truck during this project. This truck will allow the PWD staff to be more efficient in their cleaning and maintenance of the conveyance system. The PWD Superintendent even sent a PWD crew member to Florida to see the truck be built and learn how it operates.

In meeting with municipal staff, the Project Team found staff eager to develop a more comprehensive program to better meet its MCM 6 goals. With the completion of an O&M schedule, the Borough will be able to address tasks more regularly and efficiently. The Project Team found that the PWD staff do mostly all of the activities for this MCM in-house, and are regularly trained. The Project Team recommends the Borough conduct some training in conjunction with Warwick Township public works staff as a way for staff to share their knowledge and continue working collaboratively to address MCM 6.

Lastly, the Project Team recommends the Borough develop better tracking of all stormwater-related public works activities. By tracking all activities over time, the Borough will be able to highlight trouble spots in the municipality and more strategically conduct good housekeeping measures. The Project Team found that the Borough is on the right track to increasing its level of service for MCM 6.

Anticipated Changes to the MS4 Permit

The PA DEP requires all MS4 permitted municipalities in the Bay watershed to develop a CBPRP by the summer of 2014. The purpose of this plan is to help municipalities strategically implement projects that improve local and regional water quality. The Project Team found that the municipalities typically contract this Plan out to their engineer, and there has been minimal guidance provided to municipalities about what should go into the plan.

In addition to developing a CBPRP, it is anticipated that more stringent requirements will take effect when the new MS4 permits are issued in the fall of 2013. In Maryland, the Department of the Environment (MDE) included a new requirement in its new permit cycle – a **20%** impervious area restoration requirement. It is anticipated that this impervious area restoration, designed to increase the level of runoff managed from existing impervious areas, will require implementing a number of stormwater BMPs. These BMPs will be either nonstructural practices (like diverting runoff from impervious areas to vegetated areas, bioswales, and tree planting) or more traditional structural practices (i.e. stormwater ponds, bio-retention facilities). Based on information received from MDE and Maryland municipalities, it is anticipated that a similar requirement be included in Pennsylvania.

Consideration of Funding Methods for Stormwater in Lititz Borough

Properly managing stormwater is considered an essential service, but one that is often unseen or misunderstood by residents and businesses in a community. Stormwater infrastructure requires upgrades and maintenance that is on par with the needs, costs, and annual maintenance as similar services such as wastewater, drinking water, or transportation. However, stormwater is rarely funded to the extent that any of these other services typically are, thus leaving a considerable gap in a stormwater program's level of service to the community.

Current Method of Funding Stormwater

The current method of funding stormwater in Lititz Borough is primarily through grant funding and through general fund appropriations. Lititz Borough's general fund comes from several sources such as real estate taxes, licenses, and permits. This revenue is then distributed to sources as appropriate and deemed necessary, such as police, public works, parks and recreation, and personnel.

Currently, between the general fund allocations for stormwater programming in Lititz Borough and the reliance on grant funds, the Borough is able to meet its permit requirements. However, in order to enhance the level of service to meet future anticipated regulatory requirements, the Borough must more aggressively invest in stormwater education and engagement, capital projects, and developing an asset management program for its infrastructure. In order to adequately support these costs, the Project Team recommends the Borough implement a dedicated stormwater fee.

Assessment of Possible Revenue Sources and Funding Methods

Recognizing that the current funding method of having stormwater compete for general fund appropriations with other community priorities and relying heavily on grant awards is clearly not sustainable, the Project Team explored the possibility of using other revenue and funding sources. Although many financing options were explored, only a few cover the costs of capital and operations and maintenance, as highlighted in Table 10 below:

Table 10: Funding Sources, Coverage of Costs, and Features

Funding Source	Coverage of Cost Type		Features
	Capital Improvements	Operations & Maintenance	
Grants	Yes	No	Not guaranteed, highly competitive, not sustainable in the long-term
PENNVEST Loan Program	Yes	No	Not guaranteed, highly competitive, must repay often with interest
Bond Financing	Yes	No	Dependent on fiscal capacity, can utilize for large, long-term expenditures, must repay with interest
General Fund	Yes	Yes	Not equitable, competes with other community priorities, changes from year-to-year
Permit Review Fees	No	No	Not significant revenue, may deter development
Inspection Fees	No	No	Not significant revenue, may deter development
Stormwater Utility Fee	Yes	Yes	Generates ample revenue, sustainable, dependable, equitable, requires significant public dialogue

While a host of fee systems exist to pay for local stormwater programs, not all provide sufficient revenue to support the large costs associated with a comprehensive stormwater management program. While all of the above were found to be useful in funding a specific portion of the entire stormwater management program in each municipality, only the **general fund appropriation** and a **stormwater utility fee** were considered by the Project Team as large enough pots of money to be capable of funding the entire program. The Borough should continue to apply for grant funding where possible, but minimize any reliance on such funds to pay for stormwater management over the long term. Continuing to seek out opportunities to apply for grants in the future should not be discounted as a way to fund stormwater with the understanding that it will remain just a small slice of the total revenue needed.

Consideration for Using General Fund Appropriations for Stormwater

As mentioned above, reliance on the general fund as the primary resource for Lititz Borough’s stormwater program means that stormwater continues to compete with other higher community priorities leaving the program vulnerable to budget cuts, particularly in future years when new stormwater regulations and nutrient reduction requirements will increase the price tag significantly. The general fund is derived primarily from taxes and the issue of equity and fairness of who pays for stormwater and how much they pay is not taken into consideration. In other words, those paying into the general fund are not paying based on their contribution to the problem of stormwater. In fact, many large properties, such as churches, schools, and government properties are not paying any taxes and therefore not paying anything towards services related to stormwater.

With general funds fluctuating from year to year and the revenue sources that make up the general fund varying in amount, stormwater management is unlikely to ever be adequately funded solely from this source. This does not mean, however, that current funding levels for various activities now

being covered by general fund dollars should be lessened or eliminated in future budgets; it means that in addition to using some general fund appropriations, another reliable and dedicated source of funding will be required for Lititz Borough to properly manage stormwater. The ultimate financing strategy will require a combination of funding sources to fully round out and adequately fund the entire recommended program to the extent that is needed in the future. The most appropriate mechanism to consider in addition to using some general funds and seeking grants whenever possible is through implementation of a stormwater utility fee.

Consideration of a Stormwater Utility Fee

Since the 1970s, one of the most popular methods of paying for stormwater has been a stormwater utility fee. A stormwater utility fee, sometimes called a service charge, is a separate accounting structure with a dedicated source of funds collected and used only for the purpose of managing stormwater. In its most recent report, the Western Kentucky University Stormwater Utility Survey identified more than 1,400 stormwater utilities nationwide.⁴⁴

The national trend has been to move away from relying solely on taxes for these programs and charge a fee that is stable, adequate to cover the costs of managing the program, and most importantly, equitable. A utility has increasingly become the choice for supporting stormwater *programs* because it is the clearest way to connect level of service/use (runoff) with the fee to be imposed. This type of fee-for-service has been implemented successfully for water, sewer, and solid waste/recycling programs, and has proven highly effective for stormwater, as well.

The Project Team believes that a stormwater utility, known in Pennsylvania as a stormwater authority, is the most equitable financing mechanism because it distributes program costs associated across all properties that contribute in some way to stormwater. Taxes and other fee systems often exclude certain properties from paying, such as those that are tax exempt, yet these properties are still contributing runoff to the system, and often at a rate far greater than that of the average residence.

How a Stormwater Fee Works

The basic premise behind a community's stormwater program is that all property owners receive some benefit from the system being maintained; therefore, all properties should be required to participate in the cost of maintaining that service. Most stormwater fee rates are therefore based on the size, or footprint, of the structural part of a property. This physical part of the property is known as ***impervious surface*** and includes all of the hard surfaces of a property such as a roof, patio, paved area, or sidewalk. The reason for basing a fee on impervious surface is that a hard surface does not allow water to infiltrate into the ground, thereby increasing the volume and flow of stormwater that a community must manage.

Effective stormwater fees make a direct connection between the anticipated expenses to properly manage the system and the revenue generated. In other words, the fee should be determined by the level of revenue needed to deliver stormwater management services to the community, with some allowance for the level to which a property contributes to runoff.

There are several ways to calculate a stormwater utility rate. The most simple, fair, and common method is based on a parcel's amount of impervious surface – the extent to which a parcel contributes to runoff. When implemented, the fee may take the form of a flat or tiered rate structure, or some combination of both. An Equivalent Residential Unit (ERU) is a unit of measure

⁴⁴ Campbell, C. Warren (2013). Western Kentucky University 2013 Stormwater Utility Survey, Western Kentucky University, Bowling Green, page 1.

based on either the average impervious surface of a single family dwelling or residential parcel. A specific fee level is attached to an ERU, and the number of ERUs on a given property often serves as the basis for the stormwater charge.

In many cases for residential properties, a flat fee is often recommended over exact parcel based measurements due to the level of program development and administrative burden that would be involved. This flat fee becomes the rate charge for non-residential properties, since it is assumed that the typical residential property is 1 ERU. Determining the fee for non-residential parcels is typically done by calculating the exact amount of impervious surface on the site and then dividing the amount of impervious surface that was calculated for residential properties to determine the number of ERUs for a particular property. The property is then charged a rate (often the same as the residential flat rate) per ERU.

Implementing a stormwater user fee is a national trend on the increase in the US, primarily because these fee structures, if designed correctly, will collect a sufficient amount of revenue to support program costs in the most equitable manner possible. Also, utility-based stormwater programs tend to be more efficient, as the responsibility for managing stormwater is coordinated in one program rather than piecemeal across several departments. In the case of Lititz Borough, a utility, or in Pennsylvania known as an authority, would create an adequate and stable source of funding dedicated solely to stormwater and allow for a comprehensive program, consistent in funding from year to year, and meets all regulatory requirements, nutrient reduction needs, and community goals. Table 11 below shows current stormwater user fees in Pennsylvania, including their ERU rate and total revenue collected.

Table 11: Stormwater User Fee Examples in Pennsylvania⁴⁵

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Meadville, Crawford County (2012)	13,616	Single family detached residential = \$90/year All other developed non-single family detached parcels = \$90/year/ERU, where 1 ERU = 2,660ft ² impervious surface Reference: Meadville Stormwater Management User Fee Ordinance	Unknown
Mount Lebanon, Allegheny County (2011)	33,137	Single family, townhouse, or duplex = \$8/month All other properties = \$8/month/ERU, where 1 ERU = 2,400ft ² impervious surface Reference: Mt. Lebanon Stormwater Fee Ordinance	Unknown

⁴⁵ Data came from each individual municipality's website *and* the Western Kentucky University 2013 Stormwater Utility Survey.

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Philadelphia (2010)	1,536,471	Residential = \$13.48/month Non-residential = Gross Area: \$0.526/500ft ² Impervious Area: \$4.145/500ft ² Monthly Billing: \$2.53 per account Reference: PWD Stormwater Billing & Stormwater Fact Sheet	\$655,000
City of Lancaster, Lancaster County (2013)	59,263 ⁴⁶	Single-family residential = \$4-\$12/quarter Multi-family residential = \$12-\$19/quarter Typical commercial = \$237/quarter Tiered rate structure for all properties where 1 ERU = 1,000ft ² Reference: The Cost of Dealing with Stormwater	Not implemented yet
Jonestown Borough, Lebanon County, PA (2012)	1,329 ⁴⁷	Single-family, townhouse, or duplex = \$70/year in year 1; \$80/year in years 2-4 All other properties = \$70/year/ERU in year 1; \$80/year/ERU in years 2-4, where 1 ERU = 3,100ft ² Reference: Stormwater Information	Unknown

Legal Basis in Pennsylvania Enabling Stormwater Authorities

The five stormwater user fee examples listed above are the only known stormwater utilities within Pennsylvania, and are in various stages of development and implementation. Historically, paying for stormwater has been a contentious issue within the state, since it is unclear whether such dedicated fees are enabled by state legislation.

In PA, utilities are typically regulated by the Pennsylvania Utility Commission (PUC), and the PUC will not at this time regulate stormwater. Thus, the creation of dedicated fees for stormwater often comes under the guise of an *authority*.

The contention, then, lies in the language written into the Pennsylvania Municipality Authorities Act, which states:

“§5607. Purposes and powers

(a) Scope of projects permitted.--Every authority incorporated under this chapter shall be a body corporate and politic and shall be for the purposes of financing working capital; acquiring, holding, constructing, financing, improving, maintaining and operating, owning or leasing, either in the capacity of lessor or lessee, projects of the following kind and character and providing financing for insurance reserves:

⁴⁶ 2011 US Census Bureau ACS 5-year Estimates.

⁴⁷ Ibid.

- (1) Equipment to be leased by an authority to the municipality or municipalities that organized it or to any municipality or school district located wholly or partially within the boundaries of the municipality or municipalities that organized it.
- (2) Buildings to be devoted wholly or partially for public uses, including public school buildings, and facilities for the conduct of judicial proceedings and for revenue-producing purposes.
- (3) Transportation, marketing, shopping, terminals, bridges, tunnels, flood control projects, highways, parkways, traffic distribution centers, parking spaces, airports and all facilities necessary or incident thereto.
- (4) Parks, recreation grounds and facilities.
- (5) Sewers, sewer systems or parts thereof.
- (6) Sewage treatment works, including works for treating and disposing of industrial waste...⁴⁸

The Act does not differentiate between *sanitary* and *storm* sewer systems, thus creating much debate over the years as to whether storm sewer systems can be financed through an authority. A further discussion as to the legality of stormwater authorities is essential within a locality before imposing a stormwater fee, however, not the focus of this report.

In April 2013, historic legislation (Senate Bill 351) passed by a vote of 49-1 that enables stormwater authorities at the municipal level. Without this legislation, municipalities were reluctant to move forward in setting up a dedicated stormwater fee. This legislation paves way for municipalities to implement dedicated fees to ensure that stormwater is managed adequately and more cost efficiently in the long run, and it is anticipated that stormwater user fees will begin to develop more rapidly in the state than ever before due to SB 351.

Lititz Borough's Stormwater Financing Recommendations

Program Funding Needs

To identify the necessary components of an enhanced stormwater program for Lititz Borough, the Project Team worked with municipal staff to conduct a comprehensive review of all aspects of current spending on stormwater management. When considering the level of stormwater management service identified as necessary in the Borough, the Project Team found that current budgeting practices are not adequate in meeting the existing regulatory requirements. With tighter fiscal budgeting and more stringent permit requirements anticipated in the future, the Project Team needs to invest in personnel, public outreach, and a comprehensive asset management program to ensure a more viable stormwater management program for the future.

Two of the municipalities who participated in this study, Manheim and Warwick Townships, worked with the Project Team to determine the estimated costs projected over five years that is needed to properly manage stormwater. Each of these municipalities took a vastly different approach to estimating costs. Since the Project Team found it difficult to collect meaningful cost data for the other four participating municipalities, including Lititz Borough, the team utilized Manheim and

⁴⁸ Purdon's Pennsylvania Statutes and Consolidated Statutes, Title 53 Pa. C.S.A. Municipalities Generally, Part V. Public Improvements, Utilities and Services, Subpart A. General Provisions, Chapter 56. Municipal Authorities, Retrieved from: http://www.municipalauthorities.org/wp-content/uploads/2008/11/Title_53_Ch_56_MAA_01-13.pdf.

Warwick Townships’ approaches to develop cost estimates. A discussion of these approaches and how they were adapted for Lititz Borough follows.

Manheim Township’s Approach

Manheim Township, the largest of the municipalities participating in this study, plans to develop a separate Stormwater Department within the Township. All stormwater-related costs, even if currently paid for using general fund appropriations, will be moved to a stormwater budget. This budget will be supported through a dedicated stormwater user fee. The Project Team found that in Manheim Township a 5-year revenue stream totaling approximately \$10.1 million, when adjusted for inflation at a rate of 2.5% per year, will be needed to fully support a comprehensive stormwater program housed in the Stormwater Department.⁴⁹ See Chapter 7 for the full analysis of Manheim Township’s financing structure.

Using population as the factor, Lititz Borough’s costs were estimated at approximately \$2.5 million over five years if the Borough uses Manheim Township’s approach to managing stormwater (see Table 12).

Table 12: Lititz Borough’s Budget using Manheim Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Manheim Township	37,768	1.00	\$10,085,237	\$2,017,047
Lititz Borough	9,350	0.25	\$2,496,742	\$499,348

Warwick Township’s Approach

Warwick Township, often hailed as the most proactive Township managing stormwater in the County, plans to continue supporting most of its stormwater-related costs using general fund appropriations and grants. The Township wants to utilize a dedicated stormwater user fee to support an asset management program that focuses on two components – (1) the costs of repairing and replacing the entire storm sewer pipe system and (2) the costs of maintaining and renovating all municipally-owned BMPs. The Project Team found that a 5-year revenue stream totaling \$639,268, when adjusted for inflation at a rate of 2.5% per year, will be needed to support a municipal stormwater asset management program for Warwick Township.⁵⁰ See Chapter 9 for the full analysis of Warwick Township’s financing structure.

Using population as the factor, Lititz Borough’s costs were estimated at approximately \$339,187 over five years if the Borough uses Warwick Township’s approach to managing stormwater (see Table 13).

⁴⁹Inflation was taken into account for all expenditures in years 2-5; Inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The percent change in the annual average CPI between 2003-2012 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from:

<ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>.

⁵⁰Ibid.

Table 13: Lititz Borough’s Budget using Warwick Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Warwick Township	17,622	1.00	\$639,268	\$127,854
Lititz Borough	9,350	0.53	\$339,187	\$67,837

It must be noted that the Project Team only supports this approach for Warwick Township because of the high level of service being provided to the community currently. Since Lititz Borough needs to invest in specific administrative and technical components, the Township should utilize Warwick Township’s approach as a jumping off point and include additional costs associated with properly managing stormwater in its stormwater budget.

Recommendations for Lititz Borough’s Level of Service Expenditures

Given the size of the Borough, it is likely not feasible (or necessary) to develop a Stormwater Department. Therefore, Manheim Township’s costs represent the “Cadillac” version of stormwater management. On the flip side, Warwick Township’s costs represent a low cost estimate to managing stormwater since the costs only factor in asset management *and* the costs are based on the useful life of materials. This means that Warwick Township will bring in annual reserves through its dedicated fee to pay for its asset management program over time. Thus, the Project Team recommends that Lititz Borough use a blended approach that uses Warwick Township as its baseline, and then includes additional costs necessary for the Borough to properly manage stormwater.

Out of the four municipalities utilizing a blended approach that models after Manheim and Warwick Townships, Lititz Borough should most use Warwick as its model. The close proximity and relationship that they currently have is a cause for greater consistency between the two municipalities, especially if they continue working collaboratively.

Further discussion is required by Borough staff to determine how best to allocate costs. The following provides a discussion of the additional costs that the Borough should invest in to meet its current and future state and federal regulations:

Personnel costs

The Project Team recommended earlier in this chapter that the Borough invest in hiring a stormwater coordinator. In many respects, simply hiring a coordinator will allow the Borough to meet most, if not all, of its administrative compliance components, allowing existing staff to focus on more pertinent tasks. The Borough could hire a coordinator on its own or as a shared position with Warwick Township and others. The Borough must engage Warwick Township and other neighboring municipalities to determine if a shared coordinator should be hired. Either way, the Project Team recommends investing in a coordinator to help with administrative MS4 permit tasks and keep the Borough on track with meeting its MCMs.

The Project Team also recommended earlier in this chapter that the Borough meet internally to determine if additional public works staff is needed to adequately address the technical components of the MS4 activities. In order for the Borough to meet existing and future regulatory requirements, the Borough should strongly consider hiring additional staff.

Capital costs

The \$339,187 estimated 5-year costs using Warwick Township’s approach supports an asset management program, including a pipe infrastructure repair and replacement program (assuming

the average useful life of the pipes is 30 years) and a BMP renovation (assuming the average useful life is 20 years) and maintenance (assuming maintenance every 5 years) program. The Project Team highly recommends the Borough invest in an asset management program and sets up its dedicated fee to generate at a minimum \$339,187 over five years.

The Borough should continue to access grant funding to pay for large capital improvements. However, where possible, the Borough should also set aside capital funds to pay for larger stormwater projects. The Borough should work with Warwick Township and the local organizations they've worked with in the past like LandStudies, Inc. to determine prioritized projects based on cost effectiveness.

Operations & Maintenance costs

The Borough must develop a more comprehensive understanding of its pipes in order to implement an asset management program properly. If the current funding allocated for mapping does not cover the entire cost, the Borough should invest funds until the map is complete.

There are additional costs that are fairly minimal compared to the large capital and personnel costs needed to properly manage stormwater that the Borough must consider. These costs include outreach materials, contract fees (namely for engineer's time), and hosting outreach and engagement events⁵¹. See Chapter 7 for Manheim Township's costs associated with these activities, which could be used as a reference for Lititz Borough.

Stormwater User Fee Rate Structure Analysis

Why This Study is Recommending a Stormwater User Fee for Lititz Borough

Although the Project Team was unable to develop a specific estimated budget for Lititz Borough, the Project Team recommends the Borough create a dedicated stormwater user fee that will distribute the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to stormwater management needs.

As discussed earlier, the more impervious surface that a property has, the more stormwater it generates and the more responsible the property owner is to help the community manage stormwater. As private driveways, parking lots, swimming pools, decks, and other such structures allow residents and businesses to enjoy additional living and working conveniences, the burden of maintaining and repairing the infrastructure that supports those additional structures and surfaces should be shared by those contributing to the problem rather than the community at large. Just as a property owner is responsible for paying its share of waste disposal, water use, or electricity consumed, so should they recognize and be accountable for the stormwater created from their built environment.

Once it became clear that there was a significant need to have a dedicated funding source to cover the stormwater costs in Lititz Borough, the Project Team considered what financing mechanism would be most appropriate to generate these funds. The Project Team initially considered assessing a property tax, but since the value of a property is not an indicator of the amount of runoff, the property tax was not seen to be the most equitable way to pay for a stormwater program.

A stormwater user fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem. Since the Borough is almost fully developed, there is limited space to generate impervious surface reduction. It is appropriate to charge properties that contribute significant runoff more and properties that contribute insignificant runoff less. The major concern

⁵¹ Warwick Township estimated that their annual Watershed Day costs \$2,225.

with this approach is the investment required by the Borough to assess properties based on their exact contribution to stormwater runoff (i.e. parcel-based impervious surface calculations). Therefore, the fee calculations will begin more simply and transition over time to a more accurate method, balancing the administrative burden of billing with an equitable distribution of charges.

Billing Recommendations

Since enabling legislation was passed very recently in Pennsylvania, there are few examples that exist in the state to use as a model for implementing dedicated stormwater user fees. In Pennsylvania, the government structure creates so many small, autonomous municipalities with unique circumstances based on municipality type. In the past, cities, boroughs, and home rule municipalities have had an easier time passing ordinances to set up stormwater fees in the state. Since Lititz is a Borough, it will have an easier time setting up a fee compared to Townships. The Borough should use existing examples such as Jonestown Borough as a model for implementing a fee.

Borough staff expressed interest to work with Warwick Township more collaboratively. The Project Team learned that Lititz owns the water plant and sells water to Warwick, who supplies water through its “operating” Warwick Township Municipal Authority (WTMA). Lititz Borough and Warwick Township own shares of the sewer plant. Due to the existing relationship between the municipalities, the Project Team recommends Lititz Borough meets with Warwick Township to determine whether it makes sense to set up a new multi-municipal authority or partner to work with Warwick’s existing authority.

If Lititz Borough implements a dedicated fee on its own, the Project Team recommends utilizing the existing Lititz Sewer Authority (LSA) within the Borough to bill customers for stormwater. If the LSA does not have the administrative capacity to bill customers currently, it will need to develop a billing system. In this case, the existing authority must first amend its articles of incorporation to include the scope of its entire stormwater program and related activities.⁵² Further internal discussions are necessary to determine the billing system that is easiest to administer and will create fewest transaction costs.

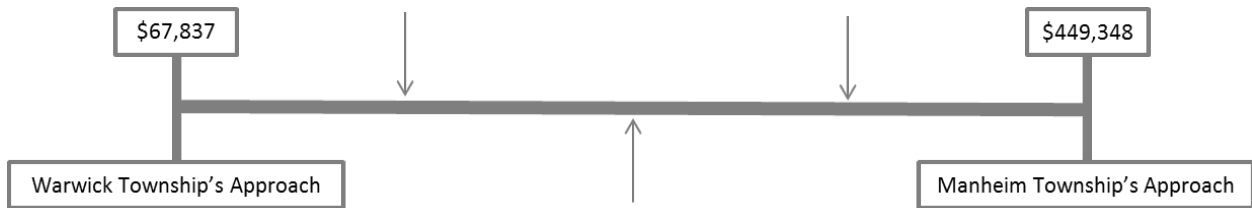
Based on the experience of other communities, it is recommended that the Borough set up a strong administrative structure to deal with public questions and concerns, particularly when the user fee is first launched. Other communities who have implemented stormwater utilities report that the outreach need is very high at first but declines as the utility rolls out. A help line and Borough staff members should be made available to quickly address customer concerns.

Rate Structure Analysis

Although a specific cost estimate was not generated, the Project Team recommends implementing a fee to improve the current level of service. This fee could be set low to begin generating revenue, and once the Borough has a better understanding of its costs, the rate structure should be reevaluated. In all likelihood, the Borough’s true costs lie somewhere in between the estimates provided using Warwick and Manheim Townships’ approaches, shown in Figure 6.

⁵² McClintock, Robert, *Amendment to the Municipal Authorities Act Allows Municipal Authorities to Manage Storm Sewer Systems*, Municipal Law Alert, July 27th, 2013, Retrieved from: <http://www.lambmcerlane.com/blog/895453853-amendment-municipal-authorities-act-allows-municipal-authorities-manage-storm-water>.

Figure 6: The Spectrum of Lititz Borough’s Estimated Annual Stormwater Costs



In determining an equitable funding strategy for collecting revenue to pay for stormwater related expenditures, the Project Team reviewed available data on all parcels located in the Borough provided by GIS staff at the LCPC. The Project Team calculated potential revenue using a flat rate fee for parcels classified residential, and a combination of a tiered fee and ERU-based fee structure for all parcels classified as non-residential⁵³. The Project Team worked with the LCPC’s land use codes, as this framework will be easy for Lititz Borough to implement moving forward.

Summary of recommended rate structure for residential properties

The decision to recommend a flat rate fee for residential properties reflects a balance between equity and administrative burden. After reviewing the large number of residential units and the many different types of residential properties located within the Borough, the Project Team became concerned that a parcel-specific fee structure would require additional capacity on the part of the Borough to properly estimate the total impervious surface for all residential properties in the community. Based on our experience working in other communities, it was agreed that calculating the level of impervious surface on every residential property would cause significant administrative burden. In addition to this being an overwhelming effort, the Project Team agreed that the risk of errors on bills could cause confusion about the billing calculation and increase the risk of complaints from the residential population. Additionally, the Project Team found that there was not a large enough spread among the sizes of the residential units to make taking on the task of developing unique bills for 2,872 residential parcels worthwhile. A distribution of all the residential properties in the Borough is depicted in Figure 7. All multi-family residences are classified by LCPC as commercial, and therefore will be billed based on the non-residential fee structure discussed below. This means that an apartment building’s management firm will be billed as a commercial property and can then determine how best to recuperate these costs from their buildings’ residents.

⁵³ Multi-family units are classified commercial in the LCPC land use codes. The Project Team kept these properties in the non-residential category.

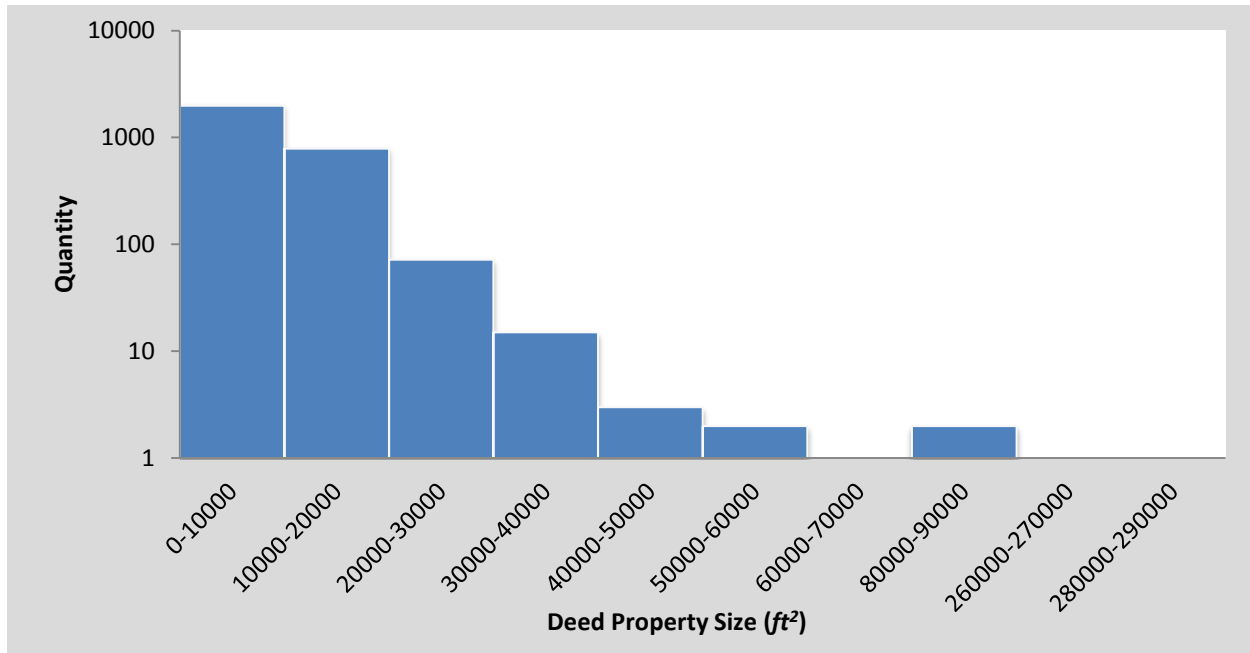


Figure 7. Distribution of Residential Property Sizes in Lititz Borough. The median residential property is 8,512 ft². This figure shows the property sizes are skewed to the left, indicating the distribution is composed of more small properties than large.

Summary of recommended rate structure for non-residential properties

Because the size and nature of non-residential units vary widely, the Project Team suggests that a parcel-based rate structure that takes a parcel’s specific level of impervious surface into account to be the fairest method of assessing the stormwater fee on these properties. However, due to the time and capacity needed to develop the mapping and administrative processes to bill non-residential properties accurately, it is recommended that the Borough utilize a tiered system that is based on average impervious surface estimates in the beginning years of the program. The Project Team learned that Lancaster City is also using a tiered system based on actual impervious data for their stormwater utility fee. The Project Team recommends consistency among municipalities in the County to increase the probability of community support for a fee.

Warwick Township felt strongly in keeping the rate structure simple and low for everyone since many residents and businesses have implemented a lot of private BMPs in order to manage stormwater on-site. Therefore, the Project Team created a simpler tiered version for Warwick Township, in addition to an impervious-based tiered system. Since Lititz Borough should think about consistency with Warwick Township, both versions will be laid out in this report. The Borough should meet with Warwick Township to determine how they will each move forward and develop consistency and partnership wherever feasible.

For all 228 non-residential parcels, it is recommended that a user fee be assessed based on the categorical average impervious surface. Research conducted by the Project Team found that many communities utilize a tiered system for residential and/or non-residential properties. For example, Lancaster City seeks to charge a typical commercial property \$237 per quarter and increases its fee in increments of 1,000 ft² of impervious surface.⁵⁴ The Project Team recommends using a similar

⁵⁴ The Cost of Dealing with Stormwater, Lancaster City, Retrieved from: <http://www.saveitlancaster.com/thecost/>.

method for Lititz Borough. Using a tiered system, the land area will be assessed based on categorical impervious surface estimates to calculate the property owner’s bill.

After conducting a sensitivity analysis⁵⁵ using various fee structures, the Project Team found that there are many options for the Borough to set its initial rates. It is recommended that the ERU be set at 2,461 *ft*² since that number represents the average residential impervious surface in the Borough⁵⁶. Depending on how much the Borough wants to continue utilizing general fund appropriations and grants to supplement the user fee, the rate should be set at a minimum of \$15 per year per ERU. With so many questions still left unknown, it is recommended that the fee be reviewed and adjusted as needed after each year. Another variable to be considered in terms of rate adjustment is the impact of a credit system, if it is implemented as recommended later in this document.

Estimated total revenue from all properties

The estimated total revenue generated is distributed between residential and non-residential properties and is calculated as follows:

Residential – The residential properties should be assessed a flat fee starting at \$15 per year to generate the minimal revenue needed (based on Warwick Township’s approach). The final rate chosen by Lititz Borough should be consistent with the non-residential rate. Although many of the rate scenarios analyzed by the Project Team brought in adequate revenue to pay for stormwater-related expenses, it will be up to the Borough to determine what should be supported through the dedicated fee and thus, where to set its rates. Table 14 shows the revenue yield for all rate scenarios developed by the Project Team.

Table 14: Annual Residential Property Revenue Generated (2,872 Residential Properties x Rate)

\$15	\$20	\$25	\$30	\$35
\$43,080	\$57,440	\$71,800	\$86,160	\$100,520
\$40	\$45	\$50	\$55	\$60
\$114,880	\$129,240	\$143,600	\$157,960	\$172,320
\$65	\$70	\$75	\$80	\$85
\$186,680	\$201,040	\$215,400	\$229,760	\$244,120

The residential fee is based on the assumption that an average property has approximately 2,461 *ft*² of impervious surface and, therefore, all properties are billed for 1 ERU per year. The fee at which 1 ERU is set will be determined once the Borough determines which costs should be supported using a dedicated user fee.

⁵⁵ A sensitivity analysis is defined as “a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions.” (Source: <http://www.investopedia.com/terms/s/sensitivityanalysis.asp#axzz24Ck0N3rj>). In order to determine the appropriate fee structure to raise the amount of revenue necessary to fund a comprehensive stormwater management program, the Project Team created different scenarios using different rates and ERUs, therefore conducting a sensitivity analysis.

⁵⁶ The average impervious surface for residential properties is based on LCPC data provided to the Project Team (the average sum of building footprint and driveways on residential properties), which was determined using GIS data based on aerial photography.

Non-Residential – According to data provided by the LCPC, there are 228 non-residential properties in Lititz Borough. This data included the land area of each property, and the average impervious surface data by categorical land use (industrial, commercial, community service, cultural activity, and agricultural) for all properties.

To determine each tier, the Project Team first took all non-residential properties by category to determine each property’s estimated impervious surface using categorical averages. The average percent impervious surface by category is shown in Table 15 below.

Table 15: Average Percent Impervious Surface by Parcel Type

Parcel type	Average impervious surface (%)
Industrial	49.24
Commercial	72.42
Community Service	20.73
Cultural Activity	51.07
Agricultural	1.45

Each non-residential property was then organized by parcel type and each individual parcel’s land area was multiplied by the appropriate average impervious surface percentage. For example, a commercial property that is 20,000 ft^2 has an estimated 72.42% impervious area. This property will then be billed for 14,484 ft^2 of impervious surface (20,000 ft^2 x 72.42%). Once the estimated impervious surface was calculated for each property, the Project Team conducted a statistical analysis to determine the tiered structure. A quartile system was utilized to divide the tiers into four equal groups. Table 16 shows the quartiles for the sum of all non-residential parcels using their estimated impervious surface calculations.

Table 16: Non-Residential Statistical Data to Determine Tiers

Quartiles	Quartile Impervious Surface Upper Bound (ft^2)	Tier (ft^2)
Percentage (25%) (Q1)	4,024	$\leq 4,000$
Median (Q2)	8,517	$> 4,000$ & $\leq 9,000$
Percentage (75%) (Q3)	68,736	$> 9,000$ & $\leq 22,000$
Upper Bound (Q4)	2,917,636	$> 22,000$

Using this 4-tiered system, the Project Team then determined the number of properties that fell into each tier. Then, the upper bound of each tier for quartiles 1-3 was divided 2,461 ft^2 to determine the number of ERUs that parcels in each tier will pay. So that parcels in the fourth quartile (Q4) were not all paying as if they were the upper bound, the median of all parcels in Q4 (70,000 ft^{257}) was divided by 2,461 ft^2 to determine the number of ERUs that parcels in Q4 will pay. In the simpler version, the same tiers are used; however, the ERUs simply increase by 1. Therefore, all properties in Q1 pay 2 ERUs, in Q2 3 ERUs, in Q3 4 ERUs, and in Q4 5 ERUs. The final ERU for each tier (for both the

⁵⁷ The median of all parcels in Q4 in East Cocalico Township is 70,092 ft^2 , which was rounded to 70,000 ft^2 for ease of administration.

impervious-based and simple versions) was then multiplied by the flat fee scenarios and then again by the number of parcels in each tier to determine the total revenue generated from non-residential parcels. Table 17 shows the summary of this analysis below for the impervious-based version.

Table 17: Annual Non-Residential Property Revenue Generated by Tier, Impervious-based Version

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /2,461 ft ²)	ERU x \$ x Number of Parcels				
			\$15	\$20	\$25	\$30	\$35
First tier: <=4,000	57	1.63	\$1,390	\$1,853	\$2,316	\$2,779	\$3,243
Second tier: >4,000 & <=9,000	61	3.66	\$3,346	\$4,462	\$5,577	\$6,692	\$7,808
Third tier: >9,000 & <=22,000	54	8.94	\$7,241	\$9,655	\$12,068	\$14,482	\$16,896
Fourth tier: >22,000	56	28.44	\$23,893	\$31,857	\$39,821	\$47,785	\$55,750
Total Non-Residential Revenue			\$35,870	\$47,826	\$59,783	\$71,739	\$83,696
Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /2,461 ft ²)	ERU x \$ x Number of Parcels				
			\$40	\$45	\$50	\$55	\$60
First tier: <=4,000	57	1.63	\$3,706	\$4,169	\$4,632	\$5,095	\$5,559
Second tier: >4,000 & <=9,000	61	3.66	\$8,923	\$10,039	\$11,154	\$12,269	\$13,385
Third tier: >9,000 & <=22,000	54	8.94	\$19,309	\$21,723	\$24,137	\$26,550	\$28,964
Fourth tier: >22,000	56	28.44	\$63,714	\$71,678	\$79,642	\$87,607	\$95,571
Total Non-Residential Revenue			\$95,652	\$107,609	\$119,565	\$131,522	\$143,478
Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /2,461 ft ²)	ERU x \$ x Number of Parcels				
			\$65	\$70	\$75	\$80	\$85
First tier: <=4,000	57	1.63	\$6,022	\$6,485	\$6,948	\$7,412	\$7,875
Second tier: >4,000 & <=9,000	61	3.66	\$14,500	\$15,616	\$16,731	\$17,846	\$18,962
Third tier: >9,000 & <=22,000	54	8.94	\$31,377	\$33,791	\$36,205	\$38,618	\$41,032
Fourth tier: >22,000	56	28.44	\$103,535	\$111,499	\$119,464	\$127,428	\$135,392
Total Non-Residential Revenue			\$155,435	\$167,391	\$179,348	\$191,304	\$203,261

The total revenue potential for all fee structures using the impervious-based tiered version is shown in Table 18.

Table 18: Total Revenue Potential, Impervious-based Version

	\$15	\$20	\$25	\$30	\$35
Residential	\$43,080	\$57,440	\$71,800	\$86,160	\$100,520
Non-Residential	\$35,870	\$47,826	\$59,783	\$71,739	\$83,696
Total Revenue (1-year)	\$78,950	\$105,266	\$131,583	\$157,899	\$184,216
Total Revenue (5-year)	\$394,748	\$526,330	\$657,913	\$789,496	\$921,078
	\$40	\$45	\$50	\$55	\$60
Residential	\$114,880	\$129,240	\$143,600	\$157,960	\$172,320
Non-Residential	\$95,652	\$107,609	\$119,565	\$131,522	\$143,478
Total Revenue (1-year)	\$210,532	\$236,849	\$263,165	\$289,482	\$315,798
Total Revenue (5-year)	\$1,052,661	\$1,184,243	\$1,315,826	\$1,447,409	\$1,578,991
	\$65	\$70	\$75	\$80	\$85
Residential	\$186,680	\$201,040	\$215,400	\$229,760	\$244,120
Non-Residential	\$155,435	\$167,391	\$179,348	\$175,243	\$203,261
Total Revenue (1-year)	\$342,115	\$368,431	\$394,748	\$405,003	\$447,381
Total Revenue (5-year)	\$1,710,574	\$1,842,157	\$1,973,739	\$2,025,013	\$2,236,904

Table 19 shows the summary of this analysis below for the simple version.

