9.4 Town of Carmel

This section presents the jurisdictional annex for the Town of Carmel. It includes resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. This annex includes a general overview of the municipality and who in the Town participated in the planning process; an assessment of the Town of Carmel's risk and vulnerability; the different capabilities utilized in the Town; and an action plan that will be implemented to achieve a more resilient community.

9.4.1 Hazard Mitigation Planning Team

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

Table 9.4-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
Richard Franzetti, P.E., Town Engineer 60 McAlpin Ave 845-628-1500 ext.181 rjf@ci.carmel.ny.us	Rob Vara Engineering Projects Coordinator 60 McAlpin Ave 845-628-1500 ext 183 rjv2@ci.carmel.ny.us
NFIP Floodplain Administrator	
Richard Franzetti, P.E., Town Engineer 60 McAlpin Ave 845-628-1500 ext.181 rjf@ci.carmel.ny.us	

9.4.2 Municipal Profile

The Town of Carmel was initially settled by the Wappingers tribe, who then sold their land to Dutch Traders. In 1697, Adolph Philipse, a New York merchant, was granted the tract that became Putnam County from King George III. In April 1777, the Town had a brush with history when sixteen year-old Sybil Ludington traveled through the Town to summon a militia to repel a British attack upon Danbury, Connecticut. Carmel was founded in April 1795 and remained agricultural in nature until the mid-eighteenth century when the Town became a popular destination for city-dwellers.

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

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.

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

9.4.3 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction's overall risk to its hazards of concern. Table 9.4-2 summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development. Figure 9.4-1 at the end of this annex illustrates the geographically-delineated hazard areas and the location of potential new development, where available.

Table 9.4-2. Recent and Expected Future Development

Type of Development	2015		2016		2017		2018		2019	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ Outside regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	14	0	18	0	15	0	25	0	20	0
Multi-Family	6	0	4	0	4	0	1	0	9	0
Other (commercial, mixed-use, etc.)	2	0	3	0	0	0	1	0	1	0
Total	22	0	25	0	19	0	27	0	30	0

Property or Development Name	Type of Development	# of Units / Structures	Location (address and/or block and lot)	Known Hazard Zone(s)*	Description / Status of Development
Recent Major Development and Infrastructure from 2015 to Present					
Carmel Center Senior Housing - Lot 3	Residential	23 units	Terrace Dr. 55.14-1-11.3	N/A	Completed
Carmel Center Senior Housing - Lot 5	Residential	81 units of senior housing	Terrace Dr. 55.14-1-11.1	N/A	Completed
CVS	Commercial	1 building	-	N/A	Completed
Hillcrest Commons	Residential	74 units of senior housing	Rt. 52 44.10-1-4 & 44.9-1-51	N/A	Completed
P2 build out Hillcrest Commons	Residential	-	-	N/A	Building in Process
Lakeview Development at Carmel	Non-Residential	12,656 sq. ft. 2-story commercial building	1611 Rt. 6 55.9-1-17	N/A	Completed
McDonald's	Commercial	1 building	-	N/A	Completed
Meadowlands Car Dealership	Commercial	-	-	N/A	Completed
Nejame & Sons	Non-Residential	10,200 sq. ft. 2-story commercial building	133 Gleneida Ave. 44.9-1-16	N/A	Completed
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	N/A	In Progress
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
Gateway Hotel	Commercial	-	-	N/A	Inactive
Random Ridge Subdivision	Residential	Cluster 28 lot Subdivision	Kennicut 76.15-1-12	N/A	In progress
Union Square Redevelopment Zipkin Farm	Commercial	-	-	N/A	Inactive
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	N/A	Inactive
Yankee Land Development	Residential	14 lot residential subdivision	Bayberry Hill Rd. & Owen Dr. 76.15-1-12	N/A	Active
Braemar at Carmel	Commercial	- Assisted Living ~ 152 beds	49 Seminary Hill Rd 55.10-1-3	N/A	Active

The Fairways - Lot 7	Residential	150 units of senior housing	Rt. 6 44.-2-1.1 & 1.2	N/A	Active
Tompkins Recycling	Non-Residential	20,000 sq. ft. building	60 Old Rt. 6 55.11-1-15	N/A	Active
Old Forge Estates	Residential	14	-	N/A	
One Hundred Twelve Crossroads, L.P.	Residential	22 units of senior housing	1828 Rt. 6 55.6-1-42	N/A	Inactive
Parakesh Redevelopment	Commercial	-	-	N/A	Inactive
Parkash Estates, LLC	Non-Residential	10,304 sq. ft. commercial building	870 Rt. 6 65.13-1-54	N/A	Inactive
Swan Cove	Residential	10 residential units	628 Rt. 6 76.5-1-49	N/A	Inactive
Old Forge Estates	Residential	10 lot residential subdivision	Baldwin Place Rd., opposite Mahopac Schools Campus 75.15-1-19	N/A	Active
Gateway Summit - Lot 6	Residential	150 units of senior housing	Rt. 6 55.-2-24.6	N/A	Active
Gateway Summit - Staybridge Suites Hotel	Non-Residential	10,304 sq. ft. 123 room, 4-story hotel	2054 Rt. 6 55.-2-24.1	N/A	Inactive
Hickley Holdings LLC/ Paladin Group	Non-Residential	50,000 sq. ft. office building	39 Seminary Hill Rd. 55.10-1-1 & 3	N/A	Changed to Alexandrian Distillery
MacDonald Marine	Non-Residential	20,000 sq. ft. boat storage building	681 Union Valley Rd. 76.20-1-13	N/A	Inactive

SFHA Special Flood Hazard Area (1% flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

9.4.4 Capability Assessment

The Town of Carmel performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 6 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities.
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- The municipality's understanding of local capacity for adapting to current and future risks and changing conditions.

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, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress in plan integration. Areas with current mitigation integration are summarized in Capability Assessment (Section 9.4.4). The Town of Carmel identified specific integration activities that will be incorporated into municipal procedures are included in the updated mitigation strategy.

Planning, Legal, and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Carmel and where hazard mitigation has been integrated.

