# City of Peekskill, New York

# Office of Emergency Management


## City of Peekskill Hazard Mitigation Plan

## For

## Property and Infrastructure

*December 2007*

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# 1.0 Introduction

## 1.1 History/Significant Information

Peekskill was established as a distinct locale by travelers from the Hudson River in the 1600's. The first European person recorded to set foot on this territory was Jan Peeck. On various sloop journeys to this region at about 1650, Peeck exchanged various manufactured items with native tribal people located along Peekskill Bay, or what are now Annisville Creek, and possibly some distance up Peekskill Hollow Brook. The Peekskill region, and specifically what is now Annisville, was first identified by European immigrants as "Peeck's Kill." While once unofficially known as Jan Peeck's Creek, it was the formal transfer of itemized useful products by the Europeans to the Sachoes and their tribal representatives in 1685 that created Peek's Kill as a distinct geographic location.

Peekskill was a significant Revolutionary War military base and at times used as a headquarters for American army officers in the Hudson Valley from 1776 through 1782. General Washington established Peekskill as the regional command center for the Hudson Valley following a personal inspection tour here in November 1776.

Beginning with Peekskill's first legal incorporation as a village in 1816, industrial, commercial, and civic activities continued to grow. This New York State legislative act established Peekskill's working government as a Village within the Town of Cortlandt. The 1816 law allowed Peekskill to elect five Trustees, have elections and to raise taxes. Also authorized was the appointment of four fire wardens with a company of 18 firemen. By this time, there were 231 buildings and about 1,300 residents in the village.

The Hudson River Railroad appeared at Peekskill in 1849 and by 1850 was connected between New York City and Albany. Several of Peekskill's distinguished fire companies were organized during this era. Columbian Engine Company began in 1826, the Peekskill and later Cortlandt Hook and Ladder in 1831. In addition, the Peekskill Military Academy was organized in 1833 and remained in continuous operation as private school until 1968. Westchester County's first bank of 1833 was organized at Peekskill village. Peekskill officially became incorporated City on July 29, 1940.

### Early Infrastructure Improvements

As the population expanded north to the suburbs along the river, Peekskill became a central hub toward for that migrating growth. It's access to roadways, bridges, rail and waterway made it attractive to both commercial and residential interests alike. Both areas of the city saw a increasing rise in development through out the years.

### Twentieth Century Growth

In the twentieth century Peekskill saw its share of low income housing under the Peekskill Housing Authority with structures like 807 Main Street, a 10 story multi family

apartment building and Dunbar Heights a series of multiple 3 story apartment buildings. In addition, Peekskill took on home to the Jan Peek House, a homeless shelter on the city's west side. In the late twentieth Century as focus of the population shifted to moving to the suburbs from New York City, Peekskill became an attractive option with its easy road access combined with a rail stop that provided direct access to New York's Grand Central Station. The developers say the opportunity and began to build moderate income single family housing developments with in the city limits such as Forest View on Main Street. This expansion continued in to the twenty-first century with the addition of Peekskill's Artist Lofts, the Riverbend Complex and the Riverfront Development plan.

### Sustainable Growth

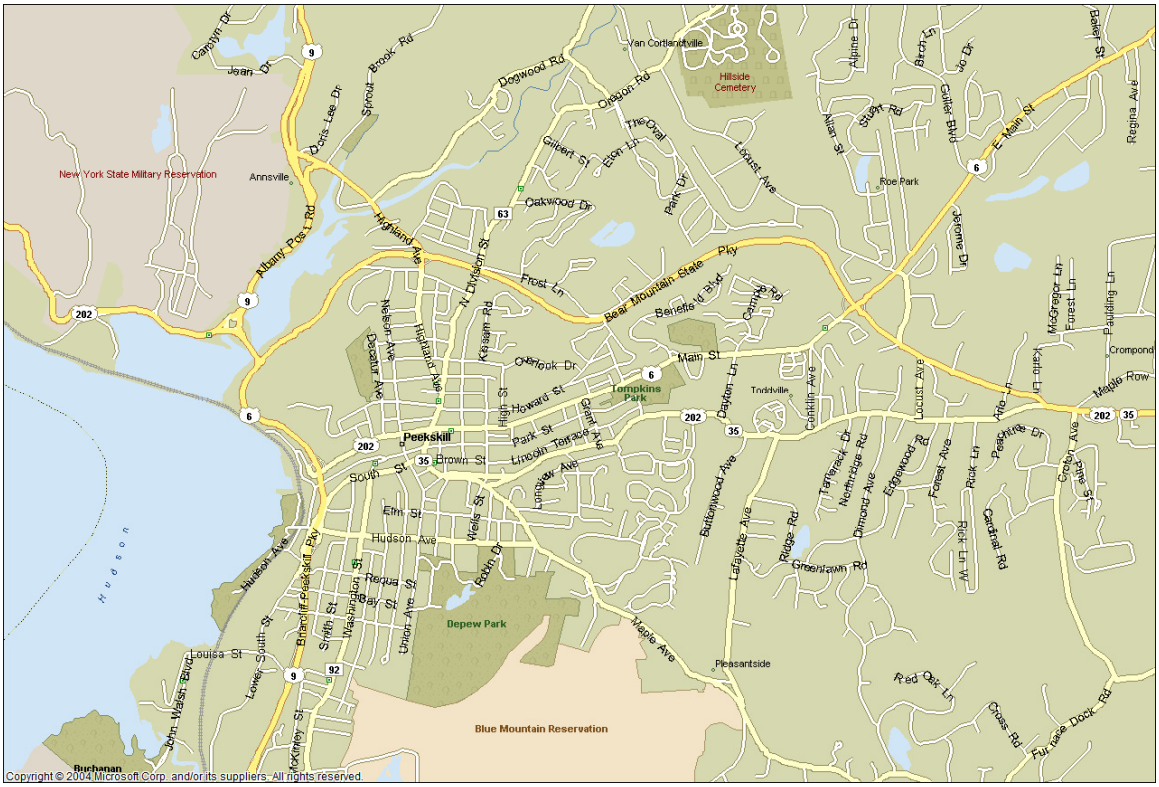
The Route 6/202 corridor study indicated that while the area has potential for sustainable growth it is limited by its in adequate roadway infrastructure which created frequent "rush hour" bottle necks both into and out of the city at both predictable locations and times. It is this restriction that would be the only hindrance on any future sustainable growth.

## ***1.2 Land Use***

Geo-Physical Features

Peekskill is 4.6 miles square in size. The city's northern boundary in Putnam County, while Mohegan Lake and Cortland Manor sit to the east, Buchanan and Montrose to the South and the Hudson River flanks the western boarder. The Hudson River is 1.25 miles wide at Peekskill Bay. Peekskill is contains a series of public access parks through out the city in addition to some lakes, streams and brooks. The most notable of which is McGregor Brook which bisects the city into east to west along Park Street and Central Avenue where it passed through a series of open and closed culverts as it makes it way to the Hudson River. Peekskill also contains it own reservoir system. Peekskill soil in primary rock in nature.

Approximately 60% of the City is residential in nature, 15% is undeveloped park land and the balance or 25% of the City is a mix of both commercial and residential use.




# *1.3 Population*

## Population

The population of Peekskill has increased significantly in the past years. The 1990 United States Census Bureau shows Peekskill at 22,441 people. The 2000 United States Census Bureau indicates a population of 23,077 which is a 15% increase. There are 4.6 square miles in Peekskill giving a population of 2061 people per square mile.

| Age | Number of Population per 2000 census |
|---|---|
| <18 | 5,501 |
| 19-64 | 14,355 |
| 65+ | 2,585 |

Population by Race

| | |
|---|---|
| White | 12, 809 |
| Black or African American | 5,972 |
| American Indian | 28 |
| Asian & Pacific Islanders | 285 |
| Other Race | 2,276 |
| Two or More Races | 1,071 |
| Hispanic Latino | 4,859 |

Household Income:

| | |
|---|---|
| <$15,000 | 1,296 |
| 15,000-29,999 | 1,482 |
| 30,000-44,999 | 1,445 |
| 45,000-59,999 | 1,125 |
| 60,000-74,999 | 977 |
| 75,000-99,999 | 1,109 |
| 100,000-149,999 | 870 |
| >$150,000 | 391 |

| **XP1. GENERAL POPULATION** | | |
|---|---|---|
| TOTAL PERSONS/PERCENT SAMPLED | **37,497** | 13.9% |
| PER SQUARE MILE / LAND AREA | **1,338** | **28.03** |
| FEMALES | 19,144 | 51.1% |
| LIVING IN RURAL AREAS/ON FARMS | 3,214 | 0 |
| LIVING IN FAMILIES/ALONE | 32,882 | 2,813 |
| LIVING IN GROUP QUARTERS | 555 | 1.5% |
| | | |
| **XP2. PERSONS BY RACE/HISPANIC** | | |
| WHITE | 30,996 | 82.7% |
| BLACK | 4,980 | 13.3% |
| ASIAN & PACIFIC ISLANDER | 699 | 1.9% |
| AMERICAN INDIAN, ESK., ALEUT | 35 | 0.1% |
| HISPANIC (ANY RACE) | 2,659 | 7.1% |
| | | |

b

# *2.0 Purpose of the Plan*

"The Disaster Mitigation Act of 2000" (DMA 2000) is legislation that reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. The President signed the Act (Public Law 106-390) into effect on October 10, 2000 to improve the planning process and set standards for mitigation throughout the nation. This Act requires a pre-disaster hazard mitigation plan to access mitigation project funding and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMPG). The completion of this plan will assist the City to receive additional mitigation grants.

Mitigation is increasingly seen as a cost-effective approach to save a community from the loss of life and property associated with hazards. This plan is a comprehensive focus on mitigation and attempts to identify strategies that reduce the City's exposure and vulnerability to hazards. The plan is a long term concept as many of the strategies will take months or years to implement. Peekskill has experienced the financial as well as emotional impacts of many types of disasters, including being a participant in the activities in New York City on and after September 11, 2001. Peekskill understands that there are many policies and procedures that can be implemented to reduce their vulnerability to disasters.

## *2.1 The Planning Process*

The preparation of the hazard plan started on February 26, 2004 with the Hazard Analysis conducted by Westchester County personnel. The planning team met several times in order to meet this goal. The Hazard Mitigation Team consisted of City staff, emergency service providers and other representing a variety of interests in the community. Representatives from New York State Emergency Management Office also attended many of the meetings.

**February 26, 2004**: Westchester County conducted a hazard analysis using the automated program, HAZNY (Hazards New York). HAZNY was developed by the American Red Cross and the New York State Emergency Management Office. The purpose of using HAZNY is to rank the hazards in order of importance to Peekskill. In identifying and prioritizing hazards, a number of factors are considered including the scope, or impact area, frequency of occurrence, advance warning of the hazard, the length of the event and the amount of time required to recover from an event.
HAZNY is an automated interactive spreadsheet that asks specific questions on potential hazards in a community and records and evaluates the responses to these questions. HAZNY also includes historical and expert data on selected hazards. HAZNY is designed specifically for groups rather than individual use. The City assembled a group of local officials to consider and discuss the questions and issues raised by the HAZNY program. Representatives from Westchester County facilitated the meeting and recorded the results.

People Attending This Meeting:

Jim Seymour: Peekskill Office of Emergency Management
Tim Warn: Con Ed Emergency Management
Mack Godbee: Peekskill Fire Department
Joe Ronca: Peekskill Office of Emergency Management (volunteer)
Jeff Tkacs: Town of Cortlandt Homeland Safety and Security
Allen Croswell: Westchester County RACES
James Rose: Peekskill School District
Ed Degasperis: Entergy Nuclear Power Plant
Scott Kavana: Peekskill Water Department
Howard Wessels: Peekskill Department of Public Works
Chris Conkling: Peekskill Volunteer Ambulance Corp

Perci Conkling: Peekskill Volunteer Ambulance Corp.
Neil Sweeting: Westchester Office of Emergency Management
Matt Peloso: Westchester Office of Emergency Management
Gary Agello Jr.: American Red Cross
Nadine Macura: New York State Emergency Management
Mark Ferrari: New York State Emergency Management

**February 20, 2004**: This meeting was a discussion of the Mitigation Plan including the steps that need to be taken to write the plan, and what City departments should be involved. Plans need to be written by a planning team that includes different people with a vast array of experiences. The Planning Team was written in a draft form with which departments are needed.

People Attending This Meeting:
Jim Seymour: Peekskill Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Fire Department/PVAC
Nadine Macura: New York State Emergency Management

**March 18, 2004:** A meeting to discuss planning was conducted. This included getting the primary information for the mitigation plan and working on rough drafts of certain areas of the plan.

People Attending This Meeting:
Jim Seymour: Peekskill Office of Emergency Management
Nadine Macura: New York State Emergency Management

**April 8, 2004:** A meeting to discuss the planning team, introduction, critical structures and other parts of the mitigation plan.

People Attending This Meeting:
Jim Seymour: Peekskill Office of Emergency Management
Nadine Macura: New York State Emergency Management

**November 16, 2005:** A meeting to discuss re-organization and focus to facilitate completion of the plan:

People Attending This Meeting:
Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Office of Emergency Management/PVAC
Tim Warn: Peekskill Office of Emergency Management
Nadine Macura: New York State Emergency Management
Neil Sweeting – Westchester Office of Emergency Management

**March 16, 2005:** A meeting to check on status of the plan and area of needed focus and attention on completion.

People Attending This Meeting:
Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management

Mack Godbee: Peekskill Office of Emergency Management/PVAC
Tim Warn: Peekskill Office of Emergency Management
Nadine Macura: New York State Emergency Management

**May 17, 2005:** A meeting to discuss needed revisions with the first draft copy of the plan and areas requiring attention and change.

People Attending This Meeting:

Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Office of Emergency Management/PVAC
Tim Warn: Peekskill Office of Emergency Management
David Greener – Peekskill DPW
James Howard – Peekskill Fire Department/Code Enforcement
Nadine Macura: New York State Emergency Management

**June 8, 2005:** A meeting to discuss needed revisions with the draft of the plan and areas requiring attention and change.

People Attending This Meeting:

Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Office of Emergency Management
Tim Warn: Peekskill Office of Emergency Management
David Greener – Peekskill DPW
James Howard – Peekskill Fire Department/Code Enforcement
Nadine Macura: New York State Emergency Management

**August 25, 2005**: Meeting to discuss SEMO review of the draft document and to address areas that require attention.

People Attending This Meeting:

Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Office of Emergency Management
Tim Warn: Peekskill Office of Emergency Management
Nadine Macura: New York State Emergency Management
Ed Lips: New York State Emergency Management

**September 7, 2005**: Meeting of the Hazard Mitigation Committee to discuss SEMO review of the draft document and to address areas that require attention along with progress made.

People Attending This Meeting:

Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Office of Emergency Management
Tim Warn: Peekskill Office of Emergency Management
P.O. Leo Dlewski: Peekskill Police Dept – Community Police Division

**September 22, 2005:** Meeting of the Hazard Mitigation Committee & City Officials to discuss SEMO review of the draft document and to address areas that require attention along with progress made.

People Attending This Meeting:

Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Office of Emergency Management
David Greener – Peekskill DPW
James Howard – Peekskill Fire Department/Code Enforcement
Nadine Macura: New York State Emergency Management

**March 1, 2006:** Meeting of the Hazard Mitigation Committee & City Officials to discuss SEMO review of the draft document and to address areas that require attention along with progress made.

People Attending This Meeting:

Sean Echols: Peekskill Police Dept/Office of Emergency Management
Joe Ronca: Peekskill Office of Emergency Management
Mack Godbee: Peekskill Office of Emergency Management
David Greener – Peekskill DPW
James Howard – Peekskill Fire Department/Code Enforcement
Neil Sweeting – Westchester Office of Emergency Management
Nadine Macura: New York State Emergency Management

Even though every committee member was not able to attend every meeting this plan was provided to each member electronically in order to facilitate their ability to provide feedback on the document. The city planner was afforded the review of each revision electronically in addition to the ability to comment. The Peekskill Office of Emergency Management was the author of the document.

## *2.2 Planning Committee Objectives*

The Planning Committee had several goals and objectives that would guide them in the development of this mitigation plan

The first goal of the Planning Committee was to develop a Risk Assessment to identify the greatest natural hazards threatening the City of Peekskill it general population and its government facilities.

The second goal of the Planning Committee was to identify the most critical facilities or infrastructure associated with the City of Peekskill government. The cost of building replacement was considered but was not a major factor in the facilities ranking.

The third goal was to develop a set of objectives that would be used as a mitigation measures for all of the identified natural hazards identified in the Risk Assessment. The four objectives identified by the Planning Committee are:

- Reduce the number of civilian and government critical facilities in hazard prone areas.
- Develop strategies to reduce the risk from identified hazards at all facilities.
- Develop awareness and education programs for all citizens and city employees working or living in hazard prone areas.
- Enhance emergency preparedness and response within the City as a whole.

