

9.6 TOWN OF DELHI

This section presents the jurisdictional annex for the Town of Delhi.

A.) HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact	Alternate Point of Contact
John Mathiesen, Code Enforcement 5 Elm Street, Delhi, NY 13753 607.746.6733 delhicode@hotmial.com	Peter Bracci, Supervisor 5 Elm Street, Delhi, NY 13753 607.746.6733 braccipj@hotmail.com

B.) TOWN PROFILE

The Town of Delhi is located in the central portion of Delaware County. The Town consists of approximately 66 square miles. The Town of Delhi lies completely within the New York City water supply system watershed. The following villages and hamlets are located within the Town: the Village of Delhi and the hamlet of Fraser¹. Routes 10 and 28 bisect the Town in the southwest-northeast and southeast-northwest directions².

According to the U.S. Census, the 2010 population for the Town of Delhi was 5,117³

There are several areas of high elevation in the Town of Delhi. These areas include Craig Hill, Bramley Mountain, Federal Hill, Betts Hill, Boomhower Hill and Scotch Mountain. The highest point in the Town is Bramley Mountain (2,817 feet above sea level). The lowest point, at approximately 1,300 feet, is along the West Branch of the Delaware River where it crosses the border with the Town of Hamden. Approximately 95% of the Town drains into the West Branch and the Cannonsville Reservoir. The remainder of the Town drains into the East Branch and the Pepacton Reservoir. The waterways of the Town of Delhi include the East and West Branch of the Delaware River, Little Delaware and Tanglewood Lake².

Hazard Vulnerabilities in the Town

The following section discusses vulnerabilities from high-ranked hazards within the Town of Delhi. Complete profiles of all hazards of concern are included in Section 5 of this Plan. Potential losses from Flood and Severe Storm were modeled using FEMA's **Hazards United States-Multi-Hazard (HAZUS-MH)** software. HAZUS-MH uses Geographic Information Systems technology to estimate physical, economic, and social impacts of disasters⁴. For details regarding the methodology used for the vulnerability assessment, the Town's vulnerability to each of the hazards assessed and for further explanation of the tables included below, please refer to the appropriate hazard profiles in Section 5.4 of this Plan. For details regarding specific disaster events that have impacted the Town, please see Section C of this document, "Documented Losses to Natural Hazard Events Specific to the Community".

¹ Delaware County Highway Map (Delaware County Department of Public Works, 1997)

² Town of Delhi Comprehensive Plan

³ U.S. Census, 2010

⁴ <http://www.fema.gov/hazus>

Severe Storm

The entire Town is exposed and thus vulnerable to a severe storm event. HAZUS-MH estimates the 100-year **mean return period (MRP)** wind speeds for Delaware County to be 35 to 60 miles per hour (mph). This equates to a Tropical Depression to a Tropical Storm. For the 100-year MRP event, HAZUS-MH estimates \$756 in damages to the general building stock (structure) or less than one-percent of the Town of Delhi's building inventory. For the 500-year MRP wind event, HAZUS-MH estimates wind speeds to range from 63 to 77 mph across the County. This equates to a Tropical Storm to a Category One hurricane. HAZUS-MH estimates \$85,594 in damages to the general building stock (structure) or less than one-percent of the Town's building inventory. The residential buildings are estimated to experience the majority of the damage (wood and masonry).

HAZUS-MH estimates the probability that critical facilities (i.e., medical facilities, fire/EMS, police, EOC, schools, and user-defined facilities such as shelters and municipal buildings) may sustain damage as a result of 100-year and 500-year MRP wind-only events. Additionally, HAZUS-MH estimates the loss of use for each facility in number of days. At this time, HAZUS-MH does not estimate losses to transportation lifelines and utilities as part of the hurricane model.

HAZUS-MH does not estimate any damage or loss of use for critical facilities as a result of a 100-year MRP event. Table 9.6-1 lists the estimated loss of use in days for each critical facility and the probability of sustaining the damage category as defined by the column heading, for the 500-year wind-only events.

Table 9.6-1. Estimated Impacts to Critical Facilities by the 500-Year MRP Hurricane Event (Wind Only)

500-Year Event						
Name	Type	(Days)	Percent Probability of Sustaining Damage			
		Loss Of Use	Minor	Moderate	Severe	Complete
Cooperstown Medical Transport	Fire	0	0	0	0	0
Doenges Trailer Park	Mobile Home	0	0	0	0	0
Leisure Village Mobile Home Park	Mobile Home	0	0	0	0	0
Town Hall	Municipal	0	0	0	0	0
Camp Shankitunk 4H	User Defined	0	0	0	0	0
Delaware County Court House	County	0	0	0	0	0
Delaware County Countryside Care	Senior	0	0	0	0	0

Source: HAZUS-MH 2.0

Severe Winter Storm

Table 9.6-2 summarizes percent damages that could result from severe winter storm conditions for the Town's total building stock (structure only). Given professional knowledge and information available, the potential losses for this hazard are considered to be overestimated; hence, conservative estimates for losses associated with severe winter storm events.

Table 9.6-2. General Building Stock (Structure Only) Exposure and Estimated Losses from Severe Winter Storm Events

Total (All Occupancies) RV	1% Damage Loss Estimate	5% Damage Loss Estimate	10% Damage Loss Estimate
\$162,592,000	\$1,625,920	\$1,625,920	\$16,259,200

Source: HAZUS-MH 2.0
RV = Replacement Cost Value.

Flood

Flood-prone areas:

History indicates that flooding along the West Branch of the Delaware River has been a problem in the Town for over 100 years⁵. The FEMA Flood Insurance Study indicated that major floods have occurred on the West Branch of the Delaware River and the Little Delaware River during all seasons of the year⁶.

Of the Town of Delhi's total land area, 2.5 square miles are located within FEMA-designated 1% annual chance (100-year) flood boundary and 2.6 square miles are located within a FEMA-designated 0.2% annual chance (500-year) flood boundary⁷.

It is important to note that not all flood hazard areas within Delaware County are identified in the Delaware County **Flood Insurance Study (FIS)** or on the **Flood Insurance Rate Map (FIRM)**. Identified flood hazard areas also vary in the level of accuracy with which they've been delineated. Consequently all development and infrastructure on floodplains and other high-risk areas within the Town of Delhi is potentially vulnerable to the flood hazard, regardless of inclusion in the FIS/FIRM.

