

### III. Risk Assessment

#### A. Identifying and Prioritizing Hazards

For the purposes of this report hazards were evaluated and ranked based on a credible worst case event in order to support the preparation of materials that will be available for all situations. See Appendix B for the HAZNY evaluation factor descriptions and Appendix C for the HAZNY list of hazards.

##### 1. Hazard Scope and Impact Area

The hazard's scope or impact area changes depending on the hazard event. Certain events can be anticipated within a specific location or in multiple specific locations throughout the village, not necessarily simultaneously. Other hazards will impact the entire village and others have an impact area much larger, like the entire county, the tri-state area, or all Northeastern states. Hazards such as explosions, fires, power failure, and weather related incidents can occur in any part of the village in specific locations. Flooding events are geographically defined. Spills associated with hazardous materials in transit are most likely to occur in transportation corridors, but spills at fixed sites are more likely to occur at individual locations. The impact needs to be evaluated including the possibility that one hazard has the capability to trigger additional hazards.

##### 2. Frequency of Occurrence

Each hazard is classified in terms of its frequency of occurrence. History is a good indicator of future events and was reviewed in making the selection of hazards. Information regarding frequency was based upon best available historical hazard event data and recent development and changes in the environment and economy of the village.

Rare	occurs once every 50 years.
Infrequent	occurs between once every 8 to once every 50 years.
Regular	occurs between once a year and once every 7 years.
Frequent	occurs more than once a year.

##### 3. Warning

The amount of warning is very important because in some instances ample warning permits preparation and even prevention. In cases of no warning, response is dependent on prepared plans and procedures for response, rescue and recovery. In general natural hazards have some advance warning, while man-made hazards tend to occur with little or no warning.

##### 4. Length of Hazard Event and Recovery

Rating each hazard depended on the expected length of the hazard event and the amount of time it would take to recover from the hazard events. Most hazard events have a relatively short duration, but emergency operations can take days or weeks. For the purposes of this assessment, the hazard is considered stabilized when emergency operations return to normal.

## B. Hazard Profile

All hazards in the HAZNY report regarding the Village of Croton-on-Hudson were considered and included in the Table 2.

**Table 2 – Hazard Profile and Analysis Reference Table**

Hazard Profile and Analysis Reference Table						
Hazard	Scope/Impact Area	Frequency of Occurrence	Warning	Duration:		Comments
				Length of Event	Recovery Time	
<b>High Risk</b>						
Fire	Large Region	Frequent	None	1 day	1-2 days	Structural fires are common in the village. Major fires involving large areas are not common.
<b>Moderately High Risk</b>						
Dam Failure	Several Locations	Rare	Several Hours	4 days to 1 week	More than 2 weeks	Although the New Croton Dam is located outside the village and regulated by a state agency, its location on the Croton River, which forms the natural southern border of the village, puts the village at risk. A dam failure has not occurred in the last 50 years. The dam is an essential part of the NY City water supply and is considered a possible terrorist target.
Explosion (bomb threats)	Large Region	Frequent	None	Less than 1 day	Less than 1 day	
Explosion (detonation)	Several Locations	Rare	None	Less than 1 day	More than 2 weeks	
Flood	Throughout a Large Region	Frequent	Several Hours	1 day	More than 2 weeks	The Croton and Hudson River waterfronts are flood prone areas. The Croton Train station and DPW garage are within those areas. Flooding occurs during and after heavy rain and during unusually high tides.
Hazardous Materials (Fixed Site)	Several Locations	Frequent	None	1 day	More than 2 Weeks	

Hazardous Materials (in Transit)	Throughout a Large Region	Frequent	None	1 day	More than 2 days	Route 9/9A, Route 129, the Hudson River and the railroad carry hazardous materials. Primary impact area for spill events can range from 600 to 1800 square feet surrounding the scene depending on size and type of spill. The village has never experienced a major spill.
Oil/Gasoline Spill	Throughout a Large Region	Regular	None	1 day	1-2 weeks	The village has gas stations and other auto-related facilities that are prone to Oil/Gasoline Spills. There have been spills on area roadways and in commercial and residential districts.
Severe Storms	Throughout a Larger Region	Frequent	Several Hours	1 day	More than 2 weeks	Severe storms impact the region annually. In addition to regular power outages due to seasonal storms and Tropical Storm Floyd, the village recorded 4 major winter weather situations in the last 15 years.
Structural Collapse	Throughout a Large Region	Rare	None	Less than 1 Day	More than 1 week	Because of the steep slopes and numerous retaining walls, the village experiences structural collapse moderately often, usually as a result of excavation at a lower point on a hill side.
Terrorism	Throughout a Large Region	Rare	None	1 day	3 days to 1 week	The village has never been the known direct target of a terrorist act.
Transportation Accident	Throughout a Large Region	Frequent	None	Less than 1 day	1-2 days	Automobile accidents are common in the village.
Utility Failure	Throughout a Large Region	Frequent	None	2-3 days	1 week	Power failures affect the region regularly, typically as the result of a severe storm or elevated demand during summer months.
Water Supply Contamination	Several Locations	Infrequent	None	4 days to 1 week	1-2 weeks	The water supply system has multiple locations in the village that allow containment of contamination without stopping water service.
Winter Storm (Severe)	Throughout a Large Region	Frequent	Several Hours	Less than 1 day	3 days to 1 week	

Moderately Low Risk						
Air Contamination	Throughout a Large Region	Regular	1 Day	2-3 days	Less than 1 day	
Civil Unrest	Single Location	Infrequent	None	Less than 1 day	Less than 1 day	
Drought	Throughout a Large Region	Regular	More than 1 week	More than 1 week	More than 1 day	Drought occurs regularly in the village, especially during the summer months.
Earthquake	Throughout a Large Region	Rare	None	Less than 1 day	More than 2 weeks	According to the NYS Geological Survey, there have been 17 significant earthquakes in New York since 1737, five of which exceed magnitude of 5.
Epidemic	Throughout a Large Region	Rare	Several Days	More than 1 week	1-2 weeks	
Extreme Temps	Throughout a Large Region	Regular	Several Days	More than 1 week	3 days to 1 week	Extreme heat or cold occurs frequently in the village. Seniors and children are most susceptible to extreme temperatures.
Ice Storm	Throughout a Large Region	Regular	1 Day	2-3 days	1-2 weeks	
Landslide	Several Location	Infrequent	None	Less than 1 day	3 days to 1 week	Because of the steep slopes, numerous retaining walls, and naturally fine soil, the village is at a higher risk for landslides.
Radiological (Fixed Site)	Several Locations	Rare	Several Hours	Less than 1 week	More than 1 weeks	
Radiological (in transit)	Throughout a Large Region	Rare	None	1 day	More than 2 weeks	
Tornado	Throughout a Large Region	Regular	Several Hours	Less than 1 day	3 days to 1 week	Tornados are unlikely to occur within the Village itself, because of its steep and irregular terrain.
Low Risk						
Hurricane	Throughout a Large Region	Rare	Several Days	1 day	1-2 weeks	Hurricanes are considered a low risk although the village has experienced a non-major hurricane within the last 5 years.
Wildfire	Several Locations	Rare	Several Hours	2-3 days	1-2 days	Wildfire is very unlikely because of the nature of the open space in the village.

## C. Hazard Identification and Profiling

In the next section the hazards are divided by cause, natural or man-made, and then each is defined. The Hazard Mitigation Committee looked at the past history, probability of future occurrence and the impact area before determining if it was necessary to develop mitigation strategies immediately for the hazard.

### 1. Natural Hazards

#### a. Drought

Definition: A *drought* is an extended period when water availability falls below the statistical requirements for a region. Drought is not a purely physical phenomenon, but instead is an interplay between natural water availability and human demands for water supply.\*

Past Hazard Events: **According to the National Climatic Data Center, the region has experienced eleven episodes of moderate, severe or extreme droughts in the past twenty years.** Over the last ten years the area has experienced normal to drought conditions in the winter months and normal to extreme moisture in the summer months. Droughts are categorized as moderate, severe or extreme. The severity depends on the current percentage of capacity in the reservoir that feeds into the Croton River (where the aquifer is located), and the history and prediction of rainfall.

Probability of Future Events: A drought is a village wide event that occurs regularly, usually impacting the entire county at the same time. The greatest risk period of impact is during the hot and dry summer months. They can last up to a few months at a time and require weeks of steady rainfall for recovery. It is likely that droughts will affect the village again in the future. The area would have more than one week warning of onset, and it would last more than one week. Recovery requires as much as a week of steady rain.

