



9.3 Town of Carmel

This section presents the jurisdictional annex for the Town of Carmel.

9.3.1 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
Richard J. Franzetti, P.E.; Town Engineer 60 McAlpin Avenue, Mahopac, NY (845) 628-1500 ext. 181 rfj@ci.carmel.ny.us	Rob Vara, Engineering Projects Coordinator 60 McAlpin Avenue, Mahopac, NY (845) 628-1500 ext. 183 RJVZ@ci.carmel.ny.us

9.3.2 Municipal Profile

This section provides a summary of the community.

Population

According to the 2010 U.S. Census, the population of the Town of Carmel was 34,305.

Location

The Town of Carmel is located on the southern border of Putnam County. It has a total land area of 40.7 square miles, of which 36.1 square miles is land and 4.6 square miles is water. The Town also includes three hamlets, Carmel, Mahopac and Mahopac Falls.

Brief History

The Town was settled around 1740 by George Hughson. On the night of April 26, 1777, after learning the news that the British had begun burning nearby Danbury, Connecticut, sixteen-year-old Sybil Ludington rode her horse, Star, the entire night through the hamlets of Carmel, Mahopac, Kent Cliffs and Farmers Mills, warning those along the way that the British were coming before returning home at dawn. A statue memorializing the female Paul Revere sits alongside Lake Gleneida.

Carmel was established by splitting from the town of Frederickstown in 1795. Patterson also split from Frederickstown the same year, and the remnant of Frederickstown became known as Kent. Carmel was designated the county seat in 1812. In 1861, a small part of Carmel was taken to be added to the town of Putnam Valley. (http://en.wikipedia.org/wiki/Carmel,_New_York)

Governing Body Format

The Town is governed by a Town Board that consists of four councilpersons and a Town Supervisor.

Growth/Development Trends

The following table summarizes major development that occurred in the municipality over the past five years, as well as known or anticipated future development in the next five (5) years. Refer to the map in section 9.3.8 of this annex which illustrates the hazard areas along with the location of potential new development.



Table 9.3-1. Growth and Development

Property Name	Type (Residential or Commercial)	Number of Structures	Location (address and/or Parcel ID)	Known Hazard Zone*	Description / Status
Gateway Hotel	Commercial				Approved
Carmel Center Senior Housing - Lot 3	Residential	23 units	Terrace Dr. 55.14-1-11.3		Approved
Carmel Center Senior Housing - Lot 5	Residential	81 units of senior housing	Terrace Dr. 55.14-1-11.1	Wildfire: Intermix	Approved
CVS	Commercial				Broke ground
Gateway Summit - Lot 6	Residential	150 units of senior housing	Rt. 6 55.-2-24.6	Wildfire: Intermix	Approved
Gateway Summit - Staybridge Suites Hotel	Non- Residential	10,304 sq. ft. 123 room, 4- story hotel	2054 Rt. 6 55.-2-24.1		Approved
Guidepost Facility Redevelopment	Private				Broke ground
Hickley Holdings LLC/ Paladin Group	Non- Residential	50,000 sq. ft. office building	39 Seminary Hill Rd. 55.10-1-1 & 3	Wildfire: Intermix	Approved
Hillcrest Commons	Residential	74 units of senior housing	Rt. 52 44.10-1-4 & 44.9-1- 51	Wildfire: Intermix	Approved
P2 build out Hillcrest Commons	Residential				Implementing P2
Lakeview Development at Carmel	Non- Residential	12,656 sq. ft. 2-story commercial building	1611 Rt. 6 55.9-1-17	Wildfire: Interface	Approved
MacDonald Marine	Non- Residential	20,000 sq. ft. boat storage building	681 Union Valley Rd. 76.20-1-13	Wildfire: Intermix	Approved
McDonald's	Commercial				Broke ground
Meadowlands Car Dealership	Commercial				Broke ground
Nejame & Sons	Non- Residential	10,200 sq. ft. 2-story commercial building	133 Gleneida Ave. 44.9-1-16	Wildfire: Interface	Approved
Old Forge Estates	Residential	10 lot residential subdivision	Baldwin Place Rd., opposite Mahopac Schools Campus 75.15-1-19	Wildfire: Intermix	Approved
Old Forge Estates	Residential	14			Approved
One Hundred Twelve Crossroads, L.P.	Residential	22 units of senior housing	1828 Rt. 6 55.6-1-42	Wildfire: Intermix	Approved but not built
Parakesh Redevelopment	Commercial				Approved
Parkash Estates, LLC	Non- Residential	10,304 sq. ft. commercial building	870 Rt. 6 65.13-1-54	Wildfire: Interface	Approved



Property Name	Type (Residential or Commercial)	Number of Structures	Location (address and/or Parcel ID)	Known Hazard Zone*	Description / Status
RPK Precision Homes	Residential	50 attached senior units	Seminary Hill Rd. & Mechanic St. 55.14-1-5.1, 5.2, 5.3, 5.4, 5.5 & 55.10-1- 23, 24 & 25	Wildfire: Intermix	Approved
Swan Cove	Residential	10 residential units	628 Rt. 6 76.5-1-49	100-yr Flood; 500-yr Flood; Wildfire: Interface	Approved
The Fairways - Lot 7	Residential	150 units of senior housing	Rt. 6 44.-2-1.1 & 1.2	Wildfire: Intermix	Approved
Tompkins Recycling	Non- Residential	20,000 sq. ft. building	60 Old Rt. 6 55.11-1-15	100-yr Flood; 500-yr Flood	Approved
Union Place	Mixed Use	575,000 sq. ft of retail, 480 housing units, 350,000 sq. ft. office space, and 90 room hotel	Rt. 6 86.6-1-4, 86.11-1-1 & 75.19-1-1.12	Wildfire: Intermix	Approved - 2010
Union Square Redevelopment Zipkin Farm	Commercial				Approved
Yankee Land Development	Residential	14 lot residential subdivision	Bayberry Hill Rd. & Owen Dr. 76.15-1-12	Wildfire: Intermix	Approved

* Only location-specific hazard zones or vulnerabilities identified.

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

9.3.3 Natural Hazard Event History Specific to the Municipality

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

Table 9.3-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
August 1990	Flooding	N/A	N/A	Putnam and Westchester Counties had \$5 M in property damage
July 9, 1997	Thunderstorm / Wind	N/A	N/A	\$30K in property damage in Lake Carmel
September 16- 18, 1999	Hurricane Floyd Major Disaster Declarations	DR-1296	Yes	\$1.9 M in property damage Countywide
November 2001 –	Drought	N/A	N/A	NYC's combined storage in water system reservoir systems was at a low 41% capacity



Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
January 2002				
April - October 2002	Drought	N/A	N/A	Groundwater and water storage facilities were below normal. NYC reservoir system reached a low of 64.5%.
July 9, 2002	Lightning	N/A	N/A	Lightning strike caused several fires in Mahopac Falls; approximately \$500 K in property damage.
September 30, 2010	Strong Wind	N/A	N/A	Strong winds downed power lines and trees; power outages; approximately \$50 K in property damage
August 26 – September 5, 2011	Hurricane Irene	DR-4020	Yes	General flooding along local waterways
October 27 – October 8, 2012	Hurricane Sandy	DR-4085	Yes	Extensive power outages, utility and private property damage from fallen tree limbs; costs for debris management.

