

9.5 City of Rye

This section presents the jurisdictional annex for the City of Rye.

9.5.1 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
Christian Miller, AICP, City Planner 1051 Boston Post Rd., Rye, NY 10580 914-967-7167 cmiller@ryeny.gov	Ryan Coyne, P.E., City Engineer 1051 Boston Post Rd., Rye, NY 10580 914-967-7676 engineer@ryeny.gov

9.5.2 Municipal Profile

This section provides a summary of the community.

Population

According to the U.S. Census, the 2010 population for the City of Rye was 15,720, with a population density of 2,688 persons per square mile. The population increased from the 2000 census (14,955).

Location

The City of Rye is situated in southeastern Westchester County, approximately 20 miles northeast of New York City. The City is bordered by the villages of Rye Brook and Port Chester to the northeast, the Town/Village of Harrison to the north and northwest, and the Village of Mamaroneck to the southwest.

Brief History

The City of Rye shares its history with Rye Brook, Port Chester, and part of Mamaroneck, as they were all part of the town of Rye. Rye is the oldest permanent settlement in Westchester County. It began in 1660 when Peter Disbrow, John Coe and Thomas Studwell came from Greenwich with a small group of settlers. 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. The Town started as a small settlement on Manursing Island then developed Poningo Neck, which now is the business section of the City of Rye; and the Saw Pit, which now is Port Chester. Within several years their combined purchases comprised all of what is now the City of Rye, Town of Rye, Harrison, White Plains, parts of Greenwich, North Castle, and Mamaroneck.

For two centuries, Rye remained a secluded community. Land was cleared for farming and cattle grazing. Docks were built on Long Island Sound, and oystering was an important occupation. Homes along Mill Town Road, now Milton, led to grist mills on Blind Brook. Communication with the outside world came slowly. The Rye-Oyster Bay ferry began service in 1739. The New York-Boston stagecoach made its first run in 1772. Rye to New York steamboat service and completion of the New Haven Railroad in the mid-1800s made Rye a popular summer resort.

In the late nineteenth century, Rye experienced growth and change. The era of the trolley made surrounding communities accessible. By 1904, there were two schools, five churches, a library, and a lively population of 3,500 residents. The growing community became dissatisfied with the services of the Rye Town Board, on which it had no representation. The Rye Village Incorporation League became organized and the Legislature

passed a bill of incorporation and on September 12, 1904 allowing the present-day City of Rye to become a village.

During the 1920s, the post-war boom and the advent of parkways and commuter trains brought a rush of prospective suburbanites and summer residents to the flourishing village. This was Rye's greatest period of growth and by 1930, there were nearly 9,000 people. As Rye developed, the residents began to desire complete independence from the Town government. City status offered many advantages, one being relief from paying a disproportionate share of the Town welfare tax. In 1940, the Legislature approved the Rye City Charter which was adopted by the residents. On January 1, 1942, Rye became Westchester's sixth and smallest city by seceding from the Town of Rye to become a city.

Playland Amusement Park is located on the 313 acres of the Rye waterfront. Playland's plan and its original buildings and structures remain largely intact after more than 80 years of continuous use. It is the first comprehensively designed amusement facility in the United States. The majority of the facilities have an Art Deco design. It was designated a National Historic Landmark in 1987.

Governing Body Format

The City Manager is the chief administrative officer of the City and is directly responsible to the City Council. The City Council includes the Mayor and six council members. Duties of the City Manager include supervising and coordinating the work of all City departments, preparing the tentative budget, hiring personnel, and purchasing. The Manager provides regular and special reports to the Council and works with City officers, boards, and commissions appointed by the Council. The Manager serves for an indefinite term as determined by the City Council.

Growth/Development Trends

The City of Rye is not undergoing much development. Instead, redevelopment with similar sizes/scales is typical in the downtown area as well as in the outlying neighborhoods. Challenges include the following:

- Working with the beach clubs that do not wish to elevate or floodproof facilities, as the substantial damage threshold is rarely triggered in the city. Many residential elevations have been voluntary.
- City facilities require attention. For example, the Police Department/Court facility needs upgrades, and the Public Works facility needs to be renovated. The city has ideas for reorganization of the Public Works facility.
- Some lots in the "Red Maple Swamp" area have been proposed for residential development. This area is within the SFHA associated with backwater conditions along lower Blind Brook. The city would like to acquire these lots to prevent development.

9.5.3 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 9.5-1. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
March 13-31, 2010	Severe Storms and Flooding	DR-1899	Yes	Significant flooding and wind damage. Playland Amusement Park was damaged; some of the damage included the sand dunes on the beach area, the wood rails, deck, roof and electrical damage on the pier, asphalt shingles on the Ice Casino, the roofs of several rides such as the Carousel, the Whip and the Log Flume.
August 26 - September 5, 2011	Hurricane Irene	DR-4020	Yes	Hurricane Irene caused three to five days of power loss. Indian Village and the central business district flooded along Blind Brook, other residential areas flooded along Beaver Swamp Brook, and coastal erosion and damage occurred.
October 27- November 8, 2012	Hurricane Sandy	DR-4085	Yes	Hurricane Sandy caused a power outage of five to seven days, although some areas were without power for two weeks. Of the events listed here, Sandy generated the most debris from wind damage. Coastal damage from Hurricane Sandy was worse than Hurricane Irene's damage; this was especially true for the beach clubs. A seawall was destroyed at one of the clubs. Playland Park sustained significant damage. The PA reimbursement from Sandy was significant and reflective of the damage caused by the storm.

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

9.5.4 Hazard Vulnerabilities and Ranking

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. For the purpose of this plan update, events that have occurred in the County from 2005 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Natural Hazard Risk/Vulnerability Risk Ranking

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

Table 9.5-2. 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	Occasional	24	Medium

Table 9.5-2. 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
	500-Year GBS: \$2,511,266 2,500-Year GBS: \$58,659,391			
Extreme Temperature	Damage estimate not available	Frequent	30	Medium
Flood	1% Annual Chance: \$889,822,855	Frequent	39	High
Severe Storm	100-Year MRP: \$18,594,444 500-year MRP: \$86,479,001 Annualized: \$1,109,601	Frequent	48	High
Winter Storm	1% GBS: \$43,497,103 5% GBS: \$217,485,516	Frequent	51	High
Wildfire	Estimated Value in the WUI: \$97,274,951	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 City of Rye.

Table 9.5-3. 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, City of	758	1329	36377274.78	119	78	328

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 City of Rye is one of the few “New York Rising (NYR) Community Reconstruction” communities in Westchester County. Therefore, a list of critical facilities has recently been generated by Sasaki and AKRF (the NYR planners) within a larger list of more than 100 community assets. 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 9.5-4. 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⁾
American Yacht Club	Rye (C)	Marina	X	X	-	-	-
Blind Brook SD WWTP	Rye (C)	Wastewater Treatment Plant	X	X	40.0	-	-
Blind Brook Wastewater Treatment Facility	Rye (C)	Wastewater Treatment Plant		X	-	-	-
City of Rye Marina	Rye (C)	Marina	X	X	-	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	0.0	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	7.4	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	40.0	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	40.0	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	0.0	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	0.0	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	40.0	-	-
No Name Provided	Rye (C)	Wastewater Pump	X	X	40.0	-	-
Rye City F.D.	Rye (C)	Fire	X	X	10.8	33.7	480
Rye High School	Rye (C)	School		X	-	-	-
Rye Middle School	Rye (C)	School		X	-	-	-
Rye Senior Citizens Program	Rye (C)	Senior		X	-	-	-
Shenorock Shore Club	Rye (C)	Marina	X	X	-	-	-
Shongut Marine	Rye (C)	Marina	X	X	-	-	-
Tide Mill Yacht Basin	Rye (C)	Marina	X	X	-	-	-
Blind Brook SD WWTP	Rye (C)	Wastewater Treatment Plant	X	X	40.0	-	-
Blind Brook Wastewater Treatment Facility	Rye (C)	Wastewater Treatment Plant		X	-	-	-
City of Rye Marina	Rye (C)	Marina	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 City of Rye is vulnerable to a variety of hazards. Historically, flooding and severe coastal storms such as nor'easters and hurricanes have caused the most damage in the community. Other hazards such as wildfires, earthquake, and dam failure reportedly present low or negligible risks to the community. The following specific information about vulnerabilities was identified by the municipality.

