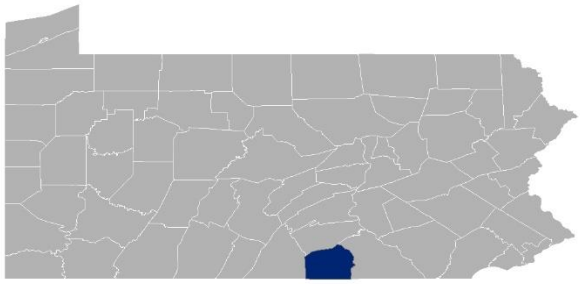
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 8



ADAMS COUNTY, PENNSYLVANIA

(ALL JURISDICTIONS)

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ABBOTTSTOWN, BOROUGH OF	421157	HAMILTONBAN, TOWNSHIP OF	421252
ARENDSTVILLE, BOROUGH OF	422292	HIGHLAND, TOWNSHIP OF	421253
BENDERSVILLE, BOROUGH OF	422293	HUNTINGTON, TOWNSHIP OF	421143
BERWICK, TOWNSHIP OF	421160	LATIMORE, TOWNSHIP OF	421162
BIGLERVILLE, BOROUGH OF*	422649	LIBERTY, TOWNSHIP OF	421255
BONNEAUVILLE, BOROUGH OF	422294	LITTLESTOWN, BOROUGH OF	421244
BUTLER, TOWNSHIP OF	421247	McSHERRYSTOWN, BOROUGH OF	421245
CARROLL VALLEY, BOROUGH OF	422635	NEW OXFORD, BOROUGH OF *	421246
CONEWAGO, TOWNSHIP OF	421248	MENALLEN, TOWNSHIP OF	421256
CUMBERLAND, TOWNSHIP OF	421249	MOUNT JOY, TOWNSHIP OF	421257
EAST BERLIN, BOROUGH OF	420001	MOUNT PLEASANT, TOWNSHIP OF	421258
FAIRFIELD, BOROUGH OF	422295	OXFORD, TOWNSHIP OF	420003
FRANKLIN, TOWNSHIP OF	421250	READING, TOWNSHIP OF	420004
FREEDOM, TOWNSHIP OF	421251	STRABAN, TOWNSHIP OF	421259
GERMANY, TOWNSHIP OF	422296	TYRONE, TOWNSHIP OF	421163
GETTYSBURG, BOROUGH OF	421243	UNION, TOWNSHIP OF	421261
HAMILTON, TOWNSHIP OF	420002	YORK SPRINGS, BOROUGH OF	421239

*No Special Flood Hazard Areas Identified

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July 22, 2020

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Published Separately

Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT
ADAMS COUNTY, PENNSYLVANIA

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60.3, *Criteria for land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community's regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Adams County, PA.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Abbottstown, Borough of	421157	02050306	42001C0188D	
Arendtsville, Borough of	422292	02050306	42001C0120E	
Bendersville, Borough of	422293	02050306	42001C0110D, 42001C0126D	
Berwick, Township of	421160	02050306	42001C0169D, 42001C0188D, 42001C0282D, 42001C0284D, 42001C0301D, 42001C0302D, 42001C0303D	
Biglerville, Borough of[1]	422649	02050306	42001C0120E, 42001C0136E	
Bonneauville, Borough of	422294	02070009	42001C0259E, 42001C0267E, 42001C0286E	
Butler, Township of	421247	02050306, 02070009	42001C0110D, 42001C0118E, 42001C0120E, 42001C0130D, 42001C0135D, 42001C0136E, 42001C0137E, 42001C0138E, 42001C0139E, 42001C0145D, 42001C0232E	
Carroll Valley, Borough of	422635	02070009	42001C0219E, 42001C0238E, 42001C0331E, 42001C0332E, 42001C0351E	
Conewago, Township of	421248	02050306	42001C0283D, 42001C0284D, 42001C0291D, 42001C0292D, 42001C0295D, 42001C0303D, 42001C0315D	
Cumberland, Township of	421249	02050306, 02070009	42001C0120E, 42001C0138E, 42001C0231E, 42001C0232E, 42001C0233E, 42001C0234E, 42001C0241E, 42001C0242E, 42001C0243E, 42001C0244E, 42001C0251E, 42001C0252E, 42001C0253E, 42001C0254E, 42001C0261E, 42001C0262E, 42001C0263E, 42001C0264E, 42001C0356E, 42001C0357E, 42001C0381E, 42001C0382E	
East Berlin, Borough of	420001	02050306	42001C0178D, 42001C0186D	

Table 1: Listing of NFIP Jurisdictions *(continued)*

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Fairfield, Borough of	422295	02070009	42001C0217E, 42001C0236E, 42001C0238E	
Franklin, Township of	421250	02050306, 02070004, 02070009	42001C0080D, 42001C0085D, 42001C0090D, 42001C0093E, 42001C0094E, 42001C0095E, 42001C0105D, 42001C0113E, 42001C0114E, 42001C0115E, 42001C0118E, 42001C0120E, 42001C0205D, 42001C0207E, 42001C0209E, 42001C0210E, 42001C0226E, 42001C0227E, 42001C0228E, 42001C0231E, 42001C0232E, 42001C0233E	
Freedom, Township of	421251	02070009	42001C0237E, 42001C0239E, 42001C0241E, 42001C0242E, 42001C0243E, 42001C0244E, 42001C0352E, 42001C0356E, 42001C0357E, 42001C0381E	
Germany, Township of	422296	02070009	42001C0269E, 42001C0288E, 42001C0290E, 42001C0386E, 42001C0387E, 42001C0401E, 42001C0402E, 42001C0410D	
Gettysburg, Borough of	421243	02070009	42001C0251E, 42001C0253E, 42001C0254E	
Hamilton, Township of	420002	02050306	42001C0162D, 42001C0164D, 42001C0166D, 42001C0167D, 42001C0168D, 42001C0169D, 42001C0186D, 42001C0187D, 42001C0188D, 42001C0281D, 42001C0282D	
Hamiltonban, Township of	421252	02070004, 02070009	42001C0205D, 42001C0207E, 42001C0209E, 42001C0210E, 42001C0214E, 42001C0215E, 42001C0216E, 42001C0217E, 42001C0218E, 42001C0219E, 42001C0226E, 42001C0228E, 42001C0236E, 42001C0237E, 42001C0238E, 42001C0327E, 42001C0331E, 42001C0332E	
Highland, Township of	421253	02070009	42001C0226E, 42001C0227E, 42001C0228E, 42001C0229E, 42001C0231E, 42001C0233E, 42001C0236E, 42001C0237E, 42001C0241E	
Huntington, Township of	421143	02050305, 02050306	42001C0040D, 42001C0045D, 42001C0063D, 42001C0130D, 42001C0131D, 42001C0132D, 42001C0135D, 42001C0151D, 42001C0155D	
Latimore, Township of	421162	02050305, 02050306	42001C0035D, 42001C0045D, 42001C0055D, 42001C0061D, 42001C0062D, 42001C0063D, 42001C0064D, 42001C0070D, 42001C0151D, 42001C0155D, 42001C0160D	

Table 1: Listing of NFIP Jurisdictions *(continued)*

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Liberty, Township of	421255	02070009	42001C0236E, 42001C0237E, 42001C0238E, 42001C0239E, 42001C0327E, 42001C0331E, 42001C0332E, 42001C0351E, 42001C0352E	
Littlestown, Borough of	421244	02070009	42001C0288E, 42001C0290E, 42001C0401E, 42001C0402E	
McSherrystown, Borough of	421245	02050306	42001C0292D	
Menallen, Township of	421256	02050305, 02050306, 02070004	42001C0015D, 42001C0020D, 42001C0040D, 42001C0085D, 42001C0105D, 42001C0110D, 42001C0115E, 42001C0120E, 42001C0126D, 42001C0130D	
Mount Joy, Township of	421257	02070009	42001C0254E, 42001C0258E, 42001C0262E, 42001C0263E, 42001C0264E, 42001C0266E, 42001C0267E, 42001C0268E, 42001C0269E, 42001C0286E, 42001C0288E, 42001C0381E, 42001C0382E, 42001C0386E, 42001C0387E	
Mount Pleasant, Township of	421258	02050306, 02070009	42001C0164D, 42001C0165D, 42001C0256E, 42001C0257E, 42001C0258E, 42001C0259E, 42001C0266E, 42001C0267E, 42001C0277D, 42001C0279D, 42001C0280D, 42001C0283D, 42001C0286E, 42001C0288E, 42001C0290E, 42001C0291D	
New Oxford, Borough of[1]	421246	02050306	42001C0277D, 42001C0281D	
Oxford, Township of	420003	02050306	42001C0164D, 42001C0168D, 42001C0277D, 42001C0279D, 42001C0281D, 42001C0282D, 42001C0283D, 42001C0284D	
Reading, Township of	420004	02050306	42001C0070D, 42001C0155D, 42001C0160D, 42001C0162D, 42001C0164D, 42001C0165D, 42001C0166D, 42001C0167D, 42001C0169D, 42001C0176D, 42001C0178D, 42001C0179D[1], 42001C0186D, 42001C0187D	
Straban, Township of	421259	02050306, 02070009	42001C0137E, 42001C0138E, 42001C0139E, 42001C0145D, 42001C0162D, 42001C0164D, 42001C0165D, 42001C0251E, 42001C0252E, 42001C0253E, 42001C0254E, 42001C0256E, 42001C0257E, 42001C0258E, 42001C0266E, 42001C0280D	

Table 1: Listing of NFIP Jurisdictions *(continued)*

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Tyrone, Township of	421163	02050305, 02050306	42001C0020D, 42001C0040D, 42001C0130D, 42001C0131D, 42001C0132D, 42001C0135D, 42001C0145D, 42001C0155D, 42001C0162D, 42001C0165D	
Union, Township of	421261	02050306, 02070009	42001C0288E, 42001C0290E, 42001C0291D, 42001C0295D, 42001C0315D, 42001C0402E, 42001C0410D, 42001C0430D[1]	
York Springs, Borough of	421239	02050306	42001C0063D	

[1]No Special Flood Hazard Areas Identified

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 30, "Map Repositories," within this FIS Report.

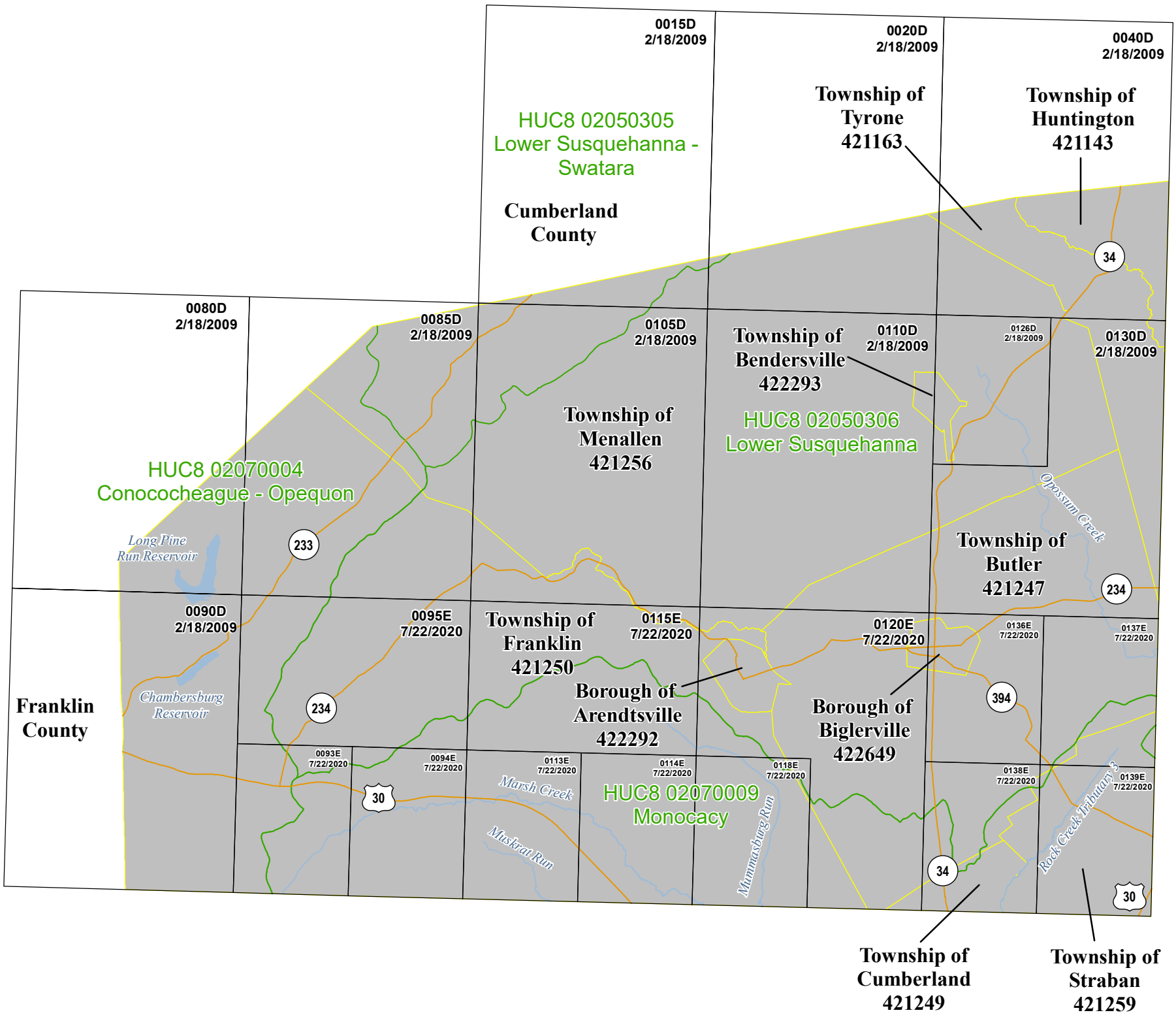
- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Adams County became effective on February 18, 2009. Refer to Table 27 for information about subsequent revisions to the FIRMs.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at http://www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Adams County, PA and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before July 22, 2020.

N

1 inch = 9,583 feet 1:115,000

feet
0 2,700 5,400 10,800 16,200 21,600

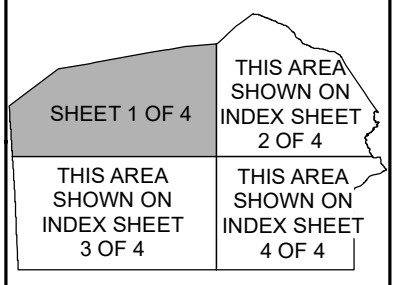
Map Projection:
Universal Transverse Mercator Zone 18 North;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

ADAMS COUNTY, PA
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

ADAMS COUNTY, PA All Jurisdictions
SHEET 1 OF 4

PANELS PRINTED:

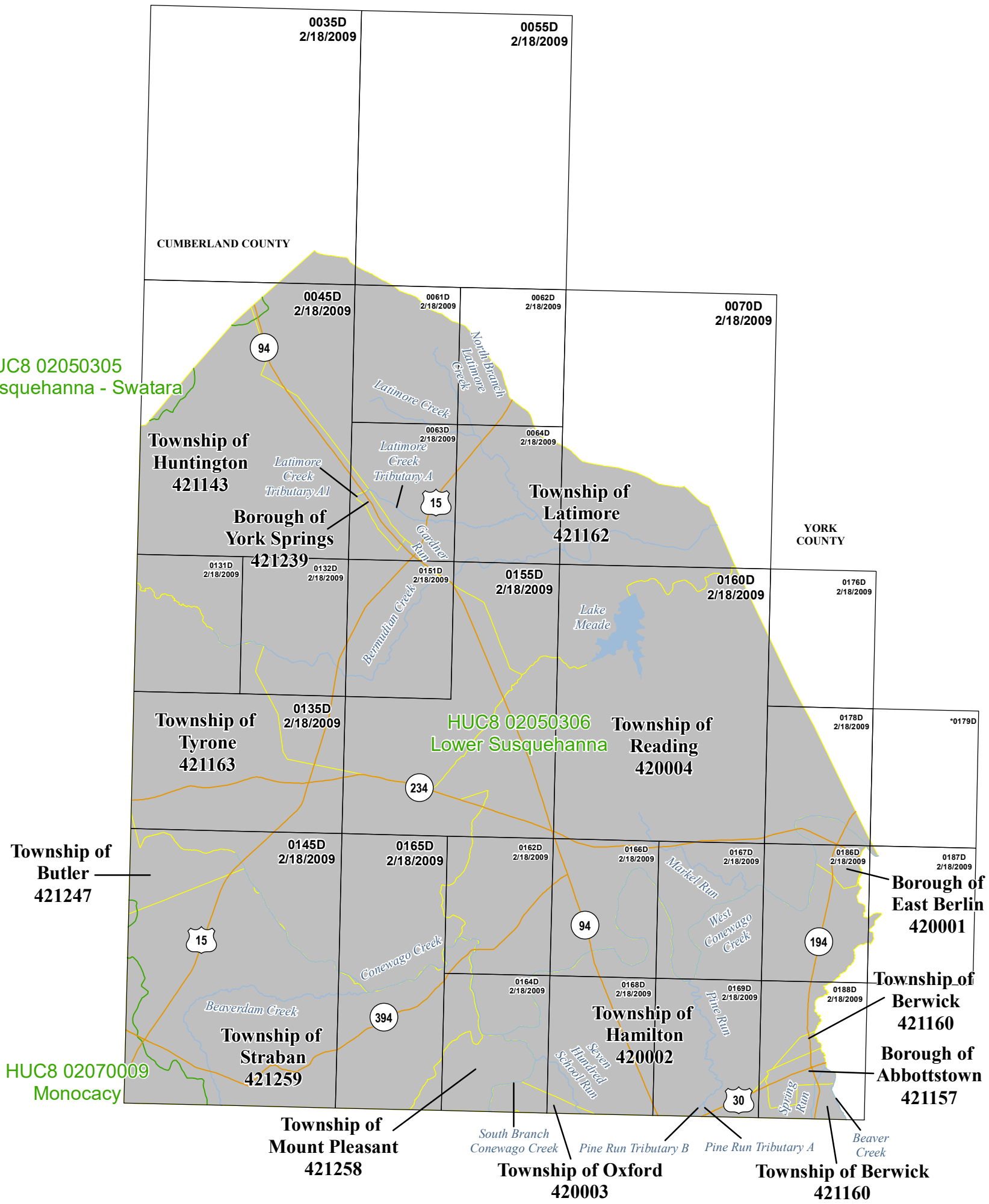
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FEMA

MAP NUMBER
42001CIND1B

MAP REVISED
July 22, 2020

Figure 1: FIRM Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before July 22, 2020.