Table 9.4-3. Planning, Legal, and Regulatory Capability

	Does your municipality have this? (Yes/No)	Code Citation and Date (code chapter, name , date , link)	Authority (local, Town , state, federal)	Department / Agency Responsible	State Mandated	Have aspects of this been integrated into your mitigation plan? If no - can it be a mitigation action? If yes, add Mitigation Action #. (Tetra Tech to complete)	
Codes, Ordinances, & Requirements							
Building Code	Yes	The Uniform Code (19 NYCRR Parts 1219 to 1229)	Local and State	Building Department	Yes	No	--
Comments: *NYS Uniform and Energy Code 2020; Regulated at local and state levels. The Uniform Code (19 NYCRR Parts 1219 to 1229) now includes the 2015 editions of the code books published by the International Code Council (the "2015 I-Codes"), as amended by the publication entitled the 2017 Uniform Code Supplement (publication date: July 2017).. Article 18 of the Executive Law (§§ 370 through 383) establishes the State Fire Prevention and Building Code Council, directs the Code Council to promulgate and maintain the Uniform Code, and charges each city, town, and village in the State (with the exception of the City of New York) with the duty of administering and enforcing the Uniform Code within its municipal boundaries*.							
Zoning Code	Yes	Chapter 156, Adopted June 9, 1972	Local	Planning Board	No	No	--
Comment: *Article IX, Section 2, of the State Constitution and by the various state enabling statutes. In New York, the zoning enabling acts continue to require that zoning be undertaken "in accord with a well-considered plan"11 or "in accordance with a comprehensive plan."12 Unless the town, city or village has adopted a comprehensive plan document using the more recently-enacted statutes (described later herein), local officials must refer to the extensive body of case law to determine how zoning can meet the more general "comprehensive plan" requirement.**May be impacted by State wetland regulations which protect wetlands greater than 12.4 acres and established buffer zones. Regulated at local level*							
Subdivision Regulations	Yes	Chapter 131, Adopted June 9, 1972	Local	Local Planning Board	No	No	--
Comment: *Subdivision is defined in the State enabling Statutes as: the division of any parcel of land into a number of lots, blocks, or sites as specified i a local ordinance, law or regulation, with or without streets or highways, for the purpose of sale, transfer of ownership, or development. There is not a requirement by NYS for subdivisions. Each municipality is permitted to further define subdivision for its own purposes in connection with its subdivision review procedure. The enabling statutes provide that a plat showing a division of land which is subject to a municipality's subdivision regulations, may not also be subject to review under its site plan review authority. (general city law s. 32 & 33, Town Law s. 276 & 277, Village Law s. 7-728 & 7-730).*							
Stormwater Management Regulations	Yes	§156 X and XII	Town		Yes	No	--
Comment: *Codes Rules and Regulations of the State of New York, Title 6. Department of Environmental Conservation, Chapter X. Division of Water Resources, Subchapter A. General Article 3. State Pollutant Discharge Elimination System, Part 750. State Pollutant Discharge Elimination System(SPDES) Permits. New York Environmental Conservation Law, Article 17, Titles 7, 8 and Article 70. New development and redevelopment projects that result in a land disturbance of one acre or greater, including projects less than one acre if they are part of a larger common plan of development or sale or if controlling such activities in a particular watershed is require a permit by the Department*							
Post-Disaster Recovery Plan or Regulation	No	-	-	-	-	-	-
Comment:							
Real Estate Disclosure	Yes	Property Condition Disclosure Act, NY Code - Article 14 §460-467	State	NYS Department of State, Real Estate Agent	Yes	NA	NA
Comment: *In addition to facing potential liability for failing to disclose under the exceptions to "caveat emptor," a home seller must make certain disclosures under the law or pay a credit of $500 to the buyer at closing. While the PCDA requires a seller to complete a standardized disclosure statement and deliver it to the buyer before the buyer signs the final purchase contract, in practice, most home sellers in New York opt not to complete the statement and instead pay the credit.*							
Growth Management Regulation	Yes	Master Plan	Local	Town Board	No	No	--
Comment: *In New York State, virtually all land use regulation, which is the primarily tool for Smart Growth, takes place at the municipal level (i.e., in a city, village or town government). Land use planning is also primarily a municipal function. While State law provides for certain planning functions at the county or regional level, these mechanisms are largely advisory, whereas municipal planning is directly related to land use regulation.*							

	Does your municipality have this? (Yes/No)	Code Citation and Date (code chapter, name , date , link)	Authority (local, Town , state, federal)	Department / Agency Responsible	State Mandated	Have aspects of this been integrated into your mitigation plan? If no - can it be a mitigation action? If yes, add Mitigation Action #. (Tetra Tech to complete)	
Site Plan Review	Yes	General City Law s. 27-a, Town Law s. 247a, Village Law s. 7-725a	Local	Planning Board	No	No	--
Comment: *The authority to require site plan review is derived from the State enabling Statutes (General City Law s. 27-a, Town Law s. 247a, Village Law s. 7-725a)The local legislative body has the power to delegate site plan review to the planning board, zoning board, etc.*							
Environmental Protection	Yes	Title 6 NYCRR Part 617§89	State Town	DEC ECB	Yes	NA	NA
Comment: *New State Environmental Quality Review Act (SEQR) Title 6 NYCRR Part 617 Regulations are in effect as of January 1st, 2019*							
Flood Damage Prevention Law	Yes	§ 86, Adopted January 9, 2013.	Local, State, Federal	Engineering	Yes - BFE+2 feet for all construction in the SFHA (residential and non-residential)	No	--
Comment: *A community must adopt a Flood Damage Prevention Ordinance to participate in the National Flood Insurance Program.*							
Municipal Separate Storm Sewer System (MS4) Regulation	Yes	EPA Phase II Stormwater Rule and §156 X and XII	Federal	Engineering	Yes	No	--
Comment: *This requires urbanized areas (local governments) to develop a stormwater management program that will reduce the amount of pollutants carried by stormwater during storm events to waterbodies to the "maximum extent practicable". The goal of the program is to improve water quality and recreational use of waterways. A Municipal Separate Storm Sewer Systems Permit, GP-0-15-003 is required.*							
Emergency Management	Yes	NYS Executive Law, Article 2B.	Local	Local OEM	Yes	NA	NA
Comment: The development of the New York State Comprehensive Emergency Management Plan (CEMP) is required under NYS Executive Law, Article 2B.							
Climate Adaptation	No	NYS Executive Law, Article 75	Local	-	Yes	No	--
Comment: *The environmental conservation law was amended by adding ARTICLE 75 - CLIMATE CHANGE under Assembly Bill A. 8429 and Senate Bill S. 6599, dated June 18, 2019.*							
Disaster Recovery Ordinance	No	-	-	-	-	-	-
Comment:							
Disaster Reconstruction Ordinance	No	-	-	-	-	-	-
Comment:							
Other Applicable Codes, Ordinances, & Requirements	No	-	-	-	-	-	-
Comment:							
Planning Documents							
Comprehensive Plan	Yes	General City Law section 28a(3)(a); Town Law section 272-a(2)(a); Village Law section 7-722(2)(a)	Town	Town Board	No	No	--

