9.40 Village of Rye Brook

This section presents the jurisdictional annex for the Village of Rye Brook.

9.40.1 Hazard Mitigation Plan Point of Contact

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

Primary Point of Contact	Alternate Point of Contact
Christopher Bradbury, Village Administrator Village of Rye Brook 938 King Street Rye Brook, NY 10573 914-939-0634 cbradbury@ryebrook.org	Michal Nowak, Supt. of Public Works/Engineering Village of Rye Brook 938 King Street Rye Brook, NY 10573 914-939-0753 mnowak@ryebrook.org

9.40.2 Municipal Profile

This section provides a summary of the community.

Population

According to the U.S. Census, the 2010 population of the Village of Rye Brook was 9,347, with a population density of 2,723 persons per square mile. The population significantly increased from the 2000 census (8,602).

Location

The Village of Rye Brook is situated in southeastern Westchester County. Rye Brook is bordered by the town of Greenwich, Connecticut to the northeast; Port Chester to the southeast; the City of Rye to the south, the Town/Village of Harrison to the west, and the Town of North Castle to the north.

The Village of Rye Brook is located within the Town of Rye, providing Rye Brook residents with access to the Town's two parks, Crawford Park (located within Rye Brook) and Rye Town Park (in Rye City along Long Island Sound). The Town of Rye also assesses and collects taxes on behalf of Rye Brook and the Blind Brook school district that serves Rye Brook.

Brief History

According to the Village of Rye Brook web site, the "story of the Village of Rye Brook is the most recent chapter in the continuing development of the Town of Rye." Town history began in 1640 when land was purchased from Native American inhabitants. The first colonists to move into the area were settlers from Greenwich, Connecticut. In 1660 they negotiated a treaty with a Mohican chief for all the land along Long Island Sound between the Mamaroneck and Byram Rivers. It is supposed that the town was named after Rye, in Sussex, England, the former home of some of the settlers.

Communities within the Town eventually established themselves as four separate municipalities including Port Chester, part of Mamaroneck, and the City of Rye. In 1940, the unincorporated area (now the Village of Rye Brook) had a population of less than 2,000 residents. It had large estates, farmland, and open space. The number of residents grew to 2,661 by the 1950 census. In 1960 the count exceeded 6,000 and by 1980 it had grown to 8,000. This are remained the last unincorporated part of the Town of Rye until it became a Rye Brook Village on July 7, 1982.

Today, Rye Brook is largely residential but enjoys a few small commercial areas in the southern part of the village.

Governing Body Format

The Village is governed by a Mayor who is the chief executive officer of the village and a Board of Trustees who appoint the Village Administrator. There are four Trustees. As Chief Administrative Officer for the Village Board, the Administrator supervises all Village operations through the department heads and, in other cases, as prescribed by law.

Growth/Development Trends

The village does not include a traditional downtown area like those found in many other Westchester County villages. Rye Brook is largely built out, with only a handful of vacant properties remaining, and much of that land is constrained by environmental factors. A small amount of new mixed uses may be developed per the village's existing land use patterns.

A buildout analysis was completed by the Westchester County Department of Planning in 2012 for the Village Comp Plan. At full build-out, Rye Brook could see an additional 271 dwelling units leading to an additional population of 732 people, as well as an added 238,304 square feet of commercial space. This would represent growth of nearly 8% from the village's 2012 population of 9,450 people, and commercial growth in square feet of approximately 12%. However it must be noted that this analysis assumed the complete transition of Blind Brook Country Club to residential land. Therefore the estimate is conservatively high. In reality, very little of the village's new development would be located in zones of flood risk, given the specific locations of flood risk and the scattered nature of available parcels.

The following table summarizes recent residential/commercial development since 2005 and any known or anticipated major development that has been identified in the next five years within the municipality.

Table 9.40-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	Number of Units / Structures	Location (address and/or Parcel IDs)	Known Hazard Zones*	Description / Status
Recent Development					
None					
Known or Anticipated Development					
Renovate or redevelop vacant commercial spaces in existing plazas	Commercial	NA	No specific locations	None	Desired but none pending
Enclave at Rye Brook	Residential	32	Corner of King Street and Anderson Hill Rd	None	16 attached residential buildings
Bowman Avenue	Residential	10	Bowman Avenue west of S. Ridge St	None	10 Condo units
Reckson Phase III	Commercial	1	International Drive, Reckson Office Park	None	Approved 280,000 SF office building

* Only location-specific hazard zones or vulnerabilities identified.

9.40.3 Natural Hazard Event History Specific to the Municipality

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

Table 9.40-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
October 27-November 8, 2012	Hurricane Sandy	DR-4085	Yes	Hurricane Sandy caused a power outage of approximately eight days, although some areas were without power for three weeks. Several roads were closed from downed trees and wires. The shelter was opened. Of the events listed here, Hurricane Sandy generated the most debris from wind damage.
October 29-30, 2011	Winter Storm "Alfred"	DR-4046	No	Winter Storm Alfred caused a power outage of several days. Although this snow event was minor for southern Westchester County, Rye Brook was in the region that experienced heavy snow and damage from falling trees and tree limbs, similar to most of Connecticut.
August 26 - September 5, 2011	Hurricane Irene	DR-4020	Yes	Hurricane Irene caused three to four days of power loss. The shelter was opened. The Anderson Hill water pumping station failed.
March 13-31, 2010	Severe Storms and Flooding	DR-1899	Yes	The March 13, 2010 Nor'easter caused tree damage and a power outage, with the quantity of tree and tree limb debris second only to the debris caused by Hurricane Sandy in 2012

Notes:

EM Emergency Declaration (FEMA)
FEMA Federal Emergency Management Agency
DR Major Disaster Declaration (FEMA)
IA Individual Assistance
N/A Not applicable
PA Public Assistance

9.40.4 Hazard Vulnerabilities and Ranking

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

Natural Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the natural hazard risk/vulnerability rankings of potential hazards for the Village of Rye Brook.

Table 9.40-3. Natural Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard [a, c]	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking [b]
Earthquake	100-Year GBS: $0 500-Year GBS: $1,663,601 2,500-Year GBS: $39,198,792	Occasional	24	Medium
Extreme Temperature	Damage estimate not available	Frequent	21	Medium
Flood	1% Annual Chance: $131,596,084	Frequent	36	High
Severe Storm	100-Year MRP: $17,683,813 500-year MRP: $82,769,572 Annualized: $981,779	Frequent	48	High
Winter Storm	1% GBS: $45,001,739 5% GBS: $225,008,695	Frequent	51	High
Wildfire	Estimated Value in the WUI: $49,675,404	Frequent	18	Medium

a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
b. The valuation of general building stock and loss estimates was based on the custom inventory developed for Westchester County and probabilistic modeling results and exposure analysis as discussed in Section 5.
c. The earthquake and hurricane wind hazards were evaluated by Census tract. The Census tracts do not exactly align with municipal boundaries; therefore, a total is reported for each Town inclusive of the Villages.
d. Frequent = Hazard event that is likely to occur within 25 years;
Occasional = Hazard event that is likely to occur within 100 years; and
Rare = Hazard event that is not likely to occur within 100 years
e. The estimated potential losses for Severe Storm are from the HAZUS-MH probabilistic hurricane wind model results. See footnote c.
GBS = General building stock
MRP = Mean return period
RCV = Replacement cost value

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the municipality.

Table 9.40-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 1% Flood Boundary (3)
Rye Book (V)	184	214	2084226.35	13	1	69

Source: FEMA Region 2, 2014
(1): Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of March 31, 2014. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents the number of claims closed by March 31, 2014.
(2): Information regarding total building and content losses was gathered from the claims file provided by FEMA Region 2.
(3): The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file. FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

Critical Facilities

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

Table 9.40-5. Potential Flood Losses to Critical Facilities

Name	Municipality	Type	Exposure	Potential Loss from 1% Flood Event

			1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	Days to 100-Percent(1)
Rye Brook Estates Dam	Rye Brook (V)	Dam	X	X	-	-	-

Source: HAZUS-MH 2.1
Note: x = Facility located within the 0.2-percent annual chance flood boundary.
Please note it is assumed that wells have electrical equipment and openings are three-feet above grade.
(1) HAZUS-MH 2.1 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).
(2) In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type.

Other Vulnerabilities Identified by Municipality

The Village of Rye Brook is vulnerable to a variety of hazards. Village staff believe that the effects of extreme cold, flooding, hailstorms, hazardous materials incidents, hurricanes/tropical storms/nor'easters, lightning, severe storms, severe winter storms, and transportation/airport accidents present the *highest relative* risk to the community (each ranked as "medium" risk and none ranked as "high" risk). Other hazards such as wildfire, earthquake, and dam failure reportedly present low or negligible risks to the community. The following specific information about vulnerabilities was identified by the municipality, including some with medium risk and some with low risk:

All Hazards

- The Village would like to obtain generators for all critical facilities. Facility generators are present at the Village Hall/Police Station, the Fire House, the Community Center, and the sewer pumping station at 1200 King Street. The highway department has portable generators. The water pumping station owned and maintained by United Water is located at Anderson Hill Road and has a generator. The water pumping station lost power and the generator failed during Hurricane Irene. This is a major problem because the pressure zone does not have a storage tank; it is served only by the pumping station. If the highway garage were to be upgraded, a new generator would likely be included. However, the village would like to upgrade this generator even if the garage were not upgraded.
- Assisted and elderly facilities are considered critical facilities. These include the 1200 King Street independent living facility, the nursing home at 787 King Street, and the UCP/CPW campus at 1187 King Street. The UCP/Cerebral Palsy of Westchester (CPW) campus is mainly a number of medical services, but people also live there. Recent storms have exposed the vulnerability of the campus, because it will shut down but people are still living in the campus when shut down.
- Infrastructure in the village is quite old in many locations, and failures could occur. For example, a fire in a ConEd vault recently caused an explosion.