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



9.3.4 Hazard Vulnerabilities and Ranking

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

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for Town of Carmel.

Table 9.3-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, b, e}	Probability of Occurrence ^c	Risk Ranking Score (Probability x Impact)	Hazard Ranking
Earthquake	100-Year GBS: \$0 500-Year GBS: \$1,974,862 2,500-Year GBS: \$38,999,184	Occasional	12	Low
Extreme Temperature	Damage estimate not available	Frequent	21	Medium
Flood	1% Annual Chance: \$74,317,050	Frequent	18	Medium
Landslide	RCV Exposed: \$23,363,531	Occasional	12	Low
Severe Storm	100-Year MRP: \$6,308,487 500-year MRP: \$38,107,604 Annualized: \$461,231	Frequent	48	High
Severe Winter Storm	1% GBS: \$38,471,787 5% GBS: \$192,358,935	Frequent	51	High
Wildfire	Estimated Value in the WUI: \$5,479,257,444	Frequent	42	High

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

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

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

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

Occasional = Hazard event is likely to occur within 100 years

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

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

GBS = General building stock

MRP = Mean return period

RCV = Replacement cost value

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the municipality.

Table 9.3-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Town of Carmel	81	72	\$276,035.76	2	0	5

Source: FEMA, 2014

Note (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA and are current as of February 28, 2014 and are summarized by Community Name. Please note the total number of repetitive loss properties excludes the severe repetitive loss properties. The number of claims represents claims closed by 2/28/2014.

Note (2) Total building and content losses from the claims file provided by FEMA Region 2.

Note (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.



Critical Facilities

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

Table 9.3-5. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
CARMEL AUXILIARY DIKE	Dam	X			
CARMEL DAM	Dam	X			
Carmel Waste Water	Wastewater	X			
Cen Hud - Stillwater Road	Natural Gas	X			
CROTON FALLS DAM	Dam	X			
GLENCOMA LAKE DAM	Dam	X			
KIRK LAKE DAM	Dam	X			
LAKE GILEAD DAM	Dam	X			
LAKE GLENEIDA DAM	Dam	X			
LAKE MAHOPAC DAM	Dam	X			
SD2 Kelly Road Pump	Wastewater	X			
SD2 Putnam Plaza Pump Station	Wastewater	X			
SD4 Pump Station	Wastewater	X			
Sewer Plant 2 Primary Setting Tank	Wastewater	X			
UPPER TEAKETTLE SPOUT LAKE DAM	Dam	X			
Carmel waste water	Wastewater	X		8	-
Cen Hud - Stillwater Road	Natural Gas	X		-	-
SD2 Kelly Road Pump	Wastewater	X		-	-
SD2 Putnam Plaza Pump Station	Wastewater	X		8	-
SD4 Pump Station	Wastewater	X		-	-
Sewer Plant 2 Primary Setting Tank	Wastewater	X		0	-

Source: HAZUS-MH 2.1

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

NP Not provided by HAZUS

x Facility located within the DFIRM boundary.

- No loss calculated by HAZUS

NA Not calculated in HAZUS

NF HAZUS estimate the facility will not be functional

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

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

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

Other Vulnerabilities Identified by Municipality

According to the 2013 FEMA Flood Insurance Study (FIS) for Putnam County, in the Town of Carmel, an abandoned race track south of Fair Street is prone to flooding during storm conditions. Previous flooding has been reported to have reached the level of the track surface. Wetlands are located in areas to the north of the railroad grade on either side of Michael Brook. (FEMA FIS 2013).



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

- Downed trees during events cause the most issues as power lines fall and generators have also been knocked out
- Flooding in the following areas remains problematic due to drainage issues: Lake Shore Drive, Route 6 and Clark Place, Hill Street and Route 6, Memory Lane, and Sandy Street.
- The Lake Mahopac spillways overflow when debris has built up and the gates have not been opened, causing localized flooding.



9.3.5 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 9.3-6. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Y/N)	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, date of adoption, name of plan, explanation of authority, etc.)
Building Code	Y	State	Building Department	NYS Building Code
Zoning Ordinance	Y	Local	Planning Board	Chapter 156, Adopted June 9, 1972
Subdivision Ordinance	Y	Local	Planning Board	Chapter 131, Adopted June 9, 1972
Site Plan Review Requirements	Y	Local	Planning Board	
National Flood Insurance Program (NFIP) Flood Damage Protection Ordinance	Y	Federal, State, Local		Chapter 86, Adopted January 9, 2013.
NFIP - Freeboard	Y	State, Local		Chapter 86 NYS mandated BFE +2ft for residential construction, BFE+1ft for all other construction
NFIP - Cumulative Substantial Damages	N	Local		
Comprehensive Plan / Master Plan	Y	Town		
Capital Improvements Plan	Y	Town		
Stormwater Management Plan/Ordinance	Y	Town		
Floodplain Management / Basin Plan	Y	Town		
Open Space or Greenway Plan	Y	Town		
Emergency Management and/or Response Plan	Y	Town	Supervisor	
Economic Development Plan	N			
Local Waterfront Revitalization Plan (for waterfront communities)	N			



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.)
Post Disaster Recovery Plan and/or Ordinance	N			
Growth Management	N			
Real Estate Disclosure req.	N			
Habitat Conservation Plan	Y	Town	ECB	
Special Purpose Ordinances (e.g. wetlands, critical or sensitive areas)	Y	Town	ECB	

(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 Town of Carmel.

Table 9.3-7. Administrative and Technical Capabilities

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

Fiscal Capability

The table below summarizes financial resources available to the Town of Carmel.

Table 9.3-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG)	Yes
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	Yes
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Mitigation grant programs	Yes



Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Other	

Community Classifications

The table below summarizes classifications for community program available to the Town of Carmel.

Table 9.3-9. Community Classifications

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

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

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

Criteria for classification credits are outlined in the following documents:

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

National Flood Insurance Program

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

NFIP Floodplain Administrator

Richard Franzetti, PE Town Engineer

Program and Compliance History

As of July 31, 2014 there are 145 policies in force, insuring \$37.5 million of property with total annual insurance premiums of \$110,053.