N

1 inch = 9,583 feet 1:115,000

feet 0 2,700 5,400 10,800 16,200 21,600

Map Projection:
Universal Transverse Mercator Zone 18 North;
North American Datum 1983

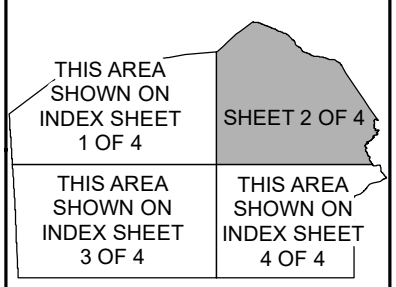
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

ADAMS COUNTY, PA
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

ADAMS COUNTY, PA All Jurisdictions
SHEET 2 OF 4

PANELS PRINTED:

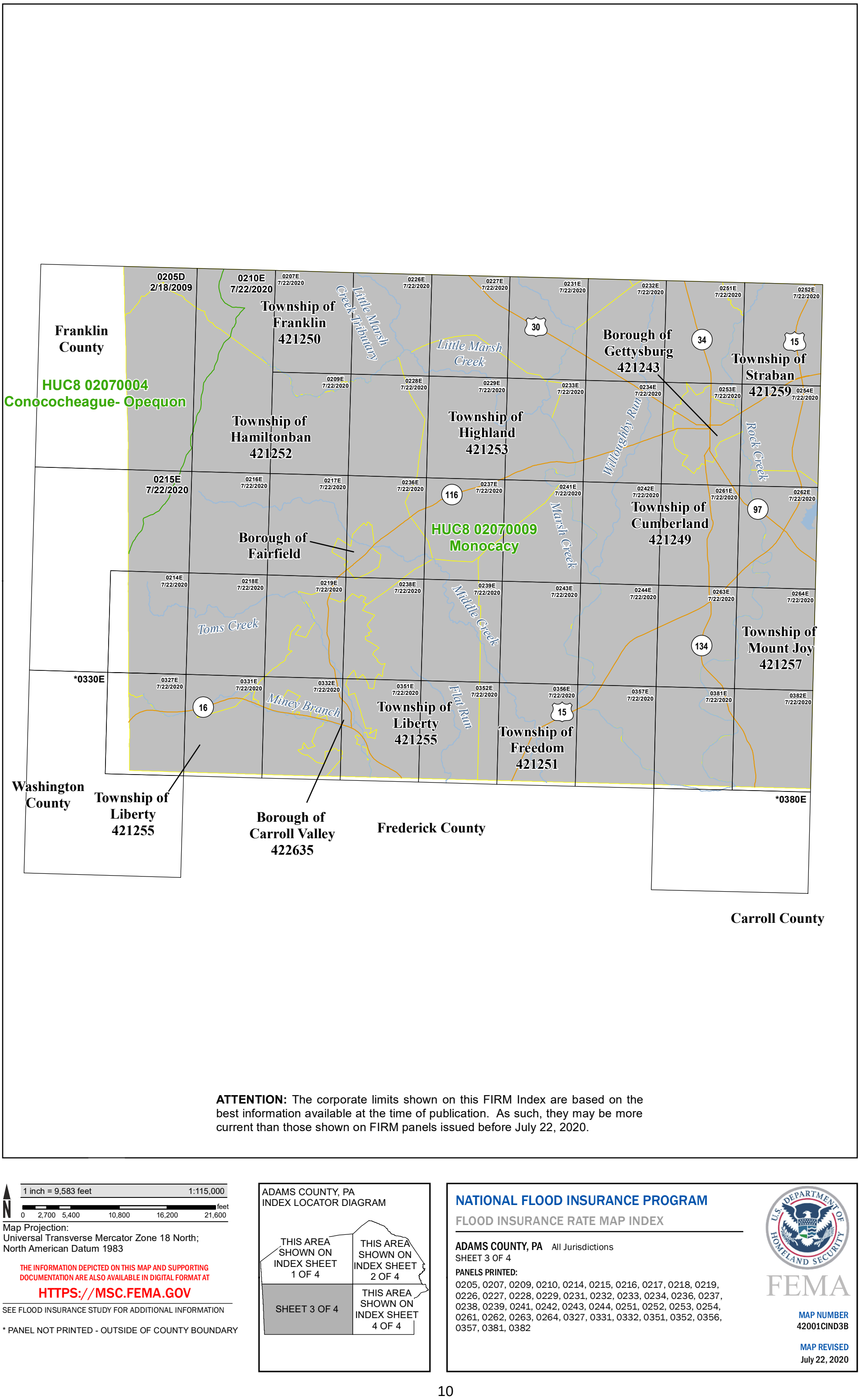
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FEMA

MAP NUMBER
42001CIND2B

MAP REVISED
July 22, 2020

Figure 1: FIRM Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before July 22, 2020.

N

1 inch = 9,583 feet 1:115,000

0 2,700 5,400 10,800 16,200 21,600 feet

Map Projection:
Universal Transverse Mercator Zone 18 North;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - OUTSIDE OF COUNTY BOUNDARY

ADAMS COUNTY, PA
INDEX LOCATOR DIAGRAM

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

ADAMS COUNTY, PA All Jurisdictions
SHEET 3 OF 4

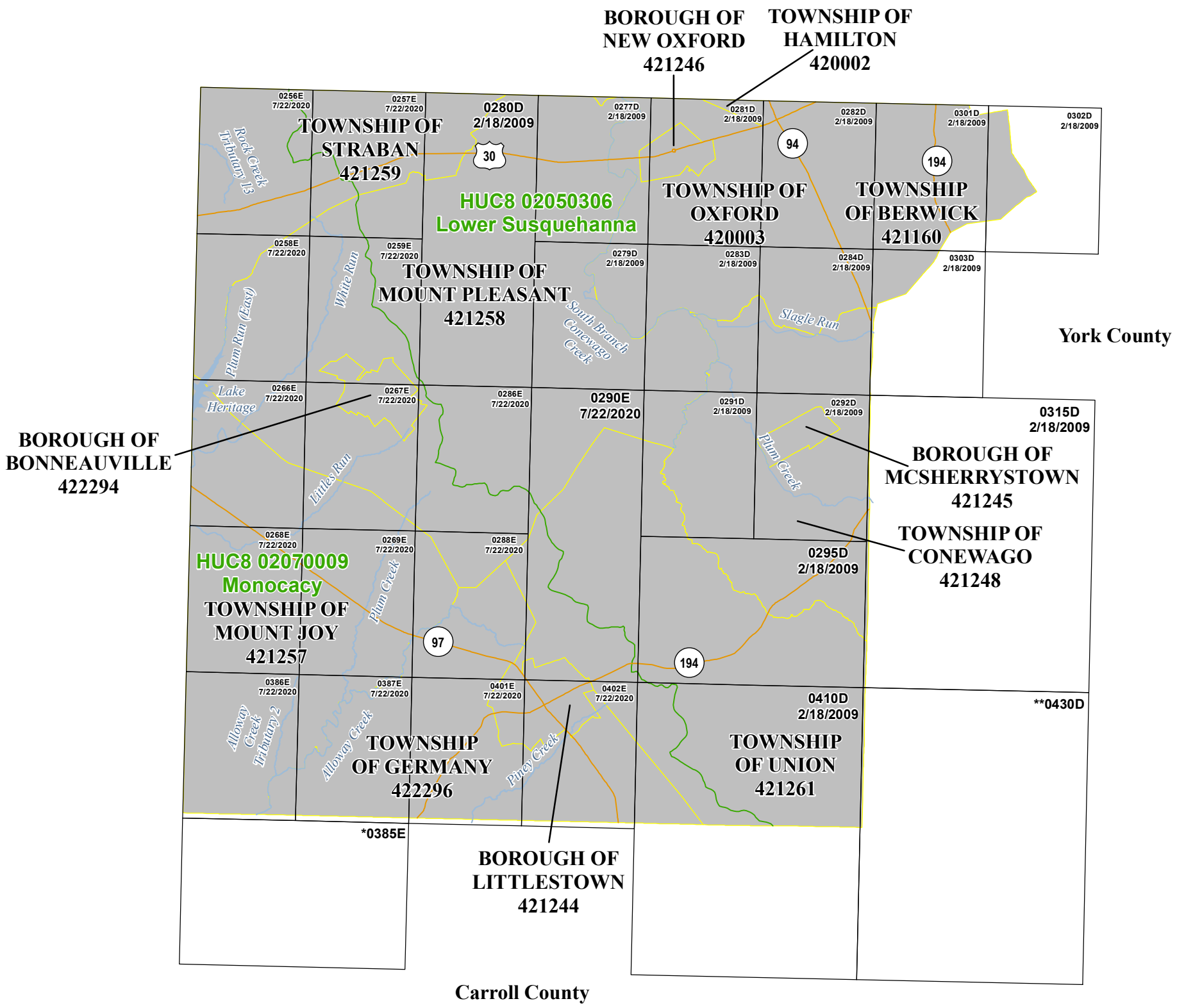
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FEMA

MAP NUMBER
42001CIND3B

MAP REVISED
July 22, 2020

Figure 1: FIRM Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before July 22, 2020.

N

1 inch = 9,583 feet 1:115,000

0 2,700 5,400 10,800 16,200 21,600 feet

Map Projection:
Universal Transverse Mercator Zone 18 North;
North American Datum 1983

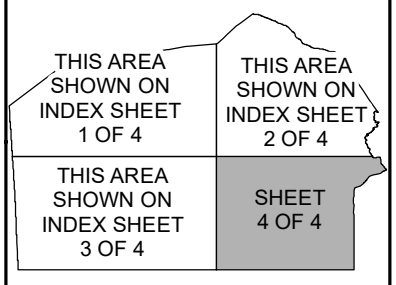
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - OUTSIDE OF COUNTY BOUNDARY
** PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

ADAMS COUNTY, PA
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

ADAMS COUNTY, PA All Jurisdictions
SHEET 4 OF 4

PANELS PRINTED:

0256, 0257, 0258, 0259, 0266, 0267, 0268, 0269, 0277, 0279, 0280, 0281, 0282, 0283, 0284, 0286, 0288, 0290, 0291, 0292, 0295, 0301, 0302, 0303, 0315, 0386, 0387, 0401, 0402, 0410

FEMA

MAP NUMBER
42001CIND4B

MAP REVISED
July 22, 2020

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 28 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

Figure 2. FIRM Notes to Users *(continued)*

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was Universal Transverse Mercator (UTM) Zone 18N. The horizontal datum was North American Datum 1983. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/.

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided in digital format by the National Agricultural Imagery Program (NAIP). This information was derived from digital orthophotography at a 1-meter resolution from photography dated 2013. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Adams County, Pennsylvania corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Adams County, PA effective July 22, 2020.

Figure 2. FIRM Notes to Users *(continued)*

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Adams County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*

Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)

Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone, either at cross section locations or as static whole-foot elevations that apply throughout the zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

Regulatory Floodway determined in Zone AE.

Figure 3: Map Legend for FIRM *(continued)*

OTHER AREAS OF FLOOD HAZARD

Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.



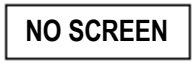
Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.



Zone X Protected by Accredited Levee: Areas protected by an accredited levee, dike or other flood control structures. See Notes to Users for important information.

OTHER AREAS

Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible



Unshaded Zone X: Areas determined to be outside the 0.2% annual chance floodplain

FLOOD HAZARD AND OTHER BOUNDARY LINES

Flood Zone Boundary (white line)

Limit of Study

Jurisdiction Boundary

Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet

GENERAL STRUCTURES

Aqueduct
Channel
Culvert
Storm Sewer

Channel, Culvert, Aqueduct, or Storm Sewer

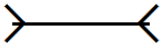
Dam
Jetty
Weir

Dam, Jetty, Weir



Levee, Dike or Floodwall accredited or provisionally accredited to provide protection from the 1% annual chance flood

Levee, Dike or Floodwall not accredited to provide protection from the 1% annual chance flood.



Bridge

Bridge

REFERENCE MARKERS



River mile Markers

Figure 3: Map Legend for FIRM *(continued)*

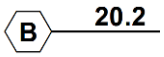
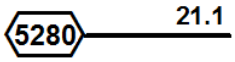
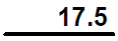
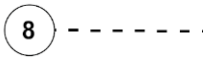
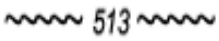
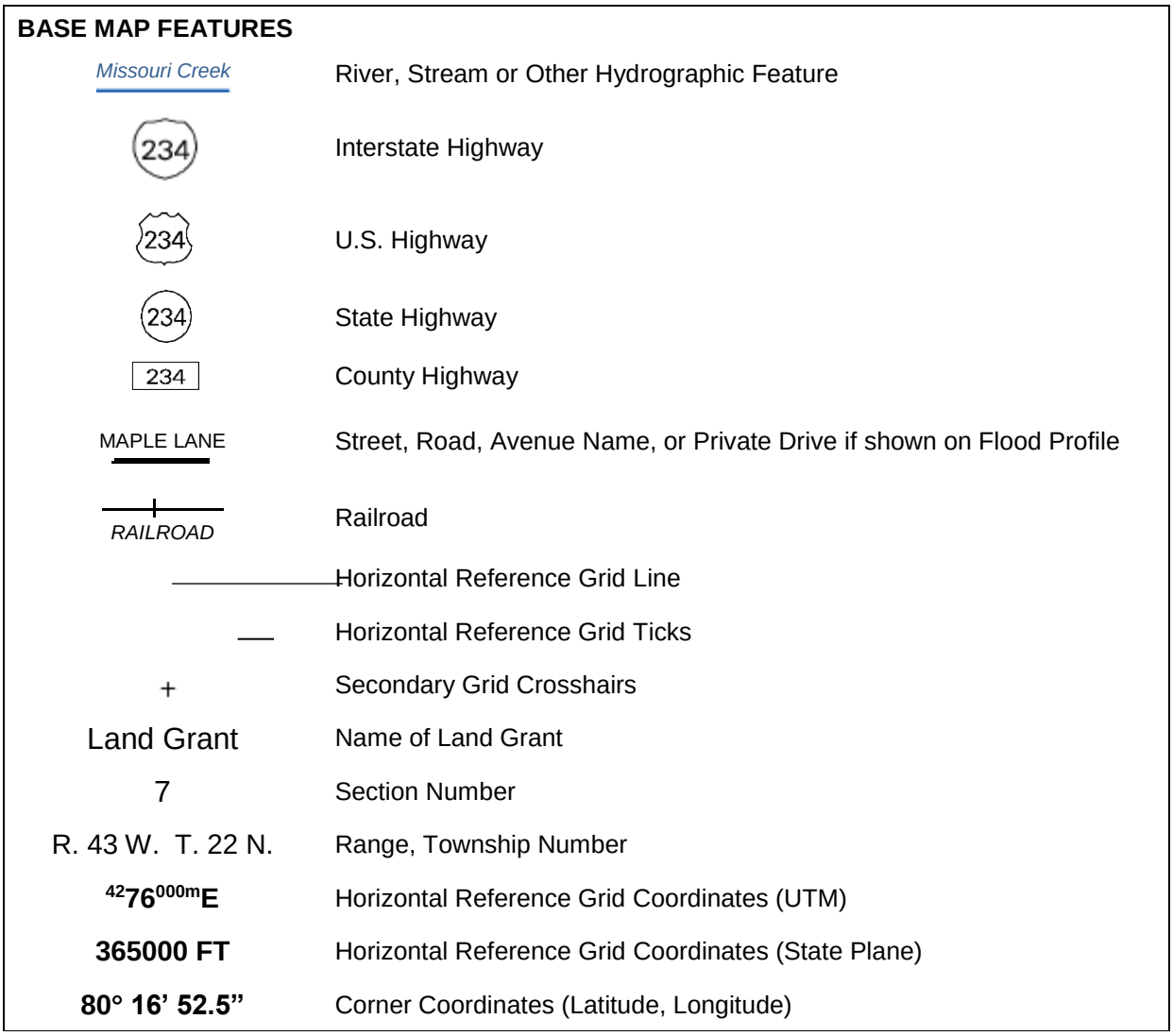
CROSS SECTION & TRANSECT INFORMATION	
	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
	Base Flood Elevation Line (shown for flooding sources for which no cross sections or profile are available)
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM *(continued)*



SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and City Of Adams County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been

computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 22), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Adams County.

Figure 3, "Map Legend for FIRM", describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Adams County, respectively.

Table 2, "Flooding Sources Included in this FIS Report," lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 12. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3.