Flooding

Blind Brook and its tributaries present the greatest flood risks in Rye Brook. The main branch of Blind Brook forms the municipal boundary between the Town/Village of Harrison and the Village of Rye Brook before flowing through the City of Rye. The three communities therefore share flooding concerns associated with the brook. The eastern branch of Blind Brook flows from the King Street athle5tic fields to the lower pond of Blind Brook near Bowman Avenue. Flood prone streets and/or properties in Rye Brook are located on Wyman Street, Wyman Street North, Brookridge Court, Brook Lane, Avon Circle, Candy Lane, Rock Ridge Drive, and Acker Drive, all located near Blind Brook. Driveways on small bridges travelling over the Blind Brook off Lincoln Avenue also flood. Homes on Rock Ridge Drive have repeatedly flooded from water rising from the Eastern Branch of the Blind Brook. Some of the Wyman Street and Rock Ridge Drive homes have

experiences repeated flooding during extended rainstorms. The village notes the possibility of acquiring or raising up flood prone homes on Wyman Street and Rock Ridge Drive if funding became available.

Reports and plans that evaluate various flood mitigation methods have included:

- Stormwater Analysis- Eastern Branch Blind Brook (Dolph Rotfeld Engineering, 2002) - Evaluated various locations and proposed projects to reduce flooding on the Eastern Branch of Blind Brook.
- Project Report, Flood Mitigation Study, Bowman Avenue Dam Site (Chas H. Sells, Inc., 2008) – evaluated different options to detain water at the upper and lower ponds at Bowman Avenue and properties near Brook Lane and Avon Circle. Project Report, Flood Mitigation Study, Lower Pond Supplemental (Chas H. Sells, Inc., 2008) – evaluated different options to detain water at the lower pond at Bowman Avenue.
- Blind Brook Watershed Management Plan (U.S. Army Corps of Engineers, 2009) – evaluated different options to detain water and the upper and lower ponds at Bowman Avenue, detention at Anderson Hill Road near SUNY Purchase, and non-structural mitigation such as home elevations.
- Hydrologic and Hydraulic Analysis, Study for Resizing the Upper Pond Reservoir (Paul C. Rizzo Engineering, 2012) – evaluated different options to detain water at the upper pond at Bowman Avenue.

The sluice gate at the Bowman Avenue dam is complete, and this is believed to provide some flood mitigation along Blind Brook. The detention basin at SUNY Purchase is still being studied and considered as a strong contender for watershed flood mitigation, but this option will be costly. To help advance these previous studies to the present time, the City of Rye retained Parsons Brinkerhoff in 2013. The report 'Hydrologic and Hydraulic Analysis Report, Blind Brook Watershed Study" (August 2014) updates the cost estimates for the SUNY Purchase detention pond and Upper Bowman Pond and recommends limited additional work to advance the alternatives. The cost for resizing Upper Pond ranges from $6.1 million to $6.6 million. The cost for two detention ponds on SUNY-Purchase is approximately $0.51 million.

In particular, the large detention basin designed to be installed in Purchase for flood mitigation along Blind Brook would mainly help the City of Rye but could benefit homes in Rye Brook on Brook Lane and Wyman Street.

Numerous flood mitigation projects have been completed as a result of a flood mitigation study prepared for the village (*Stormwater Analysis of Blind Brook East Branch*, by Dolph Rotfeld Engineering, for Village of Rye Brook, November 2002). Capital projects completed as a result of this study include:

- An underground stormwater detention system beneath the King Street Athletic Field project.
- Improvements to the stormwater system from King Street through Loch Lane, and in Phillips Pond near Beachwood Circle.
- Construction of a new detention pond between Edgewood Drive and Bluebird Hollow.

The condominiums on Avon Circle have flood risk with the East Branch Blind Brook flowing beneath the property and underneath Westchester Avenue in a culvert. Residents had to be evacuated during the flood of April 2007. This area was studied in the 2002 Dolph Rotfeld Engineering Report as well as the 2008 Chas Sells report.

Remaining projects to be completed for the East Branch of Blind Brook include the Avon Circle/Westchester Avenue culvert replacement, the dredging of a private pond at Hidden Falls described in Dolph's report, and a review of culverts from Hidden Falls and extending to Argyle Road.

Approximately 95% of the village roads have drainage systems. Roads that experience flooding from poor drainage include Anderson Hill Road, Bowman Road at low spots, Westchester Avenue at low spots, and King Street near #1100 where a pond approaches the road and the roads diverges from the NY-CT state line.

Detailed descriptions of areas with flood risk were provided to the County by the Village. These are listed below:

East Branch of Blind Brook

The Village reports that flooding associated with the East Branch of Blind Brook affects Rock Ridge Drive, Concord Place, Acker Drive, Woodland Drive, Loch Lane, and Beechwood Boulevard. According to the village, a tributary brook feeding the East Branch of Blind Brook bordering the rear yards of properties located at Loch Lane elevates approximately three to five feet and overtakes the surrounding topography causing uncontrolled flow over the roadway and floods an area encompassing the circle where Loch Lane, Beechwood Boulevard, Woodland Drive, Edgewood Drive and Hillandale Road intersect. A sewer pipe surcharges during a two-inch or greater storm. Flooding is partially centered around a small pond at 17 Loch Lane. The respondent further states that nearby Rich Manor Park acts as a retention area and floods, and water spills into properties at Rock Ridge Drive and impacts the garages, driveways, basements and lower floors. Two 6-inch-diameter culverts carrying the East Branch of Blind Brook at Acker Drive, immediately south of Rich Manor Park, can get overwhelmed and water overtakes the roadway. Approximately two feet of water floods the road and can cut off approximately 18 single-family residences from emergency services. Woodland Drive backyards also flood and one property basement reportedly flooded three times in 2011 due to "overwhelming" street runoff, overtaken storm drains and rear yard flooding. This area also is within a 100-year flood zone. The village believes that approximately eleven residential units have been damaged by flooding with six to eight of these flooded more than once. The approximate depth of flooding is eight to ten inches at Beechwood Circle and two to three feet at Rich Manor Park. Inundation usually lasts four to 12 hours.

The Village reports that flooding associated with the East Branch of Blind Brook can also affect the Avon Circle (Rye Ridge) Condominiums in larger storms. According to the Village, Avon Circle is at a bottleneck of the East Branch of Blind Brook, which borders the rear yards of the condominiums. The brook crossing under Westchester Avenue restricts flow and moderate to severe storms generate inundation in this area to depths of a "few feet" to 10 feet. Inundation floods basements and, in some case, to the first floors of residential units. Debris is commonly contained in the flood waters. The brook reportedly elevates approximately three to 10 feet and overtakes the surrounding properties. The first floors of some units are only a few feet above grade, and the area is in a designated 100-year flood zone. Approximately 85 residential units have been damaged multiple times by flooding. In addition, building utilities such as heating, electrical and telephone systems are at low elevations and can be damaged.

Main Branch of Blind Brook

The Village reports that flooding associated with Blind Brook affects Brook Lane and certain driveways on small bridges that go over Lincoln Avenue. Four to six single-family residences along Brook Lane have experienced repetitive flooding from Blind Brook. The Village reports that during extraordinarily severe storms the brook's water level rises eight to 10 feet. The brook is lined with a rock retaining wall. It surcharges through people's rear yards and the entire area is generally flat in the floodplain. Many of these residences are on concrete slabs with no basements. The roadway gets flooded and has been impassable during several storms. Street storm drains are directed to the brook but are ineffective once head pressure in the brook prohibits drainage, so the road starts to flood. Floodwater depths on the road and elsewhere reach up to three feet during severe storms and lasts six to 12 hours. The area is in a designated 100-year flood zone.

The Village reports that flooding associated with both branches of the Blind Brook affects Wyman Street and Brookridge Court. The Blind Brook overtakes the rock wall-lined banks of the river and jumps the channel walls as well as seeps through drain openings at the end of Wyman Street. The brook elevation rises three to five feet during severe storms and then spills onto the road. When head pressure in the brook prohibits drainage from the road infrastructure, the drains become ineffective and the roads impassable. Once the road starts to flood, some properties and homes along it also experience flooding. Wyman Street suffers repeated flooding from Blind Brook (seven or eight times over the past decade and following storms with greater than 2.5 inches of rainfall, according to the Village). The yards of approximately four to six single-family residences, which have basements, experience flooding during severe storms. Besides the road becoming impassable, asphalt in the road and driveways is sometimes damaged and debris is deposited in the yards and water damage occurs in garages. During the most severe storms, the first floors of some homes might be compromised according to the respondent. The area is in a designated 100-year flood zone.

Unnamed Tributary of Blind Brook

The Village reports that flooding associated with a tributary of Blind Brook affects the intersection of Rockinghorse Trail and Country Ridge Drive. According to the Village, the tributary brook feeding Blind Brook bordering the rear yards of properties located at Country Ridge Drive has elevated to approximately five to six feet and flooded the surrounding topography causing flow over the adjacent property owners' rear and front yards and flooding the intersection of Rockinghorse Trail and Country Club Drive. Numerous basements have been flooded, rear yards have been damaged, patio furniture washed away, and debris deposited on these properties. The roadway is submerged under approximately 12 inches of water and is impassable during such events. Because roadway is flooded, storm drains cannot handle any rainfall, therefore water flows down driveways. This brook flows as an open channel but then is piped under Rockinghorse Trail, where it daylights again on the other side of the road in the rear of a residential property. The approximate depth of flooding is 8 to 10 inches lasting approximately four to six hours after a storm event. The respondent stated three residential units experience repeated damage from flooding. The impacted area is not within a designated flood zone.