All Hazards

A very small part of the Police Department serves as the city's EOC. A new EOC is desired, as this space is believed insufficient for managing emergency situations.

Most municipal critical facilities have standby power, but the City Hall does not have a generator. The City would like to acquire a generator for City Hall. The City received an HMGP grant of \$125,000 for a new generator, but the current cost estimate is much greater, and the city is looking for other funds to help with the gap in funding.

Flooding

Blind Brook – Blind Brook presents the greatest flood risk to the City of Rye, and considerable efforts have been spent over the last two decades to understand these risks and determine how they can be mitigated. The City of Rye developed a Flood Mitigation Plan in 2001 and a Hazard Mitigation Plan in 2007. Both of these plans provide very detailed descriptions of the flooding that occurs along Blind Brook. The residential area known as Indian Village is typically the most severely flooded part of the city when Blind Brook overflows its banks. For example, the March 2007 flood and April 2007 Nor'easter caused significant flooding of Indian Village. One foot of water flooded houses in March. Six weeks later, the base flood elevation (100-year event) was reached by flooding. Depth of flooding on land was four to six feet. Indian Village was flooded in March 2010 and then again during Hurricane Irene in 2011. The central business district and downstream neighborhoods also have flood risk and have experienced damage from flooding of Blind Brook. In general, the areas of flooding in the city are separated into the following regions:

- City Line to Purchase Street
- Indian Village (Purchase Street to I-95)
- Central business district (I-95 to Orchard Avenue)
- Orchard Avenue to Rye High School
- Rye High School to Oakland Beach Avenue
- Oakland Beach Avenue to Milton Harbor

Upstream of Rye, Blind Brook forms the municipal boundary between the Town/Village of Harrison and the Village of Rye Brook. The three communities therefore share flooding concerns associated with the brook, but damage has been worse in the City of Rye than it has been in Rye Brook, and likewise damage in Rye Brook has been worse than damage in Harrison. As a result, the three communities may not view structural flood mitigation along the brook (i.e., projects to detain water) with the same urgency. Reports and plans that evaluate various flood mitigation methods include:

- 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.
- 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 (described below) is currently operable, 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. Dredging and improvements of the Upper Pond at Bowman Avenue would reportedly cost \$20 million and is therefore unlikely to happen. Furthermore, as homes are individually elevated in the City, there is less pressure for upstream flood mitigation solutions to be pursued in Harrison and Rye Brook.

The City of Rye received a grant of \$125,000 for a study of the Blind Brook corridor. The study is geared toward compiling previous results (including those listed above) and updating the status of flooding along the brook. The scope of services includes the review and analysis of past reports and development of a study to recommend “next steps” to be taken in the Blind Brook watershed to mitigate flooding within the City of Rye. The study was completed in 2014. 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.

The City strongly believes that the most recent FIRM is incorrect along Blind Brook downstream of I-95. Base flood elevations appear to be two feet too low. The city contacted FEMA when the FIRM was in draft form, and FEMA was reportedly not responsive. Correct FIRMs are desired for this area, because reconstruction and insurance are strongly connected to the published base flood elevation.

The “Red Maple Swamp” area is located in the SFHA associated with Blind Brook north of Playland Parkway, but not directly along the Blind Brook stream corridor. A drainage study for Red Maple Swamp is listed in the City’ capital improvement plan. Because this area is within the SFHA, drainage improvements will help only moderately. The capital improvement plan suggests that acquisitions of vacant lots will help reduce the potential for future flood damage.

Beaver Swamp Brook – Beaver Swamp Brook flows through the northwest part of Rye upstream of I-95 and then forms the municipal boundary between Harrison and the City of Rye in its downstream reaches. The gradient is very low along parts of this watercourse, and flooding in Rye has occurred between Osborn Road and Bradford Avenue. One acquisition has occurred along Beaver Swamp Brook; this was between Harding Drive and Park Avenue.

Drainage-Related Flooding – Hicks Park is a neighborhood that floods from poor drainage. It is not located in a SFHA. Garages and basements have flooded here. Forest Avenue at Boulder Road also floods from poor drainage.

Infrastructure Vulnerabilities

According to City personnel, walls along streams and seawalls present an important set of vulnerabilities in the City of Rye. For example, a wall along Elm Place failed a few years ago. New walls are needed because there is not sufficient space to remove walls and create floodplains or floodplain benches. For example, the library is immediately adjacent to Blind Brook.

The Kirby Lane seawall was damaged by Hurricane Sandy and re-pointed. The wall is at the edge of the road. A full repair is needed.

Bridges and culverts are another category of vulnerable structures. The Central Avenue Bridge lifted and was damaged at Blind Brook during the 2007 flood. The city removed the bridge.

The primary east-west road is Oakland Beach Avenue. The bridge at Blind Brook is believed to be in good condition, but its continued function is critical.

Dams

There are three regulated dams associated with Blind Brook that are upstream of the City of Rye: 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 sluiceway as part of a flood mitigation project being undertaken jointly by the City and the Village of Rye Brook. 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 south of the dam within both municipalities.
- 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 Bowman Avenue dam is Class C. The NYSDEC guidelines for dams are changing and a new Emergency Action Plan (EAP) has not been completed for the Bowman Avenue dam. City of Rye personnel anticipate that an update will be coordinated as the guidelines are rolled out.
- 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 City.

Wind Events

Microbursts occur sometimes in the City of Rye and damage trees. City personal report that city residents have been killed by falling trees in the past and this remains a concern. The city has not been struck by a tornado. The wind damages from the 2010 nor'easter, Hurricane Irene, and Hurricane Sandy were severe.

Winter Storms

The City's salt storage facility is reportedly undersized and aged. A new facility is desired. The City ran short of salt during the winter of 2013-2014, as did many surrounding communities. A new salt storage facility is listed in the capital improvement plan.

The City had a place to store snow (at the high school) but the high school addition project resulted in the loss of this area. The City needs a new place to store snow while this addition is underway.

Wildfires

The city is completely served by a public water system. Fire ponds and dry hydrants are not believed present in the city. Most City personal cannot recall a wildfire in the city, and a wildfire has likely never occurred with an area exceeding one acre.

9.5.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

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

Planning and Regulatory Capability

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

Table 9.5-5. 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		Chapter 68 Building Construction
Zoning Ordinance	Y	Local		Chapter 197
Subdivision Ordinance	Y	Local		Chapter 170
NFIP Flood Damage Protection Ordinance	Y	Federal, State, Local		Chapter 100
NFIP - Freeboard	Y	Federal, State, Local		State mandated BFE+2 for single and two-family residential construction, BFE+2 for all other construction types
NFIP - Cumulative Substantial Damages	N	Local		Standard 50%
Special Purpose Ordinances (e.g. wetlands, critical or sensitive areas)	Y	Local		Chapter 73 CZM/Waterfront Consistency, Chapter 162 Storm Sewer Systems, Chapter 174 Stormwater Management, Chapter 187 Trees, Chapter 195 Wetlands and Watercourses
Growth Management	N	NA	NA	NA
Floodplain Management / Basin Plan	Y	Federal, State, Local		Chapter 100
Stormwater Management Plan/Ordinance	Y	Local		Chapter 174
Comprehensive Plan / Master Plan	Y	Local		Comp Plan adopted 1984
Capital Improvements Plan	Y	Local		Includes flood mitigation and drainage projects
Site Plan Review Requirements	Y	Local		Chapter 197 Zoning Ordinance
Habitat Conservation Plan	N	NA	NA	NA
Economic Development Plan	Y	Local		Neighborhood Business District Study, 1985
Emergency Response Plan	??			
Post Disaster Recovery Plan	N	N/A		N/A
Post Disaster Recovery Ordinance	N	N/A		N/A
Real Estate Disclosure req.	Y	Local, Federal		NYS mandate, FEMA CRS
Other (e.g. steep slope ordinance, local waterfront revitalization plan)	Y	Local (LWRP)		LWRP adopted 1991

Table 9.5-5. 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.)
Coastal Erosion Control Districts	N	N/A		N/A
Shoreline Management Plan	Y	Local (LWRP)		LWRP adopted 1991; Chapter 73 CZM/Waterfront Consistency
Sediment Control	Y	Local		Chapter 170 and 197 (Subdivision and Zoning)
Mutual Aid Plan	Y	County		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 City of Rye.