On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2%annual chance floodplain shows areas that, although out of the regulatory floodplain, are stillsubject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Alloway Creek	Germany, Township of; Mount Joy, Township of; Union, Township of	At confluence with Monocacy River	Downstream of Whitehall Road	02070009	13.6		N	AE	2017
Alloway Creek Tributary 1	Mount Joy, Township of	At confluence with Alloway Creek	Approximately 750 feet upstream of the Pennsylvania/Maryland Border	02070009	0.5		N	AE	2017
Alloway Creek Tributary 2	Germany, Township of; Mount Joy, Township of	At confluence with Alloway Creek	Approximately 300 feet upstream of Krug Road	02070009	1.8		N	AE	2017
Alloway Creek Tributary 3	Germany, Township of	At confluence with Alloway Creek	Approximately 2,500 feet upstream of Teeter Road	02070009	1.8		N	AE	2017
Alloway Creek Tributary 3A	Germany, Township of	At confluence with Alloway Creek Tributary 3	Approximately 1,300 feet upstream of Fish and Game Road	02070009	0.8		N	AE	2017
Alloway Creek Tributary 4	Germany, Township of; Mount Joy, Township of; Mount Pleasant, Township of	At confluence with Alloway Creek	Approximately 2,600 feet upstream of School House Road	02070009	2.1		N	AE	2017
Alloway Creek Tributary A1	Mount Joy, Township of	At confluence with Alloway Creek Tributary 1	Approximately 900 feet upstream of Maryland Line Road	02070009	0.6		N	AE	2017
Alms House Run	Cumberland, Township of	At confluence with Rock Creek	Approximately 850 feet upstream of Harrisburg Street (U.S. Route 15 Business)	02070009	0.5		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Beaver Creek	East Berlin, Borough of; Hamilton, Township of; Berwick,Township of; Abbottstown, Borough of	At the confluence with West Conewago Creek	At Maple Grove Road	02050306	6.5		Y	AE	1980
Beaverdam Creek	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	5.1		N	A	2004
Bermudian Creek	Huntington,Township of; Tyrone, Township of	Approximately 58 feet upstream of Carlisle Pike	Approximately 145 feet upstream of Cranberry Road	02050306	5.6		N	AE	1986
	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	10.6		N	A	2004
Birch Run	Franklin, Township of	Downstream limit of study	Upstream limit of study	02070004	2.2		N	A	2004
Brush Run	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	4.5		N	A	2004
Carbaugh Run	Franklin, Township of; Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	4.8		N	A	2004
Chicken Run	Mount Pleasant, Township of; Bonneauville, Borough of	At confluence with White Run	Just downstream of Jessica Drive	02070009	1.5		Y	AE	2017
Clear Run	Franklin, Township of	Downstream limit of study	Upstream limit of study	02070004	1.6		N	A	2004
Conewago Creek	Biglerville, Borough of; Butler, Township of; Franklin, Township of; Menallen, Township of; Reading, Township of; Straban, Township of; Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	30.0		N	A	2004
Conococheague Creek	Franklin, Township of	Downstream limit of study	Upstream limit of study	02070004	5.0		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Culps Run	Gettysburg, Borough of; Straban, Township of	At confluence with Rock Creek	Upstream of Confederate Avenue	02070009	0.5		N	AE	2017
East Branch Antietam Creek	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	3.8		N	A	2004
Flat Run	Liberty, Township of	At confluence with Toms Creek	Approximately 3,200 feet upstream of Tract Road	02070009	7.3		N	AE	2017
Flat Run Tributary 1	Liberty, Township of; Freedom, Township of	At confluence with Flat Run	Approximately 2,700 feet upstream of confluence with Flat Run	02070009	0.5		N	AE	2017
Flat Run Tributary 2	Liberty, Township of	At confluence with Flat Run	Downstream of Tract Road	02070009	0.8		N	AE	2017
Flat Run Tributary 3	Liberty, Township of	At confluence with Flat Run	Downstream of Tract Road	02070009	1.1		N	AE	2017
Flat Run Tributary 4	Liberty, Township of	At confluence with Flat Run	Approximately 1,800 feet upstream of Tract Road	02070009	0.6		N	AE	2017
Friends Creek	Liberty, Township of; Carroll Valley, Borough of	At confluence with Toms Creek	Approximately 3,000 feet upstream of Harbaugh Valley Road	02070009	5.7		N	AE	2017
Gardner Run	York Springs, Borough of	At confluence with Bermudian Creek	Approximately 310 feet downstream of North B Street	02050306	0.1		Y	AE	1994
Green Run	Hamiltonban, Township of	At confluence with Little Marsh Creek	Approximately 4,000 feet upstream of the confluence with Little Marsh Creek	02070009	0.7		N	AE	2017
Hayes Run	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	0.7		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Lake Heritage	Mount Joy, Township of; Mount Pleasant, Township of; Straban, Township of	Heritage Drive (South end)	Heritage Drive (North end)	02070009		1.7	N	AE	2017
Latimore Creek	Latimore, Township of	At Ridge Road	At Town Hill Road	02050306	3.9		Y	AE	1980
		Downstream limit of study	Upstream limit of study	02050306	4.1		N	A	2004
Latimore Creek Tributary A	Latimore, Township of	At US Route 15	Approximately 171 Feet above the confluence with Latimore Creek Tributary A1	02050306	1.1		Y	AE	1980
Latimore Creek Tributary A1	York Springs, Borough of; Huntington, Township of	At the confluence with Latimore Creek A	Approximately .2 miles upstream of Main Street	02050306	0.3		Y	AE	1980
Lippencot Spring Creek	Franklin, Township of	At confluence with Conewago Creek	Approximately 205 feet downstream of State Route 234	02070009	0.1		N	A	2006
Little Marsh Creek	Hamiltonban, Township of; Franklin, Township of; Highland, Township of	At confluence with Marsh Creek	Approximately 1,000 feet upstream of Mount Carmel Road	02070009	9.4		N	AE	2017
Little Marsh Creek Tributary	Franklin, Township of	At confluence with Little Marsh Creek	Approximately 3,000 feet upstream of Orchard Road	02070009	4.0		Y	AE	2017
Little Marsh Creek Tributary 2	Highland, Township of	At confluence with Little Marsh Creek	Approximately 3,800 feet upstream of confluence with Little Marsh Creek	02070009	0.7		N	AE	2017
Little Marsh Creek Tributary 3	Franklin, Township of; Highland, Township of	At confluence with Little Marsh Creek	Approximately 300 feet upstream of Flohrs Church Road	02070009	1.2		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Little Marsh Creek Tributary 4	Hamiltonban, Township of	At confluence with Little Marsh Creek	Approximately 2,000 feet upstream of the confluence with Little Marsh Creek	02070009	0.4		N	AE	2017
Little Marsh Creek Tributary-Tributary 1	Franklin, Township of	At confluence with Little Marsh Creek Tributary	Approximately 300 feet upstream of Orchard Road	02070009	1.5		N	AE	2017
Littles Run	Bonneauville, Borough of; Mount Joy, Township of; Mount Pleasant, Township of	At confluence with Rock Creek	Approximately 300 feet downstream of White Hall Road	02070009	6.3		N	AE	2017
Long Pine Run	Franklin, Township of	Downstream limit of study	Upstream limit of study	02070004	2.8		N	A	2004
Lousy Run	Mount Joy, Township of	At confluence with Rock Creek	Upstream of Private Drive	02070009	4.5		N	AE	2017
Markel Run	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	5.7		N	A	2004
Marsh Creek	Freedom, Township of; Cumberland, Township of; Franklin, Township of; Highland, Township of	At confluence with Rock Creek (Monocacy River)	Approximately 1,100 feet upstream of Private Drive	02070009	23.7		Y	AE	2017
Marsh Creek Tributary	Franklin, Township of	At confluence with Marsh Creek	Approximately 3,500 feet upstream of Flohrs Church Road	02070009	4.5		Y	AE	2017
Marsh Creek Tributary 2	Cumberland, Township of	At confluence with Marsh Creek	Approximately 1,700 feet upstream of Barlow-Greenmount Road	02070009	2.4		N	AE	2017
Marsh Creek Tributary 2A	Cumberland, Township of	At confluence with Marsh Creek Tributary 2	Approximately 1,800 feet upstream of Blue-Gray Highway (U.S. Route 15)	02070009	0.5		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Marsh Creek Tributary 2B	Cumberland, Township of	At confluence with Marsh Creek Tributary 2	Approximately 200 feet downstream of Emmittsburg Road (U.S. Route 15 Business)	02070009	0.4		N	AE	2017
Marsh Creek Tributary 2C	Cumberland, Township of	At confluence with Marsh Creek Tributary 2	Approximately 300 feet upstream of Emmittsburg Road (U.S. Route 15 Business)	02070009	0.6		N	AE	2017
Marsh Creek Tributary 3	Cumberland, Township of; Freedom, Township of	At confluence with Marsh Creek	Approximately 900 feet upstream of Black Horse Tavern Road	02070009	1.2		N	AE	2017
Marsh Creek Tributary 4	Cumberland, Township of	At confluence with Marsh Creek	Approximately 2,000 feet upstream of Chambersburg Road (U.S. Route 30)	02070009	2.1		N	AE	2017
Marsh Creek Tributary 4A	Cumberland, Township of	At confluence with Marsh Creek Tributary 4	Approximately 1,700 feet upstream of Chambersburg Road (U.S. Route 30)	02070009	0.7		N	AE	2017
Marsh Creek Tributary 5	Cumberland, Township of; Franklin, Township of	At confluence with Marsh Creek	Approximately 400 feet upstream of Mummasburg Road	02070009	2.4		N	AE	2017
Marsh Creek Tributary 6	Franklin, Township of	At confluence with Marsh Creek	Downstream of Hilltown Road	02070009	0.4		N	AE	2017
Marsh Creek Tributary 7	Franklin, Township of	At confluence with Marsh Creek	Approximately 700 feet upstream of Flohrs Church Road	02070009	0.6		N	AE	2017
Marsh Creek Tributary 8	Franklin, Township of	At confluence with Marsh Creek	Downstream of confluence with Marsh Creek Tributary 8C	02070009	0.6		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Marsh Creek Tributary 9	Franklin, Township of	At confluence with Marsh Creek	Downstream of Private Drive	02070009	1.4		N	AE	2017
Middle Creek	Liberty, Township of; Freedom, Township of; Highland, Township of; Hamiltonban, Township of; Fairfield, Borough of	At confluence with Toms Creek	Approximately 720 feet upstream of Wilderness Lane	02070009	16.9		N	AE	2017
McDowells Run	Franklin, Township of	Downstream limit of study	Upstream limit of study	02070004	1.1		N	A	2004
Middle Creek Tributary 1	Freedom, Township of	At confluence with Middle Creek	Approximately 3,400 feet upstream of confluence with Middle Creek	02070009	0.7		N	AE	2017
Miney Branch	Carroll Valley, Borough of; Liberty, Township of; Hamiltonban, Township of	At confluence with Toms Creek	Approximately 1,500 feet upstream of Miney Branch Tributary 1	02070009	5.7		N	AE	2017
Monocacy River	Cumberland, Township of	At Frederick County border	At confluence of Rock Creek and Marsh Creek	02070009	0.0		N	AE	2017
Mountain Creek	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050305	3.6		N	A	2004
Mud Run	Huntington, Township of; Reading, Township of	Downstream limit of study	Upstream limit of study	02050305	6.2		N	A	2004
Muddy Run	Hamiltonban, Township of; Highland, Township of	At confluence with Middle Creek	Approximately 6,100 feet upstream of Cold Springs Road	02070009	4.7		N	AE	2017
Muddy Run Tributary 1	Hamiltonban, Township of	At confluence with Muddy Run	Downstream of Private Drive	02070009	1.5		N	AE	2017
Mummasburg Run	Franklin, Township of	At confluence with Marsh Creek	Downstream of Cashtown Road	02070009	5.7		Y	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Mummasburg Run Tributary 1	Franklin, Township of	At confluence with Mummasburg Run	Approximately 4,500 feet upstream of confluence with Mummasburg Run	02070009	0.8		N	AE	2017
Mummasburg Run Tributary 2	Franklin, Township of	At confluence with Mummasburg Run	Approximately 3,500 feet upstream of Pleasant Valley Road	02070009	1.9		N	AE	2017
Mummasburg Run Tributary 3	Franklin, Township of	At confluence with Mummasburg Run	Approximately 670 feet upstream of Mummasburg Road	02070009	0.3		N	AE	2017
Muskrat Run	Franklin, Township of; Highland, Township of	At confluence with Little Marsh Creek	Downstream of Private Pond Outfall	02070009	4.2		N	AE	2017
Muskrat Run Tributary 1	Franklin, Township of	At confluence with Muskrat Run	Downstream of Ortanna Road	02070009	0.2		N	AE	2017
North Branch Latimore Creek	Latimore, Township of	At the confluence with Latimore Creek	At Brough Road	02050306	1.7		Y	AE	1980
North Branch Mud Run	Latimore, Township of, Huntington, Township of	Downstream limit of study	Upstream limit of study	02050306	4.0		N	A	2004
Opossum Creek	Menallen, Township of	Approximately 0.4 miles downstream of Aspers-North Road	Approximately 0.37 miles upstream of Carlisle Road	02050306	1.4		Y	AE	1986
	Butler, Township of; Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	19.6		N	A	2004
Pine Run	Hamilton, Township of	At the confluence of Conewago Creek	Approximately 125 feet upstream of Pine Run Road	02050306	1.2		Y	AE	1979
	Berwick, Township of; Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	2.2		N	A	2004
Pine Run Tributary A	Hamilton, Township of; Berwick, Township of	At the confluence with Pine Run	Approximately 0.25 miles downstream of Blair Road	02050306	1.2		Y	AE	1979
Pine Run Tributary B	Hamilton, Township of; Berwick, Township of	At the confluence with Pine Run Tributary A	At Carlisle Pike	02050306	1.3		Y	AE	1979