Dams

There are three regulated dams in Rye Brook: the Bowman Avenue dam, the Blind Brook Country Club dam and the Hidden Falls at Rye Brook dam:

- The Bowman Avenue dam's outlet control structure is owned by the City of Rye and has been retrofitted with a sluicegate as part of a flood mitigation project being undertaken jointly by the City and the Village. The retrofit project is designed to increase water storage capacity during storms in the impoundment immediately upstream from the dam on City property in Rye Brook, to the benefit of properties within both municipalities, south of the dam, that experience chronic flooding from the Blind Brook.
- Both the Bowman Avenue and Hidden Falls dams have a State hazard classification of B, or "intermediate hazard." Per Part 673 of the Environmental Conservation Law, the failure of an intermediate hazard dam may result in damage to isolated homes, main highways and minor railroads; the interruption of important utilities; or is otherwise likely to pose the threat of personal injury and/or substantial economic loss or substantial environmental damage. However, loss of human life is not expected with failure of an intermediate hazard dam. The City of Rye may have an EAP for Blind Brook Dam. A draft was reviewed about a year ago. The status of this EAP is not known. If the Hidden Falls dam failed, downstream properties like the Avon Circle condos would flood.
- The Blind Brook Country Club dam has a State hazard classification of C or "high hazard." State regulations note that failure of a high hazard dam may result in widespread or serious damage to

homes; damage to main highways, industrial or commercial buildings, railroads or important utilities; or substantial environmental damage, including the potential loss of human life or widespread economic loss. An EAP was prepared but may not be on file with the village.

Wildfires

The village is completely served by a public water system and few (if any) homes are served by wells. The water supply is derived from interconnections with the systems located to the north and west (serving Harrison) and east (serving Greenwich). Drought declarations in two states could impact the village. The last drought warnings were issued about ten years ago.

One commercial building has fire ponds, but this is the exception in the village. The compost facility has an elevated fire risk due to the composting occurring there.

Non-Natural Hazards

The village is concerned that its evaluation of "manmade" hazards be continued from its initial Hazard Mitigation Plan. For the most part, most of these hazards have not changed significantly in terms of risk and capabilities, but some may have. For example, Jet Blue entered the market at the airport subsequent to the adoption of the initial Hazard Mitigation Plan, and the sizes and types of aircraft using the airport have changed as a result. However, the number of commercial flights per hour has not changed, as it is capped. Private non-commercial flights are not capped. In general, this annex supports the continued concept of mitigation as applicable to non-natural hazards.

9.40.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

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

The Village of Rye Brook has indicated that the community's political leadership is "very willing" to enact policies and programs related to hazard mitigation that reduce hazard vulnerabilities. Village staff believe that the Village's capabilities to effectively implement hazard mitigation strategies to reduce hazard vulnerabilities is "high" for planning and regulatory capability, fiscal capability, and community political capability. Town staff believe that the local capability with regards to administrative and technical capability and community resiliency capability is also "high."

In November 2012, the Town of Rye together with the Villages of Rye Brook, Mamaroneck and Port Chester completed a report ("Review of Governance and Service Alternatives") analyzing options for a potential Town dissolution, assessing the financial implications of such dissolution, and outlining shared service alternatives for the three municipalities within the Town. No action has been taken on dissolution. If the Town of Rye were to be dissolved, certain services may expand (often managed jointly with Port Chester) in Rye Brook to take on the services that are currently performed by the Town of Rye.

Planning and Regulatory Capability

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

Table 9.40-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	Y	Local, State	Building Department	Chapter 91
Zoning Ordinance	Y	Local	Building Department	Chapter 250
Subdivision Ordinance	Y	Local	Building Department	Chapter 204
NFIP Flood Damage Protection Ordinance	Y	Federal, State, Local	Engineering Department, Building Department	Chapter 130
NFIP - Freeboard	Y	Federal, State, Local	Engineering Department, Building Department	Chapter 130; State mandated BFE+2 for single and two-family residential construction, BFE+2 for all other construction types
NFIP - Cumulative Substantial Damages	Y	Local	Engineering Department, Building Department	Chapter 130; Cumulative substantial damage and improvements defined
Special Purpose Ordinances (e.g. wetlands,	Y	Local	Engineering Department	Chapter 118 Erosion & Sediment Control, Chapter 213 Steep Slope

Table 9.40-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
critical or sensitive areas)				Protection, Chapter 216 Storm Sewers, Chapter 217 Stormwater Management, Chapter 235 Trees, Chapter 235 Wetlands and Watercourses
Growth Management	N	N/A	N/A	N/A
Floodplain Management / Basin Plan	Y	Local	Village Board, Building Department, Engineering Department	Chapter 130
Stormwater Management Plan/Ordinance	Y	Local	Public Works	Chapter 217
Comprehensive Plan / Master Plan	Y	Local	Planning Board and Village Board	Comp Plan adopted 2014
Capital Improvements Plan	Y	Local	Administration	Six-year plan
Site Plan Review Requirements	Y	Local	Engineering Department	Chapter 209
Habitat Conservation Plan	N	N/A	N/A	N/A
Economic Development Plan	N	N/A	N/A	N/A
Emergency Response Plan	N	N/A	N/A	N/A
Post Disaster Recovery Plan	N	N/A	N/A	N/A
Post Disaster Recovery Ordinance	N	N/A	N/A	N/A
Real Estate Disclosure req.	Y	Local, Federal	Engineering Department	NYS mandate
Other (e.g. steep slope ordinance, local waterfront revitalization plan)	Y	Local (steep slope)	Planning Board, Engineering Department	Chapter 213
Coastal Erosion Control Districts	N	N/A	N/A	N/A
Shoreline Management Plan	N	N/A	N/A	N/A
Sediment Control	??	Local	Planning Board, Engineering Department	Chapter 118
Mutual Aid Plan	Y	County	Administration	Mutual Aid Plan in place for entire County

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

Administrative and Technical Capability

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

Table 9.40-7. Administrative and Technical Capabilities

Staff/ Personnel Resources	Available (Y or N)	Department/ Agency/Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Engineering
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering, Building Department
Planners or engineers with an understanding of natural hazards	Y	Engineering, Planning Consultant
NFIP Floodplain Administrator	Y	Engineering
Surveyor(s)	N	
Personnel skilled or trained in "GIS" applications	Y	Engineering
Scientist familiar with natural hazards in the County.	N	
Emergency Manager	Y	Police Chief, Administrator
Grant Writer(s)	Y	Administration
Staff with expertise or training in benefit/cost analysis	N	
Professionals trained in conducting damage assessments	N	

Fiscal Capability

The table below summarizes financial resources available to the Village of Rye Brook.

Table 9.40-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG)	No. HUD is preventing funding to County administrators.
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact Fees for homebuyers or developers of new development/homes	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Mitigation grant programs	Yes
Other	N/A

Community Classifications

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

Table 9.40-9. Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	TBD	
Public Protection	NP	

Program	Classification	Date Classified
Storm Ready	NP[i]	N/A
Firewise	NP[ii]	N/A

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

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

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

National Flood Insurance Program

The following section provides details on the National Flood Insurance Program (NFIP) as implemented within the municipality:

NFIP Floodplain Administrator:

The Village Engineer or his designee is the appointed local administrator.

Flood Vulnerability Summary

Rye Brook staff maintain informal lists/inventories of properties that have been damaged by floods, and they are aware of the areas of highest risk along Blind Brook and the East Branch of Blind Brook. Substantial damage estimates were not made by the Floodplain Administrator after Hurricane Irene or other events. Currently, there are no residents interested in mitigation (elevation or acquisition) in the village, although the Village is interested in mitigation of homes along Blind Brook and the East Branch of Blind Brook.

Resources

The Floodplain Administrator is the sole person assuming responsibilities of floodplain administration and they feel that they are adequately supported and trained to fulfill their responsibilities. The Floodplain Administrator is supported by the staff of the Public Works Department. Most administration services include permit review, inspections, recordkeeping with GIS, education, and outreach. The Floodplain Administrator is attends continuing education and/or certification training on floodplain management. The Engineering Department provides education and outreach to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc. through quarterly newsletters, information on the Village website, social media, and mailings to residents.

Compliance History

The Village is believed to be in good standing with the NFIP. Residents have occasionally called the village about flood insurance or to ask about elevation certificates.

Regulatory

The Village's floodplain management regulations/ordinances exceed the FEMA minimum requirements and are consistent with the State minimum requirements. There are local ordinances, plans and programs that support floodplain management and meet the NFIP requirements. The Village is not interested in the CRS program at this time.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

In general, capabilities have changed slightly since the initial Hazard Mitigation Plan. For example, the police force has been reduced by two (to 26) and the public works/recreation crew has been reduced by three. However, municipal departments have the same functions as those outlined in 2007.

Planning

In the fall of 2012, the Village of Rye Brook began the process of preparing its first-ever Comprehensive Plan. The Comprehensive Plan builds on prior planning efforts (i.e. Vision Plan) and establishes a policy guide for land use within the village. The primary goal of the Rye Brook Comprehensive Plan is to maintain and improve the overall quality of life for village residents by promoting sustainable development; encouraging a stable and enduring economic base; providing for safety, health and education; preserving the natural, cultural, recreational and historic assets of Rye Brook; enhancing the design of the already-built and natural environment; and advocating for smart-growth design principles in the planning process. The Rye Brook Comprehensive Plan is complete and was accepted by the Village Board on June 24, 2014.