Table 19: Annual Non-Residential Property Revenue Generated by Tier, Simple Version

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /2,461 ft ²)	ERU x \$ x Number of Parcels				
			\$15	\$20	\$25	\$30	\$35
First tier: <=4,000	57	2.00	\$1,710	\$2,280	\$2,850	\$3,420	\$3,990
Second tier: >4,000 & <=9,000	61	3.00	\$2,745	\$3,660	\$4,575	\$5,490	\$6,405
Third tier: >9,000 & <=22,000	54	4.00	\$3,240	\$4,320	\$5,400	\$6,480	\$7,560
Fourth tier: >22,000	56	5.00	\$4,200	\$5,600	\$7,000	\$8,400	\$9,800
Total Non-Residential Revenue			\$11,895	\$15,860	\$19,825	\$23,790	\$27,755

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /2,461 ft ²)	ERU x \$ x Number of Parcels				
			\$40	\$45	\$50	\$55	\$60
First tier: <=4,000	57	2.00	\$4,560	\$5,130	\$5,700	\$6,270	\$6,840
Second tier: >4,000 & <=9,000	61	3.00	\$7,320	\$8,235	\$9,150	\$10,065	\$10,980
Third tier: >9,000 & <=22,000	54	4.00	\$8,640	\$9,720	\$10,800	\$11,880	\$12,960
Fourth tier: >22,000	56	5.00	\$11,200	\$12,600	\$14,000	\$15,400	\$16,800
Total Non-Residential Revenue			\$31,720	\$35,685	\$39,650	\$43,615	\$47,580

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /2,461 ft ²)	ERU x \$ x Number of Parcels				
			\$65	\$70	\$75	\$80	\$85
First tier: <=4,000	57	2.00	\$7,410	\$7,980	\$8,550	\$9,120	\$9,690
Second tier: >4,000 & <=9,000	61	3.00	\$11,895	\$12,810	\$13,725	\$14,640	\$15,555
Third tier: >9,000 & <=22,000	54	4.00	\$14,040	\$15,120	\$16,200	\$17,280	\$18,360
Fourth tier: >22,000	56	5.00	\$18,200	\$19,600	\$21,000	\$22,400	\$23,800
Total Non-Residential Revenue			\$51,545	\$55,510	\$59,475	\$63,440	\$67,405

The total revenue potential for all fee structures using the simple tiered version is shown in Table 20.

Table 20: Total Revenue Potential, Simple Version

	\$15	\$20	\$25	\$30	\$35
Residential	\$43,080	\$57,440	\$71,800	\$86,160	\$100,520
Non-Residential	\$11,895	\$15,860	\$19,825	\$23,790	\$27,755
Total Revenue (1-year)	\$54,975	\$73,300	\$91,625	\$109,950	\$128,275
Total Revenue (5-year)	\$274,875	\$366,500	\$458,125	\$549,750	\$641,375
	\$40	\$45	\$50	\$55	\$60
Residential	\$114,880	\$129,240	\$143,600	\$157,960	\$172,320
Non-Residential	\$31,720	\$35,685	\$39,650	\$43,615	\$47,580
Total Revenue (1-year)	\$146,600	\$164,925	\$183,250	\$201,575	\$219,900
Total Revenue (5-year)	\$733,000	\$824,625	\$916,250	\$1,007,875	\$1,099,500
	\$65	\$70	\$75	\$80	\$85
Residential	\$186,680	\$201,040	\$215,400	\$229,760	\$244,120
Non-Residential	\$51,545	\$55,510	\$59,475	\$50,264	\$67,405
Total Revenue (1-year)	\$238,225	\$256,550	\$274,875	\$280,024	\$311,525
Total Revenue (5-year)	\$1,191,125	\$1,282,750	\$1,374,375	\$1,400,120	\$1,557,625

For the fee to be adequate as well as equitable, the total expenditures should as closely equal the total revenue as possible. The Borough must first determine which expenditures should be included in the stormwater program budget, and which aspects of the program it wants to invest before assigning a fee structure.

It is important to note that if Lititz Borough funds this program entirely by the user fee, then the fee would need to be set higher to pay for existing costs and the additional investments needed to support an adequate stormwater management program. It is highly recommended by the Project Team that the Borough continue to supplement the program using general fund appropriations and grant funds where possible. This will decrease the user fee, minimizing any community backlash.

Lastly, it is difficult to estimate the effect of a credit system being imposed on the program. However, based on a credit system imposed in later years, revenues may decrease depending on the parameters of the system, how many residents participate, and to what extent. An estimate of the impact of these credits must be considered in future years, and the rate structure must be reevaluated to ensure that a credit system does not infringe on meeting revenue needs. It is unclear just how effective the credit system will be and there are no data that supports an average amount to consider. For more information about a credit system, please see Chapter 11.

Chapter 7: Individual Municipal Analysis – Manheim Township

With a population of 37,768⁵⁸, Manheim Township is the largest of the six municipalities who participated in this study. Given its size and location directly outside Lancaster City, the Township has developed over the years as a more affluent municipality within Lancaster County, and thus is able to provide a high level of service to its community.

At the beginning of the study, each municipality was asked to provide their priorities, needs, and goals to the Project Team. Manheim Township provided the following:

1. Evaluate the Township's current Capital Stormwater Program along with the MS4 Program, including their strategies and costs to determine where improvements can be made;
2. Evaluate the current ownership and maintenance responsibilities/policies of stormwater facilities to determine the optimum method of handling the ownership and maintenance responsibilities/policies of stormwater facilities;
3. Utilizing the best Capital Stormwater and MS4 Program approaches to determine the best strategy to implement funding methods to finance the Capital Stormwater and MS4 Programs;
4. Evaluate if future funding methods should support correction of existing runoff issues and if so should funding be limited to public right-of-way projects;
5. Educate the public on various funding options and solicit feedback; and
6. Evaluate the best methodology to capture and collate all efforts currently practiced within the Township that may benefit the Township in meeting the regulations implemented by the PA DEP and the Environmental Protection Agency (EPA).⁵⁹

Since the EFC's focus was to look at how each municipality *finances* its stormwater management activities and then provide recommendations about how to improve the program with greater cost efficiency, the goal of the study transpired to help Manheim Township consolidate its current and future activities into a comprehensive stormwater management department within the local government. This goal ensures that the Township has the resources and capacity to fully address its MS4 permit requirements, and in general continue to provide a high level of service to its residents and businesses.

Assessment of Manheim Township's Current Stormwater Program

In the new NPDES MS4 permit being issued to all Phase II municipalities in Pennsylvania, there will be six MCMs consistent with those found in the old permit. Although the purpose of each MCM will be the same as previous permit cycles, the requirements to meet each MCM are anticipated to be more stringent in the future permit. The following six MCMs are the elements contained in the NPDES MS4 permit that outline specific areas the community must address:

1. Public Education & Outreach
2. Public Participation & Involvement
3. Illicit Discharge Detection & Elimination (IDD&E)

⁵⁸ 2011 US Census Bureau ACS 5-year Estimates, used the advanced search option to search ACS 5-year total population estimates by municipality using:
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>,
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.

⁵⁹ Information provided by Manheim Township directly to the Project Team.

4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

For each MCM, there are specific stormwater BMPs that Manheim Township can implement to comply with its permit. Although there is flexibility to implement BMPs that fit the needs and resources within the community, there are significant costs associated with addressing each MCM.

The Project Team worked closely with municipal staff and the Township engineer to determine the current level of service for each MCM. A discussion of the findings is below.

Overall Stormwater Program Findings

Stormwater Infrastructure

Manheim Township is located just north of Lancaster City, where the 300-year old combined sewer system (CSS) cannot handle the large capacity from past and future development and population growth. The City has thus developed a 25-year Green Infrastructure Plan to alleviate the combined sewer overflows (CSO). While only a sliver of Manheim Township's infrastructure is a CSS, the Township still must work towards replacing that portion of its system, which is a costly endeavor.

The majority of the Township's system is not extremely old. In the 1970s, the Township was primarily a farming community and the concentration of homes remained just outside the City. In the early 1980s, the first housing boom took place in the Township, and then again in the later part of the decade. By the early 1990s, what was left of agricultural land became protected. Today, the Township is home to many developments, retirement communities, and commercial sector. Since the development has taken place in the past 30-40 years, the stormwater infrastructure is made up primarily of concrete and plastic.

The Project Team found that Township staff has a very good understanding of their land use, even with the rapid development that has taken place in the past, and is anticipated into the future. Because the Township continues to grow, and is made up of neighborhood developments and a large commercial sector, it is essential for the Township to fully understand its MS4. Township staff expressed to the Project Team that they are currently working on completing their inventory of all structures and piping (including dates of installation). The Project Team recommends that this be completed as soon as possible so the Township can better understand the state and age of its infrastructure, and then develop a strategic repair and replacement program before the system becomes too old to maintain.

Although not formalized yet, the Project Team found that the overall system is sufficient as long as a formal program be set up to maintain the existing infrastructure. The commitment to addressing stormwater issues through implementation of new projects and maintenance of existing infrastructure is a necessary component to ensuring a robust and comprehensive stormwater management program.

Current Funding for Stormwater

Preparing for new permit requirements and maintaining the existing stormwater system bears significant costs. Currently, funding for the Township's stormwater program primarily comes from general funds, a practice common throughout the country, with some supplementation from public and private grants. Based on the available data collected by the Project Team during the study, capital spending has either been pushed back or funded through grants. The Project Team found that while the Township has a good framework for handling the administrative and operations & maintenance components of the MS4, capital spending has been lacking. Although it is important to

note that the Project Team was unable to collect data in a meaningful way on stormwater capital projects, which was seen across the board with all six municipalities. The primary reason for this is that capital projects are completed when funds become available and not in a way where cost information can be easily verified.

Current Capacity for Handling Stormwater

The Project Team found that the PWD supervisors have a high level of understanding when it comes to stormwater management. Like all municipalities in this study, Manheim Township contracts with an engineering firm to supplement stormwater-related tasks. The Project Team met with the Township engineer, who shed light on the Township's exceptional internal capacity, which confirmed the Project Team's findings.

The road crew in the municipality is comprised of approximately 20 staff which is combined with the Parks Department. Several of the PWD personnel dedicate a portion of their time to managing stormwater. However, additional staff is needed to strategically carry out stormwater management activities. For example, inlet cleaning is scheduled as time permits and conducted mostly after storm events. If additional staff were dedicated to this task, inlet cleaning could be done on a more routine basis. Additionally, Township staff expressed to the Project Team that much of the equipment is old and needs replaced. Replacing this equipment will improve efficiency, so that fewer staff is needed to conduct stormwater maintenance tasks. The Project Team recommends that not only this equipment be replaced, but that it be incorporated into an asset management program so that it is maintained and replaced to minimize emergency costs.

The Project Team also met with additional Township staff that makes up all staff dedicated to stormwater. Each person spends a portion of their time on administrative and/or technical components of stormwater, but does so as time permits. By developing a separate stormwater department within the Township government and investing in additional personnel, the Township will be able to provide a more robust level of service to its community. In addition, staff who currently help out on stormwater-related tasks, even if it is not in their job description, will be able to focus their time on other Township functions, creating greater efficiency at the Township overall.

MCM Findings: 1. Public Education & Outreach

The Project Team found that Manheim Township currently provides a medium level of service to its community regarding public education and outreach. The municipality sends out a quarterly Parks and Recreation newsletter that dedicates two pages on stormwater education, provides information on its website, and utilizes educational materials from the LCCD that is disseminated at the municipal office and local events. In addition, the Township has a list of its targeted audiences. The Township also works closely with Habitat Manheim Township to develop public outreach materials and spread the word in the community about the importance of managing stormwater.

When the Project Team presented the study to the Township's Board of Commissioners, they were not only very receptive to the technical components of the study but also eager to educate residents on how they can implement BMPs on private property. When the Project Team shared the outreach materials created through this effort, the Commissioners requested more specific information to share with the public. The Project Team found this level of engagement by the elected officials extremely valuable in helping the Township meet its public outreach and education goals.

Due to priority shifts within the Township, the municipality cancelled its monthly newsletter, and instead only provides a quarterly newsletter discussed above. In order for Manheim Township to increase its level of service regarding MCM 1, the Township should reactivate its monthly newsletter and develop a more detailed and strategic written Public Education and Outreach Plan for future activities. Manheim Township expressed an interest in working with other municipalities in the

County to utilize local media outlets (television and radio) as an additional method of outreach. The Project Team encourages the Township to lead this collective effort.

MCM Findings: 2. Public Participation & Involvement

The Project Team found that Manheim Township currently provides a medium level of service to its community regarding public involvement and participation. The Township holds at least two public meetings annually on stormwater-related ordinances and policies being implemented, which are advertised in the local newspaper and on the Township's website. Township staff expressed that while the meetings are advertised widely, there is typically minimal attendance. In addition, the Township solicits involvement from local businesses, but has not found businesses to be proactive in reaching out to the Township. The Township asks for local volunteers to help with clean up days and tree planting activities. The Township has also had to eliminate its community days, but has begun working with the School District to promote engagement with younger residents.

In order for Manheim Township to increase its level of service for MCM 2, the Township should continue to work with the schools and engage other local partners (Boy/Girl Scouts, neighboring municipalities, etc.) in a more targeted approach that resonates with different stakeholder groups, revive its community days, and develop a more detailed and strategic written Public Involvement and Participation Plan for future activities. Given the positive reaction of the Commissioners, the Project Team believes that the Township could increase its level of service for both MCMs 1 and 2 at a minimal cost.

MCM Findings: 3. Illicit Discharge Detection & Elimination

The Project Team found that Manheim Township currently provides a minimal level of service to its community regarding IDD&E. While the Township inspects at least 20% of its outfalls each year and utilizes City View for relatively advanced mapping, the Township needs to develop a more formal process for handling IDD&E complaints. The Township could easily develop a procedure for public notification of IDD&E and more centrally located tracking system (currently fragmented between the police, codes, and public works departments. The additional staff recommended later in this chapter will help the Township better address this MCM, since it is anticipated that when the new MS4 permits are issued, more stringent requirements will be incorporated for this MCM.

MCM Findings: 4. Construction Site Runoff Control

The Project Team found that Manheim Township currently provides a minimal level of service to its community regarding construction site runoff control. This level of service was found almost across the board with all six municipalities. In Pennsylvania, the county conservation districts review and approve all Erosion & Sediment Control Plans for new development and are tasked with inspecting construction sites. Thus, municipalities are limited by the resources at the conservation district to meet this MCM. It is important to note, however, that while the conservation district typically reviews, approves, and inspects all new development, the municipality is still held accountable for this MCM. Because of this, municipalities should inspect sites in addition to the conservation district and file all projects separately to help with their MS4 annual reporting.

The Project Team found that Manheim Township utilizes its contracted engineer through CS Davidson to inspect sites when time and resources permit. Since the Township uses Microsoft Access to keep track of all inspections, the Project Team recommends that the Township continue this practice and add a section in Access to separate projects that need to be tracked for the MS4 permit. Incorporating a way to pull out all MS4-related projects will minimize the time needed to compile the MS4 Permit Annual Report and improve the Township's organizational efficiency.

MCM Findings: 5. Post Construction Site Runoff Control

The Project Team found that Manheim Township currently provides a medium level of service to its community regarding post construction site runoff control. The Township has a procedure in place for inspecting all post construction stormwater management (PCSM) BMPs and a written operations and maintenance (O&M) schedule for publically-owned BMPs. Within the Township's ordinance, it states that the owners of private PCSM BMPs must sign a maintenance agreement with the Township. In addition, the engineer inspects all PCSM BMPs to ensure they are implemented as designed and that a maintenance agreement is in place once constructed. Since 2006, the Township has developed an inventory of all public and private PCSM BMPs.

Many municipalities have identified sinkholes to be a serious issue in the area. In the past year alone, Manheim Township repaired 14 sink holes on public property. It is crucial given the geological makeup of the County that clearly defined policies are set to minimize emergency situations that sink holes present to local governments. Whether sink holes are created due to stormwater issues or simply the soils in the County, sink holes prove costly to taxpayers, as they often need to be repaired immediately, taking time away from the Public Works Department's daily tasks and can quickly become a public safety hazard.

In order to maintain the Township's current level of service, the Township should continue with the practices in place, and in addition conduct training for both its municipal staff and for developers who work in the Township to ensure that they are up to date on all stormwater management regulations, Low Impact Development (LID) and Green Infrastructure (GI) alternatives, and are informed of sink hole issues and how to mitigate those issues using best practices.

MCM Findings: 6. Pollution Prevention/ Good Housekeeping

The Project Team found that Manheim Township currently provides a minimal level of service to its community regarding pollution prevention and good housekeeping. The PWD maintains all publically-owned BMPs; cleans inlets, ditches, and drains following storm events; sweeps streets annually; and trains staff annually. Although the Township meets its requirements, a consolidated stormwater department will provide the tools and resources necessary to increase the level of service for MCM 6.

In meeting with municipal staff, the Project Team found staff eager to develop a more comprehensive program to better meet its MCM 6 goals by adding capacity and purchasing new equipment. The Project Team recommends the Township invest in new equipment to help improve maintenance activities, develop better tracking of all stormwater-related public works activities, continue to map the entire storm sewer system with the goal of ultimately developing an infrastructure repair and replacement program, and regularly train staff in different components of stormwater-related good housekeeping measures. The Project Team found that the Township is on the right track to increasing its level of service for MCM 6.

Anticipated Changes to the MS4 Permit

The PA DEP requires all MS4 permitted municipalities in the Bay watershed to develop a CBPRP by the summer of 2014. The purpose of this plan is to help municipalities strategically implement projects that improve local and regional water quality. The Project Team found that the municipalities typically contract this Plan out to their engineer, and there has been minimal guidance provided to municipalities about what should go into the plan.

In addition to developing a CBPRP, it is anticipated that more stringent requirements will take effect when the new MS4 permits are issued in the fall of 2013. In Maryland, the Department of the Environment (MDE) included a new requirement in its new permit cycle – a **20%** impervious area

restoration requirement. It is anticipated that this impervious area restoration, designed to increase the level of runoff managed from existing impervious areas, will require implementing a number of stormwater BMPs. These BMPs will be either nonstructural practices (like diverting runoff from impervious areas to vegetated areas, bioswales, and tree planting) or more traditional structural practices (i.e. stormwater ponds, bio-retention facilities). Based on information received from MDE and Maryland municipalities, it is anticipated that a similar requirement be included in Pennsylvania.

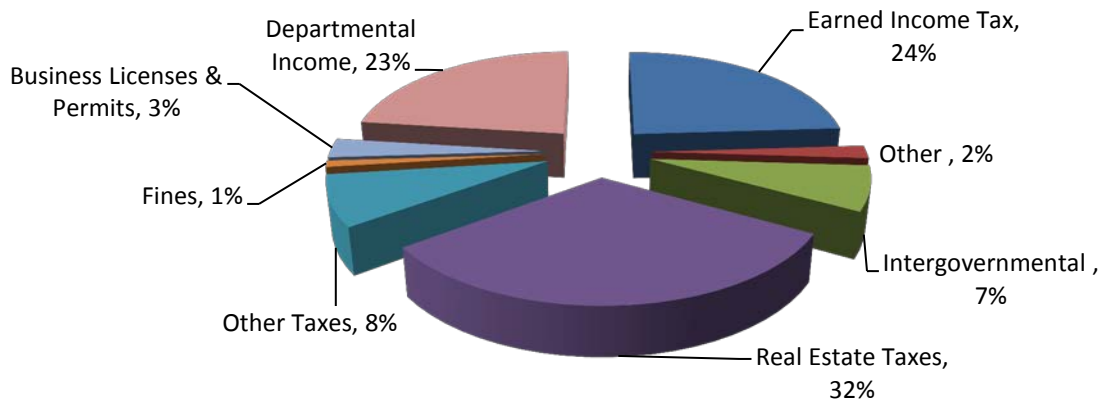
Consideration of Funding Methods for Stormwater in Manheim Township

Properly managing stormwater is considered an essential service, but one that is often unseen or misunderstood by residents and businesses in a community. Stormwater infrastructure requires upgrades and maintenance that is on par with the needs, costs, and annual maintenance as similar services such as wastewater, drinking water, or transportation. However, stormwater is rarely funded to the extent that any of these other services typically are, thus leaving a considerable gap in a stormwater program’s level of service to the community.

Current Method of Funding Stormwater

The current method of funding stormwater in Manheim Township is partially through grant funding and leveraging relationships with local organizations, but with the majority of the revenue derived from general fund appropriations. Manheim Township’s general fund comes from several sources such as real estate taxes, licenses, and permits (see Figure 8 for breakdown). This revenue is then distributed to sources as appropriate and deemed necessary, outlined in the Township’s Service Delivery Plan. Such expenditures include public safety, planning and zoning, public works, parks, and recreation, in addition to general and administrative expenses.⁶⁰

Figure 8: Manheim Township’s 2013 General Fund Revenue Breakdown⁶¹



Currently, general fund allocations for stormwater programming in Manheim Township are adequate for the Township to meet its permit requirements. However, in order to enhance the level of service to meet future anticipated regulatory requirements, the Township must more aggressively invest in capital projects and developing an asset management program for its infrastructure. The Township is committed to developing a separate stormwater department to implement this program.

⁶⁰ Manheim Township 2013 Budget, Section 4, Service Delivery Plan, page 6-7, Retrieved from: <http://www.manheimtownship.org/DocumentCenter/View/2452>.

⁶¹ Manheim Township 2013 Budget, Section 3, Financing Plan, page 5, Retrieved from: <http://www.manheimtownship.org/DocumentCenter/View/2408>.

A warning trend noted in the Township’s 2013 Budget shows that there is a decreasing trend of operating revenues per capita over time.⁶² This signifies the need to look at alternate sources of revenue dedicated to stormwater, so that this trend does not affect the Township’s ability to implement a long-term stormwater program. The most logical next step, therefore, is to ensure there is a dedicated funding stream, which will allow Township officials to enhance the level of service and manage stormwater in a way that is both adequate and reliable.

Assessment of Possible Revenue Sources and Funding Methods

Recognizing that the current funding method of having stormwater compete for general fund appropriations with other community priorities and relying on occasional grant awards is clearly not sustainable, the Project Team explored the possibility of using other revenue and funding sources. Although many financing options were explored, only a few cover the costs of capital and operations and maintenance, as highlighted in Table 21 below:

Table 21: Funding Sources, Coverage of Costs, and Features

Funding Source	Coverage of Cost Type		Features
	Capital Improvements	Operations & Maintenance	
Grants	Yes	No	Not guaranteed, highly competitive, not sustainable in the long-term
PENNVEST Loan Program	Yes	No	Not guaranteed, highly competitive, must repay often with interest
Bond Financing	Yes	No	Dependent on fiscal capacity, can utilize for large, long-term expenditures, must repay with interest
General Fund	Yes	Yes	Not equitable, competes with other community priorities, changes from year-to-year
Permit Review Fees	No	No	Not significant revenue, may deter development
Inspection Fees	No	No	Not significant revenue, may deter development
Stormwater Utility Fee	Yes	Yes	Generates ample revenue, sustainable, dependable, equitable, requires significant public dialogue

While a host of fee systems exist to pay for local stormwater programs, not all provide sufficient revenue to support the large costs associated with a comprehensive stormwater management program. While all of the above were found to be useful in funding a specific portion of the entire stormwater management program in each municipality, only the **general fund appropriation** and a **stormwater utility fee** were considered by the Project Team as large enough pots of money to be capable of funding the entire program.

⁶² Manheim Township 2013 Budget, Section 1b, General Budget Information, page 32, Retrieved from: <http://www.manheimtownship.org/DocumentCenter/View/2407>.

It should also be noted that Manheim Township has been fairly effective in paying for several smaller projects with grant funds from federal and state sources. However, this funding has been sporadic in nature and only covered a small portion of the total revenue needed to manage stormwater. Continuing to seek out opportunities to apply for grants in the future should not be discounted as a way to fund stormwater with the understanding that it will remain just a small slice of the total revenue needed.

Consideration for Using General Fund Appropriations for Stormwater

As mentioned above, reliance on the general fund as the primary resource for Manheim Township's stormwater program means that stormwater continues to compete with other higher community priorities leaving the program vulnerable to budget cuts, particularly in future years when new stormwater regulations and nutrient reduction requirements will increase the price tag significantly. The general fund is derived primarily from taxes and the issue of equity and fairness of who pays for stormwater and how much they pay is not taken into consideration. In other words, those paying into the general fund are not paying based on their contribution to the problem of stormwater. In fact, many large properties, such as churches, schools, and government properties are not paying any taxes and therefore not paying anything towards services related to stormwater.

With general funds fluctuating from year to year and the revenue sources that make up the general fund varying in amount, stormwater management is unlikely to ever be adequately funded solely from this source. This does not mean, however, that current funding levels for various activities now being covered by general fund dollars should be lessened or eliminated in future budgets; it means that in addition to using some general fund appropriations, another reliable and dedicated source of funding will be required for Manheim Township to properly manage stormwater. The ultimate financing strategy will require a combination of funding sources to fully round out and adequately fund the entire recommended program to the extent that is needed in the future. The most appropriate mechanism to consider in addition to using some general funds and seeking grants whenever possible is through implementation of a stormwater utility fee.

Consideration of a Stormwater Utility Fee

Since the 1970s, one of the most popular methods of paying for stormwater has been a stormwater utility fee. A stormwater utility fee, sometimes called a service charge, is a separate accounting structure with a dedicated source of funds collected and used only for the purpose of managing stormwater. In its most recent report, the Western Kentucky University Stormwater Utility Survey identified more than 1,400 stormwater utilities nationwide.⁶³

The national trend has been to move away from relying solely on taxes for these programs and charge a fee that is stable, adequate to cover the costs of managing the program, and most importantly, equitable. A utility has increasingly become the choice for supporting stormwater *programs* because it is the clearest way to connect level of service/use (runoff) with the fee to be imposed. This type of fee-for-service has been implemented successfully for water, sewer, and solid waste/recycling programs, and has proven highly effective for stormwater, as well.

The Project Team believes that a stormwater utility, known in Pennsylvania as a stormwater authority, is the most equitable financing mechanism because it distributes program costs associated across all properties that contribute in some way to stormwater. Taxes and other fee systems often exclude certain properties from paying, such as those that are tax exempt, yet these

⁶³ Campbell, C. Warren (2013). Western Kentucky University 2013 Stormwater Utility Survey, Western Kentucky University, Bowling Green, page 1.

properties are still contributing runoff to the system, and often at a rate far greater than that of the average residence.

How a Stormwater Fee Works

The basic premise behind a community's stormwater program is that all property owners receive some benefit from the system being maintained; therefore, all properties should be required to participate in the cost of maintaining that service. Most stormwater fee rates are therefore based on the size, or footprint, of the structural part of a property. This physical part of the property is known as **impervious surface** and includes all of the hard surfaces of a property such as a roof, patio, paved area, or sidewalk. The reason for basing a fee on impervious surface is that a hard surface does not allow water to infiltrate into the ground, thereby increasing the volume and flow of stormwater that a community must manage.

Effective stormwater fees make a direct connection between the anticipated expenses to properly manage the system and the revenue generated. In other words, the fee should be determined by the level of revenue needed to deliver stormwater management services to the community, with some allowance for the level to which a property contributes to runoff.

There are several ways to calculate a stormwater utility rate. The most simple, fair, and common method is based on a parcel's amount of impervious surface – the extent to which a parcel contributes to runoff. When implemented, the fee may take the form of a flat or tiered rate structure, or some combination of both. An Equivalent Residential Unit (ERU) is a unit of measure based on either the average impervious surface of a single family dwelling or residential parcel. A specific fee level is attached to an ERU, and the number of ERUs on a given property often serves as the basis for the stormwater charge.

In many cases for residential properties, a flat fee is often recommended over exact parcel based measurements due to the level of program development and administrative burden that would be involved. This flat fee becomes the rate charge for non-residential properties, since it is assumed that the typical residential property is 1 ERU. Determining the fee for non-residential parcels is typically done by calculating the exact amount of impervious surface on the site and then dividing the amount of impervious surface that was calculated for residential properties to determine the number of ERUs for a particular property. The property is then charged a rate (often the same as the residential flat rate) per ERU.

Implementing a stormwater user fee is a national trend on the increase in the US, primarily because these fee structures, if designed correctly, will collect a sufficient amount of revenue to support program costs in the most equitable manner possible. Also, utility-based stormwater programs tend to be more efficient, as the responsibility for managing stormwater is coordinated in one program rather than piecemeal across several departments. In the case of Manheim Township, a utility, or in Pennsylvania known as an authority, would create an adequate and stable source of funding dedicated solely to stormwater and allow for a comprehensive program, consistent in funding from year to year, and meets all regulatory requirements, nutrient reduction needs, and community goals. Table 22 below shows current stormwater user fees in Pennsylvania, including their ERU rate and total revenue collected.

Table 22: Stormwater User Fee Examples in Pennsylvania⁶⁴

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Meadville, Crawford County (2012)	13,616	Single family detached residential = \$90/year All other developed non-single family detached parcels = \$90/year/ERU, where 1 ERU = 2,660ft ² impervious surface Reference: Meadville Stormwater Management User Fee Ordinance	Unknown
Mount Lebanon, Allegheny County (2011)	33,137	Single family, townhouse, or duplex = \$8/month All other properties = \$8/month/ERU, where 1 ERU = 2,400ft ² impervious surface Reference: Mt. Lebanon Stormwater Fee Ordinance	Unknown
City of Philadelphia (2010)	1,536,471	Residential = \$13.48/month Non-residential = Gross Area: \$0.526/500ft ² Impervious Area: \$4.145/500ft ² Monthly Billing: \$2.53 per account Reference: PWD Stormwater Billing & Stormwater Fact Sheet	\$655,000
City of Lancaster, Lancaster County (2013)	59,263 ⁶⁵	Single-family residential = \$4-\$12/quarter Multi-family residential = \$12-\$19/quarter Typical commercial = \$237/quarter Tiered rate structure for all properties where 1 ERU = 1,000ft ² Reference: The Cost of Dealing with Stormwater	Not implemented yet
Jonestown Borough, Lebanon County, PA (2012)	1,329 ⁶⁶	Single-family, townhouse, or duplex = \$70/year in year 1; \$80/year in years 2-4 All other properties = \$70/year/ERU in year 1; \$80/year/ERU in years 2-4, where 1 ERU = 3,100ft ² Reference: Stormwater Information	Unknown

Legal Basis in Pennsylvania Enabling Stormwater Authorities

The five stormwater user fee examples listed above are the only known stormwater utilities within Pennsylvania, and are in various stages of development and implementation. Historically, paying for stormwater has been a contentious issue within the state, since it is unclear whether such dedicated fees are enabled by state legislation.

⁶⁴ Data came from each individual municipality's website *and* the Western Kentucky University 2013 Stormwater Utility Survey.

⁶⁵ 2011 US Census Bureau ACS 5-year Estimates.

⁶⁶ Ibid.

In PA, utilities are typically regulated by the Pennsylvania Utility Commission (PUC), and the PUC will not at this time regulate stormwater. Thus, the creation of dedicated fees for stormwater often comes under the guise of an *authority*.

The contention, then, lies in the language written into the Pennsylvania Municipality Authorities Act, which states:

“§5607. Purposes and powers

(a) Scope of projects permitted.--Every authority incorporated under this chapter shall be a body corporate and politic and shall be for the purposes of financing working capital; acquiring, holding, constructing, financing, improving, maintaining and operating, owning or leasing, either in the capacity of lessor or lessee, projects of the following kind and character and providing financing for insurance reserves:

(1) Equipment to be leased by an authority to the municipality or municipalities that organized it or to any municipality or school district located wholly or partially within the boundaries of the municipality or municipalities that organized it.

(2) Buildings to be devoted wholly or partially for public uses, including public school buildings, and facilities for the conduct of judicial proceedings and for revenue-producing purposes.

(3) Transportation, marketing, shopping, terminals, bridges, tunnels, flood control projects, highways, parkways, traffic distribution centers, parking spaces, airports and all facilities necessary or incident thereto.

(4) Parks, recreation grounds and facilities.

(5) Sewers, sewer systems or parts thereof.

(6) Sewage treatment works, including works for treating and disposing of industrial waste....”⁶⁷

The Act does not differentiate between *sanitary* and *storm* sewer systems, thus creating much debate over the years as to whether storm sewer systems can be financed through an authority. A further discussion as to the legality of stormwater authorities is essential within a locality before imposing a stormwater fee, however, not the focus of this report.

In April 2013, historic legislation (Senate Bill 351) passed by a vote of 49-1 that enables stormwater authorities at the municipal level. Without this legislation, municipalities were reluctant to move forward in setting up a dedicated stormwater fee. This legislation paves way for municipalities to implement dedicated fees to ensure that stormwater is managed adequately and more cost efficiently in the long run, and it is anticipated that stormwater user fees will begin to develop more rapidly in the state than ever before due to SB 351.

Manheim Township’s Stormwater Financing Recommendations

Program Funding Needs

To identify the necessary components of an enhanced stormwater program for Manheim Township, the Project Team worked with municipal staff to conduct a comprehensive review of all aspects of

⁶⁷ Purdon’s Pennsylvania Statutes and Consolidated Statutes, Title 53 Pa. C.S.A. Municipalities Generally, Part V. Public Improvements, Utilities and Services, Subpart A. General Provisions, Chapter 56. Municipal Authorities, Retrieved from: http://www.municipalauthorities.org/wp-content/uploads/2008/11/Title_53_Ch_56_MAA_01-13.pdf.

current spending on stormwater management. When considering the level of stormwater management service identified as necessary in the Township, the Project Team found that current budgeting practices are adequate in meeting the existing regulatory requirements. However, with tighter fiscal budgeting and more stringent permit requirements anticipated in the future, the Project Team and municipal staff agreed that a more comprehensive program will ensure a more viable stormwater management program into the future.

The Project Team found that a 5-year revenue stream totaling approximately \$10.1 million, when adjusted for inflation at a rate of 2.5% per year, will be needed to fully support a comprehensive stormwater program.⁶⁸ The project team found consensus among the municipal staff in the Township on their desire to develop a specific stormwater department that includes all costs associated with managing stormwater. See Appendix F for an itemized list of the proposed budget for years 1-5. The following section describes the expenditures broken down by operating and capital expenditures projected in years 1-5.

Level of Service Expenditures

Operating Expenditures

Operating costs include personnel (wages and benefits), contracted services, general expenses, vehicle operations, facilities maintenance, and equipment maintenance needed to run and sustain a comprehensive program. These costs were determined internally within the Township and then discussed through in-person meetings with the Project Team. The Township has currently been spending general fund appropriations on many of these costs, which were consolidated into one budget for the purpose of developing a consolidated stormwater department. It is assumed that operating costs increase each year with inflation. A summary of the operating costs in the first year of the stormwater department is shown below:

- Salaries: \$355,525; Benefits: \$193,680
This includes salaries and benefits for the existing PWD Director (25%), existing clerical position (25%), new PWD superintendence position, existing PWD Engineer (25%), new PWD maintenance positions (4 full time), new PWD crew leader, and overtime.
- Materials & Supplies: \$36,080
This includes departmental materials and supplies such as postage, office, computer, and photographic supplies, subscriptions and publications, storm drain repair materials, tools and safety equipment, uniforms, and minor equipment purchases.
- Contracted Services: \$170,150
This includes engineering fees, printing fees, sink hole repair fees, one call systems fees, and street sweeping twice per year.
- General Expenses: \$11,275
This includes advertising, training, telephone, equipment rental, and miscellaneous expenditures.

⁶⁸Inflation was taken into account for all expenditures in years 2-5; Inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The percent change in the annual average CPI between 2003-2012 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from: <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>.)

- **Vehicle Operations: \$76,875**
 This includes all routine maintenance required for existing and new vehicles.
- **Facilities Maintenance: \$20,193**
 This includes all fixed costs and maintenance costs required for the stormwater department facility usage.
- **Equipment Maintenance: \$8,918**
 This includes all routine maintenance required for existing and new equipment.

Table 23: Total Operating Expenditures, 5-Year Projection

Year 1	Year 2	Year 3	Year 4	Year 5
\$872,695	\$894,482	\$916,814	\$939,705	\$963,167

Capital Expenditures

Capital costs consist of expenditures on purchasing new equipment, project installation, and inspection of stormwater infrastructure. This includes all equipment start-up costs and capital improvement plan (CIP) projects identified by Township staff. The total capital expenditures fluctuate each year, so that there are greater costs in year 1 to get the department started and fluctuating costs in the future depending on the priority projects identified in the CIP. A summary of the capital costs in the first year of the stormwater department is shown below:

- **Equipment Start-up: \$901,000**
 This includes all equipment purchases needed in the first year of the stormwater department such as a Superintendent vehicle, pickup truck, utility truck, vactor truck, television truck, and street sweeper. In addition, this includes costs to convert the current utility building for stormwater management usage only and computer and camera costs.
- **CIP Projects: \$1,168,250**
 This includes tree plantings, annual inlet repairs, BMP inspection, plan development and implementation, water quality improvement projects, and green infrastructure projects.

Table 24: Total Capital Expenditures, 5-Year Projection

Year 1	Year 2	Year 3	Year 4	Year 5
\$1,168,250	\$770,250	\$1,160,250	\$754,750	\$1,644,873

Total Expenditures

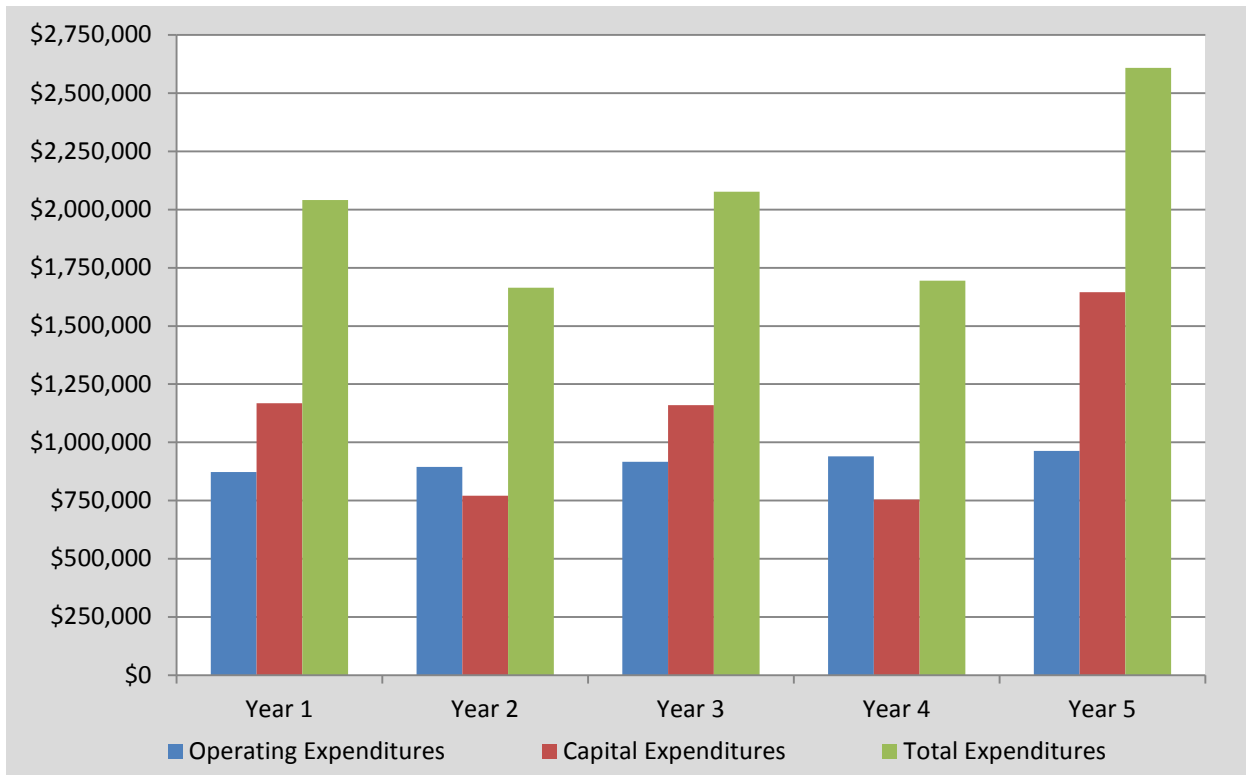


Figure 9. Proposed Stormwater Budget, Years 1-5. Operating and capital expenditures over five years total to \$10.1 million.

Figure 9 shows the breakdown of operating and capital expenditures projected over five years. Based on the total expenditures for five years, a discussion of the necessary revenue to maintain a sustainable stormwater management program follows.

Stormwater User Fee Rate Structure Analysis

Why This Study is Recommending a Stormwater User Fee for Manheim Township

Based on the needs identified by the Project Team, Manheim Township will incur approximately \$10.1 million in stormwater expenses over the next five years. Our key recommendation is to create a dedicated stormwater user fee that will distribute the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to stormwater management needs.

As discussed earlier, the more impervious surface that a property has, the more stormwater it generates and the more responsible the property owner is to help the community manage stormwater. As private driveways, parking lots, swimming pools, decks, and other such structures allow residents and businesses to enjoy additional living and working conveniences, the burden of maintaining and repairing the infrastructure that supports those additional structures and surfaces should be shared by those contributing to the problem rather than the community at large. Just as a property owner is responsible for paying its share of waste disposal, water use, or electricity consumed, so should they recognize and be accountable for the stormwater created from their built environment.

Once it became clear that there was a significant need to have a dedicated funding source to cover the stormwater costs in Manheim Township, the Project Team considered what financing mechanism would be most appropriate to generate these funds. The Project Team initially considered assessing a property tax, but since the value of a property is not an indicator of the amount of runoff, the property tax was not seen to be the most equitable way to pay for a stormwater program.

A stormwater user fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem. Since it is anticipated that development and growth continue in the Township, increasing the amount of impervious surface, it is appropriate to charge properties that contribute significant runoff more and properties that contribute insignificant runoff less. The major concern with this approach is the investment required by the Township to assess properties based on their exact contribution to stormwater runoff (i.e. parcel-based impervious surface calculations). Therefore, the fee calculations will begin more simply and transition over time to a more accurate method, balancing the administrative burden of billing with an equitable distribution of charges.

