



**Appendix D**  
**Planning Process Toolkit**



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**Worksheets**

**1) Hazard Selection Worksheet**

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Name \_\_\_\_\_

Agency \_\_\_\_\_

**Hazard Selection**

The HMP will only address those hazards that pose a real threat to NYC and we would like the Steering Committee’s input on hazard selection. Below is the complete list of SEMO identified hazards. Please review this list and check ‘Yes’ or ‘No’ if your agency has been affected by this hazard. Please consider if each hazard has influenced your agency's operations and/or policy and program development and/or physical structures and property.

<b>SEMO Identified Hazards</b>	<b>Yes</b>	<b>No</b>	<b>If Yes, please explain or give example(s)</b>
Coastal Erosion	<input type="checkbox"/>	<input type="checkbox"/>	
Coastal Storms/Hurricanes	<input type="checkbox"/>	<input type="checkbox"/>	
Dam Failure	<input type="checkbox"/>	<input type="checkbox"/>	
Drought	<input type="checkbox"/>	<input type="checkbox"/>	
Earthquakes	<input type="checkbox"/>	<input type="checkbox"/>	
Extreme Temperatures	<input type="checkbox"/>	<input type="checkbox"/>	
Floods	<input type="checkbox"/>	<input type="checkbox"/>	
Hailstorm	<input type="checkbox"/>	<input type="checkbox"/>	
Landslides	<input type="checkbox"/>	<input type="checkbox"/>	
Subsidence	<input type="checkbox"/>	<input type="checkbox"/>	
Tornadoes/Windstorms	<input type="checkbox"/>	<input type="checkbox"/>	

Wildfires	<input type="checkbox"/>	<input type="checkbox"/>	
Winter Storms (severe)	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Hazard Definitions</b>	
<b>Coastal Erosion</b>	Coastal Erosion is the loss or displacement of land along the coastline due to the action of wind, waves, currents, tides, wind-driven water, waterborne ice, runoff of surface waters, other impacts of storms, or groundwater seepage.
<b>Coastal Storms/Hurricanes</b>	Tropical cyclones, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye". Circulation is counterclockwise in the Northern Hemisphere.
<b>Dam Failure</b>	An uncontrolled release of impounded water resulting in downstream flooding.
<b>Drought</b>	A prolonged period with no rain. Limited winter precipitation accompanied by moderately long periods during the Spring and Summer months can also lead to drought conditions.
<b>Earthquakes</b>	The sudden motion or trembling of the ground produced by abrupt displacement of rock masses, usually within the upper 10-20 miles of the earth's surface.
<b>Extreme Temperatures</b>	<b>Extreme Cold</b> - temperatures drop well below normal in an area. Whenever temperatures drop well below normal and wind speed increases, heat can leave your body more rapidly (known as the wind chill effect). <b>Extreme Heat</b> - temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground.
<b>Floods</b>	A general and temporary condition of partial or complete inundation on normally dry land. Flooding can be categorized coastal, riverine, or flash/urban.
<b>Hailstorms</b>	Showery precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter, falling from a cumulonimbus cloud.
<b>Landslides</b>	The downward and outward movement of slope forming materials reacting to the force of gravity. Slide materials may be composed of natural rock, soil, artificial fill, or combinations of these materials. The term landslide is generalized and includes rockfalls, rockslides, block glide, debris slide, earth flow, mud flow, slump, and other such terms.

<b>Subsidence</b>	Depressions, cracks, and sinkholes in the earth's surface which can threaten people and property. Subsidence depressions, which normally occur over many days to a few years, may damage structures with low strain tolerances such as dams, factories, nuclear reactors, and utility lines. The sudden collapse of the ground surface to form sinkholes, many yards wide and deep within the span of a few minutes to a few hours poses immediate threat to life and property.
<b>Tornadoes/Windstorms</b>	A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity or funnel.
<b>Wildfires</b>	Any instance of uncontrolled burning in grasslands, brush, or woodlands.
<b>Winter Storms</b>	Includes ice storms, blizzards and can be accompanied by extreme cold. The National Weather Service characterizes blizzards as being combinations of winds in excess of 35 miles per hour with considerable falling or blowing snow, which frequently reduces visibility.

2) **Local Capability Assessment**

**Local Capability Assessment**

The Local Capability Assessment examines the policies, programs, regulations, studies, and initiatives which are in place to reduce the risks NYC may face from natural hazards. This Capability Assessment also examines the shortfalls of any plans, programs, and regulations and devises ways to improve on them. For the purposes of next months meeting, please insert your agency’s name by any of the plans or policies your agency undertakes. If there are other related plans, policies, programs, studies, or initiatives which are not listed and are related to hazard mitigation, please add them to the list. For the next meeting, we will be collecting this list and an organizational chart or list of divisions within your agency. This chart/ list will assist OEM in understanding your agencies responsibilities and how they may relate to NYC’s Hazard Mitigation Plan.

<b>Capabilities</b>	<b>Responsible Agency(s)</b>
<i><b>Planning mechanisms</b></i>	
Local Emergency Plan	OEM
Local Emergency Disaster Recovery Plan	OEM
Flood Mitigation Assistance (FMA) Flood Mitigation Plan	
Floodplain Management Plan (CRS/NFIP)	
Other Hazard Mitigation Plan	
Capital Improvement or Development Plan	
Land-use Plans	
Local Waterfront Revitalization Plans (LWRP), Master/Comprehensive Plan	
<i><b>Policies/Ordinance</b></i>	
Steep slope ordinances	
Property set-back ordinance (water/wildfire/other hazard)	
Watershed Ordinance	
Storm Water Ordinance	
Zoning/land use restrictions	
Codes building site/design	

<b>Capabilities</b>	<b>Responsible Agency(s)</b>
Real Estate disclosure requirements	
Site plan review requirements	
<i><b>Programs</b></i>	
Zoning/land use restrictions	
Codes building site/design	
National Flood Insurance Program Participant (NFIP)	
National Flood Insurance Program Participant (NFIP) Community Rating System (CRS) Participating Community	
Hazard awareness program	
Planning Programs Department	
Planning/zoning boards	
Property Acquisition Programs	
Local Waterfront Revitalization Plans (LWRP), Program	
Comprehensive Development Program	
Capital Improvement or Development Program	
Land Use Program	
Public education/awareness programs	
Stream Maintenance Program	
Storm drainage systems maintenance Program	
Tree pruning program	
Site plan review program	
<i><b>Studies/Reports</b></i>	
Hazard analysis/risk assessment	OEM
Floodplain Maps/Flood Insurance Studies	
Hydrological/Hydraulic Studies	

**3) Goal and Objectives**

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The Hazard Mitigation Plan must have established goals and objectives to direct the development and implementation of the mitigation strategy section. The goals and objectives represent a long-term vision for hazard reduction and enhancement of mitigation capabilities for NYC.

**Goals** are general guidelines that explain what the HMP wants to achieve. They are long-term and represent global visions.

**Objectives** define strategies or implementation steps to attain the identified goal. Objectives are specific and may be measurable.

**Assignment:** Below is a draft of generic goals and objectives used in Local Hazard Mitigation Plans. In an effort to focus the goals and objectives to NYC, please suggest 2 to 3 objectives you believe are specific to NYC and/or your agency while encompassing hazard mitigation.

Suggested Goal/Objective 1:

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Suggested Goal/Objective 2:

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Suggested Goal/Objective 3:

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**Goal 1: Protect public health and safety**

Objective 1.1 – Improve systems that provide warning and emergency communications.