Section 5.5 of the Comprehensive Plan is entitled "Hazard Mitigation" and describes the previous Rye Brook Hazard Mitigation Plan. The Comprehensive Plan also includes considerable discussion about the flooding along Blind Brook and the potential options for flood mitigation. Comprehensive Plan Goal #2 under "Natural Environment" is "Maintain and improve the quality of the Blind Brook and the Long Island Sound watershed." The policy statement attached to this goal is "Address stormwater management from a regional and village-wide perspective to reduce flooding impacts." *Given the above discussion, elements of hazard mitigation are considered fully integrated in the Comprehensive Plan.*

Upon adoption, this hazard mitigation plan will be made available to applicable Village departments as a planning tool to be used in conjunction with existing documents. The Village Administrator's office will be responsible for ensuring that the actions identified in this hazard mitigation plan are incorporated into ongoing Village planning activities, and that the information and requirements of this hazard mitigation plan are incorporated into existing planning documents within five years from the date of adoption or when other plans are updated, whichever is sooner.

Regulatory and Enforcement

Ordinances updated since the initial Hazard Mitigation Plan include the following:

- Local Law #1-2011 – Stormwater regulations
- Local Law #5-2010 – Sprinkler code update
- Local Law #12-2009 – Stormwater property maintenance
- Local Law #10-2009 – Sprinkler code update
- Local Law #14-2007 – Stormwater management code updates
- Local Law #12-2007 – Flood damage prevention update

Upon adoption, this hazard mitigation plan will be made available to applicable Village departments as a planning tool to be used in conjunction with existing regulations. It is expected that revisions to other Village plans and regulations such as department annual budgets and the Village code may reference this plan and its updates. The Village Administrator's office will be responsible for assigning appropriate Village officials to update portions of the Emergency Response Plan and the Village Code to include the provisions from this Plan if it is determined that such updates are appropriate. However, should a general revision be too cumbersome or cost prohibitive, simple addendums to these documents may be added that include the provisions of this hazard mitigation plan.

Operational and Administration

Emergency Communications

The village uses the GovDelivery system for emergency notifications, along with email blasts. Flood risk zones are specific in the database.

Wind Events, Tree Management, and Power Outages

Tree management capabilities include an on-staff Certified Arborist who also works with outside contractors for maintenance and trimming, and also ConEd's ongoing trimming program. ConEd most recently trimmed trees in the village in May 2014. The village has a compost yard where tree debris is managed. All of the village's tree debris after Hurricanes Irene and Sandy was brought to this compost facility. ConEd will typically send its liaison to help coordinate these efforts. Utilities are also required to be placed underground in new developments.

The Public Works Department manages 55 miles of village roads. After storms, the village opens main roads for ConEd to reach areas that need attention. Then the village opens smaller roads and ConEd continues to restore power as the highway crew works. An emergency plan is followed to ensure that trees are evaluated prior to cutting branches. All parties (Certified Arborist, Public Works, and ConED) reportedly work well together.

Nevertheless, the Villages notes that ConEd could harden its utilities in some locations, and microgrids may be helpful in some locations in the village.

Winter Storms

Snow removal is handled by a crew of 12 personnel driving 12 trucks. The village also has several dump trucks for snow management. The village has not found it necessary to shovel roofs. Salt is used on roads either directly or through brine applications. Over the winter of 2013-2014, the village ran low just like many other nearby communities. The Village believes that regional salt sharing may be beneficial for communities in Westchester County.

Flooding

The Village of Rye Brook has actively studied and responded to flooding issues. The U.S. Army Corps of Engineers prepared a Blind Brook Watershed Management Plan in 2009 to identify specific flood mitigation alternatives based on an assessment of existing flood impacts. Recommended improvements included a large stormwater detention basin upstream of Anderson Hill Road next to SUNY Purchase, and improvements/modifications to the dam across Blind Brook at Bowman Avenue.

In 2010, the Village, together with the City of Rye, studied the Bowman Avenue upper and lower ponds and the areas immediately north (including around Brook Lane and Avon Circle). The study's outcome was a flood mitigation project to retrofit the outlet control structure of the Bowman Avenue dam with a sluice gate, following up on the Army Corps plan and an earlier feasibility study. The dam is on City property within the village, and the project is believed to benefit properties in both municipalities south of the dam. Construction of the sluice gate was completed in 2012, partially funded by the County and State.

Drainage considerations are addressed prior to construction as part of the site plan review process. The Public Works Department conducts maintenance of drainage systems and clears bridges and culverts of debris to ensure proper conveyance of stormwater as needed. Drainage and flooding complaints are typically routed to the Engineering Department.

The Village Engineering staff intermittently review the need to install new drainage systems or upsize existing drainage systems. Culverts and bridges are replaced on a case-by-case basis. Recently-completed projects include the following:

- Edgewood Drive detention basin (2009; valve added in 2013)
- Rye Hills drainage improvements
- Jacqueline Lane drainage improvements
- Loch Lane drainage improvements
- Phillips Pond channel improvements
- Eagles Bluff drainage improvements
- Harkness Park drainage improvements
- Loch Lane/King Street drainage improvements
- Winding Wood Road drainage improvements
- King Street ball field retention

Wildfires

The village is completely served by a public water system and few (if any) homes are served by wells. Wildfire fighting capabilities are believed adequate.

9.40.6 Mitigation Strategy and Prioritization

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

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the expired Rye Brook Hazard Mitigation Plan. A total of 93 initiatives were listed in the plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.40-10. Past Mitigation Initiative Status

Description	Status	Review Comments
Ensure compliance with all life safety codes through diligent inspections. Seek to inspect all commercial uses annually.	Capability	Not all inspections need to be annual. Village follows a one-year cycle for properties with assembly uses and three-year cycle for other commercial properties.
Consider incentives to encourage the retrofitting of existing buildings within the Village Fire Limits to meet current NYS Building Code requirements	Discontinued	Although this is relatively straightforward when new permits are requested, the Village cannot enforce this for existing buildings that are not seeking permits.
Consider providing incentives for the installation of sprinklers where not required by code.	Discontinued	The Village sprinkler code is stricter than the state code. It is not realistic to provide incentives for additional installations.
Conduct inventory of buildings not meeting current NYS Building Code requirements.	Capability	Village follows a one-year cycle for properties with assembly uses and three-year cycle for other commercial properties. Buildings that do not meet code must take corrective action.
Conduct inventory of sites or facilities that may be prone or vulnerable to explosions.	Capability	Only a few sites have this risk. The regular inspections allow the Village to monitor this risk.
Enhance fire safety awareness information and make such information more available to local homeowners and businesses via village website and Cable TV.	Capability	Fire safety is posted to the Village web site and aired on cable TV periodically. A fire safety week is held each year.
Enhance building and fire inspections to ensure compliance with applicable building code and fire safety laws. Promote voluntary inspections of buildings, where not required by law, with amnesty provision.	Capability/Discontinued	Inspections are believed as robust as possible. However, the Village needs a compelling reason to inspect buildings that are not required by law to be inspected.
Utilize the village's Safe Housing Task Force to identify unsafe residential practices and improve through public education.	In Progress/Capability	This is ongoing.
Create improved map of village roads and access routes to/from adjoining communities.	Completed	Completed.
Encourage and enhance training of Fire Department Personnel through joint drills and response planning.	Capability	This is ongoing. The Fire Department participates in joint County-run exercises, as well.
Continue to evaluate roads for emergency vehicle access.	Capability	This is ongoing.
Identify locations requiring alternative emergency evacuation routes and seek additional access in conjunction with future development.	Capability	An example is the "Arbors PUD" access road that was developed during an update to the site plan amendment.
Seek participation in Westchester County Airport safety and emergency response planning.	Capability	This is ongoing. The Fire and Police Departments participate in joint County-run exercises that include the airport.

Table 9.40-10. Past Mitigation Initiative Status

Description	Status	Review Comments
Participate in emergency response training exercise in conjunction with the airport.	Capability	This is ongoing. The Fire and Police Departments participate in joint County-run exercises that include the airport.
Work with Westchester County to enhance timely communication with village emergency responders. Seek to be altered whenever an incident may be developing (i.e. airplane-in-trouble) prior to a call for assistance.	Capability	The Village is part of the County 60 Control network for emergency response.
Acquire and place in service a Reverse 911 calling system at the Rye Brook Police Headquarters that allows targeted notification of residents of developing incidents that might affect them.	Capability	A call/email/text notification system is in place. The village uses the GovDelivery system for emergency notifications.
Encourage the development of a regional monitoring system which storage and movement of hazardous materials is recorded. Keep monitoring system up to date by supplementing inspector reports with self-reporting.	No Progress/ Discontinued	This is believed unnecessary given the level of activity that is likely occurring in the Village.
Share all known hazardous material storage with Building, Police, Fire, EMS and Highway Departments.	Complete	Complete and updated as needed.
Identify sensitive facilities within the hazardous materials corridors and near known hazardous material sites.	No Progress/ Discontinued	This is believed unnecessary given the level of activity that is likely occurring in the Village.
Participate in annual training and safety awareness programs associated with the El Paso Corporation's Tennessee Gas Pipeline.	Capability	Village personal are periodically trained in relation to this pipeline.
Coordinate Tennessee Gas Pipeline response drills with the Town of Greenwich, Ct. Seek better location maps and ensure adjacent property owner awareness.	Deferred	Deferred
Conduct inspections of sites with or vulnerable to hazardous materials.	Capability	Only a few sites have this risk. The regular inspections allow the Village to monitor this risk.
Increase traffic enforcement in higher risk regions.	Capability	Ongoing
Consider retrofitting of existing critical facilities to withstand impacts associated with hazardous materials spills.	Discontinued	The current critical facility capabilities (relative to spills) are believed sufficient.
Identify storm drain outfalls near or along major transportation routes or known hazardous materials sites and provide mitigation measures to prevent the conveyance of spilled hazardous materials into adjacent waterways.	Complete	The Village has worked with surrounding jurisdictions to identify inflows and outflows affecting the village; and has a list of service providers to respond to spills.
Ensure that hazardous material sites have in place proper spill mitigation and containment measures.	Capability	Ongoing through inspections.
Provide information to residents and businesses regarding hazardous material risks and how to respond in the event a disaster occurs. Include seasonal safety awareness information in all newsletters and reference more detailed information on village web pages.	Capability	This is accomplished somewhat with the fire safety information posted to the Village web site and aired on cable TV periodically. The GovDelivery emergency notification system also assists with this.
Link from village's web pages to county, state and federal emergency response sites.	Capability	Several links are provided.
Arrange for use of school district buses in case evacuations are required.	Deferred	Deferred with modification that the Village will determine if this is feasible.
Arrange for use of village hotels should other shelter sites become unavailable.	Deferred	Deferred with modification that the Village will determine if this is feasible.