Potential Areas Affected: Drought affects the entire village, county and surrounding area simultaneously. Drought would have no impact on the buildings, infrastructure or critical facilities in the village. It would not require evacuation. Emergency services may be required for assistance.

#### b. Extreme Temperatures

Definition: Extreme temperatures are extended periods of excessive cold or hot weather with a serious impact on human and/or animal populations particularly elderly and/or persons with respiratory ailments. A *heat wave* is a prolonged period of excessively hot weather, which may be accompanied by excessive humidity.

Past Hazard Events: According to local records, the village experiences seven to fourteen days that have excessive heat each year in the summer months. In the winter months, the village experiences five to ten days that

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\* As defined by the National Climatic Data Center, <http://lwf.ncdc.noaa.gov/oa/ncdc.html>

have excessive cold each year. Often closely related to droughts, heat waves are a village wide occurrence that affects the entire region at the same time. They occur frequently in the summer months with little or no warning. Heat waves can last from days to weeks before returning to normal seasonal temperatures. Heat waves usually occur in the summer months and can range from several days to whole months. **According to the National Climatic Data Center, in July of 1999 the county went for between 15 and 20 days without any measurable rainfall and temperatures of 90 degrees or more.** The severity depends on temperatures and time.

Probability of Future Events: Heat waves and extreme low temperatures can last from days to weeks before returning to normal seasonal temperatures. Based on historic climatic information, it is almost certain that the village will continue to have several days in the summer when temperatures exceed the normal and several days in the winter when temperatures drop below normal.

Potential Areas Affected: Extreme temperatures affect the entire area. The heat waves can last from days to weeks before temperatures return to normal. Extreme temperatures generally impact only a small amount of the population such as the elderly, younger children, people with other major medical conditions and some other groups of people. Extreme temperatures would have no impact on the buildings, infrastructure or critical facilities in the village. It may require evacuation for the elderly, children or disabled if heating and cooling of private homes failed. Emergency services may be required for assistance.

c. Severe Winter Storm

Definition: A storm system that develops in late fall to early spring and deposits wintry precipitation, such as snow, sleet, or freezing rain, with a significant impact on transportation systems and public safety. A *blizzard* is a severe snowstorm characterized by cold temperatures, winds of 30 knots or greater, sufficient snow in the air to reduce visibility to less than ¼ mile and heavy drifting of snow. *Heavy snow* is accumulation of 6 inches or more in less than 12 hours.

Past Hazard Events: **According to the National Weather Service, Westchester County experiences an average of 2-4 significant storms annually, but has experienced as many as six or seven in one year.** In the past, Westchester County has closed County facilities due to inclement weather and advised non-essential employees to remain at home. **The National Climatic Data Center reports there were 42 severe snow and ice events in Westchester County during the period from 1/01/1950-5/31/2005.** Since the winter of 1997-1998, local records indicate that, the village experiences an average of 3 snowstorms (6"+ of snowfall) per year. Several factors contribute to the severity of the event, including rate of snow fall, temperature before snow begins and temperature during storm. On February 17 and 18, 2003, the State of New York had a major snowstorm in 17 counties and the City of New York. A snow emergency was declared by FEMA on March 27, 2003.

Probability of Future Events: Severe Storms are considered moderately high hazards. These types of storms occur frequently. They could last up to a few days, with little warning before they hit the area. These types of storms involve the entire village and the region around the village, making recovery slow and costly. Winter storms in this area can begin as rain, freezing rain or snow and change between the three throughout the event. These storms can include strong winds and can force the village, local businesses and schools to shut down.

Potential Area Affected: The village will continue to experience severe weather frequently. The entire village is at risk for this type of hazard. Mitigation of hazard situations that may occur as a result of one of these natural disasters is therefore a high priority. Infrastructure could be seriously impacted by this type of event. A severe winter storm may have an impact on the buildings, infrastructure or critical facilities in the village, and it may present problems for responders attempting to reach the facilities. It may require evacuation for the elderly, children or disabled if heating, public utilities or structure of private homes failed. Emergency services may be required for assistance.

d. Hailstorms

Definition: A *hailstorm* is a storm in which a large amount of hail (lumps of ice) falls.

Past Hazard Events: **According to the National Weather Service New York State experienced at least 848 hailstorms between 1959 and 2001. The National Climatic Data Center reports that there were 22 hail storm events in Westchester County during the past 55 years.**

Probability of Future Events: Hailstorms are considered a regular event. It is likely that the village would have as much as a day of warning, but a storm could last several hours to a day. Recovery time might be one day to two weeks. Serious injury and death are unlikely; however moderate damage to private property is likely. Structural damage to public facilities will not occur.

Potential Area Affected: The village will continue to experience severe weather frequently. The entire village is at risk for this type of hazard. Mitigation of hazard situations that may occur as a result of one of these natural disasters is therefore a high priority. Infrastructure could be seriously impacted by this type of event. A hailstorm may have an impact on the buildings, infrastructure or critical facilities in the village, and it may present problems for responders attempting to reach the facilities. It may require evacuation for the elderly, children or disabled if heating, public utilities or structure of private homes failed. Emergency services may be required for assistance.

e. Ice Storm

Definition: An *ice storm* is a storm in which snow or rain freeze on contact, forming a coating of ice on the surfaces it touches.

Past Hazard Events: **The National Climatic Data Center reports there were 42 significant snow and ice events in Westchester County during the last 55 years.** Winter weather situations involving rain or snow freezing into ice on contact occur 5-10 times a year. In the last ten years, ice storms in the village have caused multiple trees to fall, block roadways and take down power lines. In the past parts of the village experienced 24- to 48-hour periods without power. Schools and businesses remained closed. Emergency Response teams had difficulty reaching those in need.

Probability of Future Events: Ice storms are a moderately low risk in the village because they rarely cause severe injury or death in large numbers. They occur regularly, with about a days warning and can last for two to three days. Recovery can take one to two weeks. Serious injury and death are possible, but not in large numbers. Ice-storms impact the entire region. Damage to private property and public facilities is likely.

Potential Area Affected: The village will continue to experience severe weather frequently. The entire village is at risk for this type of hazard. Mitigation of hazard situations that may occur as a result of one of these natural disasters is therefore a high priority. Infrastructure could be seriously impacted by this type of event. An ice storm may have an impact on the buildings, infrastructure or critical facilities in the village, and it may present problems for responders attempting to reach the facilities. It may require evacuation for the elderly, children or disabled if heating, public utilities or structure of private homes failed. Emergency services may be required for assistance.

f. Severe Storm (Thunderstorm)

Definition: A *severe storm* is any destructive storm, including intense thunderstorms and hailstorms. A *thunderstorm* is characterized by the presence of lightning and thunder, and is often accompanied by rainfall or hail.

Past Hazard Events: **The National Weather Service indicates twenty-five to thirty thunderstorms annually. The National Climatic Data Center reports that there were 123 severe thunderstorm and high wind events in Westchester County during the period of 1/01/1950-5/31/2004.** Severe Storms are considered moderately high hazards. These types of storms occur regularly. They could last up to a few days, with little warning before they hit the area. These types of storms affect the entire village and the region around the village, making recovery slower and more costly.

Probability of Future Events: Severe weather is a regular occurrence in the village. The area would likely have as much as a days warning for such an event, and it may last as many as three days to a week. Recovery could take up to two weeks depending on the extent of the damage within the village and regionally.

Potential Area Affected: The village will continue to experience severe weather frequently. The entire village is at risk for this type of hazard. Mitigation of hazard situations that may occur as a result of one of these natural disasters is therefore high priority. Infrastructure could be seriously impacted by this type of event. A severe storm may have an impact on the buildings, infrastructure or critical facilities in the village, and it may present problems for responders attempting to reach the facilities. It may require evacuation for the elderly, children or disabled if public utilities fail. Emergency services may be required for assistance.

g. Hurricane, Tropical Storms, Tornado, High Winds, Straight Line Winds

Definition: A *tropical storm* or *hurricane* (depending on strength and location) is a severe tropical cyclone originating in the equatorial region, that travels north, northwest or northeast from its point of origin and usually involves heavy rains and high winds. A *tornado* is a violent windstorm characterized by a twisting, funnel-shaped cloud. A *high wind* event is classified as any wind of 50 knots or greater. *Straight-line winds* originate from downdrafts and can cause damage which occurs in a "straight line", as opposed to tornado wind damage that has circular characteristics.