In general, an "approximate" study determines the horizontal extent of the flood hazard only, based on the best available data. Flood hazard areas studied by approximate methods are shown as "A" zones on the Delaware County FIRM. A "detailed" study is more accurate than an approximate study and provides additional information about the flood hazard, such as water surface elevation during a flood of a given magnitude. Flood hazard areas studied by detailed methods are shown as "AE" zones on the Delaware County FIRM⁸.

Flood hazard areas studied by detailed methods for the Delaware County FIS were selected with priority given to known areas of flood hazard, and areas of projected development. In the Town of the Delhi, reaches of Steele Brook, the Little Delaware River and West Branch Delaware River were studied by detailed methods. Flood hazard areas have been determined using approximate methods for reaches of Elk Creek, the Little Delaware River and West Branch Delaware River⁹.

Floodplain population and the National Flood Insurance Program

The Town of Delhi has 194 properties that intersect with the FEMA-defined 1% annual chance (100-year) flood zone and 199 that intersect with the FEMA-defined 0.2% annual chance (500-year) flood boundary¹⁰. It is estimated that in the Town of Delhi, 217 residents live within the 1% annual chance (100-year) floodplain and 226 residents live within the 0.2% annual chance (500-year) floodplains, representing 10.6% and 11.0% of the Town's population, respectively¹¹.

As of January 2012 FEMA reports that 13 properties in the Town of Delhi carry flood insurance under the **National Flood Insurance Program (NFIP)** with one policy located in the 1% annual chance floodplain, one in the 0.2% annual chance floodplain and 11 policies located outside the 0.2% annual chance flood boundary. There were 2 **Repetitive Loss**¹² properties in the Town of Delhi at that time¹³.

⁵ Town of Delhi Comprehensive Plan

⁶ Flood Insurance Study for Delaware County (FEMA 2012)

⁷ Delaware County DFIRM (FEMA, 2012)

⁸ For more information on FEMA Flood Insurance Studies and Flood Insurance Rate Maps, please see Section 5.4.3

⁹ Flood Insurance Study for Delaware County (FEMA 2012)

¹⁰ Delaware County DFIRM (FEMA, 2012); Town of Delhi Tax Parcels (Delaware County Real Property, 2011)

¹¹ Please see Section 5.4.3 for a full description of the methods used to determine exposure to the flood hazard

¹² Repetitive Loss properties have received two flood insurance payouts of over \$1000 within a ten-year period

¹³ FEMA, 2012

HAZUS-MH results

HAZUS-MH estimates that for a 1% annual chance event, 119 people may be displaced and 44 people may seek short-term sheltering, representing 5.8% and 2.2% of the Town's population, respectively. For the 0.2% annual chance event, it is estimated that 133 people may be displaced and 50 people may seek short-term sheltering, representing 6.5% and 2.4% percent of the Town's population, respectively¹⁴.

As summarized in Table 9.6-3 below, there is \$31,006,907 of total assessed property (structure and land) exposed to the 1% annual chance flood in the Town of Delhi. For the 0.2% annual chance event, it is estimated that there is \$31,293,337 of total assessed property exposed in the Town.

Table 9.6-3 Estimated Assessed Value (Building and Land) Located in the 1% and 0.2% Annual Chance MRP Flood Boundaries

1% Annual Chance			0.2% Annual Chance		
Land AV	Building AV	Total AV	Land AV	Building AV	Total AV
\$6,144,448	\$24,862,459	\$31,006,907	\$6,221,848	\$25,071,489	\$31,293,337

Source: Real Property Data (July 2011) provided by Delaware County

Note: AV = Assessed Value

HAZUS-MH calculates the estimated potential damage to the general building stock inventory associated with the 1% and 0.2% annual chance flood events. HAZUS-MH estimates \$3,723,000 and \$4,804,000 of potential general building stock loss as a result of the 1% and 0.2% annual chance MRP events. Table 9.6-4 summarizes the potential loss estimates by occupancy class.

Table 9.6-4. Estimated Potential General Building Stock Loss (Structure and Contents) by the 1% and 0.2% Annual Chance MRP Flood Events

Total Buildings (All Occupancies)		Percentage of Total Building Value		Residential Buildings		Commercial Buildings		Industrial Buildings	
1% Annual Chance	0.2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% Annual Chance	0.2% Annual Chance
\$3,723,000	\$4,804,000	1.5	1.9	\$2,902,000	\$3,538,000	\$746,000	\$1,137,000	\$75,000	\$101,000

Agriculture Buildings		Religious Buildings		Government Buildings		Education Buildings	
1% Annual Chance	0.2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% Annual Chance	0.2% Annual Chance	1% Annual Chance	0.2% Annual Chance
\$13,000	\$14,000	\$13,000	\$31,000	\$0	\$0	\$0	\$0

Source: HAZUS-MH 2.0

The Town of Delhi does not have critical facilities or utilities located within the 1% or 0.2% annual chance flood boundaries.

Ice Jam Flood Hazard:

In the Town of Delhi, there has been a history of ice jam occurrences along the Little Delaware River and the West Branch Delaware River¹⁵.

¹⁴ HAZUS-MH 2.0

¹⁵ Ice Engineering Research Group, 2011

Dam breach flood hazard:

A dam is included in the **National Inventory of Dams (NID)** if: 1) it is a “high” or “significant” hazard potential class dam. A high hazard classification indicates that the loss of at least one human life is likely if the dam fails, or, 2) it is a “low” hazard potential class dam that exceeds 25 feet in height and 15 acre-foot storage or, 3) it is a “low” hazard potential class dam that exceeds 50 acre-foot storage and 6 feet height¹⁶. Table 9.6-5 lists the dams in the Town of Delhi provided by the NID and the Planning Committee. Dams are displayed on the map in Section J (Figure 9.6-1).

Table 9.6-5. Dams in the Town of Delhi

Name	River	Type	Downstream Hazard
BRS DEVELOPMENT DAM	TR-FALLS CREEK	EARTH	LOW
DELHI RESERVOIR DAM	STEELE BROOK	EARTH, LAID-UP	MODERATE
GERRIT LYDECKER POND DAM	TR-ELK CREEK	EARTH	LOW
SPRING LAKE DAM	STEELE BROOK	EARTH	LOW
BUHL POND DAM	NONE	EARTH	LOW
PETTUS KAUFMAN POND DAM	TR-PLATNER BROOK	EARTH	LOW
HERBERT W KLUMPE POND DAM #2	HONEST BROOK	EARTH	LOW
CLARK MARSH DAM	TR-EAST PLATNER BROO	EARTH	LOW

Source: Delaware County, 2006; Input from Planning Committee

Wildfire

Wildland Urban Interface (WUI) areas are located throughout the County See Figure 5.4.5-2 in Section 5.4.5 (Wildfire) for an illustration of the WUI in Delaware County. In the Town of Delhi, the western half of the Town is located within the WUI. It is estimated that 1,119 people in the Town are exposed to the WUI, or 55% of the Town’s total population¹⁷.