	Does your municipality have this? (Yes/No)	Code Citation and Date (code chapter, name , date , link)	Authority (local, Town , state, federal)	Department / Agency Responsible	State Mandated	Have aspects of this been integrated into your mitigation plan? If no - can it be a mitigation action? If yes, add Mitigation Action #. (Tetra Tech to complete)	
Comment: *Optional under NYS Law, municipality may adopt a comprehensive plan or proceed through a planning process which has evolved based on case law. (Per State Legislature General City Law section 28a, Town Law s. 272a, Village Law s. 7-722) **May be impacted by State wetland regulations which protect wetlands greater than 12.4 acres and established buffer zones. Regulated at the local level*							
Capital Improvement Plan	Yes	General Municipal Law Section 99-g.	Town	Town Board	No	No	--
Comment: *A local government can decide to adopt its capital plan pursuant to General Municipal Law Section 99-g.*							
Disaster Debris Management Plan	No	-	Local	-	No	No	--
Comment: *Based on past experience with disaster management, it is apparent that local municipalities that have an Emergency Debris Management Plan in place are able to manage their emergency response in a more comprehensive and coordinated manner and are able to address recovery and clean up faster and more efficiently than those without plans. With that in mind, the Department developed an Emergency Management Plan Tool Kit. The NYSDEC (Department) strongly urges all municipal officials to conduct pre-disaster planning and prepare emergency debris management plans. The Department recommends that these plans should be reviewed and updated annually.*							
Floodplain or Watershed Plan	Yes	§86	Town	Engineering	No	No	--
Comment: *The State Pollutant Discharge Elimination System (SPDES) permit program is a primary way the DOW implements its watershed protection and restoration activities.*							
Stormwater Plan	Yes	§156 X and XII	Local	Engineering	No	No	--
Comment: *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. Stormwater management practices have been integrated into the Town Zoning Regulations.*							
Open Space Plan	Yes	NYS Constitution - Article 9; Statute of Local Governments. Section 10 (7)	Town	-	Yes	No	--
Comment: *Planning boards prepare or oversee the preparation of local comprehensive plans, which should include an open space element. The primary purpose of a local open space plan is to cause the important open lands in the community to be conserved for open space uses.*							
Urban Water Management Plan	No	-	Local	-	No	No	--
Comment:							
Habitat Conservation Plan	Yes	§ 89	Town	ECB	No	No	--
Comment: *Laws related to habit protection and biodiversity control the use and application of certain pesticides, demolition projects and clearing of vegetated areas. Identifying certain critical habitat areas could be included in the Comprehensive Plan. Critical Habitat is a part of certain State and Federal Permitting. The State had a Wildlife Action Plan requires to maintain eligibility for the State Wildlife Grant Program. The purpose of the Environmental Conservation Board (ECB) of the Town of Carmel is to protect, preserve, properly maintain and require prudent use of the wetlands, bodies of water and watercourses and their associated wildlife within the Town of Carmel.*							
Economic Development Plan	No	-	Local	-	No	No	--
Comment: *An Economic Development Plan may be prepared by a local government and be included or separate from the Comprehensive plan.**May be impacted by State wetland regulations which protect wetlands greater than 12.4 acres and established buffer zones.*							
Shoreline Management Plan	No	Article 34, Environmental Conservation Law, Coastal Erosion Hazard Areas 6 NYCRR Part 505, Coastal Erosion Management Regulations	Local	-	Yes	No	--

	Does your municipality have this? (Yes/No)	Code Citation and Date (code chapter, name , date , link)	Authority (local, Town , state, federal)	Department / Agency Responsible	State Mandated	Have aspects of this been integrated into your mitigation plan? If no - can it be a mitigation action? If yes, add Mitigation Action #. (Tetra Tech to complete)	
Comment: *Pertains to areas in the Coastal Erosion Hazard Area (CEHA) (Article 34, Environmental Conservation Law, Coastal Erosion Hazard Areas; 6 NYCRR Part 505, Coastal Erosion Management Regulations); the Town of Carmel is not located within the CEHA.*							
Community Wildfire Protection Plan	No	-	Local	-	No	No	--
Comment:							
Forest Management Plan	No	§-142	Local	ECB	No	No	--
Comment:							
Transportation Plan	No	-	Local	-	No	No	--
Comment:							
Agriculture Plan	No	NYCRR Part 390 Agricultural and Farmland Protection -	Local	-	Yes	No	--
Comment: *Municipalities may develop agricultural and farmland protection plans, in cooperation with cooperative extension and other organizations, including local farmers; however, the Town of Carmel does not have an agriculture plan.*							
Other (tourism, business dev, etc.)							
Comment:							
Response/Recovery Planning							
Comprehensive Emergency Management Plan	Yes	NYS Executive Law, Article 2B	Town	Supervisor	Yes	No	--
Comment: *The development of the New York State Comprehensive Emergency Management Plan (CEMP) is required under NYS Executive Law, Article 2B. The plan is developed and maintained by the New York State Office of Emergency Management and agencies that comprise the NYS Disaster Preparedness Commission (DPC).The Town of Carmel has a CEMP and it is maintained by the Town Supervisor.*							
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	Local	Local OEM	Yes	No	--
Comment: *HIRA is an annual requirement that all states must complete to remain eligible to receive federal homeland security grant funding. It also involves a hazard and capability assessment but DHSES has several methodological concerns with the THIRA process and has developed CEPA to serve as the State's system to capture and analyze hazard/capability information. However, CEPA has been engineered to support the completion of the THIRA.*							
Post-Disaster Recovery Plan	No	-	Local	-	No	No	--
Comment:							
Continuity of Operations Plan	No	-	Local	-	No	No	--
Comment:							
Public Health Plan	No	-	Local	-	-	No	--
Comment:							
Other: Emergency Response Plan	No	-	Local		No	No	--
Comment: *Nothing is mandated by law in NYS, however, article 2B of the Executive Law provides for authority to draft emergency plans by various levels of government in NYS.*							
Other: Special Purpose Ordinances (such as critical or sensitive areas)							
Comment:							

Table 9.4-4. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Response Yes/No; Provide further detail
Development Permits. If yes, what department?	Yes- Engineering, Building, Planning, Zoning, ECB
Permits are tracked by hazard area. For example, floodplain development permits.	Yes
Buildable land inventory If yes, please describe If no, please quantitatively describe the level of buildout in the jurisdiction.	No, may be developed as part of the comprehensive plan

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Carmel.

Table 9.4-5. Administrative and Technical Capabilities

Resources	Available? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Warning Systems / Services (Mass notification system, outdoor warning signals)	Yes	Police, Fire, County
Maintenance programs to reduce risk	Yes	-
Mutual aid agreements	Yes	Town Board/Highway
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering/Planning
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering/Building
Planners or engineers with an understanding of natural hazards	Yes	Engineering
Staff with expertise or training in benefit/cost analysis	Yes	Engineering
Professionals trained in conducting damage assessments	Yes	Engineering/Building
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Scientist familiar with natural hazards	No	-
NFIP Floodplain Administrator (FPA)	Yes	Engineering
Surveyor(s)	No	-
Emergency Manager	Yes	Supervisor/Engineering
Grant writer(s)	Yes	Engineering/Town Board
Resilience Officer	No	-
Other	No	-

Fiscal Capability

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

Table 9.4-6. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes

Financial Resources	Accessible or Eligible to Use (Yes/No)
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
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No
Other	No

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Carmel.

