Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)
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MAP SYMBOLOGY
ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 326
- Bridge Points - BRIDGE ID i.e. 265.6
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. 259.6
- Roadway - i.e. 252.6
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY SFHA
- FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
- (Based on Depth Grid Boundary)
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- (Based on Depth Grid Boundary)
- Projected SFHA Extents

LOCATION MAP

FEMA 100-Year Floodplain (Regulatory SFHA)
Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)
Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)
Flood Vulnerability Analysis
Delaware County, PA
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

MAP SYMBOLOGY
ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 10
- Bridge Points - BRIDGE ID i.e. 000123
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. 10
- Roadway i.e. 000123
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY SFHA
- FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

6
0 1,000 Feet

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CITY OF PHILADELPHIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Continental Avenue Building
300 North Broad Street
Philadelphia, PA 19107

1.480.557.1700
www.phila.gov
phoenix@phila.gov

(2050) 215.0000.0000

(2100) 215.0000.0000
Roadway & Bridge Project Data

FEMA Floodplain Data
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

Existing Conditions SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

Future Conditions SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

Zone AE

Darby Creek

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

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Delaware County, PA
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By Creek
Sawmill Run

Continued from Sheet 5...
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 92.4
- Bridge Points - BRIDGE ID i.e. 328'
- FEMA Floodplain Data
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- Vulnerable Roadway - Mean Depth in Feet i.e. 92.4
- Community Boundary

FEMA FLOODPLAIN DATA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents
- FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

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Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
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Data Year: 2016

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FEMA 100-Year Floodplain
(Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

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Delaware County, PA
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(Planning Level Assessment)

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FEMA 100-Year Floodplain
(Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)
Flood Vulnerability Analysis
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FEMA 100-Year Floodplain
(Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
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Delaware County, PA

(Planning Level Assessment)
(Planning Level Assessment)
(Planning Level Assessment)

(Methology and Limitations Provided in Project Study Report)

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Delaware County, PA
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MAP SYMBOLOGY
ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 9.3'
- Bridge Points - BRIDGE ID i.e. 123
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. 9.3'
- Roadway: i.e. 95015
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY SFHA
- FEMA REGULAR SFHA

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

1,000 Feet
1,000 Feet
1,000 Feet

43
46
42
48
43
46
42
48

103
60
10
22
102
100
85
80

Philadelphia County
Regulator's Office
November 22, 2016
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FEMA 100-Year Floodplain
(Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

Flood Vulnerability Analysis
Delaware County, PA
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Horizontal Datum: North American 1983
Coordinate System:
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FEMA 100-Year Floodplain
(Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

Roadway - i.e. Bridge Centerlines

FEMA Floodplain Data
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section

FEMA Regulatory SFHA
FEMA Regulatory SFHA

Existing Conditions SFHA
(Existing Conditions SFHA Extents)
Future Conditions SFHA
(Based on Depth Grid Boundary)
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section

Bridge Points - BRIDGE ID i.e.
Planning Level Assessment

Bridge and Roadway Data Provided by: Pennsylvania DOT

FUTURE CONDITIONS SFHA
(Based on Depth Grid Boundary)

Projection: Lambert Conformal Conic
Coordinate System:
(Projection: Lambert Conformal Conic
Coordinate System: )

VULNERABILITY ANALYSIS:
Delaware County, PA
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FEMA REGULATORY SFHA
(Projection: Lambert Conformal Conic
Coordinate System: )

Projection: Lambert Conformal Conic
Coordinate System: )

FUTURE CONDITIONS SFHA
(Based on Depth Grid Boundary)
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section

Bridge Points - BRIDGE ID i.e.
Planning Level Assessment

Bridge and Roadway Data Provided by: Pennsylvania DOT

FUTURE CONDITIONS SFHA
(Based on Depth Grid Boundary)

Projection: Lambert Conformal Conic
Coordinate System: )

VULNERABILITY ANALYSIS:
Delaware County, PA
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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[Map Legend]
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet (e.g., 92.1)
- Bridge Points: BRIDGE ID (e.g., 920181)
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet (e.g., 89.1)
- Roadway ID (e.g., 920181)
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY SFHA
- FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

Flood Vulnerability Analysis
Delaware County, PA
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(Methodology and Limitations Provided in Project Study Report)

