



## 9.4 Village of Cold Spring

This section presents the jurisdictional annex for the Village of Cold Spring.

### 9.4.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Ralph Falloon, Mayor 85 Main Street, Cold Spring, NY (914) 490-2739 <a href="mailto:mayor@coldspringny.gov">mayor@coldspringny.gov</a>	Name, Title: Address: Phone: Email:

### 9.4.2 Municipal Profile

This section provides a summary of the community.

#### Population

According to the 2010 U.S. Census, the population of the Village of Cold Spring was 2,013.

#### Location

The Village is located in western Putnam County, along the Hudson River, surrounded by the Town of Philipstown to the north and south, and the Village of Nelsonville to the east. It has a total area of 0.60 square miles, of which 0.59 square miles is land and 0.01 square miles is water.

#### Brief History

As early as the 1600s, the Hudson River was used as a major watercourse by Native Americans and continued to be a main mode of travel and transport until the nineteenth century. In addition, Cold Spring's proximity to what is now Fahnestock State Park provided a cheap source of lumber and iron ore. Margaret's Brook, a small creek located to the west of Route 9D which runs into the Hudson River, supplied hydro-power to the West Point Foundry, which helped propel Cold Spring from a tiny hamlet into a bustling village. Even the name of Cold Spring is linked to a natural resource. Myth has it that George Washington drank from a local spring and declared it to be refreshingly cold.

The first settler of Cold Spring was Thomas Davenport in 1730. A small trading hamlet grew alongside the river by the early 1800s, and in 1818, Gouverneur Kemble and others established the West Point Foundry. It became one of the major industrial sites in the United States and provided munitions (including the famed Parrott gun) for the Union Army during the Civil War. With the influx of workers at the Foundry, local housing, businesses and churches increased, and Cold Spring was incorporated as a village in 1846. During the last half of the nineteenth century, Cold Spring was a magnet for artists, writers and prominent families, all attracted to the extraordinary beauty of the Highlands. Great mansions were built along Morris Avenue, including Undercliff, the home of George Pope Morris, and Craigside, the home of Julia and Daniel Butterfield. After the Foundry closed in 1911, Cold Spring's prominence faded; however, following World II, a rebirth began with an influx of businesses into the Hudson River Valley and commuters to New York City. In 1973, the Village was designated a Federal Historic District, and tourists have been visiting Cold Spring's historic sites, shops, restaurants and hiking trails ever since.

Through the changing times since 1973, the Village of Cold Spring has been unique among the Hudson River communities in retaining its fundamental character. This is largely due to the steadfast loyalty of Cold Spring



residents and their ingenuity in adapting to the needs of the present while carefully preserving their heritage and way of life.

### **Governing Body Format**

The Mayor and four Trustees form the main governing body that is the Village Board. These officials are elected to their part-time positions for a two year term and are responsible for balancing the Village budget, enacting local laws and adopting municipal policies. Additionally, the Mayor and the Board of Trustees are responsible for appointing members to the Village Planning Board, Zoning Board of Appeals, Historic District Review Board, Recreation Board and any special advisory boards. Elections for the Mayor and Board of Trustees are held in March for terms that have expired.

### **Growth/Development Trends**

The following table summarizes major development that occurred in the municipality over the past five years, as well as known or anticipated future development in the next five (5) years. Refer to the map in section 9.4.8 of this annex which illustrates the hazard areas along with the location of potential new development.

**Table 9.4-1. Growth and Development**

Property Name	Type (Residential or Commercial)	Number of Structures	Parcel ID(s)	Known Hazard Zone*	Description / Status
Butterfield Redevelopment	Mixed Use	Redevelopment of site incl. 15,000 sq. ft. office/retail building, 55 market-rate condo-units (senior housing) with 1 superintendent unit, and construction of resident community center. Lahey Pavillion, 11,500 sq. ft. building, to continue use as medical	NYS Rt. 9D and Paulding Ave. 49.5-3-45	Wildfire: Interface; Landslide: High	Pending Approval, Under Review

\* Only location-specific hazard zones or vulnerabilities identified.

