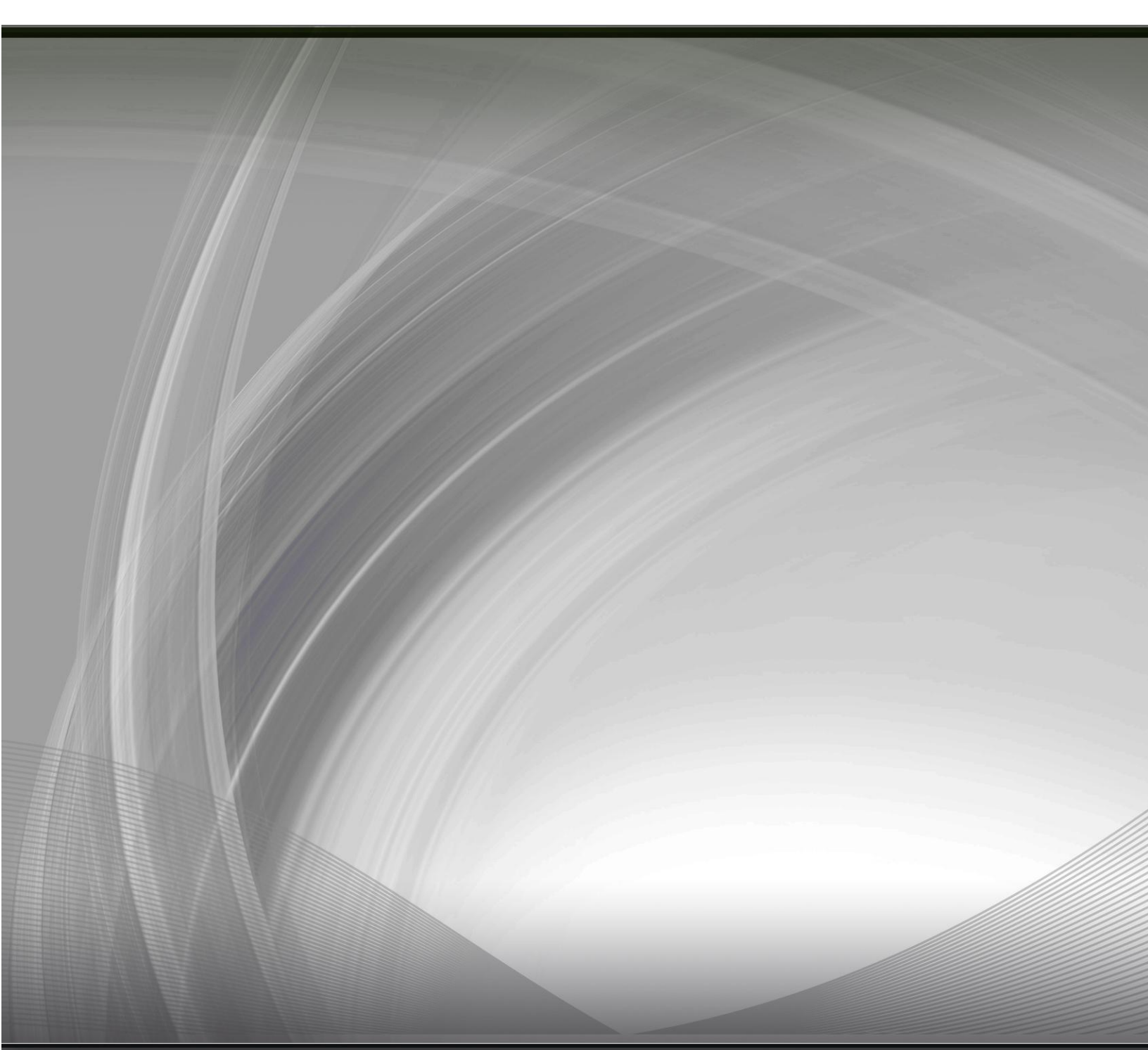

Damage Assessment for Public Works

TOOL KIT

FEDERAL EMERGENCY MANAGEMENT AGENCY
EMERGENCY MANAGEMENT INSTITUTE

IS-556

Damage Assessment for Public Works Toolkit

FEDERAL EMERGENCY MANAGEMENT AGENCY
EMERGENCY MANAGEMENT INSTITUTE

Table of Contents

NOTE:

FEMA EMI has provided these resources to provide information that may be of interest to individuals working to develop local damage assessment programs.

EMI does not guarantee that external websites and non-government documents linked in this Toolkit comply with the accessibility requirements of Section 508 of the Rehabilitation Act.

This Toolkit may contain URLs that were valid when originally published, but now link to sites or pages that no longer exist.

Resources

While not an all-inclusive list, the following websites will help when developing your local damage assessment processes and procedures.

Lesson 1: Introduction to Local Damage Assessment

- Hazard Magnitude Scales
  - Enhanced Fujita Scale
    http://www.spc.noaa.gov/efscale/
  - Saffir-Simpson Hurricane Wind Scale
    http://www.nhc.noaa.gov/sshws.shtml
  - Richter Scale
    http://earthquake.usgs.gov/learn/topics/richter.php
  - Modified Mercalli Intensity Scale
    http://earthquake.usgs.gov/learn/topics/mag_vs_int.php
  - Beaufort Wind Force Scale
    http://www.spc.noaa.gov/faq/tornado/beaufort.html
- APWA Resource Center
  http://www.apwa.net/ResourceCenter/Category/Emergency-Management
- National Response Framework (NRF) Critical Infrastructure and Key Resources Support Annex
  http://www.fema.gov/pdf/emergency/nrf/nrf-support-cikr.pdf
- National Response Framework (NRF) Resource Center
  http://www.fema.gov/emergency/nrf/index.htm
- National Incident Management System (NIMS) Resource Center
  http://www.fema.gov/emergency/nims/
- National Infrastructure Protection Plan (NIPP)
  http://www.dhs.gov/files/training/infrastructure-protection-resilience.shtm

Lesson 2: How Hazard Analysis Aids the Public Works Agency

- FEMA Library (Publication 386-2)
  http://www.fema.gov/library/viewRecord.do?id=1880
- The Superfund Amendments and Reauthorization Act (SARA), Title III
  http://www.fema.gov/government/grant/sara.shtm
- National Geodetic Survey (NGS)
  http://geodesy.noaa.gov/
- HAZUS-MH
  http://www.fema.gov/plan/prevent/hazus/
- Geographic Information Systems (GIS)
  http://www.gismaps.fema.gov/gis01.shtm
- Decision-Making Tools from the Digital Coast: NOAA Coastal Services Center
  http://www.csc.noaa.gov/digitalcoast/tools/index.html

Lesson 3: Public Works Participation in the Planning Process

- Sample Damage Assessment Forms
  - Oklahoma Department of Emergency Management, Damage Assessment Forms http://www.ok.gov/OEM/documents/DAMAGE%20ASSESSMENT%20FORMS%20PACKET.pdf
  - State of Idaho Damage Assessment Handbook http://www.bhs.idaho.gov/Pages/Operations/DisasterAssistance/PDF/DA%20Handbook.pdf

Lesson 4: Training and Exercises

- Training available from FEMA's Emergency Management Institute (EMI) http://training.fema.gov/
  - IS-100.b, *Introduction to the Incident Command System*
  - IS-120.a, *An Introduction to Exercises*
  - IS-130, *Exercise Evaluation and Improvement Planning*
  - IS-139, *Exercise Design*
  - L-146, *HSEEP Training Course*
  - IS-200.b, *ICS for Single Resources and Initial Action Incidents*
  - E-202, *Debris Management*
  - IS-700.a, *National Incident Management System (NIMS), An Introduction*
  - IS-800.b, *National Response Framework, An Introduction*
  - Master Exercise Practitioner Program (MEPP)
  - Lessons Learned Information Sharing (LLIS) site
- Other training opportunities
  - FEMA's Lessons Learned Information Sharing (LLIS) site http://llis.gov/
  - American Public Works Association (APWA) http://www.apwa.net/
  - Solid Waste Association of North America (SWANA) http://www.swana.org/
  - Homeland Security Exercise and Evaluation Program (HSEEP) https://hseep.dhs.gov
  - National Infrastructure Protection Plan (NIPP) http://www.training.fema.gov/EMIWeb/IS/is860a.asp
  - Critical Infrastructure and Key Resources (CIKR) Support Annex http://www.training.fema.gov/EMIWeb/IS/IS821.asp
  - CIKR Asset Protection Technical Assistance Program (CAPTAP) http://www.dhs.gov/files/programs/gc_1195679577314.shtm

