

**VOLUME I**

	<u>Page</u>
<b>SECTION 1 INTRODUCTION .....</b>	<b>1-1</b>
Background.....	1-1
DMA 2000 Origins -The Robert T Stafford Disaster Relief and Emergency Assistance Act .....	1-1
Organizations Involved in the Mitigation Planning Effort.....	1-2
Multiple Agency Support for Hazard Mitigation .....	1-2
Implementation of the Planning Process.....	1-5
Benefits of Mitigation Planning .....	1-6
Organization of this Mitigation Plan .....	1-6
<b>SECTION 2 PLAN ADOPTION .....</b>	<b>2-1</b>
Overview.....	2-1
Plan Adoption by Local Governing Bodies.....	2-1
<b>SECTION 3 PLANNING PROCESS.....</b>	<b>3-1</b>
Introduction.....	3-1
Hazard Mitigation in Onondaga County – Preparing to Plan .....	3-2
Planning Partnership – Organization and Activity .....	3-3
Organization of Planning Partnership .....	3-3
Planning Partnership Activities .....	3-6
Stakeholder Outreach and Involvement .....	3-9
Public Outreach and Participation.....	3-14
Coordination with Existing Planning Efforts and Programs.....	3-15
Hazard Mitigation Grant Program.....	3-15
National Flood Insurance Program.....	3-15
Community Rating System (CRS) .....	3-17
Integration of Existing Data and Plans into Mitigation Plan .....	3-18
Local Data .....	3-18
Federal and State Data.....	3-18
Continued Public and Stakeholder Involvement.....	3-22
<b>SECTION 4 COUNTY PROFILE .....</b>	<b>4-1</b>
General Information.....	4-1
Physical Setting .....	4-1
Population and Demographics .....	4-7
General Building Stock.....	4-12
Land Use and Population Trends.....	4-17
Land Use Trends .....	4-17
Economy .....	4-21
Population Trends .....	4-23
Future Growth and Development.....	4-26
Critical Facilities.....	4-28
Essential Facilities.....	4-28
Transportation Systems .....	4-46
Lifeline Utility Systems.....	4-49
High-Potential Loss Facilities .....	4-56



Other Facilities .....	4-62
<b>SECTION 5 RISK ASSESSMENT .....</b>	<b>5-1</b>
5.1 Methodology and Tools.....	5.1-1
Methodology .....	5.1-1
Tools.....	5.1-1
Hazards U.S. – Multi-Hazard (HAZUS-MH).....	5.1-1
5.2 Identification of Natural Hazards of Concern .....	5.2-1
5.3 Hazard Ranking.....	5.3-1
Hazard Ranking Methodology .....	5.3-1
Probability of Occurrence .....	5.3-1
Impact .....	5.3-1
Risk Ranking Value .....	5.3-2
Hazard Ranking Results .....	5.3-3
5.4 Hazards Profiles and Vulnerability Assessment.....	5.4-1
5.4.1 Severe Storm .....	5.4.1-1
5.4.2 Severe Winter Storm .....	5.4.2-1
5.4.3 Flood.....	5.4.3-1
5.4.4 Ground Failure.....	5.4.4-1
5.4.5 Earthquake .....	5.4.5-1
<b>SECTION 6 MITIGATION STRATEGIES .....</b>	<b>6-1</b>
Background and Past Accomplishments.....	6-1
General Mitigation Planning Approach .....	6-2
Guiding Principle, Mitigation Goals and Objectives .....	6-2
Capability Assessment .....	6-6
Identification, Prioritization, Analysis and Implementation of Mitigation Actions ..	6-7
<b>SECTION 7 PLAN MAINTENANCE PROCEDURES .....</b>	<b>7-1</b>
Monitoring, Evaluating and Updating the Plan .....	7-1
Monitoring.....	7-3
Evaluating.....	7-4
Updating .....	7-6
Implementation of Mitigation Plan Through Existing Programs.....	7-6
Continued Public Involvement .....	7-9
<b>ACRONYMS AND ABBREVIATIONS .....</b>	AC-1
<b>GLOSSARY .....</b>	GL-1
<b>REFERENCES.....</b>	R-1