Source: June 2014 “Large Development Projects Report”, Putnam County Department of Planning, Development and Transportation; as amended by municipality

### **9.4.3 Natural Hazard Event History Specific to the Municipality**

Putnam County has a history of natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. The table below presents a summary of natural events that have occurred to indicate the range and impact of natural hazard events in the community. Information regarding specific damages is included if available based on reference material or local sources. For details of events prior to 2008, refer to Volume I, Section 5.0 of this plan.

**Table 9.4-2. Hazard Event History**

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
August 1990	Flooding	N/A	N/A	Putnam and Westchester Counties had \$5 M in property damage
September 16- 18, 1999	Hurricane Floyd Major Disaster Declarations	DR-1296	Yes	\$1.9 M in property damage Countywide
November 2001 – January 2002	Drought	N/A	N/A	NYC's combined storage in water system reservoir systems was at a low 41% capacity
April - October 2002	Drought	N/A	N/A	Groundwater and water storage facilities were below normal. NYC reservoir system reached a



## Section 9.4: Village of Cold Spring

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
				low of 64.5%.
September 30, 2010	Strong Wind	N/A	N/A	Strong winds downed power lines and trees; power outages; approximately \$50 K in property damage
August 26 – September 5, 2011	Hurricane Irene	DR-4020	Yes	Some flooding in basements and first floors.
October 27 – November 8, 2012	Hurricane Sandy	DR-4085	Yes	Storm surge flooding along Hudson waterfront – mostly basement but some into first floor. Wide-spread power outages.

Notes:

EM Emergency Declaration (FEMA)

FEMA Federal Emergency Management Agency

DR Major Disaster Declaration (FEMA)

IA Individual Assistance

N/A Not applicable

PA Public Assistance



### 9.4.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Village of Cold Spring. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

#### Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for Village of Cold Spring.

**Table 9.4-3. Hazard Risk/Vulnerability Risk Ranking**

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, b, e</sup>	Probability of Occurrence <sup>c</sup>	Risk Ranking Score (Probability x Impact)	Hazard Ranking
Earthquake	100-Year GBS: \$0 500-Year GBS: \$175,544 2,500-Year GBS: \$3,371,718	Occasional	12	Low
Extreme Temperature	Damage estimate not available	Frequent	30	Medium
Flood	1% Annual Chance: \$15,597,861	Frequent	18	Medium
Landslide	RCV Exposed: \$442,869,640	Frequent	54	High
Severe Storm	100-Year MRP: \$116,325 500-year MRP: \$963,114 Annualized: \$18,968	Frequent	48	High
Severe Winter Storm	1% GBS: \$2,694,931 5% GBS: \$13,474,656	Frequent	51	High
Wildfire	Estimated Value in the WUI: \$438,421,860	Frequent	42	High

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)

b. The valuation of general building stock and loss estimates was based on the custom inventory developed for Putnam County and probabilistic modeling results and exposure analysis as discussed in Section 5.

c. The earthquake and hurricane wind hazards were evaluated by Census tract. The Census tracts do not exactly align with municipal boundaries; therefore, a total is reported for each Town inclusive of the Villages within the Town boundary.

d. Frequent = Hazard event is likely to occur within 25 years.

Occasional = Hazard event is likely to occur within 100 years

Rare = Hazard event is not likely to occur within 100 years

e. The estimated potential losses for Severe Storm are from the HAZUS-MH probabilistic hurricane wind model results. See footnote c.

GBS = General building stock

MRP = Mean return period

RCV = Replacement cost value

#### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the municipality.

**Table 9.4-4. NFIP Summary**

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Village of Cold Spring	17	23	\$1,904,171.94	5	0	10

Source: FEMA, 2014

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of February 28, 2014 and are summarized by Community Name. Please note the total number of repetitive loss



properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 2/28/2014.  
 Note (2) Total building and content losses from the claims file provided by FEMA Region 2.  
 Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

### Critical Facilities

The table below presents HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1- and 0.2-percent annual chance flood events.