Table 9.40-10. Past Mitigation Initiative Status

Description	Status	Review Comments
Enhance training of emergency service providers and pursue funding for appropriate protective gear and equipment.	Capability	Emergency service providers receive sufficient training and equipment.
Identify or be provided advanced warning of the types of hazardous materials traveling on major transportation routes.	Discontinued	The Village's approach is to be ready for incidents if they should occur.
Provide emergency service teams and others unable to relocate during hazardous materials events with necessary protective equipment.	Capability/ Discontinued	This is ongoing for emergency response teams but not feasible for residents.
Through hazardous material education, encourage residents of single and two-family homes to store and use hazardous materials safely.	Capability	This is accomplished somewhat with the fire safety information posted to the Village web site and aired on cable TV periodically.
Create improved street maps that identify alternate evacuation routes.	Discontinued	Current maps are adequate.
Provide detailed storm drain maps to emergency responders to identify direction of flow in case of spills.	In Progress	The Village is conducting this mapping with a grant.
Provide topographic maps to emergency responders to identify low-lying areas that might require evacuation.	Discontinued	Current maps are adequate.
Coordinate strategic placement of clean up materials and protective equipment with the Westchester County Hazardous Materials Team.	Discontinued	Current storage locations are appropriate.
Provide training and supplemental protective equipment/materials to the Highway Department (i.e. ability to block downstream drains in case of spill).	Capability	Training and equipment are ongoing and available, respectively.
Conduct joint drills with the Westchester County Hazardous Materials Team and adjoining communities.	Capability	This is ongoing. The Fire and Police Departments participate in joint County-run exercises that include the airport.
Conduct annual inspections of alternative emergency exits to residential and commercial developments to ensure availability and user awareness.	Deferred	Deferred
Identify and mitigate, to extent feasible, all essential village facilities located within the 100-year flood zone (i.e. A.J. Posillipo Community Center and Highway Garage).	Discontinued	These facilities are not in the SFHA.
Continue with Storm Water Drainage projects in problem areas of the village in order to diminish risk of flooding as identified in 2002 Storm Water analysis of East Branch Blind brook (Dolph Rotfeld Engineering, P.C.)	In Progress (80%)	Nearly all of the stormwater projects outlined in the 2002 report have been completed. These include ball field retention, Loch Lane drainage lines, Loch Lane/Phillips Pond stabilization, and the Edgewood detention basin.
Acquire undeveloped flood prone property and explore joint project with City of Rye to enhance storm water detention at Bowman Avenue.	In Progress	These studies have been completed. A new action item is provided below in the table of Proposed Hazard Mitigation Initiatives.
Inspect annually all dams and storm water detention structures in village.	Discontinued/ Capability	The Village does not have the ability to inspect dams, but does inspect its stormwater facilities.
Inspect village trees on regular basis to ensure proper trimming and removal as necessary.	Capability	The Village is aggressive with tree removal, trimming, and pruning in the ROW. Furthermore, the Village will only plant trees that do not grow into overhead wires.
Consider local legislation establishing stormwater management requirements to minimize increases in stormwater runoff from land development to reduce flooding, siltation and help maintain the integrity of stream channels.	Capability	The Village has amended and revised its stormwater management local law as needed.

Table 9.40-10. Past Mitigation Initiative Status

Description	Status	Review Comments
Provide information to residents and businesses regarding the risk of severe storms and flooding. Distribute information on damage prevention and emergency response before a disaster occurs.	Capability	The Village has provided information via its web site, on cable TV, and through the emergency notification system.
Develop links off of the village's web pages to county, state and federal emergency response sites to help residents prepare for hazardous events.	Capability	These links are in place. They include FEMA, SEMA, and the County emergency management.
Maintain a stock of sand bags to be used in a flooding event and store at the highway garage.	In Progress (50%)	The Village has bags provided by the County, although excess sand is not available.
Upgrade the capability of municipal (Village Hall, Police and Fire Stations) to serve as an emergency response center. This will require some modifications including acquisition of adequate emergency power generators.	Capability	The Village Hall is the EOC and the Community Center is used for warming and charging (it is not an overnight shelter) and as an information center. Both locations are served by generators.
Review emergency shelter options identified in Rye Brook's Disaster Preparedness Plan. Determine suitability of each for various emergencies and upgrade facilities as necessary (i.e. emergency generators, pre-positioned supplies, etc.).	Capability	The Community Center is used for warming and charging (it is not an overnight shelter). Port Chester High School is the regional overnight shelter for Rye Brook and Port Chester. The shelter is staffed by the ARC. Both are served by generators.
Maintain trained shelter management team (annual refresher training).	Capability	ARC is trained.
Explore feasibility of additional emergency shelter options in conjunction with neighboring communities.	Discontinued	Existing facilities are sufficient.
Obtain materials and equipment for mitigating impact of hazard event and minimizing the discomfort of the public. Work with other municipalities or organizations that can supply aid. Assess need for food and water storage. Contact Red Cross as possible supplier.	Capability	Capability per the discussions provided above in this table.
Use resources provided by county level emergency response teams.	Capability	These are available as needed.
Consider methods of maintaining electricity at designated locations.	In Progress (50%)	New generators are available in the Community Center and Village Hall/Police Station. The water company's pumping station lost power and the generator failed during Irene. This is a major problem because the pressure zone does not have a storage tank; it is served only by the pumping station. The village would like to upgrade the highway garage generator. The Village is interested in microgrids for power supply redundancy. New action items are provided below in the table of Proposed Hazard Mitigation Initiatives.
When possible, identify or provide advanced warning to residents if a storm presents particular risks (i.e. tides, snow on roof, snow shoveling).	Capability	The Village Emergency Response Team meets in advance of storms to coordinate appropriate notifications per the capabilities described above.
Encourage residents to react to severe weather in a safe and responsible way.	Capability	The Village Emergency Response Team meets in advance of storms to coordinate appropriate notifications per the capabilities described above.
Encourage residents to maintain emergency supplies and develop individual emergency response plans.	Capability	The Village does this continuously through its web site and using displays at the Village Hall and other locations.
Develop a procedure to address companion animal evacuation and recovery and inform	Capability	The Village provides information on approved shelters.

Table 9.40-10. Past Mitigation Initiative Status

Description	Status	Review Comments
residents about temporary shelter locations to house these displaced animals.		
Encourage residents with respiratory problems to limit exposure to the sun and stay in a cool place.	Capability	The Village provides a cooling center on days of extreme heat.
Inform residents to drink plenty of fluids and beware of any signs of dehydration of days with extreme heat.	Discontinued	The Village cannot provide this level of individualized advice to residents.
Encourage residents to ensure pets and animals are properly cared for in extreme heat.	Discontinued	The Village cannot provide this level of individualized advice to residents.
Use the services of a cooling center for residents who do not have access to air conditioning.	Capability	The Village provides a cooling center on days of extreme heat.
Develop a plan to provide a standby generator to all critical facilities for the Village.	In Progress	See above ("Consider methods of maintaining electricity at designated locations"). New action items are provided below in the table of Proposed Hazard Mitigation Initiatives.
Encourage residents to check their batteries in the fire and carbon monoxide alarms and flash lights in case of a heat related power failure.	Discontinued	The Village cannot provide this level of individualized advice to residents. However, this is somewhat accomplished during fire safety week.
Continue to ensure all Steep slope permit applications adhere to the strictness standards for possible earthquakes on the property.	Capability	Ongoing.
Continue to enforce and strengthen the Rye Brook Building Code.	Capability	Ongoing.
Conduct discrete inventory of potential terrorist targets within and near the village and implement appropriate security measures.	Capability	The Village maintains a list of facilities.
Improve security measures at emergency response facilities and other sensitive facilities.	Complete	Security is increased over time.
Monitor changes in flight paths to Westchester County or other regional airports that may impact the village.	Capability	Ongoing.
Improve communication among regional responding agencies and enhance ability to alert residents regarding terrorism.	Complete	Capability has increased over time.
Encourage regional response drills on an annual basis regarding terrorism.	Capability	This is ongoing. The Fire and Police Departments participate in joint County-run exercises that include potential terrorism.
Equip highway department with protective gear regarding terrorism.	Capability	Highway Department personnel are provided with equipment that is appropriate for their potential needs.
Enhance training of Police, Fire, EMS personnel.	Capability	Ongoing.
Consider amending local legislation to encourage greater water conservation practices in non-and drought emergency times.	Discontinued	When a water supply emergency is declared, the Village is subject to the Drought Response Plan ("Drought Response Plan of the Connecticut-American and New York-American Water Companies," 1995, and now served by United Water) and the water use restrictions imposed pursuant to the plan. Copies of the Drought Response Plan and the water use restrictions are available from the Village Clerk. This plan recognizes that the Village Comp Plan states that "the Village should explore adopting planning guidelines and policies to mandate more water conservation, and should coordinate with regional experts on effective and innovative