## *2.3 Incorporation of Plans and other Information*

The development of this mitigation plan was accomplished after reviewing numerous City of Peekskill and Westchester County emergency preparedness plans and land use studies. These plans along with information gathered from State and Federal agencies form the basis of this mitigation plan. City of Peekskill rules and regulations as well as the legal authority to develop this plan were analyzed and reviewed by the planning committee. The plans reviewed and incorporated into this mitigation plan are

- Westchester County Comprehensive Management Plan
- Westchester County Radiological Response Plan
- Westchester County Long Island Coastal Storm Plan
- Departmental Of Environmental Facilities Emergency Response Plan
- Peekskill HAZNY
- City of Peekskill Radiological Plan
- City of Peekskill Comprehensive Emergency Plan
- City of Peekskill Police Department Terrorism Annex
- SAVE Emergency Management Plan for the Peekskill Schools
- MTA Metro-North's Passenger Train Emergency Response Procedures

Outside agencies that contributed to the development of this plan include:

- Federal Emergency Management Agency
- New York State Building Code
- New York State Emergency Management Office
- Westchester Office of Emergency Management
- National Oceanic and Atmospheric Administration
- National Weather Service
- National Hurricane Center
- United States Geological Survey

The planning committee reviewed the following legal documents:

- Westchester County Rules and Regulations
- New York State Article 2-B

- Federal Emergency Management Hazard Mitigation Guidance Documents
- Statewide Wireless Network
- City of Peekskill Building Code
- City of Peekskill Zoning Laws
- City of Peekskill Charter
- Peekskill Local Laws and Ordinances
- Local Waterfront Revitalization Program of 1996
- Wetlands Protection Laws

Other Hazard Mitigation Plans referenced during the writing of the Peekskill Plan:

- New York State Hazard Mitigation Plan
- County of Westchester Hazard Mitigation Plan
- City of Rye Hazard Mitigation Plan
- City of Yonkers Hazard Mitigation Plan
- City of Mount Vernon Hazard Mitigation Plan
- Croton on Hudson Hazard Mitigation Plan
- Flood Insurance Rate Maps

## *2.4 Public Involvement and Other Interested Parties*

When the plan neared completion the Peekskill Hazard Mitigation Committee made their work available to the public at the end of August 2005. Peekskill residents, businesses and neighboring villages and towns could view a draft of the report posted on the Office of Emergency Management website and were invited to use the citizen comment sheet to respond to it. The plan remains a permanent part of the documents availed to the citizens on the website. A hard copy of the report was also made available at the Peekskill Police Desk, the Field Library and the City Clerks Office, where it will remain permanently post-approval for additional viewing and comment. Availability of the document was publicized on the City Website and at a public outreach seminar held on September 10, 2005 where the plan was explained to the residents that were present. Any resident responses were considered in the preparation of the final document. In addition, copies were made available to the County and neighboring towns for review in addition to some local high school teachers, businesses and other parties that expressed interest in reviewing it. A copy of the plan was additionally forwarded to the Town of Cortland, the County of Westchester, Consolidated Edison, Entergy, Engelhart and the American Red Cross electronically.

## *2.5 Adopting, Implementing and Monitoring*

1. Adoption

   Adoption of the plan gives the plan greater authority, fulfills certain FEMA program eligibility requirements, and will ease implementation of your mitigation actions. Once the plan is adopted the village can implement mitigation strategy.

The Common Council will be responsible for adopting the hazard mitigation plan after it is approved by FEMA. This legislative board is responsible for establishing the village policy. The Common Council has the authority to implement most of the strategies recommended in this plan including setting policy directives for City staff, allocating funding and adopting amendments to existing City laws.

Upon approval by the Federal Emergency Management the plan will be presented to the Common Council for formal adoption and the resolution will be attached in Appendix A. (See Sample Attached on page )

2. Implementation

A. Integration

To encourage the implementation of this mitigation plan, it will be reviewed prior to the adoption of new or amended zoning or land use regulations, public safety statutes and other local ordinances, policies, and programs. By considering hazard mitigation a City policy, policy-makers will implement mitigation initiatives and programs. The Hazard Mitigation Committee will aid in this process.

B. Existing Programs

Successful plan implementation will require that strategies be implemented through the existing City programs and planning mechanisms and instituted in the policy formation and decision making process. The City will include the ideas and objectives from the Hazard Mitigation Plan as existing plans and procedures are updated. Existing programs include:

- **City Code Revisions**. The Common Council adopts code revisions including changes in the City zoning code, flood plain management requirements, subdivision regulations, housing standards or other relevant City Code Chapters or planning documents.

- **The Comprehensive Plan**. The plan takes into consideration the environmental limitations and risks of the City. The conclusion and recommendations of the plan support the goals of hazard mitigation.

- **Code Enforcement**. In many cases, simple changes in code enforcement and law enforcement by the City Code Enforcement Officer would make hazard mitigation possible. In other cases modification in police enforcement or fire prevention activities may be necessary.

- **Capital Improvements Program and Budget**. Strategies involving significant City expenditures will need to be implemented through the Capital Improvements Program, which is approved annually by the Common Council. Strategies involving smaller expenditures such as funding increases for maintenance or enforcement activities will likely be administered through the annual budget process, which is adopted by the Common Council.

3. Monitoring

The Hazard Mitigation Plan will be under constant review as goals are achieved through proposed strategies and projects, and new strategies are developed and added to the plan.

A. Yearly Review

The Peekskill Office of Emergency Management along with the City Manager will be responsible for contacting members of the Hazard Mitigation Committee each year for a plan evaluation meeting. The meeting should be called in October each year.

The plan shall be reviewed, revised, and update on an annual basis by the committee with feedback and suggestions from the public and City departments. The committee shall continue to monitor the plan and update it as necessary, as well as provide the Common Council with annual reports regarding the plan implementation and stated mitigation projects. Progress of the plan and the implementation of strategies and projects shall be reviewed and necessary updates made. If new information or an urgent situation arises that requires immediate attention, the Committee will assemble to address the issue.

During the yearly evaluation, the committee will first determine if the plan needs changes. If the projects have begun or been completed, the status should be updated. The committee will determine the effectiveness of the plan's procedures and recommendations, identify new areas of concern, and renew enthusiasm for the cause of hazard mitigation. New strategies for mitigation of existing or developed conditions will be added to the plan as will any new emergency response plans created by the City.

The Hazard Mitigation Committee is responsible for aiding in the integration process of the plan. Goals and objectives that are accomplished should be documented. Should there be any changes in City regulations, the Common Council and committees should consult with the Committee in order to review the proposed change and its impact on the policies and strategies of the Hazard Mitigation Plan. Any land use changes or new developments in the village will also be analyzed.

B. Five Year Re-approval Processes

Every five years the Hazard Mitigation Committee will submit the revised Hazard Mitigation Plan to NYSEMO & FEMA for approval. After FEMA approves the changes, the Common Council will adopt the approved plan.

C. Public Involvement

Upon adoption, the City of Peekskill Hazard Mitigation Plan will be available through City Hall. Additionally, it will be available on the City website. The public will be invited to comment through the citizen comment form on the website.

In order to recommend and review changes, the most recent version of the plan will remain on the City website. Continued community involvement is an essential element for plan development and revision. During periods of review, the Committee will encourage participation of residents, neighboring communities, agencies, businesses and other interested parties. Comments through the citizen comment form will be used during the plan's review to maintain citizen participation. In addition, a copy will be available at the City Hall for public viewing.

# ***3.0 Risk Assessment***

The American Red Cross and the New York State Emergency Management Office developed a program that analyzes the history of disasters to help rank their risk factors to determine which items should be mitigated for future potential problems. Westchester County facilitated a quantitative risk assess using the HAZNY program developed by the New York State Emergency Management Office. HAZNY is based on a spreadsheet that ranks hazards based on the scope (area of impact and potential for a cascade effect), frequency of an event, impact of the incident, onset (amount of warning time), and duration of each hazard consideration. The Risk Assessment process discusses the definition of the hazards, past history certain hazards, future vulnerability to hazards, and area that would be affected. To meet the goals of the Planning Committee, three separate assessments were conducted. The first was a standard Risk Assessment that identified the hazards that pose a threat to the city residents or its critical infrastructure. The second assessment was to identify the City's infrastructure that is most critical to daily operations. The third assessment was to determine what impact specific hazards would have on our critical facilities and to identify mitigation measures to be taken to reduce the risks

## ***3.1 Critical Facilities:***

The Planning Committee identified the following County properties and infrastructure as critical facilities

- City Hall, Nelson Avenue , Peekskill
- Police Headquarters, 2 Nelson Avenue Peekskill
- Emergency Management Office, 4 Nelson Avenue, Peekskill
- Fire Headquarters, Main Street, Peekskill
- Fire Stations – Washington Street, Peekskill
- - South Division St, Peekskill
- - Crompond Rd, Peekskill
- - Dayton Ln, Peekskill
- - Highland Ave, Peekskill
- EMS Headquarters, Main Street Peekskill
- Radio Communication Towers – Citywide

- Public Works Garage – Louisa Street, Peekskill
- Public Works Repair Facility, Lower South St, Peekskill
- Water Treatment Plant
- Sewer Treatment Plant

| Facility | Department | Replacement Value | Desciption |
|---|---|---|---|
| City Hall | Office | 8,500,000 | General city services, records, maps, computers equipment. |
| Police HQ | Police Dept | 4,500,000 | Station, communication equipment 42 vehicles, technical and specialized equipment and records. |
| Emergency Management Office | OEM | 1,250,000 | EOC, communication equipment, communications vehicle, specialized portable equipment, records |
| Fire Headquarters | Fire Dept. | 1,250,000 | Communication equipment, spare fire fighter equipment, computer equipment, records, tower ladder truck |
| Fire Stations x 5 | Fire Dept | 1,000,000 | Computer equipment, spare fire fighter equipment, cascade units, records, pumper truck at each station. |
| Fire Station x 2 | Fire Dept | 75,000 | Paramedic Response Vehicle |
| EMS Headquarters | EMS | 2,500,000 | 3 ambulances, 1 fly car, Communications equipment, training equipment, spare medical supplies, spare portable radio equipment. |
| Radio Communication Towers | Citywide | 3,500,000 | Radio Repeater facilities for city services in multiple location to provide both separate and redundant services. |
| Public Works Garage | DPW | 6,800,000 | 7 sanitation trucks, 9 dump/plow/sand trucks, various heavy duty equipment i.e. Front end loaders, rollers, leaf vacuums, etc. |
| Public Works Repair Facility | DPW | 3,200,000 | 2 road side repair trucks, three bay full service heavy duty truck garage. |
| Water treatment facility | DPW | 4,500,000 | Water treatment facility |
| Sewer treatment facility | DPW | 5,500,000 | Waste water treatment facility |

## 3.1.1 Facility Vulnerability by Hazard

| Facility | Winter Storm | Flood | Earthquake | Ice Storm | Tornado | Hurricane |
|---|---|---|---|---|---|---|
| City Hall | 1 | 1 | 4 | 2 | 3 | 2 |
| Police HQ | 1 | 1 | 3 | 2 | 2 | 2 |
| Emergency Management Office | 1 | 1 | 1 | 1 | 1 | 1 |
| Fire Headquarters | 1 | 1 | 3 | 1 | 3 | 2 |
| Fire Station x 5 | 2 | 2 | 3 | 2 | 4 | 2 |
| Fire Station x 2 | 2 | 2 | 3 | 2 | 4 | 2 |
| EMS Headquarters | 1 | 4 | 3 | 2 | 2 | 2 |
| Radio Communication Towers | 1 | 1 | 3 | 1 | 4 | 3 |
| Public Works Garage | 1 | 5 | 2 | 1 | 3 | 4 |
| Public Works Repair Facility | 1 | 3 | 2 | 1 | 2 | 3 |
| Water treatment facility | 1 | 1 | 3 | 1 | 2 | 2 |
| Sewer treatment facility | 1 | 3 | 3 | 1 | 2 | 3 |

Ratings: 1 to 5 – Low to High

## *3.2 Natural Hazards*

### Eliminated Hazards

The following hazards are not addressed as they have a zero or near zero probability in the Peekskill City limits:

- Avalanche – Peekskill has no steep slopes with in the City Limits that are considered to be at risk locations.
- Coastal Erosion/Storm – Peekskill is not a coastal city.
- Dam Failure – Peekskill's only dams control small bodies of water that poses little or no threat to property or life.
- Expansive Soils – not a hazard in the Peekskill Area.
- Landslide – Peekskill has no steep slope locations that would pose a slide risk.
- Tsunami – Peekskill is not a coastal location
- Volcano – not a hazard in the Peekskill Area.

## Winter Storm (Severe):

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. For this analysis, the following could meet this definition:

> HEAVY SNOW: Six inches in 12 hours or less.
>
> BLIZZARD - Characterized by low temperatures, winds 35 mph or greater and sufficient falling and/or blowing snow in the air to frequently reduce visibility to 1/4 mile or less for duration of at least three hours.
>
> SEVERE BLIZZARD - Characterized by temperatures near or below 10 degrees F, winds exceeding 45 mph, and visibility reduced by snow to near zero for duration of at least three hours. NOTE: Ice Storm should be analyzed as a separate hazard.

Past Hazard Events: The National Weather Service reports a significant storm occurs in this area averaging 2-4 times per year with a high of 6-7 storms occasionally.

Probability of Future Events: New York State experiences severe winter storms each year. These events usually last for one to three days for total cleanup of the area. The future will probably be the same as the past averaging a couple of storms each year, but occasionally a significant increase in storms.

Potential Areas Affected: The entire City of Peekskill is influenced during a severe winter storm. Utility services are mainly suspended above the streets from poles with limited utilities being underground. This in itself lends to service interruption secondary to storms.

Development Trends: With the creation of newer City Codes such areas are addressed with new construction. Most developers opt toward underground utility services as opposed to pole mounted services which improve not only appearance but the ability of said utilities to weather severe storms without severe damage and interruption.

## Severe Storm:

Definition: For this category, you should consider hail storms, windstorms, and severe thunderstorms (with associated severe wind events such as derechos, gustnados, and downbursts).

- Derechos: strong, damaging, straight-line winds associated with a cluster of severe thunderstorms that most often form in the evening or at night.

- Gustnados: A relatively weak tornado associated with a thunderstorm's outflow. It mostly forms along the gust front which is a boundary that separates a cold downdraft of a thunderstorm from warm, humid air surface.
- Downburst: A severe localized downdraft that can be experiences beneath a severe thunderstorm.

Past Hazard Events: The National Weather Service indicates twenty-five to thirty thunderstorms annually. There are five to seven of those having wind gusts over 57 mph and/or large diameter hail to some locations. Some of these cause flooding in low lying areas or near rivers and streams. There is a potential for severe storms to remain the same in number and severity in the future.

Probability of Future Events: In recent years, Peekskill has experienced severe weather numerous times each year. There will be localized severe thunderstorms and hail in the future based on the past history. The number of occurrences in Peekskill is the same for the next couple of years as the last couple of years. The number of occurrences will not change significantly in the future.

Potential Areas Affected: Severe Storms can affect part of the city or the entire city. Utility services are mainly suspended above the streets from poles with limited utilities being underground. This in itself lends to service interruption secondary to storms.

Development Trends: With the creation of newer City Codes such areas are addressed with new construction. Most developers opt toward underground utility services as opposed to pole mounted services which improve not only appearance but the ability of said utilities to weather severe storms without severe damage and interruption. In addition trees are being routinely trimmed, maintained and monitored to avoid limb failure.

## Flood:

Definition: Flooding usually is a natural, cyclic occurrence in existing water-bodies. When a water-body overflows its 'normal' banks, a potentially violent and/or destructive waterway can form. A flash flood is a sudden transformation of a small stream into a violent waterway after heavy rain and/or rapid snowmelt.

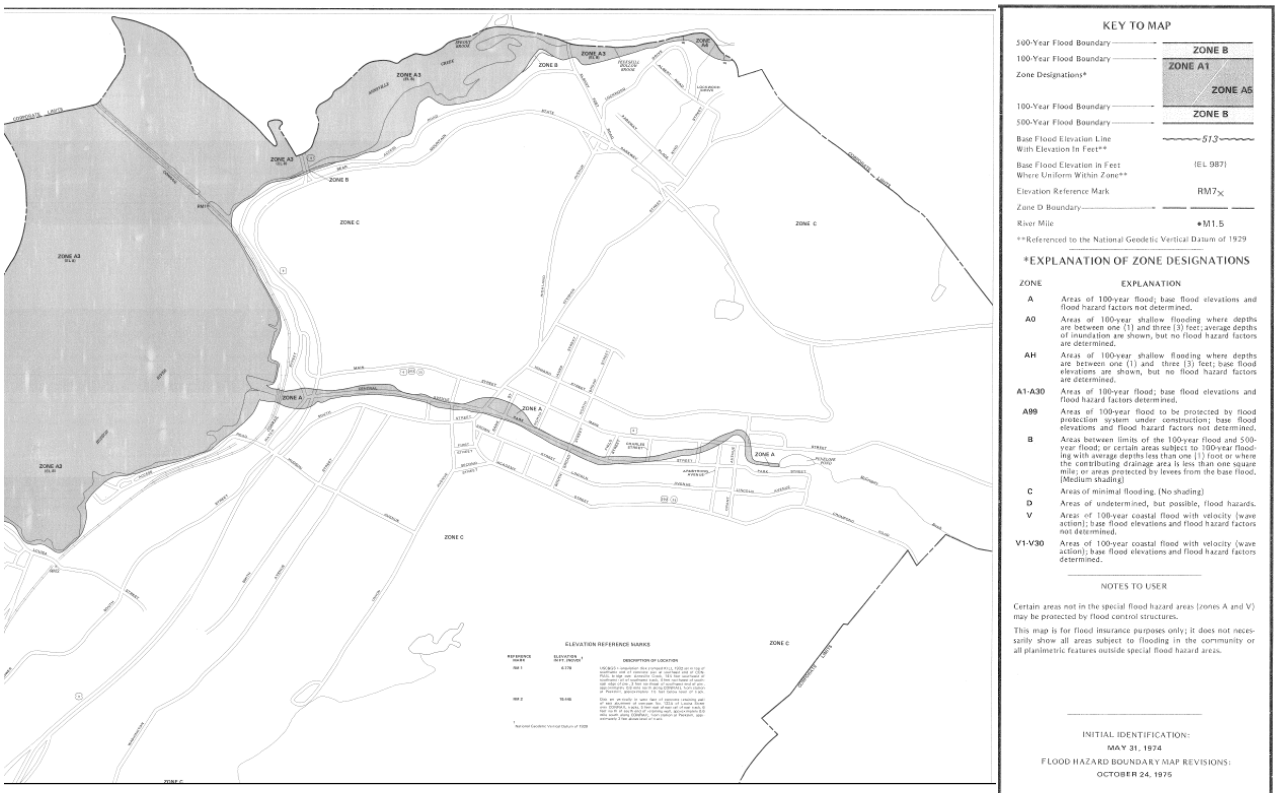
Past Hazard Events: There are a couple of severe storms each year and a couple of coastal storms that produce flooding according to the National Weather Service. The number of potential floods for some areas averages between five and twelve times a year. There is a future potential for flooding since there are many streams and rivers in Peekskill near major roadways. Major recent events occurred in the immediate Peekskill City proper in August 1989, August 1990, January 1996 and November 1996. Most events centered around the Peekskill Riverfront basin and the Central Avenue/Park Avenue corridor which bi-sects the city.