Billing Recommendations

Since enabling legislation was passed very recently in Pennsylvania, there are few examples that exist in the state to use as a model for implementing dedicated stormwater user fees. In Pennsylvania, the government structure creates so many small, autonomous municipalities with unique circumstances based on municipality type. In the past, cities, boroughs, and home rule municipalities have had an easier time passing ordinances to set up stormwater fees in the state. Since Manheim is a Township, it will need to set up a stormwater fee by either creating a new authority or utilizing its existing authority to bill its customers for stormwater.

The Township has a General Municipal Authority within the Township set up by the Board of Commissions and is also served by the Lancaster Area Sewer Authority (LASA). The Project Team recommends utilizing one of the existing authorities to bill its customers for stormwater. In either case, the existing authority must first amend its articles of incorporation to include the scope of its entire stormwater program and related activities.⁶⁹

The General Municipal Authority has financing functions and collects fees for infrastructure related to public water in the Township, but does not currently bill its customers regularly⁷⁰. The Township has billing capabilities since it used to own its sewer system, but has not used this since it sold its sewer system to LASA. Since LASA now owns the system, they are responsible for regular billing.

If the Township decides to utilize its existing authority, it will need to begin regular billing for stormwater, and the revenue collected could then be transferred directly to the Stormwater Department once created. If the Township wants a stormwater line item added to its sewer bill that is sent to customers by LASA, the Township will need to work with LASA to specify each party's role and then amend the articles of incorporation. It is recommended by the Project Team for Manheim Township to discuss internally which option is easier to administer and will create fewer transaction costs between parties.

If the other municipalities included in LASA also want to implement a stormwater user fee, LASA could be used as a pilot regional municipal authority. In PA, much of the debate concludes with the

⁶⁹ McClintock, Robert, *Amendment to the Municipal Authorities Act Allows Municipal Authorities to Manage Storm Sewer Systems*, Municipal Law Alert, July 27th, 2013, Retrieved from: <http://www.lambmcerlane.com/blog/895453853-amendment-municipal-authorities-act-allows-municipal-authorities-manage-storm-water>.

⁷⁰ Direct communication with Manheim Township Manager, August 22nd, 2013.

need to develop more multi-jurisdictional collaboration to reduce the looming stormwater costs. However, since Manheim Township is more advanced than many municipalities, they may want to move forward at a faster pace and utilize the General Municipal Authority. In the future when more municipalities implement fees, which is anticipated across the state, LASA could take over the billing for Manheim Township and others.

Based on the experience of other communities, it is recommended that the Township set up a strong administrative structure to deal with public questions and concerns, particularly when the user fee is first launched. Other communities who have implemented stormwater utilities report that the outreach need is very high at first but declines as the utility rolls out. A help line and Township staff members should be made available to quickly address customer concerns.

Rate Structure Analysis

In determining an equitable funding strategy for collecting approximately \$10.1 million in revenue over the next five years to pay for stormwater related expenditures, the Project Team reviewed available data on all parcels located in the Township provided by GIS staff at the LCPC. The Project Team calculated potential revenue using a flat rate fee for parcels classified residential, and a combination of a tiered fee and ERU-based fee structure for all parcels classified as non-residential⁷¹. The Project Team worked with the LCPC's land use codes, as this framework will be easy for Manheim Township to implement moving forward.

Summary of recommended rate structure for residential properties

The decision to recommend a flat rate fee for residential properties reflects a balance between equity and administrative burden. After reviewing the large number of residential units and the many different types of residential properties located within the Township, the Project Team became concerned that a parcel-specific fee structure would require additional capacity on the part of the Township to properly estimate the total impervious surface for all residential properties in the community. Based on our experience working in other communities, it was agreed that calculating the level of impervious surface on every residential property would cause significant administrative burden. In addition to this being an overwhelming effort, the Project Team agreed that the risk of errors on bills could cause confusion about the billing calculation and increase the risk of complaints from the residential population. Additionally, the Project Team found that there was not a large enough spread among the sizes of the residential units to make taking on the task of developing unique bills for 12,341 residential parcels worthwhile. A distribution of all the residential properties in the Township is depicted in Figure 10. All multi-family residences are classified by LCPC as commercial, and therefore could be billed based on the non-residential fee structure discussed below. This means that an apartment building's management firm will be billed as a commercial property and can then determine how best to recuperate these costs from their buildings' residents.

⁷¹ Multi-family units are classified commercial in the LCPC land use codes. The Project Team kept these properties in the non-residential category.

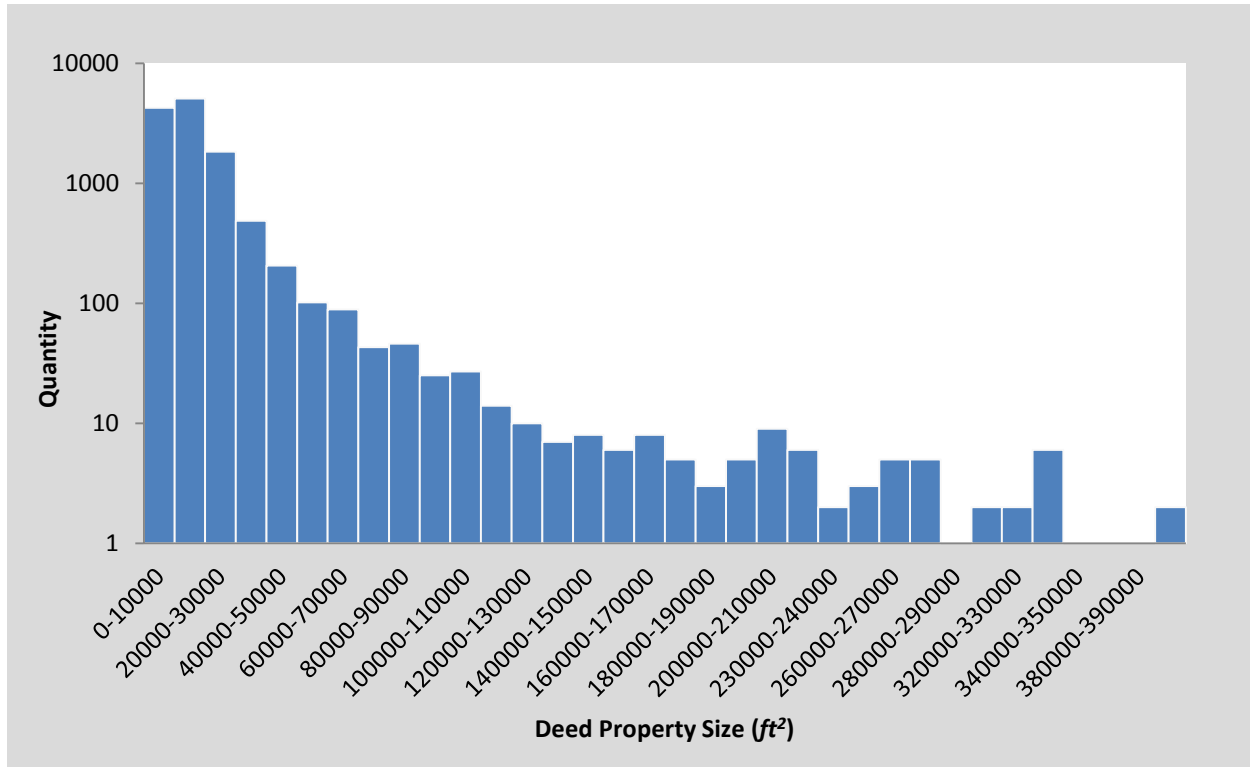


Figure 10. Distribution of Residential Property Sizes in Manheim Township. The median residential property is 12,632 ft². This figure shows the property sizes are skewed to the left, indicating the distribution is composed of more small properties than large.

Summary of recommended rate structure for non-residential properties

Because the size and nature of non-residential units vary widely, the Project Team suggests that a parcel-based rate structure that takes a parcel’s specific level of impervious surface into account to be the fairest method of assessing the stormwater fee on these properties. However, due to the time and capacity needed to develop the mapping and administrative processes to bill non-residential properties accurately, it is recommended that the Township utilize a tiered system that is based on average impervious surface estimates in the beginning years of the program. The Project Team learned that Lancaster City is also using a tiered system based on actual impervious data for their stormwater utility fee. The Project Team recommends consistency among municipalities in the County to increase the probability of community support for a fee.

For all 935 non-residential parcels, it is recommended that a user fee be assessed based on the categorical average impervious surface. Research conducted by the Project Team found that many communities utilize a tiered system for residential and/or non-residential properties. For example, Lancaster City seeks to charge a typical commercial property \$237 per quarter and increases its fee in increments of 1,000 ft² of impervious surface.⁷²

The Project Team recommends using a similar method for Manheim Township. Using a tiered system, the land area will be assessed based on categorical impervious surface estimates to calculate the property owner’s bill. It is then recommended, following the first few years of utilizing a tiered system, the Township invest in getting more accurate impervious surface data for all non-residential properties and then assess the fee based on each property’s total impervious surface.

⁷² The Cost of Dealing with Stormwater, Lancaster City, retrieved from: <http://www.saveitlancaster.com/thecost/>

After conducting a sensitivity analysis⁷³ using various fee structures, the Project Team found that there are many options for the Township to set its initial rates. It is recommended that the ERU be set at 4,527 ft^2 since that number represents the average residential impervious surface in the Township⁷⁴. Depending on how much the Township wants to continue utilizing general fund appropriations and grants to supplement the user fee, the rate should be set between \$70 and \$85 per year per ERU. With so many questions still left unknown, it is recommended that the fee be reviewed and adjusted as needed after each year. Another variable to be considered in terms of rate adjustment is the impact of a credit system, if it is implemented as recommended later in this document.

Estimated total revenue from all properties

The estimated total revenue generated is distributed between residential and non-residential properties and is calculated as follows:

Residential – The residential properties should be assessed a flat fee between \$70 and \$85 per year. The final rate chosen by Manheim Township should be consistent with the non-residential rate. Table 25 shows the revenue yield for each scenario.

Table 25: Annual Residential Property Revenue Generated

Number of Parcels	\$70	\$75	\$80	\$85
12,341	\$863,870	\$925,575	\$987,280	\$1,048,985

The residential fee is based on the assumption that an average property has approximately 4,527 ft^2 of impervious surface and, therefore, all properties are billed for 1 ERU per year. The fee at which 1 ERU is set will be determined based on the necessary revenue (\$10.1 million) minus supplemental revenue from alternative sources.

Non-Residential – According to data provided by the LCPC, there are 935 non-residential properties in Manheim Township. This data included the land area of each property, and the average impervious surface data by categorical land use (industrial, commercial, community service, cultural activity, and agricultural) for all properties.

To determine each tier, the Project Team first took all non-residential properties by category to determine each property’s estimated impervious surface using categorical averages. The average percent impervious surface by category is shown in Table 26 below.

⁷³ A sensitivity analysis is defined as “a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions.” (Source: <http://www.investopedia.com/terms/s/sensitivityanalysis.asp#axzz24Ck0N3rj>). In order to determine the appropriate fee structure to raise the amount of revenue necessary to fund a comprehensive stormwater management program, the Project Team created different scenarios using different rates and ERUs, therefore conducting a sensitivity analysis.

⁷⁴ The average impervious surface for residential properties is based on LCPC data provided to the Project Team (the average sum of building footprint and driveways on residential properties), which was determined using GIS data based on aerial photography.

Table 26: Average Percent Impervious Surface by Parcel Type

Parcel type	Average impervious surface (%)
Industrial	82.08
Commercial	70.73
Community Service	24.15
Cultural Activity	6.87
Agricultural	5.13

Each non-residential property was then organized by parcel type and each individual parcel’s land area was multiplied by the appropriate average impervious surface percentage. For example, a commercial property that is 20,000 ft^2 has an estimated 70.73% impervious area. This property will then be billed for 14,146 ft^2 of impervious surface (20,000 ft^2 x 70.73%). Once the estimated impervious surface was calculated for each property, the Project Team conducted a statistical analysis to determine the tiered structure. A quartile system was utilized to divide the tiers into four equal groups. Table 27 shows the quartiles for the sum of all non-residential parcels using their estimated impervious surface calculations.

Table 27: Non-Residential Statistical Data to Determine Tiers

Quartiles	Quartile Impervious Surface Upper Bound (ft^2)	Tier (ft^2)
Percentage (25%) (Q1)	6,162	$\leq 6,000$
Median (Q2)	27,729	$> 6,000$ & $\leq 28,000$
Percentage (75%) (Q3)	77,641	$> 28,000$ & $\leq 78,000$
Upper Bound (Q4)	3,797,079	$> 78,000$

Using this 4-tiered system, the Project Team then determined the number of properties that fell into each tier. Then, the upper bound of each tier for quartiles 1-3 was divided by 4,527 ft^2 to determine the number of ERUs that parcels in each tier will pay. So that parcels in the fourth quartile (Q4) were not all paying as if they were the upper bound, the median of all parcels in Q4 (146,964 ft^2) was divided by 4,527 ft^2 to determine the number of ERUs that parcels in Q4 will pay. The final ERU for each tier was then multiplied by the flat fee scenarios and then again by the number of parcels in each tier to determine the total revenue generated from non-residential parcels. Table 28 shows the summary of this analysis below.

Table 28: Annual Non-Residential Property Revenue Generated by Tier

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /4,527 ft ²)	ERU x \$ x Number of Parcels			
			\$70	\$75	\$80	\$85
First tier: <=6,000	232	1.33	\$21,524	\$23,062	\$24,599	\$26,137
Second tier: >6,000 & <=28,000	240	6.19	\$103,910	\$111,332	\$11,875	\$126,176
Third tier: >28,000 & <=78,000	230	17.23	\$277,402	\$297,217	\$317,031	\$336,846
Fourth tier: >78,000	233	32.46	\$529,486	\$567,306	\$605,127	\$642,947
Total Revenue Generated			\$932,322	\$998,917	\$958,632	\$1,132,106

The total revenue potential for all fee structures is shown in Table 29 below.

Table 29: Total Revenue Potential

	\$70	\$75	\$80	\$85
Residential	\$863,870	\$925,575	\$987,280	\$1,048,985
Non-residential	\$932,322	\$998,917	\$958,632	\$1,132,106
Total Revenue (1-year)	\$1,796,192	\$1,924,492	\$1,945,912	\$2,181,091
Total Revenue (5-year)	\$8,980,961	\$9,622,458	\$9,729,562	\$10,905,453

For the fee to be adequate as well as equitable, the total expenditures should as closely equal the total revenue as possible. However, this assumes that the entire program is funded through a dedicated user fee. If Manheim Township funds this program entirely by the user fee, then the fee would need to be set at **\$85** per year per ERU, where all residential properties pay 1 ERU. However, it is highly recommended by the Project Team that the Township continue to supplement the program using general fund appropriations and grant funds where possible. This will decrease the user fee, minimizing any community backlash.

The Project Team conducted a simple analysis to show the Township that its rates could be lowered by using alternative revenue sources, shown in Table 30 below.

Table 30: Revenue Potential Using Alternate Sources

	Total Revenue Needed	Grant Funds (3% of total revenue needed)	General Fund	User Fee Revenue
Total Revenue (1-year)	\$2,017,047	\$60,511	\$100,000	\$1,856,536
Total Revenue (5-year)	\$10,085,237	\$302,557	\$500,000	\$9,282,680

By factoring in grants and general fund appropriations, the total revenue needed through a user fee is lowered from \$10.1 million to \$9.3 million. Thus, if Manheim Township supplements its budget

with alternative revenue sources, the Project Team recommends the fee be set between **\$70 and \$80** per year per ERU, where all residential properties pay 1 ERU.

Lastly, it is difficult to estimate the effect of a credit system being imposed on the program. However, based on a credit system imposed in later years, revenues may decrease depending on the parameters of the system, how many residents participate, and to what extent. An estimate of the impact of these credits must be considered in future years, and the rate structure must be reevaluated to ensure that a credit system does not infringe on meeting revenue needs. It is unclear just how effective the credit system will be and there are no data that supports an average amount to consider. For more information about a credit system, please see Chapter 11.

Chapter 8: Individual Municipal Analysis – Mount Joy Borough

Mount Joy Borough is located in the Northwest region of Lancaster County, and with a population of 7,365⁷⁵ is the smallest of the six municipalities who participated in this study. Similar to Lititz Borough, Mount Joy considers itself a “Main Street Community,” made up of many local, small businesses clustered on Main Street. Historically, the Borough was considered a close-knit community. Although still close knit today, the Borough has struggled to generate the same level of community engagement and tourism that other small communities such as Lititz Borough attract.

At the beginning of the study, each municipality was asked to provide their priorities, needs, and goals to the Project Team. Mount Joy Borough provided the following:

Priorities

1. Assess condition of existing systems to identify problem areas, function ability, water quality conditions, and establish a maintenance program;
2. Evaluate current operations such as current operations & maintenance and stream bank protection;
3. Identify opportunities for community outreach and education targeted at private land owners, schools, community groups, and the general public; and
4. Assess policies, ordinances, and regulations for capital improvements, road maintenance, planned infrastructure including opportunities for GI, stormwater ordinances, coordination with the LCCD, and clarification and coordination with the state and federal government to better address guidelines and regulations.

Needs

1. Coordinate with Lancaster County Planning Commission (LCPC) for mapping inlets and outfalls;
2. Compile data from any existing land development plans;
3. Evaluate existing systems;
4. Assistance with education and outreach;
5. Provide recommendations to manage Borough-wide stormwater program;
6. Provide recommendations to fund Borough-wide stormwater program;
7. Develop a capital improvements plan to implement improvements in a systematic manner;
8. Develop a holistic approach (Borough, neighboring municipalities and other stakeholders) to stormwater management issues rather than isolated community plans; and
9. Assess “outside the box” ideas- credit “banking”- credits available for future needs in downtown revitalization, i.e. redeployment of existing property with limited ability to address stormwater management needs.

⁷⁵ ⁷⁵ 2011 US Census Bureau ACS 5-year Estimates, used the advanced search option to search ACS 5-year total population estimates by municipality using:
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>,
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.

Goals

1. Improve quality of stormwater leaving the Borough and entering waterways;
2. Correct flooding and discharge along Little Chiques Creek;
3. Address flooding issues in flood prone areas/neighborhoods and developments;
4. Cleaner water leaving neighborhoods and subdivisions;
5. Integrate multiple sectors (agriculture, business, residential) into Borough/regional solutions;
6. Develop a holistic approach to solutions that go beyond Mount Joy Borough boundaries (similar to nutrient credit trading); and
7. Look at the possibility/feasibility of establishing a credit “bank” for future needs in downtown revitalization, i.e. redeployment of existing property with limited ability to address stormwater management needs. Would also provide economic development value.⁷⁶

Many components of the priorities, needs, and goals outlined by the Borough are aligned with the EFC’s focus and goals when undertaking a stormwater financing feasibility study. The main goal of the study for the Project Team was to assess the current municipal stormwater program and provide the Borough with financing recommendations to help them improve their current program and implement cost saving measures to create a comprehensive and sustainable stormwater program. This goal ensures that the Borough has the resources and capacity to improve and maintain a higher level of service to its residents and businesses and address all stormwater-related compliance activities.

Assessment of Mount Joy Borough’s Current Stormwater Program

In the new NPDES MS4 permit being issued to all Phase II municipalities in Pennsylvania, there will be six MCMs consistent with those found in the old permit. Although the purpose of each MCM will be the same as previous permit cycles, the requirements to meet each MCM are anticipated to be more stringent in the future permit. The following six MCMs are the elements contained in the NPDES MS4 permit that outline specific areas the community must address:

1. Public Education & Outreach
2. Public Participation & Involvement
3. Illicit Discharge Detection & Elimination (IDD&E)
4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

For each MCM, there are specific stormwater BMPs that Mount Joy Borough can implement to comply with its permit. Although there is flexibility to implement BMPs that fit the needs and resources within the community, there are significant costs associated with addressing each MCM.

The Project Team worked closely with municipal staff and the Borough engineer to determine the current level of service for each MCM. A discussion of the findings is below.

⁷⁶ Information provided by Mount Joy Borough directly to the Project Team.

Overall Stormwater Program Findings

Stormwater Infrastructure

Mount Joy Borough was established in 1851 and has the old town charm of many communities scattered throughout the Mid-Atlantic region where historic homes are clustered in old neighborhoods behind and around Main Street, store fronts along Main Street look the same as they did 50 years ago, and there is an essence of stepping back in time to a simpler era. Although much of the infrastructure has been replaced, some of the infrastructure remains from this simpler era when Lancaster County was much less developed and still primarily agricultural.

The storm sewer conveyance system is made up of varying types of pipe depending on when it was installed. In the 1940s, terra cotta pipe was installed, but has mostly been replaced. By the 1980s, most of the wood pipe was replaced. The Borough is knowledgeable about the old parts of the system that have been replaced, however, does not have a map of the existing conveyance system. Without a comprehensive map, Borough staff does not fully understand the characteristics of their system – pipe size, location, and age. This knowledge is crucial to developing a cost-effective stormwater infrastructure repair and replacement program that is needed in the Borough.

The Project Team recommends that the Borough invest in mapping their conveyance system as soon as possible, so the Borough can better understand the characteristics of the existing system and begin to develop a strategic plan before the system becomes too old to maintain and must all be replaced. The commitment to addressing stormwater issues through implementation of new projects and maintenance of existing infrastructure is a necessary component to ensuring a robust and comprehensive stormwater management program.

Current Funding for Stormwater

Preparing for new permit requirements and maintaining the existing stormwater system bears significant costs. Currently, funding for the Borough's stormwater program comes from general funds, a practice common throughout the country, with some supplementation from public and private grants and the Borough's Capital Fund. Based on the available data collected by the Project Team during the study, capital spending on large projects has either been pushed back or funded through bond financing.

The Project Team found that the Borough invests minimally in stormwater management through its General Fund and Capital Fund. The PWD receives minimal funding to manage stormwater through general fund appropriations, and while there is a line item in the Capital Fund for stormwater, no funding was allocated in 2013.⁷⁷ In previous years, a minimal amount of funding was allocated for stormwater for construction and maintenance activities through the Capital Fund.

The Project Team found Borough staff eager to invest more thoroughly in meeting stormwater requirements. In the past, the Borough staff has been stifled by elected officials who are hesitant to use sparse resources on stormwater management. Participation in this study and the improved knowledge the staff has gained over the year will help staff work with elected officials to educate them on the importance of investing in stormwater management.

Current Capacity for Handling Stormwater

The Borough Manager's background is in public works (was previous PWD Director), which is helpful in achieving success for stormwater at the municipal level. The Project Team found that many of the essential staff currently works on stormwater, whether or not it is part of their job description.

⁷⁷ Borough of Mount Joy Capital Fund (30), 2013 Budget, Retrieved from:
http://www.mountjoyborough.com/mount_joy_boro/lib/mount_joy_boro/borough_of_mount_joy/budget/2013/2013_capital_fund_budget.pdf.

Throughout the study, this staff showed a commitment to learning about best practices and improving their program. This “all-hands-on-deck” approach witnessed by the Project Team shows a true commitment to the community, however, is not sustainable over time.

The PWD staff consists of six members, including the PWD Director. The Borough Manager and PWD Director engaged the entire PWD staff in meetings with the Project Team and sent staff to local training events, increasing the team’s knowledge throughout the study. This is the first step towards improving internal capacity. However, Borough staff and the Project Team believe that additional public works staff should be hired in order to address stormwater management properly as well as adequately address the department’s other functions.

In order to adequately address the administrative components of the MS4 permit, the Borough should invest in hiring a stormwater coordinator, either on its own or shared between neighboring municipalities. If done so collectively, the Borough should bring together neighboring municipalities to develop an intergovernmental agreement. Either way, hiring a stormwater coordinator will allow staff who currently have taken on all of the stormwater-related tasks the time to focus on other Borough functions, creating greater efficiency at the Borough overall.

MCM Findings: 1. Public Education & Outreach

The Project Team found that Mount Joy Borough currently provides a medium level of service to its community regarding public education and outreach. The Borough increased its level of service from minimal at the beginning of the study through its success in receiving grant funding to construct a demonstration rain garden on Borough property and host rain garden workshops for the community, all of which has allowed the Borough to more actively conduct public outreach and generate community support. The Project Team strongly encourages the Borough to continue to invest in these types of activities using general funds since grant funding is not a reliable source over time, which will ensure the level of service remains and potentially increases.

The Project Team found that the Borough also hosts an annual public presentation with a portion of the meeting dedicated to stormwater, shares public information at community events, posts information on its website, and sends newsletter articles to residents. The Borough also developed a written Public Education & Outreach Plan in August 2012 and has a list of their target audience groups.

At the beginning of the study, Borough staff was eager to learn about effective ways to educate and engage their community. While they shared materials with the community, they were having trouble conveying their message to their audience. The Project Team found that throughout the study, Borough staff were highly motivated and attended various trainings to get themselves up to speed on managing stormwater and all of the MS4 permit activities.

With the launch of their rain garden project, the Project Team found that the staff was beginning its success in public outreach. The Project Team attended a volunteer planting day in which the Boy and Girl Scouts helped the contracted landscaper plant over 700 plants of multiple varieties in the rain garden. Borough staff and councilmen pitched in and worked alongside the Scouts. In addition, the Borough is hosting free rain garden workshops, which are posted on their website and have been well attended. The Borough staff reflected to the Project Team that they did not realize the community was interested in learning about stormwater, but once the staff received grant funds for the rain garden project, they learned that many residents and businesses wanted to pitch in.

In order for Mount Joy Borough to increase its level of service regarding MCM 1, the Borough should continue to educate and engage their elected officials and the public so they have the support to invest in outreach events like the rain garden project annually, work with other neighboring

municipalities to share materials and information and plan regional events, and track all its activities related to MCM 1.

MCM Findings: 2. Public Participation & Involvement

At the beginning of the study, the Project Team found that Mount Joy Borough was struggling to successfully engage the community. The rain garden project was a necessary launching pad for the Borough to increase its level of service to its community regarding public involvement and participation. In order for the Borough to provide a service that fully supports MCM 2, it must continue to invest in annual events, dedicate an annual public meeting for stormwater where the public can give their input, continue disseminating stormwater education to residents, businesses, and elected officials, and track all activities related to MCM 2.

In order for Mount Joy Borough to increase its level of service for MCM 2, it should also reach out to schools and engage other local partners (Boy/Girl Scouts, neighboring municipalities, watershed associations, etc.) in a more targeted approach that resonates with different stakeholder groups and develop a more detailed and strategic written Public Involvement and Participation Plan for future activities.

MCM Findings: 3. Illicit Discharge Detection & Elimination

The Project Team found that Mount Joy Borough currently provides a minimal level of service to its community regarding IDD&E. While the Borough inspects at least 20% of its outfalls each year, the Borough needs to develop a more formal process for handling IDD&E and public notification. While the Borough has a map of all outfalls and inlets, it also needs to map its conveyance system, which should be a priority so that the Borough can set up a more strategic program and be cost efficient in its stormwater spending.

The Borough could easily develop a procedure for public notification of IDD&E and tracking system for inspections and complaints. One of the recommended tasks of a stormwater coordinator should be to develop formal procedures for IDD&E. It is anticipated that when the new MS4 permits are issued, more stringent requirements will be incorporated for this MCM. At this time, Borough staff should consider hiring additional Public Works staff to ensure all screening and inspections are completed each year.

MCM Findings: 4. Construction Site Runoff Control

The Project Team found that Mount Joy Borough currently provides a minimal level of service to its community regarding construction site runoff control. This level of service was found almost across the board with all six municipalities. In Pennsylvania, the county conservation districts review and approve all Erosion & Sediment Control Plans for new development and are tasked with inspecting construction sites. Thus, municipalities are limited by the resources at the conservation district to meet this MCM. It is important to note, however, that while the conservation district typically reviews, approves, and inspects all new development, the municipality is still held accountable for this MCM. Because of this, municipalities should inspect sites in addition to the conservation district and file all projects separately to help with their MS4 annual reporting.

The Project Team found that Mount Joy Borough utilizes its contracted engineer through ARRO Consulting, Inc. to inspect sites when time and resources permit. The engineer files all inspections, but does not separate projects out that are for MS4 annual reporting.

At the beginning of this study, the Borough did not have a strong relationship with the LCCD. The Project Team recommends that the Borough build a relationship and ask that all inspections be sent directly to them. It is up to the Borough to be proactive in its relationship with the LCCD, since the Borough is responsible for this MCM. The Project Team believes that with a stormwater coordinator,

the level of service for this MCM could be vastly improved. Current staff does not have the time and resources to check in with the LCCD, but a coordinator could work more closely with the LCCD and the Borough engineer to develop a tracking and filing system for development projects.

MCM Findings: 5. Post Construction Site Runoff Control

The Project Team found that the Borough is in the beginning phases of developing an adequate level of service regarding post construction site runoff control. While the Borough has minimal requirements for the use of structural and non-structural BMPs in new development and redevelopment projects, the Borough strongly relies on the LCCD to review plans, inspect sites, and track all projects. The Borough also does not currently have an Operations & Maintenance (O&M) program for its publically-owned BMPs.

However, the Project Team found that the Borough's engineer is beginning to develop an inventory of all post construction stormwater management (PCSM) BMPs and tracking system. In order to increase the level of service for this MCM, the Borough must finish its inventory of BMPs; create a written O&M plan for Borough-owned facilities; provide training opportunities to ensure developers are up to date on all stormwater management regulations, Low Impact Development (LID) and Green Infrastructure (GI) alternatives; inspect all sites to ensure PCSM BMPs were implemented as designed; and track all inspections in-house. A stormwater coordinator should take on some of these tasks, providing other staff more time to inspect sites and implement an O&M program.

The Borough staff mentioned to the Project Team that many of the home owners associations (HOAs) within the Borough do not have the funding to maintain their privately-owned BMPs. Public health and safety concerns can arise when proper maintenance is not being done, forcing the Borough to spend public funds in emergency situations. To mitigate these issues as best it can, the Borough needs to develop more stringent maintenance agreements for any new developments with BMPs and lay out these requirements in all pre-construction meetings.

Mount Joy Borough, like many municipalities participating in this study, identified sink holes to be a serious issue in the area. It is crucial given the geological makeup of the County that clearly defined policies are set to minimize emergency situations that sink holes present to local governments. Whether sink holes are created due to stormwater issues or simply the soils in the County, sink holes prove costly to taxpayers, as they often need to be repaired immediately, taking time away from the PWD's daily tasks and can quickly become a public safety hazard. The Project Team recommends policies be written into the stormwater ordinance to minimize development in sink hole "hot spot" areas.

MCM Findings: 6. Pollution Prevention/ Good Housekeeping

The Project Team found that Mount Joy Borough currently provides a minimal level of service to its community regarding pollution prevention and good housekeeping. The PWD maintains publically-owned BMPs as-needed; cleans inlets, ditches, and drains using rented equipment; sweeps streets annually using rented equipment; and trains staff annually. Although the Borough meets its requirements, the Borough must develop more strategic plans for this MCM, including a written O&M plan and tracking system, and a water quality improvement plan to determine the baseline stream health and prioritized projects based on cost efficiency.

In meeting with municipal staff, the Project Team found staff eager to develop a more comprehensive program to better meet its MCM 6 goals by improving internal capacity and investing in new equipment. In order to keep costs low, the Project Team recommends the Borough meet with neighboring municipalities to determine existing equipment and develop a list of equipment needed, all of which could be shared through intergovernmental agreements and purchased cooperatively. The Borough must also develop better tracking of all stormwater-related

public works activities, continue to map the entire storm sewer system with the goal of ultimately developing an infrastructure repair and replacement program, and regularly train staff in different components of stormwater-related good housekeeping measures.

Throughout the study, the Borough staff attended many training events hosted by local organizations. By taking a proactive stance in stormwater management, the Project Team found that the Borough is on the right track to increasing its level of service for MCM 6.

Anticipated Changes to the MS4 Permit

The PA DEP requires all MS4 permitted municipalities in the Bay watershed to develop a CBPRP by the summer of 2014. The purpose of this plan is to help municipalities strategically implement projects that improve local and regional water quality. The Project Team found that the municipalities typically contract this Plan out to their engineer, and there has been minimal guidance provided to municipalities about what should go into the plan.

In addition to developing a CBPRP, it is anticipated that more stringent requirements will take effect when the new MS4 permits are issued in the fall of 2013. In Maryland, the Department of the Environment (MDE) included a new requirement in its new permit cycle – a **20%** impervious area restoration requirement. It is anticipated that this impervious area restoration, designed to increase the level of runoff managed from existing impervious areas, will require implementing a number of stormwater BMPs. These BMPs will be either nonstructural practices (like diverting runoff from impervious areas to vegetated areas, bioswales, and tree planting) or more traditional structural practices (i.e. stormwater ponds, bio-retention facilities). Based on information received from MDE and Maryland municipalities, it is anticipated that a similar requirement be included in Pennsylvania.

Consideration of Funding Methods for Stormwater in Mount Joy Borough

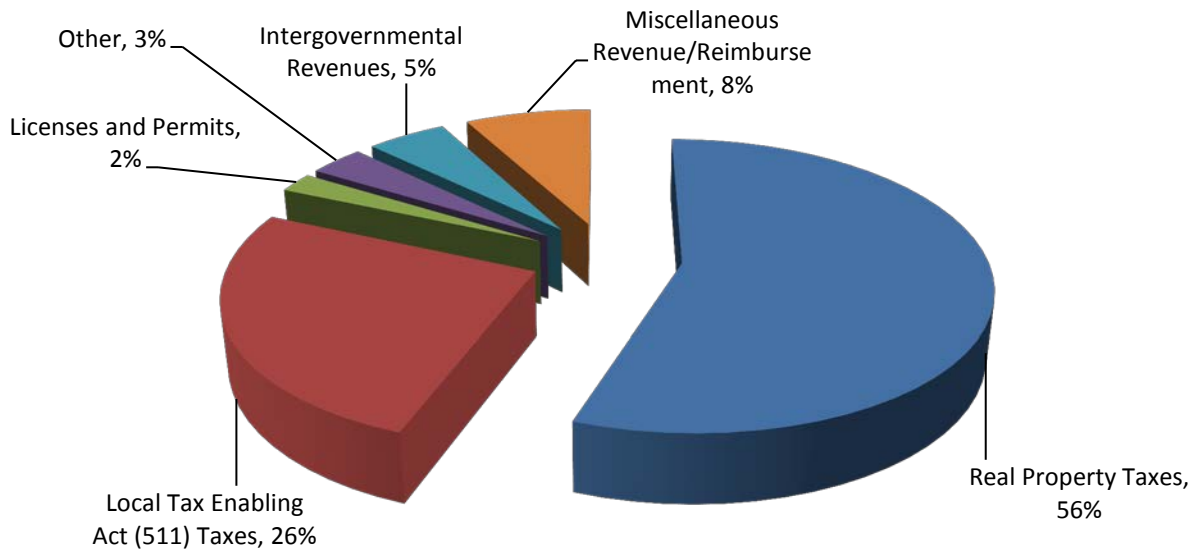
Properly managing stormwater is considered an essential service, but one that is often unseen or misunderstood by residents and businesses in a community. Stormwater infrastructure requires upgrades and maintenance that is on par with the needs, costs, and annual maintenance as similar services such as wastewater, drinking water, or transportation. However, stormwater is rarely funded to the extent that any of these other services typically are, thus leaving a considerable gap in a stormwater program's level of service to the community.

Current Method of Funding Stormwater

The current method of funding stormwater in Mount Joy Borough is partially through grant funding and capital funding, with the majority of the revenue derived from general fund appropriations. Mount Joy Borough's general fund comes from several sources such as real property taxes, local tax enabling act taxes, licenses, and permits (see Figure 11 for breakdown). This revenue is then distributed to sources as appropriate and deemed necessary, such as public safety, general government expenses, fire, public works, and planning and zoning.⁷⁸

⁷⁸ Mount Joy Borough 2013 Budget, General Fund,
http://www.mountjoyborough.com/mount_joy_boro/lib/mount_joy_boro/borough_of_mount_joy/budget/2013/2013_general_fund_budget.pdf.

Figure 11: Mount Joy Borough’s 2013 General Fund Revenue Breakdown⁷⁹



Currently, general fund allocations for stormwater programming in Mount Joy Borough are not adequate for the Borough to properly manage stormwater in the near and long terms. Borough staff shared with the Project Team that the Borough has been able to achieve a balance by minimizing waste, however, this is done so in a way that leaves the Borough operating minimally. As priorities shift and costs rise, the Borough needs to determine a more sustainable plan to pay for stormwater.

In order to enhance the level of service to meet future anticipated regulatory requirements, the Borough must more aggressively invest in administration, operations & maintenance, and capital projects to repair and replace its infrastructure. While the Borough has been recently successful in accessing grants, and should continue to do so, the Borough should supplement its current funding with a dedicated stormwater fee to support a more strategic and comprehensive stormwater program.

Assessment of Possible Revenue Sources and Funding Methods

Recognizing that the current funding method of having stormwater compete for general fund appropriations with other community priorities and relying on occasional grant awards is clearly not sustainable, the Project Team explored the possibility of using other revenue and funding sources. Although many financing options were explored, only a few cover the costs of capital and operations and maintenance, as highlighted in Table 31 below:

⁷⁹ Ibid.

Table 31: Funding Sources, Coverage of Costs, and Features

Funding Source	Coverage of Cost Type		Features
	Capital Improvements	Operations & Maintenance	
Grants	Yes	No	Not guaranteed, highly competitive, not sustainable in the long-term
PENNVEST Loan Program	Yes	No	Not guaranteed, highly competitive, must repay often with interest
Bond Financing	Yes	No	Dependent on fiscal capacity, can utilize for large, long-term expenditures, must repay with interest
General Fund	Yes	Yes	Not equitable, competes with other community priorities, changes from year-to-year
Permit Review Fees	No	No	Not significant revenue, may deter development
Inspection Fees	No	No	Not significant revenue, may deter development
Stormwater Utility Fee	Yes	Yes	Generates ample revenue, sustainable, dependable, equitable, requires significant public dialogue

While a host of fee systems exist to pay for local stormwater programs, not all provide sufficient revenue to support the large costs associated with a comprehensive stormwater management program. While all of the above were found to be useful in funding a specific portion of the entire stormwater management program in each municipality, only the **general fund appropriation** and a **stormwater utility fee** were considered by the Project Team as large enough pots of money to be capable of funding the entire program.

Consideration for Using General Fund Appropriations for Stormwater

As mentioned above, reliance on the general fund as the primary resource for Mount Joy Borough’s stormwater program means that stormwater continues to compete with other higher community priorities leaving the program vulnerable to budget cuts, particularly in future years when new stormwater regulations and nutrient reduction requirements will increase the price tag significantly. The general fund is derived primarily from taxes and the issue of equity and fairness of who pays for stormwater and how much they pay is not taken into consideration. In other words, those paying into the general fund are not paying based on their contribution to the problem of stormwater. In fact, many large properties, such as churches, schools, and government properties are not paying any taxes and therefore not paying anything towards services related to stormwater.

With general funds fluctuating from year to year and the revenue sources that make up the general fund varying in amount, stormwater management is unlikely to ever be adequately funded solely from this source. However, this does not suggest that current funding levels for various activities now being covered by general fund dollars should be lessened or eliminated in future budgets; it means that in addition to using some general fund appropriations, another reliable and dedicated source of funding will be required for Mount Joy Borough to properly manage stormwater. The ultimate financing strategy will require a combination of funding sources to fully round out and

adequately fund the entire recommended program to the extent that is needed in the future. The most appropriate mechanism to consider in addition to using some general funds and seeking grants whenever possible is through implementation of a stormwater utility fee.

Consideration of a Stormwater Utility Fee

Since the 1970s, one of the most popular methods of paying for stormwater has been a stormwater utility fee. A stormwater utility fee, sometimes called a service charge, is a separate accounting structure with a dedicated source of funds collected and used only for the purpose of managing stormwater. In its most recent report, the Western Kentucky University Stormwater Utility Survey identified more than 1,400 stormwater utilities nationwide.⁸⁰

The national trend has been to move away from relying solely on taxes for these programs and charge a fee that is stable, adequate to cover the costs of managing the program, and most importantly, equitable. A utility has increasingly become the choice for supporting stormwater *programs* because it is the clearest way to connect level of service/use (runoff) with the fee to be imposed. This type of fee-for-service has been implemented successfully for water, sewer, and solid waste/recycling programs, and has proven highly effective for stormwater, as well.

The Project Team believes that a stormwater utility, known in Pennsylvania as a stormwater authority, is the most equitable financing mechanism because it distributes program costs associated across all properties that contribute in some way to stormwater. Taxes and other fee systems often exclude certain properties from paying, such as those that are tax exempt, yet these properties are still contributing runoff to the system, and often at a rate far greater than that of the average residence.

How a Stormwater Fee Works

The basic premise behind a community's stormwater program is that all property owners receive some benefit from the system being maintained; therefore, all properties should be required to participate in the cost of maintaining that service. Most stormwater fee rates are therefore based on the size, or footprint, of the structural part of a property. This physical part of the property is known as ***impervious surface*** and includes all of the hard surfaces of a property such as a roof, patio, paved area, or sidewalk. The reason for basing a fee on impervious surface is that a hard surface does not allow water to infiltrate into the ground, thereby increasing the volume and flow of stormwater that a community must manage.

Effective stormwater fees make a direct connection between the anticipated expenses to properly manage the system and the revenue generated. In other words, the fee should be determined by the level of revenue needed to deliver stormwater management services to the community, with some allowance for the level to which a property contributes to runoff.

