

### *10.2.19 City of Middletown*

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

#### **10.2.19.1 Contacts**

Primary and secondary contacts regarding this plan are identified as follows:

- Joseph DeStefano - Mayor  
16 James Street  
Middletown, NY 10940  
(845) 346-4101
  
- Jacob Tawil, P.E. - Commissioner of Public Works  
(845) 343-3169

#### **10.2.19.2 Municipal Profile**

##### *Population*

The 2010 U.S. Census reported a population of persons twenty-eight thousand, eighty-six (28,086). The population at the 2000 census was twenty-five thousand, three hundred eighty-eight (25,388) for an increase of 1.1%.

##### *Location*

Almost entirely surrounded by the Town of Wallkill, the City of Middletown is situated in the northern section of Orange County. Where it is not bordered by Wallkill, it is bordered by the Town of Wawayanda to the south.

##### *Brief History*

Founded in 1722 from two (2) patents (tracts of land purchased from Native Americans between 1703 and 1761), the Town of Wallkill originally spanned into present day Ulster County. The hamlets which comprise the Town were centered on the various churches that sprung up in the area and were named for the characteristics of the settlers (Scotchtown for the prevalence of Scottish settlers, Mechanicstown for industrious inhabitants).

The City of Middletown was situated in the “middle” of all these settlements and became the Village of Middletown in 1848. Forty (40) years later, in 1888, the Village officially incorporated as the City of Middletown.

The City did well during the Industrial Revolution and saw growth throughout the 19<sup>th</sup> century through World War II. By the 1960s, industrial plants began to shut down and the City’s growth slowed. Today, the City is a suburban center.

### *Governing Body*

The governing body is the Council-Mayor system. The Council is run by an Alderman-At-Large and consists additionally of eight (8) councilpersons. The Mayor runs the day-to-day operations for the City.

### *Future Growth*

Recent planning board meeting minutes indicate the desire for a one hundred sixty-four (164) integrated housing unit project known as the “Bella Vista Campus” to be located within four (4) buildings as proposed by the Missionary Society of Our Lady of Mount Carmel. This new development project is still in the review stage, no other development has initiated the review process to this point.

Continued development within the City is mostly limited to the redevelopment of abandoned industrial and commercial areas. While redevelopment of older urban properties has occurred in recent years, most new development is situated beyond the City limits within the Town of Wallkill near I-84 and NY-17.

## 10.2.19.3 Hazard Vulnerabilities and Ranking

### *Risk Ranking*

Hazard Event	Vulnerability	Mitigation Priority?
Flood	High	Yes
Severe Storm/Nor' easter	Moderately High	Yes
Extreme Wind	Moderately High	Yes
Tornado	Moderately High	Yes
Ice Jam	Moderately High	Yes
Wildfires	Moderately High	Yes
Winter Storm	Moderately Low	Yes
Hurricane/Tropical Storm	Moderately Low	Yes
Extreme Temperatures	Moderately Low	Yes
Drought	Moderately Low	Yes
Earthquake	Moderately Low	Yes
Dam Failure	Moderately Low	Yes
Lightning	Not Ranked	Yes

*Critical Facilities*

Communications Infrastructure	Electrical Power Systems	Water and Wastewater Supply Systems	Emergency Services	Educational	Shelter and Evacuation Facilities	EPA Hazardous Waste Generators
1	-	5	8	13	5	15

None of these critical facilities are located within the 500-year floodplain.

Facility Name	Address
Communications Infrastructure	
Citizens Telecommunications	2021 Goshen Turnpike
Water and Wastewater Supply Systems	
Water Pump	Pilgrim Corners Road
Sewer Treatment	159 Dolson Avenue
Water Tower (3)	358-360 Highland Avenue Extension, Pilgrim Corners Road, WS Magar Street
Emergency Services	
Fire Department	81-93 East Main Street
Pocatello Fire	5 Pocatello Road
Police Department	2 James Street
State Police	55 Crystal Run Road
Orange Regional Medical Center	707 East Main Street
Orange Regional Medical Pavilion	75 Crystal Run Road
Middletown Medical	111 Maltese Drive
Crystal Run Healthcare	155 Crystal Run Road
Educational	
Middletown Senior High School	18 Gardner Avenue Extension
Twin Towers Middle School	112 Grand Avenue
Monhagen Middle School	555 County Route 78
Maple Hill Elementary School	Egerton Road
John W. Chorley School	50 Roosevelt Avenue
Truman Moon School	53 Bedford Avenue
Middletown Christian School	70 Highland Avenue
New Beginnings Montessori	33 Albert Street
Our Lady of Mount Carmel School	205 Wawayanda Avenue
St. Joseph School	113 Cottage Street
Orange County Employ & Training	18 Seward Avenue

Table 10.2.19c: Location of CFI	
Facility Name	Address
Orange County Community College	115 South Street
Medical College	60 Prospect Avenue
Shelter and Evacuation Facilities	
Middletown Senior High School	18 Gardner Avenue Extension
Monhagen Middle School	555 County Route 78
Red Cross Warehouse	135 Crotty Road
Medical College	60 Prospect Avenue
Homeless Shelter	18 Seward Avenue
EPA Hazardous Waste Generators	
Westwood Chemical Corp	46 Tower Drive
Orange Recycling & Ethanol Production Facility	159 Dolson Avenue
Quick Roll Leaf Manufacturing Company	53 Smith Road
A & N Technologies	366 Highland Avenue
Spill- DEC # 0703367	92 Fitzgerald Drive
Middletown STP	159 Dolson Avenue
Genpak LLC	26 Republic Plaza
CVS Pharmacy	245 East Main Street
Delford Industries Inc.	84 Washington Street
Tesa Tape	135 Crotty Road
O&R Operations Center	71 Dolson Avenue
Interceram Cermx Corporation	Fortune Road West
General Switch Corporation	20 Industrial Place
Fleurchem	33 Sprague Avenue
Revere Smelting & Refining Corporation	65 Ballard Road

The City of Middletown has four (4) critical facilities within the 500-year floodplain or the high hazard Landslide Rating<sup>1</sup> area. The following table identifies the structures and hazard issues.