**VOLUME II**

	<u>Page</u>
<b>SECTION 8 PLANNING PARTNERSHIP.....</b>	<b>8-1</b>
Background.....	8-1
Initial Solicitation and Letters of Intent.....	8-1
Planning Partner Expectations.....	8-2
Jurisdiction Annex Templates.....	8-2
Workshop .....	8-2
Benefit/Cost Review .....	8-3
Completion of the Planning Process .....	8-3
<b>SECTION 9 JURISDICTIONAL ANNEXES.....</b>	<b>9-1</b>
9.1 Onondaga County .....	9.1-1
9.2 Village of Baldwinsville .....	9.2-1
9.3 Town of Camillus .....	9.3-1
9.4 Village of Camillus .....	9.4-1
9.5 Town of Cicero .....	9.5-1
9.6 Town of Clay .....	9.6-1
9.7 Town of DeWitt .....	9.7-1
9.8 Village of East Syracuse .....	9.8-1
9.9 Town of Elbridge .....	9.9-1
9.10 Village of Elbridge.....	9.10-1
9.11 Town of Fabius .....	9.11-1
9.12 Village of Fabius.....	9.12-1
9.13 Village of Fayetteville.....	9.13-1
9.14 Town of Geddes.....	9.14-1
9.15 Village of Jordan.....	9.15-1
9.16 Town of LaFayette.....	9.16-1
9.17 Village of Liverpool.....	9.17-1
9.18 Town of Lysander.....	9.18-1
9.19 Town of Manlius.....	9.19-1
9.20 Village of Manlius .....	9.20-1
9.21 Town of Marcellus.....	9.21-1
9.22 Village of Marcellus .....	9.22-1
9.23 Village of Minoa .....	9.23-1
9.24 Village of North Syracuse.....	9.24-1
9.25 Town of Onondaga .....	9.25-1
9.26 Town of Otisco .....	9.26-1
9.27 Town of Pompey.....	9.27-1
9.28 Town of Salina.....	9.28-1
9.29 Town of Skaneateles .....	9.29-1
9.30 Village of Skaneateles.....	9.30-1
9.31 Village of Solvay .....	9.31-1
9.32 Town of Spafford.....	9.32-1
9.33 City of Syracuse.....	9.33-1
9.34 Town of Tully .....	9.34-1
9.35 Village of Tully.....	9.35-1
9.36 Town of Van Buren .....	9.36-1
9.37 Onondaga County Water Authority .....	9.37-1



## **APPENDICES**

- A Applicable Federal and State Regulations
- B Plan Adoption
- C Meeting Documentation
- D Public and Stakeholder Outreach and Input
- E Mitigation Catalog
- F Federal and State Mitigation Programs, Activities and Initiatives
- G Jurisdictional Annex Instructions and Template
- H FEMA 386-4 Worksheets
- I Linkage Procedures



