

# NATURAL DISASTER RESPONSE: BUILDING INSPECTION & GIS



**HELPING BUILDING INSPECTORS ASSESS  
DAMAGE AFTER THE TORNADO EVENT IN  
WADENA, MINNESOTA, JUNE 2010**

# BUILDING ASSESSMENT TEAM: THE WADENA EVENT

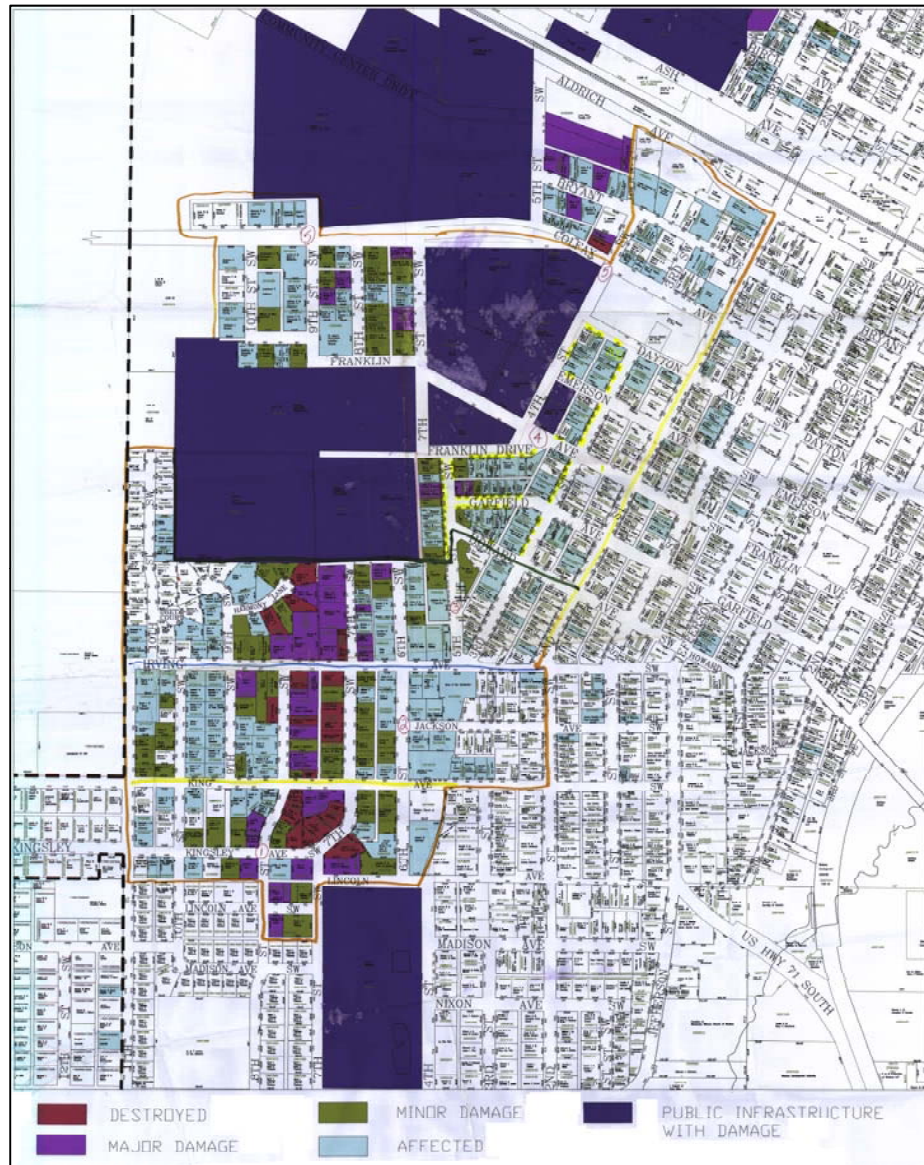


- GOODHUE COUNTY' S BUILDING INSPECTOR IS A MEMBER OF THE BUILDING INSPECTORS TEAM OF THE STATE OF MINNESOTA EMERGENCY PREPAREDNESS COMMITTEE
- CALLED TO AN EVENT
- FORMULATE PLAN FOR BUILDING ASSESSMENT
- OBTAIN MAPS AND INFORMATION FROM RESPONSIBLE AGENCY
- START FIELD WORK
- WALK TO PROPERTY TO PERFORM ASSESSMENT
- SUBMIT COMPLETED FORMS FOR FINAL ASSESSMENT OF PROPERTY DAMAGE TO RESPONSIBLE AGENCY









RED CROSS COMPLETED A CURB SURVEY OF PROPERTY  
WITH MAPS CREATED BY THE CITY'S CONSULTING ENGINEER

### DAMAGE ASSESSMENT GUIDELINES

When assessing structural damage, it is important to evaluate every structure within the affected area, even if the structure is unaffected. This ensures that isolated undamaged homes are identified and recorded and that the damage assessment is thorough.