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Piney Creek	Germany, Township of; Littlestown, Borough of; Union, Township of	At confluence with Monocacy River	Approximately 5,700 feet upstream of Queen Street (PA Route 97)	02070009	19.2		N	AE	2017
Piney Creek Tributary A	Germany, Township of	At confluence with Piney Creek	Approximately 750 feet upstream of the Pennsylvania/Maryland Border	02070009	0.8		N	AE	2017
Piney Creek Tributary D	Germany, Township of	At confluence with Piney Creek	Approximately 1,100 feet upstream of the confluence with Piney Creek	02070009	0.2		N	AE	2017
Piney Creek Tributary E	Germany, Township of	At confluence with Piney Creek	Approximately 1,000 feet upstream of Baltimore Pike (PA Route 97)	02070009	2.8		N	AE	2017
Pleasant Dale Creek	Butler, Township of; Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	2.3		N	A	2004
Pleasant Run	Mount Pleasant, Township of; Straban, Township of	At confluence with Plum Run (East)-Lake Heritage	Approximately 3,500 feet upstream of Hanover Road (PA Route 116)	02070009	1.0		N	AE	2017
Pleasant Run Tributary 1	Mount Pleasant, Township of	At confluence with Pleasant Run	Approximately 1,000 feet upstream of confluence of Plum Run (East) Tributary 2A-1	02070009	0.5		N	AE	2017
Pleasant Run Tributary 1A	Mount Pleasant, Township of	At confluence with Pleasant Run Tributary 1	Downstream of Gregg Avenue	02070009	0.5		N	AE	2017
Plum Creek (South)	Mount Joy, Township of; Mount Pleasant, Township of	At confluence with Alloway Creek	Approximately 1,300 feet upstream of Spring Lane and Bulk Plant Road	02070009	4.3		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
	Conewago, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2009
Plum Run	McSherrytown, Borough of; Conewago Township	Approximately .98 miles downstream of Hanover Road	At the Adams-York County boundary	02050306	3.1		Y	AE	1994
	Reading, Township of; Township of Tyrone	Downstream limit of study	Upstream limit of study	02050306	2.2		N	A	2009
Plum Run (Central)	Cumberland, Township of; Mount Joy, Township of	At confluence with Rock Creek	Downstream of South Confederate Avenue	02070009	2.3		N	AE	2017
Plum Run (East)	Mount Joy, Township of; Mount Pleasant, Township of; Straban, Township of	At confluence with White Run	Approximately 300 feet upstream of Plum Run (East) Tributary 3	02070009	3.0		Y	AE	2017
Plum Run (East) Tributary 1	Mount Joy, Township of; Straban, Township of	At confluence with Plum Run (East)-Lake Heritage	Approximately 450 feet upstream of Longstreet Drive	02070009	0.5		N	AE	2017
Plum Run (East) Tributary 3	Straban, Township of	At confluence with Plum Run (East)	Approximately 3,300 feet upstream of Hoffman Road	02070009	0.7		N	AE	2017
Plum Run (West)	Cumberland, Township of; Freedom, Township of	At confluence with Marsh Creek	Downstream of McGlaughlin Road	02070009	3.0		N	AE	2017
Poplar Spring Creek	Franklin, Township of; Highland, Township of	At confluence with Little Marsh Creek	Upstream of Ragged Edge Road	02070009	2.2		N	AE	2017
Quaker Run	Butler, Township of; Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	7.5		N	A	2004
Rattling Run	Hamiltonban, Township of	At confluence with Muddy Run	Approximately 200 feet upstream of Cold Springs Road	02070009	1.2		N	AE	2017
Red Run	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	2.1		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Red Run Tributary No. 1	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	9.5		N	A	2004
Red Run Tributary No. 2	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	1.2		N	A	2004
Red Run Tributary No. 3	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Rock Creek	Mount Joy, Township of; Cumberland, Township of; Straban, Township of; Gettysburg, Borough of	At confluence with Marsh Creek (Monocacy River)	Approximately 1,200 feet upstream of Leedy Road	02070009	18.6		Y	AE	2017
Rock Creek Tributary 1	Cumberland, Township of; Straban, Township of	At confluence with Rock Creek	Just upstream of V Twin Drive	02070009	2.6		Y	AE	2017
Rock Creek Tributary 13	Straban, Township of	At confluence with Rock Creek	Approximately 550 feet upstream of Railroad	02070009	3.4		N	AE	2017
Rock Creek Tributary 13A	Straban, Township of	At confluence with Rock Creek Tributary 13	Downstream of confluence of Rock Creek Tributary 13A-1	02070009	0.8		N	AE	2017
Rock Creek Tributary 1A	Straban, Township of	At confluence with Rock Creek Tributary 1	Downstream of Blue-Gray Highway (U.S. Route 15)	02070009	0.4		N	AE	2017
Rock Creek Tributary 2	Straban, Township of	At confluence with Rock Creek	Approximately 350 feet downstream of Boyds School Road	02070009	1.4		Y	AE	2017
Rock Creek Tributary 3	Straban, Township of; Cumberland, Township of	At confluence with Rock Creek	Downstream of Rentzel Road	02070009	4.9		Y	AE	2017
Rock Creek Tributary 4	Cumberland, Township of; Mount Joy, Township of	At confluence with Rock Creek	Downstream of White Church Road	02070009	2.2		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Rock Creek Tributary 6	Cumberland, Township of; Mount Joy, Township of	At confluence with Rock Creek	Approximately 3,500 feet upstream of Barlow-Taverns Road	02070009	2.7		N	AE	2017
Saw Mill Run	Franklin, Township of, Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	1.2		N	A	2004
Seven Hundred School Run	Hamilton, Township of; Oxford, Township of	At the confluence with South Branch Conewago Creek	Approximately 287 feet upstream of the confluence with Tributary 1 to Seven Hundred School Run	02050306	2.1		Y	AE	1979
Sharps Run	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Slagle Run	Conewago, Township of	Approximately 0.67 miles downstream of High Street	At the Adams-York County boundary	02050306	1.0		Y	AE	1986
South Branch Conewago Creek	Oxford, Township of; Hamilton, Township of; Mount Pleasant, Township of; Oxford, Township of; Reading, Township of	At the confluence with West Conewago Creek	Approximately 0.15 miles downstream of Hanover Road	02050306	12.1		Y	AE	1979
	Conewago, Township of; Union, Township of	Downstream limit of study	Upstream limit of study	02050306	5.7		N	A	2004
South Branch Conewago Creek Tributary 1	Mount Pleasant, Township of	At the confluence with South Branch Conewago Creek	At Centennial Road	02050306	1.0		Y	AE	1980
South Branch Conewago Creek Tributary 2	Oxford, Township of	At the confluence with South Branch Conewago Creek	Approximately 0.6 miles upstream of Poplar Road	02050306	1.2		Y	AE	1979
Spring Run	Hamiltonban, Township of; Fairfield, Borough of	At confluence with Middle Creek	Approximately 7,400 feet upstream of Main Street (PA Route 116)	02070009	2.6		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Stevens Run	Cumberland, Township of; Gettysburg, Borough of; Straban, Township of	At confluence with Rock Creek	Approximately 3,000 feet upstream of High Street	02070009	1.9		Y	AE	2017
Swamp Creek	Hamiltonban, Township of	At confluence with Middle Creek	Downstream of confluence with Swamp Creek Tributary 1	02070009	1.4		N	AE	2017
Swift Run	Mount Pleasant, Township of; Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	8.7		N	A	2009
Toms Creek	Liberty, Township of; Carroll Valley, Borough of; Hamiltonban, Township of	At confluence with Monocacy River	Approximately 8,200 feet upstream of Mount Hope Road	02070009	19.8		N	AE	2017
Toms Creek Tributary 1	Carroll Valley, Borough of; Hamiltonban, Township of	At confluence with Toms Creek	Approximately 550 feet upstream of Northern Pike Trail	02070009	1.3		N	AE	2017
Toms Creek Tributary 3	Hamiltonban, Township of	At confluence with Toms Creek	Downstream of Tree Farm Lane	02070009	0.2		N	AE	2017
Tributary 1 to Seven Hundred School Run	Oxford, Township of	At the confluence with Seven Hundred School Run	Approximately 171 feet downstream of Billerbeck Street	02050306	0.1		N	AE	1979
Unnamed Tributary to Middle Creek	Liberty, Township of	At confluence with Middle Creek	Approximately 2,800 feet upstream of Water Street	02070009	0.5		N	AE	2017
Unnamed Tributary to Opossum Creek	Menallen, Township of	At the confluence with Opossum Creek	At Center Mills Road	02050306	0.4		N	AE	1986
Unnamed 29	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 30	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 31	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 32	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	1.3		N	A	2004
Unnamed 33	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 34	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004
Unnamed 35	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 36	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.0		N	A	2004
Unnamed 37	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 38	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 39	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 40	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	1.2		N	A	2004
Unnamed 41	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	2.6		N	A	2004
Unnamed 42	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 43	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 44	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 45	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 46	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	5.0		N	A	2004
Unnamed 47	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	2.4		N	A	2004
Unnamed 48	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 49	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 50	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.3		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 51	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	2.7		N	A	2004
Unnamed 52	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 53	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 54	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.0		N	A	2004
Unnamed 55	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	1.7		N	A	2004
Unnamed 56	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.5		N	A	2004
Unnamed 57	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 58	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 59	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 60	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 61	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	2.1		N	A	2004
Unnamed 62	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 63	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	0.9		N	A	2004
Unnamed 64	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 65	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	3.4		N	A	2004
Unnamed 66	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.0		N	A	2004
Unnamed 67	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 69	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 70	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 71	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.6		N	A	2004
Unnamed 72	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 73	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	1.4		N	A	2004
Unnamed 74	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 75	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 79	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 87	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004
Unnamed 88	Huntington, Township of	Downstream limit of study	Upstream limit of study	02050306	0.9		N	A	2004
Unnamed 89	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 90	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	1.7		N	A	2004
Unnamed 91	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 123	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	2.0		N	A	2004
Unnamed 124	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 133	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 134	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 135	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 136	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004
Unnamed 139	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 140	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 141	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 142	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	2.6		N	A	2004
Unnamed 143	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 144	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 145	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	3.5		N	A	2004
Unnamed 146	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	2.3		N	A	2004
Unnamed 147	Franklin, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 148	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 154	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	1.7		N	A	2004
Unnamed 155	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 161	Berwick, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 162	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 163	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 164	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 165	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004
Unnamed 166	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	1.6		N	A	2004
Unnamed 167	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 172	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	1.7		N	A	2004
Unnamed 180	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 181	Union, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 182	Union, Township of	Downstream limit of study	Upstream limit of study	02050306	2.8		N	A	2004
Unnamed 183	Union, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 185	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 186	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 187	Huntington, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 188	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 191	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	0.2		N	A	2004
Unnamed 217	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	0.2		N	A	2004
Unnamed 218	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	0.9		N	A	2004
Unnamed 219	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	0.2		N	A	2004
Unnamed 220	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	0.0		N	A	2004
Unnamed 223	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050305	1.0		N	A	2004
Unnamed 224	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050305	0.6		N	A	2004
Unnamed 227	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	3.6		N	A	2004
Unnamed 228	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 229	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 230	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 231	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 232	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 243	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 244	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 280	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 289	Huntington, Township of	Downstream limit of study	Upstream limit of study	02050306	2.7		N	A	2004
Unnamed 290	Huntington, Township of	Downstream limit of study	Upstream limit of study	02050306	1.4		N	A	2004
Unnamed 291	Huntington, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 295	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	1.6		N	A	2004
Unnamed 296	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 297	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 299	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 300	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	2.4		N	A	2004
Unnamed 316	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 320	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	2.3		N	A	2004
Unnamed 321	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.9		N	A	2004
Unnamed 340	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 352	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	1.2		N	A	2004
Unnamed 389	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050305	1.7		N	A	2004
Unnamed 394	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	1.7		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 397	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 403	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	1.6		N	A	2004
Unnamed 404	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 406	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.9		N	A	2004
Unnamed 411	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 412	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004
Unnamed 417	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 467	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 467	Union, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 522	Straban, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 530	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 531	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 543	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 543	Union, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 567	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	1.1		N	A	2004
Unnamed 568	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 569	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.9		N	A	2004
Unnamed 570	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 607	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 617	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 646	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 731	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 763	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 764	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 777	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 782	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 791	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.7		N	A	2004
Unnamed 794	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 805	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 823	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 843	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 849	Hamilton, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 856	Tyrone, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 860	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050305	0.5		N	A	2004
Unnamed 861	Menallen, Township of	Downstream limit of study	Upstream limit of study	02050305	0.1		N	A	2004
Unnamed 900	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.6		N	A	2004
Unnamed 965	Berwick, Township of	Downstream limit of study	Upstream limit of study	02050306	0.5		N	A	2004
Unnamed 971	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed 994	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004
Unnamed 997	Latimore, Township of	Downstream limit of study	Upstream limit of study	02050306	0.0		N	A	2004
Unnamed 999	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 1004	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.4		N	A	2004
Unnamed 1080	Hamiltonban, Township of	Downstream limit of study	Upstream limit of study	02070004	0.3		N	A	2004
Unnamed 1090	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 1093	Berwick, Township of	Downstream limit of study	Upstream limit of study	02050306	0.3		N	A	2004
Unnamed 1105	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.8		N	A	2004
Unnamed 1146	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.2		N	A	2004
Unnamed 1147	Oxford, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 1160	Conewago, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 1167	Huntington, Township of	Downstream limit of study	Upstream limit of study	02050306	0.0		N	A	2004
Unnamed 1181	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 1188	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 1195	Mount Pleasant, Township of	Downstream limit of study	Upstream limit of study	02050306	0.1		N	A	2004
Unnamed 1197	Reading, Township of	Downstream limit of study	Upstream limit of study	02050306	0.0		N	A	2004
Unnamed Tributary to Piney Creek Tributary A	Germany, Township of	At confluence with Piney Creek Tributary A	Downstream of Georgetown Road	02070009	0.4		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
West Conewago Creek	East Berlin, Borough of; Hamilton, Township of; Reading, Township of	At the Adams-York County boundary	Approximately 282 Feet above the confluence with South Branch Conewago Creek	02050306	14.0		N	AE	1980
White Run	Mount Joy, Township of; Mount Pleasant, Township of; Straban, Township of	At confluence with Rock Creek	Upstream of Railroad	02070009	7.8		Y	AE	2017
White Run Tributary 1	Mount Joy, Township of; Mount Pleasant, Township of	At confluence with White Run	Approximately 1,000 feet upstream of White Run Road	02070009	1.8		N	AE	2017
White Run Tributary 5	Mount Pleasant, Township of	At confluence with White Run	Approximately 2,500 feet upstream of confluence of White Run Tributary 5A	02070009	1.7		N	AE	2017
White Run Tributary 6	Mount Pleasant, Township of	At confluence with White Run	Approximately 1,000 feet upstream of confluence of White Run Tributary 6A	02070009	1.0		N	AE	2017
White Run Tributary 6A	Mount Pleasant, Township of	At confluence with White Run Tributary 6	Downstream of Granite Station Road	02070009	0.1		N	AE	2017
White Run Tributary 8	Mount Pleasant, Township of; Straban, Township of	At confluence with White Run	Upstream of Railroad	02070009	1.1		N	AE	2017
Willoughby Run	Cumberland, Township of; Freedom, Township of	At confluence with Marsh Creek	Approximately 1,100 feet upstream of confluence of Willoughby Run Tributary 5	02070009	7.8		N	AE	2017
Willoughby Run Tributary 1	Cumberland, Township of	At confluence with Willoughby Run	Approximately 1,000 feet upstream of Wadsworth Avenue	02070009	3.1		N	AE	2017

Table 2: Flooding Sources Included in this FIS Report *(continued)*

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Willoughby Run Tributary 1A	Cumberland, Township of	At confluence with Willoughby Run Tributary 1	Approximately 500 feet upstream of NPS Farm Lane	02070009	0.4		N	AE	2017
Willoughby Run Tributary 2	Cumberland, Township of	At confluence with Willoughby Run	Downstream of Dam Embankment	02070009	0.7		N	AE	2017

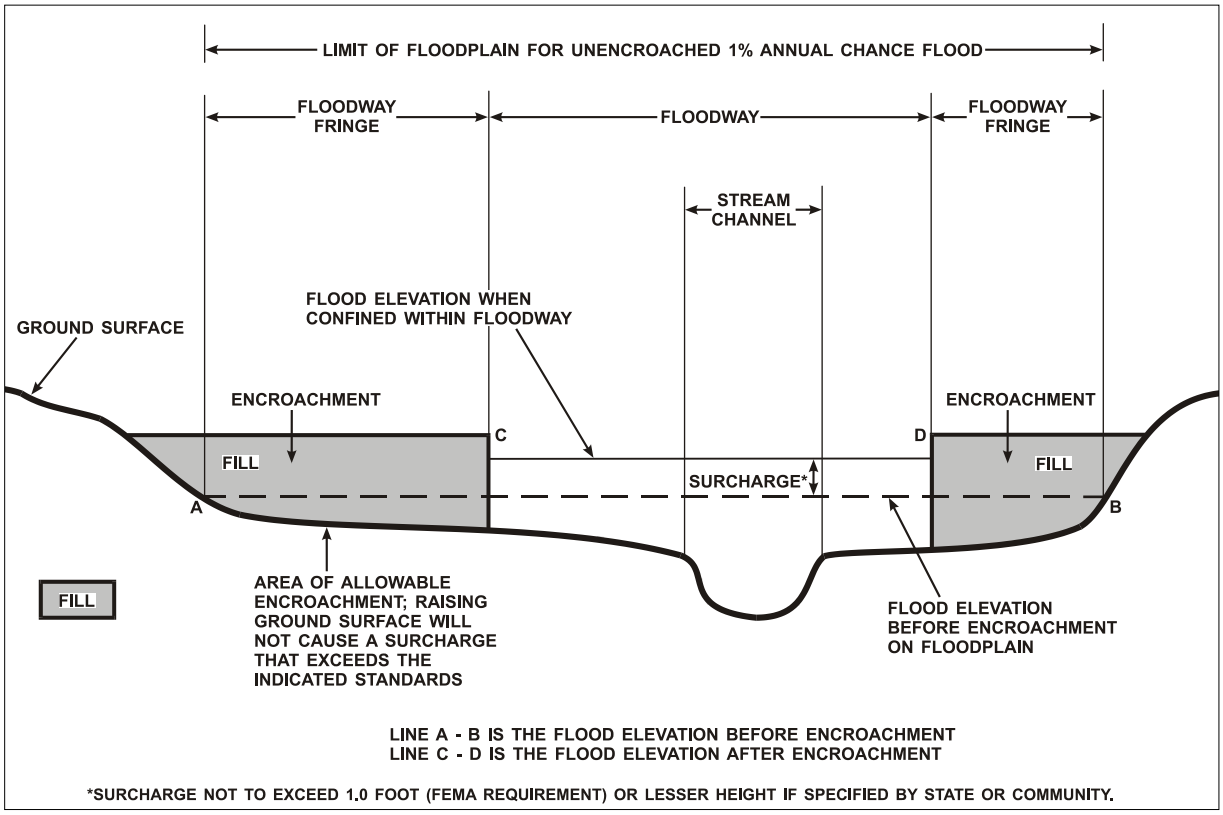
2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water-surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 23, "Floodway Data."

All floodways that were developed for this FIS project are shown on the FIRM using the symbology described in Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Adams County.

Figure 3. In cases where the floodway and l% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

This section is not applicable to this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Adams County.

Figure 3, "Map Legend for FIRM." Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in the unincorporated and incorporated areas of Adams County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Abbottstown, Borough of	A, AE, X
Arendtsville, Borough of	A, X
Bendersville, Borough of	A, X
Berwick, Township of	A, AE, X
Biglerville, Borough of	X
Bonneauville, Borough of	AE, X
Butler, Township of	A, X
Carroll Valley, Borough of	AE, X
Conewago, Township of	A, AE, X
Cumberland, Township of	AE, X
East Berlin, Borough of	AE, X
Fairfield, Borough of	AE, X
Franklin, Township of	A, AE, X
Freedom, Township of	AE, X
Germany, Township of	A, AE, X
Gettysburg, Borough of	AE, X
Hamilton, Township of	A, AE, X
Hamiltonban, Township of	A, AE, X
Highland, Township of	AE, X
Huntington, Township of	A, AE, AO, X
Latimore, Township of	A, AE, X
Liberty, Township of	AE, X
Littlestown, Borough of	AE, X
McSherrystown, Borough of	AE, X
Menallen, Township of	A, AE, X
Mount Joy, Township of	AE, X
Mount Pleasant, Township of	A, AE, X
New Oxford, Borough of	X
Oxford, Township of	A, AE, X
Reading, Township of	A, AE, X
Straban, Township of	A, AE, X
Tyrone, Township of	A, AE, X
Union, Township of	A, AE, X
York Springs, Township of	A, AE, AO, X

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 4 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 4: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Conococheague-Opequon	02070004	Conococheague-Opequon	The Conococheague - Opequon, HUC8 ID (02070004), is located on the western portion of Adams County	2,279
Lower Susquehanna	02050306	Lower Susquehanna	The Lower Susquehanna, HUC8 ID (02050306), is located on the northeastern half of Adams County	2,485
Lower Susquehanna-Swatara	02050305	Lower Susquehanna - Swatara	The Lower Susquehanna - Swatara, HUC8 ID (02050305), is located on the northwestern portion of Adams County	1,877
Monocacy	02070009	Monocacy	All tributaries of the Monocacy River within Adams County, Pennsylvania	970

4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Adams County by flooding source.

Table 5: Principal Flood Problems

Flooding Source	Description of Flood Problems
Beaver Creek	The estimated 1-percent-annual-chance discharges at the mouth of Pine Run and at the mouths of Pine Run Tributary A and Pine Run Tributary B are 3,450 cfs, 1,200 cfs, and 640 cfs, respectively. No high-water marks are known to exist on Pine Run and Seven Hundred School Run.
Chicken Run	There have been a number of major recorded floods during which damage has been done to buildings and bridges. The three worst floods occurred in September 1975, June 1972, and August 1933. The estimated recurrence intervals were 500-, 250-, and 50-years, respectively. The estimated 1-percent-annual-chance discharge for the mouth of Chicken Run is 1080 cfs. Floodwaters have caused damage to buildings and have overtopped bridges and culverts within the Borough of Bonneauville.
Marsh Creek	The estimated 1-percent-annual-chance discharge on Marsh Creek at the downstream study limit is 11,500 cfs. The elevation of a high-water mark from Tropical Storm Eloise in September 1975, located at the covered bridge downstream of Pumping Station Road, is 469.4 feet. The elevation of the water surface of the estimated 1-percent-annual-chance flood at this location is 466.4, or 3.0 feet below that level attained during Tropical Storm Eloise.
Pine Run Tributary A	In the Township of Berwick, the estimated 1-percent-annual-chance discharges for Pine Run Tributary A and Pine Run Tributary B at the downstream corporate boundary with the Township of Hamilton are both 640 cfs. The elevation of the September 1975 high-water mark at the culvert under the street crossing Pine Run Tributary B, south of State Route 30, is 544.7 feet. Computed water-surface elevation for the estimated 1-percent-annual-chance flood at this location is 542.9 feet. The elevation of the estimated 1-percent-annual-chance flood at this location is 1.8 feet below the Eloise flood mark.
Rock Creek	The elevation of a high-water mark from the flood of October 1976 on the U.S. Route 30 Bridge over Rock Creek is 483.0 feet. The elevation of the water surface of the estimated 1-percent-annual-chance flood at this location is 479.4 feet, or 3.6 feet below the level attained during the flood of 1976.
South Branch Conewango Creek	The three worst floods occurred in September 1975, June 1972 and August 1933. The estimated return period for floods of these magnitudes are 500-, 250-, and 50-years, respectively. These floodwaters caused damage to buildings and bridges within many townships.
Spring Run	In the Township of Berwick, the estimated 1-percent-annual-chance discharge for Spring Run at the downstream corporate limits is 1,500 cfs. The elevation of a highwater mark from Tropical Storm Eloise in September 1975, at the State Route 194 Bridge, is 549.0 feet. Computed water-surface elevation for the estimated 1-percentannual-chance flood at this location is 547.5 feet. The elevation of the water surface for the estimated 1-percent-annual-chance flood at this location is therefore 1.5 feet below the Eloise flood mark. That flood overtopped and breached the dam that forms Heller's Pond, located southwest of Beaver Creek Church. Overtopping of State Route 194 and flooding of one home, east of the highway, was reported near Beaver Creek Church.
Stevens Run	The elevations of highwater marks at the Phi Kappa Psi Fraternity house on the Gettysburg College Campus and at the Race Horse Alley Bridge in Gettysburg for the flood in October 1976 were 505.1 feet and 510.4 feet, respectively. The elevations of the water surface for the 1-percent-annual-chance flood at these two locations were estimated to be 507.2 feet and 513.5 feet, respectively, which are 2.1 and 3.1 feet above the levels attained during the October 1976 flood.