Probability of Future Events: The flooding can be caused by excessive precipitation based on storms, dam failure, ruptured water main, rapid snowmelt, and other natural events. Some storms move very slowly like severe storms, tornadoes, hurricanes, and other natural incidents. Flooding can and will occur at any time of year. The local flooding occurs quite often and will continue to occur many times in the future. There will not be a decrease or increase in the amount of times flooding occurs in Peekskill in the future.

Potential Areas Affected: Flooding can occur at Water Street and Central Avenue in the City of Peekskill. ***See map following section***. In addition the Peekskill EMS Headquarters is affected by storm flooding of the McGregor Brook that runs above ground between its facility and Park Street. Past floods have damaged the rear access bridge and flooded the lower parking area. These floods have historically not provided the need for mass population evacuation. Major flooding around the Peekskill Riverfront Basin occurs during majors storms with astronomical high tides. These events occur approximately every 3 to 5 years and require a 5 year flood mitigation plan to include but not be limited to flood control, storm drainage and roadway/rail protection.

Development Trends: The Central Avenue Storm Drain project which is expected to be completed in the Fall of 2005 and the McGregor Brook Flood Control project which is currently underway are designed to relieved the flooding along the Park Street/Central Avenue corridor by placing flood control measures in varies locations to control flow while increasing the flow capacity. Additionally, the Peekskill Riverfront Basin region is beginning to see an increase in both residential and commercial structures that will require the need to revisit the mitigation plans for future flooding problems to this flood prone region of the city. Of particular interest is the need to plan for and mitigate the flood associated with storms that carry strong easterly winds during periods of astronomically high tides.

*Westchester County Stream Control Law*: The County enacted the law in 1956 to address flooding concerns. This allows the County Department of Public Works to establish channel lines and grades for Streams18 by filing an order with the County Clerk after performing required studies and investigations, preparing a map showing channel lines and grades and holding a public meeting. The effect of filing an order establishing channel lines and grade is that any person or municipality planning to do work within those lines or 100 feet from these needs to apply to the County Commissioner of Public Works for a permit. The purpose of this law is to prevent obstruction of channel flows and deterioration of stream channels, but the jurisdiction is limited. The law was not designed to manage storm-water runoff from new development or prevent increased flood flows or damage from excess runoff.




## Earthquake:

Definition: A sudden motion of the ground caused by release of subterranean strain energy, due to plate tectonics, resulting in surface faulting (ground rupture), ground shaking, or ground failure (collapse).

Past Hazard Events: June 7, 1974 Wappingers Falls sequence felt in Peekskill with a magnitude 3.3 and January 17, 1980 in Annsville, New York with a magnitude 3.3 are the most recent along the Peekskill/Ramapo fault system. This information was provided by the Lamont-Doherty Earth Observatory at the Earth Institute at Columbia University.

Location and Extent: A direct relationship exists between a fault's length and location and it ability to generate damaging ground motion at a given location. In some areas, smaller local faults produce lower magnitude quakes, but ground shaking can be strong, and damage can be significant as a result of the fault's proximity to the area. In contrast, large regional faults can generate great magnitude but, because of their distance or depth, may result in only moderate shaking in the area.

As noted in the NYS HMP, the importance of the earthquake hazard in NYS is often underestimated because other natural hazards (e.g., hurricanes and floods) occur more frequently and because major floods and hurricanes have occurred more recently than a

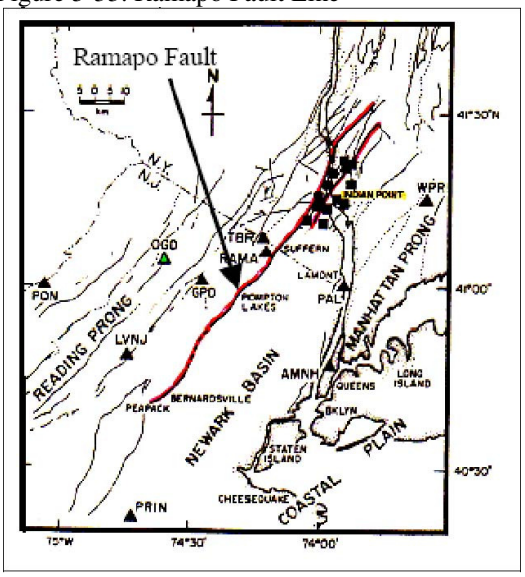
major earthquake event. However, while the earthquake hazard is generally associated with the west coast of the U.S. (which has greater seismic activity than the east coast), the potential for earthquakes exists across the entire Northeast region.

The Ramapo Fault (Figure 5-33) is part of a system of northeast striking, southeast-dipping faults, which runs from southeastern New York to the Hudson River at Stony Point, through eastern Pennsylvania (PA) and beyond. The fault is a hairline fracture, 50 miles long, and is located 35 miles from New York City. Seismographic stations, part of the Advanced National Seismic System, are used to monitor earthquakes and ground motion near important buildings and critical infrastructure along this fault (Lamont-Doherty, 2004; Pasfield, Unknown). In the 1970s and early 1980s, earthquake risk along the Ramapo Fault received attention because of its proximity to the Indian Point, New York, Nuclear Power Generating Station (Dombroski, Unknown). The City of Peekskill is located within 2 miles of Indian Point and is in the facility's emergency planning zone.

The Dobbs Ferry Fault also extends through WC to the southeast of the Ramapo Fault. The fault zone extends southeastward from the east bank of the Hudson River and crosses the Bronx River to Reservoir No. 1. The fault zone strikes northwest, and is 8-10 km long and 400 meters wide at its widest point.

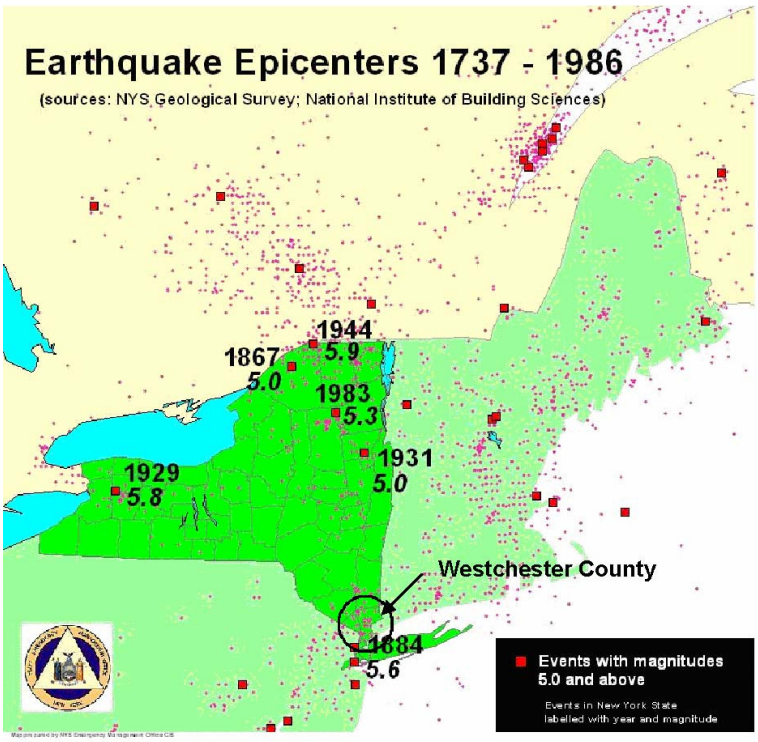
The New York City Area Consortium for Earthquake Loss Mitigation (NYCEM) reports NYS ranks third highest in earthquake activity level east of the Mississippi River. Figures 5-34 and 5-35 illustrate historic earthquake epicenters across the Northeast and New York City metropolitan area, respectively. WC is located within one of three regions in NYS that are characterized as having a higher seismic risk compared to the remainder of the State (see Figure 5-36).

Figure 5-33. Ramapo Fault Line



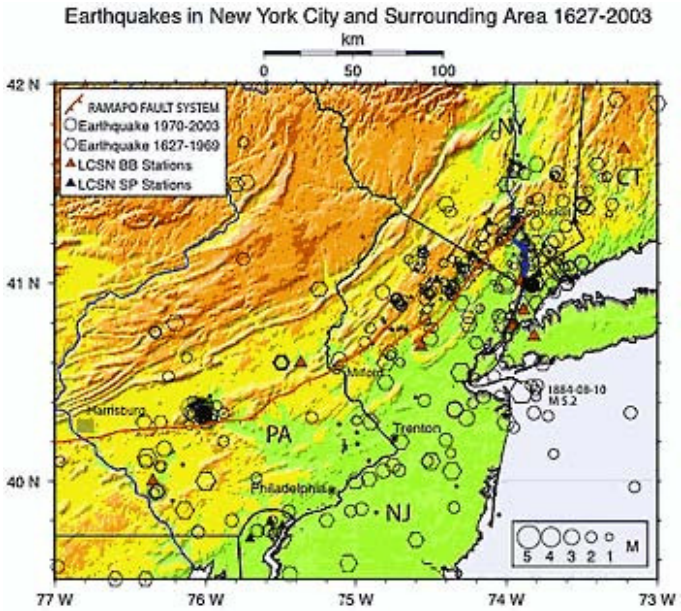

Source: Rasmusson, 2003 http://www.bc.edu/schools/cas/geo/meta-elements/pdf/KNR_MS_Thesis.pdf

Figure 5-34. Earthquake Epicenters across the Northeast from 1737 to 1986



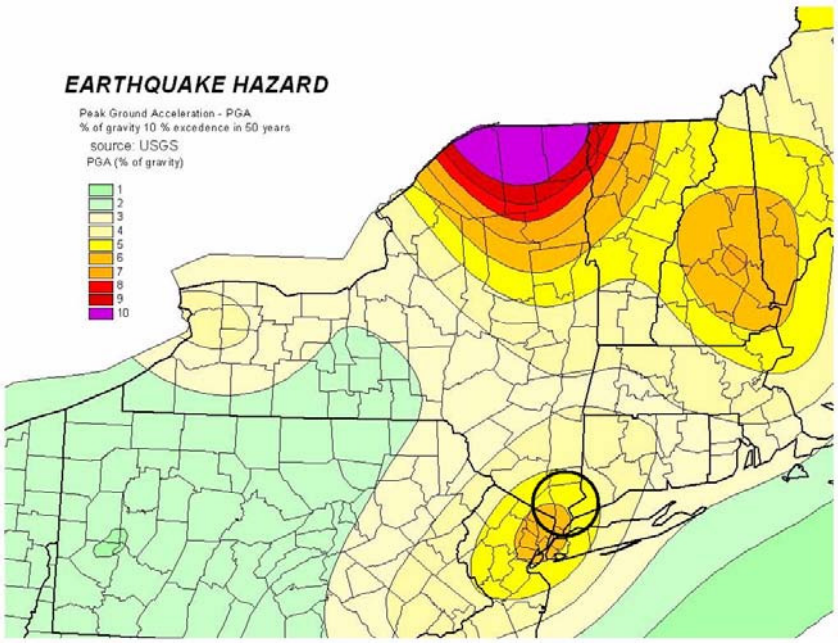

Source: NYS Standard Multi-Hazard Mitigation Plan

Figure 5-35. Earthquake Epicenters in New York City and Surrounding Areas from 1627 to 2003




Source: http://www.ldeo.columbia.edu/news/2004/04_30_04.htm Note: The Ramapo Fault System is shown as a red line. Hexagons indicate earthquake events prior to 1970 and circles indicate earthquakes post 1970 (when systematic earthquake monitoring began in the region). The symbol size is proportional to magnitude.

Figure 5-36. Earthquake Hazard Map of New York




Source: NYS Standard Multi-Hazard Mitigation Plan, 2004

The severity of an earthquake is dependent upon the amount of energy released from the hypocenter and can be expressed by its magnitude and intensity. The magnitude of an earthquake is a measured value of the earthquake size, or amplitude of the seismic waves, using a seismograph. The Richter Scale, a logarithmic scale, is the most widely-known scale that measures the magnitude of earthquakes (Shedlock and Pakiser, 1997; USGS, 2004). Table 5-25 presents the Richter Scale magnitudes and corresponding earthquake effects.

Table 5-25. Richter Scale

| Richter Magnitudes | Earthquake Effects |
|---|---|
| < 3.5 | Generally not felt, but recorded |
| 3.5 – 5.4 | Often felt, but rarely causes damage |
| Under 6.0 | At most slight damage to well-designed buildings; can cause major damage to poorly constructed buildings over small regions. |
| 6.1 – 6.9 | Can be destructive in areas up to about 100 kilometers. |
| 7.0 – 7.9 | Major earthquake; can cause serious damage over larger areas. |
| ≥ 8 | Great earthquake; can cause serious damage in areas several hundred kilometers across. |

Source: Nevada Seismological Laboratory, 1996 Notes: < = Less than; ≥ = Greater than or equal to

The intensity of an earthquake is based on the observed effects of ground shaking on people, buildings, and natural features, and varies with location. Intensity is expressed by the Modified Mercalli Scale; a subjective measure that describes how strong a shock was felt at a particular location (Shedlock and Pakiser, 1997; USGS, 2004). The Modified Mercalli Scale expresses the intensity of an earthquake's effects in a given locality in values ranging from I to XII. Table 5-26 summarizes earthquake intensity as expressed by the Modified Mercalli Scale.

Table 5-26. Modified Mercalli Intensity Scale

| Intensity | Description |
|---|---|
| I | People do not feel any Earth movement. |
| II | A few people might notice movement if they are at rest and/or on the upper floors of tall buildings. |
| III | Many people indoors feel movement. Hanging objects swing back and forth. People outdoors might not realize that an earthquake is occurring. |
| IV | Most people indoors feel movement. Hanging objects swing. Dishes, windows, and doors rattle. The earthquake feels like a heavy truck hitting the walls. A few people outdoors may feel movement. Parked cars rock. |
| V | Almost everyone feels movement. Sleeping people are awakened. Doors swing open or close. Dishes are broken. Pictures on the wall move. Small objects move or are turned over. Trees might shake. Liquids might spill out of open containers. |
| VI | Everyone feels movement. People have trouble walking. Objects fall from shelves. Pictures fall off walls. Furniture moves. Plaster in walls might crack. Trees and bushes shake. Damage is slight in poorly built buildings. No structural damage. |
| VII | People have difficulty standing. Drivers feel their cars shaking. Some furniture breaks. Loose bricks fall from buildings. Damage is slight to moderate in well-built buildings; considerable in poorly built buildings. |
| VIII | Drivers have trouble steering. Houses that are not bolted down might shift on their foundations. Tall structures such as towers and chimneys might twist and fall. Well-built buildings suffer slight damage. Poorly built structures suffer severe damage. Tree branches break. Hillsides might crack if the ground is wet. Water levels in wells might change. |
| IX | Well-built buildings suffer considerable damage. Houses that are not bolted down move off their foundations. Some underground pipes are broken. The ground cracks. Reservoirs suffer serious damage. |
| X | Most buildings and their foundations are destroyed. Some bridges are destroyed. Dams are seriously damaged. Large landslides occur. Water is thrown on the banks of canals, rivers, lakes. The ground cracks in large areas. Railroad tracks are bent slightly. |
| XI | Most buildings collapse. Some bridges are destroyed. Large cracks appear in the ground. Underground pipelines are destroyed. Railroad tracks are badly bent. |
| XII | Almost everything is destroyed. Objects are thrown into the air. The ground moves in waves or ripples. Large amounts of rock may move. |

Source: Nevada Seismological Laboratory, 1996

Peak Ground Acceleration (PGA) also expresses the severity of an earthquake. PGA is a measure of how hard the earth shakes, or accelerates, in a given geographic area. PGA is expressed as a percent acceleration force of gravity (%g). Figure 5-37 illustrates the percent PGA for NYS with a 10% chance of being exceeded in 50 years. A 5-6%g has a 10-percent chance of being exceeded in a period of 50 years in WC. According to USGS Earthquake Hazards Program, PGA maps (also known as earthquake hazard maps) are used as planning tools when designing buildings, bridges, highways, and utilities so that they can withstand shaking associated with earthquake events. These maps are also used as planning tools for the development of building codes that establish construction requirements appropriate to preserve public safety.