Table 9.4-7. Education and Outreach Capabilities

Indicate if your jurisdiction has the following resources	Yes/No; Please describe
Public information officer or communications office?	No
Personnel skilled or trained in website development?	No
Hazard mitigation information available on your website; if yes, describe	No
Social media for hazard mitigation education and outreach; if yes, briefly describe.	No
Citizen boards or commissions that address issues related to hazard mitigation; if yes, briefly describe.	No
Other programs already in place that could be used to communicate hazard-related information; if yes, briefly describe.	VMB's/Email Notification
Warning systems for hazard events; if yes, briefly describe.	VMB's/Email Notification
Natural disaster/safety programs in place for schools; if yes, briefly describe.	No
Other	No

Community Classifications

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

Table 9.4-8. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
NYSDEC Climate Smart Community	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Other	No	-	-

Note:
N/A *Not applicable*
NP *Not participating*
- *Unavailable*

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). In other words, it describes a jurisdiction's current ability to adjust to, protect from, or withstand a hazard event. This term is often discussed in reference to climate change; however, adaptive capacity also includes an understanding of local capacity for adapting to current and future risks and changing conditions. The table below summarizes the adaptive capacity for each hazard and the jurisdiction's rating.

Table 9.4-9. Adaptive Capacity of Climate Change

Hazard	Adaptive Capacity (Capabilities) - High/Medium/Low*
Disease Outbreak	Low
Drought	Medium
Earthquake	Medium
Extreme Temperature	Medium
Flood	Medium
Harmful Algal Bloom	Low
Severe Weather	Medium
Severe Winter Weather	Medium
Terrorism	High
Wildfire	Medium

**High* *Capacity exists and is in use*
Medium *Capacity may exist; but is not used or could use some improvement*
Low *Capacity does not exist or could use substantial improvement*
Unsure *Not enough information is known to assign a rating*

National Flood Insurance Program

This section provides specific information on the management and regulation of the regulatory floodplain.

NFIP Floodplain Administrator (FPA)

Richard Franzetti, PE Town Engineer

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Town of Carmel.

Table 9.4-10. NFIP Summary

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties
Town of Carmel	73	122	$288,727	10

Source: *FEMA 2020*
Notes: *Policies, claims, and loss statistics provided by FEMA Region 2, and current as of July 28, 2020 The total number of repetitive loss properties does not include severe repetitive loss properties.*

RL Repetitive Loss

Resources

The Town of Carmel's Engineering Department is responsible for floodplain management. The Department does not have certified floodplain managers but indicated that no assistance is required to support the existing program and that there are no known barriers to running an effective NFIP program. The Department indicated its availability to use resources for future flooding conditions resulting from climate change.

The extent of the Department's NFIP services include the review of submittals to the Planning Board, Environmental Conservation Board, and Building Department and comparing these submittals against FEMA flood maps. The applicant is requested to fill out the Town of Carmel's permit applications. If there is any encroachment of the building into the floodplain, the applicant will be required to modify their application.

Compliance History

The Town is currently in good standing in the NFIP. According to FEMA, the most recent CAV was conducted on June 27, 2017.

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.

Regulatory

The communities 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.

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

Additional Areas of Existing Integration

- **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.

- The Town's **Freshwater Wetlands, Land Subdivision, and Zoning ordinances** support floodplain management administration and regulation.

- The **Zoning Plan** is integrated into the establishment of Conservation Districts within the town, with flood hazard areas shown according to the Federal Department of Housing and Urban Development National Flood Insurance Program. All development in these areas must be approved by the Planning Board and Department of Environmental Conservation.

- **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. Stormwater management practices have been integrated into the Town Zoning Regulations.

- **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.

- **Flood Management:** The Flood Damage Prevention Plan has been integrated with the Comprehensive Plan, and the Subdivision of Land Regulations.

Evacuation, Sheltering, Temporary Housing, and Permanent Housing

Evacuation routes, sheltering measures, temporary housing, and permanent housing must all be in place and available for public awareness to protect residents, mitigate risk, and relocate residents, if necessary, to maintain post-disaster social and economic stability.

Evacuation Routes

The only evacuation route in the Town exists for the Indian Point Energy Center. A small portion of Southwest Carmel is within a 10-mile radius of the Indian Point Energy Center. This portion of the Town is within the Southwest Carmel Emergency Planning Zone. The Carmel High School is a designated Reception Center. NYS Route 6N is a designated route to the Reception Center via the Taconic State Parkway, Peekskill Hollow Road, and NYS Route 301.

Sheltering

The Town does not have any sheltering agreements in place.

Temporary Housing

The table below shows temporary housing locations available in the Town of Carmel:

Table 9.4-11. Temporary Housing Location in the Municipality

Site Name	Site Address	Infrastructure / Utilities Available (water, electric, septic, etc.)	Capacity (number of sites)	Type	Actions Required to Ensure Conformance with the NYS Uniform Fire Prevention and Building Code
Camarda Park	226 Seminary Hill Road Carmel 10512	Water and septic	25	Field	Temporary trailers
Airport Property (owned by Putnam County)	161-165 Hill Street Mahopac 10541	Water and septic	50	Field	Temporary trailers
Baldwin Meadows	24 Grand Meadow Drive Mahopac 10541	none	25	Field	Temporary trailers

Permanent Housing

The Town does not have planned permanent housing locations related to hazards. The Town anticipates that the undeveloped locations noted in Table 9.4-2 will absorb housing demand.

9.4.5 Hazard Event History Specific to the Town of Carmel

Putnam County has a history of natural hazard events as detailed in Volume I, Section 5 (Risk Assessment) 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 Town of Carmel's history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Putnam County. Table 9.4-12 provides details regarding municipal-specific loss and damages the Town of Carmel experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.4-12. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
May 5, 2015-February 23, 2016	Drought	N/A	The latter half of 2015 saw abnormally dry conditions, with D1 ("Moderate drought") conditions observed May 19th to June 15th and in September through December.	Carmel utilized water trucks during this drought period, costing $4,800
April 19, 2016-May 8, 2017	Drought	N/A	Drought and abnormally dry conditions persisted for more than a calendar year between spring 2016 and 2017. Between October 2016 and March 2017, severe drought conditions occurred and between mid-November and January extreme drought conditions occurred for portions of the County.	Carmel utilized water trucks during this drought period, costing $18,000.
October 29-30, 2017	Storm	N/A	A strong Nor'easter impacted much of the Northeast, bringing high winds and widespread power failures.	Due to the storm there are some power failures and high sewer flows last night into this morning. Dry Ice was distributed at Town Hall
March 2 and 7, 2018	Nor'easters Riley and Quinn	N/A	A low-pressure system bringing moderate amount Between 15 and 20 inches of snow was reported to fall in Putnam County following a winter storm that brought down power lines and tree limbs owing to wet	The nor'easters caused extensive damage in Carmel. Power outages caused high flow at pump station, resulting in the pump stations later being pumped out. Emergency