**Table 9.4-5. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
Boathouse	Private Structure	X			
WEST POINT FOUNDRY DAM	Dam	X			
West Street Pump Station	Wastewater	X	X		

Source: HAZUS-MH 2.1

Note: Please note it is assumed the wells and pump stations have electrical equipment and openings are three-feet above grade. If depth of water is less than 3 feet, no estimated damages are calculated.

NP Not provided by HAZUS

x Facility located within the DFIRM boundary.

- No loss calculated by HAZUS

NA Not calculated in HAZUS

NF HAZUS estimate the facility will not be functional

(1) HAZUS-MH 2.1 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).

(2) In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type.

(3) Dams located in the floodplain are not listed in the table above. HAZUS does not calculate potential losses to a dam as a result of a flood event.

### Other Vulnerabilities Identified by Municipality

According to the 2013 FEMA Flood Insurance Study (FIS) for Putnam County, in the Village of Cold Spring, flooding is caused primarily by backwater effects of the Hudson River in the low-lying areas along the shore (FEMA FIS 2013).

In addition to those identified above, the municipality has identified the following vulnerabilities:

- West Street Pump Station – Vulnerable to loss of power
- Market Street Pump Station – Vulnerable to loss of power
- Properties along waterfront are vulnerable to storm surge flooding. Flooding during Irene and Sandy flooded basements and some first floors. All basements in the area are flood susceptible, and many have utilities and oil tanks in the basement. It was noted that both LPG tanks and oil tanks are vulnerable to flooding (floating, leaking) in the area.
- Dams in Philipstown are a real concern. The hazard of dam failure really the damage it would cause. They have a water supply backup plan with the NYSDEC, so loss of water is not their vulnerability. The Town of Philipstown at Fishkill Road and Foundry Pond Road would suffer the worst damages. The Village owns three dams which currently have some deficiencies, and a fourth (Jaycox Pond) which is not of a concern.
- Weather information, early warning



- Vulnerable overhead power lines, however it is noted that due to their location on the grid, the Village has power restored relatively quickly.
- Steep slopes are common in the area, however slopes are mostly rock ledge and they have had no issues to date



### 9.4.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

#### Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the municipality.

**Table 9.4-6. Planning and Regulatory Tools**

Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	Y	State, Local	Building Inspector	
Zoning Ordinance	Y	Local	Zoning Board of Appeals	Chapter 134
Subdivision Ordinance	Y	Local	Zoning Board of Appeals	Chapter 134
Site Plan Review Requirements	Y	Local	Zoning Board of Appeals	
National Flood Insurance Program (NFIP) Flood Damage Protection Ordinance	Y	Federal, State, Local	Historically supported through Town of Philipstown Building Inspector	Chapter 52
NFIP - Freeboard	Y	State, Local	See above.	Chapter 52 State mandated BFE+2 for single and two-family residential construction, BFE+1 for all other construction types.
NFIP - Cumulative Substantial Damages	N	Local		
Comprehensive Plan / Master Plan	Y	County, Local	Comprehensive Plan / LWRP Special Board; Village Board	December 2011, adopted January 2012
Capital Improvements Plan	N			
Stormwater Management Plan/Ordinance	Y			
Floodplain Management / Basin Plan	N			
Open Space or Greenway Plan				
Emergency Management and/or Response Plan				
Economic Development Plan				
Local Waterfront	Y	Local	Comprehensive	



Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Revitalization Plan (for waterfront communities)			Plan / LWRP Special Board; Planning Board; Zoning Board of Appeals	
Post Disaster Recovery Plan and/or Ordinance				
Growth Management				
Real Estate Disclosure req.				
Habitat Conservation Plan				
Special Purpose Ordinances (e.g. wetlands, critical or sensitive areas)				

(1) NYS Subdivision laws provide a general framework, but allow room for local ordinances and interpretation.

### Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Cold Spring.

**Table 9.4-7. Administrative and Technical Capabilities**

Staff/ Personnel Resources	Available (Y or N)	Department/ Agency/Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	The Village uses contract planners and engineers on a project-specific basis. Currently, the Village has a contracted water/wastewater engineer and a planner under contract.
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	
Planners or engineers with an understanding of natural hazards	Y	
NFIP Floodplain Administrator	Y	Historically assisted by Town of Philipstown Building Inspector
Surveyor(s)	N	
Personnel skilled or trained in “GIS” applications	N	
Scientist familiar with natural hazards in the County.	Y	See above.
Emergency Manager	Y	
Grant Writer(s)	N	
Staff with expertise or training in benefit/cost analysis	N	

### Fiscal Capability

The table below summarizes financial resources available to the Village of Cold Spring.

**Table 9.4-8. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG)	Accessible, not used to date
Capital Improvements Project Funding	Not formalized
Authority to Levy Taxes for specific purposes	Y
User fees for water, sewer, gas or electric service	Y
Impact Fees for homebuyers or developers of new development/homes	N
Incur debt through general obligation bonds	Y





Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Incur debt through special tax bonds	Have not used
Incur debt through private activity bonds	N
Withhold public expenditures in hazard-prone areas	N
Mitigation grant programs	Y, the Village will continue to pursue grant funding
Other	

### Community Classifications

The table below summarizes classifications for community program available to the Village of Cold Spring.

**Table 9.4-9. Community Classifications**

Program	Classification	Date Classified
Community Rating System (CRS)	NP	
Building Code Effectiveness Grading Schedule (BCEGS)	TBD	
Public Protection	TBD	
Storm Ready	NP	
Firewise	NP	

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

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the 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. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at <http://www.isomitigation.com/ppc/0000/ppc0001.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>
- The National Firewise Communities website at <http://firewise.org/>

### National Flood Insurance Program

#### NFIP Floodplain Administrator:

The Village Building Inspector is the NFIP Floodplain Administrator. The Village of Cold Spring is currently an active member of the NFIP, in good compliance. The Village's NFIP regulatory and enforcement programs meet at least the minimum Federal and State requirements.

As of July 31, 2014 there are 18 policies in force, insuring \$4.8 million of property with total annual insurance premiums of \$33,668. Since 1978, 23 claims have been paid totaling \$1.9 million. As of February 28, 2014 there 5 Repetitive Loss and no Severe Repetitive Loss properties in the Village.



In recent history, the Village has worked along with the Town of Philipstown building department and NFIP FPA to assist with meeting local building code and NFIP requirements. This arrangement is currently being re-evaluated by the Village. The Village will be updating their NFIP ordinance in accordance with the results of this evaluation.

The Village has site plan review, permitting and inspection process that insures that new development and substantial improvements are conducted in compliance with all regulations and ordinances, including consideration of natural hazard risk areas.

Due to their limited policy base and municipal resources, the Village does not believe that participation in the NFIP's Community Rating System (CRS) program would be cost-effective or practical at this time.

### **Integration of Hazard Mitigation into Existing and Future Planning Mechanisms**

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that have been/will be incorporated into municipal procedures which may include former mitigation initiatives that have become continuous/on-going programs and may be considered mitigation 'capabilities'.