There are several ways to calculate a stormwater utility rate. The most simple, fair, and common method is based on a parcel's amount of impervious surface – the extent to which a parcel contributes to runoff. When implemented, the fee may take the form of a flat or tiered rate structure, or some combination of both. An Equivalent Residential Unit (ERU) is a unit of measure based on either the average impervious surface of a single family dwelling or residential parcel. A specific fee level is attached to an ERU, and the number of ERUs on a given property often serves as the basis for the stormwater charge.

⁸⁰ Campbell, C. Warren (2013). Western Kentucky University 2013 Stormwater Utility Survey, Western Kentucky University, Bowling Green, page 1.

In many cases for residential properties, a flat fee is often recommended over exact parcel based measurements due to the level of program development and administrative burden that would be involved. This flat fee becomes the rate charge for non-residential properties, since it is assumed that the typical residential property is 1 ERU. Determining the fee for non-residential parcels is typically done by calculating the exact amount of impervious surface on the site and then dividing the amount of impervious surface that was calculated for residential properties to determine the number of ERUs for a particular property. The property is then charged a rate (often the same as the residential flat rate) per ERU.

Implementing a stormwater user fee is a national trend on the increase in the US, primarily because these fee structures, if designed correctly, will collect a sufficient amount of revenue to support program costs in the most equitable manner possible. Also, utility-based stormwater programs tend to be more efficient, as the responsibility for managing stormwater is coordinated in one program rather than piecemeal across several departments. In the case of Mount Joy Borough, a utility, or in Pennsylvania known as an authority, would create an adequate and stable source of funding dedicated solely to stormwater and allow for a comprehensive program, consistent in funding from year to year, and meets all regulatory requirements, nutrient reduction needs, and community goals. Table 32 below shows current stormwater user fees in Pennsylvania, including their ERU rate and total revenue collected.

Table 32: Stormwater User Fee Examples in Pennsylvania⁸¹

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Meadville, Crawford County (2012)	13,616	Single family detached residential = \$90/year All other developed non-single family detached parcels = \$90/year/ERU, where 1 ERU = 2,660ft ² impervious surface Reference: Meadville Stormwater Management User Fee Ordinance	Unknown
Mount Lebanon, Allegheny County (2011)	33,137	Single family, townhouse, or duplex = \$8/month All other properties = \$8/month/ERU, where 1 ERU = 2,400ft ² impervious surface Reference: Mt. Lebanon Stormwater Fee Ordinance	Unknown
City of Philadelphia (2010)	1,536,471	Residential = \$13.48/month Non-residential = Gross Area: \$0.526/500ft ² Impervious Area: \$4.145/500ft ² Monthly Billing: \$2.53 per account Reference: PWD Stormwater Billing & Stormwater Fact Sheet	\$655,000

⁸¹ Data came from each individual municipality's website and the Western Kentucky University 2013 Stormwater Utility Survey.

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Lancaster, Lancaster County (2013)	59,263 ⁸²	Single-family residential = \$4-\$12/quarter Multi-family residential = \$12-\$19/quarter Typical commercial = \$237/quarter Tiered rate structure for all properties where 1 ERU = 1,000ft ² Reference: The Cost of Dealing with Stormwater	Not implemented yet
Jonestown Borough, Lebanon County, PA (2012)	1,329 ⁸³	Single-family, townhouse, or duplex = \$70/year in year 1; \$80/year in years 2-4 All other properties = \$70/year/ERU in year 1; \$80/year/ERU in years 2-4, where 1 ERU = 3,100ft ² Reference: Stormwater Information	Unknown

Legal Basis in Pennsylvania Enabling Stormwater Authorities

The five stormwater user fee examples listed above are the only known stormwater utilities within Pennsylvania, and are in various stages of development and implementation. Historically, paying for stormwater has been a contentious issue within the state, since it is unclear whether such dedicated fees are enabled by state legislation.

In PA, utilities are typically regulated by the Pennsylvania Utility Commission (PUC), and the PUC will not at this time regulate stormwater. Thus, the creation of dedicated fees for stormwater often comes under the guise of an *authority*.

The contention, then, lies in the language written into the Pennsylvania Municipality Authorities Act, which states:

“§5607. Purposes and powers

(a) Scope of projects permitted.--Every authority incorporated under this chapter shall be a body corporate and politic and shall be for the purposes of financing working capital; acquiring, holding, constructing, financing, improving, maintaining and operating, owning or leasing, either in the capacity of lessor or lessee, projects of the following kind and character and providing financing for insurance reserves:

(1) Equipment to be leased by an authority to the municipality or municipalities that organized it or to any municipality or school district located wholly or partially within the boundaries of the municipality or municipalities that organized it.

(2) Buildings to be devoted wholly or partially for public uses, including public school buildings, and facilities for the conduct of judicial proceedings and for revenue-producing purposes.

(3) Transportation, marketing, shopping, terminals, bridges, tunnels, flood control projects, highways, parkways, traffic distribution centers, parking spaces, airports and all facilities necessary or incident thereto.

⁸² 2011 US Census Bureau ACS 5-year Estimates.

⁸³ Ibid.

- (4) Parks, recreation grounds and facilities.
- (5) Sewers, sewer systems or parts thereof.
- (6) Sewage treatment works, including works for treating and disposing of industrial waste....⁸⁴

The Act does not differentiate between *sanitary* and *storm* sewer systems, thus creating much debate over the years as to whether storm sewer systems can be financed through an authority. A further discussion as to the legality of stormwater authorities is essential within a locality before imposing a stormwater fee, however, not the focus of this report.

In April 2013, historic legislation (Senate Bill 351) passed by a vote of 49-1 that enables stormwater authorities at the municipal level. Without this legislation, municipalities were reluctant to move forward in setting up a dedicated stormwater fee. This legislation paves way for municipalities to implement dedicated fees to ensure that stormwater is managed adequately and more cost efficiently in the long run, and it is anticipated that stormwater user fees will begin to develop more rapidly in the state than ever before due to SB 351.

Mount Joy Borough's Stormwater Financing Recommendations

Program Funding Needs

To identify the necessary components of an enhanced stormwater program for Mount Joy Borough, the Project Team worked with municipal staff to conduct a comprehensive review of all aspects of current spending on stormwater management. When considering the level of stormwater management service identified as necessary in the Borough, the Project Team found that current budgeting practices may not be sufficient enough to meet all stormwater management activities. With tighter fiscal budgeting and more stringent permit requirements anticipated in the future, the Project Team and municipal staff agreed that a more comprehensive program would ensure a more viable stormwater management program for the future.

Two of the municipalities who participated in this study, Manheim and Warwick Townships, worked with the Project Team to determine the estimated costs projected over five years that is needed to properly manage stormwater. Each of these municipalities took a vastly different approach to estimating costs. Since the Project Team found it difficult to collect meaningful cost data for the other four participating municipalities, including Mount Joy Borough, the team utilized Manheim and Warwick Townships' approaches to develop cost estimates. A discussion of these approaches and how they were adapted for Mount Joy Borough follows.

Manheim Township's Approach

Manheim Township, the largest of the municipalities participating in this study, plans to develop a separate Stormwater Department within the Township. All stormwater-related costs, even if currently paid for using general fund appropriations, will be moved to a stormwater budget. This budget will be supported through a dedicated stormwater user fee. The Project Team found that in Manheim Township a 5-year revenue stream totaling approximately \$10.1 million, when adjusted for inflation at a rate of 2.5% per year, will be needed to fully support a comprehensive stormwater

⁸⁴ Purdon's Pennsylvania Statutes and Consolidated Statutes, Title 53 Pa. C.S.A. Municipalities Generally, Part V. Public Improvements, Utilities and Services, Subpart A. General Provisions, Chapter 56. Municipal Authorities, Retrieved from: http://www.municipalauthorities.org/wp-content/uploads/2008/11/Title_53_Ch_56_MAA_01-13.pdf.

program housed in the Stormwater Department.⁸⁵ See Chapter 7 for the full analysis of Manheim Township’s financing structure.

Using population as the factor, Mount Joy Borough’s costs were estimated at approximately \$2 million over five years if the Borough uses Manheim Township’s approach to managing stormwater (see Table 33).

Table 33: Mount Joy Borough’s Budget using Manheim Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Manheim Township	37,768	1.00	\$10,085,237	\$2,017,047
Mount Joy Borough	7,365	0.20	\$1,966,685	\$393,337

Warwick Township’s Approach

Warwick Township, often hailed as the most proactive Township managing stormwater in the County, plans to continue supporting most of its stormwater-related costs using general fund appropriations and grants. The Township wants to utilize a dedicated stormwater user fee to support an asset management program that focuses on two components – (1) the costs of repairing and replacing the entire storm sewer pipe system and (2) the costs of maintaining and renovating all municipally-owned BMPs. The Project Team found that a 5-year revenue stream totaling \$639,268, when adjusted for inflation at a rate of 2.5% per year, will be needed to support a municipal stormwater asset management program for Warwick Township.⁸⁶ See Chapter 9 for the full analysis of Warwick Township’s financing structure.

Using population as the factor, Mount Joy Borough’s costs were estimated at approximately \$270,000 over five years if the Borough uses Warwick Township’s approach to managing stormwater (see Table 34).

Table 34: Mount Joy Borough’s Budget using Warwick Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Warwick Township	17,622	1.00	\$639,268	\$127,854
Mount Joy Borough	7,365	0.42	\$267,178	\$53,436

It must be noted that the Project Team only supports this approach for Warwick Township because of the high level of service being provided to the community currently. Since Mount Joy Borough needs to increase its level of service, the Borough should utilize Warwick Township’s approach as a jumping off point and include additional costs associated with properly managing stormwater in its stormwater budget.

⁸⁵ Inflation was taken into account for all expenditures in years 2-5; Inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The percent change in the annual average CPI between 2003-2012 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from:

<ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>

⁸⁶ Ibid.

Recommendations for Mount Joy Borough’s Level of Service Expenditures

Given the size of the Borough, it is likely not feasible (or necessary) to develop a Stormwater Department. Therefore, Manheim Township’s costs represent the “Cadillac” version of stormwater management. On the flip side, Warwick Township’s costs represent a low cost estimate to managing stormwater since the costs only factor in asset management *and* the costs are based on the useful life of materials. This means that Warwick Township will bring in annual reserves through its dedicated fee to pay for its asset management program over time. Thus, the Project Team recommends that Mount Joy Borough use a blended approach that uses Warwick Township as its baseline, and then includes additional costs necessary for the Borough to properly manage stormwater. Further discussion is required by Borough staff to determine how best to allocate costs. The following provides a discussion of the additional costs that the Borough must invest in to meet its current and future state and federal regulations:

Personnel costs

The Project Team recommended earlier in this chapter that the Borough invest in hiring a stormwater coordinator. In many respects, simply hiring a coordinator will allow the Borough to meet most, if not all, of its administrative compliance components, allowing existing staff to focus on more pertinent tasks. The Borough could hire a coordinator on its own or as a shared position with neighboring municipalities. The Borough must engage neighboring municipalities to determine if a shared coordinator should be hired. Either way, the Project Team recommends investing in a coordinator to help with administrative MS4 permit tasks and keep the Borough on track with meeting its MCMs.

The Project Team also recommended earlier in this chapter that the Borough invest in hiring additional PWD staff to address the technical components of its permit. In order for the Borough to meet existing and future regulatory requirements, up to a four member road crew should be hired.

Capital costs

The \$267,178 estimated 5-year costs using Warwick Township’s approach supports an asset management program, including a pipe infrastructure repair and replacement program (assuming the average useful life of the pipes is 30 years) and a BMP renovation (assuming the average useful life is 20 years) and maintenance (assuming maintenance every 5 years) program. The Project Team highly recommends the Borough invest in an asset management program and sets up its dedicated fee to generate at a minimum \$267,178 over five years.

The Project Team recommends the Borough also invest in a study to determine the baseline health of its streams and thus, the most cost-effective water quality improvement projects (which will result in additional capital costs once projects are identified).

Lastly, the Project Team recommended earlier in this chapter that the Borough consider investing in new equipment. In order to keep costs low, the Project Team recommends the Borough meet with neighboring municipalities to determine all existing equipment and develop a list of equipment needed, all of which could be shared through intergovernmental agreements and purchased cooperatively.

Operations & Maintenance costs

If the Borough purchases new equipment, there will be annual O&M costs associated with this equipment that will need to be factored into the stormwater program's costs. These costs will be included once it is determined what equipment, if any, will be purchased.

The Project Team recommended earlier in this chapter that the Borough invest in mapping its entire conveyance system, which should be prioritized. The Borough must develop a more comprehensive understanding of its pipes in order to implement an asset management program properly. The Project Team recommends the Borough seek grants to help develop this map as soon as possible, and if unsuccessful, invest in mapping using a dedicated user fee.

There are additional costs that are fairly minimal compared to the large capital and personnel costs needed to properly manage stormwater that the Borough must consider. These costs include outreach materials, contract fees (namely for engineer's time), and hosting outreach and engagement events⁸⁷. See Chapter 7 for Manheim Township's costs associated with these activities, which could be used as a reference for Mount Joy Borough.

Stormwater User Fee Rate Structure Analysis

Why This Study is Recommending a Stormwater User Fee for Mount Joy Borough

Although the Project Team was unable to develop a specific estimated budget for Mount Joy Borough, the Project Team recommends the Borough create a dedicated stormwater user fee that will distribute the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to stormwater management needs.

As discussed earlier, the more impervious surface that a property has, the more stormwater it generates and the more responsible the property owner is to help the community manage stormwater. As private driveways, parking lots, swimming pools, decks, and other such structures allow residents and businesses to enjoy additional living and working conveniences, the burden of maintaining and repairing the infrastructure that supports those additional structures and surfaces should be shared by those contributing to the problem rather than the community at large. Just as a property owner is responsible for paying its share of waste disposal, water use, or electricity consumed, so should they recognize and be accountable for the stormwater created from their built environment.

Once it became clear that there was a significant need to have a dedicated funding source to cover the stormwater costs in Mount Joy Borough, the Project Team considered what financing mechanism would be most appropriate to generate these funds. The Project Team initially considered assessing a property tax, but since the value of a property is not an indicator of the amount of runoff, the property tax was not seen to be the most equitable way to pay for a stormwater program.

A stormwater user fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem. Since it is anticipated that development and growth continue in the Borough, increasing the amount of impervious surface, it is appropriate to charge properties that contribute significant runoff more and properties that contribute insignificant runoff less. The major concern with this approach is the investment required by the Borough to assess properties based on their exact contribution to stormwater runoff (i.e. parcel-based impervious surface calculations). Therefore, the fee calculations will begin more simply and transition over time to a more accurate method, balancing the administrative burden of billing with an equitable distribution of charges.

⁸⁷ Warwick Township estimated that their annual Watershed Day costs \$2,225.

Billing Recommendations

Since enabling legislation was passed very recently in Pennsylvania, there are few examples that exist in the state to use as a model for implementing dedicated stormwater user fees. In Pennsylvania, the government structure creates so many small, autonomous municipalities with unique circumstances based on municipality type. In the past, cities, boroughs, and home rule municipalities have had an easier time passing ordinances to set up stormwater fees in the state. Since Mount Joy is a Borough, it will have an easier time setting up a fee compared to Townships. The Borough should use existing examples such as Jonestown Borough as a model for implementing a fee.

The Mount Joy Borough Authority is a general purpose water and sewer authority. The Authority has worked closely with the PA DEP in the past to set up nutrient trading, and therefore, already has a relationship with the state's stormwater regulatory agency. If the Borough decides to utilize its existing authority, it will need to begin regular billing for stormwater, and the revenue collected could then be transferred to the Borough once created. The Authority serves portions of Rapho, East Donegal, and Mount Joy Townships. If the Borough utilizes its existing authority, it must first amend its articles of incorporation to include the scope of its entire stormwater program and related activities.⁸⁸

Since the Authority is multi-municipal, the Borough should meet with the participating municipalities to determine if they are interested in also establishing a dedicated stormwater fee. If all are on board, then this regional Authority could serve as pilot regional municipal authority. In PA, much of the debate concludes with the need to develop more multi-jurisdictional collaboration to reduce the looming stormwater costs. However, it is likely that not all municipalities are ready to implement a dedicated stormwater fee. If this is the case, the Borough should consider developing a new stormwater authority to support its municipal program, including all estimated costs discussed above. It is recommended by the Project Team to discuss internally which option is easier to administer and will create fewer transaction costs between parties.

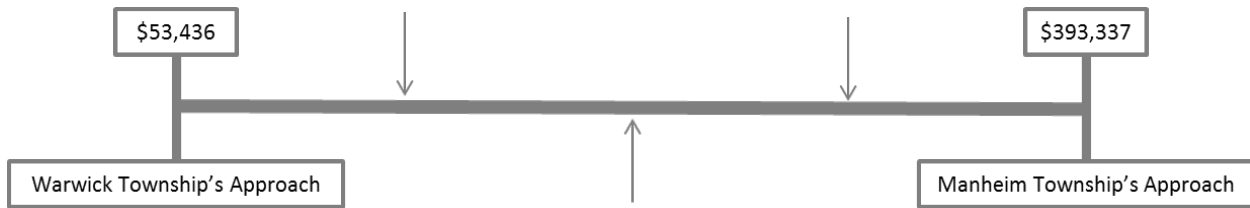
Based on the experience of other communities, it is recommended that the Borough set up a strong administrative structure to deal with public questions and concerns, particularly when the user fee is first launched. Other communities who have implemented stormwater utilities report that the outreach need is very high at first but declines as the utility rolls out. A help line and Borough staff members should be made available to quickly address customer concerns.

Rate Structure Analysis

Although a specific cost estimate was not generated, the Project Team recommends implementing a fee to improve the current level of service. This fee could be set low to begin generating revenue, and once the Borough has a better understanding of its costs, the rate structure should be reevaluated. In all likelihood, the Borough's true costs lie somewhere in between the estimates provided using Warwick and Manheim Townships' approaches, shown in Figure 12.

⁸⁸ McClickock, Robert, *Amendment to the Municipal Authorities Act Allows Municipal Authorities to Manage Storm Sewer Systems*, Municipal Law Alert, July 27th, 2013, Retrieved from: <http://www.lambmcerlane.com/blog/895453853-amendment-municipal-authorities-act-allows-municipal-authorities-manage-storm-water>.

Figure 12: The Spectrum of Mount Joy Borough’s Estimated Annual Stormwater Costs



In determining an equitable funding strategy for collecting revenue to pay for stormwater related expenditures, the Project Team reviewed available data on all parcels located in the Borough provided by GIS staff at the LCPC. The Project Team calculated potential revenue using a flat rate fee for parcels classified residential, and a combination of a tiered fee and ERU-based fee structure for all parcels classified as non-residential.⁸⁹ The Project Team worked with the LCPC’s land use codes, as this framework will be easy for Mount Joy Borough to implement moving forward.

Summary of recommended rate structure for residential properties

The decision to recommend a flat rate fee for residential properties reflects a balance between equity and administrative burden. After reviewing the large number of residential units and the many different types of residential properties located within the Borough, the Project Team became concerned that a parcel-specific fee structure would require additional capacity on the part of the Borough to properly estimate the total impervious surface for all residential properties in the community. Based on our experience working in other communities, it was agreed that calculating the level of impervious surface on every residential property would cause significant administrative burden. In addition to this being an overwhelming effort, the Project Team agreed that the risk of errors on bills could cause confusion about the billing calculation and increase the risk of complaints from the residential population. Additionally, the Project Team found that there was not a large enough spread among the sizes of the residential units to make taking on the task of developing unique bills for 2,393 residential parcels worthwhile. A distribution of all the residential properties in the Borough is depicted in Figure 13. All multi-family residences are classified by LCPC as commercial, and therefore will be billed based on the non-residential fee structure discussed below. This means that an apartment building’s management firm will be billed as a commercial property and can then determine how best to recuperate these costs from their buildings’ residents.

⁸⁹ Multi-family units are classified commercial in the LCPC land use codes. The Project Team kept these properties in the non-residential category.

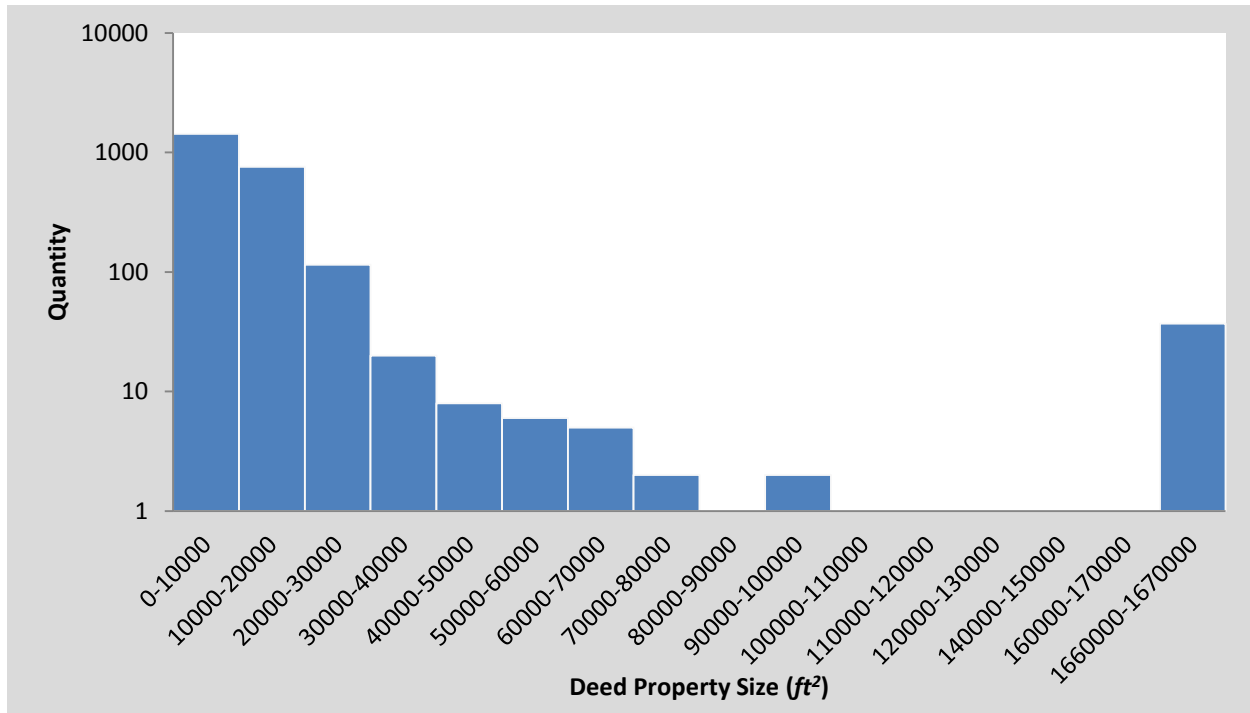


Figure 13. Distribution of Residential Property Sizes in Mount Joy Borough. The median residential property is 8,276 ft². This figure shows the property sizes are skewed to the left, indicating the distribution is composed of more small properties than large.

Summary of recommended rate structure for non-residential properties

Because the size and nature of non-residential units vary widely, the Project Team suggests that a parcel-based rate structure that takes a parcel’s specific level of impervious surface into account to be the fairest method of assessing the stormwater fee on these properties. However, due to the time and capacity needed to develop the mapping and administrative processes to bill non-residential properties accurately, it is recommended that the Borough utilize a tiered system that is based on average impervious surface estimates in the beginning years of the program. The Project Team learned that Lancaster City is also using a tiered system based on actual impervious data for their stormwater utility fee. The Project Team recommends consistency among municipalities in the County to increase the probability of community support for a fee.

For all 270 non-residential parcels, it is recommended that a user fee be assessed based on the categorical average impervious surface. Research conducted by the Project Team found that many communities utilize a tiered system for residential and/or non-residential properties. For example, Lancaster City seeks to charge a typical commercial property \$237 per quarter and increases its fee in increments of 1,000 ft² of impervious surface.⁹⁰ The Project Team recommends using a similar method for Mount Joy Borough. Using a tiered system, the land area will be assessed based on categorical impervious surface estimates to calculate the property owner’s bill. It is then recommended, following the first few years of utilizing a tiered system, the Township invest in getting more accurate impervious surface data for all non-residential properties and then assess the fee based on each property’s total impervious surface.

⁹⁰ The Cost of Dealing with Stormwater, Lancaster City, Retrieved from: <http://www.saveitlancaster.com/thecost/>.

After conducting a sensitivity analysis⁹¹ using various fee structures, the Project Team found that there are many options for the Borough to set its initial rates. It is recommended that the ERU be set at 3,405 *ft*² since that number represents the average residential impervious surface in the Borough⁹². Depending on how much the Borough wants to continue utilizing general fund appropriations and grants to supplement the user fee, the rate should be set at a minimum of \$15 per year per ERU. With so many questions still left unknown, it is recommended that the fee be reviewed and adjusted as needed after each year. Another variable to be considered in terms of rate adjustment is the impact of a credit system, if it is implemented as recommended later in this document.

Estimated total revenue from all properties

The estimated total revenue generated is distributed between residential and non-residential properties and is calculated as follows:

Residential – The residential properties should be assessed a flat fee starting at \$15 per year to generate the minimal revenue needed (based on Warwick Township’s approach). The final rate chosen by Mount Joy Borough should be consistent with the non-residential rate. Although many of the rate scenarios analyzed by the Project Team brought in adequate revenue to pay for stormwater-related expenses, it will be up to the Borough to determine what should be supported through the dedicated fee and thus, where to set its rates. Table 35 shows the revenue yield for all rate scenarios developed by the Project Team.

Table 35: Annual Residential Property Revenue Generated (2,393 Residential Properties x Rate)

\$15	\$20	\$25	\$30	\$35
\$35,895	\$47,860	\$59,825	\$71,790	\$83,755
\$40	\$45	\$50	\$55	\$60
\$95,720	\$107,685	\$119,650	\$131,615	\$143,580
\$65	\$70	\$75	\$80	\$85
\$155,545	\$167,510	\$179,475	\$191,440	\$203,405

The residential fee is based on the assumption that an average property has approximately 3,405 *ft*² of impervious surface and, therefore, all properties are billed for 1 ERU per year. The fee at which 1 ERU is set will be determined once the Borough determines which costs should be supported using a dedicated user fee.

Non-Residential – According to data provided by the LCPC, there are 270 non-residential properties in Mount Joy Borough. This data included the land area of each property, and the average

⁹¹ A sensitivity analysis is defined as “a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions.” (Source: <http://www.investopedia.com/terms/s/sensitivityanalysis.asp#axzz24Ck0N3rj>). In order to determine the appropriate fee structure to raise the amount of revenue necessary to fund a comprehensive stormwater management program, the Project Team created different scenarios using different rates and ERUs, therefore conducting a sensitivity analysis.

⁹² The average impervious surface for residential properties is based on LCPC data provided to the Project Team (the average sum of building footprint and driveways on residential properties), which was determined using GIS data based on aerial photography.

impervious surface data by categorical land use (industrial, commercial, community service, cultural activity, and agricultural) for all properties.

To determine each tier, the Project Team first took all non-residential properties by category to determine each property’s estimated impervious surface using categorical averages. The average percent impervious surface by category is shown in Table 36 below.

Table 36: Average Percent Impervious Surface by Parcel Type

Parcel type	Average impervious surface (%)
Industrial	30.40
Commercial	53.10
Community Service	28.39
Cultural Activity	14.29

Each non-residential property was then organized by parcel type and each individual parcel’s land area was multiplied by the appropriate average impervious surface percentage. For example, a commercial property that is 20,000 ft^2 has an estimated 53.10% impervious area. This property will then be billed for 10,620 ft^2 of impervious surface (20,000 ft^2 x 53.10%). Once the estimated impervious surface was calculated for each property, the Project Team conducted a statistical analysis to determine the tiered structure. A quartile system was utilized to divide the tiers into four equal groups. Table 37 shows the quartiles for the sum of all non-residential parcels using their estimated impervious surface calculations.

Table 37: Non-Residential Statistical Data to Determine Tiers

Quartiles	Quartile Impervious Surface Upper Bound (ft^2)	Tier (ft^2)
Percentage 25% (Q1)	4,626	$\leq 5,000$
Median (Q2)	9,020	$> 5,000$ & $\leq 9,000$
Percentage (75%) (Q3)	24,865	$> 9,000$ & $\leq 25,000$
Upper Bound (Q4)	885,199	$> 25,000$

Using this 4-tiered system, the Project Team then determined the number of properties that fell into each tier. Then, the upper bound of each tier for quartiles 1-3 was divided by 3,405 ft^2 to determine the number of ERUs that parcels in each tier will pay. So that parcels in the fourth quartile (Q4) were not all paying as if they were the upper bound, the median of all parcels in Q4 (62,000 ft^2 ⁹³) was divided by 3,405 ft^2 to determine the number of ERUs that parcels in Q4 will pay. The final ERU for each tier was then multiplied by the flat fee scenarios and then again by the number of parcels in each tier to determine the total revenue generated from non-residential parcels. Table 38 shows the summary of this analysis below.

⁹³ The median of all parcels in Q4 in Mount Joy Borough is 61,642 ft^2 , which was rounded to 62,000 ft^2 for ease of administration.

Table 38: Annual Non-Residential Property Revenue Generated by Tier

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /3,405 ft ²)	ERU x \$ x Number of Parcels				
			\$15	\$20	\$25	\$30	\$35
First tier: <=5,000	84	1.47	\$1,850	\$2,467	\$3,084	\$3,700	\$4,317
Second tier: >5,000 & <=9,000	50	2.64	\$1,982	\$2,643	\$3,304	\$3,965	\$4,626
Third tier: >9,000 & <=25,000	68	7.34	\$7,489	\$9,985	\$12,482	\$14,978	\$17,474
Fourth tier: >25,000	68	18.21	\$18,573	\$24,764	\$30,954	\$37,145	\$43,336
Total Non-Residential Revenue			\$29,894	\$39,859	\$49,824	\$59,789	\$69,753
Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /3,405 ft ²)	ERU x \$ x Number of Parcels				
			\$40	\$45	\$50	\$55	\$60
First tier: <=5,000	84	1.47	\$4,934	\$5,551	\$6,167	\$6,784	\$7,401
Second tier: >5,000 & <=9,000	50	2.64	\$5,286	\$5,947	\$6,608	\$7,269	\$7,930
Third tier: >9,000 & <=25,000	68	7.34	\$19,971	\$22,467	\$24,963	\$27,460	\$29,956
Fourth tier: >25,000	68	18.21	\$49,527	\$55,718	\$61,909	\$68,100	\$74,291
Total Non-Residential Revenue			\$79,718	\$89,683	\$99,648	\$109,612	\$119,577
Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /3,405 ft ²)	ERU x \$ x Number of Parcels				
			\$65	\$70	\$75	\$80	\$85
First tier: <=5,000	84	1.47	\$8,018	\$8,634	\$9,251	\$9,868	\$10,485
Second tier: >5,000 & <=9,000	50	2.64	\$8,590	\$9,251	\$9,912	\$1,057	\$11,233
Third tier: >9,000 & <=25,000	68	7.34	\$32,452	\$34,949	\$37,445	\$39,941	\$42,438
Fourth tier: >25,000	68	18.21	\$80,482	\$86,673	\$92,863	\$99,054	\$105,245
Total Non-Residential Revenue			\$129,542	\$139,507	\$149,471	\$149,921	\$169,401

The total revenue potential for all fee structures is shown in Table 39 below.

Table 39: Total Revenue Potential

	\$15	\$20	\$25	\$30	\$35
Residential	\$35,895	\$47,860	\$59,825	\$71,790	\$83,755
Non-Residential	\$29,894	\$39,859	\$49,824	\$59,789	\$69,753
Total Revenue (1-year)	\$65,789	\$87,719	\$109,649	\$131,579	\$153,508
Total Revenue (5-year)	\$328,946	\$438,595	\$548,244	\$657,893	\$767,542
	\$40	\$45	\$50	\$55	\$60
Residential	\$95,720	\$107,685	\$119,650	\$131,615	\$143,580
Non-Residential	\$79,718	\$89,683	\$99,648	\$109,612	\$119,577
Total Revenue (1-year)	\$175,438	\$197,368	\$219,298	\$241,227	\$263,157
Total Revenue (5-year)	\$877,190	\$986,839	\$1,096,488	\$1,206,137	\$1,315,785
	\$65	\$70	\$75	\$80	\$85
Residential	\$155,545	\$167,510	\$179,475	\$191,440	\$203,405
Non-Residential	\$129,542	\$139,507	\$149,471	\$149,921	\$169,401
Total Revenue (1-year)	\$285,087	\$307,017	\$328,946	\$341,361	\$372,806
Total Revenue (5-year)	\$1,425,434	\$1,535,083	\$1,644,732	\$1,706,804	\$1,864,029

For the fee to be adequate as well as equitable, the total expenditures should as closely equal the total revenue as possible. The Borough must first determine which expenditures should be included in the stormwater program budget, and which aspects of the program it wants to invest before assigning a fee structure.

It is important to note that if Mount Joy Borough funds this program entirely by the user fee, then the fee would need to be set higher to pay for existing costs and the additional investments needed to support an adequate stormwater management program. It is highly recommended by the Project Team that the Borough continue to supplement the program using general fund appropriations and grant funds where possible. This will decrease the user fee, minimizing any community backlash.

Lastly, it is difficult to estimate the effect of a credit system being imposed on the program. However, based on a credit system imposed in later years, revenues may decrease depending on the parameters of the system, how many residents participate, and to what extent. An estimate of the impact of these credits must be considered in future years, and the rate structure must be reevaluated to ensure that a credit system does not infringe on meeting revenue needs. It is unclear just how effective the credit system will be and there are no data that supports an average amount to consider. For more information about a credit system, please see Chapter 11.

Chapter 9: Individual Municipal Analysis – Warwick Township

Warwick Township is well known throughout Lancaster County as one of the most proactive communities managing stormwater. Due to the leadership exhibited by the Township Manager, the Township has developed an integrated water resource approach over the past two decades that incorporates stormwater management into every aspect of its municipal functions.

With a population of 17,622⁹⁴, Warwick Township is the second largest of the six municipalities who participated in this study. Given the continued investment in its local watersheds via promoting the benefits associated with improved stream health, the Township has developed into a prominent leader in the County, and is able to provide a high level of service to its community.

At the beginning of the study, each municipality was asked to provide their priorities, needs, and goals to the Project Team. Warwick Township provided the following:

Priorities

1. Understanding the condition of existing storm sewer system such as function ability, retrofit status, and maintenance costs;
2. Evaluating agricultural operations such as farming methods, stream bank restoration, nutrient management plans, and coordination with the LCCD to identify BMPs;
3. Community outreach and education for private property owners; and
4. Identifying and/or analyzing policies, ordinances, and regulations for capital improvements, road maintenance, and opportunities to incorporate green infrastructure; the County Stormwater Ordinance (Act 167); LCCD coordination; and state and federal guidelines.

Goals

1. Continue efforts to improve water quality leaving the Township and entering waterways;
2. Continue promotion of its watershed programs;
3. Cleaner water leaving developments; and
4. Engage residential portion of the community on watershed issues.

Needs

1. Update current inventory of inlets/outlets;
2. Update data from land development plans;
3. Continue education and outreach to public;
4. Provide recommendations to improving current Township-wide stormwater program;
5. Provide recommendations to fund Township-wide stormwater program; and
6. Continue development of a holistic approach to stormwater management practices across all sectors and the region.⁹⁵

⁹⁴ 2011 US Census Bureau ACS 5-year Estimates, used the advanced search option to search ACS 5-year total population estimates by municipality using:
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>,
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.

⁹⁵ Information provided by Warwick Township directly to the Project Team.

Since the EFC's focus was to look at how each municipality *finances* its stormwater management activities and then provide recommendations about how to improve the program with greater cost efficiency, the goal of the study transpired to help Warwick Township develop a long-term strategic planning method for meeting its capital needs, specifically focused on storm sewer and municipally-owned BMP repair, replacement, and maintenance. This goal is aligned with the Township's desire to continue integrating stormwater management practices across all Township activities. In order for the Township to continue to provide a high level of service to its residents and businesses, a more strategic capital planning process is necessary in addition to the continual investment using General Funds and grants to pay for stormwater-related activities.

Assessment of Warwick Township's Current Stormwater Program

In the new NPDES MS4 permit being issued to all Phase II municipalities in Pennsylvania, there will be six MCMs consistent with those found in the old permit. Although the purpose of each MCM will be the same as previous permit cycles, the requirements to meet each MCM are anticipated to be more stringent in the future permit. The following six MCMs are the elements contained in the NPDES MS4 permit that outline specific areas the community must address:

1. Public Education & Outreach
2. Public Participation & Involvement
3. Illicit Discharge Detection & Elimination (IDD&E)
4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

For each MCM, there are specific stormwater BMPs that Warwick Township can implement to comply with its permit. Although there is flexibility to implement BMPs that fit the needs and resources within the community, there are significant costs associated with addressing each MCM.

The Project Team worked closely with municipal staff and the Township engineer to determine the current level of service for each MCM. A discussion of the findings is below.

Overall Stormwater Program Findings

Stormwater Infrastructure

Warwick Township is located north of Manheim Township. Over the past decades, suburban sprawl has slowly expanded from Lancaster City and continued out into more rural areas. Warwick Township is an example of this growth, where much of the development over these decades is comprised of older and now newer neighborhoods, and the Township continues to experience residential growth (currently with 55+ community). In addition, the Township is made up of several cluster industries including entertainment, industrial, medical, and military businesses.

In meeting with the Township, the Project Team found that while they have all outfalls and inlets mapped, like many communities, the Township still does not have the entire conveyance system mapped. This task is currently being completed using MapShed through the Pennsylvania State University and will be finished in the fall of 2013. Once the system is mapped, the Township will have a better sense of the state and age of its infrastructure, and can therefore implement a more strategic asset management program to ensure it maintains its existing infrastructure and has a replacement program to avoid costly emergency repairs.

The Project Team found that the Township overall has a very good sense of its conveyance system including the basic pipe features, and has been working to fix "hot spots" and repair older

developments that did not come under the stringent regulations and policies in place today. It should be noted that all new development projects in Warwick Township come under a lot of scrutiny to manage all stormwater, which ensures that future costs are minimized. By setting up stringent regulations over the past decades, another example of the strong leadership in the community, the Township has set itself up to be able to implement a stormwater program with ease. With the recommendations outlined in this report, the Township will be able to put a program in place that strategically repairs and replaces infrastructure at the lowest cost to the community.

Current Funding for Stormwater

Preparing for new permit requirements and maintaining the existing stormwater system bears significant costs. Currently, funding for the Township's stormwater program primarily comes from general funds, a practice common throughout the country. In addition, the Township relies heavily on public and private grants. The Township has been very successful with receiving grants that pay for capital improvements and public education. There are a number of environmental and engineering firms located in Warwick Township and Lititz Borough that work closely with both municipalities to help access grants. Because of this success, the Township has been able to keep costs low for taxpayers. The Township prides itself on maintaining low taxes for its residents; property taxes have not increased in 23 years.

Although commendable for its success in getting grant funds, in order to maintain a comprehensive stormwater management program over time, the Township needs to support its program using a variety of funds and not rely so heavily on grants. The Project Team found that while the Township has a good framework for handling the public education, engagement, and operations & maintenance components of the MS4, capital spending occurs only when grant funds are available. The Township does have a capital reserve fund for stormwater that has been in place a long time. It is important to note that the Project Team was unable to collect data in a meaningful way on stormwater capital projects, which was seen across the board with all six municipalities.

The primary reason for this in most of the municipalities is that capital projects are completed when funds become available and not in a way where cost information can be easily verified. The capital reserve fund in place currently does not adequately cover capital improvement costs, simply because this fund is being supported through general funds and as priorities shift, so too do general fund appropriations. The Township Manager expressed to the Project Team that finding a more sustainable funding source for capital projects was one of the main reasons for the Township's participation in this study.

Current Capacity for Handling Stormwater

As mentioned above, the Township Manager has shown leadership in managing stormwater, which trickles down to all municipal staff. Many of the staff has been employed at the Township for many years, generating a wealth of institutional knowledge. Although this has led to extremely high capacity for managing stormwater, both technically and administratively, there will be a time when this staff turns over. To ensure that this level of knowledge continues into the future, continual training for new staff is necessary. One observation made by the Project Team was that although the capacity exists, there are not formal policies or procedures in place to help new staff. The Project Team recommends utilizing the knowledge of current staff to develop written policies. As staff turnover occurs, the Project Team encourages new hires to "shadow" current staff in order to maintain the high level of internal capacity.

The PWD receives the majority of funding for stormwater from the general fund, since much of the technical components of the MS4 permit are conducted in-house. This staff is comprised of six road crew staff plus the Roadmaster. All of the PWD staff receives the LIMC Good Housekeeping Handbook, which is being utilized within the Township. Although the staff is provided with the

materials and basic training to help manage stormwater properly, the Project Team found that only the Roadmaster had adequate training to fully understand all of the necessary MS4 permit activities being implemented by the Township.

Since the Township would like to develop a more robust infrastructure and BMP renovation, repair, and maintenance program, the Project Team recommends that the Township provide more informal training opportunities for the public works staff to improve their knowledge of MS4 permit activities, as well as consider hiring additional staff if the Township wants to continue carrying out permit activities in-house.

MCM Findings: 1. Public Education & Outreach

The Project Team found that Warwick Township currently provides a high level of service to its community regarding public education and outreach. The municipality has a written Public Education & Outreach Plan that incorporates a monthly breakdown of activities, has signage on many stormwater projects throughout the Township to educate the community, and conducts various engagement activities that educates the general public and more targeted groups in the community. All events are advertised on the Township's website and in the local newspaper.