Objective 1.2 – Reduce the impacts of hazards on vulnerable populations.

Objective 1.3 – Strengthen state and local building code enforcement.

Objective 1.4 – Train emergency responders.

## **Goal 2: Protect property**

Objective 2.1 – Implement mitigation programs that protect critical facilities and services and promote reliability of lifeline systems to minimize impacts from hazards, to maintain operations, and to expedite recovery in an emergency.

Objective 2.2 – Consider known hazards when identifying the site for new facilities and systems.

Objective 2.3 – Create redundancies for critical networks such as water, sewer, digital data, power, and communications.

Objective 2.4 – Adopt and enforce public policies to minimize impacts of development and enhance safe construction in high hazard areas.

Objective 2.5 – Integrate new hazard and risk information into building codes and land use planning mechanisms.

Objective 2.6 – Educate public officials, developers, realtors, contractors, building owners and the general public about hazard risks and building requirements.

Objective 2.7 – Promote appropriate mitigation of all public and privately-owned property within the city’s jurisdiction including, but not limited to, residential units, commercial structures, educational institutions, health care facilities, stadiums, and infrastructure systems.

Objective 2.8 – Incorporate effective mitigation strategies into the city’s Capital Improvement Projects.

Objective 2.9 – Promote post-disaster mitigation as part of repair and recovery.

## **Goal 3: Promote a sustainable economy**

Objective 3.1 – Form partnerships to leverage and share resources.

Objective 3.2 – Continue critical business operations.

Objective 3.3 – Partner with private sector, including small businesses, to promote structural and non-structural hazard mitigation as part of standard business practice.

Objective 3.4 – Educate businesses about contingency planning citywide, targeting small businesses and those located in high risk areas.

Objective 3.5 – Partner with private sector to promote employee education about disaster preparedness while on the job and at home.

## **Goal 4: Protect the environment**

Objective 4.1 – Develop hazard mitigation policies that protect the environment.

Objective 4.2 – Promote climate change adaptation strategies that protect the long term effects on the environment

## **Goal 5: Increase Public Preparedness for Disasters**

Objective 5.1 – Enhance understanding of natural hazards and the risk they pose.

Objective 5.2 – Improve hazard information, including databases and maps.

Objective 5.3 – Improve public knowledge of hazards and protective measures so individuals appropriately respond during hazard events.

#### 4) Mitigation Action Worksheet Packet

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**Directions:** Please fill out the worksheet electronically with any natural hazard-related mitigation actions. Mitigation actions should be current or potential plans, projects, policies or programs. Please fill out this worksheet as completely as possible on behalf of your agency.

The mitigation actions should align with the five Mitigation Strategy Goals listed below. Page 3 of this packet contains a list of natural hazards and recommended projects/initiatives related to that hazard..

#### **Hazard Mitigation Goals**

- Goal 1: Protect public health and safety
- Goal 2: Protect critical facilities and Infrastructure
- Goal 3: Protect public and private property
- Goal 4: Ensure economic stability
- Goal 5: Protect the environment

**Mitigation Action & description** – Provide a brief description of the project.

**Hazard Addressed** – List applicable hazard(s) addressed by each mitigation action.

**Lead Agency** – List the agency responsible for overseeing the planning, completion, implementation and monitoring of the potential or existing action.

**Supporting Agency** – List any agency or agencies that will assist in planning, implementing or monitoring of the potential or existing mitigation action.

**Project timeline** – Expected time of completion of potential or existing project. If the project is an ongoing initiative, please insert *ongoing* under the heading.

**Estimated Project Cost** – Estimated cost of the potential or existing project. If the costs can not be determined at this time, please insert TBD.

**Possible funding sources** –Source(s) which are or can be used to fund the mitigation action. For example: agency operating budget, grant, etc.

**Existing or Potential** – Indicate whether the action is existing or potential. An existing action is currently or underway. A potential action is a mitigation action your agency would like to implement in the future

Sample Hazard Mitigation Worksheet

Mitigation Action & Description	Hazard Addressed	Lead Agency	Supporting Agency(s)	Project Timeline	Estimated Project Cost	Possible funding Source(s)	Existing or Potential
<b>Bridge Seismic Retrofit</b> – Seismic retrofit all bridges to withstand a magnitude 8 earthquake	Earthquake	DOT	NYCOEM, FEMA, USACE,	6 years	\$32,000,000	Agency operating budget, HMGP	Existing
<b>Drainage Improvement</b> – Increase capacity of NYC Transit stormwater pipes to withstand torrential downpours	Flood	MTA	NYCOEM, NYSDEC, NYCDEP	15 years	\$50,000,000	Capital Improvement budget, HMGP	Potential

Sample Hazard Mitigation Actions

## Potential Mitigation Actions by Hazard

\*Please note this list is intended as a guide but is not all-inclusive.

### **Drought**

- Public Awareness
- Retrofit/Upgrade Irrigation System
- Drought Resistant Vegetation
- Drought Preparedness/Planning
- Increase Water Conservation Standards

### **Earthquake**

- Planning and Zoning
- Seismic Retrofit buildings and Infrastructure
- Improve/Upgrade/Enforce Building Codes

### **Flood**

- Public Awareness of floodplains
- Planning and Zoning
- Stormwater Management
- Warning System
- Post Disaster Code Enforcement
- Major/Minor Structural Flood Control Projects
- Protective Measures for Critical Facilities
- Property Protection
- Protective Measures for Critical Facilities
- Wet/Dry Floodproofing

### **Coastal Storm / Hurricane**

- Public Awareness
- Evacuation Plan
- Warning System
- Develop/Improve/Enforce Building Codes in Hazard Areas
- Structural Retrofit
- Wind Resistant Design and Construction

### **Winter Storm**

- Structural Retrofit
- Redundant Utilities/Communications
- Tree Pruning
- Selective Planting around Utility Lines
- Public Awareness
- Develop/Improve/Enforce Building Codes in Hazard Areas
- Underground Wiring/Utilities

### **Wildfire**

- Public Awareness
- Evacuation Plan
- Warning System
- Redundant Utilities/Communications
- Tree Pruning
- Selective Planting/Vegetative Setback around Structures

**Tornado / Windstorm**

- Public Awareness
- Redundant Utilities/Communications
- Tree Pruning
- Warning System
- Develop/Improve/Enforce Building Codes in Hazard Areas
- Retrofit Critical Structures
- Hazard Resistant Construction

**Coastal Erosion**

- Public Awareness
- Planning and Zoning
- Property Protection
- Coastal barriers
- Coastal replenishing
- Selective Planting/Vegetation
- Open space
- Residential property buyouts

**Extreme Temperatures**

- Public Awareness
- Extreme Temperature monitoring
- Street Trees
- Green-roofs
- Using cool materials for buildings and pavement

**Subsidence**

- Groundwater Use Restriction
- Public Awareness

**5) Agency Capability Assessment Form**

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In January, you identified capabilities within your agency by completing the Local Capability Assessment worksheet. Based on your response, please expand this information by identifying and describing the specific plan, policy, program, regulation or study cited in the worksheet (See Page 3).

Below is the Agency Capability Assessment form. Please fill out the form electronically based on the answers your agency submitted.

*Agency:* Insert your agency's name, along with a brief description of the agency's mission/ function.

*Initiatives:* List the plan, policy, program, regulation, study, and/ or other initiative your agency acknowledged responsibility for in the Local Capability Assessment.

*Division:* Insert the division within your agency responsible for the described action. If the entire agency is responsible for the action, list your agency's name.

*Description:* Insert a brief description of the listed action, no longer than a paragraph.