Buildings constructed from wood or vinyl siding are generally more likely to be impacted by the wildfire hazard than buildings constructed of brick or concrete. According to HAZUS-MH’s default general building stock database, approximately 67% of the buildings in the County are constructed of wood.

In the Town of Delhi, 59.9% of the Town’s total building stock is exposed and thus vulnerable to the wildfire hazard (replacement value of \$153,257,000)¹⁸.

It is recognized that a number of critical facilities, transportation and utility assets are located in the wildfire hazard area, and are also vulnerable to the threat of wildfire. Many of these facilities are the locations for vulnerable populations (i.e., schools) and responding agencies to wildfire events (i.e., fire, police). Table 9.4-7 summarizes critical facilities identified by the Planning Committee that are critical to the Town and are vulnerable to the wildfire hazard.

¹⁶ <http://geo.usace.army.mil/pgis/f?p=397:1:0>

¹⁷ HAZUS-MH 2.0; GeoMAC, 2012

¹⁸ Ibid

Table 9.4-7. Facilities in WUI

Type	Name
User Defined	Camp Shankitunk 4H
County	Delaware County Court House
Municipal	Town Hall
EMS	Cooperstown Medical Transport
Senior	Delaware County Countryside Care Center

Source: GeoMAC, 2012

Growth/Development Trends

No known or anticipated new development has been identified in the Town of Delhi at this time.

C.) DOCUMENTED LOSSES TO NATURAL HAZARD EVENTS SPECIFIC TO THE TOWN

The table below presents only a history of events where documented losses were provided and is not a complete history of events for the Town. For details regarding the event history of the specific hazards, please refer to the appropriate hazard profiles in Section 5.4 of this Plan.

Dates of Event	Event Type	FEMA Declaration Number	County Designated?	Local Damages and Losses
April 20, 2002	Earthquake 5.1	DR-1415	No	Largest earthquake to hit New York State in 20 years. A state of emergency was declared in Essex and Clinton Counties. In Delaware County, the Towns of: Delhi, Deposit, Hamden, Middletown, and Walton and the Village of Fleischmanns, all reported having felt the earthquake.
December 25, 2002 – January 4, 2003	Snowstorm	EM-3173 (PA)	Yes	11 inches of snow in the Town of Delhi
July 21, 2003	Severe Storm, Tornadoes and Flooding	DR-1486 (IA and PA)	Yes	A TSTM brought strong winds ranged from 60 to 90 mph between the Towns of Walton and Delhi. Multiple trees were snapped or uprooted, four cabins at 4-H camp were crushed, building roves were torn off, 14 homes were damaged and 10,000 customers were without power.
May 23-27, 2004	Severe Storms and Flooding	DR-1534 (PA)	Yes	Between May 26 th and 27 th , severe flooding occurred in the Town of Delhi.
September 18-19, 2004	Flood (remnants of Hurricane Ivan)	DR-1565 (IA and PA)	Yes	Delhi was one of the hardest hit towns in the County.
April 2-4, 2005	Severe Storms and Flooding	DR-1589 (IA and PA)	Yes	The Town had \$73,413.05 in expenses and/or losses.
June 26 – July 10, 2006	Severe Storm and Flooding	DR-1650 (IA and PA)	Yes	The Town had \$920,244.41 in expenses and/or losses. Various town roads, buildings, parking lot, garage and town hall damaged
September 30 - October 1, 2010	Flash Flood	N/A	N/A	The Town had \$5,000 in expense and/or losses.
May 26-27, 2011	Severe Storms	N/A	N/A	In the Town of Delhi trees and wires were blown down.

D.) NATURAL HAZARD RISK/VULNERABILITY RISK RANKING

Rank #	Hazard Type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a,c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
1	Flood	1% Annual Chance: \$3,723,000 0.2% Annual Chance: \$4,804,000	Frequent	42	High ^f
2	Severe Storm	100-Year MRP: \$756 500-Year MRP: \$85,594 Annualized Loss: \$1,479	Frequent	39	High ^d
2	Severe Winter Storm	1% of GBS: \$1,625,920 5% of GBS: \$1,625,920	Frequent	39	High ^d
3	Drought	Not available	Frequent	21	Medium ^e
4	Extreme Temp	Not available	Frequent	18	Low
4	Infestation	Not available	Frequent	18	Low
5	Earthquake	500-Year MRP: \$170,586 2,500-Year MRP: \$2,159,336 Annualized Loss: \$2,089	Occasional	16	Low
5	Wildfire	Not available	Occasional	16	Low
6	Landslide	Not available	Rare	12	Low

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
- b. High = Total hazard priority risk ranking score of 39 and above
Medium = Total hazard priority risk ranking of 21-38
Low = Total hazard risk ranking 20 or below
- c. The valuation of general building stock and loss estimates was based on the default general building stock database provided in HAZUS-MH 2.0 (RSMeans 2006).
- d. Loss estimates are structural values only; does not include the value of contents.
- e. Loss estimates represent both structure and contents.
- f. The HAZUS-MH earthquake model results are reported by Census Tract. In some cases, there is more than one municipality per Census Tract. Therefore, these results include the Town and Village of Delhi.

Notes: MRP = Mean Return Period; WUI - Wildland Urban Interface.

E.) CAPABILITY ASSESSMENT

This section identifies the following capabilities of the local jurisdiction:

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification.