- **NFIP Floodplain Management:** The Village has historically worked with the Town of Philipstown with building code inspections and enforcement, including NFIP issues. The Village is currently evaluating this arrangement, and will be updating their NFIP Flood Damage Prevention Ordinance accordingly.
- **NFIP Floodplain Management:** The Village has, and will continue to perform, outreach to their floodprone residents to support the implementation of appropriate mitigation projects, as identified in their proposed mitigation strategy.
- **Building Local Mitigation Capabilities:** The Village has included an initiative within the proposed mitigation strategy to support and participate in county-led initiatives intended to build local and regional mitigation and risk-reduction capabilities.
- **Land Use Regulation:** The Village is working towards the development of a steep slopes ordinance, per the Comprehensive Plan.
- **Capital Planning:** While the Village does not have a formal Capital Plan, capital expenditures have historically considered natural hazard risk reduction.
- **Stormwater and Stream Channel Maintenance:** The Village regularly cleans stormwater appurtenances and maintains stream channel flow through regular inspections along Back Brook.
- **Hazard Recognition, Early Warning / Public Education and Awareness:** Central Hudson has a weather station in Cold Spring, one of 24 they have in the region. The Village continues to support the ongoing operation of this station, and supports public awareness of hazards through the Putnam County Bureau of Emergency Services and the NYAlert program.
- **Climate Change and Sea Level Rise:** While considering, planning, engineering and undertaking projects along the Hudson River, the Village will review and incorporate the latest information on climate change and sea level rise projections. Current sea level rise and coastal flooding adaptation information is available from the following sources:



- NYSERDA's ClimAid report and 2014 updated sea level rise projections (<http://www.nyserda.ny.gov/Cleantech-and-Innovation/Environment/Environmental-Research-and-Development-Technical-Reports/Response-to-Climate-Change-in-New-York.aspx>)
- Scenic Hudson's sea level rise mapper (<http://www.scenichudson.org/slr/mapper>)
- FEMA's Coastal Construction Manual (<https://www.fema.gov/media-library/assets/documents/3293>)
- NYS DEC's Climate Smart Communities program (<http://www.dec.ny.gov/energy/50845.html>)
- NYS Community Risk and Resiliency Act (adopted Sep 2014) ([http://assembly.state.ny.us/leg/?default\\_fld=&bn=A06558&term=2013&Summary=Y&Actions=Y&Memo=Y&Text=Y](http://assembly.state.ny.us/leg/?default_fld=&bn=A06558&term=2013&Summary=Y&Actions=Y&Memo=Y&Text=Y))

### 9.4.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

#### Past Mitigation Activity

The municipality identifies the following mitigation projects and/or initiatives have been completed in the past:

- Elevation of restaurant/B&B in waterfront area
- Elevations of new development (Townhouse) in waterfront area
- Ongoing relocation and retrofit/elevation of waste water pump stations in waterfront area

#### Proposed Hazard Mitigation Initiatives for the Plan

The Village of Cold Spring identified mitigation initiatives they would like to pursue in the future. Some of these initiatives may be previous actions carried forward for this plan. These initiatives 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. Table 9.4-11 identifies the municipality's updated local mitigation strategy.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.4-12 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan.



Table 9.4-10. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals / Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
CSP-1	Relocation of West Street Pump Station: Relocate West Street Pump Station to higher ground. See Action Worksheet										
	See above	Existing	Flood, Severe Storm, Severe Winter Storm, Climate Change	G-2	Village of Cold Spring Clerk / Treasurer	High – Reduced vulnerability of critical infrastructure	\$109,589	HMGP, Village for local match	Short DOF	High	SIP
CSP-2	Market Street Pump Station Mitigation: Install backup power and elevate vulnerable electrical utilities – project currently in progress using a generator received from Sandy. Engineering is complete. See Action Worksheet										
	See above	Existing	Flood, Severe Storm, Severe Winter Storm, Climate Change	G-2	Village of Cold Spring Clerk / Treasurer	High – Reduced vulnerability of critical infrastructure	High	HMGP, Village for local match (currently funded)	In-progress	High	SIP
CSP-3	Waterfront Property Flood and Storm Surge Mitigation Location: Waterfront properties Problem Description: Properties along waterfront are vulnerable to storm surge flooding. Flooding during Irene and Sandy flooded basements and some first floors. All basements in the area are flood susceptible, and many have utilities and oil tanks in the basement. Mitigation Project: <ul style="list-style-type: none"> <li>• Install an electrical design disconnect to de-energize this area prior to inundation</li> <li>• Work with property owners to elevate utilities which are often in basements</li> <li>• Assure the ground level oil and LPG tanks are properly secured</li> <li>• Work with property owners to elevate or relocate basement oil tanks to at least ground level, and properly secure.</li> </ul>										
	See above	Existing	Flood, Severe Storm (storm surge), Severe Winter Storm (storm surge), Climate Change	G-1, G-2, G-5, G-6	Mayor	High – Life-Safety, property protection, environmental risks	Low - Medium	Local Budget for Village outreach and support; property owner for costs of project implementation	Short – Outreach is ongoing	High	EAP, SIP, NRP