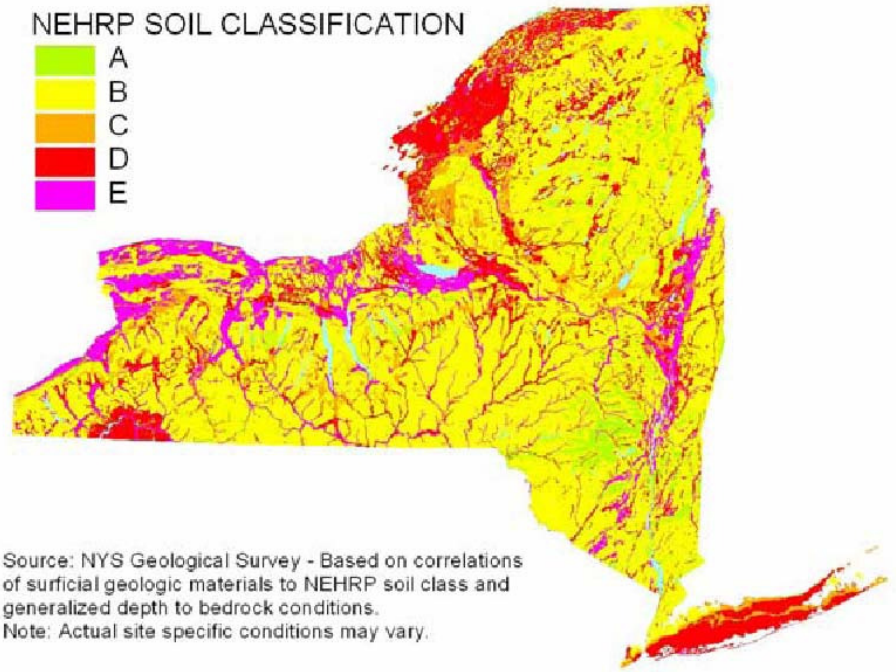
In addition to magnitude and intensity, local soil type can substantially affect an earthquake's risk. The National Earthquake Hazard Reduction Program (NEHRP) developed five soil classifications that impact the severity of an earthquake. The soil classification system ranges from A to E, where A represents hard rock that reduces ground motions from an earthquake and E represents soft soils that amplify and magnify ground shaking and increase building damage and losses (NYSEMO, 2004; NYCEM, 2003). Table 5-27 summarizes the NEHRP soil classifications that are illustrated on Figure 5-37. WC mainly contains soil classifications B, C and D.

Table 5-27. National Earthquake Hazard Reduction Program Soil Classifications

| Soil Classification | Description | Map Color |
|---|---|---|
| A | Very hard rock (e.g., granite, gneisses) | Green |
| B | Sedimentary rock or firm ground | Yellow |
| C | Stiff clay | Orange |
| D | Soft to medium clays or sands | Red |
| E | Soft soil including fill, loose sand, waterfront, lake bed clays) | Pink/Purple |

Source: NYS Standard Multi-Hazard Mitigation Plan, 2004

Figure 5-37. National Earthquake Hazard Reduction Program Soils in New York




Source: NYS Standard Multi-Hazard Mitigation Plan, 2004

Probability of Future Events: Peekskill's proximity to the fault lines coupled with the peak ground acceleration maps and historical data there is a 10 to 15% probability that the Peekskill area will be effected by a 5.0 or greater quake within the next 50 years.

Potential Areas Affected: This would be a city wide event. The amount and type of destruction would depend on the depth and magnitude of the earthquake. Building constructed before increased code enforcement would be at greater risk. The older city infrastructure would also sustain a critical impact if a quake of a magnitude 4.0 or greater were to occur within a 25 mile radius of the city.

Development Trends: Increases in updated building codes and code enforcement will assist in the betterment of structures to withstand lower magnitude earthquakes. Improvement in infrastructure with an eye toward earthquake proofing would better protect the city.

## Tornado:

Definition: A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity of funnel. Winds have been estimated to be as high as 400 miles per hour.

Past Hazard Events: The National Weather Service has confirmed 8 tornadoes in the last 40 years in Westchester County. There have been some weak tornadoes that are never detected or reported. There was a tornado in 1989 in the Peekskill area.

Probability of Future Events: The past of tornadoes occurring once every five years will continue in the future. New York State averages 5 tornadoes a year that can occur in any region.

Potential Areas Affected: Peekskill could have a tornado impact citywide disrupting utilities, infrastructure, transportation and public services. Buildings are codes do not include tornadic wind speed regulations and brush and trees, regardless of age and maintenance, regularly fall victim to tornadic winds.

Development Trends: With the effort toward better early warning the City hopes to reduce the loss of life in the event of a future event. In an effort to reduce environmental disruption of utilities most developers are putting their utilities underground. Trimming of trees and brush, while it does not stop a tornado will reduce the impact of one.

## Ice Storm:

Definition: Freezing rain that accumulates in a substantial glaze layer of ice resulting in serious disruptions of normal transportation and possible downed power lines.

Past Hazard Events: The National Weather Service reports Westchester County has a history of 2-4 minor ice storms each year. There is a more significant ice storm approximately once every eight years in Peekskill.

Probability of Future Events: The National Weather Service reports southern New York has a large probability of ice storms in the future. The ice storm in 1998 in Northern New York could happen again. The ice storms that take place in Peekskill usually last in duration from one to three days.

Potential Areas Affected: Ice storms can affect the part or all of the city based on the storm pattern. Such a storm would bring with it utility failure, motor vehicle accidents, and economic losses.

Development Trends: Attempt to place utilities under ground would greatly reduce impact from ice storms. Urging residents and business to avoid travel during dangerous road conditions and educating the public to such hazards would hopefully reduce motor vehicle accidents and associated economic losses.

## Hurricane:

Definition: A tropical cyclone forms in the atmosphere over warm ocean areas, and in which wind speeds reach 74 miles per hour or less. A hurricane is a tropical cyclone in

which winds reach 74 mph or more and blow in a large spiral around a relatively calm center or "eye." The circulation is counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere. Inland flooding from hurricanes can be a major threat to areas hundreds of miles from the coast as intense rain falls from huge tropical air masses. The intense rainfall and powerful winds would be a threat to Westchester County.

Past Hazard Events: Since 1886, the National Weather Service says 12 hurricanes have passed within 75 miles of Montauk Point. There have also been 21 tropical cyclones that have occurred during this time period. Peekskill should plan on impacts from a hurricane about every ten years. The main impacts include high winds, heavy rains, and storm surge. (see 3.2.4-Hurricane Event Map)

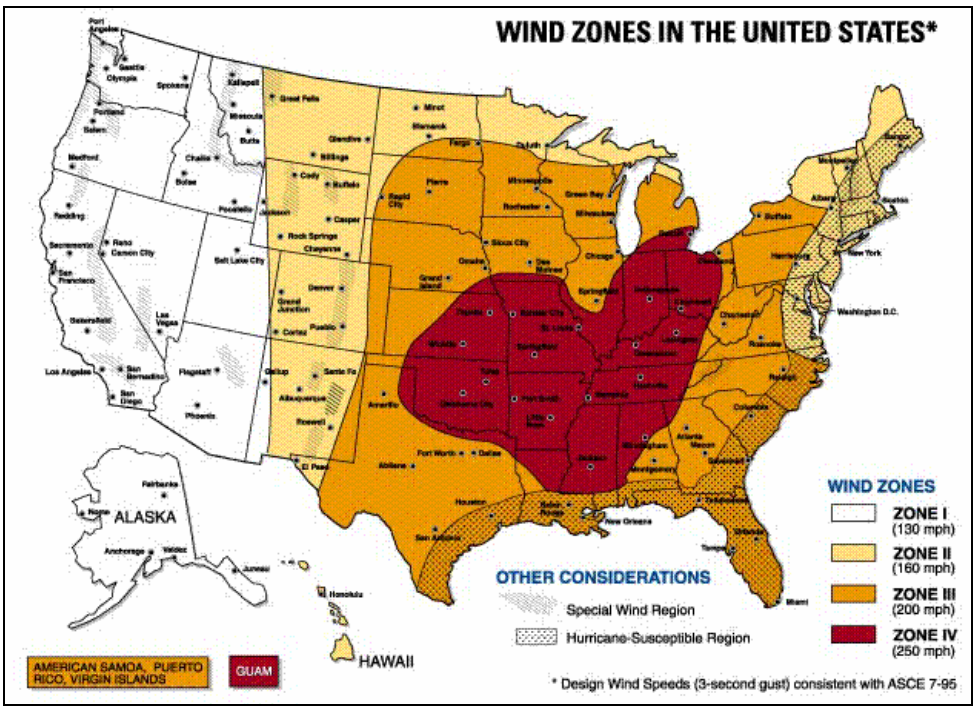
Probability of Future Events: A large hurricane has occurred many times in the past of Peekskill. With the proximity of the city close to the ocean leaves a great opportunity for a major hurricane to do significant damage to the area.

Potential Areas Affected: The entire city is influenced by a hurricane at the same time with some variation in strength. Damage would be citywide and include but not be limited to utility failure, infrastructure damage and loss of public and private property and life. Building not up to code would lend to addition property damage by adding to airborne debris.

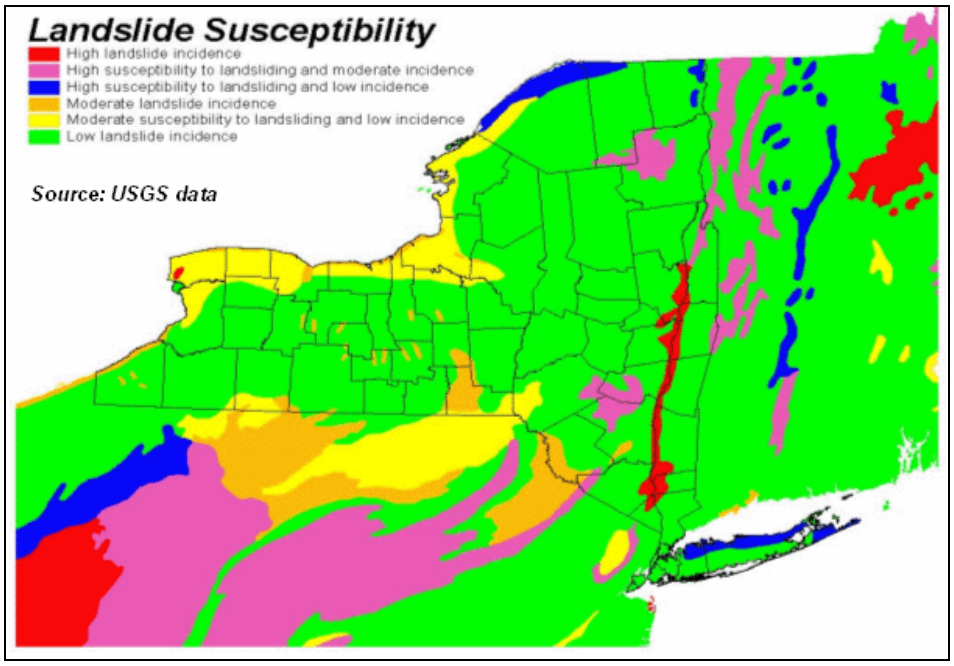
Development Trends: With the increase in code enforcement and redesign and review of building codes, it is hoped that building would be able to sustain stronger winds for longer periods of time thereby reducing flying debris. Tree trimming and brush reduction aids in the help with the impact to above ground utilities.

| Type of Structure (Occupancy Class) | Number of Structures | | | Value of Structures | | | Number of People | | |
|---|---|---|---|---|---|---|---|---|---|
| | # in Community or State | # in Hazard Area | % in Hazard Area | $ in Community or State | $ in Hazard Area | % in Hazard Area | # in Community or State | # in Hazard Area | % in Hazard Area |
| Residential | 9053 | 9053 | 100% | 3,621,200,000 | S/A | 100% | 22441 | 22441 | 100% |
| Commercial | 932 | 932 | 100% | 559,200,000 | S/A | 100% | 2341 | 2341 | 100% |
| Industrial | 8 | 8 | 100% | 12,000,000 | S/A | 100% | 1732 | 1732 | 100% |
| Agricultural | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Religious/ Non-profit | 36 | 36 | 100% | 33,400,000 | S/A | 100% | 345 | 345 | 100% |
| Government & critical fac. | 18 | 18 | 100% | 48,000,000 | S/A | 100% | 1453 | 1453 | 100% |
| Education | 14 | 14 | 100% | 34,000,000 | S/A | 100% | 2457 | 2457 | 100% |
| Utilities | 3 | 3 | 100% | 4,500,000 | S/A | 100% | 465 | 465 | 100% |
| Total | 10,064 | 10,064 | 100% | 4,312,300,000 | S/A | 100% | 31,234 | 31,234 | 100% |

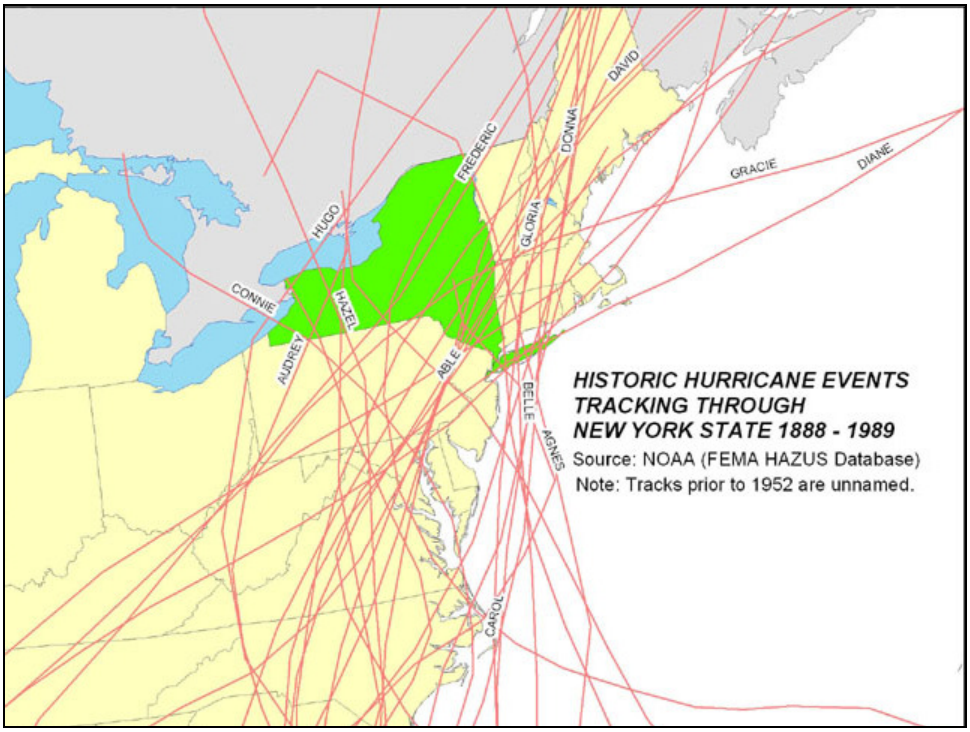
## 3.2.1 - Wind Zone Map




## 3.2.2 – Landslide Susceptibility

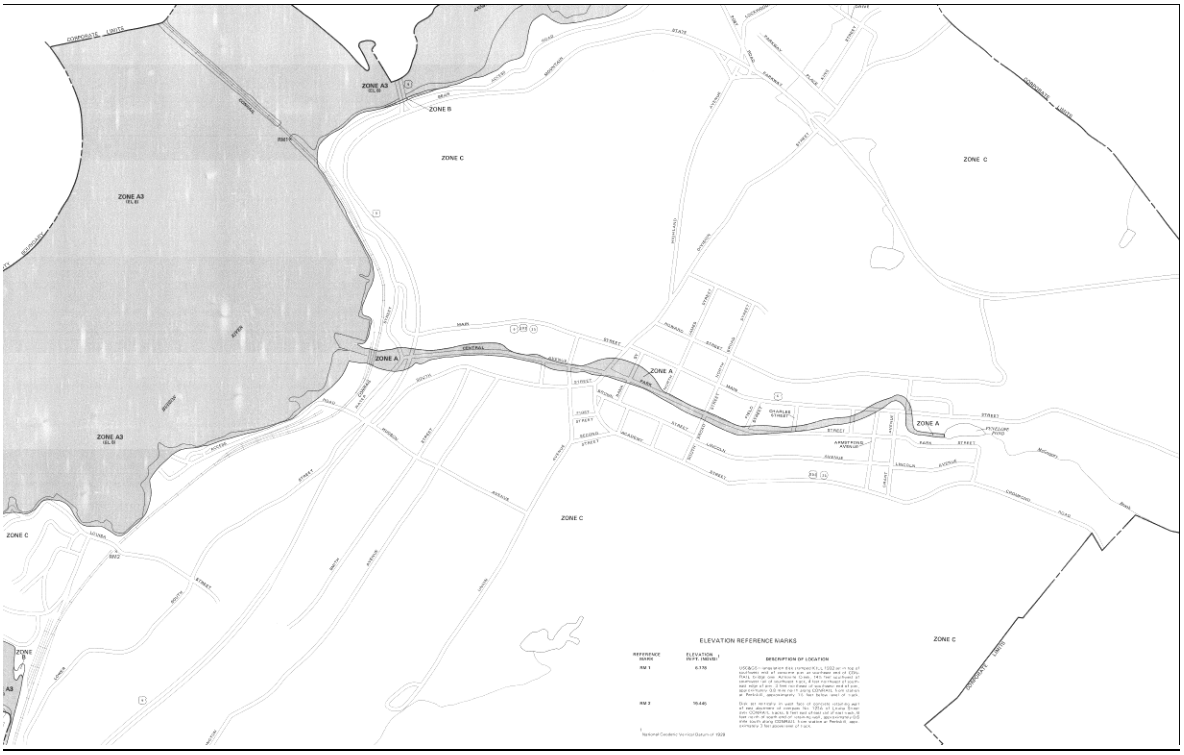


## 3.2.3 – Hurricane Event Track Map




## 3.2.4 – Topo Map of Peekskill

## 3.2.5 – FEMA Flood Zone Map – Peekskill, NY



## 3.2.6 – FEMA Flood Insurance Study – Peekskill, NY

Federal Emergency Management Agency
Washington, D.C. 20472

MAY 18 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Patrick J. Garvey
City Manager
City of Peekskill
840 Main Street
Peekskill, New York 10566

IN REPLY REFER TO:
Case Number: 98-02-025P
Community Name: City of Peekskill, Westchester County, New York
Community Number: 360924
Map Panel Number: 360924 0002
Effective Date of this Revision: MAY 18 1998

102-I

Dear Mr. Garvey:

The Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) for the City of Peekskill, Westchester County, New York, have been revised by this Letter of Map Revision (LOMR) to reflect the presence of a buried culvert that conveys a portion of the 1% (100-year) annual chance flood along McGregory Brook. The subject area is located along Central Avenue from Union Avenue to a point approximately 160 feet downstream of Depew Street. This revision was initiated by Mr. James Madaffari, Deputy City Manager and Director of Public Works for the City of Peekskill, in a letter dated January 8, 1998.