Past Hazard Events: **Based on information obtained from the National Weather Service there have been 12 hurricanes that have come within 75 miles of Montauk Point since 1886.** Some of the more severe storms the County faced include the "Long Island Express" Hurricane in 1938, Belle, a category 1 storm, and Hurricane Gloria in 1985 which caused significant damage to Westchester County and many deaths. **According to the National Climatic Data Center, in the past 104 years, there have been nine hurricane direct hits on the New York State coastline.**

**According to the National Weather Service, in the last 10 years, 3 tropical storms affected the New York Tri-state area and seriously impacted the village.** Tropical Storms have caused severe damages to the village infrastructure and private property over the last ten years. Entire roads have been washed out and home owners and small businesses have suffered expensive damages. According to local records, for recovery from the Tropical Storm Floyd, the village received aid from FEMA (\$108,000) and the Federal Highway Administration Emergency Relief Program (\$43,000).

There are no known reports of a tornado ever touching down in the village. **According to the available data from the Nation Climate Data Center there have only been nine reported tornado events in Westchester County since 1971.** There are no reports of straight line winds in the village but over the last 10 years, other parts of the Town of Cortlandt, and in Westchester and Putnam County, areas have sustained significant damages.

Probability of Future Events: Hurricanes and Tropical Storms are considered moderately high hazards. These types of storms occur regularly. They could last up to a few days, with little warning before they hit the area. These types of storms affect the entire village and the region around the village, making recovery slower and more costly.

Tornados are low risk, but straight line winds and high winds are considered a moderately high hazard. Such an event would most likely have an impact on a limited area of the village. Such an event occurs rarely and with little or no warning. The event would last less than one day and could require days to weeks for recovery.

High wind conditions occur frequently, usually in conjunction with other severe weather conditions.

Potential Area Affected: Hurricane, Tropical Storms, Tornado, High Winds and Straight Line Winds impact the entire region. The entire village is at risk for this type of hazard. A severe storm and high winds may have an impact on the buildings, infrastructure or critical facilities in the village, and it may present problems for responders attempting to reach the facilities. It may require evacuation for the elderly, children or disabled if public utilities fail. Emergency services may be required for assistance.

#### h. Flood, Dam Failure

Definition: A flood is a temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land. A dam is a barrier constructed across a waterway to control the flow or raise the level of a body of water controlled by such a barrier. A dam failure occurs when the structure of the barrier begins to weaken.

Past Hazard Events: Flooding occurs within the village following extremely heavy rain or snow or during unusually high tides. **The National Climatic Data Center reports there were 35 major flood events in Westchester County during the period of 1/01/1950-5/31/2004.** Serious flooding has affected the train station parking lot about five times in the past ten years causing damage to private vehicles in the lot. The Hudson and Croton River waterfronts are the most susceptible, but the properties surrounding the ravines and watershed drainage areas mentioned in section II, A, 3 are also at risk. In general, structures are located at higher elevations or on steep inclines in the village, but facilities, such as the DPW garage (critical) and the train station (essential), are located in what is considered the flood plan.

Dam Failures are uncommon events in the Village of Croton-on-Hudson. The Croton Dam failed in the 1890s causing the Croton River to swell to unusual levels and several lives and homes to be lost. Since the completion of the New Croton Dam in 1905, there have been no dam failures. The New Croton Dam was considered at risk in the 1950s when cracks were noticed in the structure. Since the repairs were made, the dam has not been at risk. **In New York State there have been 18 dam failures in the last 100 years.\***

Probability of Future Events: Flooding is considered a moderately high risk in the village. Flooding occurs frequently throughout the village in isolated locations. Typically there is some warning before a flooding event, which can last from one day to several days. Recovery can take more than two weeks.

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\* NPDP Dam Incident Summary, <http://npdp.stanford.edu/index.html>

A significant flooding event may result in moderate to serious damage to private and public property.

The New Croton Dam sits just outside the village, with a capacity of about 85 billion gallons, and controls the flow of water entering the Croton River, which forms the south-eastern boarder of the village. In the event of a dam failure the village would most likely be seriously impacted with minor loss of life and major property damage. There would most likely be some warning before the event, which would likely last one day and require several months for recovery. The Emergency Action Plan for the New Croton Dam indicates the areas at risk for partial or total dam failure and plans for responding to and managing a dam failure.

Potential Area Affected: Approximately 15% of the village, along the riverfront and near drainage ravines, is susceptible to flooding. The current Emergency Action Plan for the New Croton Dam finds that in the worst case of complete and sudden dam failure fewer than 100 homes would be affected. The majority of these homes are located in the densely developed Harmon region of the village. The map below indicates regions of the village that are at risk for flooding, but it does not take into account flooding as a result of dam failure. The region affected by flooding as a result of dam failure would be larger and involve more homes. A flood or dam failure may have an impact on the private homes. The Village DPW Garage is the only public building that is at risk. Flood may present problems for responders attempting to reach the garage. It may require evacuation for the elderly, children or disabled. Emergency services may be required for assistance.

**Table 3 – New York State Flood Data**

Total Flood Damage (millions of current US\$)

Years*	New York
1983	0.000
1984	217.500
1985	24.700
1986	30.820
1987	75.275
1988	0.230
1989	38.271
1990	6.530
1991	19.603
1992	1.862
1993	55.480
1994	25.707
1995	1.485
1996	220.011
1997	55.909
1998	38.627
1999	18.715
2000	18.498
2001	7.290
2002	3.939
2003	45.672

<http://www.flooddamagedata.org/> \* Water years October – September  
0.000 denotes no estimate was submitted by NWSFO