E.1) Legal and Regulatory Capability

Regulatory Tools (Codes, Ordinances., Plans)	Do you have this? (Y or N)	Code Citation (Section, Paragraph, Page Number, Date of adoption)
1) Building Code	Y	New York State Code
2) Zoning Ordinance	Y	Town of Delhi zoning Adopted 8/90 Ordinance – amended 4/2002
3) Subdivision Ordinance	Y	Adopted 3/68 – Amended 7/81
4) NFIP Flood Damage Prevention Ordinance	Y	Local law of 1/1987; Adoption of 2012 Flood Damage Prevention Ordinance/DFIRM in progress
4a) Cumulative Substantial Damages	N	
4b) Freeboard	Y	2' above BFE as per NYS Building Code/Local Flood Damage Prevention Ordinance
5) Growth Management	N	
6) Floodplain Management / Basin Plan	N	
7) Stormwater Management Plan/Ordinance	Y	Additional regulations as per 1997 NYC Watershed Rules and Regulations
8) Comprehensive Plan / Master Plan/ General Plan	Y	Update/new plan will be adopted in early 2012
9) Capital Improvements Plan	N	
10) Site Plan Review Requirements	Y	Planning Board
11) Open Space Plan	N	
12) Stream Corridor Management Plan	Y	Adopted West Branch Delaware River Stream Corridor Management Plan 8/2009
13) Watershed Management or Protection Plan	N	
14) Economic Development Plan	N	
15) Comprehensive Emergency Management Plan	Y	County-wide – 2004
16) Emergency Response Plan	N	
17) Post Disaster Recovery Plan	N	
18) Post Disaster Recovery Ordinance	N	
19) Real Estate Disclosure Requirement	N	
20) Other [Special Purpose Ordinances (i.e., critical or sensitive areas)]	N	

E.2) Administrative and Technical Capability

Staff/ Personnel Resources	Available (Y or N)	Department/ Agency/ Position
1) Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Delaware County Planning Department Town Planning Advisory Service, Delaware County Stream Corridor Management Program
2) Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Code Enforcement Officer/Building Inspector; Town Highway Superintendent; Delaware County Department of Public Works; Delaware County Soil and Water Conservation District
3) Planners or engineers with an understanding of natural hazards	Y	Delaware County Planning Department Town Planning Advisory Service; Delaware County Department of Public Works; Delaware County Soil and Water Conservation District
4) NFIP Floodplain Administrator	Y	Code Enforcement
5) Surveyor(s)	N	
6) Personnel skilled or trained in "GIS" applications	Y	Delaware County Planning Department Town Planning Advisory Service
7) Scientist familiar with natural hazards	Y	Delaware County Soil & Water Conservation District
8) Emergency Manager	Y	Delaware County Emergency Services
9) Grant Writer(s)	Y	Delaware County Planning
10) Staff with expertise or training in benefit/cost analysis	N	

E.3) Fiscal Capability

The table below identifies common funding mechanisms the Town could consider for the implementation of mitigation initiatives. For each funding mechanism, the table shows if it has been used by the Town to fund projects in the past; what projects it was used for (if applicable); and possible limitations on its use for future projects.

A full description of fiscal tools and funding mechanisms is provided in Volume I, Section 6 - Mitigation Strategy, of this plan. It is assumed that the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Grant program will be pursued, so they are not listed here.

Financial Resources	Used for past projects? If yes, which ones?	Limitations on future use?
Community Development Block Grants (CDBG)	Unknown	Unknown
Capital Improvements Project Funding	Unknown	Unknown
Authority to Levy Taxes for specific purposes	Unknown	Unknown
User fees for water, sewer, gas or electric service	Unknown	Unknown

Financial Resources	Used for past projects? If yes, which ones?	Limitations on future use?
Impact Fees for homebuyers or developers of new development/homes	Unknown	Unknown
Incur debt through general obligation bonds	Unknown	Unknown
Incur debt through special tax bonds	Unknown	Unknown
Incur debt through private activity bonds	Unknown	Unknown
Withhold public expenditures in hazard-prone areas	Unknown	Unknown
State mitigation grant programs (e.g. NYSOEM, NYSDEC, NYSDOS)	Unknown	Unknown
Catskill Watershed Corporation grant programs	Unknown	Unknown
Delaware County Stream Corridor Management Program (Stream Management Implementation Grants etc.)	Unknown	Unknown
Federal (ACOE, NRCS, etc.)	Unknown	Unknown

E.4) Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	4 Residential, 4 Commercial	12/28/10
Public Protection	Unavailable	Unavailable
Storm Ready	County	TBD
Firewise	NP	N/A

N/A = Not applicable. NP = Not participating. - = Unavailable. TBD=To be determined.

The classifications listed above relate to the community's effectiveness in providing services that may impact its vulnerability to the natural hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual:
<http://www.fema.gov/library/viewRecord.do?id=2434>
- The Building Code Effectiveness Grading Schedule:
<http://www.isomitigation.com/bcegs/0000/bcegs0001.html>
- The ISO Mitigation online ISO's Public Protection website:
<http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website:
<http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website:

<http://firewise.org/>

F.1) COMPLETED HAZARD MITIGATION ACTIVITIES/EFFORTS

According to the Town of Delhi, the following have been identified as mitigation projects/activities that have been completed:

Prevention:

- Developed a Highway Management Plan; completed 2010
- Adopted West Branch Delaware River Stream Corridor Management Plan (2009)
 - The Town has adopted the West Branch Delaware River Stream Corridor Management Plan and appointed representatives to the Stream Corridor Management Program's Project Advisory Committee (PAC).
- Adopted a Flood Damage Prevention Ordinance and Delaware County FIS/FIRM updated under the MapMod program. FIS/FIRM effective 6/2012.

Natural Resources Protection:

- Riparian buffer planting along Middlemist Road (tributary of Platner Brook); 2009
- Riparian buffer planting along Steele Brook, Kolojziej (in Village); 2010
- Bank stabilization project on Elk Creek Road (2.4 miles up from NYS Route 10)

Property Protection:

- Shoulders and ditches repaired on various town roads (regular maintenance)
 - Peakes Brook Road
 - Others
- Channel walls repaired along Steel Brook (in Village, adjacent to Town Hall)
- Fraser-Treadwell (CR-56)/Platner Brook East bridge – reinforced concrete deck; 2006
- Delhi Stamford (CR-18)/small stream from southeast bridge – replaced steel culvert; 2008
- West Platner Brook Road/West Platner Brook – replaced 2 culvert pipes with bridges; 2009
- Fraser-Treadwell (CR-16)/Platner Brook East bridge – replaced pipe; 2008
- Replaced the following undersized steel culverts with larger poly culverts:
 - Arbor Hill
 - Scotch Hill
 - Peakes Brook
 - Platner Brook
 - Bramley Mountain
 - Back River Road

Education and Outreach:

- Town Staff:
 - Highway Department

- 2 staff members completed Post-Flood Emergency Stream Intervention training through DelCo Stream Corridor Management Program
 - Code Enforcement
 - Completed NFIP Basics training 2/12
- Public
 - Town-wide mailing to owners of property within the 1% annual chance (100-year) floodplain according to 8/2009 Preliminary DFIRM. Address list was generated based on parcel boundaries, not building footprints. Mailing advised property owners of the flood hazard and the availability of flood insurance.
 - 8/2009 Preliminary DFIRM data made available on Delaware County Online Community Information and Mapping Tool. This allows property owners to search for their property by tax parcel number, name or address, and view the flood hazard in relation to their property.