Lesson 5: Operations

- U.S. Army Corps of Engineers (debris calculations)
  http://www.usace.army.mil/
- HAZUS-MH
  http://www.fema.gov/plan/prevent/hazus
- Geographic Information Systems (GIS)
  http://www.gismaps.fema.gov/gis01.shtm
- Substantial Damage Estimator (SDE) Software
  http://www.fema.gov/library/viewRecord.do?id=4166
- Public Assistance Guide (FEMA 322)
  http://www.fema.gov/government/grant/pa/pag07_t.shtm
- Catalog of FEMA Flood and Wind Publications, Training Courses, and Workshops
  http://www.fema.gov/library/viewRecord.do?id=3184
- Evaluation of Earthquake Damaged Concrete and Masonry Wall Buildings: Basic Procedures Manual
  http://www.fema.gov/library/viewRecord.do?id=1651
- Sample Damage Assessment Forms
  - Oklahoma Department of Emergency Management, Damage Assessment Forms
    http://www.ok.gov/OEM/documents/DAMAGE%20ASSESSMENT%20FORMS%20PACKET.pdf
  - State of Idaho Damage Assessment Handbook
    http://www.bhs.idaho.gov/Pages/Operations/DisasterAssistance/PDF/DA%20Handbook.pdf

Lesson 6: Data Collection and Analysis

Though not referenced in this lesson, the following report contains helpful information that applies to this lesson and the course in general:

- Damage Assessment after the Paso Robles (San Simeon, California) Earthquake: Lessons for Emergency Management
  http://www.colorado.edu/hazards/research/qr/qr166/qr166.pdf

Sample Hazard Analysis Forms

This section contains the following sample forms and documents:

- Hazard Vulnerability Matrix
- Hazard Vulnerability Assessment Spreadsheet
- Risk Index Worksheet for Comparing and Prioritizing Risks
- Hazard Profile Worksheet
- Community Exposure Profile
- Loss Estimation Form

These forms and documents are in addition to the ones referenced in the Resource Links section of this lesson. They can be adapted to fit the needs of your community for inclusion in your community's damage assessment plan.

Hazard Vulnerability Matrix

Hazard	Probability	Impact	Frequency	Distribution
List specific hazards which could occur in your community. Include natural hazards as well as adversarial or human-caused hazards.	High Moderate Low None	Major Minor None	50 years 10 years 5-10 years 2-3 years every year several times per year	Regional County-wide Localized N/A

Hazard Vulnerability Matrix – Completed Example

Hazard	Probability	Impact	Frequency	Distribution
List specific hazards which could occur in your community. Include natural hazards as well as adversarial or human-caused hazards.	High Moderate Low None	Major Minor None	50 years 10 years 5-10 years 2-3 years every year several times per year	Regional County-wide Localized N/A
Civil Disturbance	Low	Minor	50 years	Localized
Communications Failure	Medium	Minor	10 years	Regional
Drought	Low	Minor	50 years	Regional
Earthquake	None	None	N/A	N/A
Epidemic	Medium	Major	50 years	Regional
Fire	Low	Minor	10 years	Localized
Flooding	Medium	Major	5-10 years	County-wide
Gas Leak	Low	Minor	50 years	Localized
Hazardous Material Spill	Low	Minor	50 years	Localized
Hurricane	Medium	Major	50 years	County-wide
Ice Storm	Low	Minor	50 years	County-wide
Landslide	None	None	N/A	N/A
Plane/Train/Auto Crash	Low	Minor	10 years	Localized
Terrorism	Low	Minor	50 years	County-wide
Tornado	Low	Minor	10 years	County-wide
Tropical Storm	Medium	Minor	10 years	County-wide
Tsunami	None	None	N/A	N/A
Water Pipe Break	Medium	Minor	10 years	Localized
Wildfire	Low	Minor	50 years	Localized
Work Stoppage	Low	Minor	50 years	Localized

Note: This is not a comprehensive list of hazards. Be sure to identify and list hazards that could affect your community.

Hazard Vulnerability Assessment Spreadsheet

Location/Facility:
Date Completed:
Completed by:

This table has been adapted from a Microsoft Excel spreadsheet for inclusion in this Toolkit as an example of a system your community could implement. Scoring instructions are included after the table.

Type of Hazard	Historical Occurrence	Prob. of Occurrence	Human Impact	Property Impact	Business Impact	Mitigation Activities	Internal Resources	External Resources	Total
Civil Disturbance*									
Communications Failure									
Coastal Oil Spill*									
Computer Crime/Virus/ Software Failure									
Drought*									
Epidemic									
Fire: Brush & Forest*									
Fire: Structural									
Flooding: Short Duration *									
Flooding: Freshwater*									
Flooding: Drainage*									
Flooding: Coastal Tidal*									
Freeze*									
Gas Leak									
Hazardous Material Spills: *									
a. Roadways *									
b. Air*									
d. Pipeline*									
e. Rail Systems*									
Hurricanes*									

Type of Hazard	Historical Occurrence	Prob. of Occurrence	Human Impact	Property Impact	Business Impact	Mitigation Activities	Internal Resources	External Resources	Total
Lightning									
Mass Immigration*									
Military Conflict									
Plane/Train/Auto Crash									
Power Failure									
Severe Weather/Storms *									
Sinkholes/ Subsidence*									
Terrorism									
Theft/Vandalism									
Thunderstorm									
Tornado*									
Tropical Storm *									
Water Pipe Break									
Weapons of Mass Destruction: Chemical/ Biological/Nuclear									
Wildfires									
Workplace Violence									
Work Stoppage									

Analysis Results: High Risk: Greater than 3.5 Medium Risk: 2.0 to 3.5 Low Risk: Less than 2

*** Hazards of Concern as per HVA**

Adapted from Manatee County Florida's Hazard Vulnerability Analysis

Hazard Vulnerability Assessment Spreadsheet– Completed Example

Location/Facility: Manatee County
Date Completed: 01/05/11
Completed by: EM

This table has been adapted from a Microsoft Excel spreadsheet for inclusion in this Toolkit as an example of a system your community could implement. Scoring instructions are included after the table.

Type of Hazard	Historical Occurrence	Prob. of Occurrence	Human Impact	Property Impact	Business Impact	Mitigation Activities	Internal Resources	External Resources	Total
Civil Disturbance*	1	1	1	1	1	3	3	3	0.3
Communications Failure	3	2	3	1	3	3	3	4	2.0
Coastal Oil Spill*	1	1	1	2	2	2	1	3	1.1
Computer Crime/Virus/ Software Failure	1	1	1	3	3	3	3	3	1.2
Drought*	1	1	2	3	3	3	2	3	1.6
Epidemic	1	2	3	3	3	3	3	4	2.0
Fire: Brush & Forest*	2	2	2	3	2	4	4	4	1.6
Fire: Structural	1	1	3	3	3	4	4	4	1.3
Flooding: Short Duration *	4	4	3	2	2	3	3	3	3.2
Flooding: Freshwater*	4	4	2	2	3	3	3	3	3.2
Flooding: Drainage*	3	3	2	2	2	4	3	3	2.2
Flooding: Coastal Tidal*	1	2	4	4	4	4	3	4	2.6
Freeze*	1	1	1	2	2	2	2	3	1.0
Gas Leak	1	1	2	2	2	3	3	3	1.0
Hazardous Material Spills: *									0.0
a. Roadways *	2	3	1	2	1	3	2	4	1.7
b. Air*	1	1	3	1	3	3	2	4	1.2
d. Pipeline*	1	1	2	1	2	3	3	4	0.7
e. Rail Systems*	1	1	2	1	1	2	3	4	0.6

Type of Hazard	Historical Occurrence	Prob. of Occurrence	Human Impact	Property Impact	Business Impact	Mitigation Activities	Internal Resources	External Resources	Total
Hurricanes*	1	2	4	4	4	3	3	3	2.8
Lightning	4	4	3	1	1	3	3	4	2.7
Mass Immigration*	1	1	2	1	1	3	4	4	0.3
Military Conflict	1	1	1	1	1	1	3	5	0.3
Plane/Train/Auto Crash	2	2	2	2	2	3	3	5	1.4
Power Failure	2	2	2	1	2	4	3	5	1.1
Severe Weather/Storms *	3	3	2	2	2	3	3	4	2.2
Sinkholes/ Subsidence*	1	1	1	1	1	1	1	1	1.0
Terrorism	1	1	3	2	2	4	3	5	0.9
Theft/Vandalism	2	2	3	3	3	4	4	4	2.0
Thunderstorm	3	3	1	1	1	3	3	4	1.6
Tornado*	2	2	3	3	2	4	4	4	1.8
Tropical Storm *	2	3	3	3	3	3	4	4	2.6
Water Pipe Break	3	3	2	2	2	3	3	3	2.3
Weapons of Mass Destruction: Chemical/ Biological/Nuclear	1	2	4	3	3	4	3	5	2.0
Wildfires	2	2	3	3	2	4	4	4	1.8
Workplace Violence	1	1	2	1	2	3	3	3	0.8
Work Stoppage	1	1	2	1	3	1	1	1	1.7

Analysis Results: High Risk: Greater than 3.5 Medium Risk: 2.0 to 3.5 Low Risk: Less than 2

*** Hazards of Concern as per HVA**

Adapted from Manatee County Florida's Hazard Vulnerability Analysis

Instructions for Using the Spreadsheet

The All Hands COOP Risk Assessment tool is an Excel spreadsheet, which is designed to measure a facility's risk from the effects of various hazards. The tool is based on a formula that weighs the probability and severity of potential impacts against preparations in place which are intended to minimize these impacts. Using a simple 1 to 5 scale, the probability of occurrence and the impact potential are tabulated along with mitigation efforts and the resources available to respond to the hazard. The score is based on a formula that weighs risk heavily but provides credit for mitigation and response and recovery resources. The higher the score, the higher the facility's risk from the hazard.