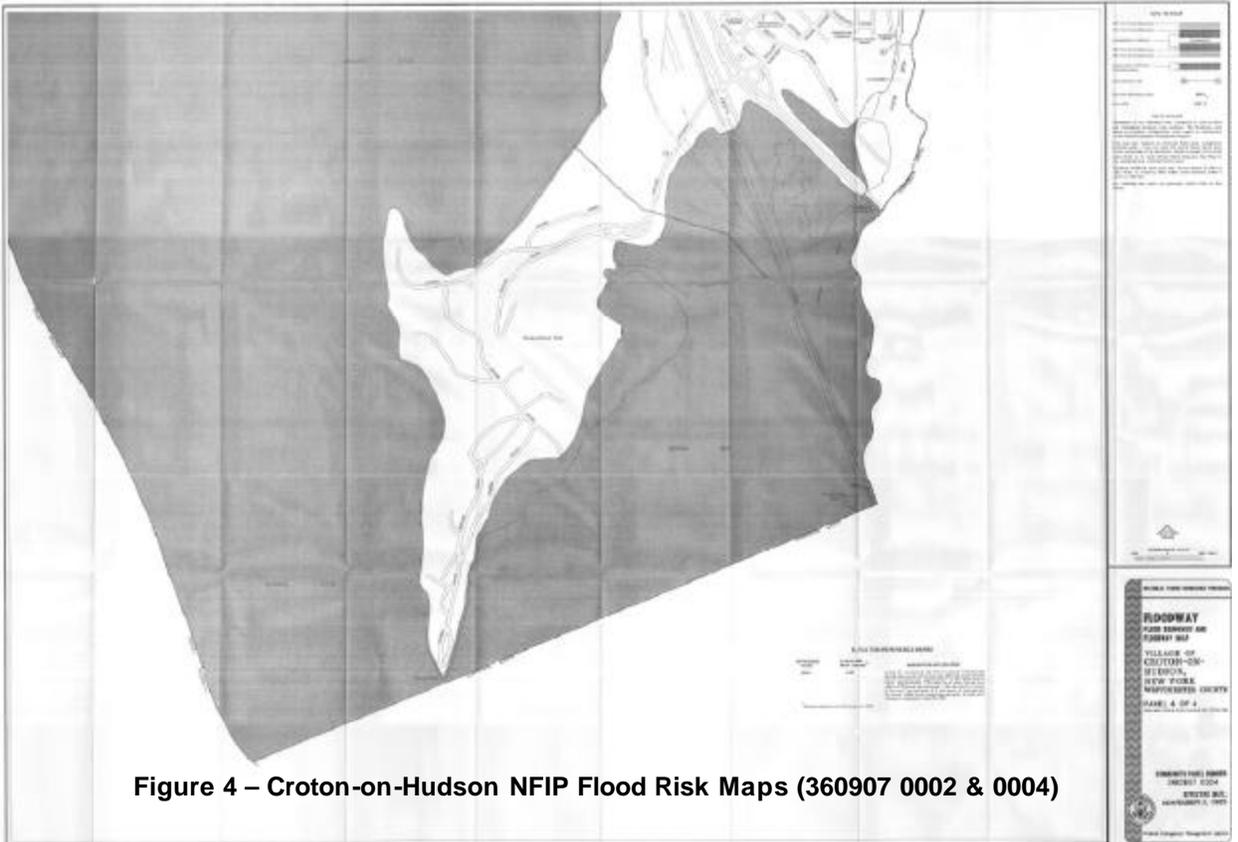
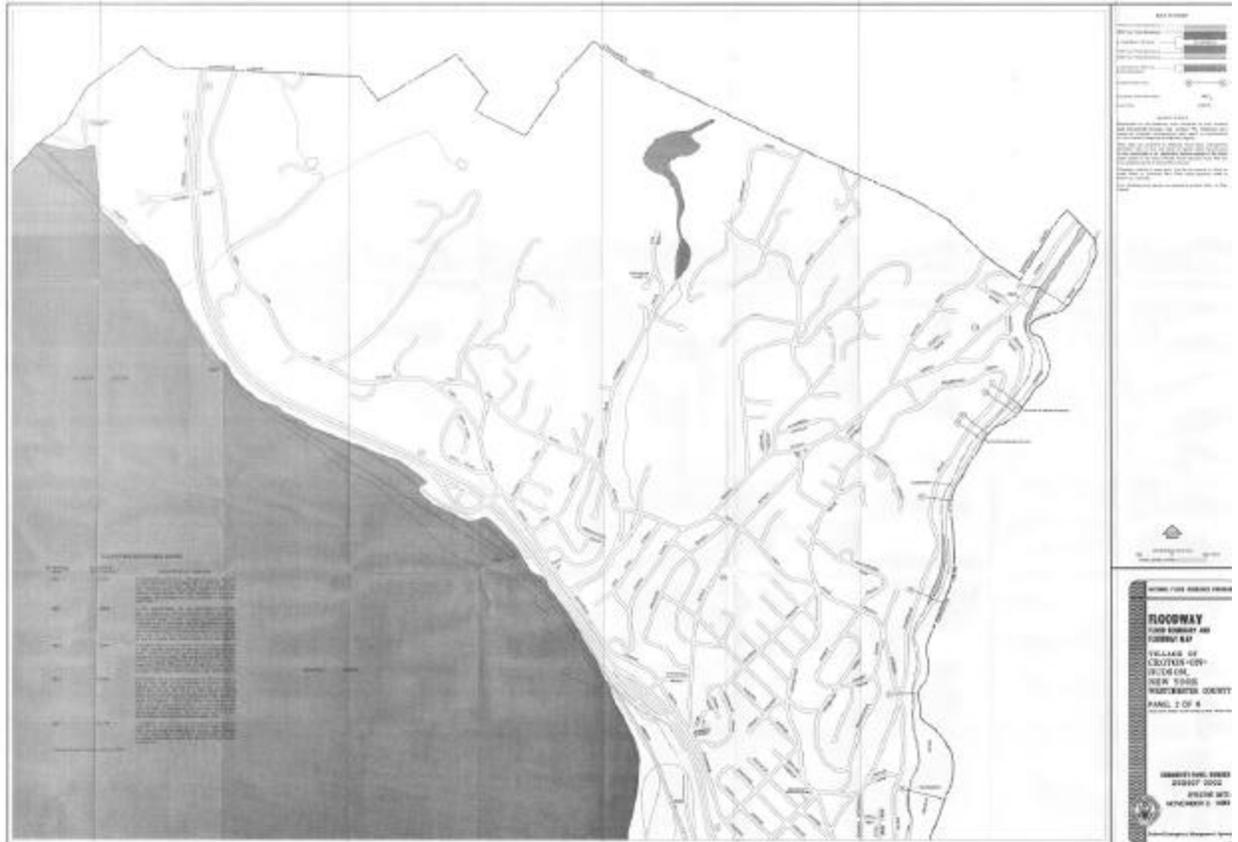


Figure 4 – Croton-on-Hudson NFIP Flood Risk Maps (360907 0002 & 0004)

i. Earthquake, Landslide, Wildfire

Definition: An *earthquake* is a sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates. A *landslide* is a downward movement of a slope and materials under the force of gravity. *Wildfires* burn uncontrollably and quickly in a forest area or area of thick brush. They usually start from natural ignition sources such as lightning. Although, they can be started unintentionally through carelessness with campfires or burning yard trash, or disregard for weather conditions, and intentionally by arsonists.

Past Hazard Events: Westchester County, New York is not prone to significant seismic events; however minor earthquakes have occurred in White Plains and Dobbs Ferry, NY. **According to the NYS Geological Survey there have been only 17 significant earthquakes recorded in New York State since 1737. Only five of those 17 exceeded an earthquake magnitude of 5.0 on the Richter scale.** Westchester County has experienced Peak Ground Acceleration of 6%-15% over the last 50 years. The village has 5-6%g peak ground acceleration (pga) on the USGS earthquake hazard map of pga.

The village experienced landslides during Tropical Storm Floyd in 1999 when several roadways, including Batten Rd., Dailey Dr., Grand St., High St., Brook St. and Old Post Road North, were seriously damaged. At construction sites, contractors have removed rock that caused sandy soil to shift and cause landslides. In the last five years there have been three such events.

There have been instances of suspicious fire in the Village, none have escalated to situations that could be categorized as wildfires and most have involved structures rather than open space. Fire was categorized by HAZNY as the village's greatest risk, but the committee did not find wildfires to be a high risk.

Probability of Future Hazards: Earthquakes are determined to be a moderately low hazard. The impact of such an event would likely be village wide and may take days to weeks to recover but the likelihood is considered rare. Regional seismicity indicates that future earthquakes of Magnitude 5.2 are likely to occur on average every 100-200 years, with a 20% to 40% probability of occurrence in any 50 - year period.\* There would be no warning.

Due to the steep hills and deep ravines in the village, landslides do present a certain risk in the Village. In most steep slope areas the soil is only a few feet deep sitting over bed rock, or there is no soil at all. Landslides are more likely to occur in conjunction with severe weather conditions, when runoff pulls the material off the slopes. Landslides will occur during periods of heavy rain or snow melt off. It is unlikely that the village would experience severe landslides, except in situations where the ground is manipulated.

Wildfires are a relatively low risk hazard in the village. Although the village is heavily wooded, there are not many large open-spaces within the village. Most of the open-space is heavily regulated and fire is prohibited. Residents are not permitted to burn seasonal yard rubbish or maintain uncontrolled

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\* From NYCEM *The New York City Area Consortium for Earthquake Loss Mitigation* (1999-2003) available at <http://nycem.org/>

outdoor fires on their property. It is unlikely that a wildfire would become severe before it was controlled.

Potential Area Affected: An earthquake would impact the entire village. Village infrastructure is not designed to withstand serious earthquakes. Damaging earthquakes infrequently impact the metropolitan area, but the concentration and vulnerability (lack of seismic design) of buildings means a substantial economic risk.\* There would likely be damage to the police station, the emergency operations command center and the DPW garage. If the critical buildings withstood the earthquake, they are not situated in places that are susceptible to landslides. Landslides would impact only the areas of the village with steep, loose terrain, most likely around drainage ravines and the Croton River Gorge. Wildfires could occur in the Croton Point County Park, located in the village, in any of the village's parks, or in the nature reserves. An earthquake or landslide may have impact on the private homes, buildings, and village infrastructure. Evacuation may be required. Emergency services may be required for assistance.