Table 9.5-6. 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 and Planning Departments
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Engineering, Planning, and Building Departments
Planners or engineers with an understanding of natural hazards	Y	Engineering and Planning Departments
NFIP Floodplain Administrator	Y	Building Department
Surveyor(s)	N	
Personnel skilled or trained in "GIS" applications	Y	Engineering and Planning Departments
Scientist familiar with natural hazards in the County.	N	
Emergency Manager	Y	Police
Grant Writer(s)	Y	City Manager's Office
Staff with expertise or training in benefit/cost analysis	Y	Finance
Professionals trained in conducting damage assessments	Y	Building Department

Fiscal Capability

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

Table 9.5-7. 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, although the City is a NYR/CR community eligible for grants through that process
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact Fees for homebuyers or developers of new development/homes	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes

Table 9.5-7. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Incur debt through private activity bonds	??
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 City of Rye.

Table 9.5-8. Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	TBD	
Public Protection	TBD	
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 building inspector is the Floodplain Administrator in the City of Rye.

Flood Vulnerability Summary

City of Rye staff maintain lists and inventories of properties that have been damaged by floods. Substantial damage estimates were made by the Floodplain Administrator after Hurricane Irene, Hurricane Sandy, and other events. Many residents of Rye have a sound understanding of flood risks and have elevated their homes voluntarily or in connection with substantial improvement/substantial damage triggers. In contrast, many coastal property owners, such as the private beach clubs, have a somewhat relatively poor understanding of coastal hazards and coastal flood risks despite the damage that was experienced during Hurricane Irene and Hurricane Sandy.

Resources

The Floodplain Administrator is the primary person assuming responsibilities of floodplain administration, although he is supported by competent personnel in the Planning and Engineering Departments. Floodplain administration services overseen by the Building Department and supported by Planning and Engineering include permit reviews, inspections, recordkeeping, education, and outreach. The Floodplain Administrator regularly attends continuing education and/or certification training on floodplain management. The Planning and Engineering Departments provide education and outreach to the community regarding flood hazards/risk, and flood risk reduction through NFIP insurance, mitigation, etc.

Compliance History

The City of Rye is believed to be in good standing with the NFIP. The City is not currently interested in joining the CRS.

Regulatory

The City's floodplain management regulations/ordinances exceed the FEMA minimum requirements and are consistent with the State minimum requirements. The City maintains local ordinances, plans and programs that support floodplain management and meet the NFIP requirements.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

It is the intention of this municipality to incorporate hazard mitigation planning and natural hazard risk reduction as an integral component of ongoing municipal operations. The following textual summary and table identify relevant planning mechanisms and programs that have been/will be incorporated into municipal procedures, which may include former mitigation initiatives that have become continuous/on-going programs and may be considered mitigation capabilities.

In general, capabilities have increased since the initial Hazard Mitigation Plan was adopted in 2007. This is largely in response to the multiple storms and disasters that have occurred in 2007, 2010, 2011, and 2012.

Emergency Communications

The village uses the CodeRED system for emergency notifications.

Wind Events, Tree Management, and Power Outages

Tree management capabilities include the tree foreman and ConEd's services. The City believes that recovery after Hurricanes Irene and Sandy was adequate, and that ConEd worked well with the Public Works Department. ConEd maintained a staging area at Playland and was therefore nearby. ConEd also has an office and a yard in the city. These are considered critical facilities. Utilities are required to be placed underground in new developments in the city.

Winter Storms

The Public Works Department plows 51.6 miles of city roads using 18 trucks. The department retains 50+ employees. The village has not found it necessary to shovel roofs. As noted above, the salt storage facility is undersized and aged. A new facility is desired. The city ran short of salt during the winter of 2013-2014, as did many surrounding communities. A new salt storage facility is listed in the capital improvement plan. The city had a place to store snow (at the high school) but the high school addition project resulted in the loss of this area. The city needs a new place to store snow while this addition is underway.

Flooding

The City of Rye has very proactively studied and responded to flooding, and will continue to do so. The U.S. Army Corps of Engineers prepared the Blind Brook Watershed Management Plan in 2009 to help 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 Blind Brook dam at Bowman Avenue.

In 2010, the City of Rye and the Village of Rye Brook studied the Bowman Avenue upper and lower ponds. 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 would benefit properties in both municipalities south of the dam. Construction, partially funded by the County and State, was completed in 2012.

As explained above, the City of Rye received a grant for a new study of the Blind Brook corridor. The scope of services includes the review and analysis of past reports and development of a study to recommend "next steps" to be taken in the Blind Brook watershed to mitigate flooding within the City of Rye. The study is nearly complete. This demonstrates that the City continues to have significant capabilities with regard to flood mitigation.

Many buildings in Rye have been elevated to reduce flood damage, including a number of homes in Indian Village as well as a few in the central business district.

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 City 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.

Wildfires

Capabilities include two fire stations, eight trucks, and 16 paid workers plus volunteers that work three shifts per day. Wildfire fighting capabilities are believed adequate.

NY Rising Community Reconstruction Program

The NY Rising Community Reconstruction (NYRCR) Program is a more than \$650 million planning and implementation process established to provide rebuilding and resiliency assistance to communities severely damaged by Hurricane Irene, Tropical Storm Lee, and Superstorm Sandy. Drawing on lessons learned from past recovery efforts, the NYRCR Program is a unique combination of bottom-up community participation and State-provided technical expertise. This powerful combination recognizes not only that community members

are best positioned to assess the needs and opportunities of the places where they live and work, but also that decisions are best made when they are grounded in rigorous analysis and informed by the latest innovative solutions. In Rye, an eleven-member Committee has been appointed by the State to develop a NY Rising Community Reconstruction Plan that will guide the spending of the City's \$3 million allocation. As the City develops a Community Reconstruction Plan, it will strive to:

- Safeguard the city against future coastal and riverine storm threats
- Upgrade infrastructure for resilience
- Identify strategies to manage and mitigate stormwater
- Leverage regional opportunities to plan for the Blind Brook and Beaver Swamp Brook watersheds
- Coordinate local and regional communications and services before, during, and after emergencies
- Preserve historic buildings, natural wetlands, and public access to the waterfront
- Improve connections for people walking, running, and cycling
- Ensure that the city remains a vibrant and attractive place for people of all ages

The NYRCR process will continue through winter 2014-2015 for the City of Rye. The City anticipates that the recommendations in the Community Reconstruction Plan will be consistent with those of the Hazard Mitigation Plan.

Comprehensive Plan

The City's Comprehensive Plan ("Development Plan") was adopted in 1985. Chapter 7 is dedicated to "flood control." The following goal and policy were articulated for flood control:

- Goal – Minimize risks to people and damage to property due to flooding in the Blind Brook and Beaver Swamp Brook watersheds and along the coast through the enactment and enforcement of appropriate flood control measures.
- Policy – Prevent development in the designated floodways and discourage development in the 100 year flood plains of Blind Brook, Beaver Swamp Brook and the coastal areas through the use of land acquisition, regulations and flexible forms of zoning (e.g. clustering).