Instructions:

1. Obtain and review a copy of the county's Hazard Vulnerability Analysis (HVA.)
2. Add or delete hazards as required based on your local HVA analysis.
3. Using the guidelines shown below, score each hazard in all columns based on a scale of 1 to 5 with 5 being the highest.
4. Final Step: Sort the Total Column in descending order once scoring is completed.

Scoring Guidelines:

There are eight risk assessment factors contained in the spreadsheet. All factor scoring is done on a scale of 1-5. The formula contained in the spreadsheet calculates higher scores in the occurrence and impact columns as increasing risks, while higher scores in the mitigation and resource categories lower the overall risk score giving credit for steps taken to reduce the likely impact. Base your scoring on a "worst-case scenario." The following guidelines will assist you in scoring each hazard.

Historical Occurrence (Frequency):

Based on the number of occurrences: At least one occurrence every 1-4 years = 5; At least one occurrence every 5-10 years = 4; At least one occurrence every 11-50 years = 3; At least one occurrence every 51-100 years = 2; Has not occurred, but for planning purposes should be evaluated = 1.

Probability of Occurrence:

Based on the statistical probability of the hazard occurring in a given year. This may be obtained by scientific research or may simply be an educated guess. The higher the probability, the higher the score. Use the following guideline in determining you score. If less than 5% score 1, if 5% to 10% score 2, if 10% to 20% score 3, if 20% to 40% score 4, and score 5 if greater than 40% probability.

Human Impact:

Score based on greatest possible impact should worst-case event occur at your facility. Consider the likely number of fatalities, injuries, homeless, etc. Score 1 low - 5 highest.

Property Impact:

Score based on the economic costs of the event, including both direct and indirect property damage from the hazard. Smoke damage would be a 1 while a total loss should be a 5. Score 1 low - 5 highest.

Business Impact:

Score based on factors such as service impact, lost wages, revenues, and taxes. Consider cost of relocation, permanent damage to valuable resources, etc. Score 1 low - 5 highest.

Mitigation Activities:

Based on steps taken to mitigate the hazard such as security barriers, fire sprinklers, and redundant technical systems. The more mitigation measures taken, the higher the score. Score 1 low - 5 highest.

Internal Resources:

Base your score on the internal response and recovery resources. High scores should be given when there are a formal on-site response teams, organized fire brigades, floor wardens, continuity teams, or recovery teams. Score 1 low - 5 highest.

External Resources:

Base your score on the external resources that would be immediately available. This would include the local fire department. Give higher scores if there are specialized teams available or if contractor support such as hot sites, alternate facilities, and response teams are immediately available. Score 1 low - 5 highest.

Understanding the Scores:

Based on the weighted scoring formula hazards that are relatively high will score 3.5 or higher. The spreadsheet is programmed to change colors based on the score as follows:

Red	High Risk	Greater than 3.5
Yellow	Medium Risk	From 2.0 to 3.5
Green	Low Risk	Less than 2.0

These scores are based on subjective judgments but, nonetheless, they provide a means to quickly rate the facility's risk from various hazards. Based on this risk scoring, priorities for increased mitigation and preparedness activities can be determined.

Risk Index Worksheet for Comparing and Prioritizing Risks

Hazard	Frequency	Magnitude	Warning Time	Severity	Special Characteristics and Planning Considerations	Risk Priority
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		
	Highly likely Likely Possible Unlikely	Catastrophic Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical Limited Negligible		

Adapted from FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

Risk Index Worksheet for Comparing and Prioritizing Risks– Completed Example

Hazard	Frequency	Magnitude	Warning Time	Severity	Special Characteristics and Planning Considerations	Risk Priority
Civil Disturbance	Highly likely Likely Possible **Unlikely**	Catastrophic Critical **Limited** Negligible	**Minimal** 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical **Limited** Negligible		Low
Drought	Highly likely Likely Possible **Unlikely**	Catastrophic Critical **Limited** Negligible	Minimal 6 – 12 hours 12 – 24 hours **24+ hours**	Catastrophic **Critical** Limited Negligible		Low
Epidemic	Highly likely Likely Possible **Unlikely**	Catastrophic Critical **Limited** Negligible	Minimal 6 – 12 hours 12 – 24 hours **24+ hours**	Catastrophic **Critical** Limited Negligible		Low
Flooding	Highly likely Likely **Possible** Unlikely	Catastrophic Critical **Limited** Negligible	Minimal **6 – 12 hours** 12 – 24 hours 24+ hours	Catastrophic **Critical** Limited Negligible		High
Hazardous Material Spill	Highly likely Likely **Possible** Unlikely	Catastrophic Critical **Limited** Negligible	**Minimal** 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic **Critical** Limited Negligible		Low
Hurricane	Highly likely **Likely** Possible Unlikely	**Catastrophic** Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours **24+ hours**	**Catastrophic** Critical Limited Negligible		Low
Terrorism	Highly likely Likely **Possible** Unlikely	**Catastrophic** Critical Limited Negligible	**Minimal** 6 – 12 hours 12 – 24 hours 24+ hours	**Catastrophic** Critical Limited Negligible		Low
Tropical Storm	**Highly likely** Likely Possible Unlikely	**Catastrophic** Critical Limited Negligible	Minimal 6 – 12 hours 12 – 24 hours **24+ hours**	**Catastrophic** Critical Limited Negligible		High
Water Pipe Break	Highly likely Likely **Possible** Unlikely	Catastrophic Critical **Limited** Negligible	**Minimal** 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic Critical **Limited** Negligible		Low
Wildfire	Highly likely Likely **Possible** Unlikely	Catastrophic Critical **Limited** Negligible	**Minimal** 6 – 12 hours 12 – 24 hours 24+ hours	Catastrophic **Critical** Limited Negligible		Low

Adapted from FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

Hazard Profile Worksheet

HAZARD:

Potential Magnitude (Percentage of the jurisdiction that can be affected):

- ☐ **Catastrophic:** More than 50%
- ☐ **Critical:** 25 to 50%
- ☐ **Limited:** 10 to 25%
- ☐ **Negligible:** Less than 10%

Frequency of Occurrence:

- ☐ **Highly Likely:** Near 100% probability in next year
- ☐ **Likely:** 10-100% probability in next year, or at least one chance in 10 years
- ☐ **Possible:** 1-10% probability in next year, or at least one chance in next 100 years
- ☐ **Unlikely:** Less than 1% probability in next 100 years

Seasonal Pattern (if applicable):

Areas Likely To Be Affected Most (by Sector):

Probable Duration:

Potential Speed of Onset (Probable amount of warning time):

- ☐ Minimal (or no) warning
- ☐ 6 to 12 hours warning
- ☐ 12 to 24 hours warning
- ☐ More than 24 hours warning

Existing Warning Systems:

Complete Vulnerability Analysis:

- ☐ Yes
- ☐ No

Adapted from FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

Hazard Profile Worksheet– Completed Example

HAZARD: Earthquake

Potential Magnitude (Percentage of the jurisdiction that can be affected):

- ☐ **Catastrophic:** More than 50%
- ✓ **Critical:** 25 to 50%
- ☐ **Limited:** 10 to 25%
- ☐ **Negligible:** Less than 10%

Frequency of Occurrence:

- ☐ **Highly Likely:** Near 100% probability in next year
- ☐ **Likely:** 10-100% probability in next year, or at least one chance in 10 years
- ☐ **Possible:** 1-10% probability in next year, or at least one chance in next 100 years
- ✓ **Unlikely:** Less than 1% probability in next 100 years

Seasonal Pattern (if applicable):
N/A

Areas Likely To Be Affected Most (by Sector):
County-wide

Probable Duration:
The earthquake itself is not likely to last long.