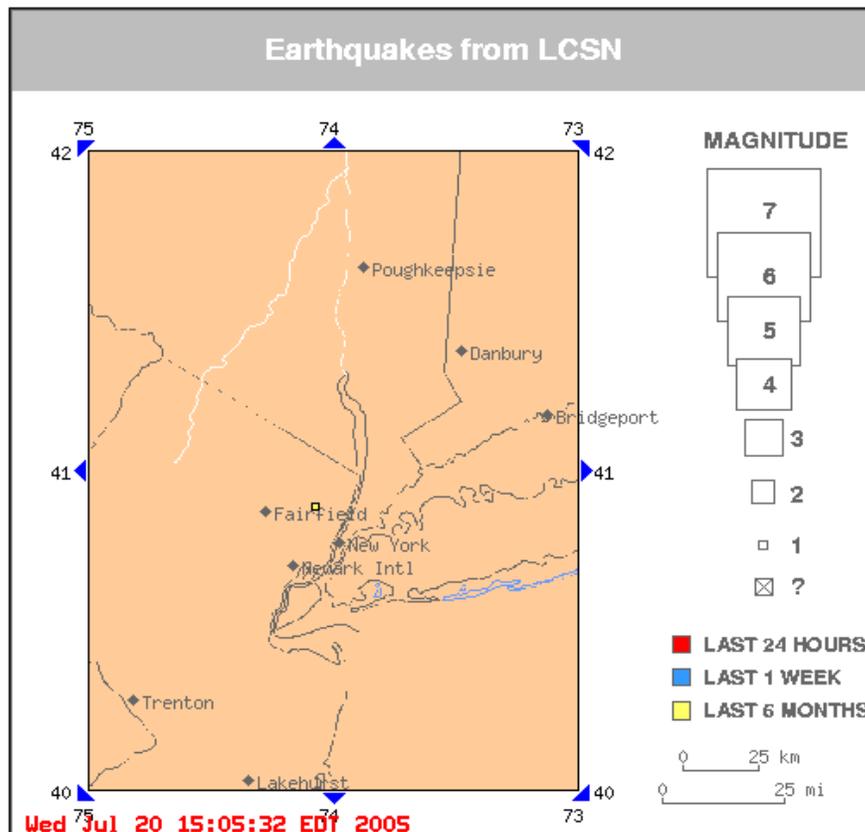
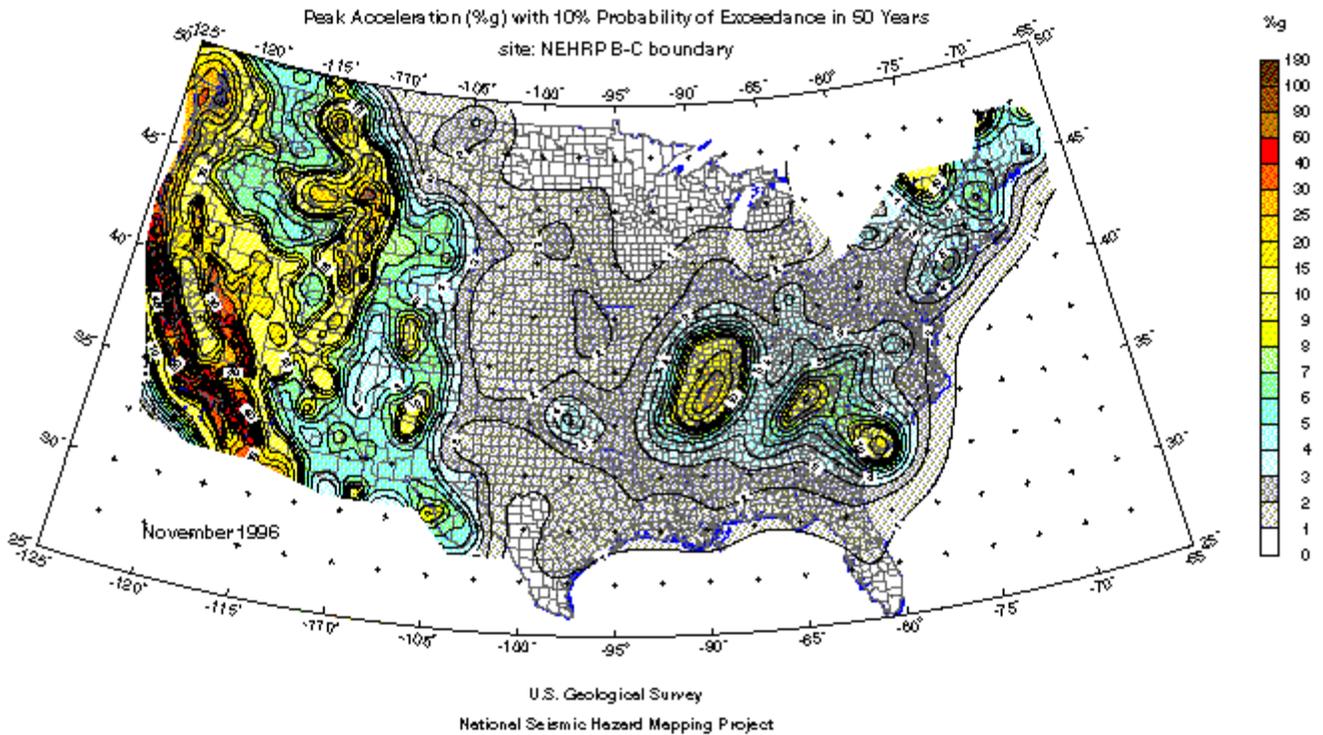


Figure 5 – Recent Earthquakes in the Northeastern US

There is 1 earthquake on this map.

MAG Y/m/d	DATE h: m: s	LOCAL-TIME deg	LAT deg	LO mi	DEPTH (3 mi)
1.9	2005/04/23	10:24:51	40.885N	74.069W	

\* From NYCEM The New York City Area Consortium for Earthquake Loss Mitigation (1999-2003) available at <http://nycem.org/>



**Figure 6** – US Geological Survey National Seismic Hazard Mapping Project

## 2. Human Caused Hazards

### a. Fire, Structural Fire, Structural Collapse

Definition: Fire is the uncontrolled burning in residential, commercial, industrial, institutional, or other structures in developed area. A structural fire is a fire that occurs within a structure or building. A building is a walled and roofed structure, principally above ground and permanently affixed to a site.\* A structural collapse is a sudden structural failing, partial or fully, of buildings, bridges or tunnels, threatening human life and health.

Past Hazard Events: **The Village Volunteer Fire Department handles approximately 750 calls each year.** In the past five years, there have been fewer than five serious structural fires in homes in the village.

Probability of Future Events: Structural fires are a frequent occurrence in the Village of Croton-on-Hudson. Structural fires occur without warning. Structural fires usual affect a single location, but have the potential to spread quickly in the more densely developed commercial districts. Structural fires last less than one day and recovery can take days to weeks following the event. Most fires are associated with single-family homes, the primary land

\* As defined by *State and Local Mitigation Planning how-to guide: Understand Your Risks* version 1.0 August 2004

use in the village, and older neighborhoods are at higher risk because homes pre-date modern fire prevention codes.

Structural collapses would most often be closely related to events such as earthquakes, tornados, straight line winds, explosions, extremely heavy snowfall and terrorism. A structural collapse would only impact a single location within the Village. They are rare and there are few significant collapses. Structural collapse usually impacts private property. There is usually very little or no warning prior to a collapse. After periods of severe weather, structures in the village have collapsed. Structural collapse will likely continue to be an issue in the village as homes and buildings become older and are subject to the weather in the area.

Potential Areas Affected: Any building, bridge or tunnel has the potential to collapse, especially since many of the buildings were built before codes were used. The building codes in this area have been followed very strictly in the recent past 20 years, but most buildings already existed. The Volunteer Fire Department protects an area of about five square miles. Mutual aid responses from surrounding communities are coordinated through the Westchester County Mutual Aid System. The entire Village is vulnerable to this type of hazard.

b. Explosions

Definition: The threat or actual detonation of an explosive device or material with the potential of inflicting serious injury to people or damage to property.

Past Hazard Events: **According to police records, in the past ten years, one explosion event has occurred in the village.** Village police and fire responded. No one was seriously injured or killed and the explosion took place on private property.

Probability of Future Events: Explosions of any kind are a rare event in the village. There would likely be no warning for such an event. An explosion would likely last less than one day and recovery time would be days to weeks depending on severity. An explosion may be linked to gasoline/oil spills, mischief, terrorism, or mechanical mal-function.

Potential Areas Affected: This could occur anywhere in the Village.

c. Hazardous/Radiological Waste In-Transit

Definition: Hazardous/Radiological Waste In-Transit presents a hazardous situation when materials that can cause serious injury or death to people, property or environment through the material's flammability, toxicity, corrosiveness, chemical instability or combustibility are released uncontrollably in transportation corridors.