Many of the individual recommendations associated with Chapter 7 have been pursued over the years, although the City has more recently focused on balancing structural flood control techniques with property protection techniques such as home elevations.

Chapter 8 of the Development Plan focuses on coastal resources. None of the goals and policies is related to coastal hazard mitigation, which is consistent with the concerns of the time (public access and water dependent uses).

Local Waterfront Revitalization Plan

The City's LWRP was adopted in 1991. Section II includes discussions about "Flood Hazard and Flood-prone Areas" and "Coastal Erosion Hazard Areas." The following policies were articulated:

- Policy 11 of the LWRP is "Buildings and other structures will be cited in coastal areas so as to minimize damage to property and the endangering of human life caused by flooding and erosion."
- Policy 12 is "Activities or development in the coastal area shall be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands, and bluffs. Primary dunes will be protection from all encroachments that could impair their natural protective capacity."

- Policy 13 is “The construction or reconstruction of erosion protection structures shall be undertaken only if they have a reasonable probability of controlling erosion for at least 30 years as demonstrated in design and construction standards and/or assured maintenance and replacement programs.”
- Policy 14 is “Activities and development, including the construction or reconstruction of erosion protection structures shall be undertaken so that there will be no measurable increase in erosion or flooding at the site of such activities or at other locations.”
- Policy 15 is related to offshore mining, which is no longer applicable.
- Policy 16 is “Public funds shall only be used for erosion protective structures where necessary to protect human life, and new development which requires a location within or adjacent to a hazard area to be able to function, or existing development; and only where the public benefits outweigh the long term monetary and other costs including the potential for increasing erosion and adverse effects on natural protective features.”
- Policy 17 is “Whenever possible, use nonstructural measures to minimize damage to natural resources and property from flooding and erosion. Such measures shall include the setback of buildings and structures; the planting of vegetation and the installation of sand fencing; the reshaping of bluffs; and the floodproofing of buildings or their elevation above the base flood level.”

Summary

Upon adoption, this hazard mitigation plan will be made available to applicable City departments as a planning tool to be used in conjunction with existing documents and regulations. It is expected that revisions to other City plans and regulations such as the Comprehensive Plan, department annual budgets, and the City code may reference this plan and its updates. The City Manager will be responsible for ensuring that the actions identified in this hazard mitigation plan are incorporated into ongoing City 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. Refer to Table 9.X.10 for a cross-reference of which plans and regulations may be most important for updating relative to this hazard mitigation plan.

Table 9.5-10. Plans and Regulations to be potentially updated

Regulation or Plan	Status Relative to Hazard Mitigation Plan	Responsible Party
LWRP	The next major revision of this plan will incorporate elements of this hazard mitigation plan.	City Manager and Planning Board
Comprehensive Plan	The next major revision of this plan will incorporate elements of this hazard mitigation plan.	City Manager and Planning Board

The City Manager will be responsible for assigning appropriate City officials to update portions of the Comprehensive Plan, LWRP, Emergency Management Plan, and the City 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.

9.5.6 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 2007 HMP. A total of 56 unique individual initiatives were listed in the plan, although several were repeated and therefore more than 56 were listed in the document. 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 9.5-9. Past Mitigation Initiative Status

Description	Status	Review Comments
Acquire property, easements or development rights to prevent future development within flood prone areas.	Deferred	The City is still interested in these actions.
Strengthen City regulations to further limit future development and redevelopment within flood prone areas.	In Progress	This is partly complete; for example the statewide freeboard requirement of 2 feet applies to substantial improvements. However, the City hereby modifies this initiative as follows: “Modify City regulations to promote more hazard-resistant development and redevelopment within flood prone areas.” Examples could be additional freeboard or applying V zone standards in all coastal A zones.
Explore modifications to Bowman Avenue Dam property or implementation of other upstream regional flood mitigation projects to enhance flood control.	Deferred	The City is still interested in these actions.
Improve maintenance of streams and storm drainage infrastructure.	Deferred	The City is still interested in these actions.
Amend existing City Laws to better encourage/require existing structures to comply with current flood mitigation construction measures.	Deferred	The City is still interested in this action. One possible modification is to adopt cumulative substantial damage/improvement.
Explore funding sources for the cost for or provide incentives to encourage flood resistant construction for existing structures.	Deferred	The City is still interested in this action.
Improve the accuracy of GIS-based FEMA flood zone mapping.	Completed	Completed.
Restore and add flood gauges on Blind Brook and Beaver Swamp Brook.	Deferred	The City is still interested in these actions.
Enhance information made available on City website, RCTV and other local media with respect to flood mitigation, preparedness and the National Flood Insurance Program.	Capability	This is ongoing.
Meet FEMA community rating standards (CRS) to lower flood insurance rates.	Discontinued	The City is not interested in joining the CRS.
Establish partnerships with local business and real estate community to improve awareness of flood risks.	Deferred	The City is still interested in this action.

Table 9.5-9. Past Mitigation Initiative Status

Description	Status	Review Comments
Conduct informational workshops to advise homeowners and contractors of preferred construction practices in flood zones.	Discontinued	The City takes other similar actions instead to achieve outreach and education.
Complete renovations to City Police and Fire Headquarters.	In Progress	The Fire Department headquarters renovations are complete. This is still desired for the Police Department. However, given that only a very small part of the Police Department serves as the EOC, the City would prefer to designate and outfit a new EOC in connection with renovating the Police Department building. The City hereby modifies this initiative as follows: "Designate or construct a new EOC with sufficient space and appropriate furnishing and equipment."
Reactivate early flood warning system.	Discontinue	Existing warning systems such as the NWS are sufficient.
Review or establish evacuation and emergency response plans for major recreational uses such as Playland and beach clubs.	Deferred	The City is still interested in these actions.
Keep an updated inventory of all areas within the City with dock access and small boat craft that can be used in the event of flood emergencies.	Discontinue	Use of small and/or private facilities is not feasible.
Amend land use regulations to restrict sites using hazardous materials within proximity of sensitive facilities such as school or high-density population areas.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Lobby for changes in state and federal legislation regarding the types or time of day hazardous materials are transported on interstates.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Strictly enforce (as permitted by law) hazard materials traveling on local roads.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Strictly enforce laws for facilities handling or storing hazardous materials.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Where feasible consider relocating emergency service facilities from within hazardous materials transportation corridor.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Consider retrofitting of existing critical facilities to withstand impacts associated with hazardous materials spills.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Identify storm drain outfalls near or along major transportation routes or known hazardous materials site and provide mitigation measures to prevent the conveyance of spilled hazardous materials into adjacent waterways.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Provide emergency service providers and others unable to relocate during hazardous materials event with necessary personal protective equipment.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Ensure that hazardous materials sites have in place proper spill mitigation and containment	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it

Table 9.5-9. Past Mitigation Initiative Status

Description	Status	Review Comments
measures.		focuses mainly on natural hazards.
Confirm ability of Westchester County Blind Brook Sewage Treatment to provide continuous operation during major flooding event. The City of Rye should partner with the County to provide upgrades or mitigation as deemed necessary.	Deferred	The City is still interested in ensuring the continued operation of the plant.
Conduct more specific review of sites with or vulnerable to hazardous materials.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Establish more specific information or modeling of hazardous material spill and containment areas	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Facilitate the distribution of “right to know” information and location of hazardous materials sites in the community.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Provide information to residents and businesses regarding hazardous material risks and how to respond in the event a disaster occurs.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Encourage and assist local medical center to pursue funding for the construction and installation of a mass decontamination corridor as well as other integrated protective systems to prevent contamination of the medical facility.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Establish emergency response plans for hazardous materials incidents.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Enhance training of emergency service providers and pursue funding for appropriate protective gear and equipment.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Identify and or be provided advance warning of the types of hazardous materials traveling on major transportation routes.	Discontinue	Hazardous materials are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Ensure compliance with NYS Building Code to upgrade or eliminate poor building construction.	Capability	Ongoing.
Consider incentives such as reduced building fees to encourage the retrofitting of existing buildings within City Fire Limits to meet current NYS Building Code requirements.	Discontinued	The City will focus instead on new construction and renovations.
Consider requiring or providing incentives for the installation of sprinklers for single-family residences	Discontinued	Discontinued in favor of consistency with State policy.
Conduct inventory of buildings not meeting current NYS Building Code requirements.	Discontinued	The City will focus instead on new construction, renovations, and other opportunities to address code inconsistencies in existing buildings.
Conduct inventory of sites or facilities that may be prone or vulnerable to explosions.	Discontinued	The City will focus instead on new construction, renovations, and other opportunities to address potential for explosions in existing buildings.
Enhance fire safety awareness information and make such information more widely available	Capability	Ongoing.