Flooding Source	Description of Flood Problems
West Conewago Creek	Along West Conewago Creek there have been a number of major recorded floods during which damage has been done to buildings and bridges. The three worst floods occurred in September 1975, June 1972, and August 1933. The estimated recurrence intervals were 0.2-, 0.4-, and 2-percent-annual-chance floods respectively. The discharges along the West Conewago Creek for these storms were 96,200 cubic-feet per-second (cfs), 81,700 cfs, and 47,600 cfs. The flood waters caused damage to buildings and bridges along its banks. The elevation of a high-water mark from Tropical Storm Eloise in September 1975, just off the Country Club Road Bridge, is 501.0 feet. The elevation of the estimated 1-percent-annual-chance flood at this location is 498.4 feet. The elevation of a high-water mark from Tropical Storm Eloise in September 1975 at the sewage treatment plant in East Berlin Borough was 413.0 feet, and that from Tropical Storm Agnes in June 1972 was 410.3 feet. The elevation of the 1-percent-annual-chance water surface as determined for this study at that location is 408.2 feet, or 4.8 feet below the level attained during Tropical Storm Eloise.

Table 6 contains information about historic flood elevations in the communities within Adams County.

Table 6: Historic Flooding Elevations

[Not Applicable to this Flood Risk Project]

4.3 Non-Levee Flood Protection Measures

Table 7 contains information about non-levee flood protection measures within Adams County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 7: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Alloway Creek Tributary 4	Dam	Dam	Dam Embankment at School House Rd	USACE 2015 Survey_ID: 41
East Branch Antietam Creek	Waynesboro Dam	Dam	At School House Road	
Flat Run Tributary 1	Dam	Dam	Flat Run Farm	USACE 2015 Survey_ID: 492
Lake Heritage	Lake Heritage Dam	Dam	Lake Heritage	USACE 2015 Survey_ID: 116
Lake Meade	Lake Meade Dam	Dam	Lake Meade	
Marsh Creek Tributary 4	Dam	Weir	Near Old Mill Road	USACE 2015 Survey_ID: 342

Table 7: Non-Levee Flood Protection Measures (continued)

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Middle Creek Tributary 2	Dam	Dam	Private Pond	USACE 2015 Survey_ID: 519
Pine Run Tributary B	Dam	Dam	Just downstream of Little Avenue	
Rock Creek Tributary 7	Dam	Dam	Near Solomon Road	USACE 2015 Survey_ID: 198
South Branch Conewago Creek	Dam	Dam	Near Fish and Game Road	
South Branch Conewago Creek	Dam	Dam	Upstream of Water Works Road	
South Branch Conewago Creek	Dam	Dam	Northwest of Drummer Drive	
West Conewago Creek	Dam	Dam	Near Staub Road	
West Conewago Creek	Dam	Dam	Just upstream of Peepytown Road	
West Conewago Creek	Dam	Dam	Just upstream of Peepytown Road	
West Conewago Creek	Dam	Dam	Green Ridge Road	
West Conewago Creek	Dam	Dam	Downstream of East Berlin Road	
West Conewago Creek	Dam	Dam	Upstream of East Berlin Road	
West Conewago Creek	Dicks Dam	Dam	At Waldheim Road	

4.4 Levees

This section is not applicable to this Flood Risk Project.

Table 8: Levees

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the floodhazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent-chance of annual exceedance) during the term of a 30-year mortgage is approximately 26-percent (about 3in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 26, "Incorporated Letters of Map Change", which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, "FIRM Revisions."

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 16.) Stream gage information is provided in Table 11.

Table 9: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Alloway Creek	At Pennsylvania/Maryland Border	15.9	1,570	2,120	2,670	3,250	4,485	4,870
	Downstream of confluence of Alloway Creek Tributary 2	15.7	1,560	2,100	2,640	3,210	4,430	4,820
	At Harney Road	13.7	1,390	1,880	2,370	2,890	3,988	4,340
	At Fish and Game Road	12.8	1,320	1,790	2,260	2,750	3,795	4,150
	Upstream of confluence with Plum Creek	9.7	1,060	1,445	1,830	2,230	3,077	3,370
	Upstream of confluence of Alloway Creek Tributary 3	8.1	918	1,254	1,590	1,940	2,677	2,940
	Upstream of Updyke Road	7.1	823	1,127	1,430	1,740	2,401	2,650
	At Baltimore Pike (PA Route 97)	6.9	808	1,104	1,400	1,710	2,360	2,600
	At Roberts Road	6.2	737	1,009	1,280	1,570	2,167	2,390
	At Feeser Road	3.9	511	706	900	1,100	1,518	1,690
Alloway Creek Tributary 1	At Pennsylvania/Maryland Border	0.3	70	101	132	165	228	262
Alloway Creek Tributary 2	At confluence with Alloway Creek	1.1	192	271	350	434	599	677
	At Fish and Game Road	0.5	98	141	183	228	315	360
	At Krug Road	0.4	88	127	165	206	284	327
Alloway Creek Tributary 3	At confluence with Alloway Creek	1.1	182	257	331	411	567	641
	At Fish and Game Road	0.5	92	131	171	214	295	338
	At Teeter Road	0.2	56	80	105	132	182	211
Alloway Creek Tributary 3A	At confluence with Alloway Creek Tributary 3	0.3	72	103	135	169	233	268
	At Gettysburg Road	0.2	52	75	99	124	171	198
	At Fish and Game Road	0.1	18	27	36	46	63	75

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Alloway Creek Tributary 4	At confluence with Alloway Creek	1.9	283	396	509	628	867	973
	At Locust Lane	1.5	238	334	430	532	734	827
	At Whitehall Road	0.6	113	161	209	261	360	412
	At Dam Embankment/Schoolhouse Road	0.4	93	133	173	216	298	342
Alloway Creek Tributary A1	At Pennsylvania/Maryland Border	0.6	109	156	202	252	348	398
	At Maryland Line Road	0.4	88	127	165	206	284	327
Alms House Run	At confluence with Rock Creek	0.4	232	308	372	443	501	632
	At Harrisburg Street (U.S. Route 15 Business)	0.3	231	308	370	438	495	615
Beaver Creek	At confluence with West Conewago Creek	17.6	2,065	*	3,940	5,030	*	8,000
	At downstream corporate limit between Township of Berwick and Borough of Abbottstown	5.0	935	*	1,890	2,465	*	4,050
	At upstream corporate limit between Township of Berwick and Borough of Abbottstown	4.7	935	*	1,890	2,465	*	4,050
	At Maple Grove Road	1.0	290	*	650	850	*	1,560
Bermudian Creek	At the corporate limit between Townships of Huntington and Latimore	20.7	*	*	*	4,830	*	*
	At U.S. Route 15- Business Bridge (Old Harrisburg Road)	14.8	*	*	*	4,170	*	*

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Bermudian Creek	At Cranberry Road (upstream Limit of Detailed Study)	9.9	*	*	*	3,030	*	*
Chicken Run	At confluence with White Run	2.0	999	1,370	1,679	2,029	2,315	2,991
	At Hanover Road (PA Route 116)	1.9	981	1,341	1,641	1,980	2,257	2,908
	At Hanover Road (PA Route 116)	1.3	694	946	1,156	1,392	1,582	2,034
	At Walnut Lane	1.2	641	869	1,059	1,270	1,441	1,845
	Upstream of confluence with Chicken Run Tributary 2	0.9	472	636	772	923	1,046	1,334
	At Sunset Drive	0.8	428	576	698	834	945	1,204
	Downstream of Jessica Drive	0.2	115	154	186	221	249	314
Culps Run	At Middle Street	0.5	360	460	542	645	723	944
	At Confederate Avenue	0.3	251	316	368	424	492	627
Gardner Run	At corporate limit between Borough of York Springs and Township of Huntington	0.3	294	*	430	500	*	650
Flat Run	At Pennsylvania/Maryland Border	7.5	861	1,176	1,490	1,820	2,512	2,770
	At Boyle Road	7.3	841	1,151	1,460	1,780	2,456	2,710
	Downstream of Flat Run Tributary 2	6.5	767	1,049	1,330	1,630	2,249	2,480
	Downstream of Flat Run Tributary 3	5.3	657	904	1,150	1,410	1,946	2,140
	Upstream of Flat Run Tributary 3	3.3	449	622	794	976	1,347	1,500
	At Wenchoff Road	1.4	233	327	421	521	719	811

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Flat Run	At Tract Road	1.4	224	315	406	502	693	781
	Upstream of confluence with Flat Run Tributary 5	0.9	154	218	282	350	483	549
Flat Run Tributary 1	Upstream of dam	1.1	191	270	348	431	595	673
Flat Run Tributary 2	At confluence with Flat Run	0.8	152	216	279	347	479	544
Flat Run Tributary 3	At confluence with Flat Run	2.0	301	421	540	666	919	1,030
	At Wenchoff Road	1.6	258	362	466	575	794	893
Flat Run Tributary 4	At confluence with Flat Run	1.8	277	388	498	615	849	953
Flat Run Tributary 5	At confluence with Flat Run	0.5	100	143	186	231	319	366
Friends Creek	At confluence with Toms Creek	13.7	2,070	3,300	4,530	6,120	8,495	11,600
	At Friends Creek Road	13.5	2,040	3,260	4,490	6,060	8,411	11,500
Green Run	At confluence with Little Marsh Creek	1.1	183	258	333	414	571	646
Latimore Creek	At Ridge Road Bridge	20.9	2,100	*	4,180	5,300	*	9,500
	At Town Hill Road Bridge	5.4	860	*	1,760	2,310	*	4,360
Latimore Creek Tributary A	At the U.S. Route 15 Bridge	2.1	690	*	1,160	1,380	*	1,930
	At corporate limit between Township of Latimore and Borough of York Springs	0.8	490	*	840	980	*	1,320
	Above the confluence of Latimore Creek Tributary A1	0.5	296	*	553	678	*	1,000

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Latimore Creek Tributary A1	At the confluence with Latimore Creek Tributary A	0.2	250	*	448	538	*	755
Little Marsh Creek	At confluence with Marsh Creek	21.6	2,010	2,700	3,390	4,100	5,658	6,130
	At Knoxlyn Road	20.5	1,920	2,585	3,250	3,930	5,423	5,880
	Downstream of confluence with Muskrat Run	18.1	1,740	2,345	2,950	3,580	4,940	5,370
	Downstream of confluence of Little Marsh Creek Tributary 2	14.9	1,500	2,025	2,550	3,090	4,264	4,640
	At Railroad Lane	14.2	1,430	1,935	2,440	2,960	4,085	4,460
	Downstream of confluence with Little Marsh Creek Tributary 3	13.4	1,370	1,850	2,330	2,840	3,919	4,270
	At Railroad (Highland-Franklin Boundary)	12.8	1,330	1,800	2,270	2,750	3,795	4,150
	At Ortanna Road	12.8	1,320	1,790	2,260	2,750	3,795	4,140
	Upstream of confluence of Little Marsh Creek Tributary	7.7	882	1,206	1,530	1,870	2,581	2,830
	Upstream of confluence with Poplar Spring Creek	5.9	714	977	1,240	1,520	2,098	2,320
	At Mount Carmel Road	5.8	701	961	1,220	1,500	2,070	2,280
	At Berry Patch Lane	5.7	691	951	1,210	1,480	2,042	2,250
	At Hickory Bridge Road	5.1	639	880	1,120	1,370	1,891	2,090
	Downstream of confluence with Little Marsh Creek Tributary 4	4.3	559	771	983	1,210	1,670	1,840
	At Moritz Road	3.1	427	592	757	931	1,285	1,430

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Little Marsh Creek	Upstream of confluence of Green Run	1.2	203	286	369	457	631	713
Little Marsh Creek Tributary	At confluence with Little Marsh Creek	5.1	636	873	1,110	1,360	1,877	2,080
	At Poplar Springs Road	2.3	339	472	605	746	1,029	1,150
	At Scott School Road	2.2	325	453	581	717	989	1,110
	At Peach Tree Road	1.9	289	404	519	641	885	993
	At Orchard Road	1.1	183	258	333	414	571	646
Little Marsh Creek Tributary - Tributary 1	At Poplar Springs Road	2.1	311	434	557	687	948	1,060
	At Scott School Road	1.4	225	317	408	505	697	786
	At Orchard Road	1.1	186	262	338	419	578	655
Little Marsh Creek Tributary 2	At confluence with Little Marsh Creek	0.7	127	181	235	293	404	460
Little Marsh Creek Tributary 3	At Railroad	0.5	95	136	177	221	305	349
	At Railroad Lane	0.4	77	110	144	180	248	286
	At Flohrs Church Road	0.0	13	20	27	34	47	55
Little Marsh Creek Tributary 4	At confluence with Little Marsh Creek	1.2	200	282	364	451	622	704
Littles Run	At confluence with Rock Creek	7.7	880	1,200	1,520	1,860	2,567	2,820
	At White Church Road	7.0	814	1,112	1,410	1,730	2,387	2,620
	Upstream of confluence of Littles Run Tributary 1	5.7	695	953	1,210	1,480	2,042	2,260
	Upstream of confluence of Littles Run Tributary 2	4.7	598	824	1,050	1,280	1,766	1,960
	At Baltimore Pike (PA Route 97)	3.6	485	671	857	1,050	1,449	1,610

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Littles Run	Upstream of confluence of Littles Run Tributary 4	2.7	381	530	679	835	1,152	1,290
	At Straley's Road	2.0	302	422	542	669	923	1,040
	Upstream of confluence of Littles Run Tributary 5	1.8	272	381	489	604	834	937
	Upstream of confluence of Littles Run Tributary 6	1.3	207	292	376	466	643	726
	At Hickory Road	0.8	152	216	280	348	480	545
	Upstream of confluence with Littles Run Tributary 8	0.5	108	155	201	250	345	395
Lousy Run	At confluence with Rock Creek	3.0	421	585	748	919	1,268	1,410
	At Mason-Dixon Road	3.0	416	577	738	908	1,253	1,400
	At Savannah Drive	2.9	401	557	713	878	1,212	1,350
	At Taneytown Road (PA Route 134)	2.4	344	479	614	756	1,043	1,170
	At Spangler School Road	1.6	248	348	448	554	765	861
	At Basehoar Roth Road	1.6	246	345	444	549	758	852
	At Crouse Road	1.3	211	297	383	474	654	739
	At Basehoar Roth Road	0.9	154	218	282	350	483	549
Marsh Creek	At confluence with Monocacy River	80.4	5,720	7,515	9,310	11,200	15,456	16,400
	At Pennsylvania/Maryland Border	79.5	5,670	7,450	9,230	11,100	15,318	16,200
	At Horner Road	78.7	5,620	7,390	9,160	11,000	15,180	16,100
	At Mason-Dixon Road	77.8	5,570	7,325	9,080	10,900	15,042	16,000
	Downstream of confluence with Marsh Creek Tributary 2	76.1	5,470	7,200	8,930	10,700	14,766	15,700
	At Blue-Gray Highway (U.S. Route 15)	73.8	5,340	7,025	8,710	10,400	14,352	15,300
	At Emmittsburg Road (U.S. Route 15 Business)	73.0	5,290	6,965	8,640	10,400	14,352	15,200

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Marsh Creek	At Cunningham Road	72.3	5,250	6,915	8,580	10,300	14,214	15,100
	Downstream of confluence of Plum Run	71.4	5,200	6,845	8,490	10,200	14,076	15,000
	At Rock Road	67.7	4,980	6,565	8,150	9,780	13,496	14,400
	Upstream of confluence of Willoughby Run	57.9	4,400	5,815	7,230	8,680	11,978	12,800
	At Pumping Station Road	56.2	4,300	5,680	7,060	8,490	11,716	12,500
	Upstream of confluence of Marsh Creek Tributary 3	55.4	4,250	5,620	6,990	8,400	11,592	12,400
	At the corporate limit between the Townships of Highland and Freedom	54.5	4,190	5,545	6,900	8,290	11,440	12,200
	Downstream of confluence of Lower Marsh Creek	53.6	4,140	5,475	6,810	8,190	11,302	12,100
	At Fairfield Road (PA Route 116)	50.1	3,920	5,190	6,460	7,770	10,723	11,500
	Downstream of confluence of Marsh Creek Tributary 4	49.0	3,850	5,105	6,360	7,650	10,557	11,300
	Downstream of confluence with Little Marsh Creek	47.0	3,720	4,935	6,150	7,400	10,212	10,900
	At Knoxlyn Road (Highland-Franklin Boundary)	25.1	2,260	3,030	3,800	4,590	6,334	6,850
	At Chambersburg Road (U.S. Route 30)	24.4	2,210	2,965	3,720	4,490	6,196	6,700
	Above the confluence of Mummasburg Run	15.8	1,560	2,110	2,660	3,220	4,444	4,840
	Above the confluence of Marsh Creek Tributary	13.0	1,340	1,810	2,280	2,780	3,836	4,180
	At Crooked Creek Road	12.9	1,330	1,805	2,280	2,770	3,823	4,170
	At Fairview Fruit Road	11.1	1,180	1,605	2,030	2,470	3,409	3,720
	Upstream of confluence of Marsh Creek Tributary 6	10.8	1,150	1,565	1,980	2,410	3,326	3,640