Potential Speed of Onset (Probable amount of warning time):

- ✓ Minimal (or no) warning
- ☐ 6 to 12 hours warning
- ☐ 12 to 24 hours warning
- ☐ More than 24 hours warning

Existing Warning Systems:
None

Complete Vulnerability Analysis:

- ✓ Yes
- ☐ No

Adapted from FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

Community Exposure Profile

Hazard Event _____

Name or Description of Asset	Sources of Information	Critical Facility	Vulnerable Populations	Economic Assets	Special Considerations	Historical/Other Considerations	Size of Building (sq ft)	Replacement Value ($)	Contents Value ($)	Function Use or Value ($)	Displacement Cost ($ per day)	Occupancy or Capacity (#)	Other Hazard Specific Information

Adapted from FEMA *386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses*

Community Exposure Profile – Completed Example

Hazard Event Flood

Name or Description of Asset	Sources of Information	Critical Facility	Vulnerable Populations	Economic Assets	Special Considerations	Historical/Other Considerations	Size of Building (sq ft)	Replacement Value ($)	Contents Value ($)	Function Use or Value ($)	Displacement Cost ($ per day)	Occupancy or Capacity (#)	Other Hazard Specific Information
Historic Lighthouse	Lighthouse Preservation Society					✓	3,000	$150,000	$1.5M	$0.5M	$500	1	
Bridge	Public Works	✓					250ft long	$750,000	NA	$31,750	$12,000	20	
Sewage Treatment Plant	Public Works	✓					75,000	$2.5M	$2.5M	$30M	$200,000	10	
STP Outbuilding	Public Works	✓					10,000	$1M	$1.5M	$0.25M	$5,000	---	
STP Outbuilding	Public Works	✓					7,500	$75,000	$1.5M	$0.5M	$1,000	---	
Water Treatment Plant	Public Works	✓					3,000	$250,000	$1.25M	$1M	$2,000	5	
Hospital	Hospital	✓					45,000	$2.5M	$3.75M	$0.75M	$2,500	100	
Police/Fire Station	Police Dept.	✓					10,000	$2M	$3M	$0.35M	$2,000	150	

Adapted from FEMA *386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses*

Loss Estimation Form

Hazard Event _____

Structure Loss						Content Loss				
Name/Description of Structure	Structure Replacement Value ($)	X	Percent Damage (%)	=	Loss to Structure ($)	Replacement Value of Contents ($)	X	Percent Damage (%)	=	Loss to Contents
		X		=			X		=	
		X		=			X		=	
		X		=			X		=	
		X		=			X		=	
		X		=			X		=	
		X		=			X		=	
		X		=			X		=	
		X		=			X		=	
Total Loss to Structure						**Total Loss to Contents**				

Structure Use and Function Loss									
Name/Description of Structure	Average Daily Operating Budget ($)	X	Functional Downtime (# of days)	+	Displacement Cost per Day ($)	X	Displacement Time (# of days)	=	Structure Use & Function Loss ($)
		X		+		X		=	
		X		+		X		=	
		X		+		X		=	
		X		+		X		=	
		X		+		X		=	
		X		+		X		=	
		X		+		X		=	
		X		+		X		=	
Total Loss to Structure Use & Function									

Structure Loss	+	Content Loss	+	Function Loss	=	Total Loss for Hazard Event
	+		+		=	

Adapted from FEMA *386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses*

Loss Estimation Form – Completed Example

Hazard Event Flood

Structure Loss						Content Loss				
Name/Description of Structure	Structure Replacement Value ($)	X	Percent Damage (%)	=	Loss to Structure ($)	Replacement Value of Contents ($)	X	Percent Damage (%)	=	Loss to Contents
Historic Lighthouse	1,500,000	X	18	=	270,000	50,000	X	27	=	13,500
Bridge	750,000	X	20	=	150,000	N/A	X	N/A	=	N/A
Sewage Treatment Plant	2,500,000	X	13	=	325,000	2,500,000	X	19.5	=	487,500
STP Outbuilding	1,000,000	X	13	=	130,000	1,500,000	X	19.5	=	292,500
STP Outbuilding	750,000	X	13	=	97,500	1,500,000	X	19.5	=	292,500
Water Treatment Plant	250,000	X	5	=	12,500	250,000	X	7.5	=	18,750
Hospital	2,500,000	X	5	=	125,000	3,750,000	X	7.5	=	281,250
Police/Fire Station	2,000,000	X	5	=	100,000	3,000,000	X	7.5	=	225,000
Total Loss to Structure					$1,210,000	**Total Loss to Contents**				$1,611,000

Structure Use and Function Loss									
Name/Description of Structure	Average Daily Operating Budget ($)	X	Functional Downtime (# of days)	+	Displacement Cost per Day ($)	X	Displacement Time (# of days)	=	Structure Use & Function Loss ($)
Historic Lighthouse	2,191	X	7	+	500	X	2	=	16,337
Bridge	31,740	X	4	+	12,000	X	4	=	174,960
Sewage Treatment Plant	82,191	X	3	+	200,000	X	3	=	846,573
STP Outbuilding	384	X	2	+	5,000	X	2	=	11,368
STP Outbuilding	384	X	2	+	1,000	X	2	=	3,368
Water Treatment Plant	2,740	X	1	+	2,000	X	0	=	2,740
Hospital	2,055	X	0	+	2,500	X	0	=	0
Police/Fire Station	960	X	1	+	2,000	X	0	=	960
Total Loss to Structure Use & Function									$1,056,306

Structure Loss	+	Content Loss	+	Function Loss	=	Total Loss for Hazard Event
$1,210,000	+	$1,611,000	+	$1,056,306	=	$3,877,306

Adapted from FEMA *386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses*

Sample Damage Assessment Documents and Forms

This section contains the following sample documents and forms:

- FEMA's Preliminary Damage Assessment (PDA) 4-point methodology
- Damage Assessment Level Guide
- Sample Standard Operating Guide for First-in Teams
- First-in Team Damage Rate Sheet
- First-in Team Intelligence Sheet
- Damage Assessment Forms
  - Residential
  - Business
  - Public Facilities
  - Agriculture
- Uniform Disaster Situation Report
- Support Documentation for Business Injury Form
- Infrastructure Damage Assessment Form

These documents and forms are in addition to the ones referenced in the Resource Links section of this lesson. They can be adapted to fit the needs of your community for inclusion in your community's damage assessment plan.

FEMA's Preliminary Damage Assessment (PDA) 4-Point Methodology

Rating	Description	Definition
0	N/A / No Damage	No damage has occurred to the structure.
1	Affected	This category includes dwellings with minimal damage to structure and/or contents and the home is habitable without repairs. This category also applies to homes that are initially inaccessible. Once accessible, a more accurate evaluation of the level of damage can be completed.
2	Minor Damage	Minor damage encompasses a wide range of damage and is generally the most common type of damage. Minor damage exists when the home is damaged and uninhabitable, but may be made habitable in a short period of time with home repairs. Some of the items that determine minor damage are listed below: • Damages less than the maximum Housing Assistance Repair Grant. • Windows or doors blown in. • One foot or more of water/sewer backup in basement (i.e., furnace, water heater damage). • Has less than 50% damage to structure.
3	Major Damage	Major damage exists when the home has sustained structural or significant damages, is uninhabitable and requires extensive repairs. Any one of the following may constitute major damage. • Substantial failure of structural elements of the residence (e.g., walls, roof, floors, foundation, etc.). • Damage to the structure that exceeds the Home Repair Grant maximum. • Has more than 50% damage to structure. • One foot or more of water on the first floor (of a home with basement).
4	Destroyed	Destroyed means the structure is a total loss or damaged to such an extent that repairs are not economically feasible. Any one of the following may constitute a status of destroyed: • Structure is not economically feasible to repair. • Structure is permanently uninhabitable. • Complete failure of major structural components (e.g., collapse of basement walls/foundation, walls, or roof). • Only foundation remains. • Two or more walls destroyed and roof substantially damaged. • House pushed off foundation • An unaffected structure that will require removal or demolition (e.g., homes in imminent danger due to impending landslides, mudslides, or sinkholes; beachfront homes that must be removed due to local ordinance violations as a result of beach erosion).