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals / Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
CSP-4	Back Brook Stormwater and Flood Management Location: Back Brook Problem Description: Flooding along Back Brook which originates on the northeast border with Nelsonville and runs through town, partially underground. Mitigation Project: Flooding along Back Brook can be essentially eliminated if the drains on the NE end are cleaned and maintained. The Village may want to inspect the underground sections for blockages and damage. The Village has an ongoing program to maintain this area, including maintaining proper flow along Back Brook.										
	See above	Existing	Flood, Severe Storm, Climate Change	G-2, G-4	Mayor, as supported by water / waste water engineer	Reduced vulnerability of infrastructure, structures and properties to flood damage	Medium	Village Budget	Ongoing for continued maintenance; short term for inspections	Medium	SIP, LPR
CSP-5	Dam Upgrades Location: Dams located in Philipstown Problem Description: Dams in Philipstown are a real concern. The hazard of dam failure really the damage it would cause. They have a water supply backup plan with the NYSDEC, so loss of water is not their vulnerability. The Town of Philipstown at Fishkill Road and Foundry Pond Road would suffer the worst damages. The Village owns three dams which currently have some deficiencies, and a fourth (Jaycox Pond) which is not of a concern. Mitigation Project: They are working on getting dams into compliance. They have a temporary backup water connection to the aqueduct. Once they establish a permanent hookup (they are in the design phase, waiting for NYSDEC sign off on the engineering design). Once they get approval and complete the connection, they can lower the lakes and complete the repair work. They have done what they can (removal of trees, etc.). Currently the Village has completed agreements with NYS DEC and is going through the permitting process.										
	See above	Existing	Flood, Severe Storm, Earthquake, Climate Change	G-1, G-2, G-5, G-6	Mayor, as supported by water / waste water engineer; working with NYS DEC	High – Life Safety, protection of downstream structures from dam failure flooding	High	Village will bond for project	Ongoing (see above description)	High	SIP
CSP-6	Undergrounding Utilities Location: Village-wide, particularly in downtown area Problem Description: Vulnerable overhead power lines Mitigation Project: Evaluate feasibility and cost/benefits of undergrounding utilities when the Village does major subsurface work along roads and sidewalks (e.g. in downtown section).										
	See above	Existing	Severe Storm, Severe Winter Storm, Climate Change	G-1, G-2, G-5	Village Mayor, working along with electric utilities	Reduced vulnerability to power outages; potential life-safety	High for project implementation	Funding sources will be evaluated as feasible projects are encountered	Long term – as feasible projects and available funding occur	Medium	SIP
CSP-7	Promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as Repetitive Loss (RL), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost and willing participation of property owners. Specifically identified are properties in the following areas: <ul style="list-style-type: none"> <li>Main Street</li> </ul>										