### EVIDENCE OF DAMAGE

The list below identifies each type of damage according to common observable evidence. This is not a comprehensive list; various kinds of evidence of damage can indicate that a dwelling is destroyed or has sustained major or minor damage.

Unaffected BLUE	No damage observed
Affected, habitable, needs repairs GREEN A structure which received damage, but it is useable for its intended purpose.	<ul style="list-style-type: none"> <li>Structure may have intermittent shingle damage, broken windows, loose, missing, or damaged siding.</li> <li>Water damage - <ul style="list-style-type: none"> <li>single/multi-family: less than 1 foot in basement, minor access problem.</li> </ul> </li> </ul>
Moderate damage, uninhabitable YELLOW A structure which received such damage that it is no longer usable for its basic purpose, but can easily be repaired and made useable in a short time.	<ul style="list-style-type: none"> <li>Structure may have one wall or section of roof damaged, missing windows, doors, or shingles that allow water penetration.</li> <li>Structure may have broken waste lines, spilled fuel oil, etc.</li> <li>Properties without life safety provisions (exiting obstructions, electricity, sprinklers, water, HVAC, etc.)</li> <li>Water damage - <ul style="list-style-type: none"> <li>single/multi family: less than 1 foot on first floor; no basement, or 1-8 feet in basement.</li> <li>Mobile/manufactured home: utilities flooded, piers shifted/washed out.</li> </ul> </li> </ul>
Major damage, uninhabitable ORANGE Unsafe structure, keep out Structure has received substantial damage and will require considerable time to repair, but is economically feasible to repair.	<ul style="list-style-type: none"> <li>Not in immediate danger of collapse.</li> <li>2+ walls and roof substantially damaged.</li> <li>Portion of roof missing; twisted, bowed, or cracked walls; forceful penetration of the structure by a large object such as a car or tree; foundation damage.</li> <li>Utilities not functioning, i.e. electricity, gas, water.</li> <li>Water damage - <ul style="list-style-type: none"> <li>single/multi family: 1 foot or more on first floor; structural damage; collapsed basement walls.</li> <li>Mobile/manufactured home: water-soaked bottom board, shifted on piers.</li> </ul> </li> </ul>
Destroyed, permanently uninhabitable RED Dangerous, keep out	<ul style="list-style-type: none"> <li>Structure totally gone, only the foundation remains.</li> <li>Major section of exterior walls missing or collapsed; structure shifted off foundation.</li> <li>Repair not technically or economically feasible.</li> <li>Utilities not functioning, i.e. electricity, gas, water.</li> <li>Water damage - <ul style="list-style-type: none"> <li>single/multi family: not economical to repair; home pushed off its foundation.</li> <li>Mobile/manufactured home: water above floor level or unit off foundation.</li> </ul> </li> </ul>
Sorry we missed you WHITE	Used when interior inspection is necessary, but access is not achieved.

Many inspectors are concerned about their ability to make judgments about damage categories. Such workers should be advised to: 1) refer frequently to stated guidelines; 2) be consistent in assessments; 3) choose the more serious damage category in the structure appears to border between two categories; 4) always supplement their evaluation with comments, and 5) trust their judgment.

## DAMAGE REPORT

(Initial Damage Assessment Only)

SITE ADDRESS / DESCRIPTION \_\_\_\_\_

P.I.N. \_\_\_\_\_

OWNER/OCCUPANT \_\_\_\_\_

OWNER/OCCUPANT ON-SITE? ☐ YES ☐ NO PHONE \_\_\_\_\_

INSURED: ☐ YES ☐ NO ☐ UNKNOWN STRUCTURAL EVALUATION REQUIRED: ☐ YES ☐ NO

TYPE OF BUILDING: ☐ APARTMENT ☐ DWELLING ☐ MANUFACTURED HOME ☐ SHED

☐ ATTACHED GARAGE ☐ DETACHED GARAGE ☐ COMMERICAL ☐ INDUSTRIAL

☐ OTHER: \_\_\_\_\_

SPECIFIED ITEMS: ☐ Inspected Interior and Exterior ☐ Inspected Exterior Only ☐ Interior Inspection Not Required

EXTERIOR:	UN PA FF E C T E D	R E P A I R	R E P L A C E	INTERIOR:	UN PA FF E C T E D	R E P A I R	R E P L A C E	UTILITIES:	UN PA FF E C T E D	R E P A I R	R E P L A C E
ROOFING				CEILING STRUCTURE				PLUMBING			
ROOF STRUCTURE				INTERIOR				HEATING SYSTEM			
CHIMNEY				STAIRWAYS				WATER HEATER			
SIDING & TRIM				FLOOR SYSTEM				GAS SERVICE			
WALL STRUCTURE				BASEMENT				GAS PIPING			
WINDOWS				FOUNDATION				WIRING			
DOORS				ATTIC				ELECTRIC SERVICE			
								WATER SERVICE			
								SPRINKLER SYSTEM			
								ELEVATOR			