**TABLES****Table**

1-1	Participating Jurisdictions in Onondaga County.....	1-2
1-2	FEMA Local Mitigation Plan Review Crosswalk .....	1-4
3-1	Planning Committee Members .....	3-4
3-2	Steering Committee Members .....	3-5
3-3	Summary of Planning Partnership Activities and Project Milestones .....	3-7
3-4	Onondaga County NFIP Floodplain Administrators .....	3-16
3-5	Record of the Review of Existing Programs, Policies, and Technical Documents for Participating Municipalities .....	3-19
4-1	Onondaga County Population Statistics (2000 U.S. Census) .....	4-7
4-2	Building Stock Replacement Value by Occupancy Class .....	4-12
4-3	Land Use of Onondaga County.....	4-17
4-4	Farms in Onondaga County, New York .....	4-20
4-5	Onondaga County Population Trends, 1800 to 2007.....	4-24
4-6	Current and Potential New Development in Onondaga County.....	4-26
4-7	Police Stations in Onondaga County .....	4-28
4-8	Fire/EMS in Onondaga County .....	4-30
4-9	Medical Facilities in Onondaga County .....	4-33
4-10	Schools in Onondaga County.....	4-36
4-11	Senior Facilities in Onondaga County .....	4-42
4-12	Airports in Onondaga County .....	4-46
4-13	Onondaga County Wastewater Treatment Facilities .....	4-49
4-14	Onondaga County Wastewater Pump Stations .....	4-50
4-15	Electric Facilities within Onondaga County .....	4-52
4-16	Broadcasting Facilities within Onondaga County .....	4-53
4-17	Dam Hazard Potential Classifications .....	4-56
4-18	Dams in Onondaga County .....	4-57
4-19	HAZMAT Facilities in Onondaga County .....	4-59
4-20	Other Facilities in Onondaga County .....	4-63
5.2-1	Identification of Natural Hazards of Concern for Onondaga County .....	5.2-2
5.3-1	Probability of Occurrence Ranking Factors.....	5.3-1
5.3-2	Numerical Values and Definitions for Impacts on Population, Property and Economy .....	5.3-2
5.3-3	Probability of Occurrence Ranking for Hazards of Concern for Onondaga County .....	5.3-3
5.3-4	Impact Ranking for Hazards of Concern for Onondaga County .....	5.3-4
5.3-5	Total Risk Ranking Value for Hazards of Concern for Onondaga County .....	5.3-5
5.3-6	Hazard Ranking Results for Hazards of Concern for Onondaga County .....	5.3-5
5.4.1-1	Fujita Damage Scale .....	5.4.1-4
5.4.1-2	Enhanced Fujita Damage Scale .....	5.4.1-4
5.4.1-3	Enhanced F-Scale Damage Indicators .....	5.4.1-5
5.4.1-4	The Saffir-Simpson Scale .....	5.4.1-6



5.4.1-5	Presidential Disaster Declarations for Severe Storm Events in Onondaga County .....	5.4.1-18
5.4.1-6	Severe Storm Events between 1871 and 2007 .....	5.4.1-20
5.4.1-7	Vulnerable Population Exposed to the Severe Storm Hazard in Onondaga County .....	5.4.1-42
5.4.1-8	Building Stock Replacement Value (Structure Only) by Occupancy Class .....	5.4.1-44
5.4.1-9	Description of Damage Categories .....	5.4.1-48
5.4.1-10	Estimated Onondaga County Building Value (Structure Only) Damaged by the 100-Year and 500-Year MRP Hurricane-Related Winds .....	5.4.1-49
5.4.1-11	Estimated Building Value (Structure Only) Damaged by the 100-Year and 500-Year MRP Hurricane-Related Winds .....	5.4.1-50
5.4.2-1	NESIS Ranking Categories 1 - 5 .....	5.4.2-4
5.4.2-2	The Dolan-Davis Nor'Easter Intensity Scale.....	5.4.2-5
5.4.2-3	Average High and Low Temperature Range for Winter Months in Onondaga County .....	5.4.2-9
5.4.2-4	Snowstorm Cases That Affected the Northeastern U.S (1888 – 2007).....	5.4.2-10
5.4.2-5	Presidential Disaster / Emergency Declarations for Severe Winter Storm Events in Onondaga County .....	5.4.2-13
5.4.2-6	Severe Winter Events between 1888 and 2007.....	5.4.2-14
5.4.2-7	Vulnerable Population Exposed to Severe Winter Storm/Extreme Cold Events in Onondaga County .....	5.4.2-37
5.4.2-8	General Building Stock Exposure (Structure Only) and Estimated Losses from Severe Winter Storm/Extreme Cold Events in Onondaga County.....	5.4.4-37
5.4.2-9	General Building Stock Estimated Losses from Severe Winter Storm/Extreme Cold Events in Onondaga County.....	5.4.4-38
5.4.3-1	Flood Insurance Studies – Historical Flood Problem Areas in Onondaga County....	5.4.3-9
5.4.3-2	Presidential Disaster Declarations for Flooding Events in Onondaga County .....	5.4.3-15
5.4.3-3	USGS Stations and Record Peak Flows for Onondaga County .....	5.4.3-18
5.4.3-4	Flooding Events between 1865 and 2007 .....	5.4.3-19
5.4.3-5	Ice Jam Events in Onondaga County between 1941 and 2004 .....	5.4.3-28
5.4.3-6	Onondaga Population Vulnerable to the 100-Year and 500-Year MRP Flood Hazard (Number in Flood Zone).....	5.4.3-41
5.4.3-7	Estimated Onondaga County Population Displaced or Seeking Short-Term Shelter from the 100-Year and 500-Year MRP Events.....	5.4.3-43
5.4.3-8	Estimated Number of Residential Buildings (Single-Family Dwellings and Manufactured Housing) Located in the 100- and 500-year Floodplains .....	5.4.3-51
5.4.3-9	Estimated General Building Stock Replacement Value (Structure and Contents) Located in the 100- and 500-Year Floodplains.....	5.4.3-53
5.4.3-10	Estimated General Building Stock Loss (Structure and Contents) Damaged by the 100-Year and 500-Year MRP Flood Events .....	5.4.3-60
5.4.3-11	NFIP Policies, Claims and Repetitive Loss Statistics.....	5.4.3-65
5.4.3-12	Estimated Damage to Critical Facilities in Onondaga County from the 100-Year MRP Event.....	5.4.3-68
5.4.3-13	Estimated Damage to Critical Facilities in Onondaga County from the 500-Year MRP Event.....	5.4.3-69
5.4.3-14	Estimated Damage to Utilities in Onondaga County from the 100-Year MRP Event.....	5.4.3-71
5.4.3-15	Estimated Damage to Utilities in Onondaga County from the 500-Year MRP	