Table 9.40-10. Past Mitigation Initiative Status

Description	Status	Review Comments
		potential tools."
Improve coordination with local medical care facilities to determine whether additional support is necessary in the event of a heat wave or problem with the water supply.	Discontinued	Current capabilities are believed sufficient.
Improve coordination with local and regional power service providers.	Complete	Capability has increased over time.
Ensure that critical facilities in the village have appropriate backup generation capabilities.	In Progress	See above ("Consider methods of maintaining electricity at designated locations"). New action items are provided below in the table of Proposed Hazard Mitigation Initiatives.
Enhance training and equipment of emergency service personnel.	Capability	Ongoing.
Retrieve stormwater drainage marking projects to inform the public of the risk associated with improper drainage use.	Discontinued	Public education in this matter is believed sufficient.
Distribute and post information to residents on what they can do to minimize risk of flooding on their property.	Capability	Ongoing with information posted to the Village web site and via printed information distributed throughout the village.
Require all new building in the flood plain to be built at least 2 feet above the base flood elevation.	Capability	Per State code.
Require the use of flood proofing new buildings and existing structures if owner is applying for construction permits.	Capability	Per State code.
Consider revisions to the building code for low lying areas to comply with strict standards to reduce the potential for flooding.	Capability	Per State code.
Routinely clear drainage basins to increase storage capacity.	Capability	Annual cleaning.
Construct new detention basin off Edgewood Drive.	Complete	Complete.
Secure final property easements for Loch Lane drainage improvements.	Complete	Complete.
Explore possible detention basin on Beachwood Blvd	Discontinued	Not believed necessary.
Install new pipe at Avon Circle under Westchester Ave.	Deferred	Deferred.
Explore dredging projects at Rich Manor Park and Hidden Falls Pond.	Discontinued	Not believed necessary.

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The Village of Rye Brook has identified the following as mitigation projects/activities that have been completed, are planned, or on-going within the municipality:

- The recently-completed drainage projects listed on page 16.
- Updates to the ordinances listed on page 15
- The Comprehensive Plan was developed with a chapter that specifically addresses hazard mitigation

Proposed Hazard Mitigation Initiatives for the Plan Update

The Village Rye Brook has identified mitigation initiatives that it would like to pursue in the future. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Table 9.40-11 identifies the municipality's updated local mitigation strategy.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' Table 9.40-12 below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.40-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
New Initiatives												
RB-1	Pursue regional sharing of salt storage facilities	Existing	All Hazards	1, 5	Village Admin, PW	High	High	Municipal	DOF	Medium	SIP	ES
RB-2	Evaluate locations that may be well suited for microgrids	Existing	All Hazards	1, 5	Village Admin, PW	Medium	Medium	Municipal	Short	Medium	SIP	ES
RB-3	Work with ConED to identify locations for utility hardening	Existing	All Hazards	1	Village Admin, PW	High	High	ConED	Short	Medium	SIP	ES
RB-4	Upgrade the highway garage generator	Existing	All Hazards	1, 5	PW	High	High	Municipal, HMA	Short	High	SIP	ES
RB-5	Work with United Water to improve water system pumping station power redundancies to avoid future shut-downs	Existing	All Hazards	1, 5	Village Admin	High	High	Municipal, HMA	Short	High	SIP	ES
RB-6	Consider acquiring or encouraging the raising up of floodprone homes along Blind Brook and its tributaries (Wyman Road, Knollwood Road, and Rock Ridge Drive neighborhoods)	Existing	Flooding	1, 2, 4	Village Admin, Engineer, Building Dept.	High	High	Municipal, HMA	DOF	Medium	NSP	PP, NR
RB-7	Work with other jurisdictions to implement the Blind Brook flood mitigation project (stormwater pond) in Purchase at Anderson Hill Road	Existing	Flooding	1, 2, 4	Village Admin	High	High	HMA or Army Corps/ Federal	DOF	Medium	SIP	SP
Previous Deferred Initiatives and Modifications of Previous Initiatives												
RB-8	Work with other jurisdictions to implement the Blind Brook flood mitigation project at the Bowman Avenue dam	Existing	Flooding	1, 2, 4	Village Admin	High	High	HMA or Army Corps/ Federal	DOF	Medium	SIP	SP
RB-9	Coordinate Tennessee Gas Pipeline response drills with the Town of Greenwich, CT. Seek better location maps and ensure adjacent property owner awareness.	Existing	All Hazards	1, 5	EMD	Medium	Low	Municipal	Medium	High	EAP	ES

Table 9.40-11. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
RB-10	Determine feasibility of the use of school district buses in case evacuations are required.	Existing	All Hazards	1, 5	EMD	Medium	Low	Municipal	Medium	High	EAP	ES
RB-11	Determine feasibility of the use of village hotels in case sheltering is required.	Existing	All Hazards	1, 5	EMD	Medium	Low	Municipal	Medium	Medium	EAP	ES
RB-12	Conduct annual inspections of alternative emergency exits to residential and commercial developments to ensure availability and user awareness.	Existing	All Hazards	1, 5	EMD	Medium	Medium	Municipal	Medium	Medium	EAP	ES
RB-13	Install new culvert at Avon Circle and under Westchester Ave.	Existing	Flooding	1, 2, 4	PW	High	High	Municipal, HMA	DOF	Medium	SIP	SP

Notes:
Not all acronyms and abbreviations defined below are included in the table.
**Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.*

Acronyms and Abbreviations:
CAV Community Assistance Visit
CRS Community Rating System
DPW Department of Public Works
FEMA Federal Emergency Management Agency
FPA Floodplain Administrator
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program
OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:
FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
PDM Pre-Disaster Mitigation Grant Program
RFC Repetitive Flood Claims Grant Program (discontinued in 2015)
SRL Severe Repetitive Loss Grant Program (discontinued in 2015)

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

Costs:
Where actual project costs have been reasonably estimated:
Low < $10,000
Medium $10,000 to $100,000
High > $100,000

Where actual project costs cannot reasonably be established at this time:
Low Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
Medium Could budget for under existing work plan, but would require a

Benefits:
Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:
Low= < $10,000
Medium $10,000 to $100,000
High > $100,000

Where numerical project benefits cannot reasonably be established at this time:
Low Long-term benefits of the project are difficult to quantify in the short term.
Medium Project will have a long-term impact on the reduction of risk exposure to life

Costs:

reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.

High *Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.*

Benefits:

and property, or project will provide an immediate reduction in the risk exposure to property.

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

Mitigation Category:

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

CRS Category:

- *Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities*

Table 9.40-12. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
RB-1	Pursue regional sharing of salt storage facilities	1	0	1	1	1	1	0	0	1	0	0	0	1	1	8	Medium
RB-2	Evaluate locations that may be well suited for microgrids	0	1	1	1	1	1	0	0	0	0	1	0	1	1	8	Medium
RB-3	Work with ConED to identify locations for utility hardening	0	1	0	1	1	1	-1	0	1	1	1	0	0	1	7	Medium
RB-4	Upgrade the highway garage generator	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
RB-5	Improve water system pumping station power redundancies to avoid future shut-downs	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
RB-6	Acquire floodprone homes along Blind Brook and its tributaries (Wyman Road, Knollwood Road, and Rock Ridge Drive neighborhoods)	1	1	1	1	1	1	-1	1	-1	0	0	0	1	0	6	Medium
RB-7	Work with other jurisdictions to implement the Blind Brook flood mitigation project (stormwater pond) in Purchase at Anderson Hill Road	1	1	0	1	1	0	-1	0	1	0	0	0	1	1	6	Medium
RB-8	Work with other jurisdictions to implement the Blind Brook flood mitigation project at the Bowman Avenue dam	1	1	0	1	1	0	-1	0	1	0	0	0	1	1	6	Medium
RB-9	Coordinate Tennessee Gas Pipeline response drills with the Town of Greenwich, CT. Seek better location maps and ensure adjacent property owner awareness.	1	0	0	1	1	1	0	0	1	1	1	1	1	1	10	High
RB-10	Determine feasibility of the use of school district buses in case evacuations are required.	1	0	1	1	1	1	1	0	1	1	1	1	1	1	12	High
RB-11	Determine feasibility of the use of village hotels in case sheltering is required.	0	0	0	1	1	0	-1	0	1	1	1	1	1	1	7	Medium
RB-12	Conduct annual inspections of alternative emergency exits to residential and commercial developments to ensure availability and user awareness.	1	0	0	1	1	0	0	0	1	0	1	1	1	1	8	Medium
RB-13	Install new culvert at Avon Circle under Westchester Ave.	1	1	0	1	1	0	0	1	1	1	0	0	1	0	8	Medium

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

9.40.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.40.8 Hazard Area Extent and Location

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

9.40.9 Additional Comments

None at this time.