Agency (Mission / Function)	Initiatives (Policies, Programs, Regulations, Studies, or other initiatives)	Division	Description
<p><b>OEM</b> The New York City Office of Emergency Management (OEM) plans and prepares for emergencies, educates the public about preparedness, coordinates emergency response and recovery, and collects and disseminates emergency information.</p>	Flood Mitigation Plan	Transportation & Infrastructure	OEM developed a Flash Flood Emergency Plan as part of the larger Flood Mitigation Task Force headed by the Mayor’s Office of Operations and DEP. The Plan outlines procedures for weather monitoring and plan activation triggers. Operations in the Plan include targeted catch basin cleaning and maintenance, improved flood monitoring and communication between agencies, and recovery.
	Hazard Analysis / risk assessment	Transportation & Infrastructure	OEM is serving as the lead agency on the Hazard Mitigation Plan. New York City’s Hazard Mitigation Plan is developed to address all natural hazards which may affect the City as well as the vulnerability of NYC’s built environment to these natural Hazards. The plan also devises mitigation actions which will lessen risk and vulnerability of the natural hazards on New York City’s built environment.
	Local Emergency Plan	All	OEM coordinates the creation and implementation of Emergency Plans which address numerous emergencies ranging from Heat, Winter, Coastal Storms, and Power Outages, to name a few.

Agency (Mission / Function)	Initiatives (Policies, Programs, Regulations, Studies, or other initiatives)	Division	Description

<b>Capabilities</b>	<b>Responsible Agency(s)</b>
<i><b>Planning mechanisms</b></i>	
Local Emergency Plan	OEM, DOT
Local Emergency Disaster Recovery Plan	OEM, DOT
Flood Mitigation Assistance (FMA) Flood Mitigation Plan	DOT
Floodplain Management Plan (CRS/NFIP)	DOT
Other Hazard Mitigation Plan	DOT, DEP
Capital Improvement or Development Plan	DOT, DPR, DEP
Land-use Plans	DCP, DOT, DPR
Local Waterfront Revitalization Plans (LWRP),	DCP, DPR
Master/Comprehensive Plan	DCP
<i><b>Policies/Ordinance</b></i>	
Steep slope ordinances	DCP, DOT
Property set-back ordinance (water/wildfire/other hazard)	DOT
Watershed Ordinance	DEP,
Storm Water Ordinance	DEP
Zoning/land use restrictions	DCP, DEP
Codes building site/design	DOB, DEP
Real Estate disclosure requirements	
Site plan review requirements	DCP, DOB, DPR
<i><b>Programs</b></i>	
Zoning/land use restrictions	DCP
Codes building site/design	DOB
National Flood Insurance Program Participant (NFIP)	DOB
National Flood Insurance Program Participant (NFIP) Community Rating System (CRS) Participating Community	
Hazard awareness program	DOT
Planning Programs Department	DCP
Planning/zoning boards	DCP
Property Acquisition Programs	DOT, DPR, DEP
Local Waterfront Revitalization	DCP

<b>Capabilities</b>	<b>Responsible Agency(s)</b>
Plans (LWRP), Program	
Comprehensive Development Program	
Capital Improvement or Development Program	DOT, DEP
Land Use Program	DCP, DOT
Public education/awareness programs	DOT, DPR
Stream Maintenance Program	DPR, DEP
Storm drainage systems maintenance Program	DPR, DEP
Tree pruning program	DOT, DPR
Site plan review program	DCP, DOB, DPR
CEQR	DCP
<b><i>Studies/Reports</i></b>	
Hazard analysis/risk assessment	OEM, DOT
Floodplain Maps/Flood Insurance Studies	DOB
Hydrological/Hydraulic Studies	DOT, DEP

## 6) STAPLEE

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Hello [Steering Committee Member(s)],

Before next week's meeting and in the effort of saving time, we are asking the MPC Steering Committee to perform the STAPLEE analysis on 3 selected mitigation actions your agency submitted. Discussed in the March 28<sup>th</sup> meeting, STAPLEE is a FEMA strategy for municipalities to review their actions based on 7 categories: **s**ocial, **t**echnological, **a**dministrative, **p**olitical, **l**egal, **e**conomic and **e**nvironmental. Each category has 2-4 criteria to determine if the action is favorable, unfavorable or not applicable. Attached is an excel document and PowerPoint presentation.

1. The first worksheet in the excel file (Mitigation Actions) contains the 3 mitigation actions and all the information submitted by your agency.
2. The second worksheet in the excel file (STAPLEE) contains a form your agency will populate.
3. The PowerPoint contains the slides on STAPLEE presented in March for additional guidance.

Instructions:

For mitigation actions that have positive implications or no foreseen negative implications associated with the corresponding STAPLEE criteria, use the drop-down menu to insert (+). For actions with negative implications, use the table drop-down menu to insert (-). For the STAPLEE criteria which do not apply or are not relevant to the mitigation action, use the drop-down menu to insert (N).

Please submit your STAPLEE analysis to Rexford by **COB Wednesday May 14<sup>th</sup>**. We will briefly review your STAPLEE analysis at the Steering Committee meeting.

Thank you,  
The Hazard Mitigation Team

**Instructions: Click on the cell and use the drop down menu to select whether the mitigation action is favorable (+), unfavorable (-) or not applicable (N) for the selected category.**

Mitigation Action	<u>S</u> ocial		<u>T</u> echnical		<u>A</u> dministrative		<u>P</u> olitical		<u>L</u> egal			<u>E</u> conomic			<u>E</u> nvironment					
	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/Operations	Political Support	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Consistent with Community Environmental Goals	Consistent with Federal Laws
Mitigation Action																				
Mitigation Action																				
Mitigation Action																				

**Resources**

7) Mitigation Action Funding Matrix

Program Element	Hazard Mitigation Grant Program (HMGP)	Flood Mitigation Assistance (FMA)	Pre-Disaster Mitigation-Competitive (PDM-C)	Repetitive Flood Claims (RFC)	Severe Repetitive Loss (SRL)
<b>Description</b>	Hazard mitigation Grant Program provides States, territories, Indian tribal governments, and communities funding to significantly reduce or permanently eliminate future risk to lives and property from natural disasters by funding cost-effective measures.	Used to implement cost-effective measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other sources insured under the National Flood Insurance Program.	A national competitive program used to fund state, territories, Indian Tribal governments, and communities for hazard mitigation planning and the implementation of cost-effective mitigation projects prior to a disaster event.	Funding to reduce or eliminate the long-term risk of flood damage to structures insured under the NFIP that have had one or more claim payment(s) for flood damages.	Grant funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential properties and the associated drain on the National Flood Insurance Fund.
<b>Eligibility</b>	In order to be eligible for HMGP funding, the following conditions must exist: The State must have a FEMA-approved and adopted State or Enhanced Hazard Mitigation Plan, which has been adopted by the jurisdiction; NYC must have a FEMA-approved local hazard mitigation plan, which has been adopted by the jurisdiction; and the proposed activity must be consistent with the Grantee's (NYS) state standard or enhanced hazard mitigation plan and the sub-grantee's (NYC) local hazard mitigation plan.	Prospective applicants for FMA grant funding must have a FEMA-approved Flood Mitigation Plan, and be a member in good standing with the National Flood Insurance Program. No state plan or local hazard mitigation plan is required to be eligible for funding; however, FEMA recommends that in-lieu of a Flood Mitigation Plan, municipalities undertake a all-hazard mitigation plan including flood hazard.	Funding is available to municipalities and States with approved hazard mitigation plans. PDM-C is a national competitive grant which is judged and distributed by FEMA.	The state which the sub-applicant is located must have an approved State Hazard Mitigation Plan. No local plan is necessary for jurisdictions to receive funding through this program. Applicants must be insured under the NFIP and the State and municipality must not be able to meet the FMA program requirements for either cost-share or capacity to manage the activities.	A FEMA-approved State or Enhanced hazard mitigation plan. To be eligible for funding from Severe Repetitive Loss, residential properties must meet the following criteria: <ul style="list-style-type: none"> <li>• Have at least four NFIP claim payments over \$5,000 each, when at least two such claims have occurred within any ten-year period, and the cumulative amount of such claims payments exceeds \$20,000; or</li> <li>• For which at least two separate claims payments have been made with the cumulative amount of the building portion of such claims exceeding the value of the property, when two such claims have occurred within any ten-year period.</li> </ul>
<b>Application Process</b>	The primary responsibility for processing and administering mitigation activity funding resides with SEMO. The State sets mitigation priorities and selects project applications in accordance with State planning and mitigation objectives. Potential sub-applicants for project	Applicants applying for funding must apply electronically through FEMA's e-grant application. Sub-applicants apply directly to the State (SEMO), who reviews and prioritizes sub-applications. The applicant (SEMO) submits the application to FEMA for review and approval.	<i>Same as FMA</i>	Applicants must apply using paper OMB and FEMA forms, including the e-Grants project sub-application. Sub-applicants process is the same as described in FMA	<i>Same as FMA</i>