5.4.3-16	Event.....	5.4.3-73
	Highway Bridges Located within the FEMA Q3 Boundary .....	5.4.3-75
5.4.4-1	Ground Failure Events in Onondaga County .....	5.4.4-20
5.4.4-2	Population Exposed and Vulnerable to Landslides in Onondaga County .....	5.4.4-33
5.4.4-3	General Building Stock Exposed and Vulnerable to Landslides in Onondaga County .....	5.4.4-34
5.4.4-4	Emergency Critical Facilities Susceptible to Landslides in Onondaga County.....	5.4.4-35
5.4.5-1	Richter Scale.....	5.4.5-2
5.4.5-2	Modified Mercalli Intensity Scale .....	5.4.5-2
5.4.5-3	Modified Mercalli Intensity (MMI) and PGA Equivalents .....	5.4.5-3
5.4.5-4	NEHRP Soil Classifications .....	5.4.5-9
5.4.5-5	Earthquake History in New York State, 1737-2008 .....	5.4.5-17
5.4.5-6	Vulnerable Population Exposed to the Earthquake Hazard in Onondaga County... <td>5.4.5-29</td>	5.4.5-29
5.4.5-7	Estimated Sheltering Needs for the 500- and 2,500-year MRP Earthquake Events for Onondaga County.....	5.4.5-30
5.4.5-8	Estimated Number of Injuries and Casualties from the 500-Year and 2,500-Year MRP Earthquake Events.....	5.4.5-32
5.4.5-9	Example of Structural Damage State Definitions for a Light Wood-Framed Building .....	5.4.5-34
5.4.5-10	Estimated Number of Buildings Damaged by General Occupancy for 100-year, 500-year and 2,500-year MRP Earthquake Events.....	5.4.5-35
5.4.5-11	Estimated Number of Buildings Damaged by Building Type for 100-year, 500-year and 2,500-year MRP Earthquake Events.....	5.4.5-36
5.4.5-12	Estimated Building Value (Building and Contents) Damaged by Jurisdiction for the 500- and 2,500-Year MRP Earthquake Events.....	5.4.5-37
5.4.5-13	Estimated Damage and Loss of Functionality for Critical Facilities in Onondaga County for the 500-Year MRP Earthquake Event.....	5.4.5-40
5.4.5-14	Estimated Damage and Loss of Functionality for Critical Facilities in Onondaga County for the 2,500-Year MRP Earthquake Event.....	5.4.5-58
5.4.5-15	Estimated Utility Impacts in Onondaga County from the 500-year MRP Earthquake Event.....	5.4.5-77
5.4.5-16	Estimated Utility Impacts in Onondaga County from the 2,500-year MRP Earthquake Event.....	5.4.5-84
5.4.5-17	Estimated Impacts to Transportation Features in Onondaga County from the 500-year MRP Earthquake Event .....	5.4.5-97
5.4.5-18	Estimated Impacts to Transportation Features in Onondaga County from the 2,500-year MRP Earthquake Event .....	5.4.5-98
5.4.5-19	Estimated Debris Generated by the 500- and 2,500-year MRP Earthquake Events .....	5.4.5-99
6-1	Cost and Benefit Definitions.....	6-10
7-1	Mitigation Planning Committee.....	7-1
7-2	Existing Processes and Programs for Mitigation Plan Implementation.....	7-7
8-1	Participating Jurisdictions in Onondaga County.....	8-1