The Township has created a culture within the community where elected officials and the general public are educated and engaged in outreach events and in doing their part to manage stormwater. This high level of knowledge is primarily due to the way in which stormwater has been portrayed. Instead of focusing on compliance, the Township incentivizes good behavior by educating the public on the environmental, recreational, habitat, and beautification benefits to the community. To get the word out, the Township has been excellent in partnering with local organizations such as the Warwick Township School District, Lititz Run Watershed Association (LRWA), Boy and Girl Scouts, Lititz Borough, and local businesses.

The Township has worked closely with the agricultural community, as well to ensure that 100% of farms in the municipality have a Conservation Plan. Although all farms are required to have this plan, few communities see full participation with all farms. The Township has an excellent reputation for accessing grant funds, and in this case, they received a grant during which no farmer had to pay if they submitted a Conservation Plan within a certain time period. This helps build a positive relationship so farmers work with the local government, rather than against to meet shared environmental goals.

In order for Warwick Township to maintain its level of service regarding MCM 1, the Township should continue current practices and solicit neighboring municipalities to partner in its activities, spreading stormwater education to a wider audience. This will lower costs for the Township and help other municipalities who are struggling to educate their community. In addition, the Township should work toward improving its tracking and documentation of all MCM 1 tasks.

It should be noted that the Township Manager gave much credit to a municipal staff member who has been integral in developing the Township's Public Education & Outreach Plan and planning all stormwater events. The Project Team attended Warwick's Watershed Day with this staff member, who is soon to retire. The Township needs to either train an existing staff member or hire a new staff person prior to this staff member's retirement in order to pass on the knowledge needed to continue the program's success.

MCM Findings: 2. Public Participation & Involvement

The Project Team found that Warwick Township currently provides a high level of service to its community regarding public involvement and participation. The municipality has a written Public Participation & Involvement Plan, hosts LRWA meetings at the Township office, partners with local

organizations to host an annual Stream Clean-up and Watershed Day, and works with the Lancaster County Conservation District (LCCD) and Warwick Township High School to monitor and test the streams twice a year using high school volunteers.

The Project Team found that the Township's excellence in meeting MCM 2 can be traced back to the leadership exhibited by municipal staff and their ability to partner with local organizations, engaging a wide audience in the community on different levels and keeping costs at a minimum by leveraging private sponsors. For example, the Project Team attended the 16th annual Warwick Watershed Day on May 14th, 2013. This event has been taking place for many years and has grown to become an integral part of the Township's community. This event is held each year on various sites throughout the Township – along the stream, on an elected official's property, and the Trout Fishery. Each year, all 5th graders in the Warwick Township School District (which includes Lititz Borough residents) participate in this event, which brings in Zoo America to teach about wildlife, the LCCD to teach about stream health, and private businesses (Johnson & Johnson, for example) to teach about environmental and sustainable practices. This event is so engrained in the community that minimal planning is needed and the costs are very minimal.

Identical to MCM 1, the Township should continue current practices and solicit neighboring municipalities to partner in its activities in order to maintain its current level of service. Warwick Township should serve as a model for other municipalities struggling to educate and engage the public. Lastly, the same staff member responsible for the success of MCM 1 also plans all stormwater-related events, and thus, new hires and existing staff need to be included in the process before this staff member retires. All staff participates in events, but to ensure the internal knowledge remains there needs to be additional training and shadowing.

MCM Findings: 3. Illicit Discharge Detection & Elimination

The Project Team found that Warwick Township currently provides a medium level of service to its community regarding IDD&E. The Township inspects at least 20% of its outfalls each year, has all outfalls and inlets mapped, is working toward developing a comprehensive map of its entire conveyance system using MapShed through Penn State, trains all staff to handle incoming complaints of illicit discharge, and files all hard copies of the IDD&E inspection forms. In addition, the Township provides educational outreach on illicit discharges via a newsletter and newspaper advertisement.

While the Township currently meets its MCM 3 requirements, there are a few simple ways in which the Township could improve its level of service regarding MCM 3, especially since more stringent requirements are anticipated in this category. It is recommended that the Township develop a more formal process for handling IDD&E complaints and that the Township transfers its inspection forms to an electronic format to keep better track in the long run.

MCM Findings: 4. Construction Site Runoff Control

The Project Team found that Warwick Township currently provides a high level of service to its community regarding construction site runoff control. In Pennsylvania, the county conservation districts review and approve all Erosion & Sediment Control Plans for new development and are tasked with inspecting construction sites. Thus, municipalities are limited by the resources available through the conservation district officer in order to meet this MCM. It is important to note, however, that while the conservation district typically reviews, approves, and inspects all new development, the municipality is still held accountable for this MCM. Because of this, municipalities should inspect sites in addition to the conservation district and file all projects separately to help with their MS4 annual reporting.

The Project Team found that Warwick Township was the only participating municipality who does not rely on the LCCD to inspect construction sites. In addition to inspections conducted by the LCCD staff, the Warwick Township Roadmaster and contracted engineer through ELA Group, Inc. conduct both regular and surprise inspections. The Township keeps track of all inspections but does not separate or duplicate MS4-related projects for its annual reporting.

In addition, the Township has developed a repertoire with developers and builders. It was conveyed to the Project Team that during pre-construction meetings the expectations are made clear for any development projects in the Township. In meeting with Township staff, it was made clear that many new development projects in the Township are putting BMPs in place to manage most, if not all, stormwater runoff on its property.

The Township should continue its current practices related to this MCM. The Project Team recommends that the only improvement needed is for the Township to pull out all MS4-related projects into a separate filing system, which will minimize the time needed to compile the MS4 Permit Annual Report and improve the Township's organizational efficiency.

MCM Findings: 5. Post Construction Site Runoff Control

The Project Team found that Warwick Township currently provides a high level of service to its community regarding post construction site runoff control. The Township has a procedure in place for inspecting all post construction stormwater management (PCSM) BMPs and is utilizing the LIMC's Good Housekeeping Handbook for its operations and maintenance (O&M) schedule for publically-owned BMPs. The Township has a full inventory of public, private, and agricultural BMPs within the municipality, which was developed through the LandStudies, Inc. TMDL report written for Warwick Township and Lititz Borough. In addition, there is a stormwater maintenance agreement developed for every lot.

Municipal staff expressed to the Project Team that they often run into situations where private residents or neighborhoods are unable to pay for stormwater BMP maintenance. In this case, the Township has utilized its public works staff to help fix issues or conduct maintenance, but has made the BMP owner pay for materials. Although this shows a true commitment from Township staff to address stormwater, helping fix and maintain private BMPs takes time and resources away from other important tasks. Therefore, the Project Team recommends that the municipality consider developing a different agreement with private BMP owners. This would allow the Township to charge a fee for taking over maintenance, since they already are conducting this work, for example.

Many municipalities have identified sink holes to be a serious issue in the area. It is crucial given the geological makeup of the County that clearly defined policies are set to minimize emergency situations that sink holes present to local governments. Within Warwick Township, the underground surface is made up of limestone and shale. It was suggested by Township staff that growth should be promoted in the shale areas since sink hole problems often occur in the limestone areas. Whether sink holes are created due to stormwater issues or simply the soils in the County, sink holes prove costly to taxpayers, as they often need to be repaired immediately, taking time away from the PWD's daily tasks and can quickly become a public safety hazard. The Project Team recommends policies be written into the stormwater ordinance to minimize development in sink hole "hot spots," and if a developer wants to build on a hot spot that there are clear procedures in place so that the Township does not end up using resources to pay for sink holes on private property.

In order to maintain the Township's current level of service, the Township should continue with the practices in place, and include educational information for municipal staff, developers who work in the Township, and residents to ensure that they are up to date on all stormwater management

regulations, Low Impact Development (LID) and Green Infrastructure (GI) alternatives, and are informed of sink hole issues and how to mitigate those issues using best practices.

MCM Findings: 6. Pollution Prevention/ Good Housekeeping

The Project Team found that Warwick Township currently provides a medium level of service to its community regarding pollution prevention and good housekeeping. The PWD is utilizing LIMC's handbook to develop an O&M procedure; cleans inlets, ditches, and drains typically following inspections; sweeps streets annually; and trains staff throughout the year. Although the Township meets its requirements, a dedicated fee for infrastructure and BMP repair, renovation, and maintenance will provide the resources necessary to increase the level of service for MCM 6.

The Project Team found that the Township either has equipment or shares equipment with Lititz Borough in order to adequately meet this MCM. For example, the Township has a jet vac that is two years old that is used for cleaning. However, the Township does not have a street sweeper. Instead, they exchange services informally with Lititz Borough, so that the Borough owns the street sweeper and sweeps the Township in exchange for other services. The Project Team recommends that the Township develop a more formal agreement with Lititz Borough if they continue to share resources, which is recommended as it keeps costs lower for both communities.

In meeting with municipal staff, the Project Team found staff eager to develop a more comprehensive program to better meet its MCM 6 goals. With the completion of an O&M schedule, the Township will be able to address tasks more regularly and efficiently. Since much of the work is completed in house, more regularly scheduled training opportunities should be provided to the PWD staff so they become more knowledgeable in all components of stormwater-related good housekeeping measures. This could be done in conjunction with Lititz Borough public works staff as a way for staff to share their knowledge and continue working collaboratively to address MCM 6.

Lastly, the Project Team recommends the Township develop better tracking of all stormwater-related public works activities. By tracking all activities over time, the Township will be able to highlight trouble spots in the municipality and more strategically conduct good housekeeping measures. The Project Team found that the Township is on the right track to increasing its level of service for MCM 6.

Anticipated Changes to the MS4 Permit

The PA DEP requires all MS4 permitted municipalities in the Bay watershed to develop a CBPRP by the summer of 2014. The purpose of this plan is to help municipalities strategically implement projects that improve local and regional water quality. The Project Team found that the municipalities typically contract this Plan out to their engineer, and there has been minimal guidance provided to municipalities about what should go into the plan.

In addition to developing a CBPRP, it is anticipated that more stringent requirements will take effect when the new MS4 permits are issued in the fall of 2013. In Maryland, the Department of the Environment (MDE) included a new requirement in its new permit cycle – a **20%** impervious area restoration requirement. It is anticipated that this impervious area restoration, designed to increase the level of runoff managed from existing impervious areas, will require implementing a number of stormwater BMPs. These BMPs will be either nonstructural practices (like diverting runoff from impervious areas to vegetated areas, bioswales, and tree planting) or more traditional structural practices (i.e. stormwater ponds, bio-retention facilities). Based on information received from MDE and Maryland municipalities, it is anticipated that a similar requirement be included in Pennsylvania.

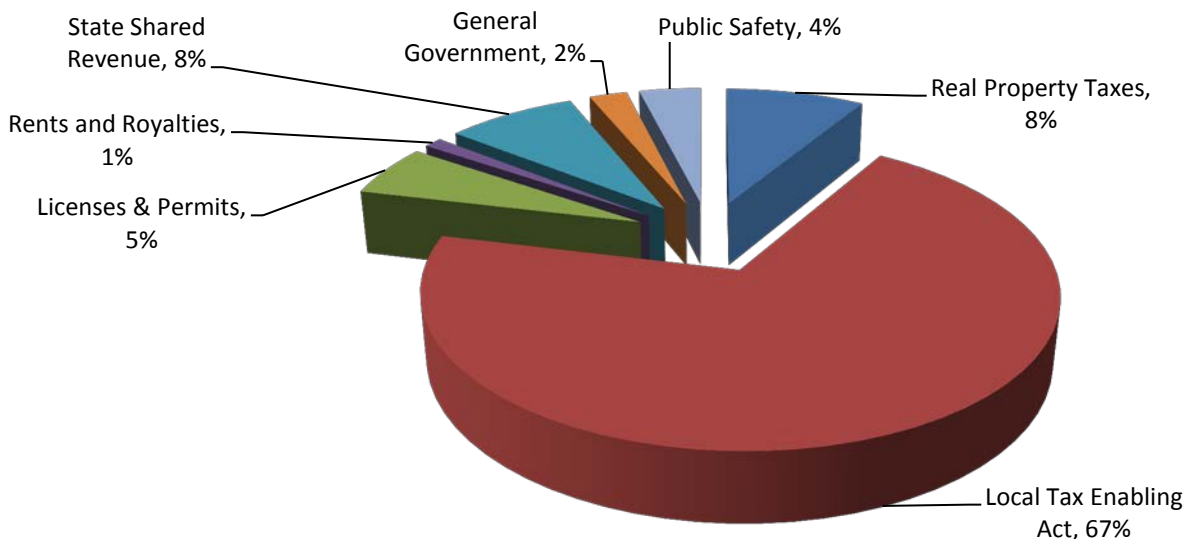
Consideration of Funding Methods for Stormwater in Warwick Township

Properly managing stormwater is considered an essential service, but one that is often unseen or misunderstood by residents and businesses in a community. Stormwater infrastructure requires upgrades and maintenance that is on par with the needs, costs, and annual maintenance as similar services such as wastewater, drinking water, or transportation. However, stormwater is rarely funded to the extent that any of these other services typically are, thus leaving a considerable gap in a stormwater program’s level of service to the community.

Current Method of Funding Stormwater

The current method of funding stormwater in Warwick Township is through grant funding and leveraging relationships with local organizations, but with the majority of the revenue derived from general fund appropriations. Warwick Township’s general fund comes from several sources such as real estate taxes, licenses, and permits (see Figure 14 for breakdown). This revenue is then distributed to sources as appropriate and deemed necessary, such as police, fire, planning and zoning, financial administration, and personnel.⁹⁶

Figure 14: Warwick Township’s 2013 General Fund Revenue Breakdown⁹⁷



Currently, between the general fund allocations for stormwater programming in Warwick Township and the reliance on grant funds, the Township is able to meet its permit requirements. However, in order to enhance the level of service to meet future anticipated regulatory requirements, the Township must more aggressively invest in capital projects and developing an asset management program for its infrastructure. The Township is committed to implementing a dedicated stormwater fee to support the creation of a more strategic stormwater capital plan and program, the next logical step for the Township.

Assessment of Possible Revenue Sources and Funding Methods

Recognizing that the current funding method of having stormwater compete for general fund appropriations with other community priorities and relying heavily on grant awards is clearly not

⁹⁶ Warwick Township 2013 Budget/Forecast Worksheet, Fund 01 General Fund, http://www.warwicktownship.org/warwick/lib/warwick/warwick_township_fiscal_budget.pdf.

⁹⁷ Ibid.

sustainable, the Project Team explored the possibility of using other revenue and funding sources. Although many financing options were explored, only a few cover the costs of capital and operations and maintenance, as highlighted in Table 40 below:

Table 40: Funding Sources, Coverage of Costs, and Features

Funding Source	Coverage of Cost Type		Features
	Capital Improvements	Operations & Maintenance	
Grants	Yes	No	Not guaranteed, highly competitive, not sustainable in the long-term
PENNVEST Loan Program	Yes	No	Not guaranteed, highly competitive, must repay often with interest
Bond Financing	Yes	No	Dependent on fiscal capacity, can utilize for large, long-term expenditures, must repay with interest
General Fund	Yes	Yes	Not equitable, competes with other community priorities, changes from year-to-year
Permit Review Fees	No	No	Not significant revenue, may deter development
Inspection Fees	No	No	Not significant revenue, may deter development
Stormwater Utility Fee	Yes	Yes	Generates ample revenue, sustainable, dependable, equitable, requires significant public dialogue

While a host of fee systems exist to pay for local stormwater programs, not all provide sufficient revenue to support the large costs associated with a comprehensive stormwater management program. While all of the above were found to be useful in funding a specific portion of the entire stormwater management program in each municipality, only the **general fund appropriation** and a **stormwater utility fee** were considered by the Project Team as large enough pots of money to be capable of funding the entire program. The Township should continue to apply for grant funding where possible, but minimize any reliance on such funds to pay for stormwater management over the long term. Continuing to seek out opportunities to apply for grants in the future should not be discounted as a way to fund stormwater with the understanding that it will remain just a small slice of the total revenue needed.

Consideration for Using General Fund Appropriations for Stormwater

As mentioned above, reliance on the general fund as the primary resource for Warwick Township’s stormwater program means that stormwater continues to compete with other higher community priorities leaving the program vulnerable to budget cuts, particularly in future years when new stormwater regulations and nutrient reduction requirements will increase the price tag significantly. The general fund is derived primarily from taxes and the issue of equity and fairness of who pays for stormwater and how much they pay is not taken into consideration. In other words, those paying into the general fund are not paying based on their contribution to the problem of stormwater. In fact, many large properties, such as churches, schools, and government properties are not paying any taxes and therefore not paying anything towards services related to stormwater.

With general funds fluctuating from year to year and the revenue sources that make up the general fund varying in amount, stormwater management is unlikely to ever be adequately funded solely from this source. This does not mean, however, that current funding levels for various activities now being covered by general fund dollars should be lessened or eliminated in future budgets; it means that in addition to using some general fund appropriations, another reliable and dedicated source of funding will be required for Warwick Township to properly manage stormwater. The ultimate financing strategy will require a combination of funding sources to fully round out and adequately fund the entire recommended program to the extent that is needed in the future. The most appropriate mechanism to consider in addition to using some general funds and seeking grants whenever possible is through implementation of a stormwater utility fee.

Consideration of a Stormwater Utility Fee

Since the 1970s, one of the most popular methods of paying for stormwater has been a stormwater utility fee. A stormwater utility fee, sometimes called a service charge, is a separate accounting structure with a dedicated source of funds collected and used only for the purpose of managing stormwater. In its most recent report, the Western Kentucky University Stormwater Utility Survey identified more than 1,400 stormwater utilities nationwide.⁹⁸

The national trend has been to move away from relying solely on taxes for these programs and charge a fee that is stable, adequate to cover the costs of managing the program, and most importantly, equitable. A utility has increasingly become the choice for supporting stormwater *programs* because it is the clearest way to connect level of service/use (runoff) with the fee to be imposed. This type of fee-for-service has been implemented successfully for water, sewer, and solid waste/recycling programs, and has proven highly effective for stormwater, as well.

The Project Team believes that a stormwater utility, known in Pennsylvania as a stormwater authority, is the most equitable financing mechanism because it distributes program costs associated across all properties that contribute in some way to stormwater. Taxes and other fee systems often exclude certain properties from paying, such as those that are tax exempt, yet these properties are still contributing runoff to the system, and often at a rate far greater than that of the average residence.

How a Stormwater Fee Works

The basic premise behind a community's stormwater program is that all property owners receive some benefit from the system being maintained; therefore, all properties should be required to participate in the cost of maintaining that service. Most stormwater fee rates are therefore based on the size, or footprint, of the structural part of a property. This physical part of the property is known as *impervious surface* and includes all of the hard surfaces of a property such as a roof, patio, paved area, or sidewalk. The reason for basing a fee on impervious surface is that a hard surface does not allow water to infiltrate into the ground, thereby increasing the volume and flow of stormwater that a community must manage.

Effective stormwater fees make a direct connection between the anticipated expenses to properly manage the system and the revenue generated. In other words, the fee should be determined by the level of revenue needed to deliver stormwater management services to the community, with some allowance for the level to which a property contributes to runoff.

⁹⁸ Campbell, C. Warren (2013). Western Kentucky University 2013 Stormwater Utility Survey, Western Kentucky University, Bowling Green, page 1.

There are several ways to calculate a stormwater utility rate. The most simple, fair, and common method is based on a parcel's amount of impervious surface – the extent to which a parcel contributes to runoff. When implemented, the fee may take the form of a flat or tiered rate structure, or some combination of both. An Equivalent Residential Unit (ERU) is a unit of measure based on either the average impervious surface of a single family dwelling or residential parcel. A specific fee level is attached to an ERU, and the number of ERUs on a given property often serves as the basis for the stormwater charge.

In many cases for residential properties, a flat fee is often recommended over exact parcel based measurements due to the level of program development and administrative burden that would be involved. This flat fee becomes the rate charge for non-residential properties, since it is assumed that the typical residential property is 1 ERU. Determining the fee for non-residential parcels is typically done by calculating the exact amount of impervious surface on the site and then dividing the amount of impervious surface that was calculated for residential properties to determine the number of ERUs for a particular property. The property is then charged a rate (often the same as the residential flat rate) per ERU.

Implementing a stormwater user fee is a national trend on the increase in the US, primarily because these fee structures, if designed correctly, will collect a sufficient amount of revenue to support program costs in the most equitable manner possible. Also, utility-based stormwater programs tend to be more efficient, as the responsibility for managing stormwater is coordinated in one program rather than piecemeal across several departments. In the case of Warwick Township, a utility, or in Pennsylvania known as an authority, would create an adequate and stable source of funding dedicated solely to stormwater and allow for a comprehensive program, consistent in funding from year to year, and meets all regulatory requirements, nutrient reduction needs, and community goals.

Municipal staff shared with the Project Team the desire to continue with much of its current practices, supporting its administrative and O&M costs using general fund appropriations and grants where possible. Instead, a stormwater user fee will be utilized only to support the implementation component of a robust asset management program, i.e. paying for pipe repair and replacement and BMP renovation and maintenance. In many circumstances, the Project Team would not recommend this type of system, since it continues the piecemeal trend that exists in many local governments. Given the high level of service in the Township and its commitment to having a holistic approach to water resources, whereby all activities have a stormwater component, it makes sense for much of the program to be funded using the General Fund. However, Township staff will need to make it very clear to their elected officials and the public that since the fee will reflect only certain aspects of the stormwater program, general funds must still be allocated at the level they are now, and likely increased in the future. Table 41 below shows current stormwater user fees in Pennsylvania, including their ERU rate and total revenue collected.

Table 41: Stormwater User Fee Examples in Pennsylvania⁹⁹

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Meadville, Crawford County (2012)	13,616	Single family detached residential = \$90/year All other developed non-single family detached parcels = \$90/year/ERU, where 1 ERU = 2,660ft ² impervious surface Reference: Meadville Stormwater Management User Fee Ordinance	Unknown
Mount Lebanon, Allegheny County (2011)	33,137	Single family, townhouse, or duplex = \$8/month All other properties = \$8/month/ERU, where 1 ERU = 2,400ft ² impervious surface Reference: Mt. Lebanon Stormwater Fee Ordinance	Unknown
City of Philadelphia (2010)	1,536,471	Residential = \$13.48/month Non-residential = Gross Area: \$0.526/500ft ² Impervious Area: \$4.145/500ft ² Monthly Billing: \$2.53 per account Reference: PWD Stormwater Billing & Stormwater Fact Sheet	\$655,000
City of Lancaster, Lancaster County (2013)	59,263 ¹⁰⁰	Single-family residential = \$4-\$12/quarter Multi-family residential = \$12-\$19/quarter Typical commercial = \$237/quarter Tiered rate structure for all properties where 1 ERU = 1,000ft ² Reference: The Cost of Dealing with Stormwater	Not implemented yet
Jonestown Borough, Lebanon County, PA (2012)	1,329 ¹⁰¹	Single-family, townhouse, or duplex = \$70/year in year 1; \$80/year in years 2-4 All other properties = \$70/year/ERU in year 1; \$80/year/ERU in years 2-4, where 1 ERU = 3,100ft ² Reference: Stormwater Information	Unknown

Legal Basis in Pennsylvania Enabling Stormwater Authorities

The five stormwater user fee examples listed above are the only known stormwater utilities within Pennsylvania, and are in various stages of development and implementation. Historically, paying for stormwater has been a contentious issue within the state, since it is unclear whether such dedicated fees are enabled by state legislation.

⁹⁹ Data came from each individual municipality's website *and* the Western Kentucky University 2013 Stormwater Utility Survey.

¹⁰⁰ 2011 US Census Bureau ACS 5-year Estimates.

¹⁰¹ Ibid.

In PA, utilities are typically regulated by the Pennsylvania Utility Commission (PUC), and the PUC will not at this time regulate stormwater. Thus, the creation of dedicated fees for stormwater often comes under the guise of an *authority*.

The contention, then, lies in the language written into the Pennsylvania Municipality Authorities Act, which states:

“§5607. Purposes and powers

(a) Scope of projects permitted.--Every authority incorporated under this chapter shall be a body corporate and politic and shall be for the purposes of financing working capital; acquiring, holding, constructing, financing, improving, maintaining and operating, owning or leasing, either in the capacity of lessor or lessee, projects of the following kind and character and providing financing for insurance reserves:

(1) Equipment to be leased by an authority to the municipality or municipalities that organized it or to any municipality or school district located wholly or partially within the boundaries of the municipality or municipalities that organized it.

(2) Buildings to be devoted wholly or partially for public uses, including public school buildings, and facilities for the conduct of judicial proceedings and for revenue-producing purposes.

(3) Transportation, marketing, shopping, terminals, bridges, tunnels, flood control projects, highways, parkways, traffic distribution centers, parking spaces, airports and all facilities necessary or incident thereto.

(4) Parks, recreation grounds and facilities.

(5) Sewers, sewer systems or parts thereof.

(6) Sewage treatment works, including works for treating and disposing of industrial waste....”¹⁰²

The Act does not differentiate between *sanitary* and *storm* sewer systems, thus creating much debate over the years as to whether storm sewer systems can be financed through an authority. A further discussion as to the legality of stormwater authorities is essential within a locality before imposing a stormwater fee, however, not the focus of this report.

In April 2013, historic legislation (Senate Bill 351) passed by a vote of 49-1 that enables stormwater authorities at the municipal level. Without this legislation, municipalities were reluctant to move forward in setting up a dedicated stormwater fee. This legislation paves way for municipalities to implement dedicated fees to ensure that stormwater is managed adequately and more cost efficiently in the long run, and it is anticipated that stormwater user fees will begin to develop more rapidly in the state than ever before due to SB 351.

Warwick Township’s Stormwater Financing Recommendations

Program Funding Needs

To identify the necessary components of an enhanced stormwater program for Warwick Township, the Project Team worked with municipal staff to conduct a comprehensive review of all aspects of

¹⁰² Purdon’s Pennsylvania Statutes and Consolidated Statutes, Title 53 Pa. C.S.A. Municipalities Generally, Part V. Public Improvements, Utilities and Services, Subpart A. General Provisions, Chapter 56. Municipal Authorities, Retrieved from: http://www.municipalauthorities.org/wp-content/uploads/2008/11/Title_53_Ch_56_MAA_01-13.pdf.

current spending on stormwater management. When considering the level of stormwater management service identified as necessary in the Township, the Project Team found that while current budgeting practices are adequate in meeting the existing regulatory requirements, additional funds are needed to develop and implement a more strategic stormwater program. With tighter fiscal budgeting and more stringent permit requirements anticipated in the future, the Project Team and municipal staff agreed that a more comprehensive program will ensure a more viable stormwater management program into the future.

The Project Team worked with municipal staff to identify the estimated costs of two essential components of the stormwater program in the Township – (1) the costs of repairing and replacing the entire storm sewer pipe system and (2) the costs of maintaining and renovating all municipally-owned BMPs. It is important to note that the discussion of program funding needs focuses only on the two costs identified. The Township will continue to pay for other costs to implement the stormwater program – administrative, equipment, personnel, and operations & maintenance – using general fund appropriations and grants. It is possible in future years that developer fees will be enacted, and if this happens the Project Team recommends the revenue from those fees be used to pay for other stormwater-related costs in addition to what will be supported through a dedicated stormwater user fee.

The Project Team found that a 5-year revenue stream totaling \$639,268, when adjusted for inflation at a rate of 2.5% per year, will be needed to support a municipal stormwater asset management program.¹⁰³ The Project Team found consensus among the municipal staff in the Township on their desire to continue with most of the stormwater program as is and utilize a dedicated user fee to support very specific, yet essential tasks. See Appendix G for an itemized list of the proposed budget for years 1-5. The following section describes the expenditures broken down by the two essential components being supported through the fee – (1) the costs of repairing and replacing the entire storm sewer pipe system and (2) the costs of maintaining and renovating all municipally-owned BMPs.

Stormwater Asset Management Program Expenditures

Storm Sewer Replacement Program Costs

The Township estimated the total cost to replace the entire storm sewer system at \$1,954,100 (see Table 42). Since the average useful life of the pipes in the Township is estimated at 30 years,¹⁰⁴ the total budget was divided by 30 to determine the annual cost of replacing the entire system. The annual cost without taking into account inflation is \$65,137, which represents the straight line reserves the Township should generate each year, and assumes that 1/30 of the pipes will be replaced each year by the Public Works staff.

¹⁰³ Inflation was taken into account for all expenditures in years 2-5; Inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The percent change in the annual average CPI between 2003-2012 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from:

<ftp://ftp.bls.gov/pub/special.requests/cpi/cpiat.txt>

¹⁰⁴ Warwick Township staff averaged the useful life of corrugated metal pipe (CMP) = 20 years and concrete = 50 years.

Table 42: Warwick Township Storm Sewer System Replacement Costs, 2013

Item	Quantity	Unit	Unit Cost	Total Cost
15" Storm Sewer Pipe	14,400	LF	\$32.00	\$460,800
18" Storm Sewer Pipe	4,800	LF	\$37.00	\$177,600
24" Storm Sewer Pipe	2,400	LF	\$42.00	\$100,800
36" Storm Sewer Pipe	1,200	LF	\$57.00	\$68,400
>36" Storm Sewer Pipe	1,200	LF	\$70.00	\$84,000
Grate Inlets and Manholes	500	EA	\$1,500.00	\$750,000
Headwalls and Endwalls	250	EA	\$1,250.00	\$312,500
Storm Sewer System Total Cost to Replace (30 Years)				\$1,954,100

These costs were determined internally within the Township and then analyzed further by the Project Team to determine the annual reserves needed to pay for the replacement of the entire system, and ensure the long term viability of this fund. Since the cost of materials today is less than the cost of materials in the future, the Project Team took into account inflation each year, increasing the annual cost by 2.5%. In addition, 10% contingency costs were included each year to account for fluctuating costs and emergency-related events.

Table 43: Storm Sewer System Replacement Costs, 5-Year Projection

Year 1	Year 2	Year 3	Year 4	Year 5
\$71,651	\$73,442	\$75,278	\$77,160	\$79,089

BMP Replacement and Required Maintenance Costs

The Township estimated the total cost to renovate and maintain all publically-owned BMPs at \$262,000 over a 20-year period (see Table 44). The annual cost without taking into account inflation is \$13,100. This assumes that all line items in Table 44 would be paid for over 20 years. However, a more in-depth analysis is needed to determine which BMPs will be renovated and/or replaced each year.

Table 44: Warwick Township BMP Replacement and Required Maintenance Costs, 2013

Item	Quantity	Unit	Unit Cost	Total Cost
Linear Park Basin (5+ Acres):				
Renovation (1 per 20 years)	1	EA	\$55,000.00	\$55,000
Dredging and Cleaning (1 per 5 years)	4	EA	\$7,500.00	\$30,000
Municipal Campus Basin (2-1/2+ Acres):				
Renovation (1 per 20 years)	1	EA	\$35,000.00	\$35,000
Dredging and Cleaning (1 per 5 years)	4	EA	\$4,000.00	\$16,000
Various Bio-Basins (6 @ 10,000 - 15,000 SF):				

Item	Quantity	Unit	Unit Cost	Total Cost
Renovation (1 per 20 years)	6	EA	\$15,000.00	\$90,000
Dredging and Cleaning (1 per 5 years)	24	EA	\$1,500.00	\$36,000
BMP Replacement and Required Maintenance Costs (20 Years)				\$262,000

If the Township simply spreads the costs over 20 years, they will not have the funds to pay for the maintenance and renovation projects needed in the next few years. The Project Team conducted an analysis to determine how the costs should be estimated in each year in order to balance having the necessary funds to pay for repairs and maintenance with minimizing the stormwater fee for property owners.

The Project Team estimated in which year each BMP would be renovated and in which year each BMP would be maintained. The goal was to have all BMPs renovated once and maintained once in the first five years, typically in the year after the project is renovated since it can be assumed maintenance will be required in the first year, and then every five years. This meant spending a larger amount in the first five years to begin developing a constant reserve fund. After five years, the costs level out and only increase by inflation.¹⁰⁵ 10% contingency costs were included each year to account for fluctuating costs and emergency-related events. See Appendix G for a detailed table of BMP renovation and maintenance costs and the annual reserve fund for each line item. A summary of costs is provided below:

BMP Renovation Costs (20-year)

- Linear Park Basin: Total Cost = \$55,000; Annual Reserve = \$2,750; Year Complete = Year 1
- Municipal Campus Basin: Total Cost = \$35,000; Annual Reserve = \$1,750; Year Complete = Year 3
- Six Bio-Basins: Total Cost = \$90,000 (Unit cost = \$15,000); Annual Reserve = \$4,500; Year Complete = 2 in Year 1; 2 in Year 2; 2 in Year 3

BMP Maintenance Costs (5-year)

- Linear Park Basin: Total Cost = \$7,500; Annual Reserve = \$1,500; Year Complete = Year 2
- Municipal Campus Basin: Total Cost = \$4,000; Annual Reserve = \$800; Year Complete = Year 4
- Six Bio-Basins: Total Cost = \$9,000 (Unit cost = \$1,500); Annual Reserve = \$1,800; Year Complete = 2 in Year 2; 2 in Year 3; 2 in Year 4

Table 45: BMP Renovation and Maintenance Costs, 5-Year Projection

Year 1	Year 2	Year 3	Year 4	Year 5
\$99,935	\$48,637	\$80,578	\$17,418	\$16,081

¹⁰⁵ Inflation was taken into account in all years.

Total Expenditures

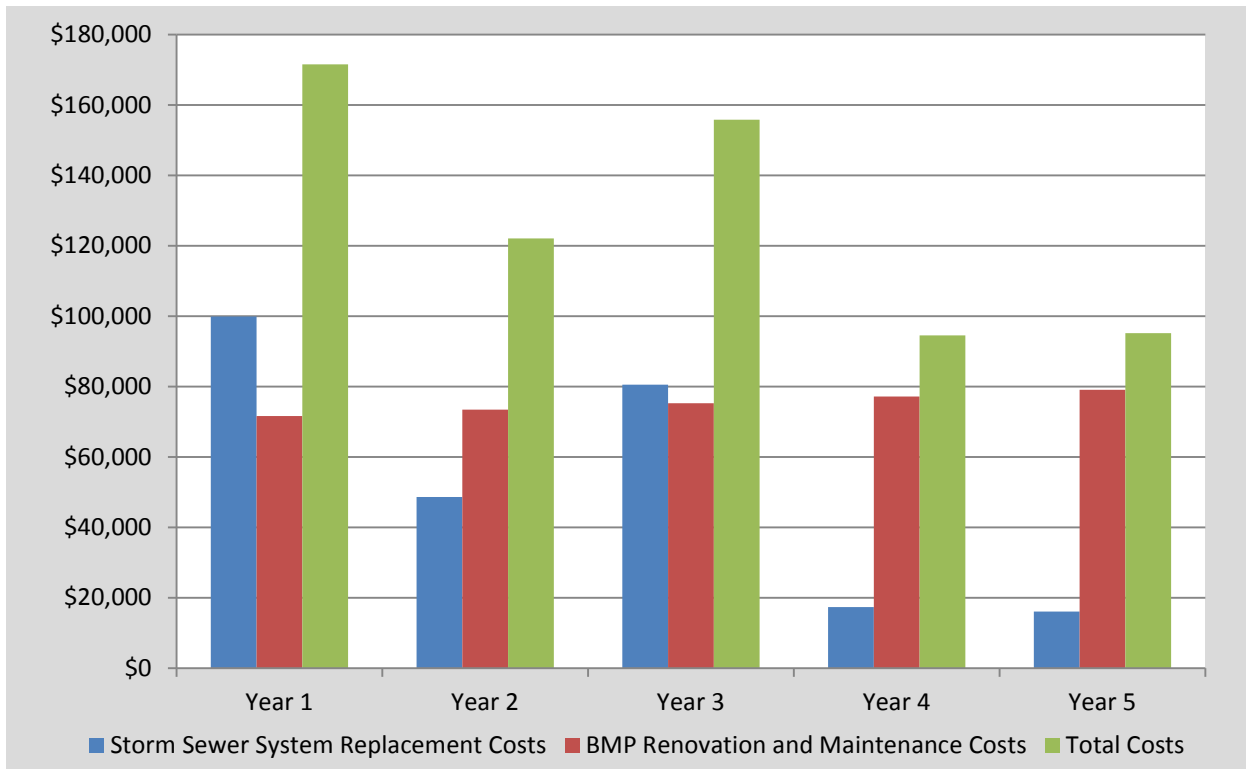


Figure 15. Proposed Stormwater Budget, Years 1-5. Storm sewer system replacement costs and BMP renovation and maintenance cost over five years total \$262,000.

Figure 15 above shows the breakdown of expenditures projected over five years. Based on the total expenditures, a discussion of the necessary revenue to maintain an annual reserve fund to support the Township’s stormwater asset management program follows.

Stormwater User Fee Rate Structure Analysis

Why This Study is Recommending a Stormwater User Fee for Warwick Township

Based on the needs outlined by Township staff and identified by the Project Team, Warwick Township will need to set aside reserve funds each year to pay for the “hard” costs of managing stormwater in the municipality, which totals an estimated \$639,268 over a five year projection. Our key recommendation is to create a dedicated stormwater user fee that will distribute the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to stormwater management needs.

As discussed earlier, the more impervious surface that a property has, the more stormwater it generates and the more responsible the property owner is to help the community manage stormwater. As private driveways, parking lots, swimming pools, decks, and other such structures allow residents and businesses to enjoy additional living and working conveniences, the burden of maintaining and repairing the infrastructure that supports those additional structures and surfaces should be shared by those contributing to the problem rather than the community at large. Just as a property owner is responsible for paying its share of waste disposal, water use, or electricity consumed, so should they recognize and be accountable for the stormwater created from their built environment.

Once it became clear that there was a significant need to have a dedicated funding source to cover long-term capital and maintenance costs in Warwick Township, the Project Team considered what financing mechanism would be most appropriate to generate these funds. Through discussions with Township staff, it was clear that no additional funding should come from property taxes; the municipality already provides a high level of service managing stormwater using general fund appropriations and grants, and in order to create a comprehensive program that is sustainable, the Project Team and Township staff decided a stormwater user fee is the most equitable way to pay for a stormwater program.

A stormwater user fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem. Since it is anticipated that development and growth continue in the Township, increasing the amount of impervious surface, it is appropriate to charge properties that contribute significant runoff more and properties that contribute insignificant runoff less. From the Project Team's perspective, the major concern with this approach is the investment required by the Township to assess properties based on their exact contribution to stormwater runoff (i.e. parcel-based impervious surface calculations). From Township staff's perspective, the major concern with this approach is that some larger properties will be hit with large fees even if the stormwater is managed on-site, which occurs more often than not with new development in the Township. The rate structure scenarios presented in this report lay out two options – one that is more impervious-based and another that reduces the burden for all non-residential properties.

Billing Recommendations

Since enabling legislation was passed very recently in Pennsylvania, there are few examples that exist in the state to use as a model for implementing dedicated stormwater user fees. In Pennsylvania, the government structure creates so many small, autonomous municipalities with unique circumstances based on municipality type. In the past, cities, boroughs, and home rule municipalities have had an easier time passing ordinances to set up stormwater fees in the state. Since Warwick is a Township, it will need to set up a stormwater fee by either creating a new authority or utilizing its existing authority to bill its customers for stormwater.

The “operating” Warwick Township Municipal Authority (WTMA) provides the Township with municipal water and sewer services and bills residents quarterly.¹⁰⁶ Since Warwick is ahead of many municipalities in managing stormwater in the County, it is likely that they will be one of the first to set up a stormwater fee, and likely be unable to form a regional authority with neighboring municipalities. However, the Project Team recommends that the Township meet with Lititz Borough and neighboring municipalities to discuss the possibility of a regional stormwater authority supported through a dedicated user fee before implementing its own to get a sense of if and when others will be interested in participating.

If the Township partners with municipalities to set up a fee, a new authority will have to be created. If the Township sets up a fee on its own, the Project Team recommends the Township utilize its existing authority to bill customers for stormwater. In this case, the existing authority must first amend its articles of incorporation to include the scope of its entire stormwater program and related activities.¹⁰⁷

¹⁰⁶ Warwick Township Municipal Authority, Warwick Township (Lancaster County, PA),

<http://www.warwicktownship.org/warwick/cwp/view.asp?a=3&q=656239&warwickNav=|7340|>.

¹⁰⁷ McClinktock, Robert, *Amendment to the Municipal Authorities Act Allows Municipal Authorities to Manage Storm Sewer Systems*, Municipal Law Alert, July 27th, 2013, Retrieved from:

<http://www.lambmcerlane.com/blog/895453853-amendment-municipal-authorities-act-allows-municipal-authorities-manage-storm-water>.

If the Township adds a stormwater line item on the WTMA bill, the revenue could then be transferred directly to the Township once created to support an asset management program.

There are a variety of issues that exist when setting up stormwater billing, and few examples in Pennsylvania exist to use as a model. It is recommended by the Project Team for Warwick Township to discuss internally which option is easier to administer and will create fewer transaction costs.

Based on the experience of other communities, it is recommended that the Township set up a strong administrative structure to deal with public questions and concerns, particularly when the user fee is first launched. Other communities who have implemented stormwater utilities report that the outreach need is very high at first but declines as the utility rolls out. A help line and Township staff members should be made available to quickly address customer concerns.

Rate Structure Analysis

In determining an equitable funding strategy for collecting \$629,268 in revenue over the next five years to pay for the development of a stormwater asset management program, the Project Team reviewed available data on all parcels located in the Township provided by GIS staff at the LCPC. The Project Team calculated potential revenue using a flat rate fee for parcels classified residential, and a combination of a tiered fee and ERU-based fee structure for all parcels classified as non-residential.¹⁰⁸ The Project Team worked with the LCPC's land use codes, as this framework will be easy for Warwick Township to implement moving forward.