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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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Delaware County, PA
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

FEMA Floodplain Elevation
(FEMA Base Flood Elevation)

FEMA Regulatory SFHA
(FEMA Regulatory SFHA)

Existing Conditions SFHA
(Based on Depth Grid Boundary)

Flood Vulnerability Analysis
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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(Planning and Limitations Provided in Project Study Report)

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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Flood Vulnerability Analysis
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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Delaware County, PA
(Planning Level Assessment)
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Vertical Datum: North American Vertical Datum 1988
Projection: Lambert Conformal Conic
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Coordinate System:
DATA FRAME PROPERTIES:

Township of Nether Providence
Ridley Creek
Ridley Creek

Township of Upper Providence
Providence Township
Providence Township

Township of Newfield

Data Source: USGS 7.5-Minute Quadrangle Topographic Maps
Coastal Engineering Research Center, U.S. Army Corps of Engineers, 1997
DEP/Drainage Basin Map, Delaware County 1964
DEP/Drainage Basin Map, Delaware County 1964

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Delaware County, PA
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FEMA 100-Year Floodplain
(Regulatory SFHA)

Tributary No.1 To Little Crum Creek

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

MAP SYMBOLOGY
ROADWAY & BRIDGE PROJECT DATA
Vulnerable Bridge - Mean Depth in Feet; i.e. ±92'
Bridge Points, BRIDGE ID, i.e. ±92'
Bridge Centerlines
Vulnerable Roadway - Mean Depth in Feet, i.e. ±92'
Roadway, i.e. ±92'
Community Boundary

FEMA FLOODPLAIN DATA
FEMA Stream Centerline
FEMA-Base Flood Elevation
FEMA Cross Section

EXISTING CONDITIONS SFHA
(Based on Depth Grid Boundary)
Existing Conditions SFHA Extent

FUTURE CONDITIONS SFHA
(Based on Depth Grid Boundary)
Projected SFHA Extent

Vertical Datum: North American Vertical Datum 1988
Horizontal Datum: North American 1983
Coordinate System:

(Based on Depth Grid Boundary)
Projected SFHA Extent

FUTURE CONDITIONS SFHA
(Based on Depth Grid Boundary)
Projected SFHA Extent

November 22, 2016
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

FEMA REGULATORY SFHA

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Community Boundary

Vulnerable Roadway - i.e. Vulnerable Bridge - Mean Depth in Feet i.e. 3.7'

Vulnerable Roadway - Mean Depth in Feet i.e. 0.6'

FEMA Stream Centerline

FEMA Base Flood Elevation

FEMA Cross Section

FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA

Based on Depth Grid Boundary

Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA

Based on Depth Grid Boundary

Projected SFHA Extents

FEMA FLOODPLAIN DATA

Vulnerable Roadway - Mean Depth in Feet i.e. 116.8'

Vulnerable Roadway - Mean Depth in Feet i.e. 118

Tributary No. 5 To Chester Creek

VULNERABILITY ANALYSIS:

Delaware County, PA

November 22, 2016

(Planning Level Assessment)

(Methology and Limitations Provided in Project Study Report)

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FEMA 100-Year Floodplain (Regulatory SFHA)

FEMA 100-Year Floodplain (Regulatory SFHA)

FEMA 100-Year Floodplain (Regulatory SFHA)

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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utra and topographic data provided by: Pennsylvania DOT
FEMA 100-Year Floodplain (Regulatory SFHA)

Bridge Points - BRIDGE ID i.e. 8
Vulnerable Bridge - Mean Depth in Feet i.e. 34

328' 1,000
November 22, 2016
83

MAP SYMBOLOGY

FEMA FLOODPLAIN DATA
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section
FEMA REGULATORY SFHA
FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
(Based on Depth Grid Boundary)
Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
(Based on Depth Grid Boundary)
Projected SFHA Extents

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

LOCATOR MAP

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
(Planning Level Assessment)
(Methoogy and Limitations Provided in Project Study Report)

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Vertical Datum: North American Vertical Datum 1988
Horizontal Datum: North American 1983
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
U.S. Coast & Geodetic Survey - 1969
Datum = North American 1983
1994

Bridge and Roadway Data Provided by: Pennsylvania DOT
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
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Horizontal Datum: North American 1983
Projection: Lambert Conformal Conic NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