Damage Assessment Level Guide

Damage Level	General Description	FEMA DL	FEMA SF, MF, MH Description	Things to Look For	Water Levels	ARC DL Description	ARC SF & MH
10	Structure leveled, foundation, basement damaged. Water above the eaves.	**DESTROYED to 100%** Structure is a total loss or permanently uninhabitable. Not economically feasible to rebuild.	**DESTROYED to 100%** More than 5 feet on first floor. More than 2 feet in mobile home	**DESTROYED to 100%** Structure leveled or has major shifting off its foundation or only the foundation remains. Roof is gone with noticeable distortion to walls.	More than 8 feet	**(1) DESTROYED to 100%** Structure permanently uninhabitable, cannot be repaired	**(1) DESTROYED to 100%** More than 8 feet in structure. More than 3 feet in mobile home
9	Structure leveled above the foundation. Second floor is gone.				6-8 feet	**(2) MAJOR** Structure currently uninhabitable, will require extensive repairs	**(2) MAJOR** **Home or Apt** 24 inches to 8 feet in structure first floor.
8	Water above the first floor. Structure moved off foundation. Walls collapsed.				5-7 feet		
7	Exterior frame damage. Roof off or collapsed. Accessory service outbuildings damaged.	**MAJOR to 74%** Structure is currently uninhabitable. Extensive repairs are necessary to make habitable. Will take more than 30 days to repair	**MAJOR to 74%** 3 to 5 feet in first floor 6 inches to 2 feet in mobile home with plywood floors 1 inch to 2 feet in mobile home with particle board floors.	**MAJOR to 74%** Portions of the roof and decking missing. Twisted, bowed, cracked, or collapsed walls. Structure penetrated by large foreign object, such as tree. Damaged foundation.	5-6 feet		
6	Foundation damaged. Insulation damaged. Exterior wall(s) damaged. Production equipment, office equipment damaged.				4-5 feet		
5	One room destroyed. Exits blocked. Utilities damaged: furnace, water heater, well, septic system.				3-4 feet		**(2) MAJOR** **Mobile Home** 6 inches to 3 feet
4	Interior flooring/exterior walls with minor damage. Tree(s) fallen on structure. Business inventory destroyed.				2-3 feet		
3	Smoke damage. Fire escape inoperable. Shingles/roof tiles moved or missing. Fleet/vehicles damaged.				6 inches - 2 feet	**(3) MINOR** Structure currently habitable or requires minor repairs or cleaning to be habitable	**(3) MINOR** **Home or Apt** Less than 24" in structure. First floor.
2	Chimney damaged. Carpet on first floor soaked. Parking lot damaged.				3-6 inches		
1	Broken windows. Damage to landscaping. Business signs damaged.	**MINOR to 10%** Structure damaged, but habitable, needs minor repairs. Take less than30 days to repair. **Or** minimal structure damage & habitable without repairs.	**MINOR to 10%** 2" - 3' first floor **Or** in crawl space & reached insulation. Sewage 1ft or more Mobile Home BB to 6 inches	**MINOR to 10%** Missing shingles, broken windows and doors. Loose or missing siding. Minor shifting or settling of foundation. Attached garage damaged. Damaged septic system.	0-3 inches		**(3) MINOR** **Mobile Home** Less than 6 inches

From Manatee County Emergency Management

Standard Operating Guide for First-In Teams

MANATEE COUNTY FIRST-IN TEAMS

Standard Operating Guide

Lead Agency:	Manatee County Public Works Department
Co Agencies:	Manatee County Fire Chief's Association Manatee County Emergency Management
Participating Agencies:	Manatee County Sheriff's Office Manatee County Public Safety Manatee County Area Transit City of Bradenton City of Bradenton Beach City of Holmes Beach City of Longboat Key City of Palmetto Florida Power and Light Peace River Electric Bright House Verizon

I. PURPOSE

The purpose of this SOG is to describe the organization, concept of operations, and logistical matters of Manatee County's interdisciplinary initial impact assessment teams, otherwise known as First-in Teams. These teams will be the first to enter into an area that has been subjected to the impact of the hurricane or other major event, conduct preliminary impact assessments, clear routes to critical facilities, and engage in operational roadway clearance for critical resource access.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. An initial impact assessment is critical to the organization of response and recovery measures in the immediate aftermath of a major storm or destructive event. This initial assessment is essential for obtaining State and/or Federal emergency declarations in order to mobilize external assistance from these and other sources.
2. Since immediate post-impact over flight may not be feasible due to lingering severe weather and/or lack of daylight, initial damage estimation will have to be conducted from the ground. Also, certain damages cannot be accurately determined from the air.
3. Early rescue efforts can be delayed by downed power lines and debris in roadways. The First-in Teams will have the advantage of appropriate utility personnel in accompaniment for immediate authorization for clearance.
4. Random response and recovery efforts can waste response capabilities, cause duplication of services, fragmentation command, and can potentially cause further damage to critical facilities and citizen interests.
5. A variety of public and private entities have valid reasons for reentry into impacted areas.
6. Priority routes have been identified in advance of any storm or serious event that will be cleared by First-in Teams. See Route Maps.
7. There are few facilities where First-in Team personnel can find refuge and secure essential equipment during a major storm.
8. Communication capabilities are likely to be seriously impaired for an undefined period of time after a storm or other destructive event. This could interfere will dispatch of Damage Assessment Teams and rescue units.

B. Assumptions

1. Facilities selected as refuges for First-in Teams must prove adequate for their purpose.
2. Agencies with responsibilities in this SOG should perform as expected.

III. ORGANIZATION

A. Areas of Team Responsibility

Each First-in Team will be assigned operational responsibilities in a specified geographical region of the County and secondary responsibilities in other areas as directed by the EOC.

B. Incident Command

1. Manatee County First-in Teams will follow the Incident Command System (ICS) structure in daily and emergency duties. This command structure incorporates coordinated efforts in planning, operations, logistics, and administration as outlined by ICS procedures.

2. During emergency activations, the ESF 4/9 First-in Team Coordinator will coordinate directly with the EOC Operations Chief for instructions and then will coordinate field operations with Team Leaders. Each team should have an Assistant Team Leader whose primary responsibility will be to serve as Safety Officer for the team. During field operations, Team leaders have overall control of the mission and response of the team. Once emergency duties of the teams are complete, staff and equipment may be released to their agencies for additional duties

C. Team Makeup

First-in Team members will be assigned by their respective disciplines to achieve the teams' mission. Each member is to be equipped with appropriate personal protection equipment (PPE) and mission equipment. Each member of the team represents unique technical and professional expertise. Every member of the team is expected to defer to the member whose expertise is foremost in any given situation.

D. Training

1. First-in Team Leaders are required to meet quarterly to cover planning and training issues. Training dates will be predetermined by the EOC Operations Chief in coordination with Team Leaders. Every effort must be made for the team leaders to attend these meeting. Absences will be dealt with on an as needed basis to include removal and replacement on the team.

2. First-in Teams will participate in an annual drill. During annual training, it is crucial for <u>every</u> member of the First-in Team to participate. Members missing training become a weak link on the team because they are not updated on critical mission training.

3. It is the responsibility of the individual Team Member to inform the Team Leader he/she will be missing training. Team Leaders who are unable to a meeting must inform the ESF4/9 First-in Team Coordinator

4. A core of training classes is recommended to ensure every member of the First-in Teams has the basic knowledge and skill necessary to perform the missions of the team. Those members that have not completed this core of classes will be limited to certain activities during an activation of the First-in Teams.

IV. CONCEPT OF OPERATIONS

A. Pre-storm:

1. The First-in Team will be placed on standby and prepared to deploy following the activation of EOC to a level 1 (Agency Representatives to advise internal staff). Upon a decision to activate the team, the EOC Operations Chief will have the ESF 4/9 FIT Coordinator contacted and informed to prepare the teams for activation. First-in Team members will then be alerted as early as possible by their Team Leader in order for them to make the necessary arrangements for their families. Individual members of the First-in Team may be required to provide their agency with a copy of their designated family emergency plan.

2. Team Leaders brief will take place in the EOC conference room located at the Public Safety Center, 2101 47th Terrace East, Bradenton, Florida 34203

3. The briefing will include review of maps, mission priorities, team coordination, communication specifics and other issues as needed. This briefing shall also include methods and plans of execution for missions.

4. The ESF 4/9 FIT Coordinator will notify the operators of First-in Team refuge facilities to alert them to prepare the facility for use.

5. First-in Team members will "pull-back" to their assigned staging area in accordance with their agency protocols. The members shall secure equipment and establish communications within the team and with ESF 4/9 First-in Team Coordinator upon arrival at the predetermined staging area. Each member is required to bring all individual items as outlined in Section V, Item B to the designated area.