Barricades may be needed: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**PLACARDED FOR HABITABILITY**  
 Blue ☐ Unaffected - No Damage Observed  
 Green ☐ Habitable - Repairs Required  
 Yellow ☐ Uninhabitable - Limited Entry  
 Orange ☐ Unsafe Structure - Keep Out  
 Red ☐ Dangerous Keep Out - Uninhabitable  
 White ☐ Sorry - We Missed You, Contact Us

INSPECTOR \_\_\_\_\_  
 DATE \_\_\_\_\_

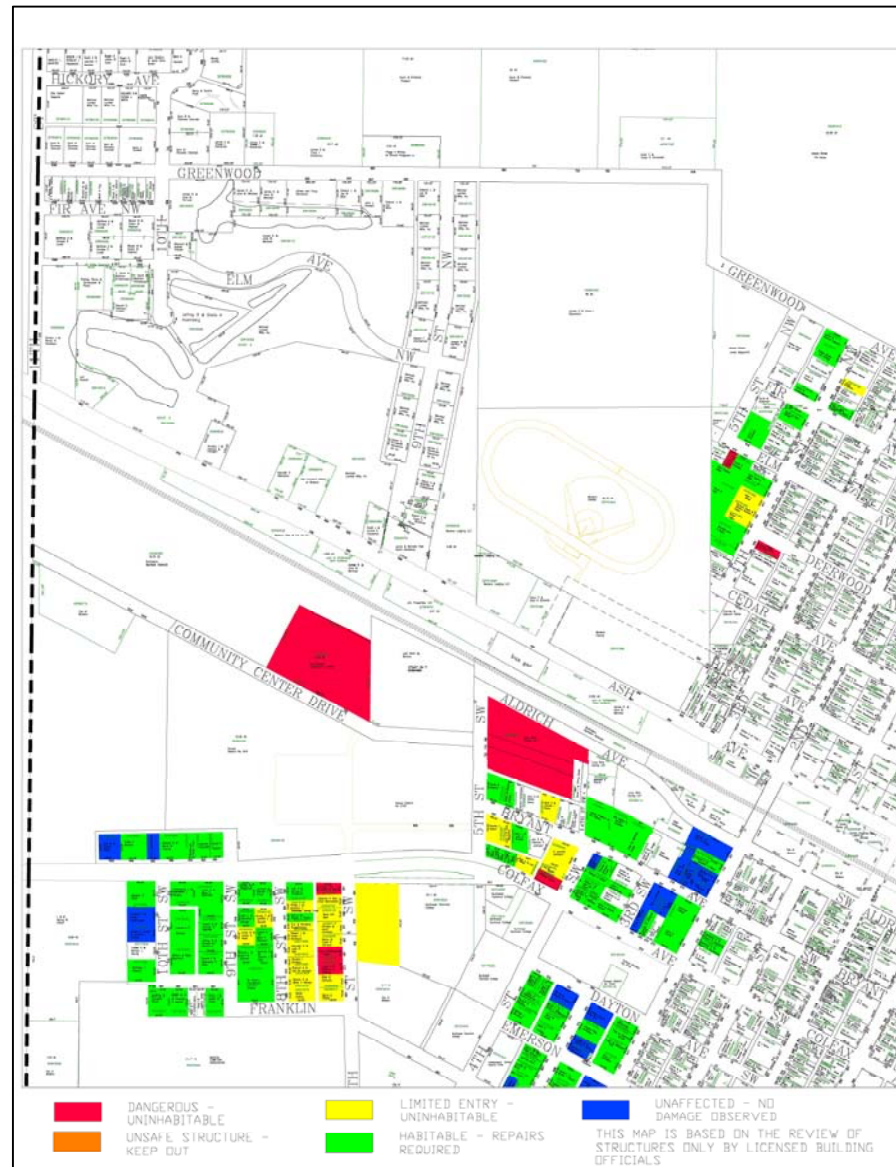
PICTURES TAKEN: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

MARKET VALUE \$ \_\_\_\_\_ ESTIMATED LOSS \$ \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_





NORTH AREA OF WADENA, AFTER GO TEAMS'S ASSESSMENT





SOUTH AREA OF WADENA, AFTER GO TEAMS'S ASSESSMENT

























# **GIS IS AN IMPORTANT COMPONANT OF A RESPONSE PLAN TO A NATURAL DISASTER**



**GIS PROVIDES BASIC MAPS OF A  
GEOGRAPHIC AREA FOR PEOPLE TO USE FOR  
IMEDIATE ASSESSMENT AND POST EVENT  
ANALYSIS OF DAMAGE TO PROPERTY**

**-BE PREPARED, CREATE MAP PROJECTS WITH  
BASIC DATA SETS**

**- TALK TO COUNTY DEPARTMENTS AND OFFER  
GIS ASSISTANCE**