Table 9.5-9. Past Mitigation Initiative Status

Description	Status	Review Comments
via City website, RCTV and to local homeowners and businesses.		
Enhance building and fire inspections to ensure compliance with applicable building code and fire safety laws. Consider voluntary inspections of buildings (where not required by law) with amnesty provision to suggest building construction and fire safety improvements.	Discontinued	The City does not have the personnel and funding to expand inspections as a voluntary program.
Consider roadway or traffic signal improvements to reduce emergency vehicle response time from Locust Fire House.	Capability	This is evaluated on an ongoing basis, and improvements will be made when needed.
Encourage and enhance training of Fire Department personnel.	Capability	Ongoing.
Conduct discrete inventory of potential terrorist targets within City and appropriate security measures.	Discontinue	Sabotage and airplane incidents are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Improve security measures at emergency response facilities and other sensitive facilities.	Discontinue	Sabotage and airplane incidents are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Monitor changes in flight paths to Westchester County or other regional airports that may impact the City.	Discontinue	Sabotage and airplane incidents are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Improve coordination with Westchester County regarding airport emergency planning and terrorism threats at Indian Point Nuclear Power Plant or other potential terrorist targets.	Discontinue	Sabotage and airplane incidents are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Provide more information to residents and businesses regarding security measures and what to do in the event of a terrorist event or airplane crash.	Discontinue	Sabotage and airplane incidents are to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Enhance training and equipment of emergency service personnel.	Capability	Ongoing.
Initiate a maritime EMS project to address medical emergencies occurring within Long Island Sound.	Discontinue	Medical response is to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Improve coordination with area hospitals to identify that training, equipment and contingency plan are in place to respond to mass casualty incidents.	Discontinue	Medical response is to be addressed outside the context of this hazard mitigation plan, as it focuses mainly on natural hazards.
Consider amending local legislation to encourage greater water conservation practices.	Discontinue	Chapter 194 of City Code addresses water conservation.
Coordinate with or assist local water service providers in identifying vulnerabilities in water supply system and leaks.	Capability	Ongoing.
Improve coordination with local senior facilities to determine whether additional support is necessary in the event of a heat wave.	Capability	Ongoing.

Table 9.5-9. Past Mitigation Initiative Status

Description	Status	Review Comments
Improve coordination with local and regional power service providers.	Capability	Ongoing.
Ensure that critical facilities in the City have appropriate backup generation capabilities.	In Progress	Most critical facilities have generators, but some are still needed. The City hereby modifies this initiative as follows: “Acquire a generator for City Hall.”
Provide more information to residents and businesses regarding water conservation practices.	Capability	Ongoing.

Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

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

- Many voluntary home elevations have occurred in the City over the last decade. The City has facilitated these elevations through its code enforcement procedures.

Proposed Hazard Mitigation Initiatives for the Plan Update

The City of Rye identified mitigation initiatives 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 9.5-11 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 9.5-12 below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.5-10. 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 or Modifications of Previous Initiatives												
RC-1	Designate or construct a new EOC with sufficient space and appropriate furnishing and equipment.	Existing	All		City Manager	High	High	Municipal	Short	High	SIP	ES
RC-2	Acquire a generator for City Hall.	Existing	All		City Manager	High	High	Municipal, HMA	Short	High	SIP	ES
RC-3	Acquire a new salt storage facility.	Existing	Winter Storms		Public Works	High	High	Municipal	Short	Medium	SIP	ES
RC-4	Identify and designate snow removal storage areas and disposal sites.	Existing	Winter Storms		Public Works	Medium	Medium	Municipal	Short	Medium	EAP	ES
RC-5	Repair the Kirby Lane seawall.	Existing	Flooding and Erosion		Public Works	High	High	Municipal	Short	Low	SIP	SP
RC-6	Modify City regulations to promote more hazard-resistant development and redevelopment within flood prone areas. Examples could be additional freeboard or applying V zone standards in all coastal A zones.	Existing	Flooding		Planning, Building	High	Low	Municipal	Long	Medium	LPR	PR, PP
RC-7	Update the Bowman Dam Emergency Action Plan.	Existing	Flooding, Dam Failure		Engineer	Medium	Medium	Municipal	Short	Medium	EAP	ES
RC-8	Revise the FIRM along Blind Brook downstream of I-95 through a LOMR or PMR.	Existing	Flooding		Engineer	High	Medium	Municipal	Long	High	LPR	PR, PP
RC-9	Acquire vacant parcels in the "Red Maple Swamp" residential area before additional construction occurs in the SFHA.	Existing	Flooding		Planning	High	High	Municipal	DOF	Medium	NSP	NR
RC-10	Incorporate elements of this plan into the Comp Plan when it is updated.	Existing	All		Planning	Medium	Low	Municipal	Long	Low	LPR	PR
RC-11	Incorporate elements of this plan into the LWRP when it is updated.	Existing	Flooding and Erosion		Planning	Medium	Low	Municipal	Long	Low	LPR	PR
RC-12	Promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as Repetitive Loss (RL) and											

Table 9.5-10. 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
	<p>Severe Repetitive Loss (SRL), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost, and willing participation of property owners. Specifically identified are properties in the following locations:</p> <ul style="list-style-type: none"> • Milton Road • Stuyvestant Avenue • Ellsworth Street • Pine Island Road • Mendota Avenue • Laurel Street • Mendota Avenue • Van Rensselaer Road • Phillips Lane • Lowen Court • Boston Post Road • Brookdale Place • Wappanocca Avenue • Mead Place • Oneida Street • Mohawk Street • Pine Lane • Purchase Street • Douglas Circle • Locust Avenue • Shore Road • Midland Avenue • Barbara Court • Oakdale Avenue • Meadow Place • Park Street • Ann Lane • Theodore Fremd Avenue • Central Avenue • Orchard Avenue • Mayfield Street • Sonn Drive • Dale Street • Red Oak Drive • Fairlawn Street 											
	See above.	Existing	All		City Engineering via NFIP FPA with NYSOEM, FEMA support	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Ongoing (outreach and specific project identification); Long term DOF (specific project application and implementation)	High	SIP	PP
Previous Initiatives – Continued to this Hazard Mitigation Plan												
RC-13	Acquire property, easements or development rights to prevent future development within flood prone areas.	Existing	Flooding		City Manager	High	High	Municipal	Long	Medium	NSP	NR
RC-14	Explore additional modifications to Bowman Avenue Dam property or implementation of other upstream regional flood mitigation projects to enhance flood control.	Existing	Flooding		City Manager	High	High	Municipal, HMA or Army Corps	Short	Medium	SIP	SP
RC-15	Improve maintenance of streams and storm drainage infrastructure.	Existing	Flooding		Public Works	High	High	Municipal	Short	Medium	SIP	SP
RC-16	Amend existing City Laws to better encourage/require existing structures to comply with current flood mitigation	Existing	Flooding		Planning, Building	High	Low	Municipal	Short	Medium	LPR	PR, PP