B. Trans-storm

The First-in Team will remain in place and maintain contact with ESF 4/9 by radio until the storm has lifted enough for them to move out. Teams must not mistake the eye of the storm for the passage of the storm itself. Once sustained winds have reached less than 39 MPH, First-in Team members will be instructed by the Team Leaders to begin their missions.

C. Post-storm

1. The primary function of the First-in Team is to re-enter an area impacted by a hurricane or other serious event as soon as conditions permit, ahead of all others to complete the following:
    - Render only immediate life saving techniques and call for EMS response;
    - Emergency debris clearance on routes to critical facilities;
    - Impact assessment to ESF4 during route clearance;
    - Identify damage severity to ESF4;
    - Identify additional resources needed and prioritize; and
    - Limit additional infrastructure damage

   It is expected First-in Team operations will last no more than 72 hours. Then, they can be withdrawn for possible reassignment to assist with Urban Search and Rescue Operations, extended debris clearance, or return to their parent agency, as directed by the EOC Operations Chief.

2. The areas to be checked automatically by First-in Teams are depicted in maps showing various routes. These routes may be used as suggested guidelines or may be adopted for any given emergency situation at the recommendation of the Team Leader. Priorities and missions may be altered by the County Administrator, Incident Commander, or EOC Operations Chief as necessary.
3. Upon storm passage, as determined by either direct observation, or as advised by the EOC Operations Chief or other authority, the team will:
   a. Start/maintain efforts to establish radio contact with ESF4/9 FIT Coordinator until successful in accordance with the established Radio Communication Plan – ICS 205 (Attachment 1). The ESF 4/9 Coordinator will be responsible for the formulation of the ICS-205.
   b. Check personnel for injuries and vehicles/equipment for damage.
   c. Finalize a plan to fit the situation, load equipment, and prepare to start on identified routes. The Team Leader should insure an Incident Action Plan – ICS 202 and Individual Medical Forms have been completed in preparation of the team mission being initiated. The Team Leader (or designated scribe) should maintain a Team Unit Log – ICS 214 during operations. Upon initiation of the plan, teams should bypass major obstacles as necessary to avoid major delays and make notes of damaged areas using the following methods:
      - Photographs.
      - Estimated percentage values of damage to groups of structures and infrastructure using street blocks and possible GPS coordinates as identifiers. Be specific about areas affected.
      - Mark maps to depict areas where further response and recovery efforts will be needed.
   d. Where possible, paint Street names on pavement with spray paint at intersections where street signs have been blown down.
   e. Due to safety concerns, First-in Team members will:
      - Always work in pairs.
      - Work only during hours of daylight.
      - Report hazardous materials/conditions to ESF 4/9 FIT Coordinator upon discovery. ESF 4/9 will coordinate response with ESF 10 Hazmat Coordinator.

D. End-of-Mission

When the mission is completed, teams will assemble and account for all personnel and equipment, and return to the initial assembly area or other designated point, as directed by the EOC Operations Chief ESF 4/9 FIT Coordinator or Team Leaders and prepare to brief and /or escort EOC personnel. Prior to dismissal, all members must undergo debriefing. Individual Team Leaders will be responsible to insure this is completed

a. Team notes mapping, photographs, and debriefing information should be delivered to the EOC as soon as possible by the Team Leader.

b. Team equipment and/or team members may be needed for missions elsewhere. Team members are not to be released to other tasks until they are debriefed. The Team Leader or other team member may debrief all Team members and collect team reports for presentation in the EOC.

c. Team members will be assisted through the EOC to obtain status regarding their families and homes. This should be accomplished as early in the event as possible to establish mission focus of team members.

E. Media Relations

(Situational) Primary concentration is the mission. Defer all media inquiries to the Public Information Officer (ESF 14) through EOC at (941) 749-3018. In the event the media relations will be an advantage, no one except a First-in Team Leader will speak with the media, unless authorized by an ESF 14 Public Information Officer (PIO). This will avoid the release of conflicting information. If individual team members are approached by a member of the member, refer to the Team Leader.

V. LOGISTICS AND ADMINISTRATION

A. Assembly/Staging Refuge Areas and Suggested Routes: See attachment 3 (Assembly areas and routes may be adjusted as necessary.)

1. Individual Equipment: All members are to be equipped with the following items:

1 Ea.	Hard Hat
1 Pr.	Laced leather boots w/non-slip-sole (Steel toe/shank)
3 Ea.	Long sleeved shirts
3 Ea.	Heavy duty trousers
1 Ea.	Eye/Hearing protection
1 Pr.	Heavy duty leather gloves
1 Ea.	Dust/smoke mask
1 Ea.	Eyeglasses/Sunglasses
1 Ea	Reflective vest
1 Ea.	Flashlight w/extra batteries
1 Btl.	Insect repellent/Sun screen
1 Qt.	Canteen
1 Ea.	Mess, pan, knife, fork & spoon
1 Pr.	Wet weather gear
1 Ea.	Mat or sleeping bag
1 Wk.	Personal Medications
1 Wk.	Personal hygiene supplies
3 Ea.	Towels & wash clothes
1 Ea.	Water proof duffel bag or equal
3 Days	Individual or special food for 3days - (MRE's, Heater Meals, etc)

2. Basic team Equipment: Items provided by member's agencies as follows (This list maybe modified as needed):

1 St.	Functional area expert SOP's & checklist

1 Ea. Portable air compressor
1 Ea. Portable generator with extension cords
2 Ea. 12 volt Tri-pod lights
5 Ga. Fuel premixed for 2 cycle motors if needed
1 Ea. 800 MHz radio per vehicle
1 Ea. Still camera with extra batteries
1 Ea. Camcorder with extra batteries and film
1 Ea. Binoculars
1 Ea. Laptop computer with GPS
As Required Chainsaws (2 ea.)
As Required Oil, spare parts & tool kits for chain saw users

3. Team Vehicles: EMS Strike team vehicle or Fire Vehicle
   a. Fuel Document (per vehicle):
      5 gallons of drinking water
      Tire patch kit w/ gauge and 4 cans of tire inflator
      First aid kit and flashlight
      Maxx- & Multi-purpose axes
      Laminated area maps
      Tow chain or strap
      5 gallons of fuel for equipment and/or vehicles
      All necessary ICS forms
      VHF Mobile Radio and Antenna per Team (supplied by Emergency Management)
   b. Vehicle Type and Source (per team):
      1 Pay loader (Public Works)
      1 Low boy (Public Works)
      1 Rescue vehicle/Command Vehicle (EMS/Fire)
      1 6 x 6 (Public Works)
      1 4 x 4 Utility Vehicle (Public Works)
      2 Marked police cars (Local Law Enforcement Agency)
      1 Company Bucket Truck (PL/Peace River Electric)
      1 Company Bucket Truck (Verizon)
      1 Company Bucket Truck (Bright House)
      1 School Bus or MCAT Bus (School Board/Transit)
      1 Truck Crane (Public Works)

B. Administration
   1. Changes to this SOG will be made after consultation with parties involved. All parties involved are encouraged to identify improvements to this SOG.
   2. All equipment lists are subject to modifications as recommended by Team Leaders. Unilateral changes by organizations are to be avoided as they may adversely affect the overall team mission.

First-in Team Damage Rate Sheet

NAME OF PERSON COMPLETING FORM	TEAM NUMBER: 1THRU 7

ADDRESS/AREA/STREET RANGE	RATE DAMAGE: 1 THRU 6

From Manatee County Emergency Management

First-in Team Intelligence Sheet

NAME OF PERSON COMPLETING FORM	TEAM NUMBER: 1THRU 7

ADDRESS/AREA/STREET RANGE	INTEL

From Manatee County Emergency Management

Damage Assessment Forms

Complete and return to the EOC

Address/Area/Street Range:_____

_____

Date: ___/___/___ Time: ___:___

Name/Team# of person completing this form: _____

Please circle if the property listed on this form is a residential structure or an outbuilding?

residential **outbuilding**

From the damage level pictures shown below, please circle the picture (1, 2, 3 or 4) that most closely resembles the damage to the Area/Street Range/Property.