We received the following technical data, prepared by the City of Peekskill, unless otherwise noted, in support of this revision:

- a copy of a report prepared by Spectrum Engineering Group, dated January 2, 1992, which included design flows for McGregory Brook and a copy of a TR-55 hydrologic model of the 1% annual chance flood for McGregory Brook;
- Quick-2 hydraulic modeling, dated March 25, 1998, of overland flow in the subject area, determining that the overland flow resulting from the portion of the 1% annual chance flood discharge not contained in the culvert along Central Avenue would result in average depths of less than 1 foot along the subject area;
- a certified topographic map, dated February 16, 1996, entitled Topographic Survey Prepared for the City of Peekskill, at a scale of 1"=20', with a contour interval of 1 foot, showing the "as-built" conditions of the subject area, including the Central Avenue culvert;
- a topographic landbase map of the subject area, dated March 25, 1998, entitled City of Peekskill, Westchester County, New York, at a scale of 1"=50', with a contour interval of 2 feet, showing the location of the cross sections used in the aforementioned hydraulic modeling and delineating the extent of overland flow;

- a letter dated March 13, 1998, from Mr. Madaffari, acknowledging the responsibility of the City of Peekskill to assure that the flood carrying capacity of the culvert is maintained, fulfilling the requirements of the National Flood Insurance Program (NFIP) regulations Subparagraph 60.3(b)(7),
- a letter dated April 14, 1998, from Mr. Madaffari, accepting the reclassification of the flood hazards as shown in this revision; and
- completed application/certification forms, including community concurrence.

We received all data necessary to process this revision by April 7, 1998.

Based on our review of the submitted data, we are issuing this LOMR to reflect the redelineation and reclassification to Zone B of a segment of the McGregory Brook floodplain. This change has occurred to reflect areas inundated by 1% annual chance flooding with average depths of less than 1 foot. This LOMR revises the City of Peekskill FIRM number 360924, panel 0002 B, dated August 15, 1984, as shown on the enclosed annotated portion of the FIRM. This revision does not involve any floodway changes; therefore we are not enclosing an annotated FBFM.

This revision is effective as of the date of this letter. Any requests to review or alter this determination should be made within 30 days and must be based on scientific or technical data.

We based this determination on the 1% annual chance flood discharges calculated by the TR-55 model, and reduced to reflect the discharge conveyance of the buried culvert, without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges and could, therefore, establish greater flood hazards in this area.

Your community must approve all proposed floodplain development and ensure that permits required by Federal and/or State law have been obtained. State or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If the State of New York or the City of Peekskill has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

Because of funding constraints, we must limit the number of map republications. Consequently, we will not republish the FIRM for the City of Peekskill to reflect this determination. However, we will incorporate this determination when we next republish FIRM panel 0002. We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

We have enclosed a document entitled "List of Current Flood Insurance Study Data," which includes this letter, to help your community maintain all information for floodplain management and flood insurance. If any of the items in that document are not filed in your community's map repository, please contact our Regional Office at the number listed below for information on how to obtain those items.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to "assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained." This provision is incorporated into your community's existing floodplain management regulations; therefore, responsibility for maintenance of the modified channel rests with your community. We may request that your community submit a description and schedule of channel maintenance activities.

Use the map panel listed above and revised by this letter for all flood insurance policies and renewals issued in your community.

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the Flood Insurance Study, FIRM, FBFM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State or local requirements to which the regulations apply.

If you have any questions, please do not hesitate to contact the Director, Mitigation Division of the Federal Emergency Management Agency in New York, New York, at (212) 225-7200, or me at our Headquarters Office in Washington, D.C., at (202) 646-2755, or by facsimile at (202) 646-4596.

Sincerely,

Philip M. Myers
Project Engineer
Hazards Study Branch
Mitigation Directorate

For: Matthew B. Miller, P.E., Chief
Hazards Study Branch
Mitigation Directorate

Enclosures

cc: Mr. James Madaffari
Mr. Joseph L. Bierwirth, P.E., Engineer for the City of Peekskill
State Coordinator

## LIST OF CURRENT FLOOD INSURANCE STUDY DATA

This list is provided to document all information currently effective for your community for insurance and floodplain management.

Date: MAY 18 1998

Community: City of Peekskill, Westchester County, New York

Community Number: 360924

Page Number: 1 of 1

**CURRENT EFFECTIVE FLOOD INSURANCE STUDY DATE:** February 15, 1984

**FLOOD INSURANCE RATE MAP**

| Panel Numbers | Effective Date |
|---|---|
| 0002 B | August 15, 1984 |

**FLOOD BOUNDARY AND FLOODWAY MAP**

| Panel Numbers | Effective Date |
|---|---|
| 0002 | August 15, 1984 |

**LETTERS OF MAP REVISION**

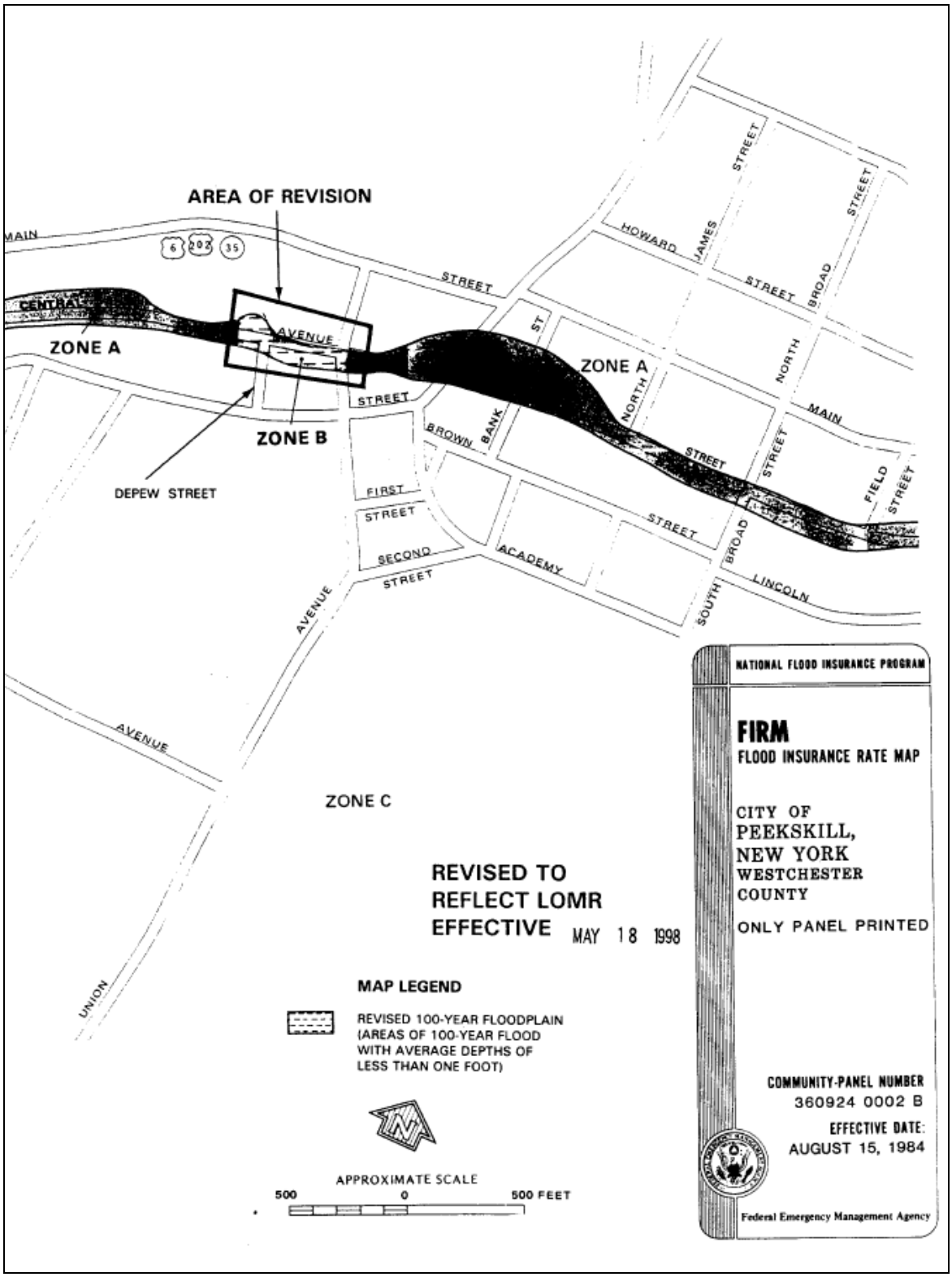
| Panel Numbers | Effective Date |
|---|---|
| 0002 B | MAY 18 1998 |

**LETTERS OF MAP AMENDMENT AND MAP REVISION BASED ON FILL**

None

**BEST AVAILABLE DATA LETTERS**

None


AREA OF REVISION
MAIN
STREET
HOWARD
JAMES
STREET
STREET
BROAD
STREET
CENTRAL
AVENUE
ZONE A
ZONE B
ZONE A
ST
NORTH
MAIN
STREET
BROWN
BANK
STREET
STREET
FIELD
STREET
DEPEW STREET
FIRST
STREET
STREET
SECOND
STREET
ACADEMY
BROAD
SOUTH
LINCOLN
AVENUE
AVENUE
ZONE C
UNION
REVISED TO
REFLECT LOMR
EFFECTIVE MAY 18 1998
MAP LEGEND
REVISED 100-YEAR FLOODPLAIN
(AREAS OF 100-YEAR FLOOD
WITH AVERAGE DEPTHS OF
LESS THAN ONE FOOT)
APPROXIMATE SCALE
500
0
500 FEET
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF
PEEKSKILL,
NEW YORK
WESTCHESTER
COUNTY
ONLY PANEL PRINTED
COMMUNITY-PANEL NUMBER
360924 0002 B
EFFECTIVE DATE:
AUGUST 15, 1984
Federal Emergency Management Agency

## *3.3 Technological Hazards*

### Fire:

Definition: The uncontrolled burning in residential, commercial, industrial, institutional, or other structures in developed area.

Past Hazard Events: While not a daily occurrence Peekskill has had recent dealing with both small scale residential incident and large scale commercial fires.

Probability of Future Events: Most fires are started by people through negligent behavior either intentionally or accidentally. Although house fires and apartment buildings are a regular occurrence in Peekskill, they rarely spread to adjacent properties. Fires impacting larger facilities have the potential to occur.

Potential Areas Affected: Any building structure in Peekskill has the potential to be burned either fully or partially based on construction and contents of the building.

Development Trends:

### Oil Spill:

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

Past Hazard Events: February 23, 2004 an approximately 5000 gallon heating oil spill at Camp Smith made its way into the Annsville Creek which flows into the Hudson River at Peekskill Bay. February 18, 2005 a fuel oil delivery truck spilled several thousand gallons of heating oil on Peekskill Hollow Brook Road. This oil migrated into the Peekskill Hollow Brook and adjacent marsh land forcing Peekskill to take emergency measures in switching to a back up water supply as the incident was mitigated as the Hollow Brook is a tributary feeding into its reservoir system.

Probability of Future Events: There is a potential of an oil spill involving the large amounts of oil stored in Peekskill. The most frequent transit-related spills are due to normal traffic accidents or human error. The important factors to consider in the oil spill are the amount that has been spilled and where the item has been discharged. If there is a large amount due or involving water, the New York State Department of Environmental Conservation becomes the lead agency in the event.

Potential Areas Affected: Any area in Peekskill has the potential for an oil spill between small and large amounts.

Development Trends:

## HAZMAT (Fixed Site):

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 numerous small scale Haz-Mat incidents within the Peekskill City Limits involving both private and public entities. All have been able to be mitigated using existing resources with a positive outcome.

Probability of Future Events: The areas that could release hazardous materials include hazardous waste sites, chlorine storage facilities near dams, reservoirs or water treatment plants, industrial sites, retail businesses, hospitals and illegal drug manufacturing. There are many business and residential areas that contain various hazardous materials. The Westchester County LEPC retains some information on all of these legal places of business in this county based on the required limits of certain chemicals. The legal businesses and facilities are compliant with reporting of the chemicals that are stored and used there. The New York State Building Code which was adopted in January, 2003 sets higher standards for seismic, snow loading, and wind for structures for structures that contain "sufficient quantities of toxic or explosive substances to be dangerous to the public if released."

Potential Areas Affected: A hazardous materials incident could occur anywhere in Peekskill. There are a significant amount of places that could have a major incident. Each area could need to be evacuated for a couple of hours or days. This would be a major influence on the economy of the area, psychological problems to the effected residents, difficulties for the law, emergency medical services, and fire department and other major problems could result from this.

## HAZMAT (In Transit):

Definition: The uncontrolled release of materials during transport, 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: In the past five years there have been 2 prominent HazMat Transit incidents. One incident included a truck carrying radioactive tools and another involved a tanker carrying caustic materials. Both where mitigated with existing resources. In addition, Peekskill has frequent transport accidents involving truck traffic on the Route 6/9/202 corridor which carry small quantity HazMat items which do not breech their containers.

Probability of Future Events: Peekskill has transportation accidents involving the release of hazardous materials, but most of these incidents generally involve small quantities of material. The potential exists for a more serious incident involving a pipeline failure, train derailment, or tank truck crash that releases large amounts of hazardous materials.

Potential Areas Affected: Most of Peekskill could be affected by a hazardous materials incident involving a transportation incident. There are many major routes of traffic, railroad, and pipelines near Peekskill. There is no area that could not be influenced by a hazardous materials incident in transit.

Development Trends: Through increased Motor Carrier enforcement the City hopes to limit the number of substandard vehicles on its roads and reduce the number of unplacarded vehicles.

## 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: Transportation accidents are a regular occurrence within the City limits and the inclusion of the 6/9/202 corridor increases both frequency and loss numbers due to volume and speed.

Probability of Future Events: There are a couple of major highways, railways and airplane paths that transect Peekskill. Small scale incidents involving transportation accidents occur frequently in this area. A major transportation accident can be anticipated due to the number of cars, trains and airplanes that have routes within this vicinity. There can be factors to contribute to the potential events such as the weather including snow, ice, fog, rain and other weather related problems. Other factors could be trees that fall due to winds or power lines down by motor vehicle accidents.

Potential Areas Affected: This could occur anywhere in the city, and would influence the area more depending on the location of the event. There is less assistance in the northern area with a decrease in the population.

Development Trends: Through increase traffic enforcement the City hopes to reduce speeds and increase driver awareness and safety.

## Terrorism/School Violence:

Definition: The threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths.

Past Hazard Events: There is history of threats of terrorism in Peekskill. There is no history of actual terrorism. There is a history of threats of terrorism and actual terrorist incidents in New York City that had a major affect on Peekskill.

Probability of Future Events: A major incident has the potential to occur in this area since there are many important targets located in this area. The events of September 11, 2001 have had some major emotional and economic impacts on the local community.

Potential Areas Affected: The entire Westchester County would be influenced by a terrorist event in the county. There are many issues that would affect the community including psychological, financial, social, and others. The area directly around the target would be affected even more for example emergency medical services, law enforcement, public works department, fire service and other agencies depending on the type of event.

Development Trends: : By increasing the cooperation levels between the School District and City Agencies in addition to holding both table top and limited scale drills the City hopes to improve rapid coordinated response to any incident small or large.

## Utility 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.

Past Hazard Events: A significant blackout has occurred in 1963, 1977 and 2003 in a large area of the country. There are also smaller utility failures that occur in certain areas on a more regular basis.

Probability of Future Events: There is a potential for future blackouts due to problems in the infrastructure of the utility system. A large incident can also occur due to natural hazards such as earthquake, hurricane, tornado, or other incidents. Many of these incidents occur because utility lines are damaged and unable to function. There also can be services lost due to overloaded systems with too many people using the item. Mechanical problems can occur in utility companies and the system that provides the services to the customers. One important factor to decreasing potential troubles is the maintenance of the areas. Water supply can have as many problems as electricity and phone failure based on the mechanism of transferring the water such as a pipe may be broken leaving areas of people without water.

Potential Areas Affected: This could be a city wide event or a smaller area depending on the situation.

Development Trends: By increasing dialog between the City, its DPW staff and utility agencies, the City strives to better coordinate the restoration of the unforeseen utility failure.

## Structural Collapse:

Definition: A sudden structural failing, partial or fully, of buildings, bridges or tunnels, threatening human life and health.

Past Hazard Events:

Probability of Future Events: A structural collapse can be stimulated by a traffic accident, heavy snowfall, high winds/tornado, an earthquake, flooding, and explosion of some other incident. The schools, churches, hospitals, county buildings, state buildings and other critical structures where people gather in Peekskill are well-built structures that are considered vulnerable to collapse under certain conditions. The previous and current building codes set values for structural loads. The Building Codes of New York State set higher high standards for many different potential natural hazards such as seismic, snow loading, and wind. There are a significant number of buildings that are abandoned and not maintained properly. There is less of a chance for building collapse if the structure is built to code and occupied with tenants that maintain the property.