Summary of recommended rate structure for residential properties

The decision to recommend a flat rate fee for residential properties reflects a balance between equity and administrative burden. After reviewing the large number of residential units and the many different types of residential properties located within the Township, the Project Team became concerned that a parcel-specific fee structure would require additional capacity on the part of the Township to properly estimate the total impervious surface for all residential properties in the community. Based on our experience working in other communities, it was agreed that calculating the level of impervious surface on every residential property would cause significant administrative burden. In addition to this being an overwhelming effort, the Project Team agreed that the risk of errors on bills could cause confusion about the billing calculation and increase the risk of complaints from the residential population. Township staff made clear that simplicity is also a key factor in setting stormwater fee rates. Additionally, the Project Team found that there was not a large enough spread among the sizes of the residential units to make taking on the task of developing unique bills for 5,403 residential parcels worthwhile. A distribution of all the residential properties in the Township is depicted in Figure 16. All multi-family residences are classified by LCPC as commercial, and therefore will be billed based on the non-residential fee structure discussed below. This means that an apartment building's management firm will be billed as a commercial property and can then determine how best to recuperate these costs from their buildings' residents.

¹⁰⁸ Multi-family units are classified commercial in the LCPC land use codes. The Project Team kept these properties in the non-residential category.

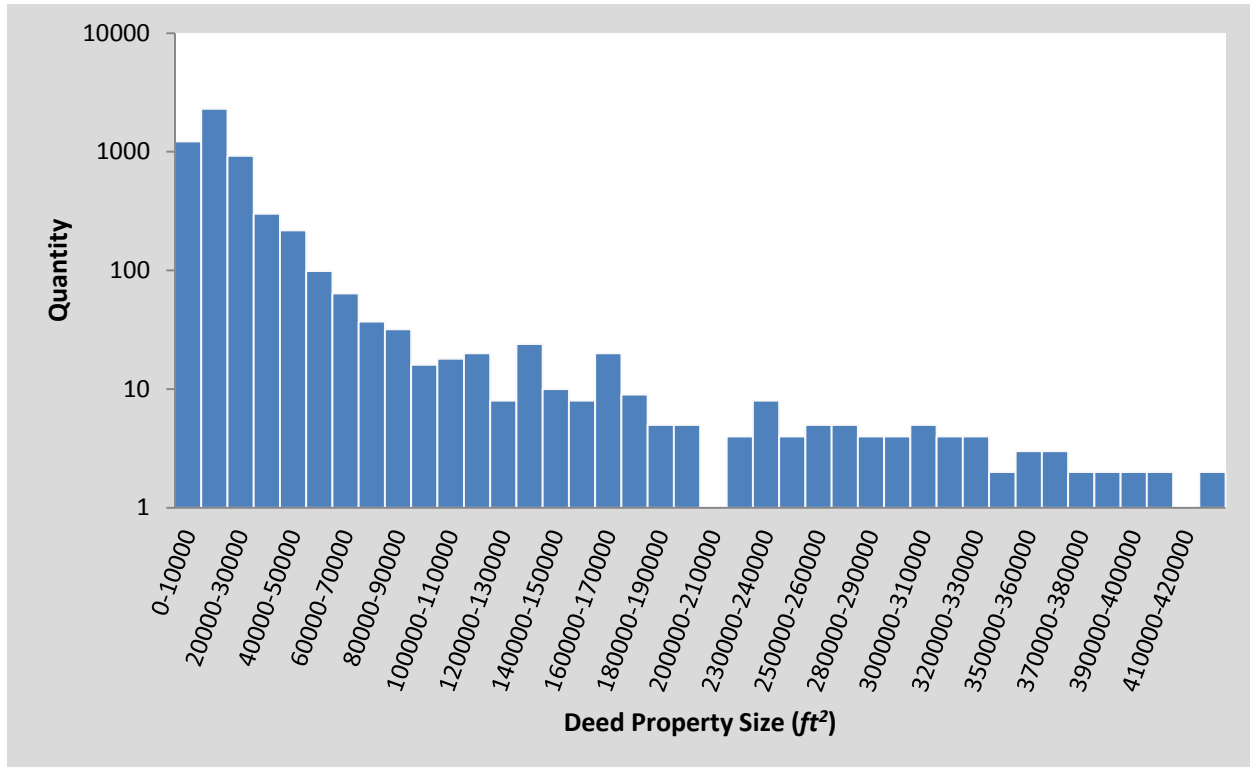


Figure 16. Distribution of Residential Property Sizes in Warwick Township. The median residential property is 16,117 ft². This figure shows the property sizes are skewed to the left, indicating the distribution is composed of more small properties than large.

Summary of recommended rate structure for non-residential properties

Because the size and nature of non-residential units vary widely, the Project Team finds that a parcel-based rate structure that takes a parcel’s specific level of impervious surface into account to be the fairest method of assessing the stormwater fee on these properties. However, due to the time and capacity needed to develop the mapping and administrative processes to bill non-residential properties accurately, it is recommended that the Township utilize a tiered system that is based on average impervious surface estimates in the beginning years of the program. Since the Township feels strongly in keeping the rate structure simple and low for everyone, and many residents and businesses have implemented a lot of private BMPs in order to manage stormwater on-site, the Project Team created a simpler tiered version as well. Both versions will be laid out in this report. The Project Team learned that Lancaster City is also using a tiered system based on actual impervious data for their stormwater utility fee. The Project Team recommends consistency among municipalities in the County to increase the probability of community support for a fee.

For all 422 non-residential parcels, it is recommended that a user fee be assessed based on the categorical average impervious surface. Research conducted by the Project Team found that many communities utilize a tiered system for residential and/or non-residential properties. For example, Lancaster City seeks to charge a typical commercial property \$237 per quarter and increases its fee in increments of 1,000 ft² of impervious surface.¹⁰⁹ The Project Team recommends using a similar method for Warwick Township. Using a tiered system, the land area will be assessed based on categorical impervious surface estimates to calculate the property owner’s bill.

¹⁰⁹ The Cost of Dealing with Stormwater, Lancaster City, Retrieved from: <http://www.saveitlancaster.com/thecost/>.

After conducting a sensitivity analysis¹¹⁰ using various fee structures, the Project Team found that there are many options for the Township to set its initial rates. It is recommended that the ERU be set at 6,155 ft^2 since that number represents the average residential impervious surface in the Township¹¹¹. Depending on whether the Township wants to utilize a tiered fee based on impervious surface, or a simpler version, the rate should be set between \$15 and \$20 per year per ERU. With so many questions still left unknown, it is recommended that the fee be reviewed and adjusted as needed after each year. Another variable to be considered in terms of rate adjustment is the impact of a credit system, that should be considered if a fee is implemented.

Estimated total revenue from all properties

The estimated total revenue generated is distributed between residential and non-residential properties and is calculated as follows:

Residential – The residential properties should be assessed a flat fee between \$15 and \$20 per year. The final rate chosen by Warwick Township should be consistent with the non-residential rate. Table 46 shows the revenue yield for each scenario.

Table 46: Annual Residential Property Revenue Generated

Number of Parcels	\$15	\$20
5,403	\$81,045	\$108,060

The residential fee is based on the assumption that an average property has approximately 6,155 ft^2 of impervious surface and, therefore, all properties are billed for 1 ERU per year. The fee at which 1 ERU is set will be determined based on the necessary revenue needed to support the program and whether the Township wants to err on the side of equity or err on the side of simplicity, two equally important components of rate setting.

Non-Residential – According to data provided by the LCPC, there are 422 non-residential properties in Warwick Township. This data included the land area of each property, and the average impervious surface data by categorical land use (industrial, commercial, community service, cultural activity, and agricultural) for all properties.

To determine each tier, the Project Team first took all non-residential properties by category to determine each property’s estimated impervious surface using categorical averages. The average percent impervious surface by category is shown in Table 47 below.

¹¹⁰ A sensitivity analysis is defined as “a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions.” (Source: <http://www.investopedia.com/terms/s/sensitivityanalysis.asp#axzz24Ck0N3rj>). In order to determine the appropriate fee structure to raise the amount of revenue necessary to fund a comprehensive stormwater management program, the Project Team created different scenarios using different rates and ERUs, therefore conducting a sensitivity analysis.

¹¹¹ The average impervious surface for residential properties is based on LCPC data provided to the Project Team (the average sum of building footprint and driveways on residential properties), which was determined using GIS data based on aerial photography.

Table 47: Average Percent Impervious Surface by Parcel Type

Parcel type	Average impervious surface (%)
Industrial	49.78
Commercial	36.94
Community Service	31.41
Cultural Activity	9.16
Agricultural	2.04

Each non-residential property was then organized by parcel type and each individual parcel’s land area was multiplied by the appropriate average impervious surface percentage. For example, a commercial property that is 20,000 ft^2 has an estimated 36.94% impervious area. This property will then be billed for 7,388 ft^2 of impervious surface (20,000 ft^2 x 36.94%). Once the estimated impervious surface was calculated for each property, the Project Team conducted a statistical analysis to determine the tiered structure. A quartile system was utilized to divide the tiers into four equal groups. Table 48 shows the quartiles for the sum of all non-residential parcels using their estimated impervious surface calculations.

Table 48: Non-Residential Statistical Data to Determine Tiers

Quartiles	Quartile Impervious Surface Upper Bound (ft^2)	Tier (ft^2)
Percentage (25%) (Q1)	13,552	<= 14,000
Median (Q2)	34,313	>14,000 & <=35,000
Percentage (75%) (Q3)	64,864	>35,000 & <=65,000
Upper Bound (Q4)	1,609,106	>65,000

Using this 4-tiered system, the Project Team then determined the number of properties that fell into each tier. Then, the upper bound of each tier for quartiles 1-3 was divided by 6,155 ft^2 to determine the number of ERUs that parcels in each tier will pay. So that parcels in the fourth quartile (Q4) were not all paying as if they were the upper bound, the median of all parcels in Q4 (approximately 100,000 ft^2) was divided by 6,155 ft^2 to determine the number of ERUs that parcels in Q4 will pay. In the simpler version, the same tiers are used; however, the ERUs simply increase by 1. Therefore, all properties in Q1 pay 2 ERUs, in Q2 3 ERUs, in Q3 4 ERUs, and in Q4 5 ERUs. The final ERU for each tier (for both the impervious-based and simple versions) was then multiplied by the flat fee scenarios and then again by the number of parcels in each tier to determine the total revenue generated from non-residential parcels. Table 49 shows the summary of this analysis below.

Table 49: Annual Non-Residential Property Revenue Generated by Tier, Impervious-based and Simple Versions

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /6,155 ft ²)	ERU (Simple Version)	ERU x \$ x Number of Parcels			
				Impervious-based Version		Simple Version	
				\$15	\$20	\$15	\$20
First tier: <=14,000	111	2.27	2.00	\$3,787	\$5,050	\$3,330	\$4,440
Second tier: >14,000 & <=35,000	102	5.69	3.00	\$8,700	\$11,600	\$4,590	\$6,120
Third tier: >28,000 & <=78,000	104	10.56	4.00	\$16,474	\$21,966	\$6,240	\$8,320
Fourth tier: >78,000	105	16.25	5.00	\$25,589	\$34,119	\$7,878	\$10,500
Total Revenue Generated				\$54,551	\$72,734	\$22,035	\$29,380

The total revenue potential for all fee structures is shown in Table 50 below.

Table 50: Total Revenue Potential

	Impervious-based Version		Simple Version	
	\$15	\$20	\$15	\$20
Residential	\$81,045	\$108,060	\$81,045	\$108,060
Non-residential	\$54,551	\$72,734	\$22,035	\$29,380
Total Revenue (1-year)	\$135,596	\$180,794	\$103,080	\$137,440
Total Revenue (5-year)	\$677,979	\$903,972	\$515,400	\$687,200

For the fee to be adequate as well as equitable, the total expenditures should as closely equal the total revenue as possible. If Warwick Township funds its stormwater asset management program entirely by the user fee, then the fee would need to be set at **\$15** per year per ERU using the impervious-based version or **\$20** per year per ERU using the simplified version, where all residential properties pay 1 ERU.

It is difficult to estimate the effect of a credit system being imposed on the program. However, based on a credit system imposed in later years, revenues may decrease depending on the parameters of the system, how many residents participate, and to what extent. An estimate of the impact of these credits must be considered in future years, and the rate structure must be reevaluated to ensure that a credit system does not infringe on meeting revenue needs. It is unclear just how effective the credit system will be and there are no data that supports an average amount to consider. For more information about a credit system, please see Chapter 11.

Chapter 10: Individual Municipal Analysis – West Lampeter Township

West Lampeter Township is located just south of Lancaster City and has developed into a suburb of the City, with approximately half of the Township maintaining its rural composition. With a population of 15,032¹¹², it is one of the mid-range municipalities of the six who participated in this study. The Township hopes to continue developing more neighborhoods as suburban sprawl continues to expand across Lancaster County while still maintaining its strong agricultural sector.

At the beginning of the study, each municipality was asked to provide their priorities, needs, and goals to the Project Team. West Lampeter Township provided the following:

Priorities

1. Understanding the condition of existing storm sewer system such as identifying “hot spots”, function ability, and maintenance costs;
2. Evaluating agricultural operations such as farming methods, stream bank restoration, nutrient management plans, and coordination with the LCCD to identify BMPs;
3. Identify opportunities for community outreach and education targeted at private land owners, schools, community groups, and the general public; and
4. Assess policies, ordinances, and regulations for capital improvements, road maintenance, planned infrastructure including opportunities for GI, stormwater ordinances, coordination with the LCCD, and clarification and coordination with the state and federal government to better address guidelines and regulations.

Needs

1. Coordinate with the Lancaster Inter-Municipal Committee (LIMC) for mapping inlets and outfalls;
2. Compile data from land development plans;
3. Evaluate existing systems in all sectors;
4. Assistance with education and outreach;
5. Provide recommendations to manage Township-wide stormwater program;
6. Provide recommendations to fund Township-wide stormwater program;
7. Develop a holistic approach to stormwater management practices across all sectors and in the region; and
8. Develop baseline data of existing conditions of waterways within the Township/region.

¹¹² 2011 US Census Bureau ACS 5-year Estimates, used the advanced search option to search ACS 5-year total population estimates by municipality using:
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>,
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>,
<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.

Goals

1. Improve quality of stormwater leaving the Township and entering waterways;
2. Correct flooding in flood prone areas;
3. Cleaner water leaving developments;
4. Integrate multiple sectors (agriculture, business, residential) into Township and regional solutions.¹¹³

Many components of the priorities, needs, and goals outlined by the Township are aligned with the EFC's focus and goals when undertaking a stormwater financing feasibility study. The main goal of the study for the Project Team was to assess the current municipal stormwater program and provide the Township with financing recommendations to help them improve their current program and implement cost saving measures to create a comprehensive and sustainable stormwater program. This goal ensures that the Township has the resources and capacity to improve and maintain a higher level of service to its residents and businesses and address all stormwater-related compliance activities.

Assessment of West Lampeter Township's Current Stormwater Program

In the new NPDES MS4 permit being issued to all Phase II municipalities in Pennsylvania, there will be six MCMs consistent with those found in the old permit. Although the purpose of each MCM will be the same as previous permit cycles, the requirements to meet each MCM are anticipated to be more stringent in the future permit. The following six MCMs are the elements contained in the NPDES MS4 permit that outline specific areas the community must address:

1. Public Education & Outreach
2. Public Participation & Involvement
3. Illicit Discharge Detection & Elimination (IDD&E)
4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

For each MCM, there are specific stormwater BMPs that West Lampeter Township can implement to comply with its permit. Although there is flexibility to implement BMPs that fit the needs and resources within the community, there are significant costs associated with addressing each MCM.

The Project Team worked closely with municipal staff and the Township engineer to determine the current level of service for each MCM. A discussion of the findings is below.

Overall Stormwater Program Findings

Stormwater Infrastructure

West Lampeter Township remains mostly agricultural and residential, with a few prominent businesses and recreation areas located in the Township. There is a mix of old and newer infrastructure, as the Township has experienced surges of growth and was hit harder than other municipalities in the most recent economic downturn.

The majority of stormwater infrastructure is located in the Willow Street area and was installed in the 1960/70s. The infrastructure that remains just outside Lancaster City is older than what was

¹¹³ Information provided by West Lampeter Township directly to the Project Team.

installed in Willow Street, although the Township does not know when the pipe system was installed. In the 1980/90s there was a development boom of fairly large neighborhoods and additional elementary schools to accommodate the growing residential population. Most recently, the Township was on track to develop more condensed residential neighborhoods, however, much of those units were not constructed due to the economic downturn, and are only recently being resurrected.

The Township staff explained to the Project Team that in the newer developments, there are stormwater wetland and detention areas that work well, but there have been complaints over concerns of West Nile, which the Township has had to address by treating these stormwater facilities.

Most agricultural land located in the Township is in production¹¹⁴, and the average farm is approximately 90-150 acres. The Plain Sect makes up approximately 25% of the farmers in the Township, and the Project Team found that Township staff has worked hard to maintain a good relationship with this part of its community. Although not part of the stormwater infrastructure, per se, since agriculture makes up such a large part of the community, working closely with the farmers to implement best practices on their farms will help the Township meet its MS4 permit and reduce its costs on the urban side to managing stormwater.

Willow Valley is the largest industry in the Township and has been a prominent feature in Lancaster County for many years, mostly known as a retirement community. However, in addition it is also made up of a mix of retail, restaurants, and residential properties. Willow Valley is currently redeveloping its 87 acres.

The Township has a map of its outfalls and is currently working with the LIMC to map the rest of the Township's conveyance system. The Project Team recommends that the Township work closely with LIMC to complete this map as soon as possible so the Township can better understand the characteristics of the existing system and begin to develop a strategic plan before the system becomes too old to maintain and must all be replaced. The commitment to addressing stormwater issues through implementation of new projects and maintenance of existing infrastructure is a necessary component to ensuring a robust and comprehensive stormwater management program.

Current Funding for Stormwater

Preparing for new permit requirements and maintaining the existing stormwater system bears significant costs. Currently, funding for the Township's stormwater program comes from general funds, a practice common throughout the country, with some supplementation from public and private grants. Based on the available data collected by the Project Team during the study, capital spending on large projects appears to have been either been pushed back or funded through general fund appropriations.

The Project Team found that the Township invests minimally in stormwater management through its General Fund. The PWD receives minimal funding to manage stormwater through general fund appropriations, and sets aside these funds in the budget for materials & supplies, NPDES Phase II compliance, stormwater engineering, stormwater management and construction, and land and R/W acquisition.¹¹⁵ The Township staff shared that there is a base amount (\$10,000) allocated for stormwater maintenance each year, but other than this base amount the additional funding varies from year to year based on priorities and needs in the Township.

¹¹⁴ Farmers in the Township produce corn, soybean, dairy, tobacco, and poultry.

¹¹⁵ West Lampeter Township 2013 Budget, Retrieved from:

http://www.westlampeter.com/westlampeter/lib/westlampeter/2013_budget.pdf.

The Project Team found Township staff eager to invest more thoroughly in meeting stormwater requirements. The Township Manager expressed to the Project Team that the elected officials are also eager to better understand the investments needed to properly manage stormwater, and are open to suggestions from the municipal staff and others on ways to improve their municipal program. Although resources are sparse in the Township, the Board of Supervisors started a capital improvement account for MS4 and stormwater-related issues in the 2013 budget¹¹⁶, which shows their commitment addressing stormwater locally. Participation in this study and the improved knowledge the staff has gained over the year will help staff continue to work with elected officials to educate them on the importance of investing in stormwater management.

Current Capacity for Handling Stormwater

At the beginning of this study, the Project Team found that the Township staff did not fully understand what is needed to properly manage stormwater. Through participation in this study, and the staff's commitment to improving its municipal program, the Project Team found that the staff's knowledge improved quickly.

The Project Team found that many of the essential staff currently works on stormwater, whether or not it is part of their job description. Throughout the study, this staff showed a commitment to learning about best practices and improving their program. This "all-hands-on-deck" approach witnessed by the Project Team shows a true commitment to the community, however, is not sustainable over time.

In order to adequately address the administrative components of the MS4 permit, the Township should invest in hiring a stormwater coordinator, either on its own or shared between neighboring municipalities. If done so collectively, the Township should bring together neighboring municipalities to develop an intergovernmental agreement. Either way, hiring a stormwater coordinator will allow staff who currently have taken on all of the stormwater-related tasks the time to focus on other Township functions, creating greater efficiency at the Township overall.

All public works staff receives annual refresher training and attend trainings hosted by local organizations. Although the Township feels that their public works staff is adequately trained, the Project Team was unable to determine whether the current number of PWD staff is adequate in meeting the technical components of the MS4. After reviewing the findings in this report, Township staff should meet internally to determine whether additional public works staff should be hired to improve the stormwater program's level of service.

MCM Findings: 1. Public Education & Outreach

The Project Team found that West Lampeter Township currently provides a minimal level of service to its community regarding public education and outreach. The Township is currently working to develop its written Public Education & Outreach Plan, has a volunteer Recycling Committee that provides environmental education, disseminates educational materials in the Township's monthly bills, and posts stormwater education on the Township's website. In addition, during the project the Township had an additional project working with the Lancaster Farmland Trust to help local farmers develop Conservation Plans and identify BMPs located on farms, as the Township staff believes there are more BMPs on these properties not accounted for currently.

The Project Team participated in the West Lampeter Township Farmers Meeting on January 31st, 2013 where the Lancaster Farmland Trust and other local organizations shared information with a packed room of farmers. The purpose of this meeting was to educate farmers on the plans and practices required of them (Conservation Plans and Manure Management Plans), provide resources

¹¹⁶ Information provided by West Lampeter Township directly to the Project Team.

to help farmers implement such plans and practices, and get feedback directly from farmers. The Project Team found that this type of information sharing and giving the agricultural community a chance to voice their opinions and concerns is essential to successfully engaging this sector and ensuring they do their part in managing stormwater. The Project Team recommends similar meetings be held with different targeted groups – developers, businesses, and homeowners associations (HOAs).

When the Project Team presented the study to the Board of Supervisors, they were extremely receptive to both the technical and outreach components of the study. The Township Manager and essential staff managing stormwater have educated the Board enough so that they understand the need to improve their stormwater program. It should also be noted that one of the board members has been a huge supporter of proper stormwater management throughout the County and is a leader within the Township.

In order for West Lampeter Township to increase its level of service regarding MCM 1, the Township should continue to educate and engage their elected officials and the public so they have the support to invest in outreach events, finalize its written plan and list of target audience groups, work with other neighboring municipalities to share materials and information and plan regional events, and track all its activities related to MCM 1.

MCM Findings: 2. Public Participation & Involvement

The Project Team found that West Lampeter Township currently provides a minimal level of service to its community regarding public involvement and participation. The Township is currently working to develop its written Public Participation & Involvement Plan, has begun to engage the local high school, and is working with local farmers through the Lancaster Farmland Trust project. These activities are the first step towards developing a high level of service for this MCM.

In order for the Township to improve its level of service for MCM 2 into the future, it should continue reaching out to the Lampeter-Strasburg School District to engage young residents, as well as engage other local partners (Boy/Girl Scouts, neighboring municipalities, watershed associations, etc.) in a more targeted approach that resonates with different stakeholder groups. The Township should also finalize its written plan, which should include a dedicated annual public meeting for stormwater where the public can give their input, at least one annual public event such as a stream clean-up, tree planting, or watershed day, and tracking system for all activities related to MCM 2.

MCM Findings: 3. Illicit Discharge Detection & Elimination

The Project Team found that West Lampeter Township currently provides a medium level of service to its community regarding IDD&E. The Township inspects at least 20% of its outfalls each year, has a written program that was developed using a Center for Watershed Protection (CWP) tool, and has a schedule for inspecting all outfalls. The Project Team found that the mapping and outfall schedule within the Township is more advanced compared to other municipalities, since all outfalls are numbered and a map exists with the locations and year inspected which creates much more organizational efficiency.

In order to increase the level of service for MCM 3, the Township needs to develop a more formal process for handling illicit discharge complaints. The Township could easily develop a procedure for public notification of IDD&E and tracking system for inspections and complaints. It is anticipated that when the new MS4 permits are issued, more stringent requirements will be incorporated for this MCM. At this time, Township staff should consider hiring additional PWD staff to ensure all screening and inspections are completed each year.

MCM Findings: 4. Construction Site Runoff Control

The Project Team found that West Lampeter Township currently provides a minimal level of service to its community regarding construction site runoff control. This level of service was found almost across the board with all six municipalities. In Pennsylvania, the county conservation districts review and approve all Erosion & Sediment Control Plans for new development and are tasked with inspecting construction sites. Thus, municipalities are limited by the resources at the conservation district to meet this MCM. It is important to note, however, that while the conservation district typically reviews, approves, and inspects all new development, the municipality is still held accountable for this MCM. Because of this, municipalities should inspect sites in addition to the conservation district and file all projects separately to help with their MS4 annual reporting.

The Project Team found that while most municipalities in the study rely on their contracted engineer to inspect sites when time and resources permit, West Lampeter Township conducts spot inspections during construction in-house. The Township works closely with the LCCD to provide training opportunities to developers and builders. The LCCD provides initial approvals for new development and also conducts farming inspections per the request of the Township. The Township staff feels comfortable working with the LCCD, but relies on them to keep track of construction projects. The Project Team found Township staff eager to be accountable on their own in order to improve this MCM.

Due to the limited development taking place in recent years, the Township has not had to worry about stormwater runoff from construction projects. However, this may change in the future. In order to improve its level of service once development picks up, the Project Team recommends the Township develop a tracking and filing system in-house for all new construction projects instead of relying on the LCCD as heavily.

MCM Findings: 5. Post Construction Site Runoff Control

The Project Team found that the Township is in the beginning phases of developing an adequate level of service regarding post construction site runoff control. While the Township currently performs inspections both in-house and through its contracted engineer, Township staff are still working on developing an inventory list of all post construction stormwater management (PCSM) BMPs and currently does not have a formal process for maintaining Township-owned BMPs. The contracted engineer through ELA Group, Inc. is developing a spreadsheet for all new facilities being constructed in the Township. It should be noted that the Township has a minimal number of publically-owned facilities. The sooner the Township has a full understanding of its PCSM BMPs, the better.

In order to increase the level of service for this MCM, the Township must finish its inventory of BMPs; create a written operations and maintenance (O&M) plan for Township-owned facilities; provide training opportunities to ensure developers are up to date on all stormwater management regulations, Low Impact Development (LID) and Green Infrastructure (GI) alternatives; inspect all sites to ensure PCSM BMPs were implemented as designed; and track all inspections in-house.

The Township staff mentioned to the Project Team that many of the HOAs within the Township do not have the funding to maintain their privately-owned BMPs and often seek help from the Township. Since many of the stormwater facilities are located on private property, it is important for Township staff to work closely with private property owners /HOAs. Public health and safety concerns can arise when proper maintenance is not being done, forcing the Township to spend public funds in emergency situations. To mitigate these issues as best it can, the Township needs to develop more stringent maintenance agreements for any new developments with BMPs and lay out these requirements in all pre-construction meetings.

MCM Findings: 6. Pollution Prevention/ Good Housekeeping

The Project Team found that West Lampeter Township currently provides a minimal level of service to its community regarding pollution prevention and good housekeeping. The PWD maintains publically-owned BMPs as-needed; cleans drains; cleans catch basins manually following storm events; sweeps streets annually; and trains staff annually. Although the Township meets its requirements, the Township must develop more strategic plans for this MCM, including a written O&M plan and tracking system, and a water quality improvement plan to determine the baseline stream health and prioritized projects based on cost efficiency.

The Project Team recommends the Township invest in new equipment to help improve the efficiency of the PWD tasks. The Project Team found that the Township currently cleans ditches and drains manually and does not have a street sweeper. Instead, they exchange services informally with East Lampeter Township, so that they borrow the sweeper from East Lampeter Township annually in exchange for other services. Although Township staff expressed more interest in purchasing a street sweeper, the Project Team recommends first investing in a jet vac in order to improve efficiency for the cleaning and maintenance tasks associated with this MCM. The Project Team recommends that in the meantime the Township develop a more formal agreement with East Lampeter Township if they continue to share resources, which is recommended as it keeps costs lower for both communities.

In meeting with municipal staff, the Project Team found staff eager to develop a more comprehensive program to better meet its MCM 6 goals by improving internal capacity and investing in new equipment. In order to keep costs low, the Project Team recommends the Township meet with neighboring municipalities to determine existing equipment and develop a list of equipment needed, all of which could be shared through intergovernmental agreements and purchased cooperatively. The Township must also develop better tracking of all stormwater-related public works activities, continue to map the entire storm sewer system with the goal of ultimately developing an infrastructure repair and replacement program, and regularly train staff in different components of stormwater-related good housekeeping measures.

Anticipated Changes to the MS4 Permit

The PA DEP requires all MS4 permitted municipalities in the Bay watershed to develop a CBPRP by the summer of 2014. The purpose of this plan is to help municipalities strategically implement projects that improve local and regional water quality. The Project Team found that the municipalities typically contract this Plan out to their engineer, and there has been minimal guidance provided to municipalities about what should go into the plan.

In addition to developing a CBPRP, it is anticipated that more stringent requirements will take effect when the new MS4 permits are issued in the fall of 2013. In Maryland, the Department of the Environment (MDE) included a new requirement in its new permit cycle – a **20%** impervious area restoration requirement. It is anticipated that this impervious area restoration, designed to increase the level of runoff managed from existing impervious areas, will require implementing a number of stormwater BMPs. These BMPs will be either nonstructural practices (like diverting runoff from impervious areas to vegetated areas, bioswales, and tree planting) or more traditional structural practices (i.e. stormwater ponds, bio-retention facilities). Based on information received from MDE and Maryland municipalities, it is anticipated that a similar requirement be included in Pennsylvania.

Consideration of Funding Methods for Stormwater in West Lampeter Township

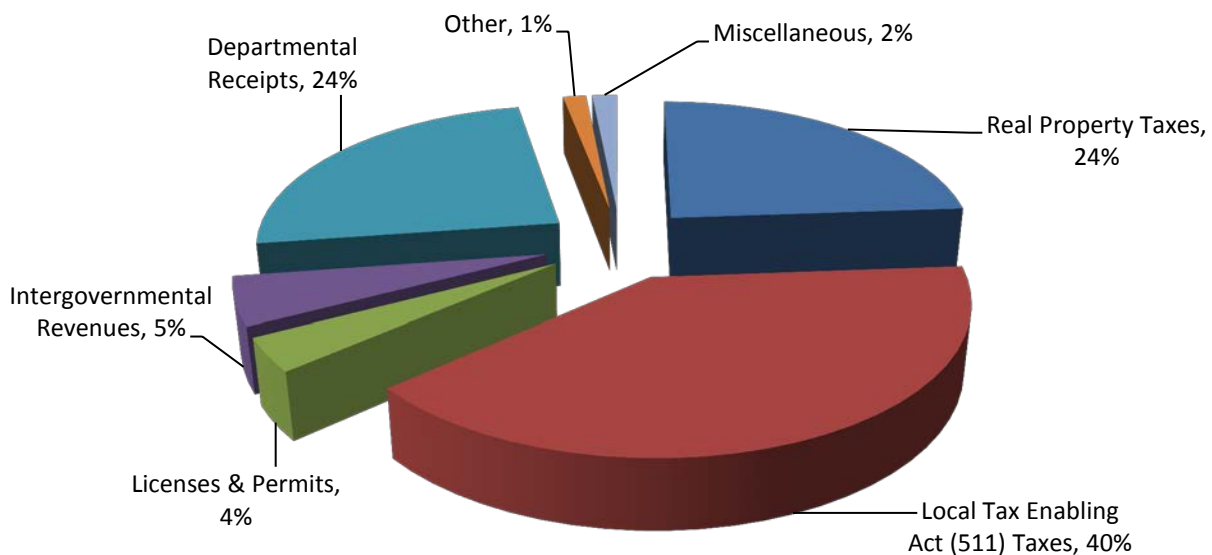
Properly managing stormwater is considered an essential service, but one that is often unseen or misunderstood by residents and businesses in a community. Stormwater infrastructure requires

upgrades and maintenance that is on par with the needs, costs, and annual maintenance as similar services such as wastewater, drinking water, or transportation. However, stormwater is rarely funded to the extent that any of these other services typically are, thus leaving a considerable gap in a stormwater program’s level of service to the community.

Current Method of Funding Stormwater

The current method of funding stormwater in West Lampeter Township is partially through grant funding and leveraging relationships with local organizations, but with the majority of the revenue derived from general fund appropriations. West Lampeter Township’s general fund comes from several sources such as real property taxes, local tax enabling act taxes, licenses, and permits (see Figure 17 for breakdown). This revenue is then distributed to sources as appropriate and deemed necessary, such as public safety, general government expenses, public works, and community development.¹¹⁷

Figure 17: West Lampeter Township’s 2013 General Fund Revenue Breakdown¹¹⁸



Currently, general fund allocations for stormwater programming in West Lampeter Township are not adequate for the Township to properly manage stormwater in the near and long terms. As priorities shift and costs rise, the Township needs to determine a more sustainable plan to pay for stormwater.

In order to enhance the level of service to meet future anticipated regulatory requirements, the Township must more aggressively invest in administration, operations & maintenance, and capital projects to repair and replace its infrastructure. The Township should consider supplementing its current funding approach with a dedicated stormwater fee to support a more strategic and comprehensive stormwater program.

Assessment of Possible Revenue Sources and Funding Methods

Recognizing that the current funding method of having stormwater compete for general fund appropriations with other community priorities and relying on occasional grant awards is clearly not

¹¹⁷ West Lampeter Township 2013 Budget, Retrieved from:
http://www.westlampeter.com/westlampeter/lib/westlampeter/2013_budget.pdf.

¹¹⁸ Ibid.

sustainable, the Project Team explored the possibility of using other revenue and funding sources. Although many financing options were explored, only a few cover the costs of capital and operations and maintenance, as highlighted in Table 51 below:

Table 51: Funding Sources, Coverage of Costs, and Features

Funding Source	Coverage of Cost Type		Features
	Capital Improvements	Operations & Maintenance	
Grants	Yes	No	Not guaranteed, highly competitive, not sustainable in the long-term
PENNVEST Loan Program	Yes	No	Not guaranteed, highly competitive, must repay often with interest
Bond Financing	Yes	No	Dependent on fiscal capacity, can utilize for large, long-term expenditures, must repay with interest
General Fund	Yes	Yes	Not equitable, competes with other community priorities, changes from year-to-year
Permit Review Fees	No	No	Not significant revenue, may deter development
Inspection Fees	No	No	Not significant revenue, may deter development
Stormwater Utility Fee	Yes	Yes	Generates ample revenue, sustainable, dependable, equitable, requires significant public dialogue

While a host of fee systems exist to pay for local stormwater programs, not all provide sufficient revenue to support the large costs associated with a comprehensive stormwater management program. While all of the above were found to be useful in funding a specific portion of the entire stormwater management program in each municipality, only the **general fund appropriation** and a **stormwater utility fee** were considered by the Project Team as large enough pots of money to be capable of funding the entire program.

Consideration for Using General Fund Appropriations for Stormwater

As mentioned above, reliance on the general fund as the primary resource for West Lampeter Township’s stormwater program means that stormwater continues to compete with other higher community priorities leaving the program vulnerable to budget cuts, particularly in future years when new stormwater regulations and nutrient reduction requirements will increase the price tag significantly. The general fund is derived primarily from taxes and the issue of equity and fairness of who pays for stormwater and how much they pay is not taken into consideration. In other words, those paying into the general fund are not paying based on their contribution to the problem of stormwater. In fact, many large properties, such as churches, schools, and government properties are not paying any taxes and therefore not paying anything towards services related to stormwater.

With general funds fluctuating from year to year and the revenue sources that make up the general fund varying in amount, stormwater management is unlikely to ever be adequately funded solely from this source. This does not mean, however, that current funding levels for various activities now

being covered by general fund dollars should be lessened or eliminated in future budgets; it means that in addition to using some general fund appropriations, another reliable and dedicated source of funding will be required for West Lampeter Township to properly manage stormwater. The ultimate financing strategy will require a combination of funding sources to fully round out and adequately fund the entire recommended program to the extent that is needed in the future. The most appropriate mechanism to consider in addition to using some general funds and seeking grants whenever possible is through implementation of a stormwater utility fee.

Consideration of a Stormwater Utility Fee

Since the 1970s, one of the most popular methods of paying for stormwater has been a stormwater utility fee. A stormwater utility fee, sometimes called a service charge, is a separate accounting structure with a dedicated source of funds collected and used only for the purpose of managing stormwater. In its most recent report, the Western Kentucky University Stormwater Utility Survey identified more than 1,400 stormwater utilities nationwide.¹¹⁹

The national trend has been to move away from relying solely on taxes for these programs and charge a fee that is stable, adequate to cover the costs of managing the program, and most importantly, equitable. A utility has increasingly become the choice for supporting stormwater *programs* because it is the clearest way to connect level of service/use (runoff) with the fee to be imposed. This type of fee-for-service has been implemented successfully for water, sewer, and solid waste/recycling programs, and has proven highly effective for stormwater, as well.

The Project Team believes that a stormwater utility, known in Pennsylvania as a stormwater authority, is the most equitable financing mechanism because it distributes program costs associated across all properties that contribute in some way to stormwater. Taxes and other fee systems often exclude certain properties from paying, such as those that are tax exempt, yet these properties are still contributing runoff to the system, and often at a rate far greater than that of the average residence.

How a Stormwater Fee Works

The basic premise behind a community's stormwater program is that all property owners receive some benefit from the system being maintained; therefore, all properties should be required to participate in the cost of maintaining that service. Most stormwater fee rates are therefore based on the size, or footprint, of the structural part of a property. This physical part of the property is known as ***impervious surface*** and includes all of the hard surfaces of a property such as a roof, patio, paved area, or sidewalk. The reason for basing a fee on impervious surface is that a hard surface does not allow water to infiltrate into the ground, thereby increasing the volume and flow of stormwater that a community must manage.

Effective stormwater fees make a direct connection between the anticipated expenses to properly manage the system and the revenue generated. In other words, the fee should be determined by the level of revenue needed to deliver stormwater management services to the community, with some allowance for the level to which a property contributes to runoff.

There are several ways to calculate a stormwater utility rate. The most simple, fair, and common method is based on a parcel's amount of impervious surface – the extent to which a parcel contributes to runoff. When implemented, the fee may take the form of a flat or tiered rate structure, or some combination of both. An Equivalent Residential Unit (ERU) is a unit of measure

¹¹⁹ Campbell, C. Warren (2013). Western Kentucky University 2013 Stormwater Utility Survey, Western Kentucky University, Bowling Green, page 1.

based on either the average impervious surface of a single family dwelling or residential parcel. A specific fee level is attached to an ERU, and the number of ERUs on a given property often serves as the basis for the stormwater charge.

In many cases for residential properties, a flat fee is often recommended over exact parcel based measurements due to the level of program development and administrative burden that would be involved. This flat fee becomes the rate charge for non-residential properties, since it is assumed that the typical residential property is 1 ERU. Determining the fee for non-residential parcels is typically done by calculating the exact amount of impervious surface on the site and then dividing the amount of impervious surface that was calculated for residential properties to determine the number of ERUs for a particular property. The property is then charged a rate (often the same as the residential flat rate) per ERU.

Implementing a stormwater user fee is a national trend on the increase in the US, primarily because these fee structures, if designed correctly, will collect a sufficient amount of revenue to support program costs in the most equitable manner possible. Also, utility-based stormwater programs tend to be more efficient, as the responsibility for managing stormwater is coordinated in one program rather than piecemeal across several departments. In the case of West Lampeter Township, a utility, or in Pennsylvania known as an authority, would create an adequate and stable source of funding dedicated solely to stormwater and allow for a comprehensive program, consistent in funding from year to year, and meets all regulatory requirements, nutrient reduction needs, and community goals. Table 52 below shows current stormwater user fees in Pennsylvania, including their ERU rate and total revenue collected.

Table 52: Stormwater User Fee Examples in Pennsylvania¹²⁰

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Meadville, Crawford County (2012)	13,616	Single family detached residential = \$90/year All other developed non-single family detached parcels = \$90/year/ERU, where 1 ERU = 2,660ft ² impervious surface Reference: Meadville Stormwater Management User Fee Ordinance	Unknown
Mount Lebanon, Allegheny County (2011)	33,137	Single family, townhouse, or duplex = \$8/month All other properties = \$8/month/ERU, where 1 ERU = 2,400ft ² impervious surface Reference: Mt. Lebanon Stormwater Fee Ordinance	Unknown

¹²⁰ Data came from each individual municipality’s website *and* the Western Kentucky University 2013 Stormwater Utility Survey.

Community (Year established)	Population	Fee Structure	Revenue Generated/Year
City of Philadelphia (2010)	1,536,471	Residential = \$13.48/month Non-residential = Gross Area: \$0.526/500ft ² Impervious Area: \$4.145/500ft ² Monthly Billing: \$2.53 per account Reference: PWD Stormwater Billing & Stormwater Fact Sheet	\$655,000
City of Lancaster, Lancaster County (2013)	59,263 ¹²¹	Single-family residential = \$4-\$12/quarter Multi-family residential = \$12-\$19/quarter Typical commercial = \$237/quarter Tiered rate structure for all properties where 1 ERU = 1,000ft ² Reference: The Cost of Dealing with Stormwater	Not implemented yet
Jonestown Borough, Lebanon County, PA (2012)	1,329 ¹²²	Single-family, townhouse, or duplex = \$70/year in year 1; \$80/year in years 2-4 All other properties = \$70/year/ERU in year 1; \$80/year/ERU in years 2-4, where 1 ERU = 3,100ft ² Reference: Stormwater Information	Unknown

Legal Basis in Pennsylvania Enabling Stormwater Authorities

The five stormwater user fee examples listed above are the only known stormwater utilities within Pennsylvania, and are in various stages of development and implementation. Historically, paying for stormwater has been a contentious issue within the state, since it is unclear whether such dedicated fees are enabled by state legislation.