**FIGURES****Figure**

1-1	Onondaga County Mitigation Plan Area.....	1-3
1-2	Onondaga County Hazard Mitigation Planning Process.....	1-8
4-1	Oswego River Basin .....	4-3
4-2	Onondaga Lake Watershed.....	4-4
4-3	Location of the Upper Susquehanna River Basin .....	4-5
4-4	Distribution of General Population for Onondaga County, New York .....	4-9
4-5	Distribution of Persons over the Age of 65 in Onondaga County, New York.....	4-10
4-6	Distribution of Low-Income Population in Onondaga County, New York.....	4-11
4-7	Distribution of Residential Building Stock Replacement Value in Onondaga County .....	4-14
4-8	Distribution of Commercial Building Stock Replacement Value in Onondaga County .....	4-15
4-9	Distribution of Industrial Building Stock Replacement Value in Onondaga County ....	4-16
4-10	Onondaga Land Use Percentages.....	4-18
4-11	2001 Land Use Cover in Onondaga County, New York .....	4-19
4-12	Onondaga County Population Trends, 1800 to 2007 .....	4-25
4-13	Onondaga County Population Trends, 1950-2000.....	4-25
4-14	Current and Future Subdivision Projects in Onondaga County .....	4-27
4-15	Emergency Facilities in Onondaga County .....	4-34
4-16	School and Senior Living/Care Facilities in Onondaga County .....	4-45
4-17	Transportation Systems in Onondaga County .....	4-48
4-18	Lifeline Utility Systems in Onondaga County .....	4-55
4-19	High-Potential Loss Facilities in Onondaga County.....	4-62
5.4.1-1	Peak Wind Speeds for 500-year Hurricane Severe Storm Event (Wind) in Onondaga County .....	5.4.1-8
5.4.1-2	Annual Frequency of Hailstorms in the U.S.....	5.4.1-9
5.4.1-3	Wind Zones in the U.S.....	5.4.1-10
5.4.1-4	Average Number of Thunderstorms between 1948 and 1977 in the U.S. ....	5.4.1-11
5.4.1-5	Annual Days Suitable for Thunderstorms/Damaging Winds .....	5.4.1-12
5.4.1-6	Tornado Activity in the U.S.....	5.4.1-13
5.4.1-7	Tornado Activity in New York State, 1950-2005 .....	5.4.1-14
5.4.1-8	Tornado Risk in the U.S. ....	5.4.1-15
5.4.1-9	Historic North Atlantic Tropical Cyclone Tracks, 1851-2002.....	5.4.1-16
5.4.1-10	Historical North Atlantic Tropical Cyclone Tracks (1851-2006).....	5.4.1-17
5.4.1-11	Tropical Storm Agnes Rainfall Totals .....	5.4.1-28
5.4.1-12	Hurricane Eloise Rainfall Totals.....	5.4.1-30
5.4.1-13	Lines of Precipitation during January 18-19, 1996 .....	5.4.1-31
5.4.1-14	September 7, 1998 Derecho Storm Path .....	5.4.1-32
5.4.1-15	Rainfall Totals for April 2-4, 2005 .....	5.4.1-35
5.4.1-16	2-Day Rainfall Totals during June 27-28, 2006 Flood .....	5.4.1-36
5.4.1-17	Rainfall Amounts in Central New York on June 25 through June 28, 2006 .....	5.4.1-37
5.4.1-18	Fallen Trees on Brewerton, New York Home .....	5.4.1-38
5.4.1-19	Downed Trees in Brewerton, New York .....	5.4.1-38
5.4.1-20	Maconi Street in East Syracuse.....	5.4.1-39