1

NO/MINOR DAMAGE HABITABLE

2

MAJOR DAMAGE HABITABLE

3

MAJOR DAMAGE UNINHABITABLE

4

DESTROYED

From Manatee County Emergency Management

GENERAL DAMAGE ASSESSMENT INFORMATION

Respondent Information

Date: _____

Name: _____

Agency: _____

Phone: _____ Fax: _____

Background Information

Location: _____

(City) (County)

Type of Incident: _____

Description of Incident: _____

_____

Demographics

Ethnic Makeup of Affected Population: _____

Income Levels of Affected Population (Including Sources of Income): _____

_____

Age of Affected Population: _____

Statistical Information

Number of Injuries: _____

Deaths: _____

Hospitalizations: _____

Missing: _____

Evacuated: _____

Displaced: _____

Special Issues (Housing Shortages, Illnesses, etc.) _____

Housing Information

Number of emergency shelters: _____

Capacity of emergency shelters: _____

Number of people in emergency shelters: _____

Number of meals served at meal sites: _____

Number of rental housing units available: _____

Public Facilities Information

Total local government expenditure for response: _____

From FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

DAMAGE ASSESSMENT – Residential

Respondent Information

Date: _____

Name: _____

Agency: _____

Phone: _____ Fax: _____

Location: _____
(City) (County)

Resident Information

Name: _____

Permanent Mailing Address: _____

_____

Permanent Phone Number: _____

Current Address: _____

Current Phone Number: _____

Number of Occupants by Age: _____ Under 21

_____ 21 – 64

_____ 65 +

Income Level of Residents (check one): _____ Under $12,320

_____ $12,320 – $57,680

_____ Over $57,680

Property Information

Damaged Property Location: _____

Is home inaccessible?	Yes	No	
Is property habitable?	Yes	No	
Is the property (circle):	a) Urban	Rural	
	b) Single-family	Multiple-family	Mobile Home
	c) Owned	Rented	

If property is rented: Name of owner: _____

Address: _____

Phone: _____

Damage Assessment

FEMA Designation (check one):
_____ Destroyed
_____ Major Damage
_____ Minor Damage
_____ Affected Habitable

Is residence insured: Yes No

Does residence have flood insurance? Yes No

Dollar damage of residence: $_____

Dollar estimate of insurance recovery: $_____

Dollar damage to personal property: $_____

Dollar estimate of personal property insurance recovery: $_____

Insurance Information

Name of insurance company: _____

Insurance Agent: _____ Phone: _____

Other Information

Is residence a primary or secondary home?	Primary	Secondary
Will residence be repaired or rebuilt?	Yes	No
Will residence be repaired/rebuilt in same community?	Yes	No

From FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

DAMAGE ASSESSMENT – Business

Collect information for each business on a separate form.

Respondent Information

Date: _____

Name: _____

Agency: _____

Phone: _____ Fax: _____

Location: _____
(City) (County)

Business Information

Business Name: _____

Permanent Mailing Address: _____

_____

Permanent Phone Number: _____

Current Mailing Address: _____

Current Phone Number: _____

Property Information

Damaged Property Location: _____

Is business inaccessible?	Yes	No
Is the business (circle one):	Home-based	Stand-alone
Is the property (circle):	a) Urban	Rural
	b) Owned	Rented

If property is rented:
Name of owner: _____
Address: _____
Phone: _____

DAMAGE ASSESSMENT – Business

Damage Assessment

Designation (check one):
_____ Destroyed
_____ Major Damage
_____ Minor Damage
_____ Affected Habitable

Is business insured: Yes No

Does business have flood insurance? Yes No

Dollar damage to business: $_____

Dollar estimate of insurance recovery: $_____

Estimated loss of sales: $_____

Dollar damage to inventory: $_____

Dollar estimate of insurance recovery for inventory: $_____

Dollar damage to equipment: $_____

Dollar estimate of insurance recovery for equipment: $_____

Did the business experience indirect damage (i.e., utility outage, roads blocked so customers could not reach business, etc.)? Yes No

Estimated dollar value of indirect damage: $_____

Insurance Information

Name of insurance company: _____

Insurance Agent: _____ Phone: _____

Other Information

Type of Business (check one):
_____ Manufacturing
_____ Service
_____ Retail

Number of:
a) Manufacturing jobs _____
b) Retail/service/clerical jobs _____
c) Professional jobs _____

Number of people unemployed for:
a) 1–7 days _____
b) 1–4 weeks _____
c) Over 4 weeks _____
d) Permanent _____

Will this business be repaired or rebuilt? Yes No

Will this business be repaired/rebuilt in same community? Yes No

From FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

DAMAGE ASSESSMENT – Public Facilities

Collect information for each facility on a separate form.

The categories for damage to public facilities are listed below. When asked for the damage category, simply list the appropriate letters.

A. Debris Clearance

B. Protective Measures

C. Roads Systems

D. Water Control Facilities

E. Public Building and Equipment

F. Public Utility Systems

(Do not include privately-owned utilities)

G. Parks/Recreation/Other

Respondent Information

Date: _____

Name: _____

Agency: _____

Phone: _____ Fax: _____

Location: _____

(City) (County)

Infrastructure

Answer this section for damages to infrastructure (roads, bridges, parks, etc.)

Type of Facility: _____

Site #: _____

Address/Map Location/Directions: _____

Name of Local Contact: _____

Phone: _____ Fax: _____

Damage Category (circle one): A B C G

Description of Damage: _____

Impact of Damage: _____

Percent of repairs completed: _____ %

Estimated cost of repairs $_____

Damages covered by insurance: $_____

federal assistance: $_____

state assistance: $_____

DAMAGE ASSESSMENT – Public Facilities

Public & Non-Profit Structures

Answer this section for damages to structures (schools, hospitals, non-profits, etc.)

Facility Name: _____

Permanent Mailing Address: _____

_____

Permanent Phone Number: _____

Current Mailing Address: _____

Current Phone Number: _____

Damaged Property Location: _____

Damage Category (circle one): D E F

Is the facility inaccessible? Yes No

Is the facility insured? Yes No

Does the facility have flood insurance? Yes No

Name of insurance company: _____

Insurance Agent: _____ Phone: _____

1. Dollar damage to the facility: $_____

estimate of insurance recovery: $_____

damage to equipment: $_____

estimate of insurance recovery for equipment: $_____

e facility experience any indirect damage (i.e., utility outage, roads blocked so customers could not reach business)? Yes No

ated dollar loss due to indirect damage: $_____

Number of people unemployed for:
a) 1–7 days _____
b) 1–4 weeks _____
c) Over 4 weeks _____
d) Permanent _____

Number of:
a) Manufacturing jobs _____
b) Retail/service/clerical jobs _____
c) Professional jobs _____

From FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

For Public Facilities

(A) Debris Clearance	Debris clearance is the removal of damaged objects such as tree limbs, building parts, signs, and other materials from public roads and streets, public property, and private property.
(B) Protective Measures	These are measures to prevent further damage when the event is occurring. For example, sandbagging a riverbank, evacuating, controlling traffic, and erecting barricades are such measures. You take them to protect life and safety, property and health.
(C) Road Systems	This category includes roads, streets, bridges, culverts, and other similar transportation-related features. You might subdivide the damage assessment into state highways, county roads, and city or village roads if this is useful. Damage might range from some minor damage fixable immediately with local resources to more extensive damage from complete washout or road destruction requiring more substantial resources and time.
(D) Water Control Facilities	This category covers damages to dikes, levees, dams, drainage channels, irrigation works, and other similar facilities. Obviously, it is mostly flood-related emergencies that will involve these and require an assessment of damage.
(E) Public Buildings and Equipment	Damage assessment in this area should include the number of buildings affected, the estimate for their restoration, cost of supplies or inventory lost or damaged, and vehicles or equipment that were damaged or destroyed. This kind of damage assessment occurs rather frequently, since most major disasters affect buildings one way or another.
(F) Public Utility Systems	Facilities in your political jurisdiction that sustain damage could include the water system, sanitary sewer systems, storm drains, and other publicly owned utilities. Since they are critical to modern-day living, it is important to get an accurate and early assessment of the damage they may have sustained. Often, they are high on the priority list of services to restore.
(G) Parks, Recreational, and Other	Structures that fall in this category may be eligible for special disaster assistance. Therefore, make sure your damage assessment includes any damage to these facilities. You are better off to file for assistance than to decide that the damage sustained is not worth the filing. These facilities include educational, emergency, medical, and custodial facilities but exclude churches or places used exclusively for worship. This last group includes parks and recreational facilities such as bike and jogging paths, sports fields, and community centers.
Summary	In brief, these are some of the major duties your emergency management team will be responsible for during response. As you can see, there will be a lot to do. The more of this you can anticipate and plan for, the better off you and your jurisdiction will be when something happens. The secret is playing your stage manager role well and making sure that all of the other actors and performers know their roles and are ready to respond.

DAMAGE ASSESSMENT – Agriculture

Collect information for each farm on a separate form.