Program Element	Hazard Mitigation Grant Program (HMGP)	Flood Mitigation Assistance (FMA)	Pre-Disaster Mitigation-Competitive (PDM-C)	Repetitive Flood Claims (RFC)	Severe Repetitive Loss (SRL)
	<p>or planning grants must send a Letter Of Intent (LOI), followed by a completed project application. After SEMO has reviewed and prioritized potential mitigation projects, applications are forwarded to FEMA for final review and approval.</p>				
<p><b>Sample Eligible Projects</b></p>	<p>Acquiring and relocating structures from hazard-prone areas, Retrofitting structures to protect from natural hazards, and constructing certain types of minor and localized flood control projects. Grant monies can be used to fund both public and private projects, as long as the projects fit within State and local government mitigation strategy objectives and goals. Generally speaking, this is program provides the most funding for hazard mitigation project and planning grants .</p>	<p>Elevation of structures; Dry flood-proofing of non-residential structures; acquisitions; structure relocations w/ property deed restricted to open space; structure demolitions; and, minor flood control activities</p>	<p>Voluntary acquisitions of real property for open space conversion; relocation or elevating structures; structural &amp; non-structural retrofitting to meet or exceed building codes. Hydrologic and Hydraulic studies/analyses, engineering studies, and drainage studies, which must be tied in with a proposed project; and, vegetation management for natural dune restoration</p>	<p>Acquisition, structure demolition, or structure relocation w/ property deed restrictions for open space. The RFC program has broadened the eligible project types to include Dry Flood proofing of non-residential structures; and Minor Localized Flood Control Projects (funding limited to \$1M per project).</p>	<p>Same as FMA. Funds can also be used for mitigation reconstruction of damaged structures</p>
<p><b>Fiscal Year 2007 Funds</b></p>	<p>Funds from this program vary from year-to-year. Program funding is contingent upon the total Presidential declared disaster funding from Individual (IA) and Public Assistance (PA). Generally speaking, 15% of the total Public and Individual Assistance for a specific disaster is allocated towards this program. For this grant program, FEMA requires a 75% Federal share, minimum 25% non-Federal match</p>	<p>31 million has been allocated nationwide for this program. FEMA requires a 75% Federal share, minimum 25% non-Federal match. The FMA program is an annual program and funding is a state allocation of approximately \$900,000 annually generated by a surcharge on flood insurance premiums, unlike the PDM or RFC program which is a state wide competitive program.</p>	<p>\$100 million has been allocated nationwide for this program. FEMA requires a 75% Federal share, minimum 25% non-Federal match. Small impoverished communities may be eligible for up to 90% Federal cost-share.</p>	<p>10 million is allocated for this program nationwide. Up to 100% Federal funding is available (No non-Federal match requirement)</p>	<p>FEMA is combining \$40 million from FY 2006 and \$40 million from FY 2007 for a total of \$80 million. \$40 million has been allocated nationwide from FY 2005 – FY 2009. FEMA requires a 75% Federal share, minimum 25% non-Federal match.</p>

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## 8) Hazard Mitigation Fact Sheet for Mitigation Planning Council

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### What is Hazard Mitigation?

Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.

### Why develop a Hazard Mitigation Plan?

- Break the continuous cycle of disasters
- Resiliency
- Proactive approach
- Funding

### What is a Mitigation Action?

Mitigation Actions include programs, plans, projects or policies within your agency that help reduce or eliminate the long-term risk to human life and property from natural hazards. These actions fall under 6 major categories:

#### 1) Prevention

Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.

#### 2) Property Protection

Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.

#### 3) Public Education and Awareness

Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

#### 4) Natural Resource Protection

Actions that, in addition to minimizing hazard losses, 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.

#### 5) Emergency Services

Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.

#### 6) Structural Projects

Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

The MPC is representatives from approximately 40 agencies and organizations that may have an interest in reducing the impact of natural hazards. Members of the MPC will identify existing and potential projects within their agency that will mitigate natural hazards.

**MPC Members**

<u>NYC</u>		<u>Other</u>	
DCAS	EDC	Amtrak	MTA-NYCT
DCP	FDNY	Con Ed	MTA-TB&T
DDC	HHC	LIPA	National Grid
DEP	HPD	MTA-Buses	NWS
DFTA	HRA	MTA-Police	PANYNJ
DHS	LPC	MTA-HQ	RPA
DOB	NYCHA	MTA-LIRR	US ACE
DOC	NYPD	MTA-MNR	Verizon
DOE	OEM		
DOHMH	OMB		
DoITT	OLTPS		
DOT	Parks		
DSNY	SBS		

**What are the goals of the MPC?**

- Develop, review, revise and maintain the HMP
- Provide a forum for mitigation issues, programs, policies and projects
- Develop and foster mitigation partnerships

**What is the New York City Mitigation Planning Council Steering Committee?**

A subset of the Mitigation Planning Council, the MPC Steering Committee (MPCSC) will help OEM develop a Mitigation Strategy out of the project descriptions provided by the larger MPC.

**MPCSC Members**

<u>NYC</u>	<u>Other</u>
DOB	MTA
DCP	RPA
DEP	
DOT	
OEM	
OLTPS	
PARKS	

**9) Sample Mitigation Actions for the Mitigation Planning Council**

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Acquisition of Land	All Hazards	Land acquisition resulting in open space or development restriction/prevention in a hazard area is a fundamental form of hazard mitigation.	All Agencies	NYS Hazard Mitigation Plan
Continuity of Operations	All Hazards	Continue to enhance and verify information in Agency COOP Plans. This includes mission critical personnel, facilities, systems, equipment, documentation, and files.	OEM, All Agencies	NYS Hazard Mitigation Plan
Promote hardening of NYC government facilities to increase resistance to natural hazards	All Hazards	Protect critical government facilities– prioritize structural and non-structural retrofits based on hazard vulnerability analysis.	All Agencies	NYS Hazard Mitigation Plan
Critical facility protection	All Hazards	Promote hardening of existing and future critical facilities from the effects of natural hazards	All Agencies	NYS Hazard Mitigation Plan
Facilities Hardening	Hurricane	Enhance facilities design to endure severe wind, rain and storm surge events.	All Agencies	Miami Hazard Mitigation Plan Hazard Mitigation Plan
<b>Amtrak</b>				
Bridge Seismic Retrofit	Earthquake	Seismically Retrofit Bridges	AMTRAK	Seattle Hazard Mitigation Plan
<b>HRA</b>				