Past Hazard Events: **There have not been incidents involving Hazardous/Radiological Waste in-Transit in the village, but neighboring villages and towns have had incidents.**

Probability of Future Events: Hazardous materials in transit are a moderately high hazard. Smaller accidents and spills associated with these materials occur regularly. More significant spills requiring evacuation of a portion of or the entire village occur rarely. Radiological materials are also transported in the village, although the occurrence is considered rare. The scope of such a hazard would likely be limited and last less than one day. The recovery may last a few days to a few weeks. There have been no incidents recently. The Village of Croton Fire Department would be the first responder to any hazardous material incident, including those involving radiological materials and oil/fuel spills. The Westchester County Hazardous Materials Response Team is primarily responsible for isolation and clean-up of spills.

Potential Areas Affected: The three major transportation facilities travel through the village to surrounding towns and villages. Route 9/9A runs north/south; Route 129 runs east/west; and railroad tracks used by Metro North, Conrail and Amtrak run north/south along the riverfront. A hazardous material spill on one of these systems would impact only a limited area. Primary impact area as listed in the 1996 North American Emergency Response Guidebook can range from 600 to 1800 feet depending on the size and type of the spill. Because of the proximity of the railroad and Route 9/9A to the Hudson and Croton Rivers, the village must also consider the impact a spill would have on these sensitive environments. The event would likely last less than a day and recovery time would be a few days to a week after the incident. There would be no specific warning for such an event.

According to the New York State Department of Transportation data, annual average daily traffic volume on Route 9 exceeds 40,000 vehicles a day (data collected in 2002), on Route 9A exceeds 49,000 (data collected in 2002) and on Route 129 exceeds 5,800 vehicles (data collected in 2002). Local roads are also at risk from hazardous materials in transit, although traffic volume in residential areas is generally limited to local transportation needs.

The village may also be impacted from hazardous materials in ships on the Hudson River. The shipping channel is less than a mile away from the village shores. The railroad runs through the village between the Hudson River and Route 9. Potential spills on the railways are another hazardous materials risk. According to the Village of Croton Fire Department there has been no major incident involving hazardous materials requiring mass evacuation of the village.

d. Fixed Site Hazardous/Radiological Waste

Definition: The uncontrolled release of material from a stationary facility, which when released can result in death or injury to people and/or damage to property and the environment through the material's flammability, toxicity, corrosiveness, chemical instability and/or combustibility.

Past Hazard Events: **There have been no major explosions or spills of hazardous material incidents in the village.**

Probability of Future Events: There is a potential for a major incident since there are buildings in the village that contain hazardous materials. Disasters

associated with Hazardous material incidents at fixed sites within or around the village are considered moderately high. Significant spill events are infrequent and typically occur without warning. The length of such an event and its recovery time are comparable to those of hazardous materials in transit. The Village of Croton Fire Department would be the first responder to any hazardous material incident, including those involving radiological materials and oil/fuel spills. The Westchester County Hazardous Materials Response Team is primarily responsible for isolation and clean-up of spills.

Potential Areas Affected: Areas affected would be those that have hazardous materials on-site. The impact of such an event would likely be contained to the point of origin with possible additional contamination from hazardous material being transported by water bodies and municipal infrastructure such as storm water drains and sewer pipes. Sites in the village are known to have hazardous materials. Radiological materials would most likely be identified in medical and dental facilities and would be present in small quantities.

e. Oil/Gasoline Spill

Definition: The uncontrolled or accidental discharge of petroleum. This can occur in waterways like the Hudson River or Croton River and on land especially on major highways or in storage areas.

Past Hazard Events: According to police records, just south of the Croton River in Ossining on Route 9A there was a gasoline spill in August of 2004. Oil/Gasoline Spills are a regular event. Spills have also occurred in fuel tanks in residential and commercial buildings that required evacuation of the immediate area. Oil/Gasoline Spills have occurred in neighboring municipalities in the last five years. In one case, the spill entered a storm water drain and entered the Croton River.

Probability of Future Events: The potential for small incidents is high. There is a possibility of larger incidents since Routes 9/9A and 129 run through the village. Spill in a transit corridor has the potential to affect a limited region with no warning. The event would last less than one day, but could take several weeks to recover from. Evacuation may be necessary, depending on the severity of the situation. The Village of Croton Fire Department would be the first responder to any hazardous material incident, including those involving radiological materials and oil/fuel spills. The Westchester County Hazardous Materials Response Team is primarily responsible for isolation and clean-up of spills. Leaking tankers on the Hudson River also have potential to pollute the water ways.

Potential Areas Affected: The village has several locations of oil/gasoline containment that are a potential risk. In addition the village is within one mile of the shipping channel on the Hudson River.

f. Utility/Water Supply Failure

Definition: Loss of electric and/or natural gas supply, telephone service or public water supply as a result of an internal system failure and not by the

effects of disaster agents. A *blackout* is the failure of electric power for a general region.

Past Hazard Events: Significant blackout has occurred in 1963, 1977 and 2003 in a large area. The village also experiences village wide or contained area outages on a more regular basis.

Probability of Future Events: Power failures occur frequently and have potential for prior warning if associated with storm events. The incident usually will last less than a day and take a few days or less to recover from. Power failures are typically associated with major storms or high-energy demand days in the summer.

In August 2003 there was a massive power failure that impacted the entire northeastern United States. That event highlighted the condition of the power grid, the growing demand for electricity and the region's susceptibility to a major power failure. In light of that event there is increasing attention to vulnerability in a major black out, which may occur on a more frequent basis than previously recognized. Besides grid failure, other factors for power failure include high winds, large amounts of water, ice storms, and downed trees taking down power lines. The power company does trim the trees and inspect the power lines in an effort to be more proactive rather than reactive. Con Edison has proven to be a significant partner in working with the county, cities and the public in times of emergency.

Contamination of the water supply would require the entire system to be shut down until the source and extent of the contamination is identified. The system could then be returned to fully functional or partially functional while it is repaired. The village has the ability to continue to pump water during a power failure using a back-up power supply. Prolonged drought that causes the water table to drop diminishes the village's ability to pump water to the storage tanks.

Potential Areas Affected: Power failures within the village usually impact only a section of the village, though significant events do impact the entire village. A water supply failure would typically be isolated to several locations, but could be a village-wide event. Such an incident would rarely occur within the village and would likely last a day or less. Recovery time is estimated to be one day or less. Recovery time is estimated to be one day.

g. Terrorism

Definition: The use of extreme violence or the threat of violence by states, groups or individuals to generate fear in individuals and thus manipulate their behavior.

Past Hazard Events: The village has no history of terrorism.

Probability of Future Events: Terrorism is considered a moderately low level hazard in the village. The events of September 11, 2001 have forced communities to discuss terrorism as a more serious possibility. The village enhanced training, education and equipment to local emergency services, law enforcement, and government personnel. The village is not considered to

have any significant targets of opportunity, but is situated below the New Croton Dam and the New York City Water Supply, both possible targets for international terrorism. The village water supply is separate from the city's supply.

Recently there have been concerns regarding a potential terrorist attack at Indian Point Power Plant and the appropriateness of the proposed evacuation measures. The village is inside the 10-mile Emergency Response Planning Zone and has a designated evacuation point at the Westchester Community College Gymnasium on Route 100 in Valhalla. A terrorist event at Indian Point or an attack on some part of the New York City Water Supply, especially part of the dam system, would greatly impact the village and the area. Terrorist events would last less than a day, but could take days to months to recovery from.

Potential Areas Affected: Terrorism comes in many forms including explosive detonation, chemical, biological or radiological release, nuclear detonation, hijacking/kidnappings, arson fires, shootings and computer-generated attacks. A terrorist attack could impact the entire village or any single location within the village.

#### h. Transportation Accident

Definition: A mishap involving one or more conveyances on land, sea, and/or in the air that results in mass casualties and/or substantial loss of property.

Past Hazard Events: Substantial loss of life or property due to a transportation accident has not occurred in Croton-on-Hudson in the past 10 years, but it has occurred recently in other areas in New York. In the last fifty years, one small plane has crashed in the village. The plane crash caused severe damage to a single family residence; no one was in the home at the time. There were no fatalities. It is unlikely that another such event will occur.

Probability of Future Events: The village has a moderately high level of risk for a transportation accident because of the transportation corridors that run through the village, including the railroad. An accident occurs instantaneously and has a recovery time of several hours to a week. Transportation accidents that occur within the village have the potential to disrupt a large region and cause harm to a significant number of people.

The emergency response providers in the village maintain a close relationship with Metro North in order to keep up-to-date on the most current equipment used by the railroad. The police keep a passenger train response plan with diagrams of equipment and explanations of emergency escape windows and door mechanisms. The police also keep a Community Planning Emergency Awareness Guide about handling accidents involving non-passenger trains.