F.2) HAZARD VULNERABILITIES IDENTIFIED

According to the Town of Delhi, the following have been identified as hazard problems and problem areas in the community:

- Areas of frequent flooding:
 - 4-H Camp Shankitunk – Arbor Hill Road
 - Flooding in roadway from Sherwood’s bridge area to golf course
 - Blocks access to Daycare Center
 - Portions of County Route 18
 - Hoags Cross Road
 - Low area between road and West Branch allows water onto road
 - Route 10 and Peakes Brook Road
 - Bridge is undersized and frequently plugged by debris
 - Cuts off access to Hamden Hill electric substation
 - Route 10 and Platner Brook Road
 - Bridge is undersized and frequently plugged by debris
 - Cuts off access to Hamden Hill electric substation
 - West Platner Brook Road
 - Stream runs parallel with road and regularly washes out shoulders
 - Holmes Crossing
- Platner Brook erosion issues
 - Large failing bank along the right bank roughly 400 feet upstream from the Rt 10 bridge. This feature is upstream from the Ultra Dairy facility and is a potential threat to their assets at that location
- Elks Creek Road erosion issues:
 - Steep bank along edge of road
 - Requires constant maintenance
- Beaver activity issues:
 - West Platner Brook

- 10-12 acre impoundment
- Water level currently at edge of road
- Threatens houses and adjacent road
- Scotch Mountain
 - Could impact DelCo Route 2 if dam is breached
- Glen Burnie
 - Potential for downstream damage if dam is breached

F.3) PROPOSED HAZARD MITIGATION INITIATIVES

Note some of the identified mitigation initiatives in Table F are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
Natural Resource Management										
1	Use a watershed approach to prevent damage to infrastructure/property from excessive erosion and debris/gravel deposition in streams									
	<ul style="list-style-type: none"> Assess streams to locate bank failures and other sources of debris/gravel, and areas of excessive debris/gravel deposition Prioritize areas for intervention based on threat to infrastructure and property Remediate priority areas as funding becomes available Specifically address the following streams and problem areas (identified as 1.1-1.9 below): 									
1.1	Platner Brook: Address stream instability in the vicinity of Ultra Dairy facility									
	<ul style="list-style-type: none"> Short term: Install toe protection for large failing bank along the right bank upstream from the NYS Rte. 10 Bridge. Long term: Restore/create floodplains in that corridor for storage of flood waters and debris. <ul style="list-style-type: none"> A new flood plain can be created upstream and adjacent to the existing bridge. This new flood plain would be on the right bank further away from the industrial facilities. Work with NYSDOT to span that flood plain and increase the capacity of the NYS Rte. 10 Bridge when it is replaced. 									
		Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High
1.2	West Branch Delaware near Hoag's Cross Road	Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	Medium-High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High
1.3	West Branch Delaware: excessive gravel/debris deposition upstream of Sherwoods Bridge	Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	Medium-High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
1.4	West Branch Delaware: Excessive gravel/debris deposition above Legion field	Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	Medium-High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High
1.5	West Branch Delaware: Excessive gravel/debris deposition below Arbor Hill (near Anderson residence)	Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	Medium-High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High
1.6	West Branch Delaware: Bank erosion along DelCo 18 near Delside Acres	Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	Medium-High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High
1.8	Peakes Brook: areas of eroding banks and excessive gravel./debris deposition	Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	Medium-High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High
1.9	Elk Creek: areas of eroding banks and excessive gravel/debris deposition.	Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9	Town of Delhi with support from SCMP, DCDPW	High	Medium-High	Municipal budget, SCMP, FEMA HMA	Ongoing DOF	High
2	Address dangerous trees threatening people and property through proactive tree-trimming (vegetation management) programs in conjunction with property owners and utility companies.	NA	Severe Storm, Severe Winter Storm	1-1	Town of Delhi Highway Department with support from DCDPW, NYSEG	Medium	Low/Medium	Operating Budget	Short	High

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
Structure/Infrastructure protection										
3	Retrofit structures located in hazard-prone areas to protect structures from future damage: <ul style="list-style-type: none"> • Repetitive loss and severe repetitive loss properties as priority. • Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation. • Phase 2: Where retrofitting is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability. 									
			Existing	Flood, Severe Storm, Earthquake	1-1 1-2 1-3 1-5 1-6 2-1 2-2 3-2	Town of Delhi with support from DCPD, DCDPW, NYSOEM, FEMA	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Long-term DOF



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
4	Acquire and demolish or relocate structures located in hazard-prone areas to protect structures from future damage:									
	<ul style="list-style-type: none"> • Repetitive loss and severe repetitive loss properties as priority. • Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting. • Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability. • Phase 3: Where relocation will not be cost-beneficial but acquisition/demolition is a possibility, work with property owners toward implementation of that action based on available funding from FEMA and local match availability. Work with the owners of acquired properties to find appropriate housing within the community, if they desire. 									
		Existing	Flood, Severe Storm	1-1 1-2 1-5 1-6 1-9 2-1 2-2 3-2	Town of Delhi with support from DCPD, DCDPW, NYSOEM, FEMA	High	High	FEMA Mitigation Grant Programs, ICC, CDBG, other grant funding	Long-term DOF	Medium-High*
Prevention and planning										
5	Flood Risk Mapping and Analysis in the Delaware basins through the RiskMAP program									
	This ongoing initiative is a collaborative effort between NYCDEP, NYSDEC, FEMA and NYC West-of Hudson Watershed municipalities. It will produce updated Flood Insurance Studies/Flood Insurance Rate Maps for reaches of the following streams: East Platner Brook, West Platner Brook, Platner Brook, Little Delaware River, Peakes Brook, Steele Brook, Glen Burnie, Toll Gate Brook, West Branch mainstem, Elk Creek, Falls Creek.									
		New & Existing	Flood, Severe Storm	1-1 1-3 1-6 1-9 2-1 2-2 2-3 3-1	NYCDEP, NYSDEC, FEMA with support from W. of Hudson Flood Mapping Steering Committee	Medium	Medium	NYCDEP	Ongoing	High