10.2.19d: City of Middletown Critical Facilities and Infrastructure in Hazard Areas			
Critical Infrastructure	500-Yr Flood	Landslide Rating Area	Associated Mitigation Action
Advanced Oxygen Medical Services	Y	N	MI-7
Alberts College Pond #3 Dam	Y	N	MI-7
City of Middletown Department of Public Works	Y	N	MI-7
The Promenade	Y	N	MI-7

<sup>1</sup> Areas with a landslide rating in of greater than 37 are considered hazardous. The data was derived from HAZUS software analysis.

As indicated in Section 2.8, participating municipalities did not wish to disclose the locations of public water systems facilities due to security concerns. However, they acknowledge the criticality of such facilities. While it is assumed that most municipal water systems facilities are not located within the floodplain, these jurisdictions will explore hardening/relocation opportunities for those that are located within the floodplain should such actions become necessary due to the incidence of flooding impacts.

By necessity, critical wastewater facilities are located within the 500-year floodplain due to discharge requirements and gravity-fed systems optimization. While relocation is neither desired nor feasible, participating municipalities will seek to harden these facilities where feasibly and fiscally possible.

Table 2.8a – Orange County NPDES Data lists all wastewater facilities in the County, including the City of Middletown, with a NPDES (National Pollutant Discharge Elimination System) permit. In the case of New York State, NPDES permit listing match State Pollutant Discharge Elimination System (SPDES) permit listings.

### **Priority Hazard Events**

The following sections detail the priority hazard events identified by the jurisdiction. Additional information about each hazard including frequency, history, and severity within Orange County is included within Section 5.0 of the main body of the Hazard Mitigation Plan (Volume I).

The probability of climate-related hazard events is generally expected to increase in the future within the City of Middletown. This anticipated increase results from the expected increase in weather volatility associated with climate change. The Wallkill River and its tributaries contribute to increased flooding occurrences.

Past occurrences of hazard events are indicated in their respective profiles below. Some hazards may not have locally available documentation of past occurrence, but are nonetheless profiled in this annex to instill future mitigation planning consideration.

#### *Flood*

The Wallkill River flows north from New Jersey to Rondout Creek and is the major waterbody influencing hydrology throughout the area. Masonic Creek is a tributary that runs through the Washington Heights hamlet and drains Silver Lake to the Wallkill.

Several areas throughout the City have been identified due to increased vulnerability:

- Pilgrim Estates neighborhood – Brewster Drive, other streets and properties within Pilgrim Estates flooded.
- Road 78 near Monhagen Middle School, Egerton Road – Flooding here has prevented to the middle school and adjacent Maple Ave elementary school.
- Rear portion of properties along W. Main Street - Channel of drainageway has been damaged by significant storm events, concrete sidewalls collapsed.

- Excavating Property, east side of Monhagen Ave – Culvert entrance undersized, Boyce property and downstream city properties flooded.
- City Water Department/City Street Dept garages, Monhagen Ave – Damage to building caused by flooding.
- City Salt Storage Facility, Monhagen Ave – Flooding caused destruction of twelve-by-eight (12x8) concrete box culvert, destruction of staging/loading area at Salt Storage facility.
- Mill Street to Genung Street – Flooding along the open channel upstream from Mill Street resulted in debris clogging downstream enclosed section of drainageway. Fulton Street and areas downstream to Genung Street were flooded, including Monhagen Ave.
- Dolson Ave – Entrance to City wastewater treatment plant blocked by flooding.
- Maple Hill Park Pond – Park damaged by flooding from outlet of pond to Maple Ave.
- Pocatello Lake Outlet – County Route 78 at Aspen Townhouses. County Route 78 flooded, flood diversion wall destroyed (Irene), townhouse roads and city streets flooded, drainage channels along CR78 and North Aspen Drive eroded.
- SUNY Orange Campus – Damage to Wawayanda Ave and sidewalks along SUNY Orange Campus, drainage structures adjacent to SUNY parking lot adjacent to Wawayanda Ave.
- Wawayanda Ave and sidewalks near post office.
- Thrall Park – park inundated by flooding.
- Streets and sidewalks flooded along Railroad Ave from Grove St. to Cottage St.
- Streets and sidewalks on Cottage St from Railroad Ave to Roberts St flooded.
- Flooding along Roberts Street – Across from East Main, prevented access to Central Firehouse.
- Streets and sidewalks, private properties – lower portion of Draper Brook, from Grant St. to Genung St., flooding prevented access by emergency vehicles.
- Since tropical storm Irene, the city has experienced repeated flooding problems from the north feeding into Draper Brook drainageway; flooding repeatedly occurring along Wisner Ave, Smith St, Route 211, Grove St, Grant St. An investigation into the cause of this increase in flooding may be necessary.

Table 10.2.19e details land use in flood risk areas and is listed below.

Table 10.2.19e: Summary Of Land Areas In Flood Hazard Areas (Source: HAZUS, FEMA DFIRM Data)			
Total Land Area (Acres)	100-yr Flood Risk Area	500-yr Flood Risk Area	Low Risk Flood Area
3,286	151 (5%)	21 (1%)	3114 (94%)

Below is a table that illustrates the value of property in the City of Middletown that is located within the 500-year floodplain and is categorized by land use type. This table was derived from FEMA floodplain mapping and parcel data from the Orange County Property Assessor.

10.2.19f: Structures in the City of Middletown Vulnerable to 500-year Flood Events and Their Estimated Values		
Type of Structure	# Structures in Hazard Area	Value of Structures (in millions)
Residential	184	\$15.9
Commercial	49	\$14.4
Industrial	3	\$3.9
Agricultural	0	\$0.0
Religious/Non-profit	0	\$0.0
Government	1	Unknown
Education	0	\$0.0
Utilities	0	\$0.0
Dams	1	Unknown
Parks	0	\$0
Total	238	\$34.2

#### Historical Occurrence:

In the past ten (10) years two (2) flood events have been recorded by the NOAA Storm Events Database for the City of Middletown.

- March 8, 2008 – Heavy rainfall caused numerous basements to be pumped in residential areas of Middletown and Washingtonville due to flooding. Route 78 near Aspin Rd and Wisner Avenue were also closed due to flooding.
- August 9, 2013 – Heavy rainfall caused a lake on Carmelite Dr. in Middletown overflowed resulting in six (6) inches of water flowing across the roadway.