Major accidents can cause both north and south bound traffic on Route 9/9A to be shut down. Traffic on Route 9/9A causes higher volumes of cars traveling east on Route 129 to the Taconic State Parkway.

Aircraft crashes are an infrequent event in the village. The impact area would likely be limited to the crash site and little warning can be expected for

this event. The event would last less than one day, and recovery time is estimated at a few days to a week. The village is in the flight path of Westchester County Airport in White Plains, New York. Over 400 aircraft, including helicopters, are operated out of Westchester County Airport.

Potential Areas Affected: Any roadway, railroad, waterway or airspace in the village is susceptible to a transportation accident.

i. Epidemic

Definition: The occurrence or outbreak of disease to an unusual number of individuals or proportion of the population, human or animal.

Past Hazard Events: No epidemics have happened in the past.

Probability of Future Events: The resources of the Westchester County Health Department would be utilized in the event of an emergency. If an epidemic took place in the village, the entire county could become infected and village would then only be part of a larger concern for the County Health Department. There is some history of epidemics such as influenza, west Nile and other diseases.

Potential Areas Affected: The entire population and village area could be involved.

3. Omitted Hazards

The Hazard Mitigation Committee decided not to include air contamination and civil unrest in the Hazard Mitigation Plan; although the HAZNY report suggested that they presented a risk to the village. There has never been a Federal Declaration relating to these hazards in our area, and the planning committee considered them a minor risk.

Avalanche, coastal erosion, costal storm, expansive soil, land subsidence, tsunami, and volcano, designated as applicable to our region by FEMA, were excluded because they have never occurred in the village, there has never been a Federal Declaration relating to these hazards in our area, and the planning committee considered them either to present either a minor or nonexistent threat.

In addition, the Hazard Mitigation Committee did not develop mitigation strategies for the following hazards: wildfire, transportation accident or epidemic. Mitigation strategies for these events may have been discussed during strategy development for other hazards, but they were not included individually in the plan at this time. In the future when the plan is revised, mitigation strategies may be included.

Some hazards are not listed separately in the Mitigation Strategies because the strategies were too closely associated or similar to another hazard. In those instances the hazards are grouped together.

## D. At-Risk Facilities and Areas

There are a number of facilities and areas in the village that are sensitive and require protection from hazards. Sensitive or vulnerable facilities include those located in at-risk areas that are essential for providing emergency response to hazard events. Sites that have large concentrations of people or at-risk populations are sensitive and vulnerable during hazard events because they will require special attention from emergency workers. Hazardous materials facilities may require evacuation or heightened security, and areas with older construction are particularly susceptible to fire and structural collapse.

FEMA uses the distinctions of *critical* and *essential* to categorize the importance of a facility during and after a hazard event. The Hazard Mitigation Committee used these titles to classify each public facility.

### **Critical Facility**

A critical facility is critical to the health and welfare of the population and is especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals.\*

### **Essential Facility**

An essential facility has elements that are important to ensure a full recovery of a community or state following a hazard event. These would include: government functions, major employers, banks, schools and certain commercial establishments, such as grocery stores, hardware stores, and gas stations.†

The following is a summary of potential vulnerability of facilities in a hazard event.

#### 1. Emergency Response Facilities

Facilities involved with emergency response are critical. Each of the three fire houses and the police station are critical for response. Other critical village facilities include the Municipal Building and the Department of Public Works Building, both of which would have crucial roles in emergency response to significant hazard events.

The Department of Public Works Garage is in a hazard prone area making it especially important to implement measures to ensure that these facilities can withstand the impact of a hazard event or to manage the loss of the facility. The garage is located in the Dam Failure Zone and the 100-Year Flood Zone. Serious weather related flooding would make the facility inaccessible and result in severe damage. An incident at the New Croton Dam would likely destroy the garage completely. The garage is a primary storage location for trucks and heavy equipment that would be used during a hazard event and for recovery.

In a major hazard event the police station would not have sufficient space to function as the Emergency Operations Center (EOC). An alternative space is the Manager's

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\* As defined in *State and Local Mitigation Planning how-to guide: Understanding Your Risks* version 1.0 August 2001

† As defined in *State and Local Mitigation Planning how-to guide: Understanding Your Risks* version 1.0 August 2001

Office because it is larger and can be removed from the media. Additional phone jacks will be installed in the Manager's office in order for it to function as the EOC.

The village does not have a designated facility to function as an Emergency Evacuation Center and there are no American Red Cross storage facilities in the village. Setting up an Evacuation Center is under consideration. The Town of Cortlandt has a trailer with Evacuation Center Supplies that is available for village use, but in the event of a regional hazard event, Cortlandt would have priority use for the trailer.

Basic utilities such as the electric supply and the village's well fields/water supply are important during hazard events in order to provide adequate emergency response. Power failures (including those associated with thunderstorm events) would impact all emergency service facilities that do not have emergency back-up power. Providing back-up power to facilities that do not have a source is a high priority for the village.

## 2. Recreational Property

Many of the facilities used for recreational purposes are located within flood prone areas in the village. These facilities include public spaces such as Westchester County's Croton Point Park and village owned parks and trails both on the Hudson and Croton Rivers. In major flooding and severe weather village property will incur serious damage. Campgrounds on Croton Point and hiking and walking trails in the region may need to be evacuated and secured.

## 3. High-Density Commercial and Residential Areas

High-density commercial and residential areas are at-risk to hazards because they have significant concentrations of population. The village has four commercial centers: the Upper Village, North Riverside Avenue, Municipal Place area, and the South Riverside/Harmon shopping area. The highest density neighborhoods (more houses per acre of land) are situated closer to the commercial centers, with the density decreasing farther away from these centers. The neighborhoods situated closest to the four commercial centers consist mostly of single family homes built on 5,000 and 9,375 square foot lots. These neighborhoods also contain the majority of the two- and multi-family residences in the village. Moving away from the commercial areas, the lot sizes increase.

High density areas are primarily located in the central or northern part of the village or higher elevations. The South Riverside Commercial area, North Riverside Commercial and Residential area, and parts of Harmon along the Croton River may be affected by flooding or complete dam failure, but the other areas of the village would not be heavily impacted because of their higher elevation.

The transportation corridors that could potentially transport hazardous materials run through or parallel to the high density residential and commercial districts. The high density housing development Discovery Cove at Half Moon Bay is at risk for flooding, and there is limited access to the area.

Other high density residential areas are among the oldest neighborhoods in the village. Older structures are more susceptible to structural fires, structural collapse and other hazards. Many of the commercial districts are also older construction. The concentration of old buildings in high density areas contributes to the potential spreading of fire creating a more significant event. Neighboring villages have experienced fast moving fires that moved through multiple buildings in their older business districts.

Thunderstorms and high winds pose a risk to some of the oldest neighborhoods in the village where there are numerous mature trees. This threat is not as prevalent in commercial areas where there are few large trees. Falling trees and branches frequently damage property and trigger electrical outages.

#### 4. Child and Senior/Rehabilitation Uses

Day cares, schools and facilities for rehabilitation within the village are vulnerable to hazards. These facilities require special attention for almost every event.

The day care facilities, public school buildings, private nursery schools and Sky View, a senior/rehabilitation facility in the village, must have plans in case of any hazard or need to evacuate. Sky View is located on Route 9A at a high elevation, so it is not vulnerable to flooding. The facility is on Route 9A and is near Route 9, but the likelihood of evacuation in a hazardous materials event is very small. The building has multiple floors and elevators. During a fire or utility failure, evacuation of residents may be difficult without the use of elevators. Loss of power might seriously impact the facility, although they do have a back-up power source.

Extreme temperatures, water supply failures, and winter storms can be life-threatening, especially for younger children and older people. These groups require particular attention during hazard events. Schools and child care facilities should have response plans.

#### 5. Water Supply

The village obtains its water from a well system. The well system contains three wells. Water is pumped from the well fields, chlorinated and released into the distribution system which consists of four storage tanks and a network of water mains. The storage tanks have a capacity of 2.4 million gallons. The Village of Croton-on-Hudson has approximately eight thousand residents. Most residents receive water from the municipal water system but some use private wells. The average daily water consumption is approximately one million gallons.

Water emergency declarations and issuance of consumer notifications are made under the directions of the Village Manager in consultation with the Department of Public Works. The Water Department is under the purview of the Department of Public Works.

An emergency is defined as an event, natural or man-made, which is concentrated in time and space and which causes all or part of the Croton community to suffer from a large-scale disruption of water service. An emergency does not include isolated water main breaks.