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Marsh Creek	At Hilltown Road	10.3	1,110	1,515	1,920	2,330	3,215	3,530
	At Flohrs Church Road	9.2	1,010	1,380	1,750	2,130	2,939	3,220
	Downstream of confluence of Marsh Creek Tributary 9	7.1	823	1,127	1,430	1,740	2,401	2,650
	At Cashtown Road	5.1	634	872	1,110	1,360	1,877	2,070
	At Chambersburg Road (U.S. Route 30)	4.8	604	832	1,060	1,300	1,794	1,980
	At Twin Run Road	4.2	545	752	958	1,180	1,628	1,800
	Downstream of confluence of Marsh Creek Tributary 10	3.0	413	573	732	901	1,243	1,390
	At Old Route 30	2.0	303	424	544	671	926	1,040
	At Spigot Valley Road	0.1	36	53	70	88	121	141
Marsh Creek Tributary	At confluence with Marsh Creek	2.8	394	547	700	861	1,188	1,330
	At Chambersburg Road (U.S. Route 30)	2.7	384	534	683	840	1,159	1,290
	At Railroad	2.2	327	456	585	722	996	1,120
	At Tillie Town Road	1.4	221	311	401	497	686	773
	At Old Route 30	1.1	180	255	329	408	563	637
	At Flohrs Church Road	0.9	166	235	304	378	522	591
Marsh Creek Tributary 2	At confluence with Marsh Creek	1.9	287	401	515	636	878	985
	At Marsh Creek Road	1.8	273	382	491	607	838	941
	At Blue-Gray Highway (U.S. Route 15)	1.5	236	331	426	527	727	819
Marsh Creek Tributary 2	Upstream of confluence with Marsh Creek Tributary 2A	0.9	164	232	299	372	513	582
	At Barlow-Greenmount Road	0.8	144	204	264	328	453	515
	Upstream of confluence with Marsh Creek Tributary 2C	0.4	88	127	165	206	284	327

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Marsh Creek Tributary 2A	At confluence with Marsh Creek Tributary 2	0.2	48	70	92	115	159	184
	At Blue-Gray Highway (U.S. Route 15)	0.2	46	67	88	111	153	177
Marsh Creek Tributary 2B	At confluence with Marsh Creek Tributary 2	0.1	32	47	62	78	108	126
Marsh Creek Tributary 2C	At confluence with Marsh Creek Tributary 2	0.2	50	73	95	119	164	191
	At Emmitsburg Road (U.S. Route 15 Business)	0.1	18	27	36	46	63	75
Marsh Creek Tributary 3	At confluence with Marsh Creek	0.7	123	175	227	283	391	445
	At Black Horse Tavern Road	0.4	84	120	156	195	269	309
Marsh Creek Tributary 4	At Black Horse Tavern Road	1.6	257	360	463	573	791	889
	At Old Mill Road	1.4	223	313	403	499	689	777
	Downstream of confluence of Marsh Creek Tributary 4A	1.0	173	245	317	393	542	614
	At Pegram Street	0.2	48	70	92	115	159	184
	At Pettigrew Street	0.2	44	64	84	106	146	170
	At Chambersburg Road (U.S. Route 30)	0.2	42	62	81	102	141	163
	At Railroad	0.1	30	44	58	73	101	118
Marsh Creek Tributary 4A	At confluence with Marsh Creek Tributary 4	0.5	100	143	186	231	319	366
	At Pegram Street	0.4	87	124	162	203	280	321
	At Chambersburg Road (U.S. Route 30)	0.4	79	113	147	184	254	292
	At Railroad	0.3	66	96	125	157	217	249

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Marsh Creek Tributary 5	At confluence with Marsh Creek	2.9	403	559	715	880	1,214	1,350
	Downstream of confluence of Marsh Creek Tributary 5A	2.7	379	527	675	831	1,147	1,280
	Downstream of confluence of Marsh Creek Tributary 5B	1.9	289	404	519	641	885	993
	At Mummasburg Road	1.4	221	311	401	497	686	773
Marsh Creek Tributary 6	At confluence with Marsh Creek	0.2	50	73	95	119	164	191
	At Hilltown Road	0.1	38	56	73	92	128	149
Marsh Creek Tributary 7	At confluence with Marsh Creek	1.0	177	251	324	402	555	628
Marsh Creek Tributary 8	At confluence with Marsh Creek	1.8	282	394	506	625	863	969
	Upstream of confluence of Marsh Creek Tributary 8A	1.5	244	343	441	546	753	848
	Upstream of confluence of Marsh Creek Tributary 8B	1.3	207	292	376	466	643	726
	Upstream of confluence of Marsh Creek Tributary 8C	0.3	68	98	128	161	222	256
Marsh Creek Tributary 9	At confluence with Marsh Creek	1.9	288	403	517	638	880	989
	At Cashtown Road	1.4	231	325	419	519	716	808
Middle Creek	At Pennsylvania/Maryland Border	24.0	2,180	2,920	3,660	4,430	6,113	6,610
	At Emmitsburg Road	23.4	2,130	2,860	3,590	4,340	5,989	6,480
	At Blue-Gray Highway (U.S. Route 15)	23.0	2,110	2,830	3,550	4,290	5,920	6,410
	At Liberty/Freedom Township Boundary	21.3	1,990	2,670	3,350	4,050	5,589	6,060
	At Gordon Road	21.0	1,960	2,635	3,310	4,010	5,534	5,990

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Middle Creek	At Pumping Station Road	20.4	1,920	2,580	3,240	3,930	5,423	5,870
	At McGlaughlin Road	19.1	1,820	2,445	3,070	3,720	5,134	5,580
	Upstream of Unnamed Tributary to Middle Creek	18.0	1,730	2,330	2,930	3,560	4,913	5,330
	At Bullfrog Road	17.4	1,690	2,275	2,860	3,470	4,789	5,210
	Upstream of confluence with Muddy Run	10.4	1,120	1,525	1,930	2,350	3,243	3,550
	At Bullfrog Road	10.3	1,110	1,510	1,910	2,330	3,215	3,510
	Downstream of confluence with Spring Run	10.2	1,100	1,495	1,890	2,310	3,188	3,480
	Upstream of confluence with Spring Run	7.9	903	1,232	1,560	1,910	2,636	2,890
	At Fairfield Road (PA Route 116)	7.4	851	1,166	1,480	1,800	2,484	2,740
	At Railroad	6.3	748	1,024	1,300	1,590	2,194	2,420
	Downstream of confluence of Swamp Creek	4.7	599	825	1,050	1,290	1,780	1,970
	Upstream of confluence of Swamp Creek	2.5	360	501	641	790	1,090	1,220
	At Mount Hope Road	1.0	169	239	309	384	530	600
	At Wilderness Lane	0.6	114	163	211	263	363	414
Middle Creek Tributary 1	At confluence with Middle Creek	0.4	79	113	147	184	254	292
Middle Creek Tributary 2	At confluence with Middle Creek	0.6	112	160	208	259	357	409
Miney Branch	At confluence with Toms Creek	8.5	956	1,303	1,650	2,010	2,774	3,050
	Downstream of Cove Hollow	7.1	824	1,127	1,430	1,750	2,415	2,660
	Upstream of Cove Hollow	6.5	769	1,055	1,340	1,640	2,263	2,490
	At Waynesboro Pike (PA Route 16)	5.6	686	943	1,200	1,470	2,029	2,230

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Miney Branch	At Waynesboro Pike (PA Route 16)	4.2	547	755	962	1,180	1,628	1,810
	At Waynesboro Pike (PA Route 16)	2.3	340	474	607	749	1,034	1,160
	Upstream of confluence with Miney Branch Tributary 1	1.1	192	271	350	434	599	677
Muddy Run	At confluence with Middle Creek	6.8	802	1,096	1,390	1,700	2,346	2,590
	At Fairfield Road (PA Route 116)	5.7	689	945	1,200	1,470	2,029	2,240
	Downstream of confluence of Rattling Run	4.9	612	841	1,070	1,310	1,808	2,010
	Upstream of confluence of Rattling Run	3.6	477	660	842	1,030	1,421	1,590
	Upstream of confluence of Muddy Run Tributary 1	2.4	348	485	622	766	1,057	1,180
	At Cold Springs Road	2.3	332	463	593	731	1,009	1,130
Muddy Run Tributary 1	At confluence with Muddy Run	1.1	190	268	345	428	591	668
	At Cold Springs Road	1.0	175	247	319	396	546	619
	At Carrolls Tract Road	0.7	124	177	230	286	395	450
	At Railroad	0.2	52	75	99	124	171	198
	At Donaldson Lane	0.2	48	70	92	115	159	184
Mummasburg Run	At confluence with Marsh Creek	5.5	675	928	1,180	1,440	1,987	2,200
	At Crooked Creek Road	5.5	669	920	1,170	1,430	1,973	2,180
	At Hilltown Road	2.9	409	568	727	895	1,235	1,380
	At Fairview Fruit Road	2.0	302	422	542	669	923	1,040
	At Pleasant Valley Road	1.6	249	350	450	557	769	865
	At Cashtown Road	1.0	177	251	324	402	555	629

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Mummasburg Run Tributary 1	At confluence with Mummasburg Run	0.5	100	143	186	231	319	366
Mummasburg Run Tributary 2	At confluence with Mummasburg Run	1.2	195	275	355	440	607	686
	At Hilltown Road	1.1	192	271	350	434	599	677
	At Fairview Fruit Road	0.7	129	184	238	296	408	465
	At Pleasant Valley Road	0.7	124	177	230	286	395	450
Mummasburg Run Tributary 3	At confluence with Mummasburg Run	0.2	46	67	88	111	153	177
	At Mummasburg Road	0.2	44	64	84	106	146	170
Mummasburg Run Tributary 4	At confluence with Mummasburg Run	0.6	118	169	219	273	377	430
Muskrat Run	At confluence with Little Marsh Creek	2.9	403	559	715	880	1,214	1,350
	At Railroad	2.2	320	447	573	707	976	1,090
	At Silo Road	2.0	300	419	538	664	916	1,030
	At Flohrs Church Road	1.5	242	340	437	540	745	840
	At Flohrs Church Road	1.4	223	313	403	499	689	777
	Downstream of Muskrat Run Tributary 1	0.8	139	198	256	319	440	500
	Upstream of Muskrat Run Tributary 1	0.6	117	167	216	269	371	424
Muskrat Run Tributary 1	At confluence with Muskrat Run	0.1	38	56	73	92	128	149
North Branch Latimore Creek	At confluence with Latimore Creek	6.6	970	*	2,000	2,600	*	4,900
	At Brough Road Bridge	5.7	880	*	1,800	2,370	*	4,500

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Opossum Creek	Approximately 2,180 ft downstream of Aspers-Benderville Road	13.6	*	*	*	3,880	*	*
	Approximately 0.4 mile upstream of State Route 34/Carlisle Road)	10.9	*	*	*	3,300	*	*
Pine Run	At confluence with West Conewago Creek	6.7	2,000	*	3,000	3,450	*	4,420
Pine Run Tributary A	At confluence with Pine Run	1.9	640	*	1,000	1,200	*	1,600
	At the corporate limit between Townships of Hamilton and Berwick	0.8	360	*	540	640	*	840
Pine Run Tributary B	At confluence with Pine Run Tributary A	0.8	360	*	540	640	*	840
	At corporate limit between Townships of Hamilton and Berwick	0.6	360	*	540	640	*	840
Piney Creek	At Georgetown Road	4.3	558	770	981	1,200	1,656	1,840
	Upstream of confluence of Piney Creek Tributary D	3.7	489	677	864	1,060	1,463	1,630
	At Mengus Mill Road	3.5	476	658	840	1,030	1,421	1,580
	At Queen Street	2.0	297	416	534	659	909	1,020
Piney Creek Tributary A	Upstream of confluence with Unnamed Tributary to Piney Creek Tributary A	0.5	92	131	171	214	295	338
Piney Creek Tributary D	At confluence with Piney Creek	0.6	118	169	219	273	377	429
Piney Creek Tributary E	At Georgetown Road	5.4	668	919	1,170	1,430	1,973	2,180

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Piney Creek Tributary E	At Pennsylvania/Maryland Border	5.4	660	905	1,150	1,410	1,946	2,160
	At Pennsylvania/Maryland Border	3.9	512	707	902	1,110	1,532	1,700
	At Baltimore Pike (PA Route 97)	1.1	191	270	348	431	595	673
Pleasant Run	At Heritage Drive	0.7	133	190	246	306	422	480
	At Hanover Road (PA Route 116)	0.7	126	179	232	289	399	455
	Upstream of confluence of Pleasant Run Tributary 1	0.3	72	103	135	169	233	268
Pleasant Run Tributary 1	At confluence with Pleasant Run	0.3	68	98	128	161	222	256
	Upstream of confluence of Pleasant Run Tributary 1A	0.1	25	37	50	63	86	101
Pleasant Run Tributary 1A	At confluence with Pleasant Run Tributary 1	0.1	21	31	41	52	71	84
	Downstream of Gregg Road	0.0	6	9	12	16	22	26
Plum Creek	At confluence with Alloway Creek	2.9	408	567	725	892	1,231	1,370
	At Mud College Road	2.8	388	539	690	850	1,173	1,310
	At Baltimore Pike (PA Route 97)	1.8	282	394	506	625	863	969
	Downstream of confluence of Plum Creek Tributary 1	0.6	118	169	219	273	377	429
	Upstream of confluence of Plum Creek Tributary 1	0.5	103	147	191	238	328	376
	Downstream of confluence of Plum Creek Tributary 2	0.5	97	138	180	224	309	355
	At Spring Lane and Bulk Plant Road	0.2	50	73	95	119	164	191
Plum Run	At confluence with White Run	4.0	*	*	*	1,960	*	*

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Plum Run	At confluence with Lake Heritage	2.5	510	*	810	975	*	1,320
Plum Run (Central)	At confluence with Rock Creek	3.8	503	695	887	1,090	1,504	1,670
	At Taneytown Road (PA Route 134)	3.6	479	663	846	1,040	1,435	1,590
	At Blue-Gray Highway (U.S. Route 15)	2.8	388	539	690	850	1,173	1,310
	At Knight Road	2.4	350	488	625	771	1,064	1,190
Plum Run (East)	At confluence with White Run	4.0	524	724	923	1,130	1,559	1,740
	At Heritage Drive	3.8	504	697	889	1,090	1,504	1,670
	At Lake Heritage Dam	3.8	503	695	887	1,090	1,504	1,670
	Downstream of confluence of Pleasant Run	2.4	349	486	623	768	1,060	1,190
	At Hanover Road (PA Route 116)	1.6	256	359	461	570	787	885
	Downstream of confluence of Plum Run (East) Tributary 3	1.0	177	251	324	402	555	628
	Upstream of confluence of Plum Run (East) Tributary 3	0.3	65	93	122	153	211	243
Plum Run (East) Tributary 1	At confluence with Plum Run (East)	0.4	84	120	156	195	269	309
	At Heritage Drive	0.3	70	101	132	165	228	262
	At Thomas Drive	0.3	61	88	115	145	200	231
	At Longstreet Drive	0.1	28	41	54	68	94	110
Plum Run (East) Tributary 3	At Hoffman Road	0.7	123	175	227	283	391	445

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Plum Run (West)	At confluence with Marsh Creek	3.1	423	586	749	922	1,272	1,420
	At Schriver Road	2.5	360	501	641	790	1,090	1,220
	At Pumping Station Road	1.6	252	354	455	562	776	873
Poplar Spring Creek	At confluence with Little Marsh Creek	1.8	273	382	491	607	838	941
	At Mount Carmel Road	1.7	263	369	474	586	809	909
	At Hickory Bridge Road	1.2	200	282	364	451	622	704
	Upstream of Flow Split	0.7	135	192	248	309	426	485
	At Ragged Edge Road	0.5	100	143	186	231	319	366
	At Mount Carmel Road	0.2	48	70	92	115	159	184
Poplar Spring Creek-Spilt Flow Channel	At Mount Carmel Road	0.9	164	232	299	372	513	582
Rattling Run	At confluence with Muddy Run	1.3	214	301	387	480	662	747
	At Carrolls Tract Road	1.0	172	243	314	390	538	609
	At Cold Springs Road	0.7	135	192	248	309	426	485
	At Cold Springs Road	0.7	127	181	235	293	404	460
Rock Creek	At confluence with Monocacy River	63.5	4,740	6,255	7,770	9,320	12,862	13,700
	At Mason-Dixon Road	60.0	4,530	5,980	7,430	8,920	12,310	13,100
	Upstream of confluence of Rock Creek Tributary 4	57.1	4,350	5,750	7,150	8,590	11,854	12,700
	Upstream of confluence of Rock Creek Tributary 5	55.7	4,270	5,645	7,020	8,430	11,633	12,400
	At Taneytown Road (PA Route 134)	54.2	4,170	5,520	6,870	8,250	11,385	12,200
	Downstream of confluence of Plum Run (Central)	54.0	4,160	5,505	6,850	8,230	11,357	12,100
	Upstream of confluence of Plum Run (Central)	50.1	3,920	5,195	6,470	7,780	10,736	11,500

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Rock Creek	Downstream of Rock Creek Tributary 6	49.7	3,890	5,155	6,420	7,720	10,654	11,400
	Upstream of Rock Creek Tributary 6	48.0	3,790	5,020	6,250	7,520	10,378	11,100
	At Solomon Road	47.3	3,750	4,970	6,190	7,440	10,267	11,000
	Upstream of confluence of Littles Run	39.5	3,240	4,310	5,380	6,480	8,942	9,600
	At Goulden Road	38.7	3,190	4,245	5,300	6,380	8,804	9,460
	Upstream of confluence of White Run	25.5	2,290	3,070	3,850	4,650	6,417	6,930
	Upstream of confluence of Rock Creek Tributary 9	24.6	2,230	2,985	3,740	4,530	6,251	6,750
	At Blue-Gray Highway (U.S. Route 15)	24.4	2,210	2,965	3,720	4,500	6,210	6,710
	At Baltimore Pike (PA Route 97)	23.4	2,140	2,865	3,590	4,350	6,003	6,490
	Downstream of confluence of Rock Creek Tributary 1	21.9	2,020	2,715	3,410	4,130	5,699	6,170
	Upstream of confluence of Rock Creek Tributary 1	19.6	1,860	2,500	3,140	3,800	5,244	5,690
	At the downstream boundary between Township of Cumberland and Borough of Gettysburg	19.3	1,830	2,465	3,100	3,750	5,175	5,620
	At Hanover Street (PA Route 116)	18.8	1,790	2,410	3,030	3,670	5,065	5,500
	At Railroad	18.5	1,770	2,385	3,000	3,640	5,023	5,450
	Downstream of confluence of Stevens Run	17.1	1,670	2,245	2,820	3,430	4,733	5,140
	Upstream of confluence of Stevens Run	16.0	1,580	2,130	2,680	3,250	4,485	4,880