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
<i>National Flood Insurance Program Participation</i>										
6	Maintain compliance with and good-standing in the NFIP including: <ul style="list-style-type: none"> Adoption and enforcement of floodplain management requirements <ul style="list-style-type: none"> regulating all new and substantially improved construction in Special Hazard Flood Areas Floodplain identification and mapping, Flood insurance outreach to the community. Further, continue to meet and/or exceed the minimum NFIP standards and criteria through the following NFIP-related continued compliance actions identified as Initiative 10 (below). 									
			New & Existing	Flood, Severe Storms	1-1 1-2 1-4 1-5 1-6 1-7 2-1 2-2 3-2 4-2	Village of Delhi with support from DCPD, SCMP, NYSDEC, NYSOEM, FEMA	High	Low - Medium	Local Budget	Ongoing
7	Archive elevation certificates	NA	Flood, Severe Storm	1-1 1-4 1-5 2-2 4-1	NFIP Floodplain Administrator	Low	Low	Local Budget	On-going	High

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
Education and Outreach										
8	<p>Training for municipal officials, staff and first responders:</p> <ul style="list-style-type: none"> • Work with existing federal, state and county programs to bring appropriate training to municipalities and first responders, including but not limited to: <ul style="list-style-type: none"> ○ NFIP floodplain development requirements and compliance ○ Disaster response: <ul style="list-style-type: none"> ▪ Implementation of local emergency response procedures ▪ DelCo Comprehensive Emergency Management Plan/National Incident Management System ○ Post-Disaster Code Enforcement and damage assessments ○ Stream and floodplain function as it relates to flood damage prevention ○ Mitigation project development and administration ○ Public Assistance claims administration ○ New York Alert 									
		NA	All Hazards	1-4 1-9 2-1 2-2 2-3 3-1 4-1 4-2	Town of Delhi with support from DCDES, SCMP, DCPD, NYSDEC, NYSOEM, FEMA	Low - Medium	Low - Medium	County programs; Municipal Budget; HMA programs with local or county match	Short	High

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
9	Public education and outreach: <ul style="list-style-type: none"> Work with existing federal, state and county programs to bring appropriate public outreach to Town residents, especially those most vulnerable to natural disasters. Topics will include but not be limited to: <ul style="list-style-type: none"> Disaster preparedness Hazard mitigation Stream management for riparian landowners 									
		NA	All Hazards	1-2 1-7 1-9 2-1 2-2 2-3 3-1 3-2 4-4	Town of Delhi with support from DCDES, SCMP, DCPD, NYSDEC, NYSOEM, FEMA	Low - Medium	Low - Medium	County programs; Municipal Budget; HMA programs with local or county match	Short	High
Emergency Services										
10	Create/enhance/maintain mutual aid agreements with neighboring communities for continuity of operations.	New & Existing	All Hazards	3-1 4-2	Municipality with support from Surrounding municipalities and County	Low	Low	Local Budget	Ongoing	High
11	Identify and develop agreements with entities that can provide support with FEMA/SOEM paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/SOEM paperwork compilation, submissions, record-keeping	NA	All Hazards	1-4 1-5 2-2 2-3 3-1 4-1 4-3	Municipality with support from County, NYSOEM, FEMA	Medium	Medium	Local budget	Short	Medium



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
AHMP Implementation and Maintenance										
12	<p>Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0.</p> <ul style="list-style-type: none"> • Specifically, report the following information to the Delaware County Hazard Mitigation Coordinator on a regular basis: <ul style="list-style-type: none"> ○ Losses from disasters ○ Progress on mitigation initiatives ○ Changes in hazard vulnerabilities • To ensure a thorough reporting of the above, the Town will coordinate with: <ul style="list-style-type: none"> ○ Municipal departments ○ First Responders operating in the Town ○ Other organizations and agencies as appropriate 									
			New & Existing	All Hazards	All	Town of Delhi (via mitigation planning point of contacts) with support from Planning Partners (through their Points of Contact), NYSOEM	High	Low – High (for 5-year update)	Local Budget, possibly FEMA Mitigation Grant Funding for 5-year update	Ongoing

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals and Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
13	<p>Participate in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts.</p> <ul style="list-style-type: none"> Such programs may include developing a detailed inventory of critical facilities based upon FEMA’s Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including: <ul style="list-style-type: none"> Support the performance of enhanced risk and vulnerability assessments for hazards of concern. Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use. <p>Improved structural and facility inventories could incorporate flood, wind and seismic-specific parameters (e.g. first floor elevations, roof types, structure types based on FEMA-154 “Rapid Visual Screening of Buildings for Potential Seismic Hazards” methodologies). It is recognized that these programs will need to be initiated and supported at the County and/or State level, and will require training, tools and funding provided at the county, state and/or federal level.</p>									
		Existing	All Hazards	1-1 1-3 1-5 1-6 1-8 2-3 3-1 4-1	HMP Coordinator	Medium-High	Medium-High	Mitigation grant programs (PDM or HMGP) with local match	Longterm DOF	Medium

Notes:

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (NA) is inserted if this does not apply.

Costs:

Where actual project costs have been reasonably estimated:

- Low = < \$10,000
- Medium = \$10,000 to \$100,000
- High = > \$100,000

Where actual project costs cannot reasonably be established at this time:

- Low = Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
- Medium = Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- High = Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:



Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

Low = < \$10,000

Medium = \$10,000 to \$100,000

High = > \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low = Long term benefits of the project are difficult to quantify in the short term.

Medium = Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.

High = Project will have an immediate impact on the reduction of risk exposure to life and property.

Potential FEMA HMA Funding Sources:

PDM = Pre-Disaster Mitigation Grant Program

FMA = Flood Mitigation Assistance Grant Program

RFC = Repetitive Flood Claims Grant Program

SRL = Severe Repetitive Loss Grant Program

HMGP = Hazard Mitigation Grant Program

Timeline:

Short = 1 to 5 years. Long Term = 5 years or greater. OG = On-going program.

DOF = Depending on funding.

G.) ANALYSIS OF MITIGATION ACTIONS

This table summarizes the participant's mitigation actions by hazard of concern and the six mitigation types to illustrate that the municipality has selected a comprehensive range of actions/projects.

Hazard of Concern	Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	8, 12, 13	9, 12, 13	8, 9, 12	9, 12	8, 10, 11, 12, 13	12
Earthquake	8, 12, 13	9, 12, 13	8, 9, 12	9, 12	8, 10, 11, 12, 13	12
Flooding	5, 6, 7, 8, 12, 13	3, 4, 6, 9, 12, 13	3, 4, 6, 8, 9, 12	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2, 4, 9, 12	8, 10, 11, 12, 13	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 12
Infestation	8, 12, 13	9, 12, 13	8, 9, 12	9, 12	8, 10, 11, 12, 13	12
Landslide	8, 12, 13	9, 12, 13	8, 9, 12	9, 12	8, 10, 11, 12, 13	12
Severe Storm	5, 6, 7, 8, 12, 13	3, 4, 6, 9, 12, 13	3, 4, 6, 8, 9, 12	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2, 4, 9, 12	8, 10, 11, 12, 13	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 12
Severe Winter Storm	8, 12, 13	9, 12, 13	8, 9, 12	9, 12	8, 10, 11, 12, 13	12
Wildfire	8, 12, 13	9, 12, 13	8, 9, 12	9, 12	8, 10, 11, 12, 13	12

Notes:

- 1. Prevention:** Government, administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- 2. Property Protection:** Actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- 3. Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.