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Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

MAP SYMBOLOGY
- Vulnerable Bridge - Mean Depth in Feet (i.e., 328')
- Bridge Points - BRIDGE ID (i.e., 0.3')
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet (i.e., 328')
- Roadway (i.e., 0.05')
- Community Boundary

Horizontal Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: American Standard

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Flood Vulnerability Analysis
Delaware County, PA
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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LOCATOR MAP
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Flood Vulnerability Analysis
Delaware County, PA
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Flood Vulnerability Analysis Delaware County, PA
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(Figure details and symbols as per the provided legend)
FEMA 100-Year Floodplain (Regulatory SFHA) - Bridge Points: Bridge ID i.e. 11381328'
Community Boundary
Roadway - i.e. Bridge Centerlines
Vulnerable Bridge - Mean Depth in Feet i.e. 3.7'
Vulnerable Roadway - Mean Depth in Feet i.e. 3.6'
FEMA FLOODPLAIN DATA
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section
FEMA REGULATORY SFHA
FEMA REGULATORY SFHA
FEMA FLOODPLAIN DATA
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section
FEMA REGULATORY SFHA
FEMA REGULATORY SFHA
FUTURE CONDITIONS SFHA
Existing Conditions SFHA Extents
Projected SFHA Extents
EXISTING CONDITIONS SFHA
Existing Conditions SFHA Extents
Projected SFHA Extents
FUTURE CONDITIONS SFHA
Existing Conditions SFHA Extents
Projected SFHA Extents

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Projection: Lambert Conformal Conic

Bridge and Roadway Data Provided by: Pennsylvania DOT

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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 32'
- Bridge Points - BRIDGE ID i.e. 32100100301362
- Vulnerable Roadway - Mean Depth in Feet i.e. 56
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY SFHA
- FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

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Projection: Lambert Conformal Conic

Bridge and roadway data provided by Pennsylvania DOT
Performed by: Michael Baker International

0.2'
0.6'
2.5'
3.5'

FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections)

Future Floodplain Scenario 2 (2100 rainfall projections)

MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 32.8'
- Bridge Points - BRIDGE ID i.e. BRIDGE 123
- Bridge Centers
- Vulnerable Roadway - Mean Depth in Feet i.e. 2.6'
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY SFHA
- FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

VULNERABILITY ANALYSIS:
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FEMA REGULATORY SFHA
(Future Floodplain Scenario 1)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

FEMA REGULATORY SFHA
(Future Floodplain Scenario 2)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

FEMA Base Flood Elevation

FEMA Regulatory SFHA

Future Floodplain Scenarios

Bridge and roadway data provided by Pennsylvania DOT.

Flood Vulnerability Analysis

Delaware County, PA

(Planning Level Assessment)

(Methodology and Limitations provided in Project Study Report)

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Map Symbology

ROADWAY & BRIDGE PROJECT DATA
Vulnerable Bridge - Mean Depth in Feet i.e. 3.25
Bridge Points - BRIDGE ID i.e. 37648034
Bridge Centerlines
Vulnerable Roadway - Mean Depth in Feet i.e. 3.25
Roadway i.e. 37617102
Community Boundary

FEMA FLOODPLAIN DATA
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section

EXISTING CONDITIONS SFHA
Based on Depth Grid Boundary
Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
Based on Depth Grid Boundary
Projected SFHA Extents

Locator Map

Michael Baker

INTERNATIONAL

Project Team Members:

Michael Baker

INTERNATIONAL

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Flood Vulnerability Analysis
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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Delaware County, PA
(Planning Level Assessment)
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Flood Vulnerability Analysis
Delaware County, PA
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Vertical Datum: North American Vertical Datum 1988
Horizontal Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System:

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Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Flood Vulnerability Analysis Delaware County, PA
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MAP SYMBOLOGY
- Vulnerable Bridge - Mean Depth in Feet i.e. 2.8'
- Bridge Points: BRIDGE ID i.e. BRIDGEWATER RD 525180108691
- Vulnerable Roadway - Mean Depth in Feet i.e. 3.2'
- Community Boundary