The Town is currently in good standing in the NFIP. The current NFIP Floodplain Administrator has no knowledge of when the last CAV was performed. The municipality sees no specific need for a CAV at this time.



Loss History and Mitigation

Since 1978, 72 claims have been paid totaling \$276,036. As of April, 2014 there are 2 Repetitive Loss and no Severe Repetitive Loss properties in the community.

Following Hurricane Sandy the damage throughout the Town included blown out culverts, flooded basements, and road damage. No private residences or Town owned buildings sustained damage.

Planning and Regulatory Capabilities

The community Flood Damage Prevention Ordinance (FDPO) was last updated on January 9, 2013, and is found at Chapter 86 of the local code.

Floodplain management regulations and ordinances meet the FEMA and New York State minimum requirements. There are additional ordinances, plans, and programs within the Town further supporting the enforcement of the floodplain management program.

Administrative and Technical Capabilities

The community FDPO identifies the Town Engineer as the local NFIP Floodplain Administrator, currently Richard Franzetti, PE for which floodplain administration is an auxiliary duty.

It is the intent and purpose of the NFIP Floodplain Administrator to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas. Floodplain manager duties include: regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities; require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters; control filling, grading, dredging and other development which may increase erosion or flood damages; regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands; and qualify for and maintain participation in the National Flood Insurance Program.

Following Hurricane Sandy the damage throughout the Town included blown out culverts, flooded basements, and road damage. No private residences or Town owned buildings sustained damage

Richard Franzetti PE feels he is adequately supported and trained to fulfill his responsibilities as the municipal floodplain administrator. Richard Franzetti PE has both the professional education and experience in this area.

Public Education and Outreach

In the Town of Carmel, pamphlets on display in Town Hall are available to the community to come and take regarding flood risks and what the property owner's responsibilities are when it comes to flood damage.

It is the intent and purpose of the NFIP Floodplain Administrator to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas. Floodplain manager duties include: regulate uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities; require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters; control filling, grading, dredging and other development which may increase erosion or flood damages; regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands; and qualify for and maintain participation in the National Flood Insurance Program.



Actions to Strengthen the Program

Major barriers to running an effective floodplain management program include lack of funding and personnel. Additional education and training on floodplain management would be welcomed.

Community Rating System

The Town does not participate in the Community Rating System (CRS) program.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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

Land Use Planning: The Planning Board of the Town of Carmel, with the authority granted to it by State enabling legislation and the Town Board, rationally and logically directs the growth and development of the community. It addresses issues of land use, zoning, environment, transportation, demographics, economics, public facilities, infrastructure, community services, historic resources, recreational resources and fiscal impacts. This is accomplished through subdivision and site plan review, zoning text and map amendment recommendations and special planning studies where warranted.

Building Local Mitigation Capabilities: The Town has included an initiative within the proposed mitigation strategy to support and participate in county-led initiatives intended to build local and regional mitigation and risk-reduction capabilities.

Stormwater Management Program: The Town has an active stormwater management program, which addressed both stormwater quality, as well as quantity which often has relevance to localized flooding issues. In addition to several completed stormwater management projects that have served to address localized flooding problems, the Town has included several planned stormwater management projects, including those to increase stormwater detention throughout the community.

Dam Safety: The Town continuously monitors the following dams for safety and compliance with prevailing regulations, including engaging specialized contract engineering support: Cassie, Tea Kettle Upper and Lower, and Lake Mahopac. See Initiative CAR-3.



9.3.6 Mitigation Strategy and Prioritization

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

Past Mitigation Activity

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

- Improvements have been made on Clark Place to improve drainage and decrease the likelihood of flooding.
- MS4 retrofits were done on St. Michael Terrace
- Generator upgrades for 7 Water Districts
- Swee Pond silt pond cleaning
- Engineering firm contracted to perform DEC dam compliance.
- Maintenance of easements with sewer lines are cleared of debris to ensure access to lines.
- The following dams are continuously monitored: Cassie, Tea Kettle Upper and Lower, and Lake Mahopac.

Proposed Hazard Mitigation Initiatives for the Plan

The Town of Carmel identified mitigation initiatives they would like to pursue in the future. Some of these initiatives may be previous actions carried forward for this plan. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Table 9.3-11 identifies the municipality's updated local mitigation strategy.

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

Table 9.3-12 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan.



Table 9.3-10. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals / Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
CAR-1 (LOI #406)	Dredge Lake Secor Outlet Stream: Dredging of the outlet stream, from the Lake to Secor Road, will increase the hydraulic capacity of the outlet stream, and minimize, if not eliminate, flooding along the lakeshore. See Action Worksheet										
		Existing	Flood, Severe Storm, Climate Change	G-2, G-4	Town of Carmel, Richard J Franzetti, Town Engineer	Reduced flood vulnerability of property and structures	\$250,000	Federal Mitigation grants; town or property owners for Local Match	Short Term, once funding is secured	High	SIP, NRP
CAR-2 (LOI #409)	Strategic Roadway Tree Removals / Clearing: Selective tree cutting to minimize roadway closures during severe storm events. See Action Worksheet										
		Existing	Severe Storm, Severe Winter Storm, Climate Change	G-1, G-2	Town of Carmel, Richard J Franzetti, PE, Town Engineer	Reduced change of power outages; life-safety; road closures	\$15,000	Federal Mitigation grants; town for Local Match	Short Term	Medium	NRP
CAR-3 (LOI #411)	Engineering Hazard Evaluations of Town Park District Dams: The Engineering evaluation, design and replacement will establish the adequacy of the spillways of each dam, as well as upgrades necessary to safely pass the DEC-mandated design storm event so as to avoid catastrophic dam failure. See Action Worksheet										
	See above.	Existing	Flood, Severe Storm, Climate Change	G-1, G-2, G-6	Town of Carmel, Richard J Franzetti, PE, Town Engineer	High – Life Safety; Reduced risk of structure and infrastructure damage from dam failure	\$500,000	Federal Mitigation or NYSDEC grant funding; Town Budget for Local Match	Short Term	High	SIP
CAR-4 (LOI #413)	Memory Lane Drainage Improvements: Increasing the size and capacity of the cross-culvert under Memory Lane will minimize roadway over-topping and possible roadway closure See Action Worksheet										
	See above.	Existing	Flood, Severe Storm, Climate Change	G-1, G-2	Town of Carmel, Richard J Franzetti, PE, Town Engineer	Reduced damage to roadway; road closures; potential life-	\$75,000	Federal Mitigation grant or Federal or State Highway grant; Town	Short Term, once funding is secured	High	SIP