Potential Areas Affected: Any building, bridge or tunnel has the potential to collapse in Peekskill. The building codes in this area have been followed very strictly.

Development Trends: By increasing the scope of building codes and the increased efforts of the City's code enforcement team, the City strives to reduce at risk structures by enforcing repair on questionable safety issues.

## Indian Point:

Definition: The threat or use of violence against Indian Point Nuclear Power Plant.

Past Hazard Events: There is no history of threats of terrorism or actual terrorism involving Indian Point. There is a history of threats of terrorism and actual terrorist incidents in New York City that had a major affect on Westchester County.

Probability of Future Events: A major incident has the potential to occur in this area since there are many important targets located in this area. The events of September 11, 2001 have had some major emotional and economic impacts on the local community.

Potential Areas Affected: The entire Westchester County would be influenced by a terrorist event in the city. There are many issues that would affect the community including psychological, financial, social, and others. The area directly around the target would be affected even more for example emergency medical services, law enforcement, public works department, fire service and other agencies depending on the type of event.

Development Trends: The City, County and State are constantly reviewing existing plans in an effort to identify areas of concern in addition to making modification based on traffic, population and environmental changes.

## Civil Unrest:

Definition: An individual or collective action causing serious interference with the peace, security, and/or functioning of a community (e.g., riot).

Past Hazard Events:

Probability of Future Events: An instance of civil unrest can be generated by political issues, labor disputes, prison violence, or any other incidents in the area. Any incident of civil unrest would be brought under control as quick as possible.

Potential Areas Affected: This could occur in any part of the city, but is unlikely to be citywide.

Development Trends: The Peekskill Police Department regularly trains for such events in addition to maintaining a Community Policing Division that maintains strong ties with Community Leaders and their Communities.

## Wildfire:

Definition: An uncontrollable combustion of trees, brush, or grass involving a substantial land area which may have the potential for threatening human life and property.

Past Hazard Events: There have been a couple of fires in the different parks in the past. According to the fire department, there is one fire for every five years as a wildfire.

Probability of Future Events: There are a couple of areas in Peekskill designated as parks that have large amounts of trees, brush and grass. There is a potential for a larger incident since there is no decreasing in dead brush or trees. Many environmental groups will not let all of the departed items be taken away from the forest.

Potential Areas Affected: There are some areas in Peekskill that could be influenced by wildfires.

Development Trends: The removal of overgrown brush on a regular basis from park areas assists with reduction efforts.

## Radiological (In transit):

Definition: A release or threat of release of radioactive material from a transportation vehicle including truck, rail, air, and marine vehicle.

Past Hazard Events: In the past five years there have been 1 prominent Radiological Transit incident. It involved a truck carrying radioactive tools striking an overpass on Route 9. The incident was mitigated with existing resources. In addition, Peekskill has an occasional transport accident involving truck traffic on the Route 6/9/202 corridor which carry small quantity Radiological items which do not breech their containers.

Probability of Future Events: Westchester County is in the path of some radiological items that come from Long Island to the outer area for disposal. There are many hospitals, doctor's offices, colleges, businesses that may have radiological transferred to them. There are many areas that have a potential for a shipment of radiological items to them.

Potential Areas Affected: This would be a city wide event.

Development Trends: Through increased Motor Carrier enforcement the City hopes to limit the number of substandard vehicles on its roads and reduce the number of unplacarded vehicles.

## Water Supply Contamination:

Definition: The contamination or potential contamination of surface or subsurface public water supply by chemical or biological materials that results in restricted or diminished ability to use the water source.

Past Hazard Events: February 18, 2005 a fuel oil delivery truck spilled several thousand gallons of heating oil on Peekskill Hollow Brook Road. This oil migrated into the Peekskill Hollow Brook and adjacent marsh land forcing Peekskill to take emergency measures in switching to a back up water supply as the incident was mitigated as the Hollow Brook is a tributary feeding into its reservoir system.

Probability of Future Events: The public receives water from many different sources in Peekskill such as reservoirs, lakes, streams, and outside water sources as well as some people using wells. A significant amount of water is from public water supplies. Many of the water supplies for Peekskill does not have any protection, but the supply areas are extensive which means there needs to be a significant amount of agent to cause any problems.

Potential Areas Affected: Everyone in Peekskill needs water either by wells or the public water supply. There is a greater potential for incidents that go undetected in private wells since public water supplies are tested more regularly for potential problems.

## 3.4 Critical Structures:

| | |
|---|---|
| Peekskill Emergency Operations Center | 4 Nelson Avenue |
| Peekskill Police Headquarters | 2 Nelson Avenue |
| Peekskill City Hall | 840 Main Street |
| Communication Tower | 181 Benefield Blvd. |
| Peekskill Fire Headquarters | 828 Main Street |
| Peekskill Volunteer Ambulance Corps | 1427 Main Street |
| Peekskill Fire Patrol | 425 Highland Avenue |
| Centennial Hose Firehouse/ Chiefs Office | 701 Washington Street |
| Washington Engine Co. | South Division Street |
| Columbia Engine Co. | Crompound Road |
| Columbia Hose Co. | Dayton Lane |
| Water Filter Plant | Lindberg Place |
| Westchester Waste Treatment Facility | Highland Avenue |
| Water Pump House | Pump House Rd. |
| City Schools Admin. Bldg. | 1031 Elm Street |
| Peekskill City Garage | South & Louisa Streets |
| Wesley Hall-PPD communications Equip | 801 South Street |
| Lower Water Tank & Communications | Benefield Blvd. |
| Waste Treatment Pump Station | South & Louise Street. |

# *4.0 Mitigation Strategy*

The function of the City of Peekskill Hazard Mitigation Plan is to reduce the risks to life and property from natural and man-made hazards that could occur in this area on a regular or irregular basis.

The mitigation strategies in this plan outline Peekskill's attempt to reduce its vulnerability to the high priority hazards identified in the previous section. The planning team assessed the local circumstances in order to identify the types of projects that are needed to achieve the goal. Each goal is a measurable statement of what the community would like to achieve. The goals and objectives represent the overall strategy for reducing the community's vulnerability to hazards. This section contains a list of ongoing and possible future projects based on the needs and requirements of the City of Peekskill. Each department directly effected by a hazard reviewed existing mitigation plans and programs with direct relation to desired results. In turn each department created a specific plan of action to address potential areas of need. Other alternative were

considered but eliminated due to insufficiency, practicality and cost effectiveness. The following six measures were utilized in the creation of the plan.

**Prevention** - Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.

**Property Protection** - Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.

**Public Education and Awareness** - Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

**Natural Resource Protection** - Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

**Emergency Services** - Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.

**Structural Projects** - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

## *4.1 Natural Disasters*

### Ice Storm/Winter Storm (Severe)/Ice Jam

Goal 1: Reduce the effect of severe winter storms, ice storms, and ice jams on the population of Peekskill.

Objective: Educate the public on actions they can take to minimize the impact of this hazard on them.

Strategy: Develop/Distribute pamphlets which educate the public on actions they can take to minimize their risk. Partner with Red Cross, Department of the Aging, etc. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, senior citizen centers, schools, etc.

Objective: Minimize the potential for storm related utility failures.

Strategy: Work with utility companies to ensure all precautions are taken and equipment and Right-of-Ways are properly maintained.

Goal 2: The trees need to monitor in regards to where they are planted and their maintenance.

Objectives: monitor what trees are planted near roads and utility wires to decrease later problems.

Strategy: Support utility companies efforts to prune trees near wires.

Strategy: Bury utility lines if possible

Strategy: Supervise the maintenance of areas with trees.

**Severe Storm, Hurricane, and Tornado:**

Goal 1: Decrease the potential problems from hurricanes, tornadoes, and severe storms.

Objective: A significant concept is the preplanning for these events. Preplanning in county departments is important to respond and recover with a minimum loss of life and property.

Objective: Educate the public on actions they can take to minimize their risks from this hazard. Enlightening the public before an event is very essential to reduce problems after the incident occurs. Potential partners in this effort include the National Weather Service, the State Emergency Management Office as well as various local agencies and entities. Need to obtain a list of people who rely on oxygen or other home items. The planning team would like to have more potential shelters available for use in emergencies.

Strategy: Develop pamphlets which educate the public on what they can do to minimize their risk. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, etc.

Public Education is crucial. This includes what items to stockpile in advance such as water, food, batteries, flashlights, extra medication and any other daily items. There are pamphlets by the American Red Cross and New York State Emergency Management Office concerning what to do in an emergency.

Objective: Reduce the effects of excess precipitation.

Strategy: Routinely clear drainage basins to increase the storage capacity of the storm-water drainage system

Strategy: Investigate the possibility of increasing the number of drainage basins in historical problem areas.

Strategy: Strictly enforce building codes, especially in hazard areas.
The recently adopted State Building Codes includes having windows that will last through high winds and other disasters as much as possible. Suggest the use of storm shutters, control of flying debris and outside storage.

**Flood:**

Peekskill is part of the National Flood Insurance Program through the Federal Emergency Management Agency. This allows Peekskill the opportunity to receive credit through the NFIP Community Rating System to lower rates of purchase of federal flood insurance. Peekskill has a variety of local laws that support hazard mitigation planning. Peekskill's subdivision regulations and zoning code regulates the use, intensity and pattern of development in the local areas.

Goal 1: Reduce the effects of flooding in the City of Peekskill.

Peekskill has a regulation which is designed to prevent obstruction of channel flows and deterioration of stream channels, but its jurisdictional reach is limited. The regulation was not designed to comprehensively manage storm-water runoff from new development or prevent increased flood flows or damage from excess runoff.

Objective: Utilize existing regulations to minimize the impact of new development

Strategy: For projects that require a permit, include conditions requiring zero-increase in runoff, constructing structures above the FEMA 100-year base flood elevation and erosion controls.

Objective: Increase the ability of the infrastructure to handle precipitation events

Strategy: Routinely clear drainage basins to increase the storage capacity of the storm-water drainage system

Strategy: Investigate the possibility of increasing the number of drainage basins in historical problem areas.

Goal 2: Educate the public on ways they can minimize their impact from flooding.

Strategy: Develop pamphlets which educate the public on what they can do to minimize their risk. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, etc.

Goal 3: Enforce Building Codes (there are no buildings in the flood plain requiring relocation)

Objective: When building new buildings or remodeling the existing structures, require the use of flood proofing on the foundations of the building. If a new building is being

constructed in the flood zone area, require elevating the structure 2 feet above the base flood elevation. In addition to minimizing the potential for flood damages to the structure, the owner of the structure will receive the added benefit of a significant reduction in their flood insurance premiums.

Strategy: Protect new developments from occurring in areas that can flood. This can be done by enforcing existing floodplain development regulations.

Strategy: evaluate the need for more stringent floodplain development regulations than the National Flood Insurance Program Requirements.

**Earthquake:**

Goal 1: Inform the public of the problems associated with earthquakes.

Objective: Teach the public what hazards could occur with an earthquake and what they need to know to avoid.

Strategy: An earthquake could lead to utility failure, building collapse, dam failure, hazardous materials incidents, automobile accident, bridge collapse, and other major hazards. They need to avoid items like wires down, unsafe buildings and other potential problems.

Goal 2: Training first responders for events

Objective: First responders could have to fight fires, assist victims from collapsed buildings and bridges, close down roads, and assist with hazardous materials events.

Strategy: The better educated and trained first responders will assist the county in all types of hazards that would take place after an earthquake.

Goal 3: Enforce Building Codes

Objective: When building new buildings or remodeling the existing structures, require the use of new earthquake conscious codes recommended by NYS. Any new structures require the local governmental approval process and zoning clearance. Any actions taken will preserve the natural resources with in the City of Peekskill.

## ***4.2 Technological Hazards***

**Fire/Explosion/Structural Collapse:**

Goal 1: Increase the public awareness and response.

Objective: Educate the public on the effects.

Strategy: Develop pamphlets in conjunction that educate the public on what they can do to minimize their risk. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, etc.

Goal 2: Enforce building codes and amount of people that are allowed to occupy a building.

Objective: Reduce the potential for building collapse, fire and explosion

Strategy: Building Codes and Occupancy Numbers are used in new and renovated buildings. Rules and regulations need to be strictly followed.

Goal 3: Enhance Emergency Response

Objective: Educating and training the first responders

Strategy: The first responders should be familiar with fighting a fire, dealing with an explosion with a potential fire, and the collapse of a building.

**HAZMAT (Fixed Site)/Oil Spill:**

Goal 1: Reduce the potential for a hazardous materials incident or oil spill in all buildings or areas in Peekskill.

Objective 1: Require strict compliance with existing and future New York State Building Codes.

Strategy: Perform regular inspections of structures that have a potential problem or are under construction

Strategy: Review all building plans prior to issuing a permit

Many of the buildings in Peekskill were built when standards were not as strict and need to be upgraded with any major renovation to meet current fire prevention and building code requirements. The Mayor and/or City Manager should make sure the building department follows the codes on New York State and implements any changes that are made to the codes. During any improvements or changes in the buildings, consider using blast resistant and fire resistant construction. Any critical facilities should have retrofit or upgrades to the buildings for hazardous materials or oil spill. Additional training for the inspectors should be done each year to keep current with new laws and new mitigation techniques. The City of Peekskill will acquire more information on which buildings may be vulnerable to hazardous materials or oil spill.

Objective 2: Provide the public with education concerning chemicals

Strategy: Periodically disseminate pamphlets in conjunction with the Fire Department and the Building Department which educate the public on what they can do to minimize their risk and how to contact officials if they believe there is a hazardous situation. Explain the differences between evacuation and shelter in place. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, etc.

Strategy: Working in conjunction with the Fire Department and Building Department, develop an educational program that can be presented to school children, at community centers, day cares, etc.

Public education can be very important to prevent problems. The public should be informed as part of community outreach to raise prevention measures. All buildings should have an emergency evacuation plan. Warning systems are great only if the people know what to do when the system is activated. Developing a warning system and educating the people can be very helpful.

Goal 2: Reduce problems with any hazardous substances including oil by monitoring the way materials are transported in the various areas.

Objective 1: Strictly enforce regulations pertaining to storage, handling and use of hazardous substances, materials, and devices and from conditions hazardous to life or property in the use or occupancy of buildings or premises.

Goal 3: To improve the planning and response of the City's first responders

Objective: Improve the response time of the City to a hazardous materials incident or oil spill. This can be done by improving plans, especially the amount of resources and developing additional mutual aid agreements with various agencies. The training and education can also enhance to abilities of the first responders.

Objective: Emergency Responders respond quickly and appropriately to hazardous materials incidents or oil spills

Strategy: First Responders receive:
- hazardous material training
- inventory their equipment and supplies
- make additional purchases as needed.

Strategy: Fire department maintains current lists of what buildings store which chemicals in what amounts with the Material Safety Data Sheets

Strategy: Emergency Responders have access to up to date information on hazardous materials with the Jane's Handbook

Strategy: Hospitals have medications and equipment to treat patients

Goal 4: Gain more information concerning Peekskill's exposure to hazardous materials

Objective: develop and implement strategies to better identify the chemical components of the materials in the community.

Strategy: Assist facilities that work with hazardous materials to review and update their emergency operation plan.

Strategy: Encourage owners to encourage safety.

**HAZMAT (In Transit)/Transportation Accident:**

Goal 1: Reduce the potential for accidents including hazardous materials in Peekskill.

Objective 1: Increase the supervision of large highways and interstates.

Objective 2: Public Education

Strategy: Develop pamphlets in conjunction with the Fire Department and the Building Department which educate the public on what they can do to minimize their risk and how to contact officials if they believe there is a hazardous situation. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, etc.

Strategy: Working in conjunction with the Fire Department and Building Department, develop an educational program that can be presented to school children, at community centers, day cares, etc.

Goal 2: Reduce problems with any hazardous substances by monitoring the way materials are transported in the various areas.

Objective 1: Strictly enforce regulations pertaining to storage, handling and use of hazardous substances, materials, and devices and from conditions hazardous to life or property in the use or occupancy of buildings or premises.

The code requires compliance with standards of the National Board of Fire Underwriters or other approved nationally recognized standards. This law supports hazard mitigation efforts.

Goal 3: To improve the planning and response of the City of Peekskill to a hazardous materials or transportation accident incident.

Objective: Improve the response time of the City to a hazardous material or transportation accident. This can be done by improving plans, especially the amount of

resources and developing additional mutual aid agreements with various agencies. Training and education can also enhance to abilities of the first responders.

Goal 4: Better assess Peekskill's exposure to hazardous materials events.

Objective: Work with the Fire Department, County and State agencies to develop and implement strategies to better identify the chemical components of the materials in the community. Other analysis will be conducted to better assess Peekskill's exposure if something does occur. The information is low cost in money, but can be time consuming.

Strategy: Work with hospitals to have the proper medications and equipment needed to treat people exposed to hazardous materials.

Strategy: The emergency responders need to have current information concerning all hazardous materials with appropriate treatment and effective ways to manage the incidents.

Strategy: Training and education can be very helpful to first responders at all times.

**Terrorism:**

Goal 1: Increase the awareness of the public concerning potential terrorist threats and how to respond to them more effectively and efficiently.

Objective: Encourage use of the Emergency Alert System that is used by radio and television to broadcast emergency services.

Strategy: Develop pamphlets on different types of terrorism such as biological, incendiary, nuclear, chemical and explosive with information of what to look for and how to react to the potential incident.

Goal 2: Address terrorist threats in any plans including operating and comprehensive.