ROADWAY & BRIDGE PROJECT DATA
- FEMA FLOODPLAIN DATA
  - FEMA Stream Centerline
  - FEMA Base Flood Elevation
  - FEMA Cross Section
- FEMA REGULATORY SFHA
  - FEMA REGULATORY SFHA
- EXISTING CONDITIONS SFHA
  - (Based on Depth Grid Boundary)
  - Existing Conditions SFHA Extents
- FUTURE CONDITIONS SFHA
  - (Based on Depth Grid Boundary)
  - Projected SFHA Extents

FEMA 100-Year Floodplain
- FEMA 100-Year Floodplain (Regulatory SFHA)

FEMA REGULATORY SFHA
- FEMA REGULATORY SFHA
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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Bridge and roadway data provided by Pennsylvania DOT

LocateMaps.com

Delaware River

Township of Tinicum

Zone AE (EL 9')

Zone AE (EL 12')
**FEMA 100-Year Floodplain**
(Regulatory SFHA)

**Future Floodplain Scenario 1**
(2050 rainfall projections)
(IPCC coastal projections)

**Future Floodplain Scenario 2**
(2100 rainfall projections)
(IPCC coastal projections)

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**Roadway & Bridge Project Data**
- Vulnerable Bridge - Mean Depth in Feet i.e. 1,000
- Bridge Points - BRIDGE ID i.e. 328'
- Vulnerable Roadway - Mean Depth in Feet i.e. 21
- Community Boundary

**FEMA Floodplain Data**
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA Regulatory SFHA

**Existing Conditions SFHA**
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents
- Projected SFHA Extents

**Future Conditions SFHA**
- Based on Depth Grid Boundary

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**Flood Vulnerability Analysis**
Delaware County, PA
(Planning Level Assessment)

**Methodology and Limitations Provided in Project Study Report**

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**Projection:** Lambert Conformal Conic
**Vertical Datum:** North American Vertical Datum 1988
**NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet**

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**NOAA Tides and Currents**

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**Source:** Michael Baker International - Pennsylvania DOT

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**Locator Map**
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Map Symbology:
- Vulnerable Bridge - Mean Depth in Feet
- Bridge Points - BRIDGE ID
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet
- Roadway ID
- Community Boundary

ROADWAY & BRIDGE PROJECT DATA
- Delaware River Bridge Centerlines
- CODY ST
- HOG ISLAND RD
- 328'

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
- Projected SFHA Extents

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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 3.9'
- Bridge Points - BRIDGE ID i.e. 23100100301362
- FEMA Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. 3.9'
- Roadway i.e. 090101
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
- Based on Depth Grid Boundary
- Existing Conditions SFHA Extents
- FUTURE CONDITIONS SFHA
- Based on Depth Grid Boundary
- Projected SFHA Extents

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Coordinate System: North American Vertical Datum 1988
Vertical Datum: North American Vertical Datum 1988

Bridge and Roadway Data Provided by: Pennsylvania DOT

Delaware River Bank
County

FEMA REGULATORY SFHA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA REGULATORY SFHA

Existing Conditions SFHA Extents

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)
FEMA 100-Year Floodplain (Regulatory SFHA)

ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet i.e. 328'
- Bridge Points, BRIDGE ID i.e. 23303800600769
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. 328'
- Roadway i.e. 0.300174
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY SFHA
- FEMA Regulatory SFHA

EXISTING CONDITIONS SFHA
- Existing Conditions SFHA Extents
- Based on Depth Grid Boundary

FUTURE CONDITIONS SFHA
- Projected SFHA Extents
- Based on Depth Grid Boundary

FEMA Base Flood Elevation

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Delaware County, PA
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

MAP SYMBOLOGY
ROADWAY & BRIDGE PROJECT DATA
- Vulnerable Bridge - Mean Depth in Feet (i.e. 3.0')
- Bridge Points - BRIDGE ID (i.e. 106)
- Bridge Centerline
- River - Mean Depth in Feet (i.e. 0.0')
- Roadway - Mean Depth in Feet (i.e. 0.0')
- Community Boundary

FEMA FLOODPLAIN DATA
- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA REGULATORY SFHA (Based on Depth Grid Boundary)
- FEMA REGULATORY SFHA (Projected SFHA Extents)

EXISTING CONDITIONS SFHA (Based on Depth Grid Boundary)
- Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA (Based on Depth Grid Boundary)
- Projected SFHA Extents