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals / Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
						safety		Budget for Local Match			
CAR-5 (LOI #1812)	Emergency Generators at Sewer Districts: Purchase and install emergency power gensets, to avoid having to secure and temporarily place into service mobile trailer-mounted generator units. See Action Worksheet										
	See above.	Existing	Flood, Severe Storm, Severe Winter Storm, Climate Change	G-1, G-2	Town of Carmel, Richard J Franzetti, PE, Town Engineer	Reduced vulnerability of critical facilities to power outages	\$100,000	Federal Mitigation Grant funding; Sewer District for Local Match	Short Term, once funding is secured	High	SIP
CAR-6 (LOI #402)	Variable Message Sign Boards & portable light array: Purchase solar powered variable message boards to keep community abreast of developing situations before, during, and after a disaster event. See Action Worksheet										
	See above.	N/A	All Hazards	G-1, G-3, G-5	Town of Carmel, Ronald J. Gainer, Town Engineer	By providing information to public during emergencies it will reduce risk to residents public health and safety	\$20,000	Federal or State EM or HLS grant; Town Budget for Local Match	Short Term, once funding is secured	High	EAP
CAR-7 (LOI #1526)	Mahopac Public Library Backup Power: The Library will purchase and install a back-up diesel generator and related equipment of sufficient capacity to provide 24/7 full building power coverage. Now that FEMA has designated public libraries as essential services, this project will enable the library to support the general population during power outages and other natural disasters and emergencies. See Action Worksheet										
	See above.	Existing	Flood, Severe Storm, Severe Winter Storm, Climate Change	G-1, G-2, G-5	Mahopac Public Library, Patricia Kaufman, Director	High - Reduced vulnerability of critical/essential facility to power outages	\$230,000	Federal Mitigation Grant funding; Library for Local Match	Short Term, once funding is secured	High	SIP
CAR-8 (LOI #1613)	Backup Power at Jewish Center: Purchase and install a generator system to power critical infrastructure at Temple Beth Shalom (water/plumbing, HVAC, kitchen equipment, emergency lighting) in the event of a power outage of any extended length. See Action Worksheet										
	See above.	Existing	Flood, Severe Storm, Severe	G-1, G-2, G-5	Jewish Center of the Mahopacs, Eytan Hammerman,	High - Reduced vulnerability	\$90,000	Federal Mitigation Grant funding;	Short Term, once funding is secured	High	SIP



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals / Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
			Winter Storm, Climate Change		Rabbi	of critical facility to power outages		Center for Local Match			
CAR-9	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 (2-RL), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost and willing participation of property owners. Specifically identified properties in the following locations: <ul style="list-style-type: none"> Tulip Lane, Mahopac Lakeshore Drive, Mahopac 										
	See above.	Existing	Flooding, Severe Storm	G-1, G-2, G-3	Town NFIP FPA; support from NYS DHSES and FEMA	High - Reduced or eliminated risk to property damage from flooding	High	FEMA or other mitigation grant funding, NFIP flood insurance and ICC; property owner for local match.	Long Term, dependent on funding and interested private property owners	High	SIP, EAP
CAR-10	Designate shelters for vulnerable populations	N/A	All Hazards requiring sheltering	G-1, G-3, G-5, G-6	Town of Carmel - Supervisor	High - Life Safety	Low - designation of shelters; Medium - High - Upgrades to support sheltering functions	Local Budget for designation of shelters	Short Term	High	EAP
CAR-11	Create a detention pond maintenance plan for the MS4 program	N/A	Flood, Severe Storm	G-2, G-4	Town of Carmel - Engineering Department	Reduced localized flooding; MS4 compliance	Medium - High	Local Budget	Short Term	Medium	SIP, NRP
CAR-12	Road Resurfacing - Resurfacing approx. 10 miles of Town roads	Existing	All Hazards	G-1, G-2	Town of Carmel - Highway Department	Reduced vulnerability of roads to damage from natural hazards; life-safety	\$1,000,000	Local Budget; Federal and State transportation and infrastructure grants as available	Ongoing - per the Town's long term road plan/program	Medium	SIP
CAR-13	Public Safety/Justice Center/Community Center - Perform upgrades so that facility can serve as a community disaster relief center and full-service public shelter.										
	See above.	Existing	All Hazards requiring sheltering	G-1, G-3, G-5, G-6	Town of Carmel - Supervisor	High - Life Safety	\$15,000,000	Available grant funding; Local Budgets for	Long term dependent on funding	High	SIP



Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals / Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category
CAR-14	Upgrade diesel fuel tank to adequately service maintenance trucks during power outage or fuel shortage.	Existing	All Hazards requiring support of Town vehicle fleet	G-1, G-5	Town of Carmel – Highway Department and Engineering	Life Safety	High	Local Budget	Short Term once funding is allocated	High	SIP
CAR-15	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities (see Section 9.1), specifically: <ul style="list-style-type: none"> Re-Establish Local Emergency Planning Committees (LEPCs) within the County, with an emphasis on stronger municipal level participation. (PCBES-1). Workshops and Seminars to build local capabilities in floodplain management and disaster recovery (PCBES-11), potentially to include: <ul style="list-style-type: none"> NFIP Community Rating System (CRS) Benefit-Cost Analysis (BCA) Substantial Damage Estimating (SDE) NFIP Elevation Certificates (EC) Certified Floodplain Manager (CFM) Training and Certification County-Wide Housing Location/Relocation Planning Initiative for Disaster Displaced Residents and Structures (PCBES-12) 										
	See above	New and Existing	All Hazards	All Objectives	Putnam County, as supported by relevant local department leads,	High (comprehensive improvements mitigation and risk-reduction capabilities)	Low-Medium (locally)	Local (staff resources)	Short	High	LPR, EAP

Notes:

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

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

Acronyms and Abbreviations:

CAV Community Assistance Visit
 CRS Community Rating System
 DPW Department of Public Works
 FEMA Federal Emergency Management Agency
 FPA Floodplain Administrator
 HMA Hazard Mitigation Assistance

N/A
 NFIP
 NYCDEP
 NYSDEC
 NYS DHSES

Not applicable
 National Flood Insurance Program
 New York City Department of Environmental Protection
 New York State Department of Environmental Conservation
 New York State Department of Homeland Security and Emergency Services
 Office of Emergency Management

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
 HMGP Hazard Mitigation Grant Program

PDM
 RFC
 SRL

Pre-Disaster Mitigation Grant Program
 Repetitive Flood Claims Grant Program
 Severe Repetitive Loss Grant Program



Timeline:

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

Costs:

Where actual project costs have been reasonably estimated:

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

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

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

Mitigation Category:

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

Benefits:

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

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

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

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



Table 9.3-11. 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
CAR-1 (LOI #406)	Dredge Lake Secor Outlet Stream	1	1	1	1	1	0	1	1	0	1	1	1	1	0	11	High
CAR-2 (LOI #409)	Strategic Roadway Tree Removals / Clearing	1	0	1	1	0	1	0	1	0	1	0	1	0	0	7	Medium
CAR-3 (LOI #411)	Engineering Hazard Evaluations of Town Park District Dams	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
CAR-4 (LOI #413)	Memory Lane Drainage Improvements	0	1	1	1	0	1	0	1	1	1	0	1	1	0	9	High
CAR-5 (LOI #1812)	Emergency Generators at Sewer Districts	0	0	1	1	1	1	0	1	0	1	0	1	1	0	8	High
CAR-6 (LOI #402)	Variable Message Sign Boards & portable light array	1	0	1	1	1	1	0	0	0	1	1	1	1	1	10	High
CAR-7 (LOI #1526)	Mahopac Public Library Backup Power	1	0	1	1	1	1	-1	1	1	1	1	1	1	1	11	High
CAR-8 (LOI #1613)	Backup Power at Jewish Center	1	0	1	1	1	1	-1	1	1	1	1	1	1	1	11	High
CAR-9	Address vulnerable private property, including RL/SRL	0	1	1	1	1	0	-1	1	0	-1	1	0	1	0	6	High*
CAR-10	Designate shelters for vulnerable populations	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
CAR-11	Create a detention pond maintenance plan for the MS4.	0	1	1	1	1	1	-1	1	1	-1	1	1	1	1	8	Medium
CAR-12	Road Resurfacing – Resurfacing approximately 10 miles of Roadway in the Town of Carmel	1	1	-1	1	1	1	-1	0	1	-1	1	1	1	0	6	Medium
CAR-13	Public Safety/Justice Center/Community Center Upgrades	1	0	1	1	1	1	-1	1	1	1	1	1	1	1	11	High
CAR-14	Upgrade diesel fuel tank to adequately service maintenance trucks during power outage or fuel shortage.	1	0	0	1	1	1	0	0	1	1	1	1	1	1	9	High
CAR-15	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities	1	1	1	1	1	1	0 (will require municipality to support staff time)	1	1	0 (will require municipality to support staff time)	1	1	1	1	12	High

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

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



9.3.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.3.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Carmel 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 Town of Carmel has significant exposure. These maps are illustrated below.

9.3.9 Additional Comments

None at this time.



Figure 9.3-1. Town of Carmel Hazard Area Extent and Location Map

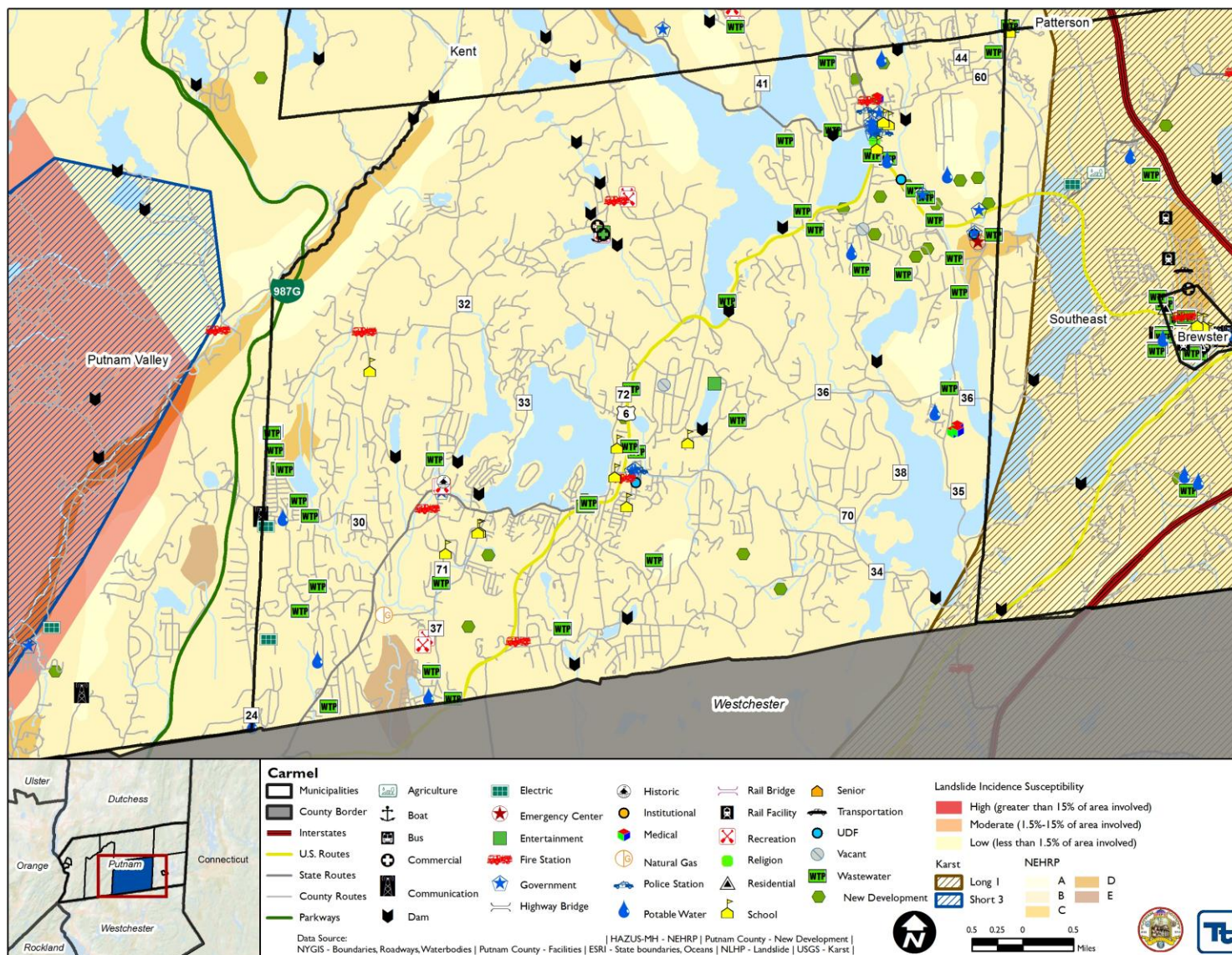
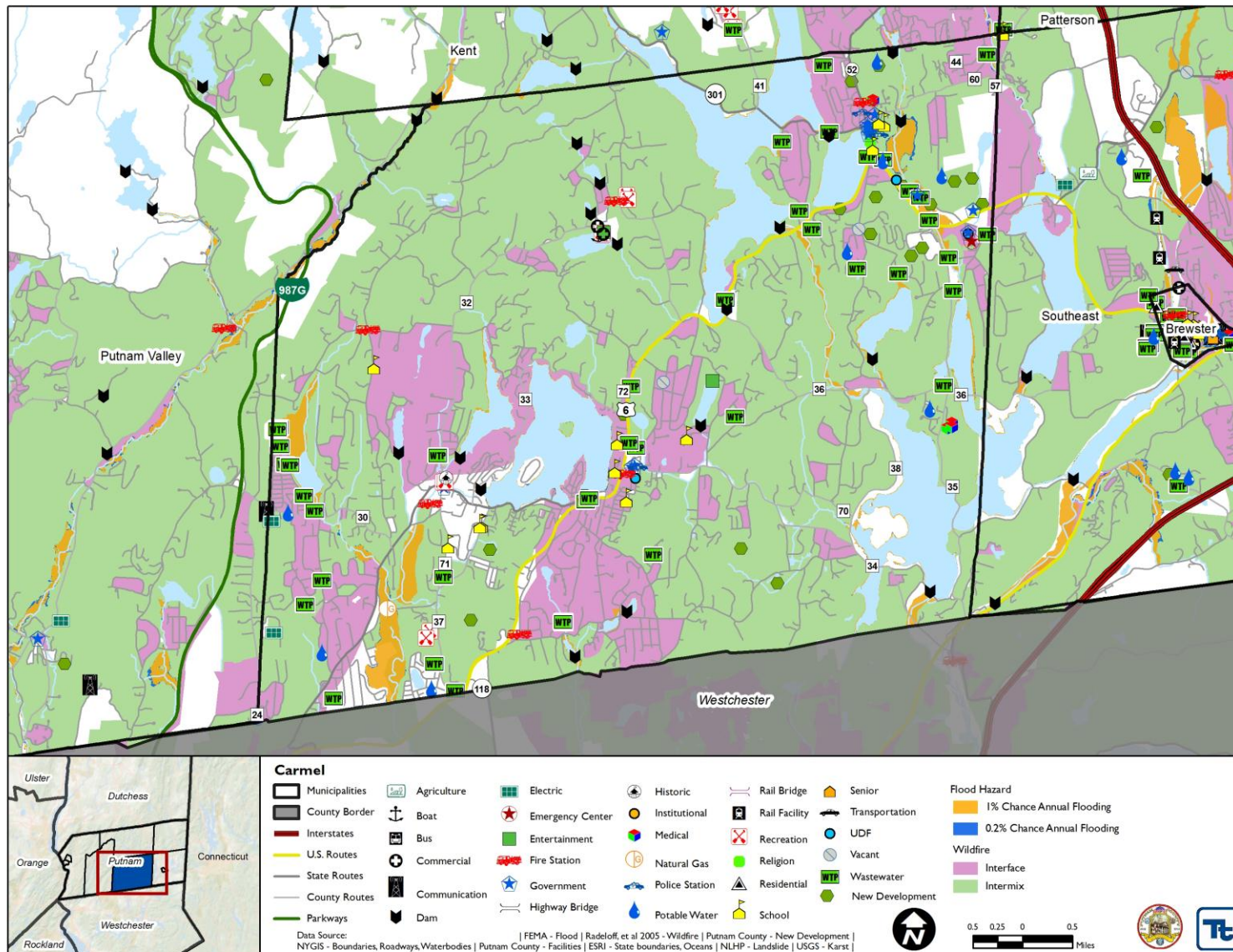