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			snow and wind gusts. s of snow to the region, On March 7.	delivery of diesel fuel was needed for generators. Electrical failures caused need for electricians. The Town rented a generator to continue services.
May 15, 2018	Tornado	N/A	Severe thunderstorms and tornadoes followed a cold front in the lower Hudson Valley.	The tornado caused power outages throughout Town. CWD 8 Crest Road tanks booster pumps needed replacement due to electric surge. Power outages caused need to emergency delivery of diesel fuel was needed for generators
February 7, 2020	Tree Down/power outage	N/A	Unseasonably warm and humid conditions preceded an area of rapidly deepening low pressure moving through the mid-Atlantic. Wind shifts and temperature gradients led to the intensifying of the regional storm system, which cause tornadoes throughout the Mid-Atlantic.	Highway responded for tree clean up. Water/Sewer Operators work extra to maintain operations. There is downed power line in front of the Temple on Route 6 which has cause a power outage along portions of the Route 6 corridor.
April 13, 2020	Winds/Rain	N/A	Strong winds downed trees throughout the region. Wind speeds were recorded at 50 mph.	The storm caused multiple power outages in the Carmel/Mahopac area due to the high winds and trees falling. Electric surges caused water and sewer equipment to be replaced (booster pumps at CWD 6, CWD Intake pumps, CWD 4 and 12 well motors)

Notes:

EM *Emergency Declaration (FEMA)*
FEMA *Federal Emergency Management Agency*
DR *Major Disaster Declaration (FEMA)*
N/A *Not applicable*

9.4.6 Hazard Ranking and Jurisdiction-Specific Vulnerabilities

The hazard profiles in Section 5.0 (Risk Assessment) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town's risk assessment results and data used to determine the hazard ranking.

Critical Facilities

New York Department of Environmental Conservation (DEC) Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a Special Flood Hazard Area (SFHA) unless constructed according to specific mitigation specifications, including being raised 2' above the Base Flood Elevation (BFE). This statute is outlined at http://tinyurl.com/6-CRR-NY-502-4. While all vulnerabilities should be assessed and documented, the State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 500-year flood even, or worst damage scenario. For those that do not meet this criteria, the jurisdiction must identify an action to achieve this level of protection (NYS DHSES 2017).

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazards United States (HAZUS) – Multi-Hazards (MH) estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.4-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Addressed by Proposed Action
		1% Event	0.2% Event	
PHC- EMERGENCY ROOM	Medical	X	X	003
CROTON FALLS DAM	Dam	X	X	003
LAKE MAHOPAC DAM	Dam	X	X	002; 003
SD4 PUMP STATION	Potable Water	X	X	003
CARMEL AUXILIARY DIKE	Dam	X	X	003
SENIOR CITIZEN BUILDING	Senior Facility	X	X	003
COVECARE CENTER	Medical	X	X	003
PUTNAM ASSOCIATED RESOURCE CENTER	Government	X	X	003
CARMEL HISTORICAL SOCIETY	Cultural	X	X	003
PUTNAM COUNTY PERSONNEL/MISC SERVICES	Government	X	X	003
SD2 KELLY ROAD PUMP	Potable Water	X	X	003
CARMEL DAM	Dam	X	X	003
SD2 PUTNAM PLAZA PUMP STATION	Potable Water	X	X	003
SEWER PLANT 2 PRIMARY SETTING TANK	Wastewater	X	X	003
CARMEL WASTE WATER	Wastewater	X	X	003

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 (Risk Assessment) of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 5.3 (Hazard Ranking), each participating jurisdiction may have differing degrees of risk exposure and vulnerability compared to Putnam County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Carmel. The Town of Carmel has reviewed the county hazard risk/vulnerability risk ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Town of Carmel indicated the following:

- The Town adjusted the ranking for Harmful Algal Bloom from low to high due to the frequency of occurrence and recent events in the municipality.

Table 9.4-14. Hazard Ranking Input

Disease Outbreak	Drought	Earthquake	Extreme Temperature	Flood
Medium	Medium	Low	Medium	Low

Harmful Algal Bloom	Severe Weather	Severe Winter Weather	Terrorism	Wildfire
High*	High	High	Medium	Medium

Note: The scale is based on the following hazard rankings as established in Section 5.3.

**The municipality changed the initial ranking of this hazard based on event history, municipal experience, and feedback from the municipality*

Identified Issues

The municipality has identified the following vulnerabilities within their community:

- 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 spillway overflow when debris has built up and the gates have not been opened, causing localized flooding.

Specific areas of concern based on resident response to the Putnam County Hazard Mitigation Citizen survey include:

- A resident noted that electric outages can be attributed to trees and branches falling on Union Valley Road, as well as street and pond flooding.
- A resident noted that tree growth above and adjacent to power lines (including major feeders) needs to be trimmed. The resident noted that NYSEG response has improved but needs improvement.

9.4.7 Mitigation Strategy and Prioritization

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

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2015 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.

Table 9.4-15. Status of Previous Mitigation Actions

Project #	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in 2020 HMP or Discontinue 2. If including action in the 2020 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
CAR-1 (LOI #406)	Dredge Lake Secor Outlet Stream:	Flood, Severe Storm, Climate Change	Town of Carmel, Richard J Franzetti, Town Engineer	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.	No progress	Cost		1. Continue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-2 (LOI #409)	Strategic Roadway Tree Removals / Clearing	Severe Storm, Severe Winter Storm, Climate Change	Highway Superintendent	Selective tree cutting to minimize roadway closures during severe storm events.	In progress	Cost		1. Continue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-3 (LOI #411)	Engineering Hazard Evaluations of Town Park District Dams:	Flood, Severe Storm, Climate Change	Town of Carmel, Richard J Franzetti, PE, Town Engineer	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.	In progress	Cost		1. Continue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-4 (LOI #413)	Memory Lane Drainage Improvements:	Flood, Severe Storm, Climate Change	Highway Superintendent	Increasing the size and capacity of the cross-culvert under Memory Lane will minimize roadway over-topping and possible roadway closure	No progress	Cost		1. Continue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-5 (LOI #1812)	Emergency Generators at Sewer Districts:	Flood, Severe Storm, Severe Winter Storm, Climate Change	Town of Carmel, Richard J Franzetti, PE, Town Engineer	Purchase and install emergency power gensets, to avoid having to secure and temporarily place into service mobile trailer-mounted generator units.	Completed	Cost	Varied per district	1. Discontinue
						Level of Protection		
						Damages Avoided; Evidence		

Project #	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in 2020 HMP or Discontinue 2. If including action in the 2020 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						of Success		
CAR-6 (LOI #402)	Variable Message Sign Boards & portable light array	All Hazards	Town of Carmel, Town Engineer	Purchase solar powered variable message boards to keep community abreast of developing situations before, during, and after a disaster event.	Completed	Cost Level of Protection Damages Avoided; Evidence of Success	$32,600 N/A Community is better aware of hazards	1. Discontinue
CAR-7 (LOI #1526)	Mahopac Public Library Backup Power	Flood, Severe Storm, Severe Winter Storm, Climate Change	Mahopac Public Library, Patricia Kaufman, Director	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.	NP	Cost Level of Protection Damages Avoided; Evidence of Success		1. Discontinue- not a Town-owned property
CAR-8 (LOI #1613)	Backup Power at Jewish Center	Flood, Severe Storm, Severe Winter Storm, Climate Change	Jewish Center of the Mahopacs, Current Rabbi	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.	NP	Cost Level of Protection Damages Avoided; Evidence of Success		1. Discontinue- not a Town-owned property
CAR-9	Promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain	Flooding, Severe Storm	Town NFIP FPA; support from NYS DHSES and FEMA	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: Lakeshore Drive, Mahopac	NP	Cost Level of Protection Damages Avoided; Evidence of Success		1. Continue