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
(Planning Level Assessment)
(Planning Level Assessment)
(Planning Level Assessment)

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Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
(Planning Level Assessment)
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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Vertical Datum: North American Vertical Datum 1988
Horizontal Datum: North American 1983
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Performed by: Michael Baker International
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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FEMA REGULATORY SFHA
Based on Depth Grid Boundary
Projected SFHA Extents

EXISTING CONDITIONS SFHA
Based on Depth Grid Boundary
Existing Conditions SFHA Extents

ROADWAY & BRIDGE PROJECT DATA
Vulnerable Bridge - Mean Depth in Feet i.e. 83
Bridge Points - BRIDGE ID i.e. 23
Vulnerable Roadway - Mean Depth in Feet i.e. 85
Community Boundary

MAP SYMBOLS
FEMA FLOODPLAIN DATA
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section
FEMA REGULATORY SFHA
Based on Depth Grid Boundary
Projected SFHA Extents

ZONE AE
Vulnerable Bridge - Mean Depth in Feet i.e. 22'
Bridge Points - BRIDGE ID i.e. 21.96'
Vulnerable Roadway - Mean Depth in Feet i.e. Chester Creek 3.6'
Bridge Centerlines

ZONE AE
Fifteenth St. (Regulatory SFHA)
Chester
City of
Cody
St
FEMA REGULATORY SFHA
25.1'
Based on Depth Grid Boundary
Projected SFHA Extents

ZONE AE
Future Floodplain Scenario 1
(EL 9')
(2100 rainfall projections)

ZONE AE
Future Floodplain Scenario 2
(EL 9')
(2100 rainfall projections)
FEMA 100-Year Floodplain (Regulatory SFHA)

Bridge Points - BRIDGE ID i.e.

Spring Run
Community Boundary
Roadway - i.e.
Vulnerable Roadway - Mean Depth in Feet i.e.
Bridge Centerlines

FEMA Cross Section

FEMA Stream Centerline

FEMA Base Flood Elevation

FEMA Floodplain Data

Existing Conditions SFHA Extents
Future Conditions SFHA

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)
FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

Flood Vulnerability Analysis
Delaware County, PA
(Planning Level Assessment)
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FEMA 100-Year Floodplain (Regulatory SFHA)

Future Floodplain Scenario 1 (2050 rainfall projections) (IPCC coastal projections)

Future Floodplain Scenario 2 (2100 rainfall projections) (IPCC coastal projections)

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(Planning Level Assessment)
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(Planning Level Assessment)
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FEMA 100-Year Floodplain
(Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

ROADWAY & BRIDGE PROJECT DATA
Vulnerable Bridge - Mean Depth in Feet i.e. 0.2'
Bridge Points - BRIDGE ID i.e. 02
Bridge Centers
Vulnerable Roadway - Mean Depth in Feet i.e. 0.6'
Roadway i.e. 0300118

FEMA FLOODPLAIN DATA
FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section

FEMA REGULATORY SFHA
FEMA REGULATORY SFHA

EXISTING CONDITIONS SFHA
Existing Conditions SFHA Extents

FUTURE CONDITIONS SFHA
Projected SFHA Extents

MAP SYMBOLOGY
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FEMA 100-Year Floodplain
(Regulatory SFHA)

Future Floodplain Scenario 1
(2050 rainfall projections)
(IPCC coastal projections)

Future Floodplain Scenario 2
(2100 rainfall projections)
(IPCC coastal projections)

ROADWAY & BRIDGE PROJECT DATA

FEMA FLOODPLAIN DATA

FEMA Stream Centerline
FEMA Base Flood Elevation
FEMA Cross Section

EXISTING CONDITIONS SFHA

FEMA REGULATORY SFHA

FEMA REGULATORY SFHA

FUTURE CONDITIONS SFHA

Based on Depth Grid Boundary
Existing Conditions SFHA Extents
Projected SFHA Extents

COMMUNITY BOUNDARY

Coordinate System:
Chester County, PA
SECONDST

County Contributors, CC-BY-SA © OpenStreetMap (and)
Salem County
Gloucester County
Delaware County

NINTH ST
HIGHLAND AV

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Delaware County, PA
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