Figure 9.3-2. Town of Carmel Hazard Area Extent and Location Map





Name of Jurisdiction: Town of Carmel, Mahopac
Action Number: CAR-1 (LOI #406)
Action Name: Dredge Lake Secor Outlet Stream

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Climate Change
Specific problem being mitigated:	Lake Secor historically floods due to vegetation overgrowth within and along the outlet stream. This then causes flooding of properties and closure of roadways adjacent to the lake. These situations lasted for several days during and subsequent to the recent hurricanes.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Taking no action will result in continual flooding of roadways and home in this area, and potential impact on the public sewer system.
	2. Mitigate adjoining properties and infrastructure – not cost effective, would require cooperation of private property owners
	3. Dredge outlet stream
Action/Project Intended for Implementation	
Description of Selected Action/Project	Dredging of the outlet stream, from the Lake to Secor Road, will increase the hydraulic capacity of the outlet stream, and minimize, if not eliminate, flooding along the lakeshore.
Mitigation Action/Project Type	SIP, NRP
Objectives Met	G-2, G-4
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Reduced flood vulnerability of property and structures Recent Damages: \$100,000
Estimated Cost	\$250,000
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Carmel, Richard J. Franzetti, P.E., Town Engineer
Local Planning Mechanism	Stormwater Management Plans Emergency Management Plan
Potential Funding Sources	Federal Mitigation Grant Funding; Town for Local Match
Timeline for Completion	Short Term, once funding is secured
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: None to Date Progress on Action/Project: None to Date

* Refer to results of Prioritization (page 2)



Action Number:

CAR-1 (LOI #406)

Action Name:

Dredge Lake Secor Outlet Stream

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Continued flooding could jeopardize Human life
Property Protection	1	Significant as the project will mitigate existing flooding conditions that have resulted in the damage to Real Property
Cost-Effectiveness	1	
Technical	1	
Political	1	Area residents who live in the affected area have been requesting this work for several years
Legal	0	
Fiscal	1	
Environmental	1	The project will comply
Social	0	
Administrative	1	
Multi-Hazard	1	The project addresses hazards to both life and property.
Timeline	1	Design on the project could begin immediately. Work on the project will be subject to permitting by Regulatory Agencies.
Agency Champion	1	Town Engineer
Other Community Objectives	0	
Total	11	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Town of Carmel, Mahopac
Action Number: CAR-2 (LOI #409)
Action Name: Strategic Roadway Tree Removal/Clearing

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Severe Winter Storm, Climate Change
Specific problem being mitigated:	Selective tree cutting to minimize roadway closures during severe storm events, which have become more frequent, severe and unseasonal
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. Failure to take action will likely result in increased power outages and road closures.
	2.
	3.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Selective tree cutting to minimize roadway closures during severe storm events
Mitigation Action/Project Type	NRP
Objectives Met	G-1, G-2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Reduced change of power outages; life-safety; road closures Recent Damages: \$50,000
Estimated Cost	\$15,000
Priority*	Medium
Plan for Implementation	
Responsible Organization	Town of Carmel, Richard J. Franzetti, P.E., Town Engineer
Local Planning Mechanism	Emergency Management Plan, vegetation management programs
Potential Funding Sources	Federal Mitigation grants; town for Local Match
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: None to Date Progress on Action/Project: None to Date

* Refer to results of Prioritization (page 2)



Action Number:

CAR-2 (LOI #409)

Action Name:

Strategic Roadway Tree Removal/Clearing

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Fallen tree limbs could substantially impair emergency vehicle access to locations where emergency services are needed.
Property Protection	0	
Cost-Effectiveness	1	Preventative trimming and cutting is far more cost effective than repair of damaged that down trees and limbs cause.
Technical	1	Low tech project, no unusual equipment is required.
Political	0	
Legal	1	
Fiscal	0	
Environmental	1	The project will comply
Social	0	
Administrative	1	The project could be contracted out or the Town could utilize in house forces.
Multi-Hazard	0	
Timeline	1	The project could be implemented immediately.
Agency Champion	0	Town Engineer
Other Community Objectives	0	
Total	7	
Priority (High/Med/Low)	Medium	



Name of Jurisdiction:	Town of Carmel, Mahopac
Action Number:	CAR-3 (LOI #411)
Action Name:	Engineering Hazard Evaluations of Town Park District Dams

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Climate Change
Specific problem being mitigated:	The existing impoundments at Upper & Lower Teakettle, Mahopac and Casse Lakes, which lie within Town Park Districts, require NYSDEC hazard classification and possible upgrades, and development of Emergency Action Plans (EAP). Upon completion of these reports, recommended improvements will be implemented.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1 Failure to undertake these evaluations could result in a failure to identify existing and potential Dam Defects and provide corrective measures. 2 3
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Engineering evaluations will establish the adequacy of the spillways of each dam, as well as upgrades necessary to safely pass the DEC-mandated Design storm event so as to avoid catastrophic dam failure.
Mitigation Action/Project Type	SIP
Objectives Met	G-1, G-2, G-6
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	High – Life Safety; Reduced risk of structure and infrastructure damage from dam failure Recent Damages: \$0
Estimated Cost	\$1,200,000.00
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Carmel, Richard J. Franzetti, P.E., Town Engineer
Local Planning Mechanism	Dam EAP, Emergency Management Plan
Potential Funding Sources	Federal Mitigation or NYSDEC grant funding; Town Budget for Local Match
Timeline for Completion	Short Term
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: None to Date Progress on Action/Project: None to Date

* Refer to results of Prioritization (page 2)



Action Number:

CAR-3 (LOI #411)

Action Name:

Engineering Hazard Evaluations of Town Park District Dams

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Dam Failure could jeopardize human life
Property Protection	1	Dam failure could damage property
Cost-Effectiveness	1	Benefits to downstream neighbors out ways the cost
Technical	1	Technically feasible, Requires Design
Political	0	
Legal	1	The Town of Carmel has a legal obligation to perform this study and any work identified by the study.
Fiscal	0	
Environmental	1	Requires regulatory permitting. Will comply.
Social	1	
Administrative	1	Outside Engineering Firm will be required.
Multi-Hazard	1	
Timeline	1	The study portion of this project could begin immediately.
Agency Champion	1	Town Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Town of Carmel, Mahopac
Action Number: CAR-4 (LOI #413)
Action Name: Memory Lane Drainage Improvements

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Storm, Climate Change
Specific problem being mitigated:	Replacement/upgrade of existing roadway drainage piping, to eliminate roadway over-topping/washout in extreme storm events
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1 Failure to take action may result in storm impact to both Memory Lane and downstream homes
	2 Elevate roadway and all private property – not cost-effective
	3
Action/Project Intended for Implementation	
Description of Selected Action/Project	Increasing the size and capacity of the cross-culvert under Memory Lane will minimize roadway over-topping and possible roadway closure
Mitigation Action/Project Type	SIP
Objectives Met	G-1, G-2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Reduced damage to roadway; road closures; potential life-safety Recent Damages: \$10,000
Estimated Cost	\$75,000
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Carmel, Richard J. Franzetti, PE, Town Engineer
Local Planning Mechanism	Stormwater Management Plan
Potential Funding Sources	Federal Mitigation grant or Federal or State Highway grant; Town Budget for Local Match
Timeline for Completion	Short Term, once funding is secured
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: None to Date Progress on Action/Project: None to Date

* Refer to results of Prioritization (page 2)



Action Number:

CAR-4 (LOI #413)

Action Name:

Memory Lane Drainage Improvements

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Improvements will significantly reduce storm impacts on the residential area and help to reduce property Damage.
Cost-Effectiveness	1	This will be a fairly small capital outlay for the Benefits achieved.
Technical	1	This is an easily designed project and will result in a long term solution to the project.
Political	0	
Legal	1	
Fiscal	0	
Environmental	1	The project will substantially reduce existing erosion and sedimentation that occurs in this area which impairs the freshwater wetlands.
Social	1	
Administrative	1	
Multi-Hazard	0	
Timeline	1	The project could go to design phase immediately.
Agency Champion	1	Town Engineer
Other Community Objectives	0	
Total	9	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Town of Carmel, Mahopac
Action Number: CAR 5 (LOI #1812)
Action Name: Emergency Generators at Sewer Districts

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Severe Winter Storm, Climate Change
Specific problem being mitigated:	Install (5) gensets at various sewer pump stations; power outages from Hurricanes Irene & Sandy ranged up to several days
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1 No Action - Failure to provide back-up power to existing sewer pump stations could result in sewer spills 2 Install hook-ups and transfer switches to accept temporary generators – not a longterm mitigation solution to address this critical vulnerability 3
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase and install emergency power gensets, to avoid having to secure and temporarily place into service mobile trailer-mounted generator units
Mitigation Action/Project Type	SIP
Objectives Met	G-1, G-2
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Reduced vulnerability of critical facilities to power outages
Estimated Cost	\$100,000
Priority*	High
Plan for Implementation	
Responsible Organization	Richard J. Franzetti, P.E., Town Engineer
Local Planning Mechanism	Capital Improvement Plans, Stormwater Management Plan
Potential Funding Sources	Federal Mitigation Grant funding; Sewer District for Local Match
Timeline for Completion	Short Term, once funding is secured
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: None To Date Progress on Action/Project: None to Date

* Refer to results of Prioritization (page 2)



Action Number:

CAR 5 (LOI #1812)

Action Name:

Emergency Generators at Sewer Districts

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	0	
Cost-Effectiveness	1	Life of the genset is 20 plus years.
Technical	1	The project has not technical barriers as the Gensets are essentially off the shelf and can be incorporated into the location with relative ease.
Political	1	Health and Safety of Residents will be improved.
Legal	1	
Fiscal	0	
Environmental	1	
Social	0	
Administrative	1	Project is easily achievable and the gensets require little attention except for routine maintenance.
Multi-Hazard	0	
Timeline	1	The project could begin immediately.
Agency Champion	1	Town Engineer
Other Community Objectives	0	
Total	8	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Town of Carmel, Mahopac