In PA, utilities are typically regulated by the Pennsylvania Utility Commission (PUC), and the PUC will not at this time regulate stormwater. Thus, the creation of dedicated fees for stormwater often comes under the guise of an *authority*.

The contention, then, lies in the language written into the Pennsylvania Municipality Authorities Act, which states:

“§5607. Purposes and powers

(a) Scope of projects permitted.--Every authority incorporated under this chapter shall be a body corporate and politic and shall be for the purposes of financing working capital; acquiring, holding, constructing, financing, improving, maintaining and operating, owning or leasing, either in the capacity of lessor or lessee, projects of the following kind and character and providing financing for insurance reserves:

(1) Equipment to be leased by an authority to the municipality or municipalities that organized it or to any municipality or school district located wholly or partially within the boundaries of the municipality or municipalities that organized it.

¹²¹ 2011 US Census Bureau ACS 5-year Estimates.

¹²² Ibid.

- (2) Buildings to be devoted wholly or partially for public uses, including public school buildings, and facilities for the conduct of judicial proceedings and for revenue-producing purposes.
- (3) Transportation, marketing, shopping, terminals, bridges, tunnels, flood control projects, highways, parkways, traffic distribution centers, parking spaces, airports and all facilities necessary or incident thereto.
- (4) Parks, recreation grounds and facilities.
- (5) Sewers, sewer systems or parts thereof.
- (6) Sewage treatment works, including works for treating and disposing of industrial waste....¹²³

The Act does not differentiate between *sanitary* and *storm* sewer systems, thus creating much debate over the years as to whether storm sewer systems can be financed through an authority. A further discussion as to the legality of stormwater authorities is essential within a locality before imposing a stormwater fee, however, not the focus of this report.

In April 2013, historic legislation (Senate Bill 351) passed by a vote of 49-1 that enables stormwater authorities at the municipal level. Without this legislation, municipalities were reluctant to move forward in setting up a dedicated stormwater fee. This legislation paves way for municipalities to implement dedicated fees to ensure that stormwater is managed adequately and more cost efficiently in the long run, and it is anticipated that stormwater user fees will begin to develop more rapidly in the state than ever before due to SB 351.

West Lampeter Township's Stormwater Financing Recommendations

Program Funding Needs

To identify the necessary components of an enhanced stormwater program for West Lampeter Township, the Project Team worked with municipal staff to conduct a comprehensive review of all aspects of current spending on stormwater management. When considering the level of stormwater management service identified as necessary in the Township, the Project Team found that current budgeting practices are not adequate in meeting the existing regulatory requirements. With tighter fiscal budgeting and more stringent permit requirements anticipated in the future, the Project Team and municipal staff agreed that a more comprehensive program will ensure a more viable stormwater management program for the future.

Two of the municipalities who participated in this study, Manheim and Warwick Townships, worked with the Project Team to determine the estimated costs projected over five years that is needed to properly manage stormwater. Each of these municipalities took a vastly different approach to estimating costs. Since the Project Team found it difficult to collect meaningful cost data for the other four participating municipalities, including West Lampeter Township, the team utilized Manheim and Warwick Townships' approaches to develop cost estimates. A discussion of these approaches and how they were adapted for West Lampeter Township follows.

¹²³ Purdon's Pennsylvania Statutes and Consolidated Statutes, Title 53 Pa. C.S.A. Municipalities Generally, Part V. Public Improvements, Utilities and Services, Subpart A. General Provisions, Chapter 56. Municipal Authorities, Retrieved from: http://www.municipalauthorities.org/wp-content/uploads/2008/11/Title_53_Ch_56_MAA_01-13.pdf.

Manheim Township’s Approach

Manheim Township, the largest of the municipalities participating in this study, plans to develop a separate Stormwater Department within the Township. All stormwater-related costs, even if currently paid for using general fund appropriations, will be moved to a stormwater budget. This budget will be supported through a dedicated stormwater user fee. The Project Team found that in Manheim Township a 5-year revenue stream totaling approximately \$10.1 million, when adjusted for inflation at a rate of 2.5% per year, will be needed to fully support a comprehensive stormwater program housed in the Stormwater Department.¹²⁴ See Chapter 7 for the full analysis of Manheim Township’s financing structure.

Using population as the factor, West Lampeter Township’s costs were estimated at approximately \$4 million over five years if the Township uses Manheim Township’s approach to managing stormwater (see Table 53).

Table 53: West Lampeter Township’s Budget using Manheim Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Manheim Township	37,768	1.00	\$10,085,237	\$2,017,047
West Lampeter Township	15,032	0.40	\$4,014,014	\$802,803

Warwick Township’s Approach

Warwick Township, often hailed as the most proactive Township managing stormwater in the County, plans to continue supporting most of its stormwater-related costs using general fund appropriations and grants. The Township wants to utilize a dedicated stormwater user fee to support an asset management program that focuses on two components – (1) the costs of repairing and replacing the entire storm sewer pipe system and (2) the costs of maintaining and renovating all municipally-owned BMPs. The Project Team found that a 5-year revenue stream totaling \$639,268, when adjusted for inflation at a rate of 2.5% per year, will be needed to support a municipal stormwater asset management program for Warwick Township.¹²⁵ See Chapter 9 for the full analysis of Warwick Township’s financing structure.

Using population as the factor, West Lampeter Township’s costs were estimated at approximately \$550,000 over five years if the Township uses Warwick Township’s approach to managing stormwater (see Table 54).

Table 54: West Lampeter Township’s Budget using Warwick Township’s Approach

Municipality	Population	Factor	Budget (5-year)	Budget (1-year)
Warwick Township	17,622	1.00	\$639,268	\$127,854
West Lampeter Township	15,032	0.85	\$545,311	\$109,062

¹²⁴Inflation was taken into account for all expenditures in years 2-5; Inflation = 2.5% based on 10 year percent change in consumer price index (CPI). The percent change in the annual average CPI between 2003-2012 = 2.47%. (U.S. Department Of Labor Bureau of Labor Statistics, Washington, D.C. 20212, Consumer Price Index, All Urban Consumers, U.S. City Average, All Items, 1982-84=100, Retrieved from:

<ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>

¹²⁵Ibid.

It must be noted that the Project Team only supports this approach for Warwick Township because of the high level of service being provided to the community currently. Since West Lampeter Township needs to increase its level of service, the Township should utilize Warwick Township's approach as a jumping off point and include additional costs associated with properly managing stormwater in its stormwater budget.

Recommendations for West Lampeter Township's Level of Service Expenditures

Given the size of the Township, it is likely not feasible (or necessary) to develop a Stormwater Department. Therefore, Manheim Township's costs represent the "Cadillac" version of stormwater management. On the flip side, Warwick Township's costs represent a low cost estimate to managing stormwater since the costs only factor in asset management *and* the costs are based on the useful life of materials. This means that Warwick Township will bring in annual reserves through its dedicated fee to pay for its asset management program over time. Thus, the Project Team recommends that West Lampeter Township use a blended approach that uses Warwick Township as its baseline, and then includes additional costs necessary for the Township to properly manage stormwater. Further discussion is required by Township staff to determine how best to allocate costs. The following provides a discussion of the additional costs that the Township must invest in to meet its current and future state and federal regulations:

Personnel costs

The Project Team recommended earlier in this chapter that the Township invest in hiring a stormwater coordinator. In many respects, simply hiring a coordinator will allow the Township to meet most, if not all, of its administrative compliance components, allowing existing staff to focus on more pertinent tasks. The Township could hire a coordinator on its own or as a shared position with neighboring municipalities. The Township must engage neighboring municipalities to determine if a shared coordinator should be hired. Either way, the Project Team recommends investing in a coordinator to help with administrative MS4 permit tasks and keep the Township on track with meeting its MCMs.

The Project Team also recommended earlier in this chapter that the Township meet internally to determine if additional PWD staff is needed to adequately address the technical components of its permit. In order for the Township to meet existing and future regulatory requirements, up to four road crew members should be considered. If the Township does not hire additional road crew members, the Township should contract more frequently with the engineer to alleviate the amount of in-house time required to inspect construction and post-construction sites, time that could be spent on other stormwater-related or general public works tasks.

Capital costs

The \$545,311 estimated 5-year costs using Warwick Township's approach supports an asset management program, including a pipe infrastructure repair and replacement program (assuming the average useful life of the pipes is 30 years) and a BMP renovation (assuming the average useful life is 20 years) and maintenance (assuming maintenance every 5 years) program. The Project Team highly recommends the Township invest in an asset management program and sets up its dedicated fee to generate at a minimum \$545,311 over five years.

The Project Team recommends the Township also invest in a study to determine the baseline health of its streams and thus, the most cost-effective water quality improvement projects (which will result in additional capital costs once projects are identified).

Lastly, the Project Team recommended earlier in this chapter that the Township consider investing in new equipment. In order to keep costs low, the Project Team recommends the Township meet

with neighboring municipalities to determine all existing equipment and develop a list of equipment needed, all of which could be shared through intergovernmental agreements and purchased cooperatively.

Operations & Maintenance costs

If the Township purchases new equipment, there will be annual O&M costs associated with this equipment that will need to be factored into the stormwater program's costs. These costs will be included once it is determined what equipment, if any, will be purchased.

The Project Team recommended earlier in this chapter that the Township work with LIMC to finalize the map of the Township's entire conveyance system, which should be prioritized. The Township must develop a more comprehensive understanding of its pipes in order to implement an asset management program properly.

There are additional costs that are fairly minimal compared to the large capital and personnel costs needed to properly manage stormwater that the Township must consider. These costs include outreach materials, contract fees (namely for engineer's time), and hosting outreach and engagement events¹²⁶. See Chapter 7 for Manheim Township's costs associated with these activities, which could be used as a reference for West Lampeter Township.

Stormwater User Fee Rate Structure Analysis

Why This Study is Recommending a Stormwater User Fee for West Lampeter Township

Although the Project Team was unable to develop a specific estimated budget for West Lampeter Township, the Project Team recommends the Township create a dedicated stormwater user fee that will distribute the costs of paying for repairs and improvements in proportion to the types of land uses that are contributing to stormwater management needs.

As discussed earlier, the more impervious surface that a property has, the more stormwater it generates and the more responsible the property owner is to help the community manage stormwater. As private driveways, parking lots, swimming pools, decks, and other such structures allow residents and businesses to enjoy additional living and working conveniences, the burden of maintaining and repairing the infrastructure that supports those additional structures and surfaces should be shared by those contributing to the problem rather than the community at large. Just as a property owner is responsible for paying its share of waste disposal, water use, or electricity consumed, so should they recognize and be accountable for the stormwater created from their built environment.

Once it became clear that there was a significant need to have a dedicated funding source to cover the stormwater costs in West Lampeter Township, the Project Team considered what financing mechanism would be most appropriate to generate these funds. The Project Team initially considered assessing a property tax, but since the value of a property is not an indicator of the amount of runoff, the property tax was not seen to be the most equitable way to pay for a stormwater program.

A stormwater user fee allows for the assessment of the amount of impervious surface contributing to the stormwater problem. Since it is anticipated that development and growth continue in the Township, increasing the amount of impervious surface, it is appropriate to charge properties that contribute significant runoff more and properties that contribute insignificant runoff less. The major

¹²⁶ Warwick Township estimated that their annual Watershed Day costs \$2,225.

concern with this approach is the investment required by the Township to assess properties based on their exact contribution to stormwater runoff (i.e. parcel-based impervious surface calculations). Therefore, the fee calculations will begin more simply and transition over time to a more accurate method, balancing the administrative burden of billing with an equitable distribution of charges.

Billing Recommendations

Since enabling legislation was passed very recently in Pennsylvania, there are few examples that exist in the state to use as a model for implementing dedicated stormwater user fees. In Pennsylvania, the government structure creates so many small, autonomous municipalities with unique circumstances based on municipality type. In the past, cities, boroughs, and home rule municipalities have had an easier time passing ordinances to set up stormwater fees in the state. Since West Lampeter is a Township, it will need to set up a stormwater fee by either creating a new authority or utilizing its existing authority to bill its customers for stormwater.

West Lampeter Township is served by the Suburban Lancaster Sewer Authority (SLSA) for sewage collection and conveyance services, along with Pequea Township and portions of Lancaster Township. If SLSA adds stormwater to its bill, the Authority must first amend its articles of incorporation to include the scope of its entire stormwater program and related activities.¹²⁷ Since this is a regional authority, the Project Team recommends West Lampeter Township discuss the possibility of adding stormwater services to the SLSA's scope. The Township and SLSA will then need to determine how the funds will be transferred back to the Township to manage stormwater.

Since the Authority is multi-municipal, the Township should meet with the participating municipalities to determine if they are interested in also establishing a dedicated stormwater fee. If all are on board, then this regional Authority could serve as pilot regional municipal authority. In PA, much of the debate concludes with the need to develop more multi-jurisdictional collaboration to reduce the looming stormwater costs. However, it is likely that not all municipalities are ready to implement a dedicated stormwater fee. If this is the case, the Township should consider developing a new stormwater authority to support its municipal program, including all estimated costs discussed above. The Township will need to administer billing in-house if it decides to establish a Township stormwater authority. It is recommended by the Project Team to discuss internally which option is easier to administer and will create fewer transaction costs between parties.

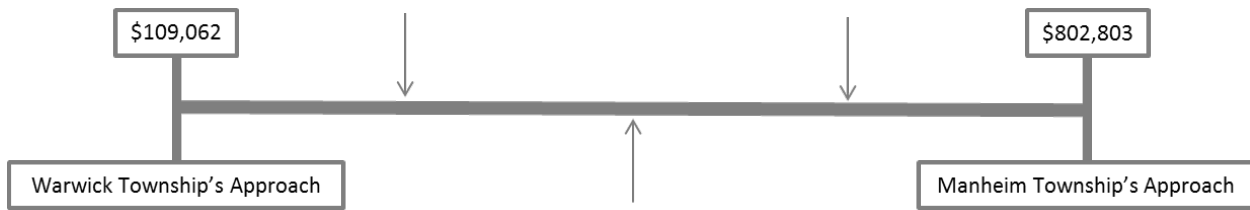
Based on the experience of other communities, it is recommended that the Township set up a strong administrative structure to deal with public questions and concerns, particularly when the user fee is first launched. Other communities who have implemented stormwater utilities report that the outreach need is very high at first but declines as the utility rolls out. A help line and Township staff members should be made available to quickly address customer concerns.

Rate Structure Analysis

Although a specific cost estimate was not generated, the Project Team recommends implementing a fee to improve the current level of service. This fee could be set low to begin generating revenue, and once the Township has a better understanding of its costs, the rate structure should be reevaluated. In all likelihood, the Township's true costs lie somewhere in between the estimates provided using Warwick and Manheim Townships' approaches, shown in Figure 18.

¹²⁷ McClinktock, Robert, *Amendment to the Municipal Authorities Act Allows Municipal Authorities to Manage Storm Sewer Systems*, Municipal Law Alert, July 27th, 2013, Retrieved from: <http://www.lambmcerlane.com/blog/895453853-amendment-municipal-authorities-act-allows-municipal-authorities-manage-storm-water>.

Figure 18: The Spectrum of West Lampeter Township’s Estimated Annual Stormwater Costs



In determining an equitable funding strategy for collecting revenue to pay for stormwater related expenditures, the Project Team reviewed available data on all parcels located in the Township provided by GIS staff at the LCPC. The Project Team calculated potential revenue using a flat rate fee for parcels classified residential, and a combination of a tiered fee and ERU-based fee structure for all parcels classified as non-residential.¹²⁸ The Project Team worked with the LCPC’s land use codes, as this framework will be easy for West Lampeter Township to implement moving forward.

Summary of recommended rate structure for residential properties

The decision to recommend a flat rate fee for residential properties reflects a balance between equity and administrative burden. After reviewing the large number of residential units and the many different types of residential properties located within the Township, the Project Team became concerned that a parcel-specific fee structure would require additional capacity on the part of the Township to properly estimate the total impervious surface for all residential properties in the community. Based on our experience working in other communities, it was agreed that calculating the level of impervious surface on every residential property would cause significant administrative burden. In addition to this being an overwhelming effort, the Project Team agreed that the risk of errors on bills could cause confusion about the billing calculation and increase the risk of complaints from the residential population. Additionally, the Project Team found that there was not a large enough spread among the sizes of the residential units to make taking on the task of developing unique bills for 4,456 residential parcels worthwhile. A distribution of all the residential properties in the Township is depicted in Figure 19. All multi-family residences are classified by LCPC as commercial, and therefore will be billed based on the non-residential fee structure discussed below. This means that an apartment building’s management firm will be billed as a commercial property and can then determine how best to recuperate these costs from their buildings’ residents.

¹²⁸ Multi-family units are classified commercial in the LCPC land use codes. The Project Team kept these properties in the non-residential category.

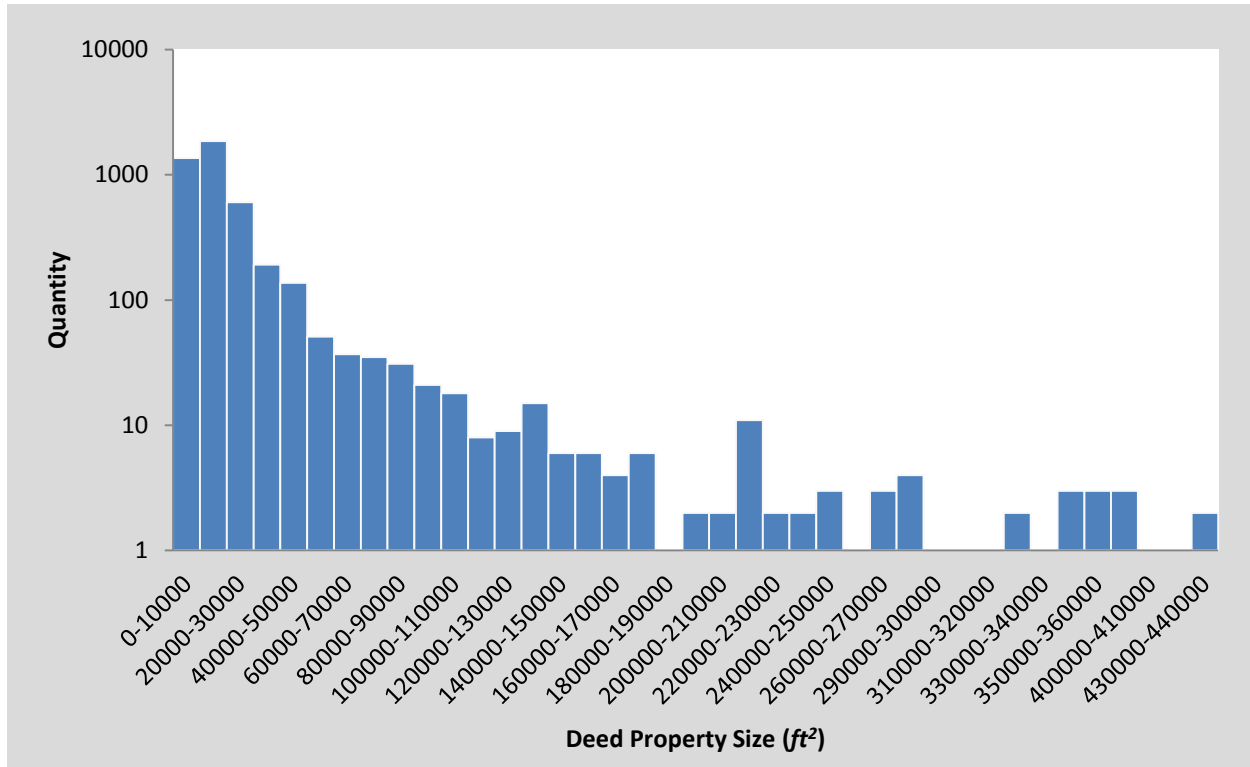


Figure 19. Distribution of Residential Property Sizes in West Lampeter Township. The median residential property is 13,068 ft². This figure shows the property sizes are skewed to the left, indicating the distribution is composed of more small properties than large.

Summary of recommended rate structure for non-residential properties

Because the size and nature of non-residential units vary widely, the Project Team suggests that a parcel-based rate structure that takes a parcel’s specific level of impervious surface into account to be the fairest method of assessing the stormwater fee on these properties. However, due to the time and capacity needed to develop the mapping and administrative processes to bill non-residential properties accurately, it is recommended that the Township utilize a tiered system that is based on average impervious surface estimates in the beginning years of the program. The Project Team learned that Lancaster City is also using a tiered system based on actual impervious data for their stormwater utility fee. The Project Team recommends consistency among municipalities in the County to increase the probability of community support for a fee.

For all 310 non-residential parcels, it is recommended that a user fee be assessed based on the categorical average impervious surface. Research conducted by the Project Team found that many communities utilize a tiered system for residential and/or non-residential properties. For example, Lancaster City seeks to charge a typical commercial property \$237 per quarter and increases its fee in increments of 1,000 ft² of impervious surface.¹²⁹ The Project Team recommends using a similar method for West Lampeter Township. Using a tiered system, the land area will be assessed based on categorical impervious surface estimates to calculate the property owner’s bill. It is then recommended, following the first few years of utilizing a tiered system, the Township invest in getting more accurate impervious surface data for all non-residential properties and then assess the fee based on each property’s total impervious surface.

¹²⁹ The Cost of Dealing with Stormwater, Lancaster City, Retrieved from: <http://www.saveitlancaster.com/thecost/>.

After conducting a sensitivity analysis¹³⁰ using various fee structures, the Project Team found that there are many options for the Township to set its initial rates. It is recommended that the ERU be set at 6,267 ft^2 since that number represents the average residential impervious surface in the Township¹³¹. Depending on how much the Township wants to continue utilizing general fund appropriations and grants to supplement the user fee, the rate should be set at a minimum of \$15 per year per ERU. With so many questions still left unknown, it is recommended that the fee be reviewed and adjusted as needed after each year. Another variable to be considered in terms of rate adjustment is the impact of a credit system, if it is implemented as recommended later in this document.

Estimated total revenue from all properties

The estimated total revenue generated is distributed between residential and non-residential properties and is calculated as follows:

Residential – The residential properties should be assessed a flat fee starting at \$15 per year to generate the minimal revenue needed (based on Warwick Township’s approach). The final rate chosen by West Lampeter Township should be consistent with the non-residential rate. Although many of the rate scenarios analyzed by the Project Team brought in adequate revenue to pay for stormwater-related expenses, it will be up to the Township to determine what should be supported through the dedicated fee and thus, where to set its rates. Table 55 shows the revenue yield for all rate scenarios developed by the Project Team.

Table 55: Annual Residential Property Revenue Generated (4,456 Residential Properties x Rate)

\$15	\$20	\$25	\$30	\$35
\$66,840	\$89,120	\$111,400	\$133,680	\$155,960
\$40	\$45	\$50	\$55	\$60
\$178,240	\$200,520	\$222,800	\$245,080	\$267,360
\$65	\$70	\$75	\$80	\$85
\$289,640	\$311,920	\$334,200	\$356,480	\$378,760

The residential fee is based on the assumption that an average property has approximately 6,267 ft^2 of impervious surface and, therefore, all properties are billed for 1 ERU per year. The fee at which 1 ERU is set will be determined once the Township determines which costs should be supported using a dedicated user fee.

Non-Residential – According to data provided by the LCPC, there are 310 non-residential properties in West Lampeter Township. This data included the land area of each property, and the average

¹³⁰ A sensitivity analysis is defined as “a technique used to determine how different values of an independent variable will impact a particular dependent variable under a given set of assumptions.” (Source: <http://www.investopedia.com/terms/s/sensitivityanalysis.asp#axzz24Ck0N3rj>). In order to determine the appropriate fee structure to raise the amount of revenue necessary to fund a comprehensive stormwater management program, the Project Team created different scenarios using different rates and ERUs, therefore conducting a sensitivity analysis.

¹³¹ The average impervious surface for residential properties is based on LCPC data provided to the Project Team (the average sum of building footprint and driveways on residential properties), which was determined using GIS data based on aerial photography.

impervious surface data by categorical land use (industrial, commercial, community service, cultural activity, and agricultural) for all properties.

To determine each tier, the Project Team first took all non-residential properties by category to determine each property’s estimated impervious surface using categorical averages. The average percent impervious surface by category is shown in Table 56 below.

Table 56: Average Percent Impervious Surface by Parcel Type

Parcel type	Average impervious surface (%)
Industrial	26.12
Commercial	44.53
Community Service	20.80
Cultural Activity	4.00
Agricultural	2.75

Each non-residential property was then organized by parcel type and each individual parcel’s land area was multiplied by the appropriate average impervious surface percentage. For example, a commercial property that is 20,000 ft^2 has an estimated 44.53% impervious area. This property will then be billed for 9,060 ft^2 of impervious surface (20,000 ft^2 x 44.53%). Once the estimated impervious surface was calculated for each property, the Project Team conducted a statistical analysis to determine the tiered structure. A quartile system was utilized to divide the tiers into four equal groups. Table 57 shows the quartiles for the sum of all non-residential parcels using their estimated impervious surface calculations.

Table 57: Non-Residential Statistical Data to Determine Tiers

Quartiles	Quartile Impervious Surface Upper Bound (ft^2)	Tier (ft^2)
Percentage (25%) (Q1)	12,376	$\leq 12,000$
Median (Q2)	38,165	$> 12,000$ & $\leq 38,000$
Percentage (75%) (Q3)	81,697	$> 38,000$ & $\leq 82,000$
Upper Bound (Q4)	1,444,150	$> 82,000$

Using this 4-tiered system, the Project Team then determined the number of properties that fell into each tier. Then, the upper bound of each tier for quartiles 1-3 was divided 6,267 ft^2 to determine the number of ERUs that parcels in each tier will pay. So that parcels in the fourth quartile (Q4) were not all paying as if they were the upper bound, the median of all parcels in Q4 (118,00 ft^{2132}) was divided by 6,267 ft^2 to determine the number of ERUs that parcels in Q4 will pay. The final ERU for each tier was then multiplied by the flat fee scenarios and then again by the number of parcels in each tier to determine the total revenue generated from non-residential parcels. Table 58 shows the summary of this analysis below.

¹³² The median of all parcels in Q4 in West Lampeter Township is 118,281 ft^2 , which was rounded to 118,000 ft^2 for ease of administration.

Table 58: Annual Non-Residential Property Revenue Generated by Tier

Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /6,267 ft ²)	ERU x \$ x Number of Parcels				
			\$15	\$20	\$25	\$30	\$35
First tier: <=12,000	76	1.91	\$2,183	\$2,910	\$3,638	\$4,366	\$5,093
Second tier: >12,000 & <=38,000	79	6.06	\$7,185	\$9,580	\$11,975	\$14,371	\$16,766
Third tier: >38,000 & <=82,000	78	13.08	\$15,309	\$20,412	\$25,515	\$30,618	\$35,720
Fourth tier: >82,000	77	18.83	\$21,747	\$28,996	\$36,245	\$43,494	\$50,744
Total Non-Residential Revenue			\$46,424	\$61,899	\$77,374	\$92,848	\$108,323
Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /6,267 ft ²)	ERU x \$ x Number of Parcels				
			\$40	\$45	\$50	\$55	\$60
First tier: <=12,000	76	1.91	\$5,821	\$6,549	\$7,276	\$8,004	\$8,731
Second tier: >12,000 & <=38,000	79	6.06	\$19,161	\$21,556	\$23,951	\$26,346	\$28,741
Third tier: >38,000 & <=82,000	78	13.08	\$40,823	\$45,926	\$51,029	\$56,132	\$61,235
Fourth tier: >82,000	77	18.83	\$57,993	\$65,242	\$72,491	\$79,740	\$86,989
Total Non-Residential Revenue			\$123,798	\$139,272	\$154,747	\$170,222	\$185,697
Tier (ft ²)	Number of parcels	ERU (Upper Bound ft ² /6,267 ft ²)	ERU x \$ x Number of Parcels				
			\$65	\$70	\$75	\$80	\$85
First tier: <=12,000	76	1.91	\$9,459	\$10,187	\$10,914	\$11,642	\$12,370
Second tier: >12,000 & <=38,000	79	6.06	\$31,136	\$33,531	\$35,926	\$3,832	\$40,716
Third tier: >38,000 & <=82,000	78	13.08	\$66,338	\$71,441	\$76,544	\$81,647	\$86,750
Fourth tier: >82,000	77	18.83	\$94,238	\$101,487	\$108,736	\$115,985	\$123,234
Total Non-Residential Revenue			\$201,171	\$216,646	\$232,121	\$213,106	\$263,070

The total revenue potential for all fee structures is shown in Table 59 below.

Table 59: Total Revenue Potential

	\$15	\$20	\$25	\$30	\$35
Residential	\$66,840	\$89,120	\$111,400	\$133,680	\$155,960
Non-Residential	\$46,424	\$61,899	\$77,374	\$92,848	\$108,323
Total Revenue (1-year)	\$113,264	\$151,019	\$188,774	\$226,528	\$264,283
Total Revenue (5-year)	\$566,321	\$755,094	\$943,868	\$1,132,641	\$1,321,415
	\$40	\$45	\$50	\$55	\$60
Residential	\$178,240	\$200,520	\$222,800	\$245,080	\$267,360
Non-Residential	\$123,798	\$139,272	\$154,747	\$170,222	\$185,697
Total Revenue (1-year)	\$302,038	\$339,792	\$377,547	\$415,302	\$453,057
Total Revenue (5-year)	\$1,510,188	\$1,698,962	\$1,887,735	\$2,076,509	\$2,265,283
	\$65	\$70	\$75	\$80	\$85
Residential	\$289,640	\$311,920	\$334,200	\$356,480	\$378,760
Non-Residential	\$201,171	\$216,646	\$232,121	\$213,106	\$263,070
Total Revenue (1-year)	\$490,811	\$528,566	\$566,321	\$569,586	\$641,830
Total Revenue (5-year)	\$2,454,056	\$2,642,830	\$2,831,603	\$2,847,931	\$3,209,150

For the fee to be adequate as well as equitable, the total expenditures should as closely equal the total revenue as possible. The Township must first determine which expenditures should be included in the stormwater program budget, and which aspects of the program it wants to invest before assigning a fee structure.

It is important to note that if West Lampeter Township funds this program entirely by the user fee, then the fee would need to be set higher to pay for existing costs and the additional investments needed to support an adequate stormwater management program. It is highly recommended by the Project Team that the Township continue to supplement the program using general fund appropriations and grant funds where possible. This will decrease the user fee, minimizing any community backlash.

Lastly, it is difficult to estimate the effect of a credit system being imposed on the program. However, based on a credit system imposed in later years, revenues may decrease depending on the parameters of the system, how many residents participate, and to what extent. An estimate of the impact of these credits must be considered in future years, and the rate structure must be reevaluated to ensure that a credit system does not infringe on meeting revenue needs. It is unclear just how effective the credit system will be and there are no data that supports an average amount to consider. For more information about a credit system, please see Chapter 11.

Chapter 11: Credit System and Exemptions

Explanation of Credit System

A stormwater credit is a reduction in the portion of the stormwater user fee that is made available if certain approved practices are put in place to reduce the impact of stormwater generated on a property. Many stormwater utilities around the country are required by law to have some type of credit system in place; not all states have a legal requirement, however, and some communities prefer not to put a credit system in place.

There are many factors to take into account when a community decides whether or not to develop a credit program for their stormwater program. One reason some communities avoid a credit system is the administrative burdens associated with a fair, easily understood, and straightforward credit program. Another is the challenge of needing additional capacity to inspect installations and verify the information submitted on an application for credit is accurate. Lastly, it is difficult to gauge the level of credit system participation a community can expect and therefore equally difficult to determine the impacts a credit system may have on revenue generation. It takes several years of local data before a community is able to determine the difference in revenue collected with their program.

These challenges aside, there are also many reasons why communities move ahead with putting a credit program in place, even when not legally required by state law. To begin, the ability to reduce a property owner's stormwater charge helps to define these as a fee rather than a tax. In addition, credit systems give a community a way of encouraging behavior change on private property, because while local governments can go to great lengths to limit runoff on public lands, this will have little impact on a community's stormwater issues if it cannot be coupled with addressing runoff on private lands.

Rarely, if ever, is a credit program available at 100% reduction of the imposed fee. It is usually a certain percentage allowed for credit that correlates with the cost, size, and the degree of sophistication of the approved practice. Receiving credit is typically the responsibility of the property owner, who must apply for the credit. To be considered eligible for the credit, the property owner should be current in paying any tax and fee. A stated number of years that a credit is good are determined, as the general policy is that if the approved practice is not found to be well maintained or becomes non-functional during the eligible credit years then the credit can be terminated at any time. Supporting documentation is usually required when submitting an application and some communities charge a small processing fee to cover the cost of review, which may help offset the loss of revenue from imposing a credit system.

A clearly understood enforcement policy should be put in place right from the beginning of an approved credit program. For example, should any of the six municipalities decide to develop a credit program, each would reserve the right to review any application for accuracy and also have the right to inspect at any time. Appropriate action of consequences for failing to meet or maintain the approved practice should have some notification period to correct the deficiency followed by steps that are followed if not remedied within the appropriate amount of time.

A stormwater credit manual is usually developed and should be written to be easily understood. The same is done for the application process, thus limiting the time needed to answer questions regarding the program.

Types of Credits

Both residential and non-residential credits can be included in a credit system. Residential credits are made available to residents based on the installation of a typical BMP applicable to homes such

as rain barrels and rain gardens. Non-residential credits are made available to all properties that are considered commercial, multi-family, education, or industrial for the installation of typical non-residential BMPs such as permeable pavement, tree canopy improvements, and other practices that treat runoff on-site or slow volume and allow infiltration. Common credits are usually broken up into categories as follows:

- **Quantity credits:** Credit can be made available to properties that reduce the rate and/or volume of stormwater runoff from a property. An example of this would be a retention or detention pond, storm sewers, storm culverts, or storm channels.
- **Quality credits:** Credit can be made available to properties that reduce pollutants in stormwater runoff through the deployment of BMPs and help manage stormwater. An example of a BMP would be vegetative swales, pervious pavements, infiltration basins, or constructed wetlands.
- **Outreach:** Credit can be made available to those who undertake a specific action to educate or engage on stormwater management issues.
- **Education:** Credit can be made available to those such as public and private schools who wish to get credit for including stormwater education into the curriculum or through school programs. This is not a very common credit but may be helpful, along with outreach, to help meet one of the six MCMs required within the NPDES MS4 Phase II Permit.
- **Financial hardship:** Credit can be made available to those considered to be unable to pay the stormwater fee based on economic need or some other financial hardship. This is not always a set dollar figure threshold but often used as a case-by-case basis. Other credits for elderly may fall under this category as well.

Exemptions

Occasionally, stormwater utilities will offer an exemption to a property that will clear the property owner of paying all or some of their stormwater fee. The general rule of thumb is to proceed with caution when granting exemptions. The basis for recommending a dedicated user fee in the first place is because it is the fairest and most equitable method of calculating a charge for the service needed to manage stormwater. Exemptions can be considered discriminatory in nature if not considered justifiable and fair. The other reason for proceeding with caution on granting exemptions is that it may severely restrict or reduce estimated revenue needed to maintain a certain level of service.

The most commonly exempted properties include undeveloped lots, vacant land, or agriculture. Other considerations for possible exemptions include public roads maintained by the state and county (popular exemption with many states), non-profits, federal or state properties, and elderly or welfare recipients (financial hardship). Finally, properties that were already designed and developed with on-site runoff management practices in place might also be candidates for an exemption.

Chapter 12: Moving Towards Regionalization – Opportunities for Multi-Jurisdictional Collaboration

Adopting a More Regional Approach to Stormwater

There are many ways to define regionalization. In the water sector, the idea of regionalization typically refers to a number of water systems coming together to help solve water problems by managing it through a centralized system or a coordinated approach. When the Safe Drinking Water Act of 1974 (PL 93-523) was passed, an emphasis was placed on water supply professionals to seriously consider regionalization issues. The idea of regionalization through multi-jurisdictional collaboration is nothing new to the water service industry; it has been practiced effectively for years in the wastewater and drinking water sectors and is just moving towards being a proven practice for stormwater, particularly for small MS4 Phase II communities like the ones in this study. Adopting aspects of regionalization can definitely be the right approach and perfect time for many Lancaster County municipalities to work towards as they grapple with rising costs and increased regulations to manage.

A regional approach to stormwater for the six municipalities does not necessarily mean the Project Team recommends one centralized authority be charged with managing all aspects of these distinct stormwater systems. Instead, there are ways to work collaboratively and restructure aspects of each stormwater program so that all could see efficiencies gained and total costs for managing stormwater reduced over time.

The differences within each of the community's size, location, overall need, and current program structure does not lend itself well right now for the Project Team to recommend all six municipalities work jointly on all aspects of their program. There are several areas, however, that certain aspects of regionalization, or at least a more formal collaboration, could prove very effective as follows:

- **Capacity:** Sharing a stormwater coordinator to help with tracking, reporting, outreach, and grant making is the cheapest and most effective thing that could be done by the six municipalities. Each would share in the cost yet all could reap in the many benefits that would more than pay for itself in a short period of time.
- **Education:** Sharing resources such as written materials, school curriculum, slogans, displays, etc. can make education among citizens and businesses very easy to achieve.
- **Outreach/Public events:** Holding events that include stormwater as part of the promoted activity will make meeting MCMs 1 and 2 simple and will ensure sending a uniform message about proper management of stormwater across the municipal boundaries, resulting in a more engaged and informed community.
- **Written material:** Some municipalities have already developed or are working on written materials. Collaboration would help to expand that material to those who are weak in this area and may be stronger in other areas.
- **Equipment:** Not all equipment can be shared but also not all municipalities can afford to buy the medium to large equipment necessary to perform regular maintenance. There already is some informal sharing taking place with certain equipment among a few municipalities. Others expressed interest in sharing as needed but with an agreement in place to fix anything that may break during usage. Others were willing to share but at a reduced cost for rental in order to help pay for the larger equipment.

- **Develop procedures and shared documents:** As some municipalities work towards improving their internal tracking, reporting, documentation, and procedures, others who do not have the capacity or understanding of this could benefit from being part of a group that has such systems already set up.
- **Monthly meetings, either formal or informal:** One of the best ways that all six municipalities can continue their growth in managing stormwater is by maintaining the relationship brought on by this study. There was always a good turnout at meetings arranged by the Project Team and can continue beyond this grant. The purpose of the regular meetings would be to share information, bring in speakers, compare documents and materials, and discuss ways to continue to collaborate. The meetings do not need to be lengthy, but can go a long way to help each municipality improve its program, regardless of the size of the municipality.
- **Trainings:** As mentioned earlier in this report, training opportunities for all six municipalities should continue to be explored. Collaboration allows this to be practical for a larger audience as well as economical if there is a cost associated with the training. If DVD training videos need to be purchased, the cost is significantly less when the total purchase is split between six localities.
- **Grants:** With state and federal funding being limited in recent years and highly competitive, grant makers find collaboration between multiple jurisdictions the most attractive way to utilize their funding. By applying for grants together, the six municipalities have significantly increased their chances of being successful.
- **Contractor and vendors:** It is cheaper to design and construct a stormwater project when the cost is shared among several municipalities. This can also be considered for monitoring, inventories, and installation of BMPs.
- **Studies:** This report is a perfect example of ways in which working together can benefit multiple jurisdictions when it was not financially possible for only one. An example is the Lititz Borough and Warwick Township TMDL Plan conducted by LandStudies, Inc. Many other studies that impact a municipality's stormwater program can be possible if there is collaboration.

Other Potential Benefits of Collaboration

Clearly, there are many ways in which the six municipalities can benefit and significantly strengthen their stormwater program by continuing to collaborate. The Project Team observed an abundance of local resources that were, for the most part, underutilized. These included resources provided by the LCCD, watershed organizations, neighboring municipalities who share more than just boundaries, school programs and activities, as well as the Boy Scout and Girl Scout troops. The best example of effective utilization of these resources was displayed by Warwick Township. Even with their success at utilizing local resources, there would be even more efficiencies to be gained had Warwick Township done this collectively with other municipalities. That is now clearly possible as a follow-up to this study and would require very little effort on any one municipality's part to make happen.

Chapter 13: Conclusions and Recommendations

Moving Beyond 2013

All six municipalities were very different in the way they currently approach stormwater, yet they all had commonalities that tied them together in one way or another. The strongest connection all six had was the determination to improve the way they managed stormwater and elevate it to a high priority for their jurisdiction. Each was committed to being more proactive beyond 2013 and understood there were several deficiencies within their current stormwater program, although the severity of deficiency varied somewhat drastically.

The internal structure, size, geographic makeup, and age of all of their systems made each municipality very unique. The Project Team strongly believes that the analysis and recommendations made in this report will stand as a case study to many other similar communities both within Pennsylvania and beyond who will easily identify with one or more of the communities analyzed in this report. Becoming a role model for others was always one of the intentions of this project and the participating municipalities chosen to partake in this study did an exemplary job of sharing their information with others. The path towards implementing a successful stormwater program for all six participating municipalities will not end with this report. In fact, the road to their success is only just beginning. By agreeing to share their valuable time and information throughout the year, they have all taken the first steps toward having a well-managed and comprehensive program. Upon completion of this study, the next step will be to take the critical analysis and recommendations provided in this report and give it the evaluation and consideration necessary to achieve success beyond 2013.