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals / Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
	<ul style="list-style-type: none"> <li>West Street</li> <li>New Street</li> </ul>										
	See above.	Existing	Flood, Severe Storm, Climate Change	G-2, G-3	Village NFIP FPA; support from NYS DHSES and FEMA	High - Reduced or eliminated risk to property damage from flooding	High	FEMA or other mitigation grant funding, NFIP flood insurance and ICC; property owner for local match.	Long-term DOF	High	SIP, EAP
CSP-8	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities (see Section 9.1), specifically: <ul style="list-style-type: none"> <li>Re-Establish Local Emergency Planning Committees (LEPCs) within the County, with an emphasis on stronger municipal level participation. (PCBES-1).</li> <li>Workshops and Seminars to build local capabilities in floodplain management and disaster recovery (PCBES-11), potentially to include:               <ul style="list-style-type: none"> <li>NFIP Community Rating System (CRS)</li> <li>Benefit-Cost Analysis (BCA)</li> <li>Substantial Damage Estimating (SDE)</li> <li>NFIP Elevation Certificates (EC)</li> <li>Certified Floodplain Manager (CFM) Training and Certification</li> </ul> </li> </ul> County-Wide Housing Location/Relocation Planning Initiative for Disaster Displaced Residents and Structures (PCBES-12)										
	See above	New and Existing	All Hazards	All Objectives	Putnam County, as supported by relevant local department leads,	High (comprehensive improvements mitigation and risk-reduction capabilities)	Low-Medium (locally)	Local (staff resources)	Short	High	LPR, EAP

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

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

**Acronyms and Abbreviations:**

CAV	Community Assistance Visit
CRS	Community Rating System
DPW	Department of Public Works
FEMA	Federal Emergency Management Agency
FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYS DHSES	New York State Department of Homeland Security and Emergency Services
OEM	Office of Emergency Management



Potential FEMA HMA Funding Sources:

FMA	Flood Mitigation Assistance Grant Program
HMGP	Hazard Mitigation Grant Program
PDM	Pre-Disaster Mitigation Grant Program
RFC	Repetitive Flood Claims Grant Program
SRL	Severe Repetitive Loss Grant Program

Timeline:

Short	1 to 5 years
Long Term	5 years or greater
OG	On-going program
DOF	Depending on funding

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.

Mitigation Category:

- *Local Plans and Regulations (LPR)* – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- *Structure and Infrastructure Project (SIP)*- These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- *Natural Systems Protection (NSP)* – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- *Education and Awareness Programs (EAP)* – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

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.





Table 9.4-11. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
CSP-1	Relocation of West Street Pump Station	0	1	1	1	1	1	0	1	1	0	1	1	1	1	11	High
CSP-2	Market Street Pump Station Mitigation	0	1	1	1	1	1	1	1	1	0	1	1	1	1	11	High
CSP-3	Waterfront Property Flood and Storm Surge Mitigation	0	1	1	1	1	1	0	1	0	1	1	1	1	1	10	High
CSP-4	Back Brook Stormwater and Flood Management	0	1	1	1	1	1	1	-1 (potential permitting)	0	0 (permitting)	1	1	1	1	9	Medium
CSP-5	Dam Upgrades	1	1	0 (undetermined)	1	1	1	0 (project will be locally funded)	1	0	0	1	1	1	1	10	High
CSP-6	Undergrounding Utilities	1	1	0 (undetermined)	0 (will require coordination with utility owners)	1	0 (utility owned property)	0	0	1	0 (will require coordination with utility owners)	1	0	1	1	7	Medium
CSP-7	Address vulnerable private property, including RL/SRL	0	1	1	1	1	0	-1	1	0	-1	1	0	1	0	6	High*
CSP-8	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities	1	1	1	1	1	1	0 (will require municipality to support staff time)	1	1	0 (will require municipality to support staff time)	1	1	1	1	12	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.

\*Supports FEMA and NYS DHSES goals to address RL/SRL properties.





#### **9.4.7 Future Needs To Better Understand Risk/Vulnerability**

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None at this time.

#### **9.4.8 Hazard Area Extent and Location**

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Hazard area extent and location maps have been generated for the Village of Cold Spring that illustrate the probable areas impacted within the municipality. 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 Village of Cold Spring has significant exposure. These maps are illustrated below.

#### **9.4.9 Additional Comments**

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None at this time.