There have been six (6) repetitive loss claims and one (1) substantial damage claim (loss of greater than 50% of value) according to the 2014 local hazard mitigation plan and Table 2.19m later in this annex. There are no severe repetitive loss properties within the City (see Table 8.2c). No further data was given due to the Privacy Act of 1979.

### *Extreme Temperatures*

For a description of this hazard, please see section 5.1.

#### Historical Occurrence:

In the past ten (10) years there is no record of any Extreme Temperatures that have explicitly impacted the City of Middletown however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

### *Severe Storms*

The National Weather Service (NWS) defines a severe storm as one with a tornado and/or surface hail ¾” or greater and/or wind gusts fifty (50) knots (58 mph) or greater. Such storms can cause damage from wind, hail, heavy rainfall, and/or lightning strikes. Within the municipalities of Wallkill and Middletown, a total of approximately \$119,500 of property damages has occurred to severe thunderstorms.

#### Historical Occurrence:

In the past ten (10) years, five (5) severe storms have been recorded by NOAA Storm Events Database for the City of Middletown.

- June 1, 2006 – Trees and power lines down.
- July 31, 2009 – Six (6) trees were reported snapped in the backyard at 113 Curbytown Road in Middletown.
- August 21, 2009 – There were numerous reports of trees and wires down throughout Middletown, including some which fell on cars and houses.
- May 31, 2010 – A lightning strike caused a house fire on Jared Court Road in Middletown.
- June 24, 2010 – A tree was reported down on a house on California Avenue. Many trees and wires were reported down throughout Middletown, causing multiple accidents. One (1) tree landed on a garage, causing it to collapse, resulting in one (1) injury. In addition, a piece of the roof of Middletown High School was blown off, protective tiles covering the football field were damaged, windows were blown out at some commercial buildings near the High School, and at least one (1) tree fell on the roof of a car.
- September 8, 2012 – A tree was reported blocking Lake Avenue near Fancher Davidge Park.

### *Extreme Wind*

For a description of this hazard, please see section 5.2.



Historical Occurrence:

In the past ten (10) years there is no record of any Extreme Winds that have explicitly impacted the City of Middletown however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

*Hurricane/Tropical Storm*

For a description of this hazard, please see section 5.3.

Historical Occurrence:

In the past ten (10) years there is no record of any Hurricanes that have explicitly impacted the City of Middletown however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document. It is of note that hurricane threats could potential increase due to climate change trends.

*Drought*

For a description of this hazard, please see section 5.5.

Historical Occurrence:

In the past ten (10) years there is no record of any Droughts that have explicitly impacted the City of Middletown however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

*Earthquakes*

For a description of this hazard, please see section 5.7.

Historical Occurrence:

In the past ten (10) years there is no record of any Earthquakes that have explicitly impacted the City of Middletown however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

*Winter Storm*

For a description of this hazard, please see section 5.8.

Historical Occurrence:

In the past ten (10) years there is no record of any Winter Storms that have explicitly impacted the City of Middletown however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

*Ice Jam*

For a description of this hazard, please see section 5.10.

Historical Occurrence:

In the past ten (10) years there is no record of any Ice Jams that have explicitly impacted the City of Middletown however, there have been a number of recorded occurrences within Orange County. The information can be found in the main body of the document.

*Dam Failure*

Dam failures can be attributed to natural or man-made hazards. The impoundment of large volumes of water poses a threat. The failure of a dam can lead to catastrophic flooding.

The Monhagen Lake Dike is located within the City limits. This dike is considered “high hazard”; the associated dam is currently classified as a class “B” dam, though arguments have been made to move it to a class “C” dam. Both were constructed in 1867 and contain the primary water supply for the City. The normal storage capacity is six hundred thirty (630) acre-feet with a maximum of eight hundred twenty-five (825) acre-feet.

Failure of this dam would lead to flooding within the 100-year floodplain at estimated depths as follows: ten (10) feet at Ingrassia Drive and Route 211, five (5) feet at Monhagen Avenue, and four (4) feet at County Highway 78.

10.2.19.4 Capability Assessment

*Planning and Regulatory Capability*

Table 10.2.19g: Legal and Regulatory Capabilities for City of Middletown		
Regulatory Tools for Hazard Mitigation	Description	Responsible Department/Agency
Codes and/or Ordinances	<ul style="list-style-type: none"> <li>• 2010 Residential Code of NYS</li> <li>• 2010 Fire Code of NYS</li> <li>• 2010 Building Code of NYS</li> <li>• 2010 Exiting Building Code of NYS</li> <li>• 2010 Energy Conservation Construction Code of NYS</li> <li>• 2010 Plumbing Code of NYS</li> <li>• 2010 Mechanical Code of NYS</li> <li>• 2010 Fuel Gas Code of NYS</li> </ul>	Building Department
	<ul style="list-style-type: none"> <li>• City of Middletown Comprehensive Plan 2007</li> <li>• City of Middletown Zoning Ordinance 2000</li> <li>• Subdivision Ordinance</li> <li>• Floodplain Ordinance</li> <li>• Erosion Control and Stormwater Management Codes</li> </ul>	Planning Board

Table 10.2.19g: Legal and Regulatory Capabilities for City of Middletown		
Regulatory Tools for Hazard Mitigation	Description	Responsible Department/Agency
Plans, Manuals, and/or Guidelines	<ul style="list-style-type: none"> <li>Stormwater Management</li> <li>Comprehensive Plan 2007</li> </ul>	Planning Board
Studies	<ul style="list-style-type: none"> <li>FIRM Flood Insurance Rate Maps, 2009</li> </ul>	Town Board/Building Department

*Administrative and Technical*

Table 10.2.19h: Summary of Administrative and Technical Staff Capabilities for City of Middletown		
Staff/Personnel Resources	<b>p</b>	Department/Agency - Position
Planner(s) or engineer(s) with knowledge of land development and land management practices		N/A*
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	-	N/A*
Planner(s) or engineer(s) with and understanding of natural and/or human-caused hazards	-	*
Floodplain Manager/Administrator	<b>p</b>	Building Inspector
Surveyors	-	N/A*
Staff with education or expertise to assess the community's vulnerability to hazards	<b>p</b>	Department of Public Works Commissioner
Personnel skilled in GIS and/or HAZUS; AutoCad-Civil 3D; ArcViewGIS	-	N/A*
Scientists familiar with the hazards of the community	-	N/A*
Emergency manager	<b>p</b>	Town Supervisor and Department of Public Commissioner
Grant writer(s)	-	N/A*

\*N/A – indicates that such staff or personnel are not currently employed by the Town. Outside providers are often contracted by the Town to provide such services.