4. **Natural Resource Protection:** Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. **Emergency Services:** Actions that protect people and property, during and immediately following, a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.

H.) PRIORITIZATION OF MITIGATION INITIATIVES

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits equal or exceed Costs? (Yes or No)	Is project Grant eligible? (Yes or No)	Can Project be funded under existing programs/budgets? (Yes or No)	Priority (High, Med., Low)
1.1	4	H	H	Y	Y	N	H
1.2	4	H	H	Y	Y	N	H
1.3	4	H	H	Y	Y	N	H
1.4	4	H	H	Y	Y	N	H
1.5	4	H	H	Y	Y	N	H
1.6	4	H	H	Y	Y	N	H
1.7	4	H	H	Y	Y	N	H
1.8	4	H	H	Y	Y	N	H
2	1	M	L	Y	N	Y	H
3	8	H	H	Y	Y	N	M
4	8	H	H	Y	Y	N	M
5	8	M	M	Y	N	Y	H
6	10	H	L	Y	N	Y	H
7	8	L	L	Y	N	Y	H
8	8	L	L	Y	Y	N	H
9	9	L	L	Y	Y	N	H
10	2	L	L	Y	N	Y	H
11	7	M	M	Y	N	Y	M
12	ALL	H	H	Y	Y	N	H
13	8	M	M	Y	Y	N	M

Notes: H = High. L = Low. M = Medium. N = No. N/A = Not applicable. Y = Yes.

*This initiative has a Medium priority based on the prioritization scheme used in this planning process (implementation based on grant funding), however it is recognized that addressing repetitive and severe repetitive loss properties is considered a high priority by FEMA and SOEM (as expressed in the State HMP), and thus shall be considered a High priority for all participants in the planning process.

Explanation of Priorities

- **High Priority** - A project that meets multiple objectives (i.e., multiple hazards), benefits exceeds cost, has funding secured or is an on-going project and project meets eligibility requirements for the Hazard Mitigation Grant Program (HMGP) or Pre-Disaster Mitigation Grant Program (PDM) programs. High priority projects can be completed in the short term (1 to 5 years).
- **Medium Priority** - A project that meets goals and objectives, benefits exceeds costs, funding has not been secured but project is grant eligible under, HMGP, PDM or other grant programs. Project can be completed in the short term, once funding is completed. Medium priority projects will become high priority projects once funding is secured.
- **Low Priority** - Any project that will mitigate the risk of a hazard, benefits do not exceed the costs or are difficult to quantify, funding has not been secured and project is not eligible for HMGP or PDM grant funding, and time line for completion is considered long term (1 to 10 years). Low priority projects may be eligible other sources of grant funding from other programs. A low priority project could become a high priority project once funding is secured as long as it could be completed in the short term.

Prioritization of initiatives was based on above definitions: Yes

Prioritization of initiatives was based on parameters other than stated above: Not applicable.

I.) FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

A more detailed flood loss analysis could be conducted on a structural level (versus the Census block analysis conducted for the HMP). The location of each building, details regarding the building (see additional data needed below) and the assessed or fair market value could be included in HAZUS-MH. The FEMA DFIRM boundaries, FEMA Flood Insurance Study detailed studies, base flood elevations and available Light Detection and Ranging (LiDAR) data or digital elevation models (DEM) could be used to generate a more accurate flood depth grid and then integrated into the HAZUS model. The flood depth-damage functions could be updated using the U.S. Army Corps of Engineer damage functions for residential building stock to better correlate HAZUS-MH results with FEMA benefit-cost analysis models. HAZUS-MH would then estimate more accurate potential losses per structure.

Additional data needed to perform the analysis described above:

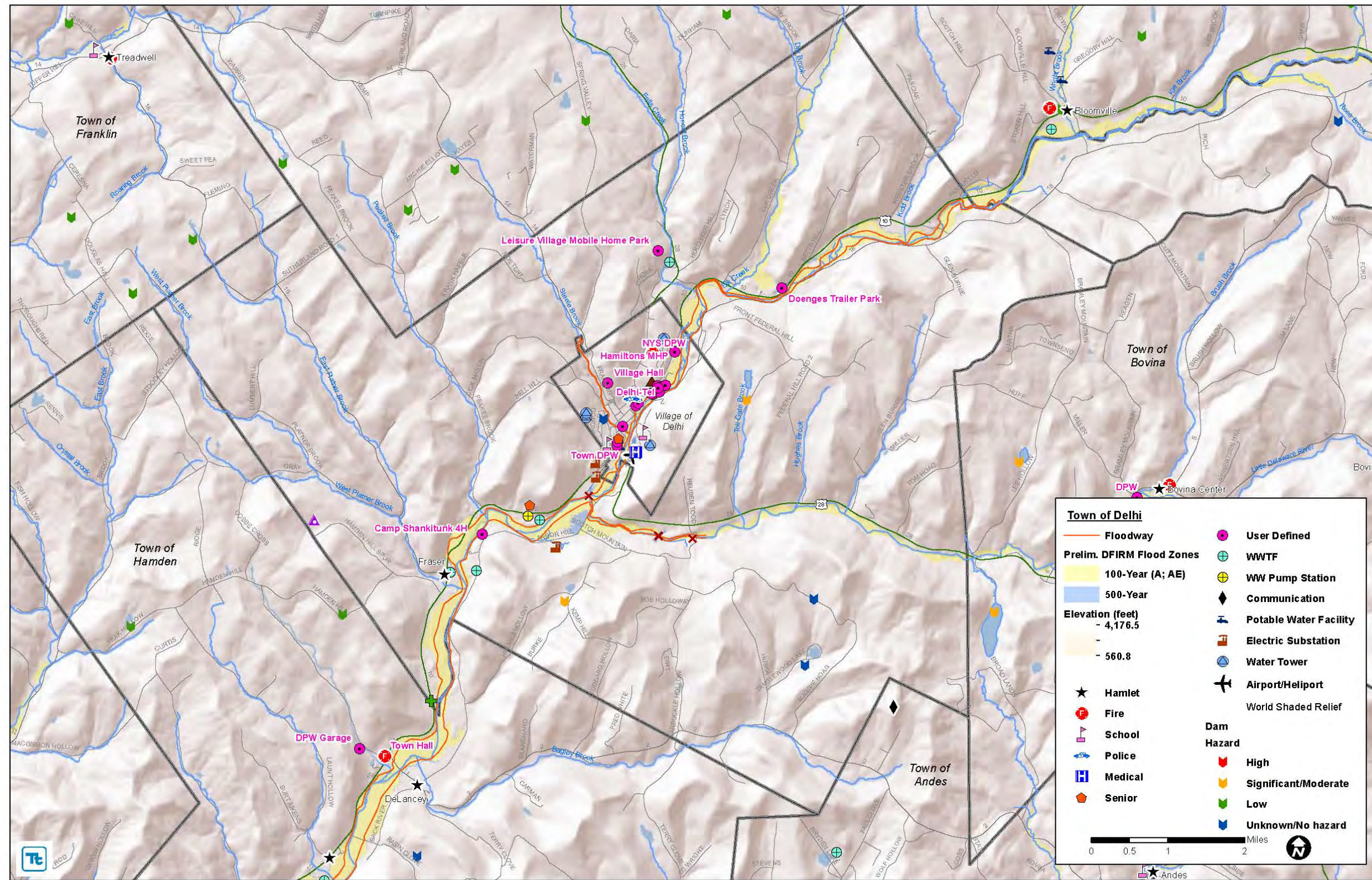
1. Building footprint in GIS
2. Specific building information – first-floor elevation (elevation certificates), number of stories, foundation type, basement, square footage, occupancy type, year built, type of construction etc.
3. Assessed or fair market value of structure