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Crisis Counseling	All Hazards	Training and certifying local crisis counselors through local agencies and/or FEMA Emergency Management Institute where they receive crisis counseling, program training and certification in crisis management	HRA	NYS Hazard Mitigation Plan
<b>MTA</b>				
Bridge Safety Assurance	Flood, Coastal Storm, Earthquake, Tornado	Develop a program to assess a bridge's relative vulnerability to the different modes of failure (scour, overloads, steel detail deficiencies, collision, concrete detail deficiencies & earthquakes).	MTA	NYS Hazard Mitigation Plan
Bridge Inspections	Flood, Coastal Storm, Earthquake, Tornado	Continue to inspect NYC bridges for faults and structural defects.	MTA	NYS Hazard Mitigation Plan
Seismically Retrofit Bridges	Earthquake	Strengthen bridges providing access to critical areas and services	MTA	Seattle Hazard Mitigation Plan
<b>DOB</b>				
Hazard Mitigation through Local Waterfront Revitalization Plans (LWRP)	Flood, Coastal Storm	Promote, provide technical assistance and the availability of funding sources for the development of Local Water Front Revitalization Plans including incorporation of flood mitigation considerations.	DOB	NYS Hazard Mitigation Plan
Advance Citywide Hazard Mitigation through Programmatic and Regulatory Initiatives	All Hazards	Continue NYC Disaster Preparedness efforts to guide and advance citywide hazard mitigation initiatives. Encourage city agencies to incorporate mitigation activities in day-to-day operations.	DOB	NYS Hazard Mitigation Plan
Public and Local Officials Education – Mitigation through Hazard Resistant Construction	Earthquake, Severe Windstorms, Flood, Winter Storm	Enhance efforts to educate NYC citizens and local officials regarding hazard resistant construction methods	DOB	NYS Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Address and Explore Loss Reduction Options for Defined Repetitive Loss Properties	Flood, Coastal Storm	Assist communities to identify repetitive loss locations and support search for potential funding to mitigate future loss.	DOB	NYS Hazard Mitigation Plan
Repetitive Loss Properties	Flood, Coastal Storm	Identify & Mitigate Repetitive Loss Properties. Continue and enhance comprehensive loss reduction efforts to target repetitive loss properties for mitigation including acquisition and appropriate retrofit of structures.	DOB	NYS Hazard Mitigation Plan
Building Codes	All Hazards	Increase effectiveness to mitigation impacts of natural hazards through comprehensive training and certification. Enhance building code enforcement through training programs and promotion of the codes at all levels; in particular, the building and developers industry.	DOB	NYS Hazard Mitigation Plan
Seismic Upgrade of Standpipe	Earthquake	Ensure standpipes can withstand local seismic activity.	DOB	Seattle
Building Damage Assessment, Post disaster	All Hazards	Continue code enforcement disaster assistance to support response and recovery efforts. Promote the mitigation benefits of the disaster response team via agency training and local community awareness	DOB	NYS Hazard Mitigation Plan
Map Enhancement -- Flood Vulnerability	Flood/Coastal Storm	Improve/enhance flood vulnerability data including alternative analysis and Cost Benefit analysis. Enhance planning using surveys to more accurately define flood vulnerability.	DOB	Houston Hazard Mitigation Plan
<b>DCP</b>				

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Promote the hazard mitigation potential of existing planning initiatives and mechanisms including Local Waterfront Revitalization Plans (LWRP)	Flood, Coastal Storm	Promote, provide technical assistance for the development of Local Water Front Revitalization Plans including incorporation of flood mitigation considerations.	DCP	NYS Hazard Mitigation Plan
Advance Citywide Hazard Mitigation through Programmatic and Regulatory Initiatives	All Hazards	Continue NYC Disaster Preparedness efforts to guide and advance citywide hazard mitigation initiatives. Encourage city agencies to incorporate mitigation activities in day-to-day operations.	DCP	NYS Hazard Mitigation Plan
Map Enhancement -- Flood Vulnerability	Flood/Coastal Storm	Improve/enhance flood vulnerability data including alternative analysis and Cost Benefit analysis. Enhance planning using surveys to more accurately define flood vulnerability.	DCP	Houston Hazard Mitigation Plan
<b>Parks</b>				
Rip Rap	Hurricane, Coastal Erosion	Mitigation for the City's shoreline rip rap areas.	Parks	Miami Hazard Mitigation Plan
NYC Dredging Projects	Hurricane	Identify new/existing dredging projects throughout the city. The benefits would include reduced damage to the communities from exacerbated flooding, and would also protect these areas from future events, and greatly mitigate potential damages.	Parks	Miami Hazard Mitigation Plan
Beach and Dune Restoration and Maintenance	Hurricane	Renourishment of coastal erudition areas	Parks	Miami Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Promote the hazard mitigation potential of existing planning initiatives and mechanisms including Local Waterfront Revitalization Plans (LWRP)	Flood, Coastal Storm	Promote, provide technical assistance for the development of Local Water Front Revitalization Plans including incorporation of flood mitigation considerations.	Parks	NYS Hazard Mitigation Plan
Map Enhancement -- Flood Vulnerability	Flood/Coastal Storm	Improve/enhance flood vulnerability data including alternative analysis and Cost Benefit analysis. Enhance planning using surveys to more accurately define flood vulnerability.	Parks	Houston Hazard Mitigation Plan
Tree Pruning and Maintenance	Hurricane	Proper pruning and thinning of the tree canopy is important to minimize damage during hurricanes. Improperly maintained trees damage utilities, building structures and automobiles and require extensive clean up after storms.	Parks	Miami Hazard Mitigation Plan
Rebuild Seawall	Earthquake, Coastal Erosion	Prevent bank erosion and seismic upgrades	Parks	Seattle Hazard Mitigation Plan
<b>DSNY</b>				
Weather Emergency Communication -NOAA Weather Radio (NWR) Alert Receivers	All hazards	Continue and enhance efforts to promote awareness and use of the NOAA Weather Alert receivers and warning program by all citizens, government agencies, and emergency managers. Continue and enhance encouragement of weather warning alert receivers	DSNY	NYS Hazard Mitigation Plan
<b>SBS</b>				
Development of a Contingency Planning Toolkit for Small Businesses	All Hazards	Promote Business Awareness About Disaster Contingency Planning	SBS	Seattle Hazard Mitigation