*Fiscal*

Table 10.2.19i: Fiscal Opportunities for Town of Warwick		
Financial Resources	Accessible or Eligible to Use (Yes, No, Don't Know)	Comments
Community Development Block Grants	Yes	Due to income levels only certain areas of the Town are eligible
Capital Improvements Project funding	Yes	Preparation of a multi – year plan for infrastructure inventory

Table 10.2.19j: Fiscal Opportunities for Town of Warwick		
Financial Resources	Accessible or Eligible to Use (Yes, No, Don't Know)	Comments
Authority to levy taxes for specific purposes	Yes	Wallkill Drainage Districts
Fees for water, sewer, gas, or electric service	Yes	Water and Sewer Districts
Impact fees for homebuyers or new developments/homes	No	Not generally
Incur debt through general obligation bonds	Yes	Various projects
Incur debt through special tax bonds	Yes	Various projects

*NFIP: Administrator, Vulnerability, Resources, Compliance*

The City of Middletown (ID# 360619) participates in the National Flood Insurance Program (NFIP) and is considered in good standing. Participation details as of January 31, 2018, are noted in the table below. More NFIP data can be found in Section 8.2. Data drawn from the 2014 local hazard mitigation plan is noted.

Table 10.2.19j: NFIP Participation Data	
Data/Characteristics	Details
Date Joined	3/2/83
Number of Policies in Effect	107
Paid Claims	59
Claims Cost	\$548,244
'Substantial Damage' Claims	1*
Repetitive Loss Properties	13
Structures in 100-year Flood Plain	250*
Most Current FIRM Data	8/3/09
Floodplain Ordinance in Effect	Yes
Outstanding Compliance Issues	No*
Floodplain Administrator	Building Inspector

\* From 2014 local hazard mitigation plan

The City has been maintaining NFIP participation by performing the duties and actions that were listed in the local laws that their municipal boards adopted (Local Law #5 of 2009).

The City's Floodplain Administrator has been provided a NFIP best practices incorporation guidance document and will be using it to improve local participation in NFIP standards going forward. This package of documents was provided by NYSDHSES and can be found in Appendix F - NFIP Floodplain Administrator Guidance Package.

### *Hazard Mitigation: Existing and Planning Mechanisms*

#### Emergency Communications, Routes, and Shelters:

Orange County utilizes the CodeRED system for emergency notifications. Residents can also visit the City's website to sign up to receive text alerts regarding news from the City of Middletown about closings, refuse schedule changes, police department notices, and like.

In November 2013 the City of Middletown took over the broadcasting of Channel 20 on cable television, broadcasting up-to-date news, weather and sports twenty-four (24) hours per day. The City will also be broadcasting emergency messages from the Mayor and local officials on any local or weather issues in the City of Middletown.

The City follows emergency route rules set by Orange County. The City has five (5) designated emergency shelter locations: Middletown Senior High School, Monhagen Middle School, Red Cross Warehouse, Medical College, and Middletown Homeless Shelter. More information on these sites can be found in Attachment III.

#### Comprehensive Plan:

The City of Middletown Comprehensive Plan, adopted in 2007, states the City will implement techniques to prevent increase in development that would lead to increased susceptibility to natural hazards.

#### Planning Mechanisms:

While this annex has provided a summary and description of existing plans, policies, and regulatory mechanisms that support hazard mitigation, the 2018 Orange County Hazard Mitigation Plan Update is intended to allow for the integration of its recommendations and data into local plans. Listed below are several planning and policy mechanisms that lend themselves to the integration of materials and objectives from this hazard mitigation plan. Columns to the right indicate whether the municipality has utilized hazard mitigation planning elements in the past (as in the aftermath of a previous local hazard mitigation plan) and whether they intend to be utilized in the future (which most, if not all, do).

Table 10.2.19k: Incorporation of Hazard Mitigation Planning into Existing and Future Planning Mechanisms		
Planning Mechanism	Has been Utilized	May be Utilized
Capital Improvement Budget: Hazard Mitigation Actions to be considered during the development of annual capital improvement plans. Compliance with Hazard Mitigation goals and objectives as well as the hazard vulnerability of site will be a consideration during the evaluation of infrastructure and facilities projects.	X	X
Operating Budget: Hazard Mitigation Actions to be considered within day-to-day operating budgets as funding permits.	X	X
Building & Zoning Ordinances: Review of the hazard mitigation plan and hazard analyses are part of the evaluation of land use, zoning, and development review ordinances and permitted processes.	X	X
Comprehensive Land Use Plan: Elements such as hazard vulnerability and hazard area extents will be considered during the development of future land use maps and other elements of comprehensive planning.	X	X
Human Resource Manual: Employee job descriptions may contain elements related to hazard mitigation planning and associated recommendations.		X
Grant Applications: Support for funding requests in the form of data, maps, and priority recommendations will be drawn from the hazard mitigation plan.	X	X
Fire Plan: Fire Plans for the municipality and local fire departments can utilize data and mapping in the hazard mitigation plan.	X	X
Local School Service Projects: Municipal officials and staff can explore the possibility of collaboration with local school districts to provide avenues for student community service projects as well as educational opportunities.		X
Economic Development: Local chambers of commerce and other economic development agencies can utilize the hazard mitigation plan to better inform new/expanding businesses in finding a location.		X

### Summary

The City of Middletown will utilize this Hazard Mitigation Plan to inform the Comprehensive Plan and create a list of potential mitigation actions, including but not limited to improvements to infrastructure, emergency response, and public awareness. Some actions identified:

- Update existing zoning code/building code requirements to provide stronger mitigation practices.
- Incorporate/ adopt Hazard Mitigation Plan into City Comprehensive Plan.
- Update City hazard mapping to include latest data.
- Provide change in development review process to evaluate future projects with an eye toward mitigation.
- Join NFIP Community Rating System.