Table 9.5-10. 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
	construction measures, such as cumulative substantial damage/improvement.											
RC-17	Explore funding sources for the cost, provide incentives to encourage, and/or modify regulations to encourage flood resistant construction for existing structures (i.e., elevation)	Existing	Flooding		Planning, Building	High	High	Municipal, HMA	DOF	Medium	SIP	PP
RC-18	Restore and add flood gauges on Blind Brook and Beaver Swamp Brook.	Existing	Flooding		Engineer	Medium	High	Municipal, Other	Long	Low	EAP	ES
RC-19	Confirm ability of Westchester County Blind Brook Sewage Treatment to provide continuous operation during major flooding event. The City of Rye should partner with the County to provide upgrades or mitigation as deemed necessary.	Existing	Flooding		Public Works	High	High	County, HMA	Short	Low	SIP	SP
RC-20	Establish partnerships with local business and real estate community to improve awareness of flood risks.	Existing	Flooding		Planning, Engineer	Medium	Low	Municipal	Short	Medium	EAP	PI
RC-21	Review or establish evacuation and emergency response plans for major recreational uses such as Playland and beach clubs.	Existing	Flooding		EMD	High	Medium	Municipal, Private	Long	Low	EAP	ES

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

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)

Timeline:

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

Acronyms and Abbreviations:

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:

	in 2015)
SRL	Severe Repetitive Loss Grant Program (discontinued in 2015)

Timeline:

Costs:

Where actual project costs have been reasonably estimated:

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

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

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

Benefits:

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

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

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

Low	Long-term benefits of the project are difficult to quantify in the short term.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
High	Project will have an immediate impact on the reduction of risk exposure to life and property.

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 9.5-11. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
RC-1	Designate or construct a new EOC with sufficient space and appropriate furnishing and equipment.	1	1	1	1	1	1	0	0	1	1	1	0	1	1	11	High
RC-2	Acquire a generator for City Hall.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
RC-3	Acquire a new salt storage facility.	1	1	1	1	1	1	1	0	1	1	0	1	1	0	11	Medium
RC-4	Identify and designate snow removal storage areas and disposal sites.	1	0	1	1	0	1	1	0	1	1	0	1	0	0	8	Medium
RC-5	Repair the Kirby Lane seawall.	0	0	0	1	1	1	1	0	0	1	1	1	1	0	8	Medium
RC-6	Modify City regulations to promote more hazard-resistant development and redevelopment within flood prone areas. Examples could be additional freeboard or applying V zone standards in all coastal A zones.	1	1	1	1	0	1	1	1	1	1	0	0	0	0	9	Medium
RC-7	Update the Bowman Dam Emergency Action Plan.	1	1	0	1	0	1	1	1	1	1	0	1	0	0	9	Medium
RC-8	Revise the FIRM along Blind Brook downstream of I-95 through a LOMR or PMR.	1	1	1	1	0	1	1	1	1	1	0	0	1	1	11	High
RC-9	Acquire vacant parcels in the "Red Maple Swamp" residential area before additional construction occurs in the SFHA.	1	0	1	1	0	1	0	1	1	1	0	0	1	1	9	Medium
RC-10	Incorporate elements of this plan into the Comp Plan when it is updated.	0	0	0	1	0	1	1	1	1	1	1	0	0	0	7	Low
RC-11	Incorporate elements of this plan into the LWRP when it is updated.	0	0	0	1	0	1	1	1	1	1	1	0	0	0	7	Low
RC-12	Acquire property, easements or development rights to prevent future development within flood prone areas.	1	0	1	1	0	1	0	1	1	1	0	0	0	1	8	Medium
RC-13	Explore additional modifications to Bowman Avenue Dam property or implementation of other upstream regional flood mitigation projects to enhance flood control.	1	1	0	1	1	0	-1	0	1	0	0	0	1	1	6	Low
RC-14	Improve maintenance of streams and storm drainage infrastructure.	0	1	1	1	1	1	1	0	1	1	0	1	0	1	10	Medium
RC-15	Amend existing City Laws to better encourage/require existing structures to comply with current flood mitigation construction measures, such as cumulative substantial damage/improvement.	1	1	1	1	0	1	1	1	1	1	0	1	0	0	10	Medium
RC-16	Explore funding sources for the cost, provide incentives to encourage, and/or modify regulations to encourage flood resistant construction for existing	1	1	1	1	0	1	1	1	1	1	0	0	1	0	10	Medium

Table 9.5-11. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	structures (i.e., elevation)																
RC-17	Restore and add flood gauges on Blind Brook and Beaver Swamp Brook.	1	1	1	1	1	1	0	0	1	0	0	1	1	1	10	Medium
RC-18	Confirm ability of Westchester County Blind Brook Sewage Treatment to provide continuous operation during major flooding event. The City of Rye should partner with the County to provide upgrades or mitigation as deemed necessary.	0	0	1	1	0	1	0	1	1	0	1	1	0	0	7	Low
RC-19	Establish partnerships with local business and real estate community to improve awareness of flood risks.	1	1	1	1	0	1	1	0	1	1	0	1	0	0	9	Medium
RC-20	Review or establish evacuation and emergency response plans for major recreational uses such as Playland and beach clubs.	1	0	1	1	0	1	1	0	0	1	1	0	0	0	7	Low

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

9.5.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.5.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the City of Rye 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 City of Rye has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.5.9 Additional Comments

None at this time.