Action Number: LOI #402

Action Name: Variable Message Sign Boards & portable light array

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	Resources limited in disseminating information to the community at large before, during, or after a disaster.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1 Failure to obtain such equipment will result in a decrease in the efficiency and effectiveness of dissemination of information.
	2
	3
Action/Project Intended for Implementation	
Description of Selected Action/Project	Purchase four (4) solar powered variable message boards to keep community abreast of developing situations before, during, and after a disaster event. By providing information to public during emergencies it will reduce risk to residents public health and safety
Mitigation Action/Project Type	EAP
Objectives Met	G-1, G-3, G-5
Applies to existing structures/infrastructure, future, or not applicable	N/A
Benefits (losses avoided)	By providing information to public during emergencies it will reduce risk to residents public health and safety Recent Damages: \$5,000
Estimated Cost	\$80,000.00
Priority*	High
Plan for Implementation	
Responsible Organization	Town of Carmel, Richard J. Franzetti, P.E., Town Engineer
Local Planning Mechanism	Emergency Management Plan, Public Information Programs
Potential Funding Sources	Federal or State EM or HLS grant; Town Budget for Local Match
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: None to Date Progress on Action/Project: None to Date

* Refer to results of Prioritization (page 2)



Action Number:

LOI #402

Action Name:

Variable Message Sign Boards & portable light array

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	The project is designed to get critical and often vital information out to residents in the event of a Hazard event that results in inability to provide communication via conventional means.
Property Protection	0	
Cost-Effectiveness	1	Very low capital outlay for the benefits achieved.
Technical	1	The project is a very low Tech solution.
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	No impact. It will comply
Social	0	
Administrative	1	The Town of Carmel has sufficient personnel to achieve the objectives
Multi-Hazard	1	
Timeline	1	Immediate purchase is possible.
Agency Champion	1	Town Engineer
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Mahopac Public Library, Carmel, NY
Action Number: CAR-7 (LOI #1526)
Action Name: Mahopac Public Library Backup Power

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Severe Winter Storm, Climate Change
Specific problem being mitigated:	Mahopac Public Library wishes to pursue funding in order to protect and enhance the reliability and continuity of power during and after a disaster in order to ensure uninterrupted communications and the full use of all of the Library's resources. The Library serves as a critical public resource, particularly to vulnerable populations.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1 No Action – Vulnerability of a critical facility serving vulnerable populations will continue to exist 2 Install hook-up and transfer switches to accept temporary generator – not a longterm mitigation solution to address this critical vulnerability 3
Action/Project Intended for Implementation	
Description of Selected Action/Project	The Library will purchase and install a back-up diesel generator and related equipment of sufficient capacity to provide 24/7 full building power coverage. Now that FEMA has designated public libraries as essential services, this project will enable the library to support the general population during power outages and other natural disasters and emergencies.
Mitigation Action/Project Type	SIP
Objectives Met	G-1, G-2, G-5
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Reduced vulnerability of critical facilities to power outages
Estimated Cost	\$230,000
Priority*	High
Plan for Implementation	
Responsible Organization	Mahopac Public Library, Patricia Kaufman, Director
Local Planning Mechanism	Comprehensive Emergency Management Plan, Capital Plan
Potential Funding Sources	Federal Mitigation Grant funding; Library for Local Match
Timeline for Completion	Short Term, once funding is secured
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)



Action Number:

LOI #1526

Action Name:

Mahopac Public Library Backup Power

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Health and Safety of Residents will be improved.
Property Protection	0	
Cost-Effectiveness	1	Highly cost-effective
Technical	1	The project has not technical barriers as the gensets are essentially off the shelf and can be incorporated into the location with relative ease.
Political	1	Supported by local government and residents.
Legal	1	Town and Library have full authority to implement.
Fiscal	-1	Will require funding.
Environmental	1	No environmental issues.
Social	1	Serves all portions of the population.
Administrative	1	Project is easily achievable and the gensets require little attention except for routine maintenance.
Multi-Hazard	1	
Timeline	1	The project could begin immediately.
Agency Champion	1	Library
Other Community Objectives	1	Sheltering; care of vulnerable populations
Total	11	
Priority (High/Med/Low)	High	



Name of Jurisdiction: Jewish Center of the Mahopacs, Mahopac
Action Number: CAR-8 (LOI #1613)
Action Name: Emergency Shelter/Comfort Station - Installation of electricity generator

Assessing the Risk	
Hazard(s) addressed:	Severe Storm, Severe Winter Storm, Climate Change
Specific problem being mitigated:	This synagogue served as an emergency shelter/comfort station and water/dry ice distribution center in the hours and days after multiple recent storms. However, we were only truly able to serve the community once power was restored to the synagogue building.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1 No Action – Vulnerability of a critical facility serving vulnerable populations will continue to exist 2 Install hook-up and transfer switches to accept temporary generator – not a longterm mitigation solution to address this critical vulnerability 3 .
Action/Project Intended for Implementation	
Description of Selected Action/Project	We will purchase and install a generator system to power critical infrastructure at Temple Beth Shalom (water/plumbing, HVAC, kitchen equipment, emergency lighting) in the event of a power outage of any extended length.
Mitigation Action/Project Type	SIP
Objectives Met	G-1, G-2, G-5
Applies to existing structures/infrastructure, future, or not applicable	Existing
Benefits (losses avoided)	Reduced vulnerability of critical facility to power outages
Estimated Cost	\$90,000
Priority*	High
Plan for Implementation	
Responsible Organization	Jewish Center of the Mahopacs, Eytan Hammerman, Rabbi
Local Planning Mechanism	Comprehensive Emergency Management Plan
Potential Funding Sources	Federal Mitigation Grant funding; Center for Local Match
Timeline for Completion	Short Term, once funding is secured
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:

* Refer to results of Prioritization (page 2)



Action Number:

CAR-8 (LOI #1613)

Action Name:

Emergency Shelter/Comfort Station - Installation of electricity generator

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Health and Safety of residents will be improved.
Property Protection	0	
Cost-Effectiveness	1	Highly cost-effective
Technical	1	The project has not technical barriers as the gensets are essentially off the shelf and can be incorporated into the location with relative ease.
Political	1	Supported by community
Legal	1	Center has full authority to implement.
Fiscal	-1	Will require funding.
Environmental	1	No environmental issues.
Social	1	Serves all portions of the population.
Administrative	1	Project is easily achievable and the gensets require little attention except for routine maintenance.
Multi-Hazard	1	
Timeline	1	The project could begin immediately.
Agency Champion	1	Center
Other Community Objectives	1	Sheltering; care of vulnerable populations
Total	11	
Priority (High/Med/Low)	High	