Project #	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in 2020 HMP or Discontinue 2. If including action in the 2020 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
CAR-10	Designate shelters for vulnerable populations	All Hazards requiring sheltering	Town of Carmel - Supervisor	Designate shelters for vulnerable populations	NP	Cost		1. Continue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-11	Create a detention pond maintenance plan for the MS4 program	Flood, Severe Storm	Town of Carmel – Engineering Department	Create a detention pond maintenance plan for the MS4 program	NP	Cost		1. Discontinue- no longer a priority
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-12	Road Resurfacing	All Hazards	Town of Carmel – Highway Department	Resurfacing approx. 10 miles of Town roads	In progress	Cost		1. Continue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-13	Public Safety/Justice Center/Community Center	All Hazards requiring sheltering	Town of Carmel - Supervisor	Public Safety/Justice Center/Community Center – Perform upgrades so that facility can serve as a community disaster relief center and full-service public shelter.	NP	Cost		1. Continue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-14	Upgrade diesel fuel tank to adequately service maintenance trucks during power outage or fuel shortage.	All Hazards requiring support of Town vehicle fleet	Town of Carmel – Highway Department and Engineering	Upgrade diesel fuel tank to adequately service maintenance trucks during power outage or fuel shortage.	Complete	Cost	TBD	1. Discontinue
						Level of Protection		
						Damages Avoided; Evidence of Success		
CAR-15						Cost		

Project #	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in 2020 HMP or Discontinue 2. If including action in the 2020 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities	All Hazards	Putnam County, as supported by relevant local department leads,	• 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: o NFIP Community Rating System (CRS) o Benefit-Cost Analysis (BCA) o Substantial Damage Estimating (SDE) o NFIP Elevation Certificates (EC) o Certified Floodplain Manager (CFM) Training and Certification • County-Wide Housing Location/Relocation Planning Initiative for Disaster Displaced	NP	Level of Protection		1. Continue
						Damages Avoided; Evidence of Success		

Project #	Project Name	Hazard(s) Addressed	Responsible Party	Brief Summary of the Original Problem and the Solution (Project)	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if complete)		Next Steps 1. Project to be included in 2020 HMP or Discontinue 2. If including action in the 2020 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
				Residents and Structures (PCBES-12)				

Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Carmel did not identify mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2015 plan.

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Carmel participated in a mitigation action workshop in August 2020 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: Putnam County Mitigation Catalog and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

Error! Reference source not found. summarizes the comprehensive-range of specific mitigation initiatives the Town of Carmel would like to pursue in the future to reduce the effects of hazards. 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

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 your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.4-17 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.

Table 9.4-16. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
2020-Carmel-001	Carmel Repetitive Loss	G-1 G-2 G-4 G-5	Flood	**Problem**: Due to frequent flooding events in the Town of Carmel, there are 10 repetitive loss properties, based on NFIP data. The properties have experienced repetitively flooding as documented by paid NFIP claims. Without mitigation, the properties will continue to be vulnerable to future flood events. **Solution**: The municipality will conduct an outreach program to all repetitive loss properties. The outreach will inform the property owners of this repetitive loss status and provide mitigation alternatives that the property can do to protect the structure from future flood losses. If the property owner is interested in structural mitigation measures, the municipality will collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement the mitigation measure chosen (acquisition, elevation, moving).	N	None	Annual	TOC	None	Awareness of property hazards and mitigation possibilities	None	High	EAP	PP
2020-Carmel-002 (Former CAR-9)	Lake Mahopac Dam Repairs	G-1 G-5	Lake Mahopac	**Problem**: The New York State Department of Environmental Conservation (NYSDEC) has stipulated an Order on Consent (OOC) that requires an engineering assessment (EA) to meet NYSDEC Dam safety requirements **Solution**: Perform an environmental assessment and	Yes	N	Per NYSDEC OOC	TOC	$100,.000 for EA	Continued/enhanced protection afforded by dam	bonding	Medium	SIP	SP

Table 9.4-16. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
				remedy identified deficiencies in the Lake Mahopac Dam.										
2020-Carmel-003	Critical Facility Outreach	G-1 G-2 G-4	Flood	**Problem**: According to FEMA flood maps for the community, numerous critical facilities are located within the 1% annual chance flood area. During periods of heavy rain or a flood event could cause severe damage to the property. **Solution**: The municipality will notify the facility owner/operator that the structure is located within a floodplain and provide various floodproofing measures that the owner/operator can implement to protect the structure.	Yes	N	1 Year	TOC	None	Critical facility owners informed of vulnerability and mitigation options.	Existing funds	Medium	EAP	PI
2020-Carmel-004 (Former CAR-1) (LOI #406)	Dredge Lake Secor Outlet Stream:	G-1 G-3 G-5	Flood, Severe Storm	**Problem**: 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. **Solution**: 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.	Yes	Yes- need for permits due to modification to stream bottom	Short Term, once funding is secured	Town of Carmel	$250,000	Reduced flood vulnerability	Town funds	Medium	SIP	NR
2020-Carmel-005	Strategic Roadway Tree	G-1 G-3 G-5	Severe Storm, Severe	**Problem**: Selective tree cutting to minimize roadway closures during severe storm events,	No	Possible-vegetation removal	Short Term	Town of Carmel	$15,000	Reduced change of power outages; life-safety; road closures	HMGP	Medium	SIP	NR

Table 9.4-16. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
(Former CAR-2)	Removals / Clearing		Winter Storm	which have become more frequent, severe and unseasonal **Solution**: Selective tree cutting to minimize roadway closures during severe storm events										
2020-Carmel-006 (Former CAR-3)	Engineering Hazard Evaluations of Town Park District Dams:	G-1 G-5	Flood, Severe Storm	**Problem**: 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. **Solution**: 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.	No	Possible ground/water disturbances	Short Term	Town of Carmel	$1.2M	Life Safety; Reduced risk of structure and infrastructure damage from dam failure	HMGP; NYSDEC; Town match	Medium	SIP	PR
2020-Carmel-007 (Former CAR-4)	Memory Lane Drainage Improvements:	G-1 G-3 G-5	Flood; Severe storms	**Problem**: Replacement/upgrade of existing roadway drainage piping, to eliminate roadway over-topping/washout in extreme storm events **Solution**: Increasing the size and capacity of the cross-culvert under Memory Lane will minimize roadway over-topping and possible roadway closure	No	Modification to drainage may entail permits and stormwater mitigation	Short-Term	Town of Carmel	$75,000	Reduced damage to roadway; road closures; potential life-safety	HMGP; CHIPS; Town grant	Medium	SIP	SP
2020-Carmel-008	Designate shelters for	G-1 G-2 G-4	All hazards	**Problem**: Additional shelters are needed to house residents during hazard events.	Yes	None	Short Term	Town of Carmel - Supervisor	Low – designation of shelters;	Life safety	Local Budget for	Medium	EAP	ES