5.4.1-21	East Avenue in East Syracuse.....	5.4.1-39
5.4.2-1	NWS Wind Chill Index.....	5.4.2-6
5.4.2-2	Annual Mean Snowfall within the Eastern U.S. ....	5.4.2-7
5.4.2-3	Average Statewide January Temperatures.....	5.4.2-8
5.4.2-4	Climate Divisions of New York State .....	5.4.2-9
5.4.2-5	February 1961 Snowfall Totals.....	5.4.2-25
5.4.2-6	"Storm of the Century" NESIS Category 5 Storm.....	5.4.2-26
5.4.2-7	December 24-25, 2002 NESIS Category 3 Storm .....	5.4.2-27
5.4.2-8	December 25 <sup>th</sup> 2002 Snowfall in Central New York State .....	5.4.2-27
5.4.2-9	January 2-3, 2003 NESIS Category 2 Storm .....	5.4.2-28
5.4.2-10	January 2 <sup>nd</sup> thru 4 <sup>th</sup> , 2003 Snowstorm in Central New York State .....	5.4.2-28
5.4.2-11	"Valentines Day Storm" of February 2007.....	5.4.2-30
5.4.2-12	"Valentine's Storm" NESIS Category 3 Storm .....	5.4.2-30
5.4.2-13	February 2007 Snowfall Accumulations .....	5.4.2-31
5.4.2-14	Snowfall in Tully .....	5.4.2-32
5.4.2-15	Downtown Syracuse .....	5.4.2-32
5.4.2-16	Record Breaking Snow Storm Totals on April 16, 2007 in Central New York State .....	5.4.2-33
5.4.2-17	Snowfall in Syracuse .....	5.4.2-33
5.4.2-18	Snow caused Trees to Snap in Dewitt.....	5.4.2-33
5.4.2-19	Sliding Vehicles in Syracuse .....	5.4.2-34
5.4.2-20	Trailer disabled from the Storm in Tully .....	5.4.2-34
5.4.3-1	FEMA Q3 100- and 500-Year Flood Boundaries within Onondaga County.....	5.4.3-8
5.4.3-2	Frequency of Ice Jam Incidents on Central New York State Rivers (1875 – 2007).....	5.4.3-13
5.4.3-3	Onondaga County Ice Jam Events.....	5.4.3-28
5.4.3-4	207 Palmer Drive, North Syracuse.....	5.4.3-34
5.4.3-5	Floral Park Mobile Home Park, Baldwinsville.....	5.4.3-35
5.4.3-6	Distribution of Population Density Relative to the 100- and 500-Year Regulatory Floodplains in Onondaga County .....	5.4.3-45
5.4.3-7	Distribution of Elderly Population Density Relative to the 100- and 500-Year Regulatory Floodplains in Onondaga County .....	5.4.3-46
5.4.3-8	Distribution of Low-Income Population Density Relative to the 100- and 500-Year Regulatory Floodplains in Onondaga County .....	5.4.3-47
5.4.3-9	Onondaga County Residential Property Exposure in 100-Year Floodplains.....	5.4.3-49
5.4.3-10	Distribution of Residential General Building Stock Density Relative to 100- and 500- Year Flood Boundaries in Onondaga County .....	5.4.3-57
5.4.3-11	Mobile Home Parks Relative to the 100- and 500-Year MRP Floodplains in Onondaga County.....	5.4.3-58
5.4.4-1	Landslide Overview Map of the Northeast U.S. ....	5.4.4-6
5.4.4-2	Landslide Potential of the Conterminous U.S. United States .....	5.4.4-7
5.4.4-3	Landslide Susceptibility in New York State .....	5.4.4-8
5.4.4-4	Physical Features of Tully Valley.....	5.4.4-9
5.4.4-5	Aerial Photograph of Limestone Creek and The Bluffs in Manlius on October 26, 2006.....	5.4.4-11
5.4.4-6	Distribution of land subsidence in the U.S .....	5.4.4-12
5.4.4-7	Rock Types Associated with Land Subsidence Collapse throughout the U.S.....	5.4.4-13