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
				Plan
Promote Hazard Mitigation Activity to Maintain Continuity of Business	All Hazards	Collaborate with the business community to promote communication and coordination in preparedness and response activities.	SBS	NYS Hazard Mitigation Plan
<b>DOT</b>				
NYC Highway Infrastructure	All Hazards	Design, construct, and maintain City highway infrastructure according to agency standards. Continue to follow agency policies and procedures; regularly review and adopt appropriate changes; conduct training.	DOT	NYS Hazard Mitigation Plan
Advance Citywide Hazard Mitigation through Programmatic and Regulatory Initiatives	All Hazards	Continue NYC Disaster Preparedness efforts to guide and advance citywide hazard mitigation initiatives. Encourage city agencies to incorporate mitigation activities in day-to-day operations.	DOT	NYS Hazard Mitigation Plan
Hazard Mitigation Program--Areaways	Earthquake	Retrofit or Fill Areaways	DOT	Seattle Hazard Mitigation Plan
Bridge Safety Assurance	Flood, Coastal Storm, Earthquake, Tornado	Develop a program to assess a bridge's relative vulnerability to the different modes of failure (scour, overloads, steel detail deficiencies, collision, concrete detail deficiencies & earthquakes).	DOT	NYS Hazard Mitigation Plan
Bridge Inspections	Flood, Coastal Storm, Earthquake, Tornado	Continue to inspect NYC bridges per year for faults and identifying and notifying owners about structural defects.	DOT	NYS Hazard Mitigation Plan
Bridge Seismic Retrofit	Earthquake	Seismically Retrofit Bridges	DOT	Seattle Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Seawall & Viaduct Study	Earthquake	Study options for retrofitting or replacing Viaduct Infrastructure	DOT	Seattle Hazard Mitigation Plan
Rebuild Seawall	Earthquake/Erosion	Prevent bank erosion and seismic upgrades	DOT	Seattle Hazard Mitigation Plan
Replacing Span Wire Signals with Mast Arm Signals	Hurricane	Traffic signals mounted on steel mast arms resisted hurricane winds much more efficiently than the traffic signals mounted on span wires. As a result, damaged mast arm signals could be repaired faster and with much less cost per signal, while repairs to span wire installations are costly, cumbersome and time consuming.	DOT	Miami Hazard Mitigation Plan
Tree Pruning and Maintenance	Hurricane	Proper pruning and thinning of the tree canopy is important to minimize damage during hurricanes. Improperly maintained trees damage utilities, building structures and automobiles and require extensive clean up after storms.	DOT	Miami Hazard Mitigation Plan
<b>FDNY</b>				
Search and rescue	All Hazards	Increase Urban Search & Rescue capabilities through additional urban search and rescue teams as well as an evaluation of local capabilities.	FDNY	NYS Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Adding Redundancy to Security Operations Center	All Hazards	Alarm monitoring and first responder dispatch operations are critical to an effective emergency response strategy. The ability to maintain operational continuity through and after an event would enable the security of critical facilities to continue to be monitored from a remote location out of harms way.	FDNY	Miami Hazard Mitigation Plan
Fire Codes	All Hazards	Create a program to develop and update codes to ensure fire safety, prevention, and suppression systems can withstand the effects of natural hazards.	FDNY	NYS Hazard Mitigation Plan
Seismic Upgrade of Standpipe	Earthquake	Ensure standpipes can withstand local seismic activity.	FDNY	Seattle
Building Damage Assessment, Post disaster	All Hazards	Continue code enforcement disaster assistance to support response and recovery efforts. Promote the mitigation benefits of the disaster response team via agency training and local jurisdiction awareness	FDNY	NYS Hazard Mitigation Plan
<b>NYCHA</b>				
Acquire Emergency Equipment	All Hazards	Acquire the following items to enhance the efficiency of recovery from emergency or natural disaster situations: [portable generators, lighting systems, spot coolers, chippers, grinders, radios, and more!]	NYCHA	Miami Hazard Mitigation Plan
Harden Building and Improve Drainage	Hurricane	To install window protection, replacement of roofs and/or drainage improvements throughout the various NYCHA properties.	NYCHA	Miami Hazard Mitigation Plan
<b>Landmarks</b>				

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Promote the hazard mitigation potential of existing planning initiatives and mechanisms including Local Waterfront Revitalization Plans (LWRP)	Flood, Coastal Storm	Promote, provide technical assistance and the availability of funding sources for the development of Local Water Front Revitalization Plans including incorporation of flood mitigation considerations.	Landmarks	NYS Hazard Mitigation Plan
Address and Explore Loss Reduction Options for Defined Repetitive Loss Properties	Flood, Coastal Storm	Assist communities to identify repetitive loss locations and support search for potential funding to mitigate future loss.	Landmarks	NYS Hazard Mitigation Plan
Repetitive Loss Properties	Flood, Coastal Storm	Identify & Mitigate Repetitive Loss Properties. Continue and enhance the comprehensive loss reduction efforts to target repetitive loss properties for mitigation including acquisition and appropriate retrofit of structures.	Landmarks	NYS Hazard Mitigation Plan
<b>NYPD</b>				
Search and rescue	All Hazards	Increase Urban Search & Rescue capabilities through additional urban search and rescue teams as well as an evaluation of local capabilities.	NYPD	NYS Hazard Mitigation Plan
Adding Redundancy to Security Operations Center	All Hazards	Alarm monitoring and first responder dispatch operations are critical to an effective emergency response strategy. The ability to maintain operational continuity through and after an event would enable the security of critical facilities to continue to be monitored from a remote location out of harms way.	NYPD	Miami Hazard Mitigation Plan
<b>PANYNJ</b>				
NYC Airport Flood Control	Flood	Identify and address flood problem areas in airport vicinity.	PANYNJ	Miami Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Bridge Inspections	Flood, Coastal Storm, Earthquake, Tornado	Continue to inspect NYC bridges per year for faults and identifying and notifying owners about structural defects.	PANYNJ	NYS Hazard Mitigation Plan
Rip Rap	Hurricane, Coastal Erosion	Mitigation for shoreline rip rap areas.	PANYNJ	Miami Hazard Mitigation Plan
Bridge Seismic Retrofit	Earthquake	Seismically Retrofit Bridges	PANYNJ	Seattle Hazard Mitigation Plan
<b>OEM</b>				
Search and rescue	All Hazards	Increase Urban Search & Rescue capabilities through additional urban search and rescue teams as well as an evaluation of local capabilities.	OEM	NYS Hazard Mitigation Plan
Adding Redundancy to Security Operations Center	All Hazards	Alarm monitoring and first responder dispatch operations are critical to an effective emergency response strategy. The ability to maintain operational continuity through and after an event would enable the security of critical facilities to continue to be monitored from a remote location out of harms way.	OEM	Miami
Weather Emergency Communication -NOAA Weather Radio (NWR) Alert Receivers	All Hazards	Continue and enhance efforts to promote awareness and use of the NOAA Weather Alert receivers and warning program by all citizens, government agencies, and emergency managers. Continue and enhance encouragement of weather warning alert receivers	OEM	NYS Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Emergency Alert System (EAS) (Radio and TV broadcast)	All Hazards	Support and enhance FCC EAS broadcast initiative by providing all NYC broadcasters with satellite distribution receivers.	OEM	NYS Hazard Mitigation Plan
Expand Disaster Aid & Response Teams Program (CERT)	All Hazards	Educate Public About Preparedness and Disaster Response	OEM	Seattle
Local Mitigation Collaboration	All Hazards	Build and establish mitigation relationships and increase mitigation awareness and training. Continue holding periodic NYC mitigation training to individual property owners, public education initiatives, conferences, builders and environmental groups. Identify areas of common interests, information sharing via websites, newsletters, etc. Develop an outreach program to local communities about mitigation planning, upgrading capabilities and technical resources.	OEM	NYS Hazard Mitigation Plan
Mitigation Planning and Project Resources	All Hazards	Increase mitigation planning and project activity by providing comprehensive assistance for agencies and organizations. Provide comprehensive technical assistance and training for mitigation including grant application and administration, plan development, and project identification.	OEM	NYS Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Natural Hazard Analysis data and mapping	All Hazards	Enhance existing hazard analysis data and mapping and continue to improve efforts to make data accessible. Continue use of GIS mapping technology to develop and improve hazard mapping and vulnerability assessments. For instance, consider exploring use of real property data and overlay with landslide hazard characteristics (topographic and soils) data to identify vulnerable structures and to assist with hazard mitigation requirements, such as vulnerability assessment and loss estimation.	OEM	NYS Hazard Mitigation Plan
Notify-NYC	All Hazards	Encourage utilization of Notify-NYC.	OEM	NYS Hazard Mitigation Plan
Damage loss estimation for NYC government critical facilities	All Hazards	Analyze individual NYC critical facilities to determine potential loss from natural hazards. Conduct detailed loss assessment using databases and available hazard maps. Data sets should include other information such as building attributes, positional accuracy, natural hazard loss estimation which may be valuable to the hazard mitigation initiative.	OEM	NYS Hazard Mitigation Plan
Increase awareness of vulnerable NYC government facilities	All Hazards	Conduct hazard vulnerability awareness campaign to educate NYC government facility managers. Facilitate natural hazard awareness discussion during the annual NYC government facility manager conference.	OEM	NYS Hazard Mitigation Plan
Natural Hazard Events Database	All Hazards	Develop a natural hazard data base system to assist Local officials with risk assessment, mitigation, and other planning initiatives. Heighten awareness of natural hazard exposure by developing a comprehensive	OEM	NYS Hazard Mitigation Plan