Figure 9.5-1. City of Rye Hazard Area Extent and Location Map

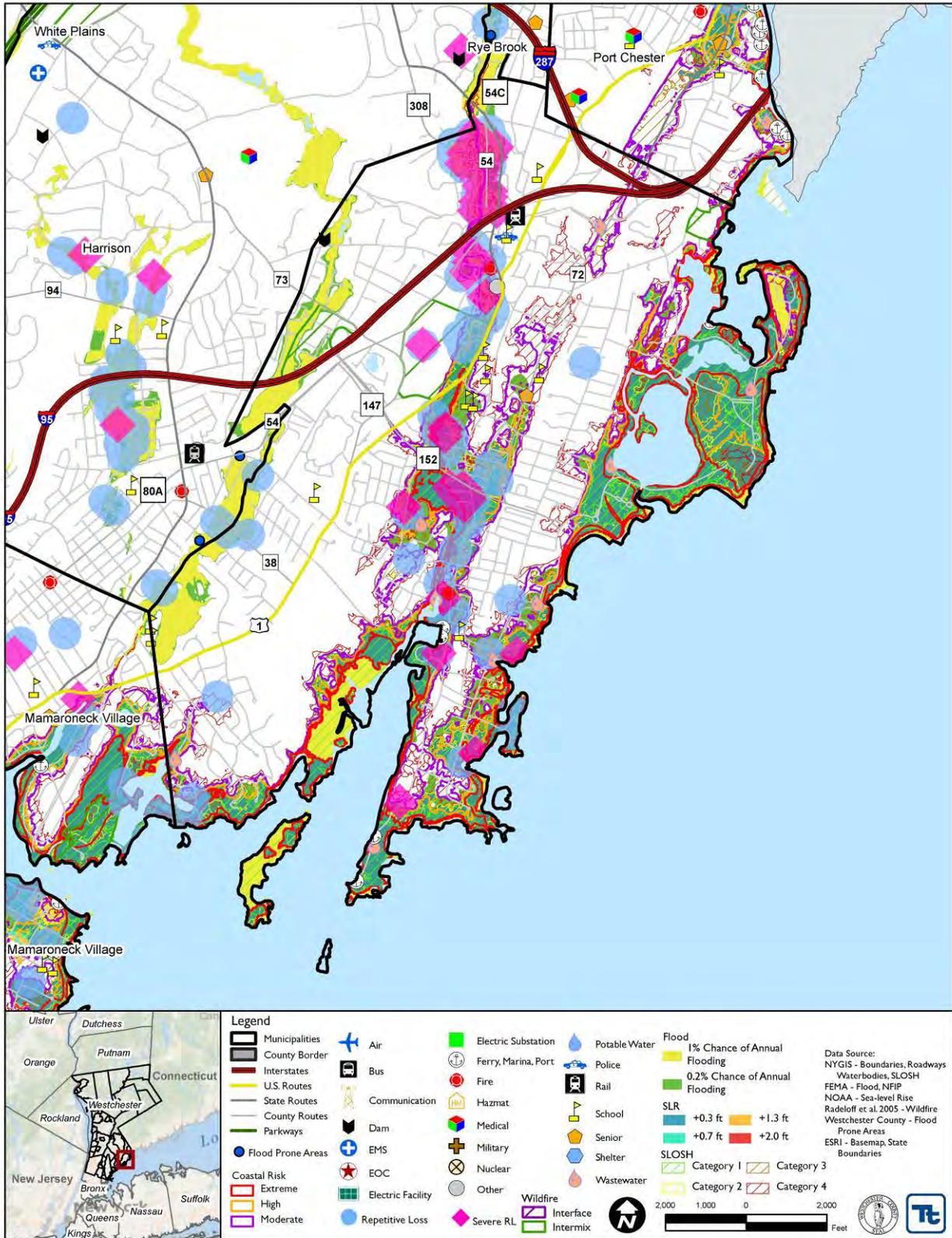
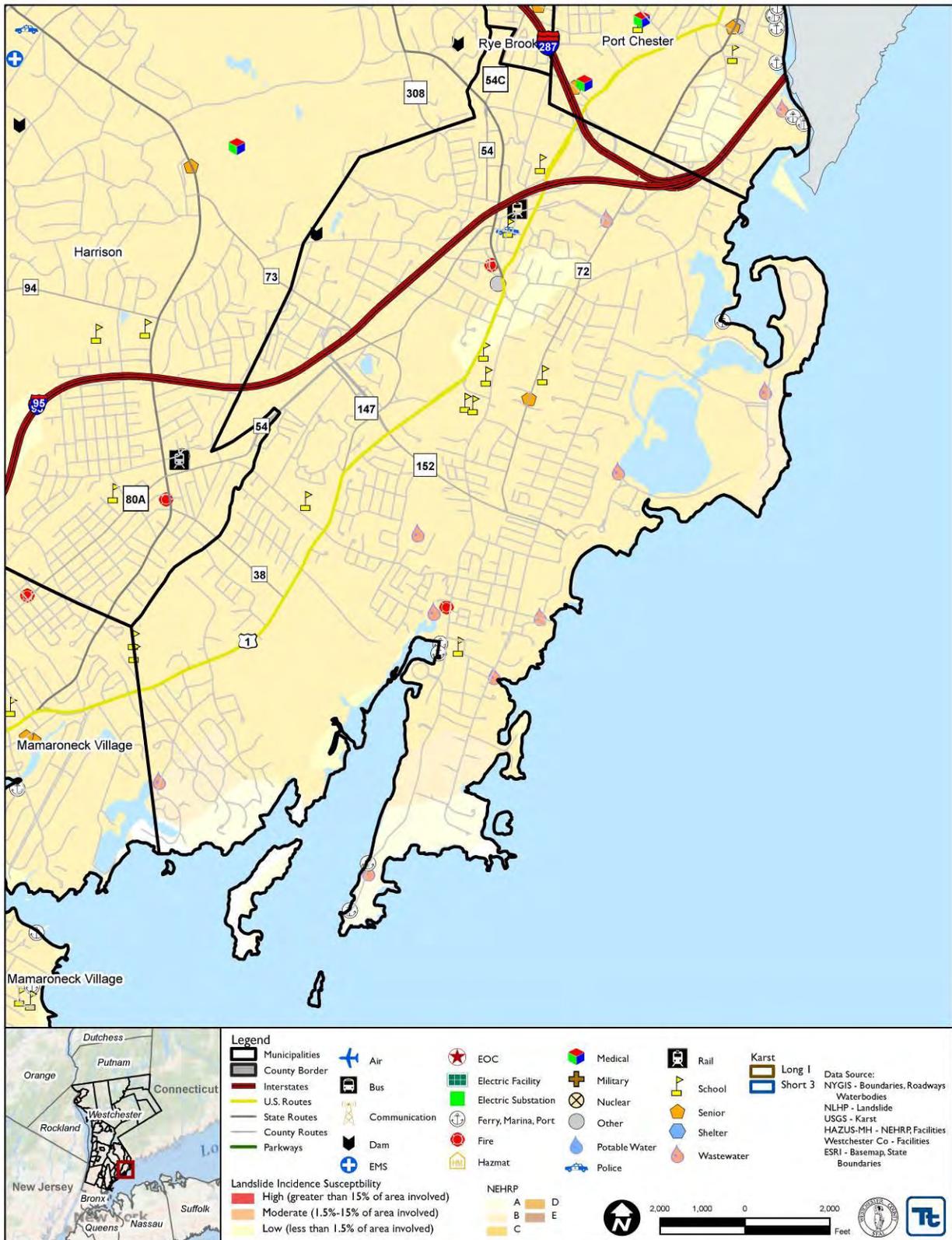


Figure 9.5-2. City of Rye Hazard Area Extent and Location Map



Name of Jurisdiction: City of Rye
 Action Number: RC-1
 Action Name: New EOC

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	A very small part of the Police Department serves as the city's EOC. A new EOC is desired, as this space is believed insufficient for managing emergency situations.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. Designate or construct a new EOC with sufficient space and appropriate furnishing and equipment. 2. No action – the current small space in the Police Department will continue to be used, but this may impair response during emergencies 3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	Designate or construct a new EOC with sufficient space and appropriate furnishing and equipment.
Mitigation Action/Project Type	SIP
Objectives Met	1, 2, 5
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Benefits expected as emergency management may improve.
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	City of Rye
Local Planning Mechanism	City of Rye Planner and Engineer will work together to secure funding
Potential Funding Sources	HMGP with Local Match; or FEMA DHS EOC grant (not currently active)
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: RC-1
 Action Name: New EOC

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Improved EOC function can help protect life safety.
Property Protection	1	Improved EOC function can help protect property 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	City owns its building and can legally make improvements.
Fiscal	0	Few grants available for new EOCs.
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	0	May take several years.
Agency Champion	1	City Administration is championing this action.
Other Community Objectives	1	Multiple benefits associated with new EOCs.
Total	11	
Priority (High/Med/Low)	High	Relative to other ranked actions in Rye City

Name of Jurisdiction: City of Rye
Action Number: RC-2
Action Name: City Hall Generator

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Most municipal critical facilities have standby power, but the City Hall does not have a generator. The City would like to acquire a generator for City Hall. The City received an HMGP grant of \$125,000 for a new generator, but the current cost estimate is much greater, and the city is looking for other funds to help with the gap in funding.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Purchase and install generator at City Hall
	2. Purchase portable generators
	3. No action – power will not available to support City Hall during power outages
Action/Project Intended for Implementation	
Description of Selected Action/Project	The City would like to acquire a generator for City Hall. The City received an HMGP grant of \$125,000 for a new generator, but the current cost estimate is much greater, and the city is looking for other funds to help with the gap in funding.
Mitigation Action/Project Type	SIP
Objectives Met	1, 2, 5
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Benefits expected as City Hall operations can continue through disasters.
Estimated Cost	Greater than \$125,000 (High)
Priority*	High
Plan for Implementation	
Responsible Organization	City of Rye
Local Planning Mechanism	City of Rye Planner and Engineer will work together to secure funding
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: RC-2
 Action Name: City Hall Generator