J.) HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated and are provided below for the Town of Delhi to illustrate the probable areas impacted within the Town of Delhi. These maps are based on the best available data at the time of the preparation of this Plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Delhi has significant exposure. The Planning Area maps are provided in the hazard profiles within Section 5.4, Volume I of this Plan.



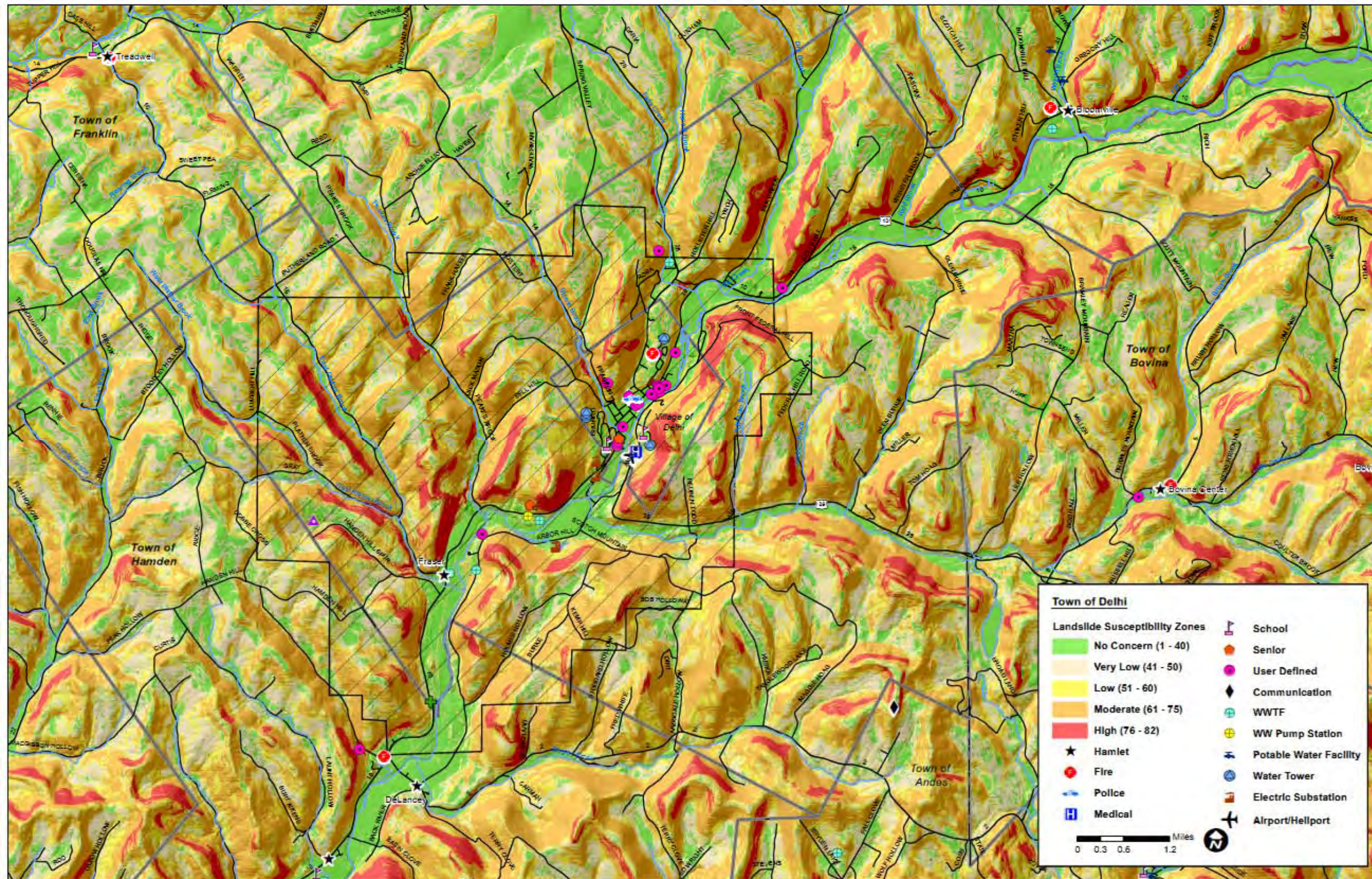
Figure 9.6-1 Town of Delhi Flood Hazard Area and Critical Facilities



Sources: FEMA, 2011

Notes: The entire municipality is vulnerable to the following hazards: drought, earthquake, extreme temperature, infestation, severe storm, and severe winter storm. Please note preliminary DFIRMs were used to generate this figure and are not considered regulatory at this time.

Figure 9.6-2. Town of Delhi Wildland-Urban Interface and Landslide Hazard Areas



Sources: GeoMAC, 2012; Tetra Tech, 2012; Delaware County, 2011