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
		data base.		
Hazard Mitigation support via GIS mapping capabilities	All Hazards	Continue enhancement of GIS mapping capabilities to support current mitigation programs. Explore the possibilities and benefits of OEM or local agency GIS intranet program.	OEM	NYS
Complete Hazard Mitigation Risk Assessment	All Hazards	Assess Potential Risk	OEM	Seattle
Public Information Awareness	All Hazards	Update and provide public education programs\guide to community on natural hazards and actions to take to protect lives and property	OEM	Houston
Update Mitigation Activities and Track Results of Activities	All Hazards	Define and track Mitigation Initiatives to ensure proper implementation and development of future initiatives to ensure effective mitigation effects of future disasters.	OEM	Houston
Disaster Recovery Plan	Flood, Tropical Storms, Hurricane	This project will develop a GIS-based damage-tracking tool. Once this tool is complete, the City of New York will be capable of developing effective mitigation actions, measures, or strategies based on actual documented disaster data.	OEM	Houston

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Planning Grant Critical Facilities - Prioritization and Development of Site Specific Criteria for Vulnerability of Critical Facilities	All Hazards	Identify critical facilities in the NYC that directly impact the safety, health, and welfare of residents. The list will be updated, and criteria for prioritization will be developed. The facilities will then be prioritized, using available vulnerability data and additional data gathered as necessary. This prioritized list will be used to target specific facilities for mitigation action.	OEM	Houston
Map Enhancement -- Flood Vulnerability	Flood/Coastal Storm	Improve/enhance flood vulnerability data including alternative analysis and Cost Benefit analysis. Enhance planning using surveys to more accurately define flood vulnerability.	OEM	Houston
<b>DEP</b>				
Promote land-use practices that will reduce risk from natural hazard	All Hazards	Continue promoting comprehensive and cost-effective recommendations for local land-use plans and ordinances that reduce loss from natural hazards. Provide technical assistance and training material for local officials to improve understanding of potential land-use policies and ordinances to mitigate hazards.	DEP	NYS Hazard Mitigation Plan
Promote the hazard mitigation potential of existing planning initiatives and mechanisms including Local Waterfront Revitalization Plans (LWRP)	Flood, Coastal Storm	Development of Local Water Front Revitalization Plans including incorporation of flood mitigation considerations.	DEP	NYS Hazard Mitigation Plan
Seismic Upgrade--Pipeline Backbone System	Earthquake	Strengthen critical infrastructure/networks	DEP	Seattle
Seismic Upgrade--Pump Station Buildings	Earthquake	Protect Water Supply	DEP	Seattle

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Retrofit Storm Water Pump Station	Hurricane	Modify the storm-water pump station to protect it from wind borne debris, inland flooding from storm surge and wind driven rain. Retrofit must be designed and constructed in accordance with NYC Building Code.	DEP	Miami
Drainage Mitigation	Hurricane, Coastal Erosion	Install and/or upgrade drainage systems throughout the NYC coastline to eliminate flooding and to treat stormwater runoff.	DEP	Miami
Storm Sewer Improvements	Flood	Implement design measures to enable the storm sewer system to convey runoff flows to a discharge point. Analyze sheet flow to determine additional measures necessary for larger storms (e.g. 100-year).	DEP	Houston
Map Enhancement -- Storm Surge Vulnerability	Hurricane - Flood	Elevation data obtained by field survey, in addition to data collected from existing plans and records, would be compiled into a database and the most vulnerable facilities and transportation links may be identified for mitigation actions.	DEP	Houston
Seismic Upgrade - Bridge Tanks	Earthquake	Protect Water Supply	DEP	Seattle
Seismic Upgrade - Park Tanks	Earthquake	Protect Water Supply	DEP	Seattle
Rip Rap	Hurricane, Coastal Erosion	Mitigation for the City's shoreline rip rap areas.	DEP	Miami
NYC Dredging Projects	Hurricane	Identify new/existing dredging projects throughout the city. The benefits would include reduced damage to the communities from exacerbated flooding, and would also protect these areas from future events, and greatly mitigate potential damages.	DEP	Miami

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Beach and Dune Restoration and Maintenance	Hurricane	Renourish coastal areas	DEP	Miami
Advance Citywide Hazard Mitigation through Programmatic and Regulatory Initiatives	All Hazards	Continue NYC Disaster Preparedness efforts to guide and advance citywide hazard mitigation initiatives. Encourage city agencies to incorporate mitigation activities in day-to-day operations.	DEP	NYS Hazard Mitigation Plan
Public and Local Officials Education – Mitigation through Hazard Resistant Construction	Earthquake, Severe Windstorms, Flood, Winter Storm	Enhance efforts to educate NYC citizens and local officials regarding hazard resistant construction methods	DEP	NYS Hazard Mitigation Plan
Address and Explore Loss Reduction Options for Defined Repetitive Loss Properties	Flood, Coastal Storm	Assist communities to identify repetitive loss locations and support search for potential funding to mitigate future loss.	DEP	NYS Hazard Mitigation Plan
Repetitive Loss Properties	Flood, Coastal Storm	Identify & Mitigate Repetitive Loss Properties. Continue and enhance the comprehensive loss reduction efforts to target repetitive loss properties for mitigation including acquisition and appropriate retrofit of structures.	DEP	NYS Hazard Mitigation Plan
Map Enhancement -- Flood Vulnerability	Flood/Coastal Storm	Improve/enhance flood vulnerability data including alternative analysis and Cost Benefit analysis. Enhance planning using surveys to more accurately define flood vulnerability.	DEP	Houston
<b>DDC</b>				
Storm Sewer Improvements	Flood	Implement design measures to enable the storm sewer system to convey runoff flows to a discharge point. Analyze sheet flow to determine additional measures necessary for larger storms (e.g. 100-year).	DDC	Houston

Mitigation Action*	Hazard(s)	Mitigation Action Description	Potential Agencies	Origin
<b>All Agencies</b>				
Public and Local Officials Education – Mitigation through Hazard Resistant Construction	Earthquake, Severe Windstorms, Flood, Winter Storm	Enhance efforts to educate NYC citizens and local officials regarding hazard resistant construction methods	DDC	NYS Hazard Mitigation Plan
Building Codes	All Hazards	Increase effectiveness to mitigation impacts of natural hazards through comprehensive training and certification. . Enhance building code enforcement through training programs and promotion of the codes at all levels; in particular, the building and developers industry.	DDC	NYS Hazard Mitigation Plan
Building Damage Assessment, Post disaster	All Hazards	Continue code enforcement disaster assistance to support response and recovery efforts. Promote the mitigation benefits of the disaster response team via agency training and local jurisdiction awareness	DDC	NYS Hazard Mitigation Plan
<b>DOITT</b>				
Upgrade Agency communication system	All Hazards	Ensure agency communication systems are operable, in the event of a natural disaster.	DoITT	
Promote hazard mitigation activity to protect city agency information technology infrastructure	All Hazards	Continue awareness and training activity to promote cyber security readiness and response.	DoITT	NYS Hazard Mitigation Plan
Development of a Contingency Planning Toolkit for Small Businesses	All Hazards	Promote Business Awareness About Disaster Contingency Planning	DoITT	Seattle

**Note:**

\* - These mitigation action examples were taken from other jurisdiction's hazard mitigation plans.