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Improved City Hall function can help protect life safety.
Property Protection	1	Improved City Hall function can help protect property at the buildings 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	City owns the building and can legally make improvements.
Fiscal	0	The previous HMGP grant was insufficient relative to the cost.
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	City Administration is championing this action.
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	Relative to other ranked actions in Rye City

Name of Jurisdiction: City of Rye
Action Number: RC-3
Action Name: New salt storage facility

Assessing the Risk	
Hazard(s) addressed:	Winter hazards (snow, ice)
Specific problem being mitigated:	The City's salt storage facility is reportedly undersized and aged. A new facility is desired. The City ran short of salt during the winter of 2013-2014, as did many surrounding communities. A new salt storage facility is listed in the capital improvement plan.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Construct new salt storage facility
	2. No action – the City may continue to run low on salt supply during the winter season. Eventually, the existing facility may also fail.
	3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	The City's salt storage facility is reportedly undersized and aged. A new facility is desired. A new salt storage facility is listed in the capital improvement plan.
Mitigation Action/Project Type	SIP
Objectives Met	1, 2, 5
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Benefits expected as snow and ice management may improve.
Estimated Cost	High
Priority*	High
Plan for Implementation	
Responsible Organization	City of Rye
Local Planning Mechanism	City of Rye Planner and Engineer will work together to secure funding
Potential Funding Sources	HMGP with Local Match; or FEMA DHS EOC grant (not currently active); or local funding (already listed in the City's capital improvement plan)
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: RC-3
 Action Name: New salt storage facility

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Improved salt storage can help protect life safety.
Property Protection	1	Improved salt storage can help protect property 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	City owns its facilities and properties and can legally make improvements.
Fiscal	1	Few grants available for new salt storage, but the project is in the City's capital improvement plan.
Environmental	0	Does not improve or impact the environment.
Social	1	Benefit to entire community.
Administrative	1	Community can implement action.
Multi-Hazard	0	Winter hazards.
Timeline	1	Could be implemented quickly.
Agency Champion	1	City Administration is championing this action.
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	Relative to other ranked actions in Rye City

Name of Jurisdiction: City of Rye
Action Number: RC-5
Action Name: Repair Kirby Lane Seawall

Assessing the Risk	
Hazard(s) addressed:	Coastal flood and erosion
Specific problem being mitigated:	The Kirby Lane seawall was damaged by Hurricane Sandy and re-pointed. The wall is at the edge of the road. A full repair is needed.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action – not acceptable, as the seawall is a community asset and protects a roadway. 2. Replace with soft shoreline protection – not acceptable, as the seawall is a community asset and protects a roadway. 3. No other options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Kirby Lane seawall was damaged by Hurricane Sandy and re-pointed. The wall is at the edge of the road. A full repair is needed.
Mitigation Action/Project Type	SIP
Objectives Met	1, 2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Seawall repairs will help protect the roadway from collapse.
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	City of Rye
Local Planning Mechanism	Add to the City’s capital improvement plan
Potential Funding Sources	HMGP, Local Match
Timeline for Completion	DOF (Short)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)

Action Number: RC-5
Action Name: Repair Kirby Lane Seawall

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	The protected facility is a roadway.
Property Protection	0	The protected facility is a roadway.
Cost-Effectiveness	0	Uncertain whether estimated benefits higher than estimated costs.
Technical	1	Project is technically feasible and is a long-term solution although future repairs will likely be necessary.
Political	1	Significant political will for this project, as the wall is a key community asset.
Legal	1	The City of Rye owns the seawall and is responsible for its repair.
Fiscal	1	Grant funding is preferred for this work, but capital improvement funds may be used.
Environmental	0	From an environmental perspective, seawalls are inferior to soft shoreline protections. However the presence of the road requires a seawall.
Social	0	The seawall benefits mainly users of the road.
Administrative	1	The City can administer the project.
Multi-Hazard	1	Coastal flooding and erosion.
Timeline	1	Short duration preferred.
Agency Champion	1	The City offices are champions of this effort.
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	Medium	Relative to other projects for City of Rye

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

Assessing the Risk	
Hazard(s) addressed:	Flooding
Specific problem being mitigated:	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):	<ol style="list-style-type: none"> 1. Flood mitigation projects 2. No action – if further action is not taken, then Rye Brook and Rye City must focus only on elevations and acquisitions of hundreds of structures that remain at risk to flooding. 3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	<p>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, but damage has been worse in the City of Rye than it has been in Rye Brook, and likewise damage in Rye Brook has been worse than damage in Harrison. Reports and plans that evaluate various flood mitigation methods have included:</p> <ul style="list-style-type: none"> • 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. • 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. <p>The sluice gate at the Bowman Avenue dam is currently operable, 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. Dredging and improvements of the Upper Pond at Bowman Avenue would reportedly cost \$20 million.</p> <p>To help advance these previous studies to the present time, the City 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.</p>

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 sever 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-8 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)	Low	Medium priority relative to other mitigation actions for these communities.

Name of Jurisdiction: City of Rye
Action Number: RC-18; LOI #118
Action Name: Blind Brook Stream Gauge Monitoring and Flood Warning System; Beaver Swamp Brook Stream Gauge Monitoring and Flood Warning System

Assessing the Risk	
Hazard(s) addressed:	Flooding
Specific problem being mitigated:	Blind Brook is located in Westchester County and is subject to increasingly more frequent damaging flooding including major flood events in 2007 and 2011. Beaver Swamp Brook also presents an area of flood risk. New stream gauges will help collect information for additional studies and will also provide the basis for enhanced flood warnings and response.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. Install stream gage monitors and flood warning systems 2. No action – without the gauges, additional data cannot be collected and flood warning systems must rely on the NWS flood warnings only 3. No other feasible options were identified
Action/Project Intended for Implementation	
Description of Selected Action/Project	The project will allow for advance warning of impending flood events and enable City businesses, residences and institutions to prepare for structures for flood events to reduce damages. Data collected by the Blind Brook gauges can also be used to support additional flood mitigation studies as recommended by Parsons Brinkerhoff in the flood mitigation study published in August 2014.
Mitigation Action/Project Type	EAP
Objectives Met	1-5 (all five goals)
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Benefits include reduced flood damage if property owners have sufficient warning time.
Estimated Cost	\$250,000 (High)
Priority*	Medium
Plan for Implementation	
Responsible Organization	City of Rye, Christian K. Miller, AICP, City Planner
Local Planning Mechanism	Emergency Management, Stormwater Management
Potential Funding Sources	HMGP with local match; USGS may provide an alternative method of installing stream gauges.
Timeline for Completion	Short Term / DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)

Action Number: RC-18; LOI #118

Action Name: Blind Brook Stream Gauge Monitoring and Flood Warning System; Beaver Swamp Brook Stream Gauge Monitoring and Flood Warning System

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	A warning system can increase life safety.
Property Protection	1	A warning system can provide sufficient time for property owners to remove belongings and protect properties.
Cost-Effectiveness	1	Warning systems are generally less expensive than the benefits provided.
Technical	1	Stream gauges have been shown to provide support to warning systems.
Political	1	Political will is present.
Legal	1	The City can install and maintain gauges that are in easements and roadway rights of way.
Fiscal	0	Installation and maintenance can be costly and funds are needed.
Environmental	0	No environmental benefits.
Social	1	Warning systems provide social benefits.
Administrative	0	Installation may be straightforward but stream gauge maintenance can be complicated.
Multi-Hazard	0	Addresses flooding.
Timeline	1	Can be completed relatively quickly.
Agency Champion	1	The City is a champion of this project.
Other Community Objectives	1	Multiple objectives (warning systems as well as data collection)
Total	10	
Priority (High/Med/Low)	Medium	Relative to other actions for Rye City.

ⁱ <http://www.stormready.noaa.gov/com-maps/ny-com.htm>

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