Each municipality recognized the importance of meeting their NPDES Phase II program requirements, but their participation in this study went beyond simply wanting to be in compliance with state and federal regulations. Improving water quality for a healthier community and environment, reducing flooding, and managing their aging assets before a system failure may occur were also very strong drivers for all involved.

Although the municipalities were not universal in their support of implementing a dedicated fee to pay for current and future stormwater needs, all were open to the need to restructure the way they managed their stormwater program and improve the use of available but limited resources.

As with the many differences found among each municipality on how they managed stormwater, it was important that the Project Team's recommendations reflected those differences and accounted for the uniqueness of each location. There was no "one-size-fits-all" approach that could be recommended for all of them. There were, however, important areas where programmatic improvements could be made for each location. Some of these improvements required little to no dedicated funding but could be accomplished by simply improving the organizational process of tracking, reporting, and documenting stormwater internally. These improvements would help to create greater efficiency within future stormwater program activities. There were also several opportunities where collaboration between municipalities could help achieve even greater savings, reduce costs, and bring overall improvements within all of their programs.

Out of the six municipalities, only two, Manheim and Warwick Townships, are at the point where a dedicated funding mechanism are deemed appropriate, necessary, and highly recommended. In fact, the timing of this recommendation is considered perfect since both townships have a solid grasp of long-term needs and are able to anticipate future costs and prioritize capital improvement projects as well as assess capacity needs for successful program implementation. With the start of the new NPDES Phase II permit being issued along with the future state and federal regulations, the

sooner a process is put in place, the more effective both townships will be in meeting long term obligations beyond 2013.

Lititz Borough is one municipality that lies on the cusp between the Project Team recommending a dedicated funding mechanism and waiting until project costs are more available. As outlined in Chapter 6, the Borough's current stormwater program is certainly not at the same level as Manheim and Warwick Townships, but Lititz Borough does have significant efficiencies that could be gained if they follow a more progressive path that further aligns themselves with stormwater projects and activities in Warwick Township. Clearly, not all stormwater program activities can be merged but for those that arise, having a dedicated funding stream equal or greater to Warwick Township will allow Lititz Borough to take advantage of joint projects, which will lower costs and promote programmatic efficiency across the Borough. Without more dedicated funding for stormwater, the opportunities for partnering and reaping the future benefits achieved by Warwick Township, Lititz Borough will fall significantly behind Warwick in meeting future stormwater obligations.

The remaining three municipalities – West Lampeter and East Cocalico Townships and Mount Joy Borough – all have several immediate opportunities to achieve some level of stormwater improvements as referenced in their individual chapters in this report. It is strongly advised that they give serious consideration to implementing a dedicated fee in the near future to ensure there have additional resources and capacity available to get them to where they want to be in the future. By following the example of Warwick Township, a small fee can begin to move them in the direction they want to be through the next permit cycle and beyond. There is definitely a need for more data and further cost analysis to be done before real costs estimates can be calculated, so starting with some funding should allow work to be completed and further analysis to be conducted on anticipated needs.

Each municipality has an opportunity to continue to learn from one another and can begin to collaborate on several important areas of their program as outlined in Chapter 12. The benefits of collaboration will bring future stormwater program costs down, reduce the need for significant additional capacity, create overall efficiencies within the program, help with reporting and compliance, put all in a better position to receive grant funding, and more importantly, strengthen Lancaster County as a whole by being the regional example of how to achieve sustainable stormwater management beyond 2013.

Project Team

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Hired in 2005 as the EFC's Agricultural Program Leader, Joanne Throwe became Assistant Director in 2007, Associate Director in 2008, and Director in 2009. In addition, she completed an 18-month assignment working with USDA/CSREES as shared-faculty to assist in the coordination of special agriculture projects. Ms. Throwe works with communities in the Mid-Atlantic region implementing innovative financing solutions for environmental protection. Her work experience includes extensive knowledge about agriculture, green infrastructure, biofuels, ecosystem services and solid waste management. Prior to joining the EFC, Ms. Throwe spent several years as a Development Resource Specialist at USDA's Foreign Agriculture Service and two years as an Agriculture Extension Agent for Peace Corps in the South Pacific. She holds a M.A. in Public Policy and Private Enterprise from the University of Maryland.

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Monica Billig joined EFC in August 2010 as a program/graduate assistant at the start of her graduate school career at the University of Maryland. Since she received her Master in Public Policy at the University of Maryland in May 2012, Ms. Billig joined the EFC full time as a Program Manager, opening up a Pennsylvania satellite program office, located in Lancaster, PA. In this role, Ms. Billig works with communities in Pennsylvania to help finance environmental and sustainable development initiatives, with a focus on stormwater management. Prior to joining EFC, Ms. Billig worked as a Research Associate at edCount, LLC, a Washington, DC based education policy consulting firm specializing in policy related to assessments, standards, and accountability. Ms. Billig received her B.A. in economics and a minor in mathematics from Smith College in Northampton, MA.

Michelle Weber, Project Assistant – mmweber@umd.edu

Michelle was hired in September 2012 as a graduate assistant. She recently graduated with a Master of Science from the Department of Environmental Science & Technology at the University of Maryland concentrating in Ecological Technology Design. She also received a certificate in Ecological Economics from the University of Maryland School of Public Policy. Her master's research involves performing an economic feasibility study of a novel best management practice for nutrient reduction in the Chesapeake Bay watershed. Ms. Weber received a B.A. in biology and a minor in business from the University of Texas at Austin in 2011.

Acknowledgements

Special thanks to the Lancaster County Clean Water Consortium for its sponsorship in working with the six municipalities. Their continued support strengthens the collaboration among municipalities across Lancaster County, helping improve water quality in Lancaster's local streams and tributaries.

Special thanks to **Michelle Arthur**, EFC Project Assistant, for general project support.

Special thanks to **Toni Ames**, EFC Program Assistant, for help in coordinating outreach events and project materials.

Special thanks to the East Cocalico, Manheim, Warwick, and West Lampeter Township and Lititz and Mount Joy Borough staff for their collaboration, support, and willingness to participate in this study and provide the Project Team with relevant materials and data.

Special thanks to **Steve Gochenaur**, LCPC GIS Analyst, for sharing parcel-specific data on each municipality and taking the time to help the Project Team fully understand the data provided.

Special thanks to **Peggy Weickert**, University of Maryland graphic designer, for helping the Project Team create its project logo.

Special thanks to Lancaster City for its willingness to share information and project logo.

Appendix A: Outreach and Marketing Timeline



Lancaster County Municipal Stormwater Financing Initiative

Outreach & Marketing Strategy: Timeline

December 4, 2012

Where: Lancaster County, Pennsylvania

When: October 1st, 2012 – September 31st, 2013

Partners: UMD Environmental Finance Center, Lancaster County Clean Water Consortium (LCCWC), East Cocalico Township, Lititz Borough, Manheim Township, Mount Joy Borough, Warwick Township, and West Lampeter Township, Lancaster City

What: A public outreach, education and marketing plan that communicates stormwater issues in a collaborative manner, including water quality/quantity, infrastructure problems, and solutions for sustainable financing across municipalities in Lancaster County, PA.

Why: To improve stormwater and water quality conditions in across municipalities, comply with Municipal Separate Storm Sewer Systems (MS4) permit and create a dedicated, reliable funding source for infrastructure, operations, maintenance, and compliance needs.

Audience: Citizens, businesses, elected officials

Ongoing Activities

- Marketing activities listed below may be on-going throughout the project as appropriate or opportunities arise:
 - TV, radio, newspaper ads or announcements
 - Magazine articles regarding stormwater efforts in Lancaster County
 - Include stormwater project and information on individual municipality and county website and/or other web-based media
 - Presentations to HOAs, nonprofits, and other groups
 - Highlighting projects spanning the County
 - Provide fliers or other information on stormwater at library, Farmers Market, town meetings, and other locations as appropriate
 - Organize collaborative meetings that include all municipalities
 - Disseminate outreach materials (second Fridays in Lititz Borough, bi-annual public outreach event in West Lampeter Township, any other events specific to municipalities)
 - Distribute stormwater materials at LCCD meetings as well as Lancaster Inter-Municipal Committee (LIMC)
 - Maintain presence at LCCWC meetings as appropriate – present all updated materials (presence at education events such as envirothon?)
 - Disseminate materials at municipal-level conservation organizations:
 - West Lampeter Township: Recycling Committee, Pequea Creek Watershed Association
 - East Cocalico Township: Cocalico Creek Watershed Association

- Warwick Township: Lititz Run Watershed Association, Boy Scouts
- Mount Joy Borough: Main Street Mount Joy, Chiques Creek Watershed Alliance, Donegal Chapter of Trout Unlimited
- Manheim Township: Little Conestoga Watershed Alliance, Lancaster Area Sewer Authority, Habitat Manheim Township
- Lititz Borough: Lititz Run Watershed Association

October 2012

- Create factsheet to distribute to each municipality, West Lampeter Fair, Lebanon/Lancaster Watershed Forum, and LCCWC

November 2012

- Develop logo for municipal outreach materials
- Develop overall outreach and education messaging and marketing strategy for the public and events, to include multi-purpose two-pager on this project
- Meet with all municipalities & LCCWC (November 20th) to finalize outreach and marketing strategy timeline and brainstorm outreach opportunities and materials

December 2012

- Develop finalized list of key stakeholders in community – collect list of individuals from each municipality (this list is already being developed based on initial one-on-one meetings, see last page of this document)
- Reach out to Lancaster City & other key organizations conducting public outreach in community already (Live Green, LIMC, etc.)
- Finalize logo

January – July 2013

- Present stormwater project to key stakeholders (target audience based on municipality feedback)
- Brief municipalities on progress and outreach efforts as appropriate (bi-monthly)
- Have presence at local events – disseminate outreach materials, educate community about stormwater project and general issues
- Meet with elected officials as municipalities see appropriate
- Develop magnet w/ SW logo for public works trucks
 - Develop materials or hold education session for truck drivers
- Meet with Superintendent or Cynthia Burkhart to incorporate SW education into schools
- Present SW education material at Lancaster Farmland Trust meeting

August 2013

- Send draft recommendations to stakeholders for review

September 2013

- Deliver final report

Outreach List, by municipality

West Lampeter Township:

- Pequea Creek Watershed Association (contact: Kara Kalupson)
- Recycling Committee (contact: Ken Kulakowsky)
- Farmers (contact: Donald Herr)
- Willow Valley
- Lampeter-Strasburg School District
- YMCA

East Cocalico Township:

- Cocalico Creek Watershed Association (contact: Jay Synder)
- Conservation District (contact: Rebecca Buchanan)
- Ag Commission
- Zoning Board
- Cocalico School District

Warwick Township:

- Lititz Run Watershed Association (contact: Dan Zimmerman)
- Boy Scouts
- Water & Sewer Authority
- Donegal Chapter of Trout Unlimited (contact: Greg Wilson)
- Warwick School District

Mount Joy Borough:

- Main Street Mount Joy
- Chiques Creek Watershed Alliance
- Donegal Chapter of Trout Unlimited (contact: Wayne Boggs)
- Donegal School District

Manheim Township:

- Little Conestoga Watershed Alliance (contact: Don Nazario)
- Lancaster Area Sewer Authority (contact: Mike Kyle)
- Lancaster County Solid Waste Management Authority (LCSWMA) (contact: Jim Warner)
- Habitat Manheim Township
- Press (contact: Dave O'Conner)
- Manheim Township School District

Lititz Borough:

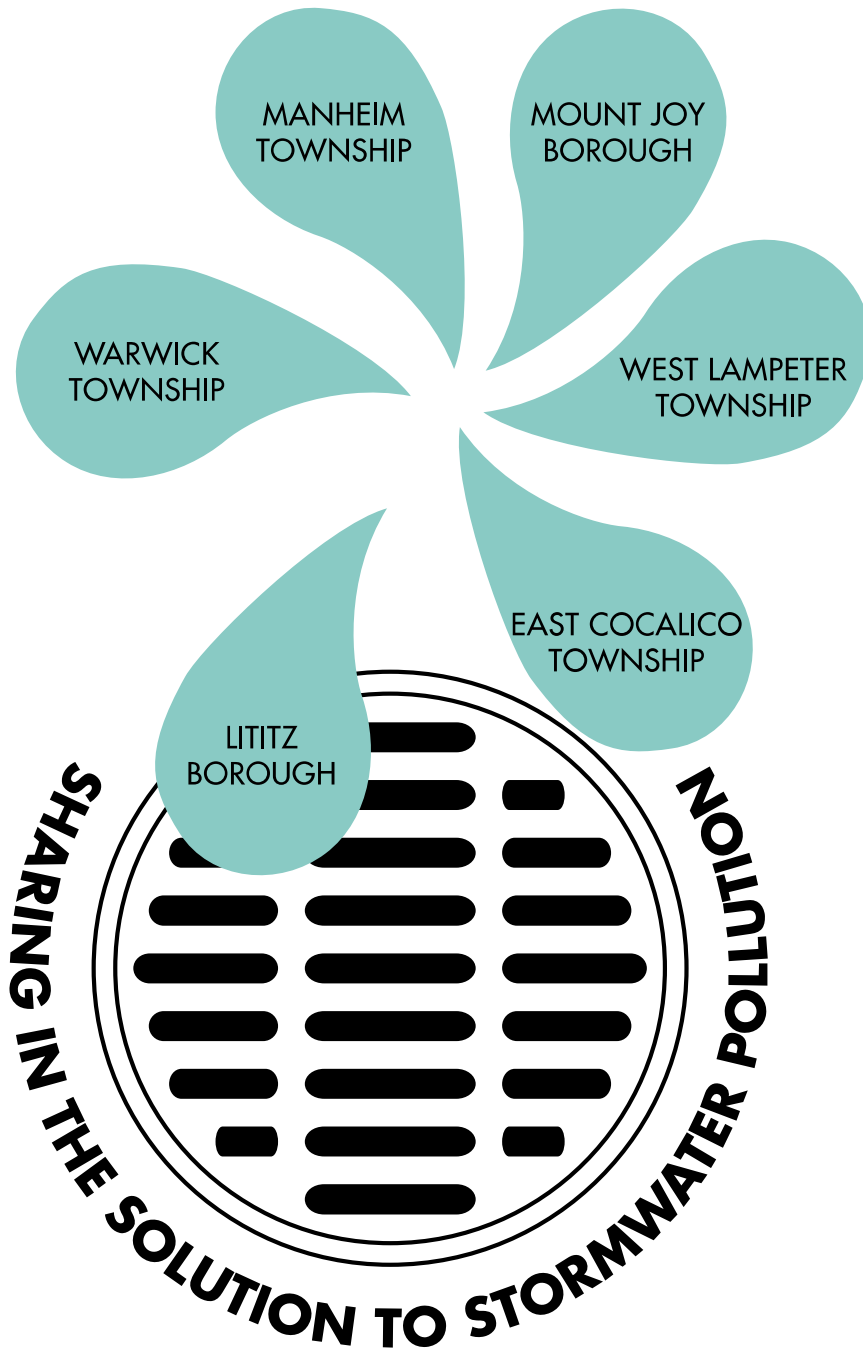
- Lititz Run Watershed Association (contact: Dan Zimmerman)
- Main Street Lititz (contact: Kelly Withum)
- Lititz Borough Flood Control Committee
- Warwick School District

Appendix B: Logos

Original Lancaster City Stormwater Logo



Project logo developed from Lancaster City's "Save It" stormwater campaign



Appendix C: Fact Sheets

General Stormwater Factsheet

STORMWATER MANAGEMENT IN LANCASTER COUNTY



West Lampeter Township
ESTABLISHED 1817

Warwick Township
est. 1729
Lancaster County, PA

Manheim Township
Lancaster 1729 County
A Healthy Community

East Cocalico Township
FREE CONSULTATION

Lititz Borough

Mount Joy Borough

Established 1831



Why is stormwater management important in Lancaster County?

- Heavy rains have in the past, and will continue in the future to endanger livelihoods – from property to crops to lives.
- The Susquehanna River and its tributaries have played an important part in Lancaster County’s economy and culture; badly managed stormwater runoff pollutes the water and threatens the communities utilizing these waterways.

What can WE do to minimize stormwater?

- Limit the amount of solid surfaces or use permeable materials.
- Allow buffers of vegetation alongside waterways to filter and slow runoff, and plant native trees, shrubs and groundcover to absorb rainwater.
- Consider a rain garden or rain barrel to manage runoff on your property.
- Find ways to reduce the amount of litter, sediment, and other debris entering waterways.
- Use natural alternatives to chemical fertilizers and pesticides.

What are the efforts of the Lancaster County Municipal Stormwater Financing Initiative?

- The National Fish & Wildlife Foundation (NFWF) provides resources to communities engaged in developing and enhancing their sustainable stormwater management program. Through NFWF, the Lancaster County Clean Water Consortium (LCCWC) is sponsoring six municipalities in Lancaster County – **Lititz and Mount Joy Boroughs and East Cocalico, Manheim, Warwick, and West Lampeter Townships** – to work with the Environmental Finance Center (EFC) at the University of Maryland to find long-term solutions to managing stormwater.
- The EFC is working with municipal staff to ensure each municipality has a stormwater program that addresses local infrastructure and regulatory needs in a long-term and sustainable manner.
- The EFC will provide financing recommendations designed to support stormwater program needs in a way that reflects the nature and characteristics of each municipality.

Want to learn more or share your thoughts on the Lancaster County Municipal Stormwater Financing Initiative?



CONTACT: Monica Billig
Environmental Finance Center, Pennsylvania Satellite Office
mbillig@umd.edu; 240-786-8664

Detailed Residential Handout

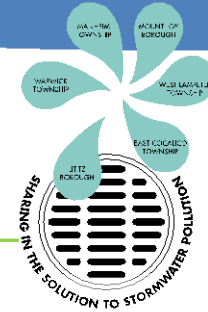
Example shown below is for Manheim Township. Each municipality received an individualized handout

HOMEOWNER HANDOUT: RESIDENTIAL STORMWATER BEST MANAGEMENT PRACTICES



How do residential areas contribute to stormwater?

- Residential areas are composed of impervious areas—from roofs to driveways—that prevent stormwater from infiltrating the soil
- Many lawn care practices such as fertilizing and bagging clippings add to the pollution found in stormwater



What can homeowners in Manheim Township do to help?

Install a Rain Barrel

In a typical rain event (1 inch in 24 hours), over 700 gallons of water can run off the roof of an average home. Rain barrels help intercept and store rain water from roofs. The captured rainwater may then be used to water your lawn.



Rain barrels are easy to install and are an inexpensive way to help manage stormwater in your community. Residents simply connect their rooftop downspout to a barrel and can install a garden hose for irrigation. Rain barrel costs generally range between \$100-\$200. Barrel costs can be greatly offset by purchasing recycled barrels.

Take care of your lawn

When rain runs off of lawns and into the storm sewer, it is also taking pesticides, fertilizers and sediment along with it. These harmful substances then flow directly into local waterways and diminish water quality. Some simple practices for homeowners that decreases the amount of lawn-related contaminants in stormwater include:

- Do not apply fertilizer or pesticides to dormant lawns, frozen ground, or before heavy rain
- Test your soil to see what nutrients are needed and how much
- Use slow-release organic fertilizers that are less likely to enter stormwater
- Mulch your grass clippings in order to reduce the need for additional fertilizer

For more information, visit stormwaterpa.org or contact your local municipal office



Want to learn more about the Lancaster County Municipal Stormwater Financing Initiative?

Contact Monica Billig at 240-786-8664 or mbillig@umd.edu or contact your local municipal office at 717-569-6408 or visit www.manheimtownship.org/

Project partners include:

Environmental Finance Center
 Lancaster County Clean Water Consortium
 National Fish & Wildlife Foundation
 West Lampeter Township

Mount Joy Borough
 East Cocalico Township
 Warwick Township
 Lititz Borough
 Manheim Township

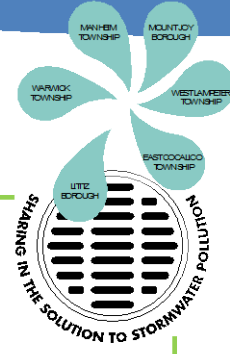
Detailed Soil and Lawn care Handout

Document was created at the request of Manheim Township's Commissioners.

HOMEOWNER HANDOUT: LAWCARE BEST MANAGEMENT PRACTICES



Having a lawn that is green in terms of aesthetics and environmental stewardship is possible by implementing certain best management practices for lawn care.



Test your soil

In order to know what nutrient is needed for your lawn and to avoid the addition of excess nutrients, it is important to have your soil tested. Soil testing is available through the Pennsylvania State University Agricultural Analytical Services Laboratory (<http://www.aasl.psu.edu/>) and other private labs. A mail-in soil testing kit may be picked up at the Lancaster County Cooperative Extension office located at 1383 Arcadia Rd, Room 140, Lancaster, PA 17601 for \$9 per test.

Understanding the numbers

Once you understand what your soil needs, it is important to choose a fertilizer with the correct amount of nutrients. Fertilizers come in different ratios of nitrogen, phosphorus, and potassium indicated on the label as N-P-K. For example, if your soil tests indicate high phosphorus, look for a fertilizer that has no or low phosphorus such as a 1-0-1.

Choose the right fertilizer

There are two main types of fertilizers that homeowners may choose from: water soluble and water insoluble. Solubility corresponds to the form of nitrogen and how it is released.

Water soluble fertilizer or *fast-release* fertilizer readily dissolves in water and is taken up immediately by grass. Fast-release fertilizer is completely released within 2 weeks and requires subsequent reapplication of fertilizer.

Water insoluble fertilizer or *slow-release* fertilizer does not dissolve in water and releases nitrogen slowly over an 8 to 10 week period. While slow-release fertilizer is more expensive, it saves time in terms of reapplication over the growing season. In addition, slow-release fertilizer is less likely to be washed away from a lawn during a storm event and end up in a local waterway. Common fertilizer brands such as Scotts, Osmocote, Schultz, Miracle-Gro and Vigoro all offer slow-release versions and may be found in your local home gardening retailer.

All about timing

For cooler climates, the best time to apply is in the spring and fall and approximately 1-2 lbs of nitrogen per 1000 square feet for slow-release fertilizer. Focus on the fall fertilization to encourage strong root growth and spring feedings may not be needed. A strong, healthy lawn will discourage the growth of weeds, minimizing the need for pesticides and herbicides.

For more information, visit stormwaterpa.org or contact your local municipal office



Want to learn more about the Lancaster County Municipal Stormwater Financing Initiative?

Contact Monica Billig at 240-786-8664 or mbillig@umd.edu or contact your local municipal office at 717-569-6408 or visit www.manheimtownship.org/

Project partners include:

Environmental Finance Center
Lancaster County Clean Water Consortium
National Fish & Wildlife Foundation
West Lampeter Township

Mount Joy Borough
East Cocalico Township
Warwick Township
Lititz Borough
Manheim Township

Appendix D: Public Works Department Script



Stormwater Talking Points for PWD Employees

Developed by the Environmental Finance Center (EFC) at the University of Maryland

December 5, 2012

What does the decal represent?

This logo represents the six different municipalities in Lancaster County – East Cocalico Township, Lititz Borough, Manheim Township, Mount Joy Borough, Warwick Township, and West Lampeter Township – who are working collaboratively on a stormwater feasibility study. This study is being conducted by the Environmental Finance Center, and will result in recommendations to each municipality on ways to more effectively manage and finance stormwater.

What is stormwater?

Stormwater (commonly known as runoff) is precipitation caused from storm or snowmelt events that flows over impervious surfaces (i.e. pavement, sidewalks, tennis courts, etc.), picks up pollutants, and is not allowed to penetrate into the ground.

Why should we care?

Untreated stormwater carries pollutants into waterways, such as the Susquehanna River, and can also cause flooding issues. By effectively managing stormwater we can help protect properties and water quality.

How can you get more involved?

Talk to your councilperson or local municipal staff, consider installing a rain barrel or rain garden on your property, and check out the local resources within your community that address stormwater.

If you are interested in learning more about the specific study being undertaken in your community, contact Monica Billig at the Environmental Finance Center. Ms. Billig's contact information is: 240-786-8664 (phone); mbillig@umd.edu (email).

Appendix E: Outreach Event Pictures

Warwick Township Watershed Day

May 14th, 2013



Students learning about stream health from a LCCD representative



Students engaging in discussion with an environmentalist



Students planting trees

Lititz Borough 2nd Friday
June 14th, 2013



PWD truck with project logo and banner



Children playing fishing game



PWD staff explaining their new truck to the public

Chiques Creek Watershed Expo

June 19th, 2013



EFC's booth at the event



The LCCD conducting outreach, and receiving some local media attention



A Liederkranz representative sharing information with attendees about the site's improvement project

Mount Joy Borough Rain Garden Volunteer Planting Day
August 10th, 2013



Appendix F: Manheim Township Budget Documents

Manheim Township Stormwater Budget, Years 1-5

Total Expenditures	Year 1	Year 2	Year 3	Year 4	Year 5
Total Operating Expenditures	\$872,695	\$894,482	\$916,814	\$939,705	\$963,167
Total Capital Expenditures	\$1,168,250	\$770,250	\$1,160,250	\$754,750	\$1,644,873
Total Expenditures	\$2,040,945	\$1,664,732	\$2,077,064	\$1,694,455	\$2,608,040

Operating Expenditures							
G/L Acct No.	Account Description	Notes	Year 1	Year 2	Year 3	Year 4	Year 5
Salaries:							
01-431-103.00	Director (25%)	Existing position	\$22,294	\$22,851	\$23,422	\$24,008	\$24,608
01-431-105.00	Clerical (25%)	Existing position	\$10,763	\$11,032	\$11,307	\$11,590	\$11,880
01-431-115.00	Superintendent	New position	\$68,000	\$69,700	\$71,443	\$73,229	\$75,059
01-431-116.00	Engineer (25%)	Existing position	\$24,344	\$24,952	\$25,576	\$26,216	\$26,871
01-431-117.00	Maintenance	New position -- includes 4 maintenance + crew leader	\$225,000	\$230,625	\$236,391	\$242,300	\$248,358
01-431-120.00	Overtime		\$5,125	\$5,253	\$5,384	\$5,519	\$5,657
Sub-Total			\$355,525	\$364,413	\$373,523	\$382,862	\$392,433
Benefits:							
01-431-201.00	FICA/Medicare		\$28,000	\$28,700	\$29,418	\$30,153	\$30,907
01-431-202.00	Workers Compensation		\$8,800	\$9,020	\$9,246	\$9,477	\$9,714
01-431-203.00	Unemployment		\$1,400	\$1,435	\$1,471	\$1,508	\$1,545
01-431-204.00	Health Insurance		\$91,100	\$93,378	\$95,712	\$98,105	\$100,557
01-431-204.20	Disability Insurance		\$2,650	\$2,716	\$2,784	\$2,854	\$2,925
01-431-205.00	Life Insurance		\$530	\$543	\$557	\$571	\$585
01-431-206.00	Retirement		\$59,000	\$60,475	\$61,987	\$63,537	\$65,125
01-431-207.00	Uniform Allowance		\$1,200	\$1,200	\$1,200	\$1,200	\$1,200
01-431-209.00	Education		\$1,000	\$1,025	\$1,051	\$1,077	\$1,104
Sub-Total			\$193,680	\$198,492	\$203,424	\$208,480	\$213,662
Materials & Supplies:							

Operating Expenditures							
G/L Acct No.	Account Description	Notes	Year 1	Year 2	Year 3	Year 4	Year 5
01-431-301.00	Postage		\$256	\$263	\$269	\$276	\$283
01-431-302.00	Office Supplies		\$513	\$525	\$538	\$552	\$566
01-431-303.00	Computer Supplies		\$461	\$473	\$485	\$497	\$509
01-431-304.00	Photographic Supplies		\$205	\$210	\$215	\$221	\$226
01-431-305.00	Subscriptions & Publications		\$513	\$525	\$538	\$552	\$566
01-431-307.00	Storm Drain Repair Material		\$15,375	\$15,759	\$16,153	\$16,557	\$16,971
01-431-308.00	Tools & Safety Equipment		\$7,688	\$7,880	\$8,077	\$8,279	\$8,486
01-431-319.00	Uniforms		\$820	\$841	\$862	\$883	\$905
01-431-320.00	Minor Equipment Purchases		\$10,250	\$10,506	\$10,769	\$11,038	\$11,314
Sub-Total			\$36,080	\$36,982	\$37,907	\$38,854	\$39,826
Contracted Services:							
01-431-406.00	Engineering Fees	CS Davidson contract	\$61,500	\$63,038	\$64,613	\$66,229	\$67,884
01-431-409.00	Printing	Educational materials	\$1,538	\$1,576	\$1,615	\$1,656	\$1,697
01-431-410.00	Contracted Services	Sink hole repairs based on historical average	\$51,250	\$52,531	\$53,845	\$55,191	\$56,570
01-431-413.00	One Call Systems Fees		\$4,613	\$4,728	\$4,846	\$4,967	\$5,091
01-431-414.00	Street Sweeping	Twice per year	\$51,250	\$52,531	\$53,845	\$55,191	\$56,570
Sub-Total			\$170,150	\$174,404	\$178,764	\$183,233	\$187,814
General Expenses:							
01-431-501.00	Advertising		\$2,563	\$2,627	\$2,692	\$2,760	\$2,829
01-431-502.00	Dues, Conference, Train & Cert		\$1,538	\$1,576	\$1,615	\$1,656	\$1,697
01-431-510.00	Telephone		\$2,050	\$2,101	\$2,154	\$2,208	\$2,263
01-431-518.00	Equipment Rental		\$2,563	\$2,627	\$2,692	\$2,760	\$2,829
01-431-520.00	Miscellaneous		\$2,563	\$2,627	\$2,692	\$2,760	\$2,829
Sub-Total			\$11,275	\$11,557	\$11,846	\$12,142	\$12,445
Vehicle Operations:							
01-431-601.01	Gas & Oil		\$25,625	\$26,266	\$26,922	\$27,595	\$28,285

Operating Expenditures							
G/L Acct No.	Account Description	Notes	Year 1	Year 2	Year 3	Year 4	Year 5
01-431-601.02	Tires & Tubes		\$10,250	\$10,506	\$10,769	\$11,038	\$11,314
01-431-601.03	Vehicle Maintenance		\$30,750	\$31,519	\$32,307	\$33,114	\$33,942
01-431-605.00	Minor Parts		\$7,688	\$7,880	\$8,077	\$8,279	\$8,486
01-431-608.00	Attachment Repairs		\$2,563	\$2,627	\$2,692	\$2,760	\$2,829
Sub-Total			\$76,875	\$78,797	\$80,767	\$82,786	\$84,856
Facilities Maintenance:							
01-431-701.00	Electric		\$2,563	\$2,627	\$2,692	\$2,760	\$2,829
01-431-702.00	Heating		\$8,713	\$8,930	\$9,154	\$9,382	\$9,617
01-431-703.00	Water/Sewer		\$1,230	\$1,261	\$1,292	\$1,325	\$1,358
01-431-704.00	Trash Removal		\$1,538	\$1,576	\$1,615	\$1,656	\$1,697
01-431-706.00	Building Maintenance		\$3,588	\$3,677	\$3,769	\$3,863	\$3,960
01-431-707.00	Grounds Maintenance		\$2,563	\$2,627	\$2,692	\$2,760	\$2,829
Sub-Total			\$20,193	\$20,697	\$21,215	\$21,745	\$22,289
Equipment Maintenance:							
01-431-801.00	Radio Maintenance		\$513	\$525	\$538	\$552	\$566
01-431-802.00	Computer Operations/Maintenance		\$1,025	\$1,051	\$1,077	\$1,104	\$1,131
01-431-806.00	Shop Equipment & Tool Repairs		\$3,588	\$3,677	\$3,769	\$3,863	\$3,960
01-431-807.00	Barriers & Rails		\$1,230	\$1,261	\$1,292	\$1,325	\$1,358
01-431-812.00	Minor Equipment		\$2,563	\$2,627	\$2,692	\$2,760	\$2,829
Sub-Total			\$8,918	\$9,140	\$9,369	\$9,603	\$9,843
Total Operating Expenditures			\$872,695	\$894,482	\$916,814	\$939,705	\$963,167

Capital Expenditures						
Account Description	Notes	Year 1	Year 2	Year 3	Year 4	Year 5
Equipment Start-up Costs:						
Superintendent Vehicle		\$28,000	-	-	-	-
Pickup Truck		\$22,000	-	-	-	-
Utility Truck		\$60,000	-	-	-	-
Vactor Truck	in CIP	-	-	\$275,000	-	-
Television Truck	Could set up contractual, pay-as-you-go to share with neighboring municipalities	\$135,000	-	-	-	-
Street Sweeper	in CIP	-	-	-	\$165,000	-
Utility building	\$7 million for new building; estimate \$650,000 to convert building 2 in interim	\$650,000	-	-	-	-
Computers	Assume purchase every 5th year	\$5,000	-	-	-	\$5,519
Cameras	Assume purchase every 5th year	\$1,000	-	-	-	\$1,104
Sub-Total		\$901,000	\$0	\$275,000	\$165,000	\$6,623
Capital Improvement Plan (CIP) Projects:						
Community Park	Tree Planting	-	-	-	\$10,000	-
Landis Woods	Tree Planting	\$10,000	-	-	-	-
Destination Playground	Tree Planting	-	\$15,000	-	-	-
Overlook Community Campus	Tree Planting	-	-	\$10,000	-	-
Habitat improvements at Landis Woods		-	\$58,000	-	-	-
Annual inlet repairs	Annual cost	\$55,250	\$55,250	\$55,250	\$55,250	\$55,250
Annual BMP inspection	Annual cost	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
Annual MS4 reporting	Annual cost	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Habitat MT collaboration	Educational materials	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Eden Road swale restoration		-	-	\$98,000	-	-
Grandview Heights South - SW improvements	Pending CSO jurisdiction; future year costs: \$1,336,000	-	-	-	\$177,500	\$1,336,000
Grandview Heights South - study	Pushed to future, pending CSO	-	-	\$50,000	-	-

Capital Expenditures						
Account Description	Notes	Year 1	Year 2	Year 3	Year 4	Year 5
Hampton Lane/Echo Vellely Road swale improvements		-	-	-	-	\$50,000
Lititz Run TMDL implementation		\$50,000	\$50,000	\$150,000	\$150,000	-
SW TMDL Plan implementation	Will come out of TMDL study; future year costs: \$1,000,000; includes CBPRP preparation	\$50,000	\$100,000	\$100,000	\$50,000	\$50,000
Rain garden creation/wetland restoration		\$15,000	\$12,000	\$12,000	\$12,000	\$12,000
EFC program evaluation	Current	\$2,000	-	-	-	-
Implementing SW grant program - study	Current & will be annual cost	-	\$50,000	\$50,000	\$50,000	\$50,000
Land acquisition - shed relocation	Depends on EPA; future year costs: \$972,500	-	-	-	-	-
Shed		-	-	\$275,000	-	-
Construct new shed	Future year costs: \$6,190,000	-	-	-	-	-
Salt shed replacement	Pushed to future	-	\$345,000	-	-	-
	Sub-Total	\$267,250	\$770,250	\$885,250	\$589,750	\$1,638,250
	Total Capital Expenditures	\$1,168,250	\$770,250	\$1,160,250	\$754,750	\$1,644,873

Appendix G: Warwick Township Analysis Documents

Warwick Township Stormwater Budget, Years 1-5

Total Costs	Year 1	Year 2	Year 3	Year 4	Year 5
Storm Sewer Replacement Program	\$71,651	\$73,442	\$75,278	\$77,160	\$79,089
BMP Replacement	\$95,425	\$38,899	\$74,400	\$10,661	\$10,928
BMP Required Maintenance	\$4,510	\$9,738	\$6,178	\$6,757	\$5,153
Total Costs	\$171,586	\$122,079	\$155,856	\$94,578	\$95,170

Storm Sewer System Replacement Program -- Total Cost (30 year) = \$1,954,100; Annual Cost = \$65,137 (w/o inflation)						
Item	Year 1	Year 2	Year 3	Year 4	Year 5	Notes
Pipe replacement	\$65,137	\$66,765	\$68,435	\$70,145	\$71,899	Since the average useful life of the pipes in the Township is 30 years, the total budget was divided by 30. This figure represents the straight line reserves the Township should generate each year. This assumes that 1/30 of the pipes will be replaced each year.
10% contingency	\$6,514	\$6,677	\$6,843	\$7,015	\$7,190	
Total Storm Sewer Pipe Costs	\$71,651	\$73,442	\$75,278	\$77,160	\$79,089	

BMP Replacement and Required Maintenance Costs -- Renovations are completed every 20 years; Maintenance is completed every 5 years						
Item	Year 1	Year 2	Year 3	Year 4	Year 5	Notes
<i>Renovation Costs (20-year)</i>						
Linear Park Basin Renovation	\$55,000	\$2,819	\$2,889	\$2,961	\$3,035	Annual reserves should be \$2,750 plus inflation after renovation; assume renovation taking place in year 1
Municipal Campus Basin Renovation	\$1,750	\$1,794	\$33,228	\$1,885	\$1,932	Annual reserves should be \$1,750 plus inflation after renovation; assume renovation taking place in year 3

BMP Replacement and Required Maintenance Costs -- Renovations are completed every 20 years; Maintenance is completed every 5 years						
Item	Year 1	Year 2	Year 3	Year 4	Year 5	Notes
6 Bio-Basin Renovations	\$30,000	\$30,750	\$31,519	\$4,846	\$4,967	Annual reserves should be \$4,500 (for all 6) plus inflation after renovation; assume 2 renovations taking place in each year from years 1-3
10% contingency	\$8,675	\$3,536	\$6,764	\$969	\$993	
Total BMP Renovation Costs	\$95,425	\$38,899	\$74,400	\$10,661	\$10,928	
<i>Maintenance Costs (5-year)</i>						
Linear Park Basin Dredging & Cleaning	\$1,500	\$6,188	\$1,576	\$1,615	\$1,656	Annual reserves should be \$1,500 plus inflation; assume maintenance taking place in year 2
Municipal Campus Basin Dredging & Cleaning	\$800	\$820	\$841	\$1,848	\$883	Annual reserves should be \$800 plus inflation; assume maintenance taking place in year 4
Bio-Basin 1 Dredging & Cleaning	\$300	\$308	\$969	\$324	\$332	Annual reserves should be \$300 plus inflation; assume maintenance in year 3
Bio-Basin 2 Dredging & Cleaning	\$300	\$308	\$969	\$324	\$332	Annual reserves should be \$300 plus inflation; assume maintenance in year 3
Bio-Basin 3 Dredging & Cleaning	\$300	\$308	\$316	\$692	\$332	Annual reserves should be \$300 plus inflation; assume maintenance in year 4
Bio-Basin 4 Dredging & Cleaning	\$300	\$308	\$316	\$692	\$332	Annual reserves should be \$300 plus inflation; assume maintenance in year 4
Bio-Basin 5 Dredging & Cleaning	\$300	\$308	\$316	\$324	\$409	Annual reserves should be \$300 plus inflation; assume maintenance in year 5
Bio-Basin 6 Dredging & Cleaning	\$300	\$308	\$316	\$324	\$409	Annual reserves should be \$300 plus inflation; assume maintenance in year 5
10% contingency	\$410	\$885	\$562	\$614	\$468	
Total BMP Maintenance Costs	\$4,510	\$9,738	\$6,178	\$6,757	\$5,153	
Total BMP Costs	\$99,935	\$48,637	\$80,578	\$17,418	\$16,081	

*Inflation is taken into account for all expenditures (2.5%)

Warwick Township Stormwater BMP Renovation & Maintenance Schedule and Annual Reserve Fund, Years 1-5

Item	Quantity	Unit	Unit Cost	Total Cost	Reserve per year*	Year Project Complete	Year 1	Year 2	Year 3	Year 4	Year 5
20 YEAR RENOVATION COSTS											
Linear Park Basin	1	EA	\$55,000	\$55,000	\$2,750	1	\$55,000	\$2,819	\$2,889	\$2,961	\$3,035
Municipal Campus Basin	1	EA	\$35,000	\$35,000	\$1,750	3	\$1,750	\$1,794	\$33,228	\$1,885	\$1,932
Bio-Basins (6)	6	EA	\$15,000	\$90,000	\$4,500	2 in year 1; 2 in year 2; 2 in year 3	\$30,000	\$30,750	\$31,519	\$4,846	\$4,967
Total Renovation Costs							\$86,750	\$35,363	\$67,636	\$9,692	\$9,934
5 YEAR MAINTENANCE COSTS (Dredging and Cleaning)											
Linear Park Basin	1	EA	\$7,500	\$7,500	\$1,500	2	\$1,500	\$6,188	\$1,576	\$1,615	\$1,656
Municipal Campus Basin	1	EA	\$4,000	\$4,000	\$800	4	\$800	\$820	\$841	\$1,848	\$883
Bio-Basins (6)	6	EA	\$9,000	\$9,000	\$1,800	2 in year 2; 2 in year 3; 2 in year 4	\$1,800	\$1,845	\$3,200	\$2,680	\$2,146
Total Maintenance Costs							\$4,100	\$8,853	\$5,616	\$6,143	\$4,685
Total BMP Replacement & Required Maintenance Costs							\$90,850	\$44,216	\$73,253	\$15,835	\$14,619