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Rock Creek	Upstream of confluence of Alms House Run	15.9	1,570	2,120	2,670	3,250	4,485	4,870
	At Old Harrisburg Road (U.S. Route 15 Business)	15.3	1,530	2,065	2,600	3,150	4,347	4,740
	At Boyds School Road	13.3	1,370	1,850	2,330	2,840	3,919	4,270
	Downstream of confluence with Rock Creek Tributary 3	12.9	1,330	1,800	2,270	2,760	3,809	4,160
	Upstream of confluence of Rock Creek Tributary 3	8.0	911	1,246	1,580	1,920	2,650	2,910
	Downstream of confluence of Rock Creek Tributary 13	7.8	886	1,208	1,530	1,870	2,581	2,840
	Upstream of confluence of Rock Creek Tributary 13	2.3	339	472	605	746	1,029	1,150
	At Keller Road	1.3	210	296	382	473	653	737
	Upstream of confluence of Rock Creek Tributary 14	1.0	174	246	318	395	545	617
	At Shrivers Corner Road (PA Route 394)	0.6	110	157	204	255	352	403
	At Leedy Road	0.4	87	126	164	205	283	325
Rock Creek Tributary 1	At confluence with Rock Creek	2.2	326	455	583	719	992	1,110
	Downstream of confluence of Rock Creek Tributary 1A	1.9	290	406	521	643	887	996
	Upstream of confluence with Rock Creek Tributary 1A	1.5	243	341	439	543	749	844
	At Hanover Road (PA Route 116)	1.4	233	327	421	521	719	811
	At Blue-Gray Highway (U.S. Route 15)	0.6	120	171	222	276	381	435
	At V Twin Drive	0.3	61	88	115	145	200	231

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Rock Creek Tributary 1A	At confluence with Rock Creek Tributary 1	0.3	73	106	138	172	237	274
Rock Creek Tributary 2	At confluence with Rock Creek	1.4	224	315	406	502	693	781
	At Hunterstown Road	0.7	135	192	248	309	426	485
Rock Creek Tributary 3	At confluence with Rock Creek	4.9	611	841	1,070	1,310	1,808	2,000
	At Good Intent Road	4.8	606	833	1,060	1,300	1,794	1,990
	Downstream of confluence of Rock Creek Tributary 3A	4.3	559	772	984	1,210	1,670	1,850
	Upstream of confluence of Rock Creek Tributary 3A	3.4	465	644	823	1,010	1,394	1,550
	At Shrivers Corner Road	1.5	239	336	432	535	738	832
Rock Creek Tributary 3A	At confluence with Rock Creek Tributary 3	0.9	155	220	284	353	487	553
	At Table Rock Road	0.9	154	218	282	350	483	549
Rock Creek Tributary 4	At Taneytown Road	2.1	318	444	569	702	969	1,080
	Upstream of Rock Creek Tributary 4A	1.7	268	376	483	597	824	925
	Downstream of Rock Creek Tributary 4B	1.4	233	327	421	521	719	811
	Upstream of Rock Creek Tributary 4B	1.0	168	238	307	381	526	596
	At Orphanage Road	0.6	115	164	213	266	367	419
Rock Creek Tributary 5	At Barlow Road	0.8	145	206	266	331	457	520

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Rock Creek Tributary 6	At Rock Creek Ford Road	1.3	214	301	387	480	662	747
	At White Church Road	0.7	132	188	243	302	417	475
	At Barlow-Taverns Road	0.6	109	156	202	252	348	398
Rock Creek Tributary 7	At Solomon Road	0.4	90	129	168	210	290	332
	At Blue-Gray Highway (U.S. Route 15)	0.2	46	67	88	111	153	177
	At Taneytown Road (PA Route 134)	0.0	13	20	27	34	47	55
Rock Creek Tributary 8	At confluence with Rock Creek	0.7	135	192	248	309	426	485
	At Blue-Gray Highway (U.S. Route 15)	0.4	79	113	147	184	254	292
Rock Creek Tributary 9	At Blue-Gray Highway (U.S. Route 15)	0.7	130	185	240	299	413	470
	Upstream of confluence of Rock Creek Tributary 9A	0.4	77	110	144	180	248	286
Rock Creek Tributary 12	At confluence with Rock Creek	0.2	44	64	84	106	146	170
Rock Creek Tributary 13	At confluence with Rock Creek	5.1	634	872	1,110	1,360	1,877	2,070
	At Old Harrisburg Road (U.S. Route 15 Business)	3.5	468	648	828	1,020	1,408	1,560
	At Blue-Gray Highway (U.S. Route 15)	3.1	425	589	753	926	1,278	1,420
	At Hunterstown Road	2.6	374	521	667	821	1,133	1,270

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Rock Creek Tributary 13A	At confluence with Rock Creek Tributary 13	1.6	253	355	457	565	780	877
	Downstream of confluence of Rock Creek Tributary 13A-1	1.4	225	316	407	504	696	785
Rock Creek Tributary 14	At confluence with Rock Creek	0.2	44	64	84	106	146	170
	At Old Harrisburg Road (U.S. Route 15)	0.1	32	47	62	78	108	126
Seven Hundred School Run	At the confluence with South Branch Conewago Creek	3.0	660	*	1,040	1,280	*	1680
	At the corporate limit between Townships of Hamilton and Oxford	1.6	490	*	775	925	*	1200
	Approximately 1,100 feet downstream of U.S. Route 30	1.0	287	*	501	618	*	968
Slagle Run	Approximately 150 feet upstream of corporate limit between Townships of Conewago and Oxford	2.9	610	*	1,276	1,688	*	2,880
	At Adams/York County Boundary	2.5	540	*	1,130	1,495	*	2,550
South Branch Conewago Creek	At confluence with West Conewago Creek	73.5	5,300	*	9,500	11,500	*	18,500
	At corporate limit between Townships of Hamilton and Oxford	70.2	5,000	*	9,200	11,200	*	18,200
	At Centennial Road (Legislative Route 01005)	32.4	4,300	*	8,300	10,000	*	16,800

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
South Branch Conewago Creek Tributary 1	At confluence with South Branch Conewago Creek	2.4	570	*	830	970	*	1,190
South Branch Conewago Creek Tributary 2	At confluence with South Branch Conewago Creek	1.6	620	*	910	1,050	*	1,350
Spring Run	At confluence with Middle Creek	2.2	326	455	583	719	992	1,110
	At Water Street	2.0	300	419	538	664	916	1,030
	At Parking Area and Main Street (PA Route 116)	1.2	203	286	369	457	631	713
	At Railroad	0.5	101	145	188	235	324	371
Stevens Run	At confluence with Rock Creek	1.2	372	484	570	668	752	947
	At Fourth Street	1.1	366	471	552	645	756	913
	At Water Street	1.1	338	436	512	600	676	855
	At Stratton Street	1.0	303	391	463	546	616	787
	At Carlisle Street	1.0	288	371	442	524	595	756
	At Washington Street	0.9	263	343	412	497	568	741
	At Constitution Avenue	0.8	217	283	342	419	480	634
	At Railroad	0.8	210	275	334	411	470	623
	At Racehorse Alley	0.7	195	259	321	397	455	604
	At Spring Avenue and Chambersburg Road (U.S. Route 30)	0.7	193	256	318	394	452	598
	At West Middle Street (PA Route 116)	0.6	138	185	237	298	344	467
	At High Street	0.5	104	153	195	243	281	376

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Swamp Creek	At confluence with Middle Creek	2.2	328	458	587	724	999	1,120
	Downstream of confluence of Swamp Creek Tributary 1	1.4	227	319	410	508	701	790
Toms Creek	Above the confluence with Friends Creek	22.8	2,090	2,805	3,520	4,260	5,879	6,360
	At Pennsylvania Route 16	22.5	2,070	2,780	3,490	4,220	5,824	6,310
	Upstream of confluence of Miney Branch	13.9	1,410	1,910	2,410	2,920	4,030	4,400
	Downstream of confluence of Unnamed Tributary	13.4	1,370	1,855	2,340	2,840	3,919	4,280
	Upstream of confluence of Unnamed Tributary	13.1	1,340	1,815	2,290	2,790	3,850	4,200
	At Fairfield Road (PA Route 116)	12.6	1,300	1,765	2,230	2,710	3,740	4,080
	At Valley View Trail	10.9	1,160	1,575	1,990	2,420	3,340	3,660
	At Jacks Mountain Road	10.1	1,100	1,495	1,890	2,300	3,174	3,470
	Downstream of Unnamed Tributary	9.4	1,040	1,415	1,790	2,180	3,008	3,300
	At Railroad	7.9	901	1,231	1,560	1,900	2,622	2,880
	Downstream of confluence of Toms Creek Tributary 2	7.2	834	1,142	1,450	1,770	2,443	2,680
	Downstream of confluence of Toms Creek Tributary 3	6.1	736	1,008	1,280	1,570	2,167	2,390
	Downstream of confluence of Toms Creek Tributary 4	4.8	606	833	1,060	1,300	1,794	1,990
Toms Creek Tributary 1	At Fairfield Road (PA Route 116)	1.3	218	306	394	488	673	760
	At Sanders Road	1.1	183	258	333	414	571	646
	At Ski Run Trail	0.8	152	216	279	347	479	544
	At Northern Pike Trail	0.5	95	136	177	221	305	349

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Toms Creek Tributary 3	At confluence with Toms Creek	1.1	187	264	341	422	582	659
Tributary 1 to Seven Hundred School Run	At the confluence with Seven Hundred School Run	0.4	*	*	*	293	*	*
Unnamed Tributary to Middle Creek	At confluence with Middle Creek	1.1	190	268	345	428	591	668
Unnamed Tributary to Piney Creek Tributary A	At confluence with Piney Creek Tributary A	0.6	109	156	202	252	348	398
Unnamed Tributary to Opossum Creek	At the confluence with Opossum Creek	1.0	*	*	*	750	*	*
West Conewago Creek	At Adams/York County Boundary	241.5	14,171	*	23,000	27,388	*	45,500
	At corporate limit between Township of Hamilton and Borough of East Berlin	223.0	11,000	*	19,000	23,000	*	36,000
	1.8 miles downstream of the confluence with South Branch Conewago Creek	119.7	10,400	*	17,500	21,600	*	33,200
White Run	At confluence with Rock Creek	13.1	1,350	1,825	2,300	2,790	3,850	4,210
	At Baltimore Pike (PA Route 97)	12.5	1,300	1,760	2,220	2,700	3,726	4,070

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
White Run	Upstream of confluence of Plum Run (East)	8.5	951	1,296	1,640	2,000	2,760	3,040
	At Low Dutch Road	7.7	879	1,200	1,520	1,860	2,567	2,820
	At the corporate limit between the Townships of Mount Pleasant and Mount Joy	6.4	762	1,046	1,330	1,620	2,236	2,470
	Downstream of confluence of White Run Tributary 2	6.1	736	1,008	1,280	1,570	2,167	2,390
	Upstream of confluence of White Run Tributary 3	5.8	700	960	1,220	1,500	2,070	2,280
	Downstream of confluence of Chicken Run	5.4	666	913	1,160	1,430	1,973	2,170
	At Hanover Road (PA Route 116)	3.4	461	638	815	1,000	1,380	1,540
	Downstream of confluence of White Run Tributary 5	3.3	452	626	800	983	1,357	1,510
	Upstream of confluence of White Run Tributary 6	1.9	288	403	518	640	883	992
	Upstream of confluence of White Run Tributary 7	1.4	226	318	410	508	701	791
	At Granite Station Road	1.1	196	276	356	442	610	690
	At Low Dutch Road	1.1	188	265	342	424	585	663
	At Granite Station Road	0.3	66	96	125	157	217	249
White Run Tributary 1	At confluence with White Run	1.2	195	275	355	440	607	686
	At Two Taverns Road	0.5	93	134	174	217	299	344
	At Two Taverns Road	0.1	36	53	70	88	121	141
	At White Run Road	0.0	11	16	21	27	37	45
White Run Tributary 1A	At confluence with White Run Tributary 1	0.3	59	86	112	141	195	224

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
White Run Tributary 2	At confluence with White Run	0.1	34	50	66	83	114	133
	At White Run Road	0.1	16	24	31	40	55	65
White Run Tributary 3	At confluence with White Run	0.2	54	78	102	128	177	205
White Run Tributary 4	At confluence with White Run	0.2	52	75	99	124	171	198
White Run Tributary 5	At confluence with White Run	1.1	186	262	338	419	578	655
	At Low Dutch Road	0.7	136	194	251	312	431	490
White Run Tributary 5A	At confluence with White Run Tributary 5	0.1	30	44	58	73	101	118
White Run Tributary 6	At confluence with White Run	0.4	77	110	144	180	248	286
	Upstream of confluence of White Run Tributary 6A	0.0	13	20	27	34	47	55
White Run Tributary 6A	At Granite Station Road	0.0	11	16	22	28	38	46
White Run Tributary 7	At confluence with White Run	0.2	46	67	88	110	152	177
	At Granite Station Road	0.1	32	47	62	78	108	127
White Run Tributary 8	At confluence with White Run	0.8	142	202	261	324	447	510
	At York Road	0.2	42	61	81	102	141	164
Willoughby Run	At confluence with Marsh Creek	9.7	1,060	1,445	1,830	2,230	3,077	3,370
	At Water Works Road	8.6	958	1,304	1,650	2,020	2,788	3,060
	At Millerstown Road	8.4	946	1,288	1,630	1,990	2,746	3,020

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Willoughby Run	At Black Horse Tavern Road	6.4	757	1,039	1,320	1,610	2,222	2,450
	Upstream of confluence of Willoughby Run Tributary 2	5.4	664	912	1,160	1,420	1,960	2,170
	At Fairfield Road (PA Route 116)	5.2	641	881	1,120	1,370	1,891	2,100
	At Old Mill Road	5.0	628	864	1,100	1,350	1,863	2,060
	At Chambersburg Road (U.S. Route 30)	4.5	569	785	1,000	1,230	1,697	1,880
	At Railroad	4.4	562	775	988	1,210	1,670	1,850
	At Herrs Ridge Road	3.4	458	635	811	997	1,376	1,530
	At Mummasburg Road	2.7	385	535	684	842	1,162	1,300
	Upstream of confluence of Willoughby Run Tributary 5	1.1	185	262	338	419	578	655
Willoughby Run Tributary 1	At Black Horse Tavern Road	1.7	267	374	481	594	820	921
	Downstream of confluence of Willoughby Run Tributary 1A	1.4	232	326	419	519	716	807
	Upstream of confluence of Willoughby Run Tributary 1A	1.0	172	243	314	390	538	609
	At Woodcrest Drive	0.3	73	106	138	172	237	274
	At Fairfield Road (PA Route 116)	0.3	73	106	138	172	237	274
	At Dam Embankment	0.2	52	75	99	124	171	198
	At Chambersburg Road (U.S. Route 30)	0.1	30	44	58	73	101	118
	At Railroad	0.1	25	37	50	63	86	101
	At Wadsworth Avenue	0.1	18	27	36	46	63	75

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (**cfs**)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Plus	0.2% Annual Chance
Willoughby Run Tributary 1A	At Confederate Avenue	0.3	73	106	138	172	237	274
Willoughby Run Tributary 2	At Willoughby Run Road	0.7	129	184	238	296	408	465
	At Fairfield Road (PA Route 116)	0.4	88	127	165	206	284	327
	At Dam Embankment	0.3	73	106	138	172	237	274
Willoughby Run Tributary 2A	At confluence with Willoughby Run Tributary 2	0.2	40	59	77	97	134	156
	At Fairfield Road	0.1	30	44	58	73	101	118

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this Flood Risk Project]

Table 10: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (**feet NAVD88**)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lake Heritage	Township of Mount Joy, Township of Mount Pleasant, Township of Straban	480.2	480.4	480.5	480.7	481.1

Table 11: Stream Gage Information used to Determine Discharges

[Not Applicable to this Flood Risk Project]

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 23, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 12. Roughness coefficients are provided in Table 13. Roughness coefficients are values representing the frictional resistance water experienceswhen passing overland or through a channel. They are used in the calculations to determine watersurface elevations. Greater detail (including assumptions, analysis, and results) is available in thearchived project documentation.