Figure 9.40-1. Village of Rye Brook Hazard Area Extent and Location Map

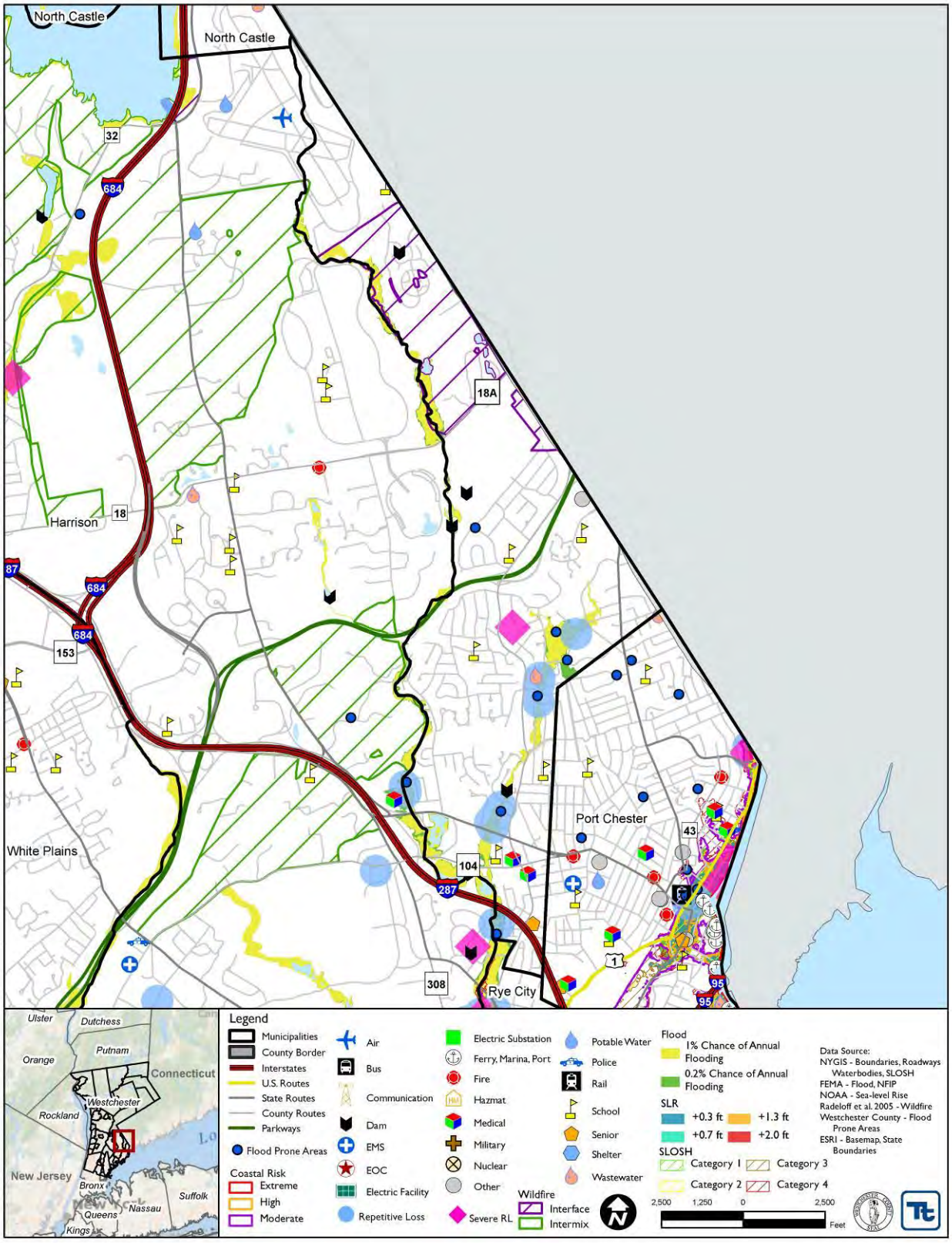
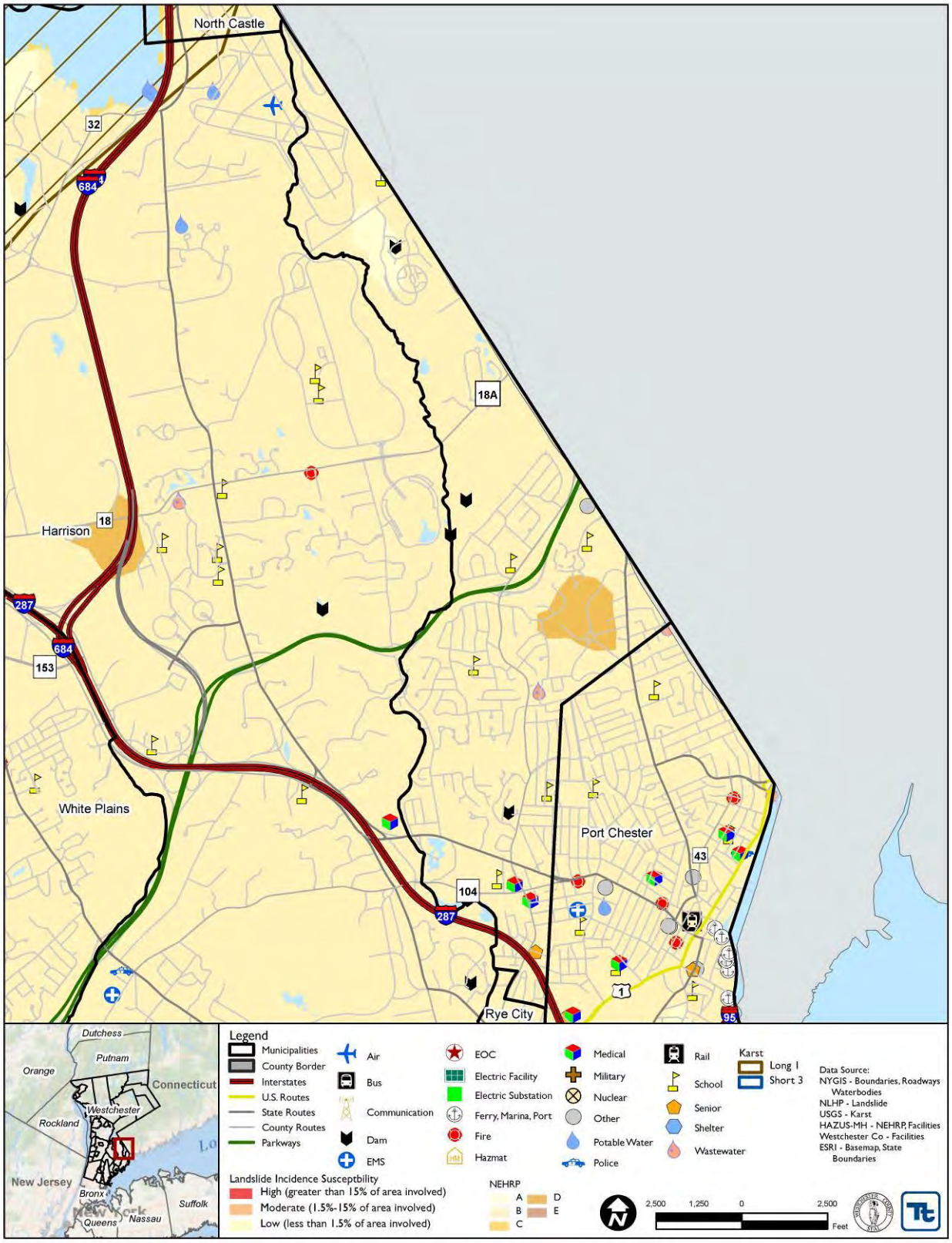


Figure 9.40-2. Village of Rye Brook Hazard Area Extent and Location Map



Name of Jurisdiction: Village of Rye Brook
Action Number: RB-4
Action Name: Highway Garage Generator

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	The Village would like to obtain generators for all critical facilities. Building generators are present at the Village Hall/Police Station, Fire House, Community Center, and sewer pumping station at 1200 King Street. Portable generators are available at the highway department. The water company has a generator at and the Anderson Hill Road water pumping station. If the highway garage facility was to be upgraded, a new generator would likely be included. However, the village would like to upgrade this generator even if the garage is not upgraded.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action – sufficient power not available to support highway garage operations
	2.
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	If the highway garage were to be upgraded, a new generator may be included. However, the village would like to upgrade this generator even if the garage were not upgraded.
Mitigation Action/Project Type	SIP
Objectives Met	1, 5
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Medium benefits expected as public works personnel will be fully able to respond to incidents throughout the community.
Estimated Cost	$100,000 (High)
Priority*	*High*
Plan for Implementation	
Responsible Organization	Village of Rye Brook, Village Administrator
Local Planning Mechanism	The Village Administrator will work with the highway garage personnel
Potential Funding Sources	HMGP; Local Match
Timeline for Completion	DOF (Short preferred)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

*** Refer to results of Prioritization (page 2)**

Action Number: RB-4
Action Name: Highway Garage Generator

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Improved highway garage function can help protect life safety.
Property Protection	1	Improved highway garage function can help protect property at the highway garage and throughout the community.
Cost-Effectiveness	1	Costs are high, but benefits may be higher.
Technical	1	Project is feasible and effective.
Political	1	Political will to support project.
Legal	1	Village owns the highway garage and can legally make improvements.
Fiscal	0	Grant funding preferred.
Environmental	0	Does not improve or impact the environment.
Social	1	Benefit to entire community.
Administrative	1	Community can implement action.
Multi-Hazard	1	Benefit for all hazards.
Timeline	1	Short duration preferred.
Agency Champion	1	Village Administration is championing this action.
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	Relative to other ranked actions in Rye Brook

Name of Jurisdiction: Village of Rye Brook
Action Number: RB-5
Action Name: Water Pumping Station Generator