## 6. Hazardous Material Sites

Hazardous material sites in the village have been discussed as hazards, but they also represent at-risk facilities that require protection during other emergency events. Many of the village's hazardous materials sites (gas stations) are on the transportation corridors where they are at risk for accidents.

### E. At-Risk and Sensitive Structures

**Table 4 – At-Risk or Sensitive Facilities**

This section lists facilities that regularly have higher population concentrations, are critical to response and recovery operations or are essential in order for every day life in the village to return to normal. The table includes the estimated number of people that regularly use the space and the structural value of the site should it be lost or damaged in a hazard event. Additional information concerning new critical structures will be added to this table at times of revision.

Emergency Response**	Facility Name	Facility Type	Approx. Number of People***	Estimated Structural Value	Dam Failure Zone	Transport Corridors	Flooding	High Risk for Fire
X	Municipal Building	Village	50-250	\$4,979,200				
X	Village Garage Gateway Plaza	Village	25	\$1,188,800	X	X	X	
	Black Rock Park Bathhouse	Village Recreation	5	\$199,800	X		X	
	Senasqua Park Bathhouse	Village Recreation	150	\$180,800		X	X	
	Silver Lake Shelter House	Village Recreation	50	\$102,400	X		X	
X	Harmon Firehouse	Fire Dept.	10	\$1,914,600				
X	Riverside Firehouse	Fire Dept.	10	\$681,500				
X	Grand Street Firehouse	Fire Dept.	10	\$1,371,800				
	Water Department Office – Rt. 129	Water	5	\$100,000	X	X	X	
	Sewer Pump Station Nordica Drive	Sewer	0	\$132,300				
	Sewer Pump Station Half Moon Bay	Sewer	0	\$150,000			X	
	Sewer Pump Station Sky View	Sewer	0	\$150,000				
	Sewer Pump Station Arrowcrest	Sewer	0	\$150,000				
	Westchester County Pump Station	Westchester County	0	\$500,000				

Emergency Response**	Facility Name	Facility Type	Approx. Number of People***	Estimated Structural Value	Dam Failure Zone	Transport Corridors	Flooding	High Risk for Fire
	Pump House #3 Route 129	Water	0	\$91,400		X	X	
	Pump House #2 Route 129	Water	0	\$58,500		X	X	
	Pump House #4 Route 129	Water	0	\$91,400		X	X	
	Pump Station North Highland Place	Water	0	\$73,800				
	Pump Station Hessian Hills Road	Water	0	\$73,100				
	Pump House #1 Route 129	Water	0	\$131,500		X	X	
	North Highland Water Tank North Highland Place	Water	0	\$1,222,400				
	Hessian Hills Water Tanks North Highland Place	Water	0	\$1,324,600				
	Sky View Nursing Home	Nursing Home				X		
X	Carrie E. Tompkins Elementary School	School District	850			X		
X	Pierre Van Cortlandt Middle School	School District	425			X		
X	Croton-Harmon High School	School District	450			X		
	Croton-Harmon Train Station	Metro North Railroad	50-500		X	X	X	
	Croton Free Library	Public	50-300					

\*village owned or public facilities, residential units are not included in this table

\*\*facilities that are designated high priority in the event of an emergency (i.e. evacuation centers, equipment storage, emergency response headquarters)

\*\*\*occupancy can vary seasonally

## F. Asset Inventory

**Table 5 – Inventory of Property and Structural Assets\***

	Number of Properties		Estimated Full Market Value	Estimated Structural Value
	#	%		
<b>Village Wide</b>	3,272	100%	\$1,467,623,711	\$1,927,369,822
<b>Single-Family Properties</b>	2,116	64.6%	\$885,921,994	\$748,884,393
<b>Two-Family Properties</b>	109	3.3%	\$33,556,064	\$904,476,118
<b>All Other Properties</b>	1,047	32%	\$548,145,653	\$274,009,311

\*as of July 23, 2004

## **G. Capability Assessment**

The following is a summary of the Village of Croton-on-Hudson's capabilities of responding to hazard events. This section discusses the village's current capabilities with respect to fire protection, law enforcement, emergency medical care and public works. This section also addresses areas of emergency response in need of improvement or enhancement.

### **1. Croton Volunteer Fire Department**

The Croton Volunteer Fire Dept is a 100% Volunteer Fire Department that protects the Village of Croton-on-Hudson: an area of approximately 4.5 sq. mi. and the Mount Airy / Quaker Bridge Fire Protection District in the Town of Cortlandt, approximately 4.5 sq. miles. Additionally, the Department provides Emergency Medical Service with two Basic Life Support Ambulances. Advanced Life Support is provided through a contract with the Tri-Community Fly Car System, which is a consortium of the villages of Croton-on-Hudson and Briarcliff Manor and the Ossining Volunteer Ambulance Corp.

Five Fire Companies operate out of three stations, Grand St., Washington Engine and Harmon. The Department has a total membership of 192 persons including an Auxiliary Dispatchers unit and a BSA Explorer Post. There are approximately 65 Interior Firefighters and the remainder act as support personnel. Approximately 30 members are trained to the EMT-Defib level or higher.

The village has thirteen fire department apparatus: 3 Engines, 1 Aerial Tower, 1 Rescue truck, 1 Tanker, 2 Ambulances, 1 Fire Boat, and 1 Rescue Boat. The Chief and the two Assistant Chiefs are each supplied with an official vehicle.

The Grand St. Firehouse was recently renovated and expanded (2000-2002). At the same time, the Harmon Firehouse was demolished and a new, larger building was constructed on the same site. The Washington Engine Firehouse was rebuilt in the early 1980s. The Grand St. and Harmon Firehouses are equipped with emergency generators and the Washington Engine Firehouse is scheduled to receive a generator in the near future.

### **2. Police Department**

The Village Police Department has 19 uniformed personnel: ten officers, five sergeants, two lieutenants, and the chief. Fifteen are trained Certified First Responders (CFR-D) to assist in medical emergencies and trained to use Automated External Defibrillators. Six are part of the department's Dive/Rescue Team. Assisting the full time police, there are six unarmed Auxiliary Police volunteers who assist with traffic control, crowd control and civil defense.

The village has fourteen police vehicles: four unmarked cars and six marked patrol cars, a former ambulance used as a mobile command post and an emergency services vehicle for the dive rescue and emergency response team, and two four wheel drive vehicles for inclement weather and remote access locations. All patrol cars are equipped with Automated External Defibrillators and are currently being upgraded to be equipped with laptop computers that will connect to the village's wireless network. The Police Department Dive/Rescue Team has two vessels: a 16-foot Zodiac ridge hull inflatable

equipped with a 45 HP outboard motor and a 10-foot Avon inflatable equipped with a 9 hp outboard motor. The department utilizes Enhanced 911 which supplies dispatch with the location of the caller as long as a connection is made.

The Police Department is considering technological upgrades that would improve their response including utilization of Reverse 911 and a selective siren alert system. Currently the police station is set up to serve as the village's Emergency Operation Center (EOC) during disaster events. The space, while secure, is limited, and in the event of a large scale emergency it may prove insufficient for all necessary personnel. Installation of multiple additional phone jacks in the Manager's Office would permit that space to be used as the EOC instead.

### 3. Ambulance Corp Assigned to Croton Fire Patrol #1 of the Croton Volunteer Fire Department

The Ambulance Corp has two ambulances and responds to about 600 calls a year. The 30 volunteer Emergency Medical Technicians provide Basic Life Support (BLS) and are trained to the level of Defibrillator or higher. Paramedics in a fly-car provide Advanced Life Support (ALS) through an inter-municipality contract agreement. Medical treatment facilities include Phelps Memorial Hospital, Hudson Valley Medical Center, Northern Westchester Medical Center, and Westchester Medical Center.

### 4. Village of Croton-on-Hudson Department of Public Works

The Department of Public Works has approximately 25 employees. The DPW equipment includes 40 vehicles that are essential for emergency disaster response, cleanup and recovery as well as a considerable amount of other equipment. In large-scale flooding events, assets are susceptible to damage because of the location of the DPW Garage. The department maintains a significant portion of municipal infrastructure including the village roads, sewers, drainage systems and trees.

Relocation of the Garage has been under consideration. No definite time frame has been established, primarily because there are no appropriate sites available for the garage within the village. If a hazard event occurs with warning, then removing equipment and vehicles from the garage will be a preliminary response.