Table 9.4-16. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	EHP Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
(Former CAR-10)	vulnerable populations			**Solution**: The Town will designate additional shelters to support residents.					Medium – High – Upgrades to support sheltering functions		designation of shelters			
2020-Carmel-009 (Former CAR-12) (Former CAR-12)	Road Resurfacing	G-1	All hazards	**Problem**: Roads throughout the Town are in varying shape due to weathering and use. **Solution**: Resurface Town streets based on priority/need.	No	None	Ongoing – per the Town's long term road plan/program	Town of Carmel – Highway Department	$1,000,000	Reduced vulnerability of roads to damage from natural hazards; life-safety	Local Budget; Federal and State transportation and infrastructure grants as available	Medium	SIP	SP
2020-Carmel-010 (Former CAR-13)	Public Safety/Justice Center/Community Center	G-1 G-2 G-4	All hazards	**Problem**: The Justice Center requires upgrades in order to function as a shelter. **Solution**: Upgrade Public Safety/Justice Center/Community Center building in order to function as a shelter during hazard events.	Yes	None	Short Term once funding is allocated	Town of Carmel – Highway Department and Engineering	$15,000,000	Life safety	Available grant funding; Local Budgets for local share Local Budget	Medium	SIP	ES
2020-Carmel-011 (Former CAR-15)	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities	G-1 G-2 G-5	All hazards	**Problem**: The Town is interested in enhancing its capacity to withstand hazards and desires to participate in local/region mitigation and risk-reduction capability trainings. **Solution**: In conjunction with nearby communities and/or the County, the Town can participate in re-established Local Emergency Planning Committees (LEPCs) and workshops and seminars for both the public and municipal staff.	No	None	Short term	Putnam County, as supported by relevant local department leads,	Low-Medium (locally)	High (comprehensive improvements mitigation and risk-reduction capabilities)	Local (staff resources)	Medium	EAP	PI

Notes:

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

Acronyms and Abbreviations:

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

Potential FEMA HMA Funding Sources:

BRIC	*Building Resilient Infrastructure and Communities*
FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Critical Facility:

Yes *Critical Facility located in 1% floodplain*

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 9.4-17. Summary of Prioritization of Actions

Project Number	Project Name	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
2020-Carmel-001	Carmel Repetitive Loss	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Carmel-002	Lake Mahopac Dam Repairs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2020-Carmel-003	Critical Facility Outreach	1	1	1	0	0	0	1	0	0	0	0	1	0	1	6	Medium
2020-Carmel-004	Dredge Lake Secor Outlet Stream:	1	1	0	0	1	1	0	0	0	0	0	0	1	1	6	Medium
2020-Carmel-005 (Former CAR-1)	Strategic Roadway Tree Removals / Clearing	1	1	1	1	1	1	0	0	0	0	1	0	0	1	8	Medium
2020-Carmel-006 (Former CAR-2)	Engineering Hazard Evaluations of Town Park District Dams:	1	1	0	0	0	1	0	0	0	1	1	0	1	1	7	Medium
2020-Carmel-007 (Former CAR-3)	Memory Lane Drainage Improvements:	1	1	0	0	1	1	0	0	0	0	0	0	1	1	6	Medium
2020-Carmel-008 (Former CAR-10)	Designate shelters for vulnerable populations	1	0	0	1	1	1	0	0	1	0	1	0	1	1	8	Medium
2020-Carmel-009 (Former CAR-12)	Road Resurfacing	1	0	1	1	1	1	0	-1	0	0	0	1	1	1	7	Medium
2020-Carmel-010 (Former CAR-13)	Public Safety/Justice Center/Community Center	1	0	0	1	1	1	0	0	1	0	1	0	1	1	8	Medium
2020-Carmel-011 (Former CAR-15)	Support and participate in county led initiatives intended to build local and regional mitigation and risk-reduction capabilities	1	1	1	1	0	0	0	0	0	0	0	1	1	1	7	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

9.4.8 Proposed Mitigation Action Types

The table below indicates the range of proposed mitigation action categories.

Table 9.4-18. Analysis of Mitigation Actions by Hazard and Category

	FEMA				CRS					
Hazard	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Disease Outbreak		009 010		008 011 012			012		009	008 010 011
Drought		009 010		008 011 012			012		009	008 010 011
Earthquake		009 010		008 011 012			012		009	008 010 011
Extreme Temperature		009 010		008 011 012			012		009	008 010 011
Flood		002 006 007 009 010		001 003 008 011 012	006	001 002	003 012		007 009	008 010 011
HABS		009 010		008 011 012			012		009	008 010 011
Severe Storm		004 005 007 009 010		008 011 012			012	004 005 007	009	008 010 011
Severe Winter Storm		005 009 010		008 011 012			012	005	009	008 010 011
Terrorism		009 010		008 011 012			012		009	008 010 011
Wildfire		009 010		008 011 012			012		009	008 010 011

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

9.4.9 Staff and Local Stakeholder Involvement in Annex Development

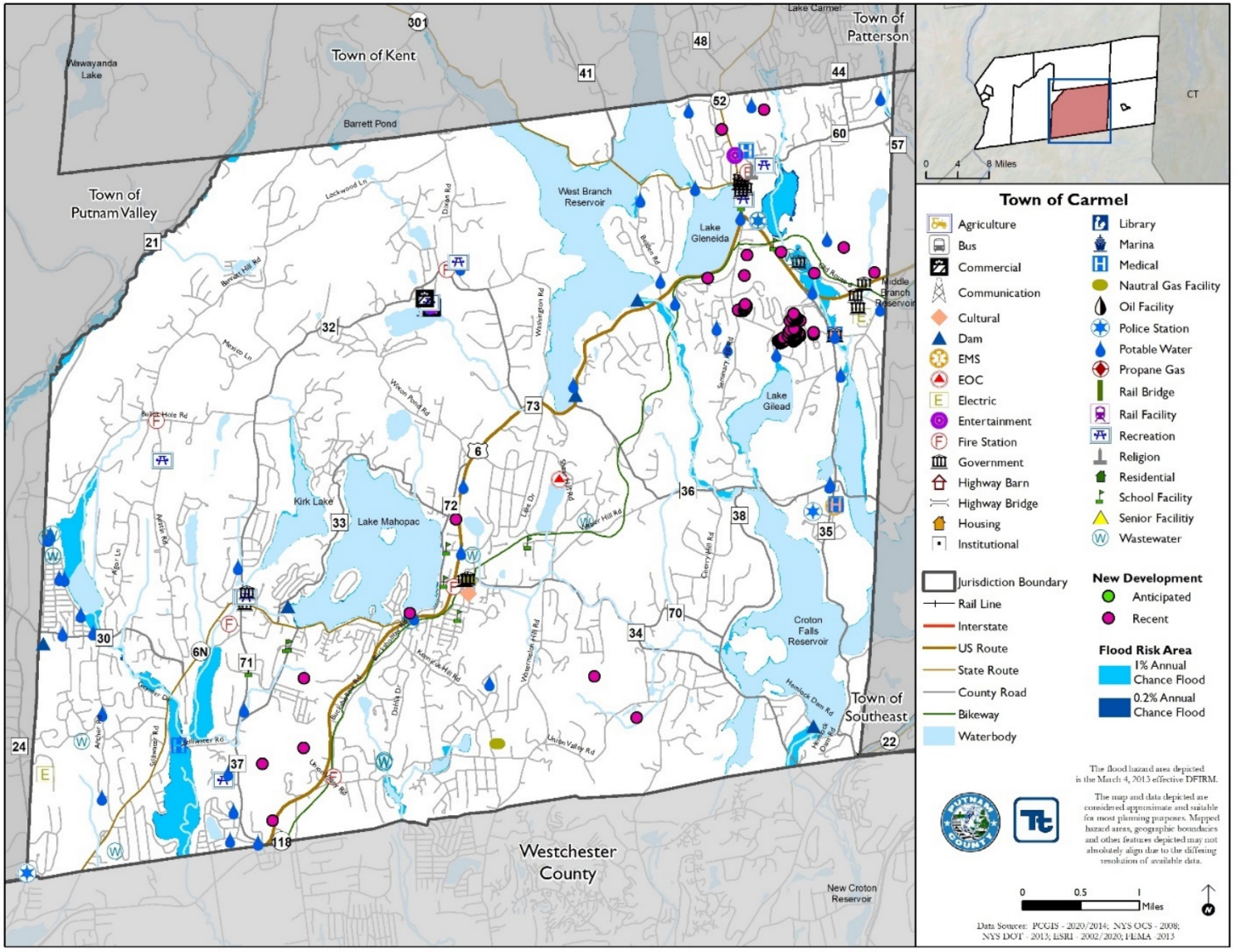
The Town of Carmel followed the planning process described in Section 3 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from Richard Franzetti, Town Engineer. Mr. Franzetti represented the community on the Putnam County Hazard Mitigation Plan Planning Partnership, and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Section 3 (Planning Process) and Appendix C (Meetings).