## 10) Potential Mitigation Actions to Model in HAZUS-MH for the Steering Committee

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### DOB

1. The City of New York recently enacted a set of new construction codes, which will be phased in between July 1, 2008 and July 1, 2009. The new construction codes contain provisions that will enhance the structural integrity of new buildings. In addition, enhanced connectivity requirements for structural components have been included so that buildings will better withstand an unanticipated event.
  - Will need very detailed specifics to determine if this can be modeled.
2. The City of New York recently enacted a set of new construction codes, which will be phased in between July 1, 2008 and July 1, 2009. The new construction codes will require new critical facilities - such as fire stations and hospitals - be designed with redundant structural systems. The current code has no such requirement.
  - Will need very detailed specifics to determine if this can be modeled.
3. The City of New York recently enacted a set of new construction codes, which will be phased in between July 1, 2008 and July 1, 2009. The new construction codes clarify current flood regulations and adopt the latest national standards for construction in flood zones, meeting or exceeding state and federal flood regulations.
  - Will need very detailed specifics to determine if this can be modeled.
4. The City of New York recently enacted a set of new construction codes, which will be phased in between July 1, 2008 and July 1, 2009. The new construction codes mandate that new critical facilities located in flood zones be raised higher than currently required.
  - Will need exact height of raise

### DCP

1. Waterfront revitalization program: establish a build and no build line along waterfront
  - Will need details on setback for building along waterfront.
2. Increasing open space by regulating green zoning for yards. Will need to model paved yards before and open space after. N
  - Will only be able to model if specific numbers of area and/or homes are identified for regulation. .

### DEP

1. Purchase Land to Construct and Recreate Wetlands: DEP anticipates the purchase of 126 acres on Staten Island
  - Provide location and details on acquisition.
2. Wetlands Restoration in Alley Creek, Paerdegat Basin, and Oakland Ravine - Restoration of wetlands to improve natural drainage of storm water to reduce storm flooding, improve harbor water quality and prevent coastal erosion

- Need details on physical modifications taking place. If changing open space to improved open space, this may not work.

**DOT**

1. Expand use of pedestrian plazas and refuge islands that will incorporate street and open space trees to capture and hold storm water in the event of a coastal storm.
  - Need details for location and scale of projects to determine if potential action.
2. Curb Repair and Installation: Based on potential flooding areas, implement program to remediate low-level curbs with higher ones to prevent excess flooding into basements and other structures. Higher curbs insure that excess storm water runoff is channeled and discharged into catch basins or open channel.
  - Will need detailed information on location, number of curbs and height of old and new curbs.

**Parks**

1. Green streets - These projects involve transforming traffic medians from concrete areas into areas densely planted with trees and horticulture. Through curb cuts, swales, and precipitation, green streets absorb water that would have run off into the sewer system or flooded roadways
  - Need additional information on location and scale of project.
2. Land Acquisition Parks purchases or receives donations of available land. This land can be left in a natural state to absorb floodwaters, reduce heat impacts, and prevent construction in flood zones. Wetland in particular mitigates storm surge impacts.
  - Need additional information on location and scale of acquisition.

**OLTPS**

1. Open Space Expansion: Fulfill the potential of at least one major undeveloped park site in every borough
  - Need additional information on location and scale of open space expansion.
2. Drainage Improvement: Convert asphalt into multi-use fields
  - Need additional information on location and scale.
3. Drainage and Air Quality Improvement: Expand Green streets program (if large enough impact)
  - Need additional information on location and scale. Work with Parks on this action.
4. Drainage and Air Quality Improvement: Reforest 2,000 acres of parkland
  - Need additional information on location, scale and existing use of land.

## 11) Public Involvement Process

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### Draft Public Involvement Process

Section 201.6(b) of the Disaster Mitigation Act of 2000 (DMA 2000) requires that there be an open public involvement process in the formation of a plan. This process shall provide an opportunity for the public to comment on the plan during its formation as well as an opportunity for any neighboring communities, businesses, and other interested parties to participate in the planning process.

The following Public Involvement Process components are proposed to the MPC-SC:

#### 1) Academic Sector Meeting – Week of June 23, 2008 (Tentative)

- a. This meeting will include a selection of representatives from universities located in NYC and the MPC-SC. This group will be leveraged to discuss and document cutting edge research in the fields of Hazard Mitigation, Architecture, and Engineering as it relates to the Hazard Mitigation Plan.
  - i. Columbia University / Lamont Doherty – New York
  - ii. City University of New York - City College - New York
  - iii. City University of New York - Graduate School and University Center - New York
  - iv. Manhattan College - Bronx
  - v. Polytechnic University - Kings
  - vi. The Cooper Union - New York
  - vii. State University of New York Maritime College – Bronx
  - viii. Barnard College - New York
  - ix. Parsons – The New School University - New York
  - x. New York Institute Of Technology-Manhattan Campus New York
  - xi. New York University-New York
  - xii. Pratt Institute- Kings
- b. Purpose of this meeting
  - i. Provide Brief Overview of the Hazard Mitigation Plan
  - ii. Discuss Draft Mitigation Action Worksheet which will be provided to participants prior to meeting.

#### 2) Private Sector Meeting – Week of August 4, 2008 (Tentative)

- a. This meeting will offer an opportunity for a selection of representatives from the NYC Private Sector to participate in the planning process. This meeting will be strengthened by the presence of select MPC-SC members
  - i. OEM Public/Private Coordinator
  - ii. The Building Owners and Managers Association (BOMA) New York Association
  - iii. NYC Small Business Services (SBS)
  - iv. Regional Plan Association (RPA)
  - v. Chamber of Commerce (All 5 Boros)

- vi. American Institute of Architects (AIA) – NY Chapter
- vii. Real Estate Board of NY (REBNY)
- viii. Structural Engineers Association of New York (SEAoNY)
- b. Purpose of this meeting
  - i. Provide Brief Overview of the Hazard Mitigation Plan
  - ii. Provide the Draft Mitigation Action Worksheet For Review and Comment

### **3) Community Meeting – Friday August 29, 2008 (Tentative)**

- a. This meeting will present the plan to representatives of the NYC community and seek their comments.
  - i. Community Groups
  - ii. Not-For-Profit Groups
  - iii. CERT
  - iv. Religious Organizations
  - v. Elected Officials
  - vi. Neighboring Communities
    - 1. Nassau, Westchester, Bergen, Essex, Union, Middlesex, and Monmouth Counties
- b. Purpose of this meeting
  - i. Provide Brief Overview of the Hazard Mitigation Plan
  - ii. Direct group to the Draft Hazard Mitigation Plan For Review and Comment (Online)
- c. General Public will have an opportunity to view and comment on the plan online.