Figure 9.4-1. Village of Cold Spring Hazard Area Extent and Location Map

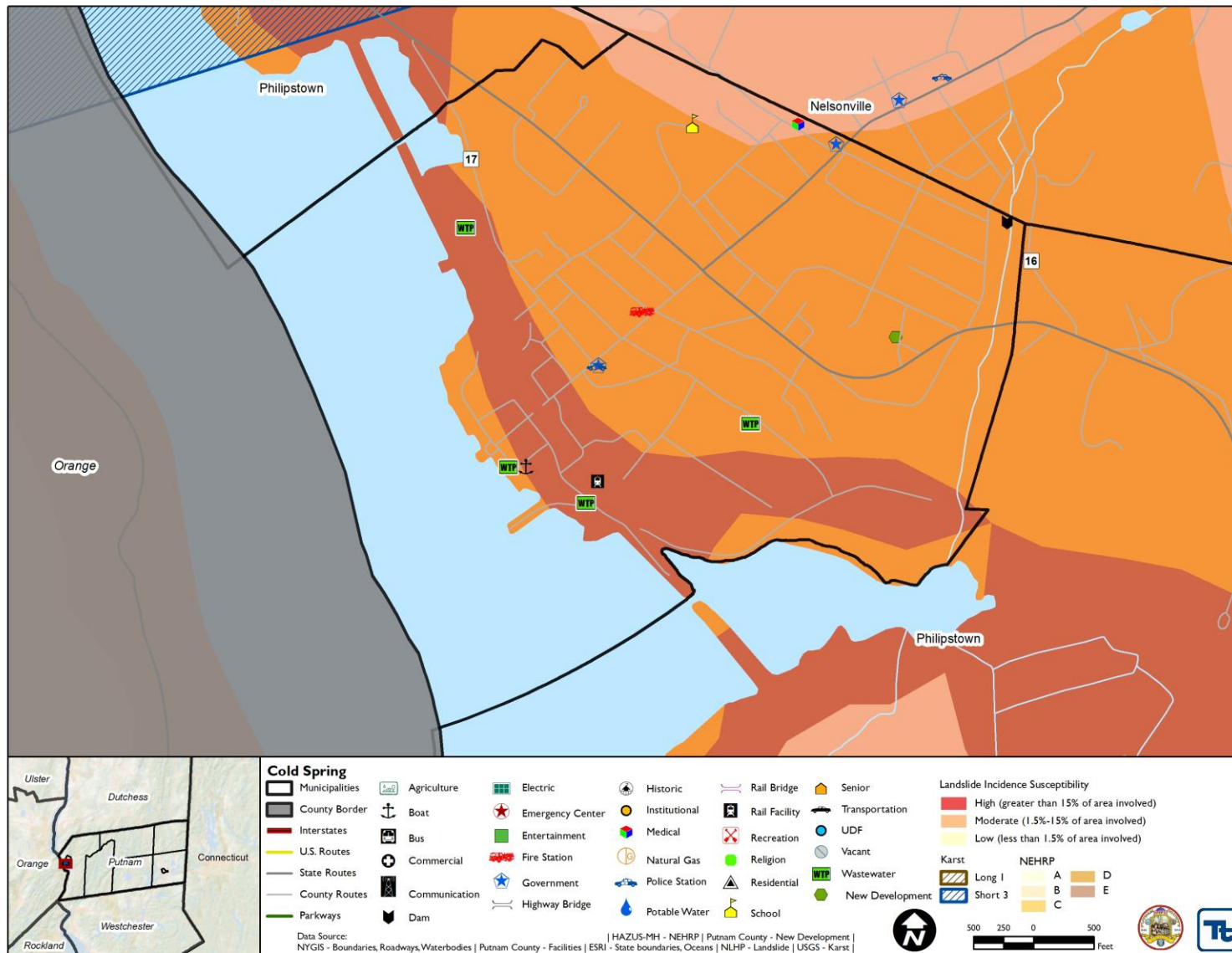




Figure 9.4-2. Village of Cold Spring Hazard Area Extent and Location Map