### 10.2.19.5 Mitigation Strategy and Prioritization

#### *Past, Completed, and Ongoing Initiatives*

The City has not identified any past, completed, or ongoing mitigation strategies. These many of the actions below were also issued as proposed actions in the most recent local hazard mitigation plan in 2014. Only those proposed mitigation actions that were incomplete were included in this plan as re-issued proposed mitigation actions. Some of these actions are also proposed actions from the City's NY Rising Plan.

#### *Proposed Initiatives*

Costs for the following actions have been broken down as such: High (H) = Funding not currently in place, estimated above one hundred thousand dollars (\$100,000), Medium (M) = Funding exists, but budgeted over several years/augmented with outside sources, estimated between ten thousand dollars (\$10,000) and one hundred thousand dollars (\$100,000), and Low (L) = Funding could be allocated/reallocated from existing budget, estimated below ten thousand dollars (\$10,000).

Table 10.2.19i: Mitigation Actions/Projects Identified by City of Middletown				
Action ID	Hazard(s) Mitigated	Description	Primary Agency	Funding Source(s)/Cost
MI-1	Flood	Repair or replace drainageway channel concrete sidewalks along the rear portion of West Main Street.	Department of Public Works (DPW)	Local Staff Labor, Local Funding, HMGP, PDM, PA Grant Funding/ L
MI-2	Flood	Replace with increased capacity, culvert near Boyce Excavating property on east side of West Main Street.	DPW	Local Staff Labor, Local Funding, HMGP, PDM, PA Grant Funding, NY Rising/ M
MI-3	Flood	Reinforce open channel waterways from erosion and scour.	DPW	Local Staff Labor/ L
MI-4	Flood	Cleanup of debris and trees upstream from enclosed waterway channel from Mill Street to city limits.	DPW	Local Staff Labor/ L
MI-5	Flood	Cleanup of debris, trees in waterways on private properties in collaboration with property owners. Develop letter of release/hold harmless agreement.	DPW	Local Staff Labor/ L
MI-6	Flood	Replace or repair enclosed box culvert portion of waterway from Mill Street to Genung Street.	DPW	Local Staff Labor, Local Funding, HMGP, PDM, PA Grant Funding, NY Rising / M
MI-7	Flood	Increase culvert and channel capacity leaving city area to southeast to reduce bottlenecks. Coordinate efforts downstream with Towns of Wallkill and Wawayanda to continue capacity and unrestricted flow of drainage.	DPW, Consulting Team	Local Staff Labor, Local Funding, HMGP, PDM Grant Funding/ H
MI-8	Flood	Identify existing infrastructure repair projects as opportunities for mitigation improvements.	DPW, Consulting Team	Local Funding, HMGP, PDM Grant Funding/ L
MI-9	Flood	Develop study and design for construction of detention basin(s) to capture downstream flow from Monhagen Lake watershed area into City.	City Council, Planning Board, Consulting Team	Local Funding, New York Rising, HMGP, PDM Grant Funding/ H

Table 10.2.19I: Mitigation Actions/Projects Identified by City of Middletown				
Action ID	Hazard(s) Mitigated	Description	Primary Agency	Funding Source(s)/Cost
MI-10	Wind/ Ice Storm	Work with O&R Utilities to identify critical power grid priority areas for "first repair" response. Develop plan to strengthen these priority and vulnerable grid components to reduce likelihood of future outages.	City Council, Orange County Planning, O&R, Consulting Team	Local Funding, O&R, HMGP, PDM Grant Funding/ L
MI-11	Severe Storm	Install emergency fuel storage tanks in or near the City to reduce dependency on Town of Walkill Surplus.	City Council, DPW	HMGP, PDM, NY Rising Grant Funding/ M
MI-12	Severe Storm	Develop "Selective Reduction/Rationing Plan" for local emergency services fuel storage with tiered system for different levels of alert during fuel shortage.	City Council, DPW	Local Funding/ L
MI-13	Extreme Weather	Provide backup power for key traffic signals in the event of widespread outages to reduce gridlock conditions from hampering emergency vehicle access.	City Council, DPW	NYS DOT, HMGP, PDM, NY Rising Grant Funding/ M
MI-14	Extreme Temperatures	Establish or expand access to public cooling centers.	City Council	HMGP Grant Funding/ L
MI-15	Dam	Review inundation map and practice the procedures for the Emergency Response Plan for Monhagen Lake Dam.	City Council, Emergency Services, Department of Public Works	Local Funding/ L
MI-16	Severe Ice Storm	Conduct vulnerability assessment of shelters and multi-family facilities, such as senior housing or large apartment complexes and review emergency backup power needs and solutions.	DPW, Consulting Team	HMGP, PDM Grant Funding, NY Rising / L
MI-17	Flood	Get standing approval/agreement between City and Orange County to be able to clear debris from drainage crossings in County jurisdiction without regulatory approvals.	City Council, Orange County	Local Staff Labor/ L
MI-18	Flood	Investigate watershed and impervious area which is contributing to increased flooding south toward Wisner Ave/Draper Brook corridor.	City Council, Consulting Team	Local Funding, HMGP, PDM, USDA-NRCS Grant Funding/ L
MI-19	Flood	Develop agreement with DEC to have ability to cleanup Walkill River waterway as needed for regular maintenance without normal regulatory approvals.	City Council, DPW	Local Staff Labor/ L
MI-20	Flood	Provide planning review officials with access to continued training on enhanced stormwater management and low impact development techniques.	City Council, Planning Board	Local Staff Labor, Local Funds, NFIP, NSF Grant Funding/ L
MI-21	Flood	Revise zoning and site plan regulations to reduce impervious surface area and create larger riparian buffers along floodways/waterways	Planning Board, City Council	Local Staff Labor, Local Funds, USDA-NRCS, NYSDEC/EPF Grant Funding/ L
MI-22	Flood	Incorporate local law prohibiting the storage of debris, brush, or similar clogging elements near the banks of waterways.	City Council, Planning Board, Consulting Team	Local Staff Labor, DEC Grant Funding/ L
MI-23	Flood	Conduct bi-annual waterway inspections to identify properties which are violating debris storage restrictions along banks of waterways.	DPW, Consulting Team	Local Staff Labor, Local Funds/ L