9.4.10 Hazard Area Extent and Location

A hazard area extent and location map has been generated for the Town of Carmel that illustrates the probable areas impacted within the municipality. This map is based on the best available data at the time of the preparation of this plan, and is considered to be adequate for planning purposes. The map has 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. The map is illustrated below.

Figure 9.4-1. Town of Carmel Hazard Area Extent and Location Map



Action Worksheet			
Project Name:	Carmel Repetitive Loss		
Project Number:	2020-Carmel-001		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	Due to frequent flooding events in the Town of Carmel, there are 10 repetitive loss properties, based on NFIP data. The properties have experienced repetitively flooding as documented by paid NFIP claims. Without mitigation, the properties will continue to be vulnerable to future flood events.		
Action or Project Intended for Implementation			
Description of the Solution:	The municipality will conduct an outreach program to repetitive loss properties. The outreach will inform the property owners of this repetitive loss status and provide mitigation alternatives that the property can do to protect the structure from future flood losses. If the property owner is interested in structural mitigation measures, the municipality will collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement the mitigation measure chosen (acquisition, elevation, moving).		
Is this project related to a Critical Facility?		Yes ☐	No ☒
Is the critical facility located in the 1% annual chance flood area?		Yes ☐	No ☒
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	100-year flood event or 500-year flood event	**Estimated Benefits (losses avoided):**	Awareness of property hazards and mitigation possibilities
Useful Life:	Variable	**Goals Met:**	1, 2, 4, 5
Estimated Cost:	None	**Mitigation Action Type:**	EAP
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	When RL data is received
Estimated Time Required for Project Implementation:	1 Year	**Potential Funding Sources:**	FEMA HMGP, BRIC, and FMA with local cost share by homeowner
Responsible Organization:	Building Inspector NFIP Floodplain Administrator, supported by homeowners	**Local Planning Mechanisms to be Used in Implementation if any:**	Hazard Mitigation

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	$0	Facility will continue to be exposed and vulnerable to floods
	Elevate roads	$500,000+	Elevated roadways would not protect the homes from flood damages
	Install floodwalls around neighborhoods that flood	$500,000+	Costly; not feasible in all areas that experience flood damage; some homes could still experience damage

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Carmel Repetitive Loss	
Project Number:	2020-Carmel-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Outreach promotes safety
Property Protection	1	Outreach will promote property protection
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	1	Outreach fulfills NFIP requirements
Fiscal	0	
Environmental	1	
Social	1	
Administrative	0	
Multi-Hazard	1	
Timeline	0	Unknown timeline for data
Agency Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Lake Mahopac Dam Repairs		
Project Number:	2020-Carmel-002		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood; Severe Storm		
Description of the Problem:	The New York State Department of Environmental Conservation (NYSDEC) has stipulated an Order on Consent (OOC) that requires an engineering assessment (EA) to meet NYSDEC Dam safety requirements		
Action or Project Intended for Implementation			
Description of the Solution:	Perform an environmental assessment and remedy identified deficiencies in the Lake Mahopac Dam.		
Is this project related to a Critical Facility?		Yes X	No ☐
Is the critical facility located in the 1% annual chance flood area?		Yes X	No ☐
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	500-Year flood event	**Estimated Benefits (losses avoided):**	Continued/enhanced protection afforded by dam
Useful Life:	50 Years	**Goals Met:**	1, 5
Estimated Cost:	$100,000 for EA	**Mitigation Action Type:**	SIP
Plan for Implementation			
Prioritization:	High	**Desired Timeframe for Implementation:**	Short term once project is funded
Estimated Time Required for Project Implementation:	Medium term	**Potential Funding Sources:**	Federal Mitigation grant or Federal or State Highway grant; Town Budget for Local Match
Responsible Organization:	Town of Carmel	**Local Planning Mechanisms to be Used in Implementation if any:**	Stormwater Management Plan

Three Alternatives Considered (including No Action)			
Alternatives:	**Action**	**Estimated Cost**	**Evaluation**
	No Action	High	Eventual failure of dam
	Dam Replacement	High	Extent of dam fixes needed to be determined in EA
	Perform an environmental assessment and remedy identified deficiencies in the Lake Mahopac Dam.	$100,000 for EA	Selected as best solution

Progress Report (for plan maintenance)	
Date of Status Report:	
Report of Progress:	
Update Evaluation of the Problem and/or Solution:	

Action Worksheet		
Project Name:	Lake Mahopac Dam Repairs	
Project Number:	2020-Carmel-002	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Dam assessment enhances life safety
Property Protection	1	Dam assessment will protect private and public assets
Cost-Effectiveness	1	EA needed to determine cost-effective fixes
Technical	1	
Political	1	
Legal	1	Project subject to consent decree
Fiscal	1	
Environmental	1	Action will prevent environmental damage from dam failure
Social	1	
Administrative	1	
Multi-Hazard	1	Project will protect against multiple hazards
Timeline	1	Project to be completed as soon as funding is secured
Agency Champion	1	Town of Carmel is under consent order
Other Community Objectives	1	
Total	14	
Priority (High/Med/Low)	High	