Table 12: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Alloway Creek	At confluence with Monocacy River	Downstream of Whitehall Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Continuation of USACE-Carroll County, MD HEC-RAS Model. New model from PA/MD border.
Alloway Creek Tributary 1	At confluence with Alloway Creek	Approximately 750 feet upstream of the Pennsylvania/Maryland Border	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Continuation of USACE-Carroll County, MD HEC-RAS Model. New model from PA/MD border.
Alloway Creek Tributary 2	At confluence with Alloway Creek	Approximately 300 feet upstream of Krug Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Alloway Creek Tributary 3	At confluence with Alloway Creek	Approximately 2,500 feet upstream of Teeter Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Alloway Creek Tributary 3A	At confluence with Alloway Creek Tributary 3	Approximately 1,300 feet upstream of Fish and Game Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Alloway Creek Tributary 4	At confluence with Alloway Creek	Approximately 2,600 feet upstream of School House Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Alloway Creek Tributary A1	At confluence with Alloway Creek Tributary 1	Approximately 900 feet upstream of Maryland Line Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Alms House Run	At confluence with Rock Creek	Approximately 850 feet upstream of Harrisburg Street (U.S. Route 15 Business)	HEC-HMS 3.0 and up (Dec 2005)	HEC-RAS 3.1.1 and up	01/23/2017	AE	Harrisburg Area Community College plans included for updated topography.
Beaver Creek	At the confluence with West Conewago Creek	At Maple Grove Road	Log-Pearson Type III	HEC-2	2/1/1980	AE w/ Floodway	
Beaverdam Creek	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	
Bermudian Creek	Approximately 58 feet upstream of Carlisle Pike	Approximately 145 feet upstream of Cranberry Road	USGS WRI Regression Equations	*	11/1/1986	AE	
	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Chicken Run	At confluence with White Run	Just downstream of Jessica Drive	HEC-HMS 3.0 and up (Dec 2005)	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	Upstream limit clipped at Jessica Drive due to small watershed size.
Conewago Creek	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	
Conococheague Creek	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Conococheague-Opequon Watershed Zone A Areas in the Township of Franklin, Township of Hamiltonban and the Township of Menallen	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	
Culps Run	At confluence with Rock Creek	Upstream of Confederate Avenue	HEC-HMS 3.0 and up (Dec 2005)	HEC-RAS 3.1.1 and up	01/23/2017	AE	Amended upstream boundary due to no defined channel upstream of Confederate Avenue.
Flat Run	At confluence with Toms Creek	Approximately 3,200 feet upstream of Tract Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	2008 PA State Regression Equation for Region 4 used for reach within Pennsylvania; MD Regression Equations 2015 used for reach within MD.
Flat Run Tributary 1	At confluence with Flat Run	Approximately 2,700 feet upstream of confluence with Flat Run	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Flat Run Tributary 2	At confluence with Flat Run	Downstream of Tract Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Flat Run Tributary 3	At confluence with Flat Run	Downstream of Tract Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Flat Run Tributary 4	At confluence with Flat Run	Approximately 1,800 feet upstream of Tract Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Flat Run Tributary 5	At confluence with Flat Run	Approximately 700 feet upstream of confluence with Flat Run	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Friends Creek	At confluence with Toms Creek	Approximately 3,000 feet upstream of Harbaugh Valley Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Vast majority of watershed within MD, so MD Regression Equations 2015 was used for entire stream, including portion within PA
Gardner Run	At confluence with Bermudian Creek	Approximately 310 feet downstream of North B Street	NRCS TR-55	HEC-2	10/1/1994	AE w/ Floodway	
Green Run	At confluence with Little Marsh Creek	Approximately 4,000 feet upstream of the confluence with Little Marsh Creek	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Latimore Creek	At Ridge Road	At Town Hill Road	*	HEC-2	5/1/1980	AE w/ Floodway	
	Downstream limit of study	Upstream limit of study	Log-Pearson Type III	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	
Latimore Creek Tributary A	At US Route 15	Approximately 171 feet above the confluence with Latimore Creek Tributary A1	NRCS TR-55	HEC-2	5/1/1980	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Latimore Creek Tributary A1	At the confluence with Latimore Creek A	Approximately 0.2 miles upstream of Main Street	NRCS TR-55	HEC-2	5/1/1980	AE w/ Floodway	
Little Marsh Creek	At confluence with Marsh Creek	Approximately 1,000 feet upstream of Mount Carmel Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Little Marsh Creek Tributary	At confluence with Little Marsh Creek	Approximately 3,000 feet upstream of Orchard Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	
Little Marsh Creek Tributary-Tributary 1	At confluence with Little Marsh Creek Tributary	Approximately 300 feet upstream of Orchard Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Little Marsh Creek Tributary 2	At confluence with Little Marsh Creek	Approximately 3,800 feet upstream of confluence with Little Marsh Creek	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Little Marsh Creek Tributary 3	At confluence with Little Marsh Creek	Approximately 300 feet upstream of Flohrs Church Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends beyond CNMS database line.
Little Marsh Creek Tributary 4	At confluence with Little Marsh Creek	Approximately 2,000 feet upstream of the confluence with Little Marsh Creek	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Littles Run	At confluence with Rock Creek	Approximately 300 feet downstream of White Hall Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Lousy Run	At confluence with Rock Creek	Upstream of Private Drive	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Lower Susquehanna Watershed Zone A Areas in the Borough of Abbottstown, Borough of Arendtsville, Borough of Bendersville, Borough of Biglerville, Borough of East Berlin, Borough of McSherrystown, Borough of New Oxford, Borough of York Springs; Township of Berwick, Township of Butler, Township of Conewago, Township of Cumberland, Township of Franklin, Township of Hamilton, Township of Huntington, Township of Latimore, Township of Menallen, Township of Mount Pleasant, Township of Oxford, Township of Reading, Township of Straban, Township of Tyrone, and the Township of Union	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Lower Susquehanna-Swatara Watershed Zone A Areas in the Township of Huntington and the Township of Menallen	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	
Marsh Creek	At confluence with Rock Creek (Monocacy River)	Approximately 1,100 feet upstream of Private Drive	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	LOMR 11-03-0400P incorporated.
Marsh Creek Tributary	At confluence with Marsh Creek	Approximately 3,500 feet upstream of Flohrs Church Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	
Marsh Creek Tributary 2	At confluence with Marsh Creek	Approximately 1,700 feet upstream of Barlow-Greenmount Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Marsh Creek Tributary 2A	At confluence with Marsh Creek Tributary 2	Approximately 1,800 feet upstream of Blue-Gray Highway (U.S. Route 15)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends far less than CNMS database line.
Marsh Creek Tributary 2B	At confluence with Marsh Creek Tributary 2	Approximately 200 feet downstream of Emmittsburg Road (U.S. Route 15 Business)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Not in CNMS database or scope, but effective floodplain on FIRM.

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Marsh Creek Tributary 2C	At confluence with Marsh Creek Tributary 2	Approximately 300 feet upstream of Emmittsburg Road (U.S. Route 15 Business)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Not in CNMS database or scope, but effective floodplain on FIRM.
Marsh Creek Tributary 3	At confluence with Marsh Creek	Approximately 900 feet upstream of Black Horse Tavern Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Marsh Creek Tributary 4	At confluence with Marsh Creek	Approximately 2,000 feet upstream of Chambersburg Road (U.S. Route 30)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Marsh Creek Tributary 4A	At confluence with Marsh Creek Tributary 4	Approximately 1,700 feet upstream of Chambersburg Road (U.S. Route 30)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Marsh Creek Tributary 5	At confluence with Marsh Creek	Approximately 400 feet upstream of Mummasburg Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Marsh Creek Tributary 6	At confluence with Marsh Creek	Downstream of Hilltown Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Amended upstream boundary in field to reflect flow pattern.
Marsh Creek Tributary 7	At confluence with Marsh Creek	Approximately 700 feet upstream of Flohrs Church Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Marsh Creek Tributary 8	At confluence with Marsh Creek	Downstream of confluence with Marsh Creek Tributary 8C	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Marsh Creek Tributary 9	At confluence with Marsh Creek	Downstream of Private Drive	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Middle Creek	At confluence with Toms Creek	Approximately 720 feet upstream of Wilderness Lane	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	2008 PA State Regression Equation for Region 4 used for reach within Pennsylvania; MD Regression Equations 2015 used for reach within MD.
Middle Creek Tributary 1	At confluence with Middle Creek	Approximately 3,400 feet upstream of confluence with Middle Creek	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Middle Creek Tributary 2	At confluence with Middle Creek	Approximately 4,200 feet upstream of confluence with Middle Creek	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Miney Branch	At confluence with Toms Creek	Approximately 1,500 feet upstream of Miney Branch Tributary 1	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Monocacy River	At Frederick County border	At confluence of Rock Creek and Marsh Creek	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Muddy Run	At confluence with Middle Creek	Approximately 6,100 feet upstream of Cold Springs Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Muddy Run Tributary 1	At confluence with Muddy Run	Downstream of Private Drive	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	New irrigation pond embankment included in upstream area.
Mummasburg Run	At confluence with Marsh Creek	Downstream of Cashtown Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mummasburg Run Tributary 1	At confluence with Mummasburg Run	Approximately 4,500 feet upstream of confluence with Mummasburg Run	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Mummasburg Run Tributary 2	At confluence with Mummasburg Run	Approximately 3,500 feet upstream of Pleasant Valley Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Mummasburg Run Tributary 3	At confluence with Mummasburg Run	Approximately 670 feet upstream of Mummasburg Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends far less than CNMS database line.
Muskrat Run	At confluence with Little Marsh Creek	Downstream of Private Pond Outfall	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Upstream study limit cut off downstream of Farm Pond per field observations.
Muskrat Run Tributary 1	At confluence with Muskrat Run	Downstream of Ortanna Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
North Branch Latimore Creek	At the confluence with Latimore Creek	At Brough Road	Log-Pearson Type III	HEC-2	5/1/1980	AE w/ Floodway	
Opossum Creek	Approximately 0.4 miles downstream of Aspers-North Road	Approximately 0.37 miles upstream of Carlisle Road	USGS WRI Regression Equations	WASPRO	11/1/1986	AE	
	Downstream limit of study	Upstream limit of study	*	HEC-2	2004	A	
Pine Run	At the confluence of Conewago Creek	Approximately 125 feet upstream of Pine Run Road	*	HEC-2	12/1/1979	AE w/ Floodway	
	Downstream limit of study	Upstream limit of study	*	HEC-2	2004	A	
Pine Run Tributary A	At the confluence with Pine Run	Approximately .25 miles downstream of Blair Road	*	HEC-2	12/1/1979	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Pine Run Tributary B	At the confluence with Pine Run Tributary A	At Carlisle Pike	*	HEC-2	12/1/1979	AE w/ Floodway	
Piney Creek	At confluence with Monocacy River	Approximately 5,700 feet upstream of Queen Street (PA Route 97)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Continuation of USACE Carroll County HEC-RAS Model. New model from PA/MD border to upstream limit.
Piney Creek Tributary A	At confluence with Piney Creek	Approximately 750 feet upstream of the Pennsylvania/Maryland Border	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Continuation of USACE Carroll County HEC-RAS Model. New model from PA/MD border to upstream limit.
Piney Creek Tributary D	At confluence with Piney Creek	Approximately 1,100 feet upstream of the confluence with Piney Creek	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Piney Creek Tributary E	At confluence with Piney Creek	Approximately 1,000 feet upstream of Baltimore Pike (PA Route 97)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Pleasant Run	At confluence with Plum Run (East)-Lake Heritage	Approximately 3,500 feet upstream of Hanover Road (PA Route 116)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Pleasant Run Tributary 1	At confluence with Pleasant Run	Approximately 1,000 feet upstream of confluence of Plum Run (East) Tributary 2A-1	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Pleasant Run Tributary 1A	At confluence with Pleasant Run Tributary 1	Downstream of Gregg Avenue	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Not in CNMS database or scope, but effective floodplain on FIRM.
Plum Creek	At confluence with South Branch Conewago Creek	Approximately 450 feet upstream of Adams/York County Boundary	PSU-IV	HEC-2	12/1/1979	AE w/ Floodway	
Plum Creek (South)	At confluence with Alloway Creek	Approximately 1,300 feet upstream of Spring Lane and Bulk Plant Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Plum Run	Approximately 0.98 miles downstream of Hanover Road	At the Adams-York County boundary	PSU-IV	HEC-2	5/1/1994	AE	
Plum Run (Central)	At confluence with Rock Creek	Downstream of South Confederate Avenue	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	There were 3 flooding sources named Plum Run on effective FIRM. This one was renamed to Plum Run (Central).
Plum Run (East)	At confluence with White Run	Approximately 300 feet upstream of Plum Run (East) Tributary 3	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	There were 3 flooding sources named Plum Run on effective FIRM. This one was renamed to Plum Run (East).
Plum Run (East) Tributary 1	At confluence with Plum Run (East)-Lake Heritage	Approximately 450 feet upstream of Longstreet Drive	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Utilized new survey data for retention area near Longstreet Drive.
Plum Run (East) Tributary 3	At confluence with Plum Run (East)	Approximately 3,300 feet upstream of Hoffman Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Plum Run (West)	At confluence with Marsh Creek	Downstream of McGlaughlin Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	There were 3 flooding sources named Plum Run on effective FIRM. This one was renamed to Plum Run (West).
Poplar Spring Creek	At confluence with Little Marsh Creek	Upstream of Ragged Edge Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Split flow channel centerline. Modeled as split flow.

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Rattling Run	At confluence with Muddy Run	Approximately 200 feet upstream of Cold Springs Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Rock Creek	At confluence with Marsh Creek (Monocacy River)	Approximately 1,200 feet upstream of Leedy Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	
Rock Creek Tributary 1	At confluence with Rock Creek	Just upstream of V Twin Drive	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	
Rock Creek Tributary 1A	At confluence with Rock Creek Tributary 1	Downstream of Blue-Gray Highway (U.S. Route 15)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Rock Creek Tributary 2	At confluence with Rock Creek	Approximately 350 feet downstream of Boyds School Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	
Rock Creek Tributary 3	At confluence with Rock Creek	Downstream of Rentzel Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	
Rock Creek Tributary 3A	At confluence with Rock Creek Tributary 3	Approximately 750 feet upstream of Table Rock Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	Not in CNMS database or scope but effective floodplain on FIRM.
Rock Creek Tributary 4	At confluence with Rock Creek	Downstream of White Church Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Rock Creek Tributary 6	At confluence with Rock Creek	Approximately 3,500 feet upstream of Barlow-Taverns Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Rock Creek Tributary 7	At confluence with Rock Creek	Upstream of Taneytown Road (PA Route 134)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends beyond the CNMS database line.

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Rock Creek Tributary 13	At confluence with Rock Creek	Approximately 550 feet upstream of Railroad	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends beyond the CNMS database line.
Rock Creek Tributary 13A	At confluence with Rock Creek Tributary 13	Downstream of confluence of Rock Creek Tributary 13A-1	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Seven Hundred School Run	At the confluence with South Branch Conewago Creek	Approximately 287 feet upstream of the confluence with Tributary 1 to Seven Hundred School Run	NRCS TR-55	HEC-2	12/1/1979	AE w/ Floodway	
Slagle Run	Approximately 0.67 miles downstream of High Street	At the Adams-York County boundary	PSU-IV	HEC-2	7/1/1986	AE w/ Floodway	
South Branch Conewago Creek	At the confluence with West Conewago Creek	Approximately 0.15 miles downstream of Hanover Road	Log-Pearson Type III	HEC-2	12/1/1979	AE w/ Floodway	
	Downstream limit of study	Upstream limit of study	*	Regional relationship between basin area and within channel 1-percent-annual-chance flood depths observed at stream gages (USGS Water-Resources Investigation 86.4195)	2004	A	
South Branch Conewago Creek Tributary 1	At the confluence with South Branch Conewago Creek	At Centennial Road	NRCS TR-55	HEC-2	2/1/1980	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
South Branch Conewago Creek Tributary 2	At the confluence with South Branch Conewago Creek	Approximately 0.6 miles upstream of Poplar Road	NRCS TR-55	HEC-2	12/1/1979	AE w/ Floodway	
Spring Run	At confluence with Middle Creek	Approximately 7,400 feet upstream of Main Street (PA Route 116)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Stevens Run	At confluence with Rock Creek	Approximately 3,000 feet upstream of High Street	HEC-HMS 3.0 and up (Dec 2005)	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	USACE PAS flood study used for calibration.
Swamp Creek	At confluence with Middle Creek	Downstream of confluence with Swamp Creek Tributary 1	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Toms Creek	At confluence with Monocacy River	Approximately 8,200 feet upstream of Mount Hope Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	USACE-FPMS study incorporated. 2008 PA State Regression Equation for Region 4 used for reach within Pennsylvania; MD Regression Equations 2015 used for reach within MD.
Toms Creek Tributary 1	At confluence with Toms Creek	Approximately 550 feet upstream of Northern Pike Trail	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Toms Creek Tributary 3	At confluence with Toms Creek	Downstream of Tree Farm Lane	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Tributary 1 to Seven Hundred School Run	At the confluence with Seven Hundred School Run	Approximately 171 feet downstream of Billerbeck Street	*	*	12/1/1979	AE	
Unnamed Tributary to Middle Creek	At confluence with Middle Creek	Approximately 2,800 feet upstream of Water Street	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Unnamed Tributary to Opossum Creek	At the confluence with Opossum Creek	At Center Mills Road	USGS WRI Regression Equations	*	11/1/1986	AE	
Unnamed Tributary to Piney Creek Tributary A	At confluence with Piney Creek Tributary A	Downstream of Georgetown Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
West Conewago Creek	At the Adams-York County boundary	Approximately 282 Feet above the confluence with South Branch Conewago Creek	Log-Pearson Type III	HEC-2	1/1/1980	AE w/ Floodway	
White Run	At confluence with Rock Creek	Upstream of Railroad	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE w/ Floodway	
White Run Tributary 1	At confluence with White Run	Approximately 1,000 feet upstream of White Run Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
White Run Tributary 1A	At confluence with White Run Tributary 1	Approximately 4,100 feet upstream of confluence with White Run Tributary 1	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends beyond CNMS database line.
White Run Tributary 2	At confluence with White Run	Approximately 1,000 feet upstream of White Run Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
White Run Tributary 3	At confluence with White Run	Approximately 1,600 feet upstream of confluence with White Run	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
White Run Tributary 4	At confluence with White Run	Approximately 3,300 feet upstream of confluence with White Run	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
White Run Tributary 5	At confluence with White Run	Approximately 2,500 feet upstream of confluence of White Run Tributary 5A	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
White Run Tributary 5A	At confluence with White Run Tributary 5	Approximately 1,100 feet upstream of confluence with White Run Tributary 5	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
White Run Tributary 6	At confluence with White Run	Approximately 1,000 feet upstream of confluence of White Run Tributary 6A	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
White Run Tributary 6A	At confluence with White Run Tributary 6	Downstream of Granite Station Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
White Run Tributary 7	At confluence with White Run	Downstream of Granite Station Road	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends far less than CNMS database line.
White Run Tributary 8	At confluence with White Run	Upstream of Railroad	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	SFHA extends beyond CNMS database line. Upstream limit changed based upon field survey.

Table 12: Summary of Hydrologic and Hydraulic Analyses *(continued)*

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Willoughby Run	At confluence with Marsh Creek	Approximately 1,100 feet upstream of confluence of Willoughby Run Tributary 5	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Willoughby Run Tributary 1	At confluence with Willoughby Run	Approximately 1,000 feet upstream of Wadsworth Avenue	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Willoughby Run Tributary 1A	At confluence with Willoughby Run Tributary 1	Approximately 500 feet upstream of NPS Farm Lane	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Willoughby Run Tributary 2	At confluence with Willoughby Run	Downstream of Dam Embankment	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	
Willoughby Run Tributary 2A	At confluence with Willoughby Run Tributary 2	Approximately 900 feet upstream of Fairfield Road (PA Route 116)	Regression Equations	HEC-RAS 3.1.1 and up	01/23/2017	AE	

*Data not available