Table 10.2.19I: Mitigation Actions/Projects Identified by City of Middletown				
Action ID	Hazard(s) Mitigated	Description	Primary Agency	Funding Source(s)/Cost
MI-24	All	Expand similar Public Safety Alert system used in Walkkill into City.	City Council	Local Funding, HMGP, PDM, NY Rising Grant Funding/ L
MI-25	All	Coordinate with school district and have Time Warner Cable to have direct access to broadcast capability.	City Council	Local Funding, HMGP, NSF Grant Funding./ L
MI-26	All	Educate public about emergency preparation and response actions.	City Council	Local Funding, HMGP, NSF Grant Funding/ L
MI-27	All	Support disaster preparedness training for agencies serving vulnerable populations and the general public.	City Council	Local Funding, HMGP, PDM, NSF Grant Funding/ M
MI-28	Flood	Inform local residents of the flooding problems associated with debris and brush located near the banks of waterways.	City Council, DPW	Local Staff Labor, Local Funding, HMGP, NSF Grant Funding/ L
MI-29	Flood	Adopt a Real Estate Disclosure code to notify buyers of potential hazards.	City Council	Local Staff Labor/ L
MI-30	All	Update flood hazard maps- in particular densely settled areas and promote resident and business owner's awareness of the locations.	Planning Department	Local Staff Labor, Local Funding, USDA-NRCS, HMGP, NFIP, NSF Grant Funding/ L
MI-31	Flood	Develop community outreach program to private property owners to encourage cleanup of waterways on their property, or secure permission for the municipality to do it.	City Council, DPW	Local Staff Labor, Local Funding, HMGP, NSF Grant Funding/ L

STAPLEE forms were completed for each of these actions. A table with these evaluations can be found in Attachment II of this jurisdictional annex.

“STAPLEE” refers to the following lenses of evaluation: social, technological, administrative, political, legal, economic, and environmental.

*Future Needs*

The City has not identified any future needs.

**10.2.19.6 Hazard Area Extent and Location**

A map demonstrating the location of certain hazard areas is attached as Attachment I.

## **Attachment I**

# **Hazard Area Extent and Location Map - City of Middletown**

**Legend**

**NYSDEC Bulk Storage Facilities**

- NYSDEC Bulk Storage Facilities

**Dam Locations**

- Dam Locations

**Critical Infrastructure**

- AIRPORT
- AMBULANCE
- DPW
- ELDER CARE
- FIREHOUSE
- GOVERNMENT
- HOSPITAL
- MEDICAL
- POLICE
- SCHOOL
- TRAIN STATION

**NYS\_Railroad**

- NYS\_Railroad

**Orange Municipal Boundaries Page Area of Interest**

- Orange Municipal Boundaries Page Area of Interest

**Orange Municipal Boundaries**

- Orange Municipal Boundaries

**Orange County**

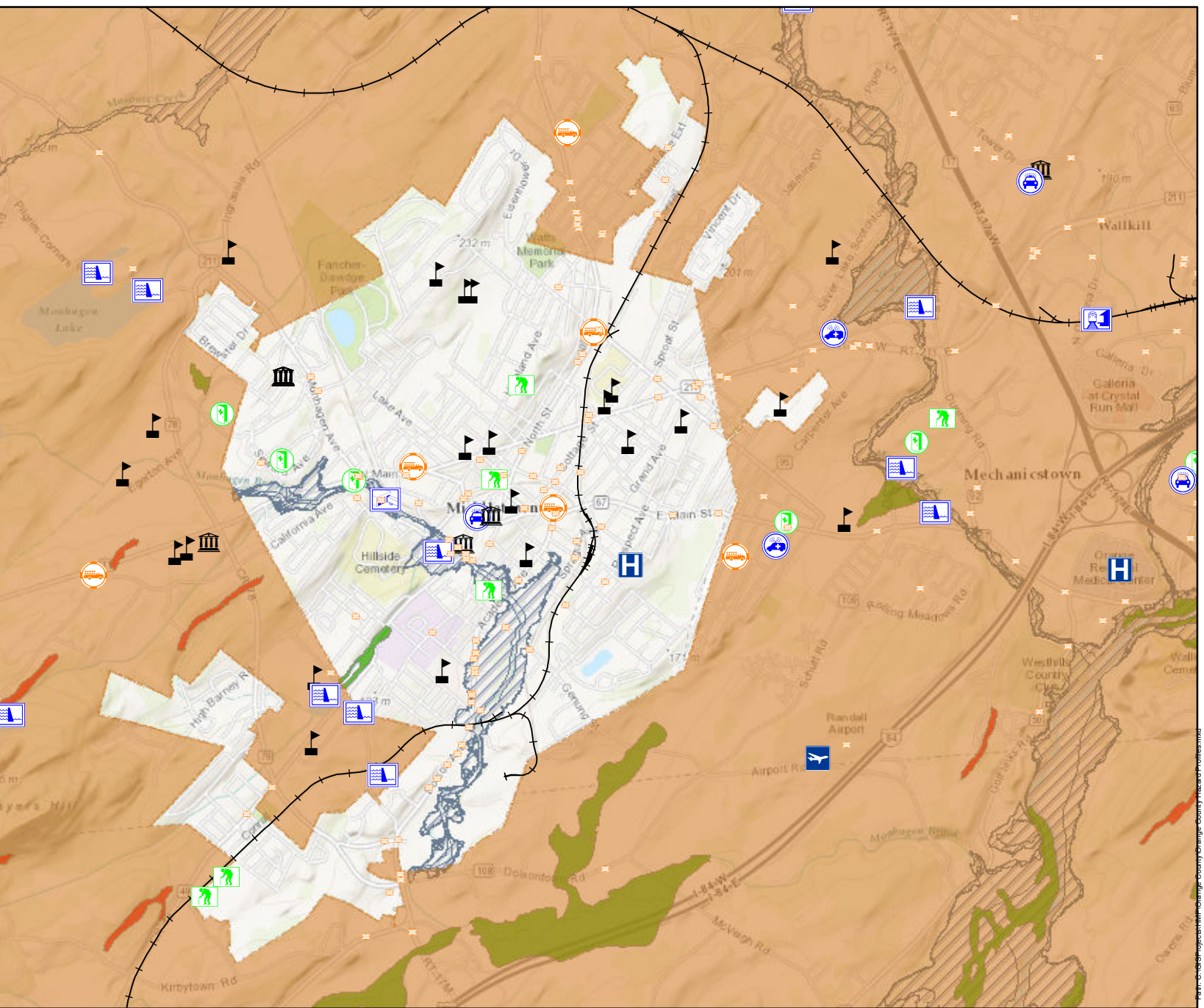
- Orange County

**Land Slide Rating**

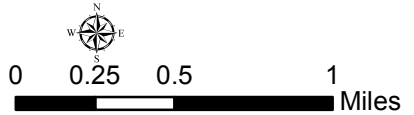
- 37 - 48
- 49 - 58
- 59 - 69
- 70 - 79

**Floodplain**

- 100 Year Flood
- 500 Year Flood



Sources:



Orange County Hazard Mitigation Plan  
**City of Middletown**  
 3/14/2016  
 New York

Figure  
 Project No.  
 1724.002

Path: C:\chp\project\orange-county\orange-county-hazard-mitigation-plan.mxd

## **Attachment II**

# **STAPLEE Mitigation Action Cost/Benefit Analysis - City of Middletown**

**STAPLEE Criteria Consideration Tables**  
**Mitigation Action Prioritization and Comparison**

Jurisdiction:

City of Middletown

Action ID	Action	S	T	A	P	L	E	E	Can action be easily implemented?	Does action achieve multiple plan objectives?	Can action be quickly implemented?	Level of action benefits	Level of action overall costs	Priority ranking
		+ = benefit (favorable), - = cost (unfavorable), 0 = neutral or N/A											Levels = high, medium, or low	
MI-1	Repair or replace drainageway channel concrete sidewalks along the rear portion of West Main Street	+	+	0	+	+	-	+	0	0	+	Medium	Low	High
MI-2	Replace with increased capacity, culvert near Boyce Excavating property on east side of West Main Street	+	+	0	+	+	-	+	-	0	0	Medium	Medium	High
MI-3	Reinforce open channel waterways from erosion and scour	+	+	+	+	+	0	+	+	0	+	Low	Low	Medium
MI-4	Cleanup of debris and trees upstream from enclosed waterway channel from Mill Street to city limits	+	+	+	+	+	+	+	+	0	+	Medium	Low	High
MI-5	Cleanup of debris, trees in waterways; develop letter of release/hold harmless agreement	+	+	+	+	+	+	+	+	0	+	Low	Low	Medium
MI-6	Replace or repair enclosed box culvert portion of waterway from Mill Street to Genung Street	+	+	-	+	+	-	0	-	0	0	Medium	Medium	Medium
MI-7	Increase culvert and channel capacity leaving city area to southeast to reduce bottlenecks	+	+	-	+	+	-	0	-	0	-	High	High	Medium
MI-8	Identify existing infrastructure repair projects as opportunities for mitigation improvements	+	+	0	+	+	0	+	0	0	-	Low	Low	Medium
MI-9	Develop detention basin(s) to capture downstream flow from Monhegan Lake watershed area into City	+	+	-	+	0	-	0	-	0	+	High	High	High
MI-10	Identify power grid priority areas for first repair response; develop plan to strengthen priority and vulnerable grid components	+	+	+	+	+	0	-	+	0	0	Medium	Low	High
MI-11	Install emergency fuel storage tanks in or near the City to reduce dependency on Town of Walkill Surplus	0	+	0	0	0	-	-	0	0	+	Medium	Medium	Medium
MI-12	Develop Selective Reduction/Rationing Plan for local emergency services fuel storage	+	+	+	+	+	+	+	+	0	+	Medium	Low	High

**STAPLEE Criteria Consideration Tables**  
**Mitigation Action Prioritization and Comparison**

Jurisdiction:

City of Middletown

Action ID	Action	S	T	A	P	L	E	E	Can action be easily implemented?	Does action achieve multiple plan objectives?	Can action be quickly implemented?	Level of action benefits	Level of action overall costs	Priority ranking
		+ = benefit (favorable), - = cost (unfavorable), 0 = neutral or N/A											Levels = high, medium, or low	
MI-13	Provide backup power for key traffic signals in the event of widespread outages to reduce gridlock conditions	+	+	0	+	+	-	0	0	0	0	Medium	Medium	Medium
MI-14	Establish or expand access to public cooling centers	+	+	0	+	+	0	0	0	0	+	Low	Low	Medium
MI-15	Review inundation map and practice the procedures for the Emergency Response Plan for Monhagen Lake Dam	+	+	+	+	+	+	+	+	+	+	Medium	Low	High
MI-16	Conduct vulnerability assessment of shelters and multi-family facilities	+	+	0	+	+	0	0	0	0	+	Medium	Low	High
MI-17	Establish agreement between City and County to be able to clear debris from drainage crossings in County area	+	+	+	+	+	+	+	+	0	+	Low	Low	Low
MI-18	Investigate watershed and impervious area toward Wisner Ave/Draper Brook corridor	0	+	0	+	+	0	+	0	0	+	Medium	Low	High
MI-19	Develop agreement with DEC to have ability to cleanup Walkill River waterway	+	+	+	+	+	0	+	+	0	+	Medium	Low	High
MI-20	Train planning review officials on enhanced stormwater management and low impact development techniques	+	+	0	+	+	0	+	0	0	0	Medium	Low	High
MI-21	Revise zoning and site plan regulations	0	+	0	+	+	0	+	-	0	0	Medium	Low	High
MI-22	Incorporate local law prohibiting the storage of debris, brush, or similar clogging elements near the banks of waterways	+	+	0	+	+	+	+	0	0	+	Medium	Low	High
MI-23	Conduct bi-annual waterway inspections to identify properties which are violating debris storage restrictions along banks of waterways	+	+	+	+	+	0	+	+	0	+	Low	Low	Medium
MI-24	Expand similar Public Safety Alert system used in Walkill into City	+	+	0	+	+	+	0	0	0	+	Medium	Low	High
MI-25	Coordinate with school district and have Time Warner Cable to have direct access to broadcast capability	+	+	+	+	0	0	0	0	0	+	Medium	Low	High
MI-26	Educate public about emergency preparation and response actions	+	+	+	+	+	+	+	+	0	+	Low	Low	Low
MI-27	Support disaster preparedness training for agencies serving vulnerable populations and the general public	+	+	-	+	+	+	+	+	0	+	High	Medium	High