Respondent Information

Date: _____

Name: _____

Agency: _____

Phone: _____ Fax: _____

Location: _____

(City) (County)

Farm Information

Name of Farmer: _____

Permanent Mailing Address: _____

_____

Permanent Phone Number: _____

Current Mailing Address: _____

Current Phone Number: _____

Damaged Property Location: _____

Is farm inaccessible?	Yes	No
Is property habitable?	Yes	No
Is property insured?	Yes	No
Does property have flood insurance?	Yes	No

DAMAGE ASSESSMENT – Agriculture

Crop Damage

Crops	# Acres Lost	Total Acres Planted	% Loss	% Uninsured
Corn				
Soybeans				
Hay				
Other				

Livestock Damage

Livestock	# Killed or Injured	Value (at time of loss)
Cattle		
Hogs		
Sheep		
Poultry		
Other		

Farm Damage

2. Dollar damage to farm outbuildings: $_____

estimate of farm outbuilding insurance recovery: $_____

damage to farm machinery & equipment: $_____

estimate of farm machinery & equipment insurance recovery: $_____

damage to other structures (dams, silos, etc.): $_____

estimate of other structures insurance recovery: $_____

damage to land (waterways, terraces, etc.): $_____

estimate for land insurance recovery $_____

Insurance Information

Name of insurance company: _____

Insurance Agent: _____ Phone: _____

From FEMA's EMI course *IS-1 Emergency Manager: An Orientation to the Position*

Uniform Disaster Situation Report

2400 Wright Street
P.O. BOX 7865
MADISON, WI 53707-7865

TELEPHONE (608) 242-3232
(800) 943-0003
FAX (608) 242-3248

DEPARTMENT OF MILITARY AFFAIRS

WISCONSIN EMERGENCY MANAGEMENT

UNIFORM DISASTER SITUATION REPORT

WEM ONLY

DATE & TIME REPORT RECEIVED

RECEIVED BY

1 NAME OF PERSON SUBMITTING REPORT	ADDRESS, CITY, STATE, ZIP	PHONE NO.

2 DATE & TIME OF INCIDENT	3 TYPE OF INCIDENT/EMERGENCY	4 DATE REPORT SUBMITTED TO WEM

5 LOCATION OF INCIDENT:	WEM AREA	COUNTY
CITY	VILLAGE	TOWNSHIP
SECTION	OTHER LOCATION DETAILS (ATTACH A MAP SHOWING LOCATIONS)	

6 ESTIMATED NO. OF CASUALTIES:	DEATHS	INJURIES	HOMELESS	EVACUATED

7 PRIVATE SECTOR DAMAGE ESTIMATES:

	ESTIMATED NO. OF HOMES.			ESTIMATED DOLLAR AMOUNT	ESTIMATED PERCENT COVERED BY INSURANCE
RESIDENTIAL	MINOR	MAJOR	DESTROY	$	%
BUSINESS	ESTIMATED NO. OF BUSINESSES			ESTIMATED DOLLAR AMOUNT	ESTIMATED PERCENT COVERED BY INSURANCE
	MINOR	MAJOR	DESTROY	$	%
AGRICULTURAL	ESTIMATED NO. OF FARM BUILDINGS			ESTIMATED DOLLAR AMOUNT	ESTIMATED PERCENT COVERED BY INSURANCE
	MINOR	MAJOR	DESTROY	$	%

AGRICULTURAL (Continued)	LIVESTOCK LOST		CROPS AFFECTED	
	NO.	ESTIMATED DOLLAR AMOUNT	NO. OF ACRES **0**	ESTIMATED DOLLAR AMOUNT
		$		$

8 TOTAL ESTIMATED PRIVATE SECTOR DAMAGE $

9 PUBLIC SECTOR DAMAGE ESTIMATES:

A) DEBRIS CLEARANCE	B) PROTECTIVE MEASURES	C) ROAD SYSTEMS	D) WATER CONTROL FACILITIES
$	**$**	**$**	**$**

E) PUBLIC BUILDINGS & RELATED EQUIPMENT	F) PUBLIC UTILITY SYSTEMS	G) OTHER (NOT IN PRECEDING CATEGORIES)
$	**$**	**$**

10 TOTAL ESTIMATED PUBLIC SECTOR DAMAGE $

11 DESCRIBE LOCAL ACTIONS TAKEN OR TO BE TAKEN. INCLUDE NAMES OF AGENCIES AND PUBLIC OFFICIALS INVOLVED IN THE RESPONSE EFFORTS.

12 DESCRIBE OUTSIDE ASSISTANCE NEEDED OR BEING REQUESTED.

13 ADDITIONAL COMMENTS (INCLUDING ECONOMIC OR OTHER IMPACTS ON AFFECTED COMMUNITIES)

Support Documentation for Business Injury

PLEASE USE BLACK/BLUE BALLPOINT PEN – PRINT LEGIBLY

SUPPORT DOCUMENTATION FOR BUSINESS INJURY

OKLAHOMA DEPARTMENT OF EMERGENCY MANAGEMENT
(800) 800-2481 Emergency Line -(405) 521-4053 Fax Line

Disaster Occurrence Date:	Business Name:	Business Address:
	Business Phone Number:	
	Type Of Business:	County

How was the business impacted?

GROSS INCOME		
Immediate Past Tax Year:	$	A
Disaster Year: Actual Gross Income To Date Of Disaster	$	B
Disaster Year: Projected Income Loss As A Result Of Disaster	$	C
Percentage Of Loss = $\frac{C}{A}$		%

From Oklahoma Department of Emergency Management

Infrastructure Damage Assessment Form

Oklahoma Department of Emergency Management **INFRASTRUCTURE DAMAGE ASSESSMENT (PART 1)**	DATE

PART I - APPLICANT INFORMATION

COUNTY	NAME OF APPLICANT	NAME OF LOCAL CONTACT	PHONE NO.
POPULATION	TOTALBUDGET Approved $ Balance $	MAINTENANCE BUDGET Approved $ Balance $	DATE FY BEGINS

PART II — COST ESTIMATE - SUMMARY *(COMPLETE SITEESTIMATE BEFORE SUMMARIZING BELOW)*

CATEGORY	NO. OF SITES	TYPES OF DAMAGE	COST ESTIMATE	POTENTIAL LOCAL FUNDS FOR RECOVERY	
				FUND/ACCOUNT	AVAILABLE BALANCE
A		Debris Removal			
B		Protective Measures			
C		Roads & Bridges			
D		Water Control Facilities			
E		Public Buildings			
F		Public Utilities			
G		Recreational or Other			
			TOTAL		TOTAL

PART III- DISASTER IMPACTS *(USE SEPARATE SHEETS IF NECESSARY)*

A. GENERAL IMPACT: 1. Identify and describe damages which constitute a health and/or safety hazard to the general public. 2. Population adversely affected directly or indirectly by the loss of public facilities or damages. 3. What economic activities are adversely affected by the loss of public facilities or damages?

B. RESPONSE CAPABILITY: Can the applicant respond and recover from the damages quickly and without degradation of public services? Describe.

C. IMPACT ON PUBLIC SERVICES IF DECLARATION IS NOT MADE: e.g., Deferral of permanent repairs, impact on ongoing services and capital improvements, etc. Describe.

NAME OF INSPECTOR	AGENCY	PHONE NO.

OKLAHOMA DEPARTMENT OF EMERGENCY MANAGEMENT DATE

INFRASTRUCTURE DAMAGE ASSESSMENT - SITE ESTIMATE (PART 2)

PART I APPLICANT INFORMATION

COUNTY	NAME OF APPLICANT	NAME OF LOCAL CONTACT	PHONE NO.

PART II SITE INFORMATION

KEY FOR DAMAGE CATEGORY (Use appropriate letters in the "category" *blocks below)*

a. DEBRIS REMOVAL
b. PROTECTIVE MEASURES
c. ROADS AND BRIDGES
d. WATER CONTROL FACILITIES
e. PUBLIC BUILDINGS
f. PUBLIC UTILITIES
g. OTHER (Parks, Recreational Facilities, Etc.)

SITE NO.	CATEGORY	LOCATION (Use map location, address, etc.)

DESCR PTION OF DAMAGE

IMPACT: % COMPLETE COST ESTIMATE

SITE NO.	CATEGORY	LOCATION (Use map location, address, etc.)

DESCRI PTION OF DAMAGE

IMPACT: % COMPLETE COST ESTIMATE

SITE NO.	CATEGORY	LOCATION (Use map location, address, etc.)

DESCRIPTION OF DAMAGE

IMPACT: % COMPLETE COST ESTIMATE

SITE NO.	CATEGORY	LOCATION (Use map location, address, etc.)

DESCRIPTION OF DAMAGE

IMPACT: % COMPLETE COST ESTIMATE

NAME OF INSPECTOR	AGENCY	OFFICE PHONE	HOME PHONE

From Oklahoma Department of Emergency Management