5.4.4-8	Mineral Resources in Central New York State .....	5.4.4-13
5.4.4-9	Geographic Features of Tully Valley .....	5.4.4-15
5.4.4-10	Mudboil/Depression Area .....	5.4.4-16
5.4.4-11	Extent and Depth of Brinefield Subsidence (1957-1993) in East and West Areas and Along a Possible Bedrock Fracture in Southern Part of Tully Valley ....	5.4.4-18
5.4.4-12	Aerial View of Webster Road and 1993 Tully Farms Road Landslides.....	5.4.4-22
5.4.4-13	Four Landslide Locations in the Tully Valley .....	5.4.4-23
5.4.4-14	Photograph of Tully Farm Road Landslide .....	5.4.4-24
5.4.4-15	Aerial Photograph of The Bluffs on October 26, 2006.....	5.4.4-26
5.4.4-16	The Rear of 8181 Bluffview Drive in Manlius on April 30, 2007.....	5.4.4-27
5.4.4-17	Rattlesnake Gulf Landslide.....	5.4.4-28
5.4.4-18	Approximate Ground Failure Hazard Area in Onondaga County .....	5.4.4-32
5.4.5-1	Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years (1996)...	5.4.5-4
5.4.5-2	Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years (2002)...	5.4.5-5
5.4.5-3	Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years (2008)...	5.4.5-5
5.4.5-4	Earthquake Hazard Map of New Jersey and New York .....	5.4.5-6
5.4.5-5	NEHRP Soils in New York .....	5.4.5-7
5.4.5-6	NEHRP Soils in Onondaga County .....	5.4.5-8
5.4.5-7	Spectral Acceleration with 2% Probability of Exceedance in 50 Years (2002) for New York State.....	5.4.5-9
5.4.5-8	Spectral Acceleration with 2% Probability of Exceedance in 50 Years (2002) for Onondaga County .....	5.4.5-10
5.4.5-9	Peak Ground Acceleration in Onondaga County for a 100-Year MRP Earthquake Event by Census Tract .....	5.4.5-12
5.4.5-10	Peak Ground Acceleration in Onondaga County for a 500-Year MRP Earthquake Event by Census Tract .....	5.4.5-13
5.4.5-11	Peak Ground Acceleration in Onondaga County for a 2,500-Year MRP Earthquake Event by Census Tract .....	5.4.5-14
5.4.5-12	Earthquake Epicenters in the Northeast U.S., 1737-1986.....	5.4.5-15
5.4.5-13	Significant Seismic Events in the Northeast U.S., 1730-1986.....	5.4.5-16
5.4.5-14	Cape Ann Earthquake Epicenter .....	5.4.5-23
5.4.5-15	Location of the August 10, 1884 Earthquake .....	5.4.5-24
5.4.5-16	Largest Earthquake in New York State - September 5, 1944 .....	5.4.5-25
5.4.5-17	Earthquake Peak Horizontal Acceleration with 10% Probability of Exceedance in 50 Years.....	5.4.5-27
5.4.5-18	Annualized Earthquake Losses by County .....	5.4.5-33