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Permanent generators are present at the Village Hall/Police Station, Fire House, Community Center, a sewer pumping station at 1200 King Street. Portable generators are available at the highway department. The water company has a generator at the Anderson Hill Road water pumping station. However, the water pumping station lost power and the generator failed during Hurricane Irene. This is a major problem because the pressure zone does not have a storage tank; it is served only by the pumping station.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action – future loss of power to the pumping station is unacceptable.
	2.
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The water pumping station lost power and the generator failed during Hurricane Irene. This is a problem because the pressure zone does not have a storage tank. Redunant power supply is needed to prevent this type of loss from occuring again.
Mitigation Action/Project Type	SIP
Objectives Met	1, 5
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	High benefits expected if loss of water service is avoided.
Estimated Cost	$100,000 (High)
Priority*	*High*
Plan for Implementation	
Responsible Organization	Village of Rye Brook, Village Administrator
Local Planning Mechanism	The Village Administrator will work with the water company and other appropriate personnel.
Potential Funding Sources	HMGP; Local Match
Timeline for Completion	DOF (Short preferred)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

*** Refer to results of Prioritization (page 2)**

Action Number: RB-5
Action Name: Water Pumping Station Generator

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Loss of water service is mainly a public health problem, but fire protection is lost without pressure.
Property Protection	1	Loss of water service is mainly a public health problem, but fire protection is lost without pressure.
Cost-Effectiveness	1	Costs are high, but benefits may be higher.
Technical	1	Project is feasible and effective.
Political	1	Political will to support project.
Legal	1	Village owns the pumping station and can legally make improvements.
Fiscal	0	Grant funding preferred.
Environmental	0	Does not improve or impact the environment.
Social	1	Benefit to large part of the community.
Administrative	1	Community can implement action.
Multi-Hazard	1	Benefit for all hazards.
Timeline	1	Short duration preferred.
Agency Champion	1	Village Administration is championing this action.
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	Relative to other ranked actions in Rye Brook

Name of Jurisdiction:	Rye Brook and City of Rye
Action Number:	RB-7 and RB-8 for Rye Brook; RC-13 for City of Rye
Action Name:	Main Branch of Blind Brook Flood Mitigation Projects

Assessing the Risk	
Hazard(s) addressed:	Flooding
Specific problem being mitigated:	The main branch of the Blind Brook has been subject to increasingly more frequent damaging flooding including major flood events in 2007 and 2011. Flooding affects Harrison, Rye Brook, and the City of Rye.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action – if further action is not taken, then Rye Brook and Rye City may need to focus on elevations and acquisitions of hundreds of structures that remain at risk to flooding.
	2.
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The main branch of Blind Brook forms the municipal boundary between the Town/Village of Harrison and the Village of Rye Brook before flowing through the City of Rye. The eastern branch of the Blind Brook also flows directly into the Blind Brook lower pond. The three communities therefore share flooding concerns associated with the brook, but damage has affected more properties in the City of Rye than in Rye Brook, and likewise damage in Rye Brook has affected more properties than in Harrison. Reports and plans that evaluate various flood mitigation methods have included: • Project Report, Flood Mitigation Study, Bowman Avenue Dam Site (Chas H. Sells, Inc., 2008) – evaluated different options to detain water at the upper and lower ponds at Bowman Avenue. This study also reviewed the potential to mitigate flooding of properties immediately to the north of the upper and lower ponds near Brook Lane and Avon Circle. • Project Report, Flood Mitigation Study, Lower Pond Supplemental (Chas H. Sells, Inc., 2008) – evaluated different options to detain water at the lower pond at Bowman Avenue. • Blind Brook Watershed Management Plan (U.S. Army Corps of Engineers, 2009) – evaluated different options to detain water and the upper and lower ponds at Bowman Avenue, detention at Anderson Hill Road near SUNY Purchase, and non-structural mitigation such as home elevations. • Hydrologic and Hydraulic Analysis, Study for Resizing the Upper Pond Reservoir (Paul C. Rizzo Engineering, 2012) – evaluated different options to detain water at the upper pond at Bowman Avenue. The sluice gate at the Bowman Avenue dam is completed, with the goal of providing some flood mitigation along Blind Brook. The detention basin at SUNY Purchase is still being studied and considered as a strong contender for watershed flood mitigation, but this option will be costly. Dredging and improvements of the Upper Pond at Bowman Avenue would reportedly cost $20 million.

	To help advance these previous studies to the present time, the City of Rye retained Parsons Brinkerhoff. The report 'Hydrologic and Hydraulic Analysis Report, Blind Brook Watershed Study" (August 2014) updates the cost estimates for the SUNY Purchase detention pond and Upper Bowman Pond and recommends limited additional work to advance the alternatives. The cost for resizing Upper Pond is ranging from 6.1 million dollars to 6.6 million dollars. The cost for two detention ponds on SUNY-Purchase is approximately 0.51 million dollars.
Mitigation Action/Project Type	SIP
Objectives Met	1, 2, 4
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Significant flood damage occurred in 2007 and 2011. These projects may reduce flood water surface elevations by one to seven feet in some locations.
Estimated Cost	The cost estimate for resizing Upper Pond ranges from $6.1 million to $6.6 million. The cost estimate for two detention ponds on SUNY-Purchase is approximately $0.51 million.
Priority*	
Plan for Implementation	
Responsible Organization	Representatives from Harrison, Rye Brook, and the City of Rye would work with the County to implement these projects if they are advanced.
Local Planning Mechanism	Representatives from Harrison, Rye Brook, and the City of Rye would work with the County to plan these projects if they are advanced.
Potential Funding Sources	State and Federal funding sources which may include Army Corps or FEMA mitigation funds
Timeline for Completion	Long Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

*** Refer to results of Prioritization (page 2)**

Action Number: Rye Brook and City of Rye
Action Name: RB-7 and RB-8 for Rye Brook; RC-13 for City of Rye

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Residential areas will benefit from these flood mitigation projects.
Property Protection	1	Many private residential, commercial, and municipal properties may benefit from these flood mitigation projects.
Cost-Effectiveness	0	The Upper Pond (Bowman) costs are likely too high to be cost effective, but the SUNY Purchase detention basin is less costly and may present a cost effective flood mitigation project.
Technical	1	Many studies have demonstrated that these flood mitigation projects will result in lower flood water surface elevations.
Political	1	Significant political will for these flood mitigation projects.
Legal	0	The legal logistics may be complex given the various property owners and three communities involved.
Fiscal	-1	The costs are very high.
Environmental	0	In general, flood mitigation projects have environmental benefits because reduced flood damage will protect water quality. However these projects rely on storage of water which will require significant earthwork.
Social	1	Many private residential, commercial, and municipal properties in three communities may benefit from these flood mitigation projects.
Administrative	0	The three communities may need additional assistance to implement.
Multi-Hazard	0	Addresses mainly flooding.
Timeline	0	Long term
Agency Champion	1	The three communities have representatives that will champion the projects.
Other Community Objectives	1	The flood mitigation projects demonstrate coordinated flood mitigation for three communities.
Total	6	
Priority (High/Med/Low)	Medium	Medium priority relative to other mitigation actions for these communities.

Name of Jurisdiction: Village of Rye Brook
Action Number: RB-13
Action Name: Avon Circle culvert replacement

Assessing the Risk	
Hazard(s) addressed:	Flooding
Specific problem being mitigated:	The condominiums on Avon Circle have flood risk because the East Branch Blind Brook flows beneath the property and then under Westchester Avenue in a culvert that is undersized for larger storms. Residents living in buildings at Avon Circle were cut off from emergency services due to rushing stormwater and flooding had to be evacuated during the flood of April 2007.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action – flooding problems will continue – not acceptable to residents of Avon Circle
	2.
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	The eastern branch of the Blind Brook flows directly into the Blind Brook lower pond. Reports and plans that evaluate various flood mitigation methods near Avon Circle have included: • Stormwater Analysis- Eastern Branch Blind Brook (Dolph Rotfeld Engineering, 2002)- Evaluated various locations and proposed projects to reduce flooding on the Eastern Branch of Blind Brook. This included enlarging the culvert to convey greater discharges. • Project Report, Flood Mitigation Study, Bowman Avenue Dam Site (Chas H. Sells, Inc., 2008) – evaluated different options to detain water at the upper and lower ponds at Bowman Avenue. This study also reviewed potential mitigation to reduce flooding of properties along Brook Lane and through Avon Circle. The recommendations included increasing the size of the culvert under Westchester Avenue from 5 feet wide to a 12 foot by 6 foot box culvert.
Mitigation Action/Project Type	SIP
Objectives Met	1, 2, 4
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	High (flood losses reduced)
Estimated Cost	High
Priority*	*Medium*
Plan for Implementation	
Responsible Organization	Village of Rye Brook and Avon Circle Condo Association
Local Planning Mechanism	The Village will need to work with the condo association and school district located to the south to plan for the project

Potential Funding Sources	HMGP; Local Match
Timeline for Completion	DOF (Short preferred)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

*** Refer to results of Prioritization (page 2)**

Action Number: RB-13
Action Name: Avon Circle culvert replacement

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduced flooding will reduce the risk to life.
Property Protection	1	Reduced flooding will reduce the risk to property.
Cost-Effectiveness	0	Uncertain but likely that benefits will exceed the cost.
Technical	1	Project is technically feasible and is a long-term solution.
Political	1	Political will to implement project.
Legal	0	The Village will need to closely coordinate with the condo association to facilitate work on private (condo association) land.
Fiscal	0	Grant funding preferred to implement project.
Environmental	1	Larger culverts tend to have associated environmental benefits.
Social	1	Benefits mainly the condominium residents, but the entire community benefits from improved services if fewer evacuations are needed at this location.
Administrative	1	Village can implement the project.
Multi-Hazard	0	Flooding only.
Timeline	0	Project may not be able to be completed in five years.
Agency Champion	1	The Village administration has long been a champion of this project.
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Low	Medium compared to other projects for Rye Brook

[i] http://www.stormready.noaa.gov/com-maps/ny-com.htm

[ii] http://submissions.nfpa.org/firewise/fw_communities_list.php