Objective: Identify terrorist targets in the county and develop plans to respond to potential problems

Goal 3: Coordinate with state and federal resources to prepare and respond to an event in a timely and effective manner

Objective: Assist the local authorities by coordinating resources with the county, state, and federal assets

**Utility Failure:**

Goal 1: Reduce the impact of utility failure on the population of Peekskill. Assist the public during all situations of potential utility failure, including automobile accidents, downed power lines and any other type of situation that would leave the public without utilities. A list of the gas stations that can be used without electricity should be obtained.

Objective: Educate the public on actions they can take to minimize the impact of this hazard on them.

Strategy: Develop/Distribute pamphlets which educate the public on what they can do to minimize their risk. Partner with utility companies to produce pamphlets on how the public can be prepared for utility failure. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, etc.

Public Education of what to do in the event of a power outage can be life saving. Power lines that fall in people's lawns or surrounding area should not be touched. The public should have extra supplies of flashlights, batteries, smoke detectors, water, food, extra medication and everything else needed to survive for a couple of days. Many commercial gas stations do no work without electricity so this can be important to keep the tanks half filled with gas.

Objective: Develop/improve upon partnerships with local groups that assist in the event of a utility failure.

Strategy: Work with RACES to develop a plan to communicate during incidents.

Objective: Maintain of trees in or near the path of utility lines. Many utility failures occur when trees and branches fall causing the wires to snap. By trimming the branches and being more prudent on what trees are planted will greatly reduce the chance of utility failure in any area.

Strategy: Work with utility companies to preplan their tree planting around the existing utility in order to try to reduce future problems. Select "power line friendly" trees that do not grow to heights above power lines.

Strategy: Investigate the possibility of implanting zoning that restrict the types of trees private landowners can plant within the potential fall zone of a power line.

**Wildfire:**

Goal 1: Increase the public knowledge of the potential for wildfires in Peekskill.

Objective: Teaching the public about wildfires and how they start should assist in decreasing the number of potential events.

Strategy: Develop pamphlets and educational seminars with the public on fire prevention and what to do if there is a fire.

Goal 2: Increase the capabilities of the first responders to contain and control large wildfires

Objective: Plan for potential wildfires

Objective: Train and educate on fighting wildfires.

Strategy: Increase the amount of people that are adequately prepared to fight a large wildfire in Peekskill.

**Radiological (In Transit):**

Goal 1: Reduce the potential for traffic accidents including radiological materials in Peekskill.

Objective 1: Increase the supervision of large highways and interstates.

Objective 2: Public Education

Strategy: Develop pamphlets in conjunction with the Fire Department and the Building Department which educate the public on what they can do to minimize their risk and how to contact officials if they believe there is a hazardous situation. Distribute the literature at all public buildings, public gathering/meeting places, provide to all civic organizations, etc.

Strategy: Working in conjunction with the Fire Department and Building Department, develop an educational program that can be presented to school children, at community centers, day cares, etc.

Goal 2: Reduce problems with any radiological substances by monitoring the way materials are transported in the various areas.

Objective 1: Strictly enforce regulations pertaining to storage, handling and use of hazardous substances, materials, and devices and from conditions hazardous to life or property in the use or occupancy of buildings or premises.

The code requires compliance with standards of the National Board of Fire Underwriters or other approved nationally recognized standards. This law supports hazard mitigation efforts. The amount of hazardous materials in a building is monitored by the LEPC in Peekskill.

Goal 3: To improve the planning and response of the City to a radiological by transportation incident.

Objective: Improve the response time of the City to a radiological accident. This can be done by improving plans, especially the amount of resources and developing additional mutual aid agreements with various agencies. Training and education can also enhance to abilities of the first responders.

Goal 4: Better assess Peekskill's exposure to radiological events.

Objective: Work with the Fire Department, County and State agencies to develop and implement strategies to better identify the chemical components of the materials in the community.

Strategy: Work with hospitals to have the proper medications and equipment needed to treat people exposed.

Strategy: The emergency responders need to have current information concerning all hazardous materials with appropriate treatment and effective ways to manage the incidents.

Strategy: Training and education can be very helpful to first responders at all times.

### 4.2.1 Unaddressed Hazards

The following hazards are not addressed as they have a zero or near zero probability in the Peekskill City limits:

- Avalanche – Peekskill has no steep slopes with in the City Limits that are considered to be at risk locations.
- Coastal Erosion/Storm – Peekskill is not a coastal city.
- Dam Failure – Peekskill's only dams control small bodies of water that poses little or no threat to property or life.
- Expansive Soils – not a hazard in the Peekskill Area.
- Landslide – Peekskill has no steep slope locations that would pose a slide risk.
- Tsunami – Peekskill is not a coastal location
- Volcano – not a hazard in the Peekskill Area.

# 4.3 POTENTIAL PROJECT LIST

The Hazard Mitigation Committee prioritized the potential projects. The committee looked at a number of different criteria (based on the STAPLEE criteria) to prioritize the project lists.

1) **S**ocial: Is the project compatible with the present and future community values?
2) **T**echnical: Is the project feasible with available village resources?
3) **A**dministrative: Does the village have the capability to implement the project?
4) **P**olitical: Is there public support both to implement and maintain the project?
5) **L**egal: Does the village have the authority to implement the project?
6) **E**conomic: Is the project cost effective?
   Cost/benefit analysis (the most benefit from the least amount of money)
   a. Favorable – extremely beneficial results for minimal costs to the village, especially if the project mitigates against a high priority hazard
   b. Fair – ratio is neither good nor bad, meaning the cost is high but the project is necessary for mitigation against a high priority hazard or the cost is low but the project mitigates against a low priority hazard
   c. Unfavorable – the cost to the village greatly exceeds benefits of the project, or cost is to great when considering that the project mitigates against a low priority hazard
7) **E**nvironmental: Does the project concern the environment: land, water, endangered species?

The Hazard Mitigation Committee looked at a variety of projects. Those listed meet most or all of the seven criteria. The projects apply to all types of hazards. These projects are considered overall to be the highest priority.

### 4.3.1 Public Education

Almost every hazard can be mitigated with the education of the public. The Peekskill Office of Emergency Management Office distributes brochures that apply to natural hazards such as fire, hurricane and tornado in addition to information regarding the 10 mile EPZ for Indian Point. The American Red Cross has brochures to assist the public in preparing for hazard events. Con Ed has pamphlets on electrical hazards. Peekskill Fire Department organizes Fire Prevention Week in the local schools and educates youth about fire safety at home. The Peekskill Police Department assists with public education programs in the village about citizen protection and neighborhood watches. The Peekskill EMS provides first aid and CPR training locally to concerned citizens.

Education will be an ongoing mitigation effort combining all areas of Emergency Service within Peekskill. Increased awareness of hazard response protocol will help to decrease the fear and anxiety associated with an event. The more

information the public has prior to an event, the better the response during and after the disaster.

Pamphlet distribution has already occurred and brochures remain available in the OEM Office and City Hall. Seasonal hazard warnings (i.e. Christmas Light Safety: Tips to Prevent Fire) are regularly posted on the Fire and Police Department websites, with additional links to county or state prevention tip sites.

FEMA has in depth mitigation tactics for private homeowners for every hazard addressed in the report. The City is interested in making that information readily available to residents and business owners in the area. Simply linking these pages to the hazard mitigation information already posted on the City website would help educate the public.

On September 10, 2005, the Peekskill Office of Emergency Management participated in a "Peekskill: Are You Ready?" day. During this day the Emergency Management Office present the mitigation plan to the public in addition to Indian Point and other Emergency related information.

*Responsible Party:* Public education is carried out by the City of Peekskill's Emergency Management Office, Police Department, Volunteer Fire Department, Emergency Medical Service, Con Ed, Entergy, the American Red Cross, and additional private companies that work with the public.

*Funding:* This project will require. The cost benefit ratio is favorable.

*Timeline:* Public awareness has been an ongoing project and will continue to occur on a regular basis on a permanent time line.

4.3.2 Monitor Trees.

Conduct assessment/inspection of trees in the community. Cut down or trim trees that are dead or have loose branches. The City would evaluate only trees on public property in an ongoing effort to keep the trees trimmed but not turn a blind eye toward public hazards on private property. Monitoring trees reduces the potential for utility failure and inconvenience to emergency responders, in addition to making public spaces safer for citizens.

The City does not have the ability to monitor trees on private property, but the City may consider making season recommendations regarding trees in general. The City could encourage residents to check their own dead and diseased trees before winter, and to consider removing trees that may affect utility lines in the event of a natural disaster.

*Responsible Party*: Con Ed is responsible for tree branches around wires. The Department of Public Works is responsibility for trees on public property.

*Funding:* The project would be a joint effort between Con Ed and Public Works. The cost benefit ratio is fair, as it may require additional Public Works employees to carry out the maintenance of trees once adequate records of village trees have been made.

*Timeline*: This project will continue to be discussed in City staff meetings.

### 4.3.3 Storm Water Management

Parts of the City have outdated storm water drainage systems that are in desperate need of replacement. Currently the City has applied for funding for replacement of Central Avenue storm water drains that suffered severe damage during tropical storms in the past ten years due to insufficient drainage systems. This has highlighted the need to increase the number and location of storm water drainage basins throughout the city.

The City is continuing along further storm water mitigation programs that are in the planning and finalization stages.

*Responsible Party:* The City Engineer, Department of Public Works, and Water Department are responsible for maintenance and replacement. The City Hall secures funding.

*Funding:* The cost of replacement is more than the City can take on its own. However, the City works hard to secure necessary funding through grant programs to make these projects happen.

*Timeline*: Projected completion dates depend on receiving funding. Expected completion of the Central Avenue Storm Drain is fall 2005. Other projects have not begun.

### 4.3.4 Additional Training and Education

- Law Enforcement
- Fire Department
- Emergency Medical Services
- Fire/Building Inspectors
- Code Enforcement
- Department of Public Works

Extra training and education for the groups and individuals listed above is considered a valuable use of City funds. Many of the hazards require response

from skilled professionals; likewise, prevention will depend on the knowledge and ability of inspectors and educators. As with the public, education of the City staff and response volunteers will be the key to successful mitigation.

Law enforcement, fire volunteers and paid staff, Emergency Management personnel and emergency medical volunteers educate in addition to protect the citizens, and they should be equipped with the best tools for the job. Buildings (new and old) will continue to need inspection in order to keep them up to local standards. The City needs to allow personnel to take advantage of all opportunities available in order to continue to improve the City's level of resistance to hazard situations.

*Responsible Party:* The City is responsible for the training of their personnel. The education and training of first responders would lead to better response and lives saved.

*Funding:* The time and transportation of the personnel are the only expense. The cost benefit ratio is favorable, worth the time and effort.

*Timeline:* This project has already begun since personnel training and education is continually happening to assure preparedness and meet state and federal requirements.

4.3.5 Back-up Power Source for the Key City Facilities

The City experiences minor utility failures regularly, and the utility failure of August 2003 reminds the area of the potential severity and risk associated with utility failure. Currently the many key City buildings have no back up power. The City determined that it is essential that certain buildings be supplied with back-up power. This project is high priority.

*Responsible Party:* The City of Peekskill

*Funding:* Purchase, installation and maintenance of the back up generators is the only expense. The cost benefit ratio is favorable.

*Timeline:* This projected has started with the attempt to identify certain avenues of outside funding.

4.3.6 Identify Location for Emergency Shelters

Currently the City has no emergency evacuation shelters designated and has no shelter equipment. The City has access to the Town of Cortlandt's Emergency Shelter Trailer, but if the City was involved in large scope hazard

that impacted the entire area, the Town of Cortlandt would need it. Currently the Office of Emergency Management has completed the assembly of one shelter team trained by the Red Cross. The Office of Emergency Management is currently attempting to identify schools, public and community spaces. The City knows that the identification of a shelter space is an essential future step for preparedness.

Identify shelters within the City for the public to enter in case of disaster. Work with Red Cross to stock shelter with necessary supplies. The process of identifying shelters will end when there is a sufficient enough.

*Responsible Party:* The City's Office of Emergency Management and American Red Cross are responsible for preparing for potential shelters in the area.

*Funding:* The cost benefit favorable is there is almost no expense.

*Timeline:* Within the next five years (by 2010), the City would like to have identified the appropriate amount of shelter space within the village.

### 4.3.7 Equipment Study

The City is evaluating all of the equipment to see where there may be deficiencies. This includes fire department, law enforcement, ambulances, department of public works and any other significant department. The knowledge of what equipment is available and where to get the equipment if needed can prove to be very important to save lives. This will be an ongoing process of keeping track of what equipment is owned by the City.

*Responsible Party:* The DPW is responsible for the collection all of the information and deciding where the deficiencies are.

*Funding:* The cost of the equipment would depend on how funding could be acquired either by grants or other public assistance.

*Timeline:* All of the departments keep track of the inventories on a regular basis. The project will start with approval of the plan.

### 4.3.8 Review City Building and Zoning Code

The zoning code regulates the use, intensity and pattern of development in the City. The building code regulates the construction and renovation of new and existing structures. In the last three years the City has been regularly and

aggressively monitoring code enforcement with the creation of local laws. The zoning and building code requirements will be integrated into the plans for new and existing buildings, as appropriate, and will bring more buildings up-to-date in fire regulation.

The policies of the Hazard Mitigation Plan will be considered as the City code is revised.

*Responsible Party:* The City Engineer's Department, Buildings Department and the Zoning Board.

*Funding:* The cost/benefit would be fair.

*Timeline:* The project has already begun.

4.3.9 Communications Plan

The Police and Fire Department expressed that improved communication throughout the entire City needs to be developed. Communications has always been a major issue during any disaster. The first responders and important agencies need to be able to communicate to each other in order to effective and efficiently manage a scene, and the responders need the ability to contact citizens quickly and efficiently. Reverse 911 is one application to explore in addition to better utilization of the City's EOC and Mobile Command Vehicles.

*Responsible Party:* The Police Department, Fire Department and EMS are each responsible to evaluate each of their areas to figure out communication parameters during a disaster and the methods of communication.

*Funding:* Most likely the City would need to obtain grant money.

*Timeline:* The police department is working on a communication update project. The fire department is working on updating their communication.

## 4.3.10 STAPLEE CRITERIA CONSIDERATIONS

| STAPLEE CRITERIA CONSIDERATIONS<br><br>+ : Favorable<br>- : Less Favorable<br>N : Not Applicable | | Public Education | Monitor Trees | Storm Water Management | Additional Training | Back Up Power for Key City Facilities | Emergency Shelter Plan | Equipment Study | Code Review/Revision | Communications Plan |
|---|---|---|---|---|---|---|---|---|---|---|
| **S** (Social) | Community Acceptance | + | + | + | + | + | + | + | + | + |
| | Effect on Segment of Pop. | + | + | + | N | N | N | N | - | N |
| **T** (Technical) | Technically Feasible | + | + | + | + | + | + | + | + | + |
| | Long-Term Solution | + | + | + | + | + | + | + | + | + |
| | Secondary Impact | + | - | - | + | + | - | + | + | + |
| **A** (Admin) | Staffing | + | + | + | + | N | + | N | N | N |
| | Funding Allocation | + | - | - | + | - | + | + | + | - |
| | Maintenance/Operations | + | - | - | + | - | + | + | N | + |
| **P** (Political) | Political Support | + | + | + | + | + | + | + | + | + |
| | Local Champion | + | + | + | + | + | + | + | + | + |
| | Public Support | + | + | + | + | N | + | N | - | N |
| **L** (Legal) | State Authority | N | N | + | + | N | + | N | + | + |
| | Existing Local Authority | N | + | + | + | + | + | + | + | + |
| | Potential Legal Challenge | N | - | + | N | N | - | N | - | N |
| **E** (Economic) | Benefit of Action | + | + | + | + | + | + | + | + | + |
| | Cost of Action | + | + | - | + | - | + | + | + | - |
| | Contributes to Economic Goal | + | + | + | + | + | + | + | + | + |
| | Outside Funding Required | + | N | + | N | - | + | N | N | - |
| **E** (Environmental) | Effect on Land/Water | N | + | + | N | N | N | N | N | N |
| | Effect on Endangered Species | N | + | + | N | N | N | N | N | N |
| | Effect on HAZMAT/Waste Sites | N | + | + | N | N | N | N | N | N |
| | Consistent with Community Environmental Goals | N | + | + | N | N | N | N | + | N |
| | Consistent with Federal Laws | N | + | + | N | N | N | N | + | N |

# *5.0 Maintaining the Plan*

Every plan should be updated on a regular basis by a planning team comprised of certain county departments. The revision schedule should be a written system to evaluate the plan that reviews the risks and hazards based on new information. The mitigation plan should be analyzed for effectiveness and appropriateness of mitigation projects and actions. The County should analyze any changes in the area such as such as development of the land, change in risk potential, etc. Public Participation should be a major part of the maintenance process. The New York State Emergency Management Office and Federal Emergency Management Agency are required to review the plan every 5 years.

## *5.1 Hazard Plan Adoption*

The Peekskill City Counsel is responsible for adopting the hazard mitigation plan. This legislative board is responsible for establishing the policies and procedures for Peekskill. The legislature has the authority to implement the strategies in this plan policy direction for staff, allocating funds and changing various laws or ordinances.

This plan has been reviewed and approved by the New York State Emergency Management Office and the Federal Emergency Management Agency prior to Peekskill's formal adoption of the plan.

## *5.2 Implementation through Existing Programs*

In order to implement the plan successfully, the strategies shall be implemented through existing Peekskill programs and institutionalized in the County's policy formation and decision-making process. The existing programs include the following:

- City Code Revisions: The City Legislature adopting the revisions to the existing codes including changes in the City zoning code, floodplain management requirements, subdivision regulation, housing standards or other relevant City Code Chapters or planning documents.