**STAPLEE Criteria Consideration Tables**  
**Mitigation Action Prioritization and Comparison**

Jurisdiction: City of Middletown

Action ID	Action	S	T	A	P	L	E	E	Can action be easily implemented?	Does action achieve multiple plan objectives?	Can action be quickly implemented?	Level of action benefits	Level of action overall costs	Priority ranking
		+ = benefit (favorable), - = cost (unfavorable), 0 = neutral or N/A											Levels = high, medium, or low	
MI-28	Inform local residents of the flooding problems associated with debris and brush located near the banks of waterways	+	+	+	+	+	+	+	+	0	+	Medium	Low	High
MI-29	Adopt a Real Estate Disclosure code to notify buyers of potential hazards	+	+	0	+	0	0	+	0	0	+	Low	Low	Low
MI-30	Update flood hazard maps	0	+	0	+	+	0	+	-	0	+	Medium	Low	High
MI-31	Develop community outreach program to private property owners to encourage cleanup of waterways on their property	+	+	0	+	0	0	+	0	0	+	Low	Low	Low

**Attachment III**

**Hazard Mitigation Worksheets -  
City of Middletown**



## Mitigation Actions and Strategy Detail Worksheet

<b>Action Worksheet</b>	
Name of Jurisdiction	City of Middletown
Name of Hazard Mitigation Plan	Orange County Multi-Jurisdictional Hazard Mitigation Plan
<b>Potential Actions/Projects (not being implemented at this time)</b>	
Action/Project Number	MI – 7
Name of Action/Project	Increase culvert & channel capacity to reduce bottlenecks.
Summary of Evaluation: Benefits (losses avoided), estimated costs, and other factors considered	Increase culvert & channel capacity leaving city area to southeast to reduce bottlenecks. Coordinate efforts downstream with Towns of Wallkill & Wawayanda to continue capacity & unrestricted flow of drainage.
<b>Plan for Implementation</b>	
Responsible Organization	City DPW, City Consulting Team
Action/Project Priority	High
Potential Funding Sources	Local Staff Labor, Local Funding, HMGP, PDM Grant Funding
Other assisting organizations, entities, etc.	N/A
Local planning mechanisms to be used in project/action implementation, if any	None.
<b>Progress Report</b>	
Date of status report	
Report of progress	
Evaluation of effectiveness	

## Mitigation Actions and Strategy Detail Worksheet

<b>Action Worksheet</b>	
Name of Jurisdiction	City of Middletown
Name of Hazard Mitigation Plan	Orange County Multi-Jurisdictional Hazard Mitigation Plan
<b>Potential Actions/Projects (not being implemented at this time)</b>	
Action/Project Number	MI - 9
Name of Action/Project	Construction of Detention Basins
Summary of Evaluation: Benefits (losses avoided), estimated costs, and other factors considered	Develop study & design for construction of detention basin(s) to capture downstream flow from Monhegan Lake watershed area into City.
<b>Plan for Implementation</b>	
Responsible Organization	City Council, Planning Board, Consulting Team
Action/Project Priority	High
Potential Funding Sources	Local Funding, NY Rising, HMGP, PDM Grant Funding
Other assisting organizations, entities, etc.	N/A
Local planning mechanisms to be used in project/action implementation, if any	None.
<b>Progress Report</b>	
Date of status report	
Report of progress	
Evaluation of effectiveness	

Orange County  
Multi-Jurisdictional All Natural Hazard Mitigation Plan  
Emergency Shelter Questionnaire

Current Emergency Shelter	
Name of Your Municipality:	<u>City of Middletown</u>
Common Name of Your Emergency Shelter:	<u>1. Middletown Senior High School</u>
	<u>2. Monhagen Middle School</u>
	<u>3. Red Cross Warehouse</u>
	<u>4. Medical College</u>
	<u>5. Homeless Shelter</u>
Street Address of Your Emergency Shelter:	<u>1. 30 Gardner Ave Ext Ave, Middletown, NY 10940</u>
	<u>2. 555 County Rd. 78, Middletown, NY 10940</u>
	<u>3. 135 Crotty Rd., Middletown, NY 10940</u>
	<u>4. 60 Prospect Ave., Middletown, NY 10940</u>
	<u>5. 18 Seward Ave., Middletown, NY 10940</u>
Name of the Owner of Your Emergency Shelter:	<u>Various</u>
Name of the Regular Occupant of Your Emergency Shelter:	<u>Various</u>

Name of Jurisdiction: \_\_\_\_\_

**RESOLUTION  
TO AUTHORIZE THE ACCEPTANCE AND ADOPTION OF THE  
MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE FOR  
ORANGE COUNTY, NEW YORK**

**WHEREAS**, the Orange County Department of Emergency Services, with the assistance from Barton & Loguidice, D.P.C., has gathered information and prepared the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, New York; and

**WHEREAS**, the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, New York has been prepared in accordance with the Disaster Mitigation Act of 2000 and Title 44 Code of Federal Regulations (CFR), Part 201; and

**WHEREAS**, Title 44 CFR, Chapter 1, Part 201.6(c)(5) requires each local government participating in the preparation of a Multi-Jurisdictional Mitigation Plan or Plan Update to accept and adopt such plan; and

**WHEREAS**, the City of Middletown has reviewed the 2016 Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, has found the document to be acceptable, and as a local unit of government, has afforded its citizens an opportunity to comment and provide input regarding the Plan Update and the actions included in the Plan;

**WHEREAS**, the City of Middletown, will consider the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County during the implementation and updating of local planning mechanisms, and will incorporate the hazard assessment data, hazard vulnerabilities, and mitigation actions in these mechanisms, where applicable;

**NOW THEREFORE, BE IT RESOLVED**, that the City of Middletown, as a participating jurisdiction, adopts the Multi-Jurisdictional Hazard Mitigation Plan Update for Orange County, New York, dated May 2016.

This resolution was thereupon declared duly adopted on \_\_\_\_\_.

\_\_\_\_\_  
(Mayor)

\_\_\_\_\_  
(Clerk)