- Code Enforcement: These programs include those activities involving changes in code enforcement. Some will involve changes in the enforcement of laws by the Peekskill Building Department or other cases modification in police enforcement in police enforcement or fire prevention activities may be necessary.

- Capital Improvements Program and Budget: The strategies that involve large expenditures will need to be implemented through the Peekskill Capital Improvements Program, which is approved annually by the City Council. Strategies involving smaller expenditures such as funding increases to City Department to increase maintenance of enforcement activities will likely be

administered through the annual budget process, which is also adopted by the City Legislature.

To further promote plan implementation, the mitigation plan will be reviewed and considered prior to the adoption of new or amended zoning, land use, and public safety statues and other appropriate local ordinance, policies and programs. Consideration of hazard mitigation as part of the formation of the City Policy will help institutionalize mitigation concerns as part of the City's decision-making process. The Hazard Mitigation Planning Team will assist in this process.

## *5.3 Plan Monitoring and Evaluation*

The planning process requires the plan be monitored to evaluate the extent to which the proposed mitigation strategies have been implemented. This plan states a Hazard Mitigation Planning Team lead by the Peekskill Office of Emergency Management will be established to monitor the plan, promote its implementation, facilitate public input and report to the City Legislature on a regular basis.

## *5.4 Hazard Mitigation Planning Team (Plan review)*

The Planning Team Chair will be the Emergency Manager with members of the hazard mitigation planning team including Fire Department, Law Enforcement, Emergency Medical Services, City Planner, Public Works Department, and any other important item.

The Planning Team has been brought together to write this plan and the Planning Team will assist in maintaining the plan. The Planning Team will continue to monitor the plan with the necessary updates and provide annual reports to the City Legislature on the implementation of the plan and any other recommended mitigation strategies. The plan will be revised, reviewed, and updated annually by committee in conjunction with an ongoing process of community input. The Planning Team will meet each year in January to review the plan, rate the progress in implementing the strategies and projects, and provide any necessary updates. If the situation or new information becomes appropriate to the plan, the Planning Team will meet to address the circumstances.

The Planning Team will monitor the plan's progress to ensure the various items are implemented. The City Legislature will receive a progress report developed by the planning team annually, and if pressing issues arise, a report will be generated as needed between the regular annual reports. The mitigation plan review meetings should include, but not be limited to, a discussion of the following topics:

- An evaluation of plan goals and objectives in relation to current conditions
- A review of the hazards impacting the City and a discussion of whether the nature or magnitude of the hazards has changed

- A review of current resources and a discussion of whether current resources are appropriate for plan implementation

- Whether other agencies/partners are participating as expected

- If the progress in accomplishing goals and objectives is being documented

- How effectively projects and other strategies have been implemented

The property characteristics include the assessed values, square footage, occupancy content values and estimated risks will be automatically updated via the City's GIS system. The GIS system is updated each time one of the property characteristics has a change. All significant changes in property characteristics will be monitored and updating in the plan before the quarterly meeting. The zoning and building code requirements will be integrated into the plans, as appropriate.

This planning team is also responsible for smoothing the progress of and synchronizing the implementation of the mitigation strategies in the plan. The progress in accomplishing goals and objectives will need to be documented. Any changes in regulations by the City Legislature could be referred to the Planning Team for review based on the consistency of the proposed change with the policies and strategies of the Hazard Mitigation Plan. The land use changes and new developments in Peekskill will be analyzed.

## *5.5 Plan Updates*

The Peekskill Hazard Mitigation Plan will serve as the principal roadmap for performance strategies. As time progresses, conditions will change and new information will become available and the plan will need to be updated with the changes in time. The revised plan will be readopted every five years in the month of January. The changes will be submitted to New York State Emergency Management Office and Federal Emergency Management Agency.

## *5.6 Continued Public Involvement*

The Hazard Mitigation Planning Team will be responsible for the updates of the plan including new rules and regulations from the state and federal government. The annual reports of the Planning Team to the Peekskill Legislature will be made available to the public in order for the public to express concerns, and ideas about the plan.

The adopted Peekskill Hazard Mitigation Plan will be available on the Peekskill website after adoption without any sensitive information. The Office of Emergency Management will also develop a database of disasters that would be used to reassess and reprioritize

the hazard profile. The Hazard Analysis will also be updated at a minimum of once every three years.

## *5.7 Newly Elected or Appointed Officials*

After newly elected or appointed officials begin their term of service, they will be given a copy of the mitigation plan to review. The purpose is to provide them with an awareness of the community's risks and the reasons the plan was produced. This should increase the incorporation of hazard mitigation objectives into decision making process for the municipality. The following people should send a representative:

- City Executive
- City Highway Supervisor
- Director of Public Works
- City Code Enforcement Officer
- Fire Chief
- Police Chief
- Planning Board Member
- City Safety Coordinator/Emergency Planner
- Director of Emergency Services
- Hazard Mitigation Coordinator
- Regional Flood Mitigation Specialist.

The planning committee will solicit public input and comments plan each time this plan is revised. The City Planning Board will be asked to review each revision of the City Mitigation Plan and this will insure other planning objectives will be met. This will also provide opportunities for mitigating those hazards. Any plan revisions will be incorporated into this document including posting on the websites.

# Appendix A

## Resolution to Adopt Hazard Mitigation Plan

# Resolution to Adopt Hazard Mitigation Plan

(SAMPLE)

On motion of Council member_____, seconded by Council member _____, the following resolution was adopted by the Common Council of the City of Peekskill, New York:

WHEREAS, the President signed the Disaster Mitigation Act of 2000 (Public Law 106-390) into effect on October 10, 2000 to improve the planning and set standards for mitigation throughout the nation; and

WHEREAS, the act requires an approved pre-disaster hazard mitigation plan in order to be eligible for mitigation project funding; and

WHEREAS, the development of this plan fulfills other Federal Emergency Management Agency (FEMA) planning requirements making the Village competitive for further mitigation funding; and

WHEREAS, the City of Peekskill participated in a HAZNY workshop sponsored by the Westchester County Department of Emergency Service Office of Emergency Management; and

WHEREAS, the Hazard Mitigation Plan, prepared by the City of Peekskill Office of Emergency Management Hazard Mitigation Committee, focuses on methods of mitigation that will reduce exposure and vulnerability to the hazards identified by the HAZNY plan; and

WHEREAS, the Hazard Mitigation Plan evaluates a broad range of natural and man-made disasters and cost-effective means of minimizing risk to life and property in the village; and

WHEREAS, the Disaster Mitigation Act (2000) requires adoption of the plan by the local government to be eligible for consideration of approval by FEMA;

NOW, THEREFORE BE IT RESOLVED: that the Common Council of the City of Peekskill hereby adopts the Hazard Mitigation Plan as a means of mitigation that will guide cost-effective mitigation of hazards that cause damage to property and loss of life,

AND BE IT FURTHER RESOLED: that the Common Council of the City of Peekskill hereby authorizes the submission of this plan to FEMA for their consideration and approval.

January 2008

# Appendix B

HAZNY List of Hazards

**AIR CONTAMINATION:** This is pollution caused by atmospheric conditions, (as opposed to a chemical spill or release type of situation) such as a temperature inversion induced smoggy condition sufficiently serious to create some danger to human health.

**AVALANCHE**: A mass of sliding snow which usually occurs in mountainous terrain where snow is deposited on slopes of 20 degrees or more.

**BLIGHT:** A disease of agricultural crops or non-agricultural plants resulting in withering, lack of growth, and death of its parts without rotting.

**CIVIL UNREST:** An individual or collective action causing serious interference with the peace, security, and/or functioning of a community (e.g.., riot).

**DAM FAILURE:** Structural deterioration, either gradual or sudden, results in the facility's inability to control impounded water as designed, resulting in danger to people and/or property in the potential inundation area.

**DROUGHT:** A prolonged period of limited precipitation affecting the supply and quality of water.

**EARTHQUAKE:** A sudden motion of the ground caused by release of subterranean strain energy, due to plate tectonics, resulting in surface faulting (ground rupture), ground shaking, or ground failure (collapse).

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

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

**EXTREME TEMPERATURES:** 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.

**FIRE:** The uncontrolled burning in residential, commercial, industrial, institutional, or other structures in developed area.

**FLOOD:** Flooding usually is a natural, cyclic occurrence in existing waterbodies. When a waterbody overflows its 'normal' banks, a potentially violent and/or destructive waterway can form. A flash flood is a sudden transformation of a small stream into a violent waterway after heavy rain and/or rapid snowmelt.

**FOOD SHORTAGE:** A situation where the normal distribution pattern and/or the timely delivery of foodstuffs to retail establishments.

**FUEL SHORTAGE:** A situation in which the normal quantity and/or timely delivery of fuel supplies to distributors and retail establishments is interrupted for normal consumer demand is interrupted for a substantial period of time.

**HAZARDOUS MATERIAL (FIXED SITE):** 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.

**HAZARDOUS MATERIAL (IN TRANSIT):** The uncontrolled release of materials during transport, 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.

**HURRICANE:** Tropical cyclones formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye." Circulation is counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

**ICE JAM:** Large accumulations of ice in rivers or streams interrupt the normal flow of water. Ice Jams lead to flooding conditions and/or damage to structures.

**ICE STORM:** Freezing rain that accumulates in a substantial glaze layer of ice resulting in serious disruptions of normal transportation and possible downed power lines.

**INFESTATION:** Excessive populations of insects, rodents, or other animals requiring control measures due to their potential to carry diseases, destroy crops, or harm the environment.

**LANDSLIDE**: The downward and outward movement of slope-forming materials reacting to the force of gravity. Slide materials may be composed of natural rock, soil, artificial fill, or combinations of these materials. The term landslide is generalized and includes rock falls, rockslides, creep, block glides, debris slides, earth-flow, mud flow, slump, and other similar terms.

**MINE COLLAPSE:** The folding, caving in or sudden implosion of an underground cavity. Such an event would threaten persons inside the cavity and/or persons, property and structures on the surface.

**OIL SPILL:** The uncontrolled or accidental discharge of petroleum into water and/or onto land or sea.

**RADIOLOGICAL (FIXED SITE):** A release or threat of release of radioactive material from a nuclear power generating station or research reactor or other stationary source of radioactivity.

**RADIOLOGICAL (IN TRANSIT):** A release or threat of release of radioactive material from a transportation vehicle including truck, rail, air, and marine vehicle.

**SEVERE STORM:** For this category, you should consider hail storms, windstorms, and severe thunderstorms (with associated severe wind events such as drenches, gustnados, and "downbursts).

**STRUCTURAL COLLAPSE:** A sudden structural failing, partial or fully, of buildings, bridges or tunnels, threatening human life and health.

**TERRORISM:** The threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths.

**TORNADO:** A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity of funnel. Winds have been estimated to be as high as 400 miles per hour.

**TRANSPORTATION ACCIDENT** 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.

**TSUNAMI-WAVE ACTION:**

**TSUNAMI** - A large sea wave produced by sub-ocean earth movement, earthquake, or volcanic eruption; historically very rare in the Atlantic Ocean.
**WAVE ACTION:** Wave action continuously drives surges of water with great force and causes shoreline erosion and property damage; generally part of a storm system such as a hurricane.

**UTILITY FAILURE:** 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.

**WATER SUPPLY CONTAMINATION:** The contamination or potential contamination of surface or subsurface public water supply by chemical or biological materials that results in restricted or diminished ability to use the water source.

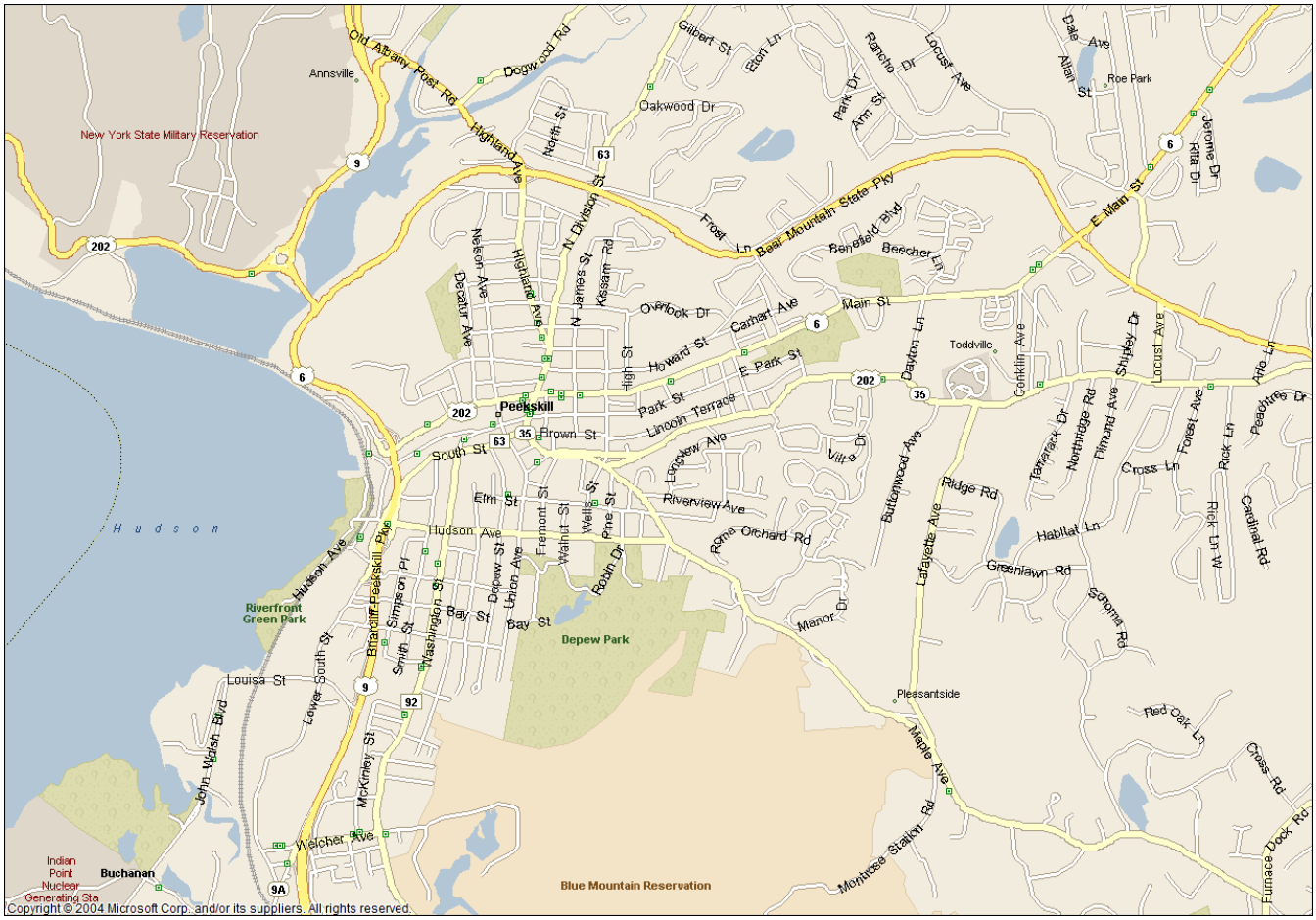
**WILDFIRE:** An uncontrollable combustion of trees, brush, or grass involving a substantial land area which may have the potential for threatening human life and property.
Definition:

**WINTER STORM (SEVERE):** 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. For this analysis, the following could meet this definition:

**HEAVY SNOW:** Six inches in 12 hours or less.
**BLIZZARD** - Characterized by low temperatures, winds 35 mph or greater and sufficient falling and/or blowing snow in the air to frequently reduce visibility to 1/4 mile or less for at least three hours.
**SEVERE BLIZZARD**: Characterized by temperatures near or below 10 degrees F, winds exceeding 45 mph, and visibility reduced by snow to near zero for at least three hours. NOTE: Ice Storm should be analyzed as a separate hazard.

# Appendix C

City Map


Peekskill
Annsville
New York State Military Reservation
Old Albany Post Rd
Dogwood Rd
Highland Ave
North St
Gilbert St
Eton Ln
Oakwood Dr
Rancho Dr
Locust Ave
Park Dr
Ann St
Dale Ave
Allan St
Roe Park
Jerome Dr
Rita Dr
E Main St
Frost Ln
Bear Mountain State Pky
Benefold Blvd
Beecher Ln
Main St
Overlook Dr
Carhart Ave
Howard St
E Park St
Toddville
Conklin Ave
Dayton Ln
Shirley Dr
Locust Ave
Arlo Ln
Peachtree Dr
Forest Ave
Rick Ln
Cross Ln
Rick Ln W
Cardinal Rd
Diamond Ave
Northridge Rd
Tamarack Dr
Ridge Rd
Habitat Ln
Greenlawn Rd
Sonoma Rd
Butterwood Ave
Lafayette Ave
Villa Dr
Manor Dr
Rome Orchard Rd
Riverview Ave
Longview Ave
Park St
Lincoln Terrace
Brown St
South St
Elm St
Hudson Ave
Fremont St
Walnut St
Wells St
Pine St
Robin Dr
Union Ave
Depew Park
Bay St
Simpson Pl
Smith St
Washington St
Briarcliff Peekskill Pkwy
Riverfront Green Park
Louisa St
South St
Lower South St
John Walsh Blvd
McKinley St
Welcher Ave
Indian Point Nuclear Generating Sta
Buchanan
Blue Mountain Reservation
Pleasantside
Maple Ave
Red Oak Ln
Cross Rd
Furnace Dock Rd
Montrose Station Rd
Nelson Ave
Decatur Ave
Highland Ave
N James St
Kissam Rd
N Division St
High St
Hudson
6
9
202
63
35
92
9A
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