

IE 482
HUMANATARIAN
LOGISTICS

MOORE
TORNADO

GROUP 14

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AGENDA



Overview of Disaster
Precautions
The Management Afterwards
Specific Actions
Rights & Wrongs
Lessons Learned

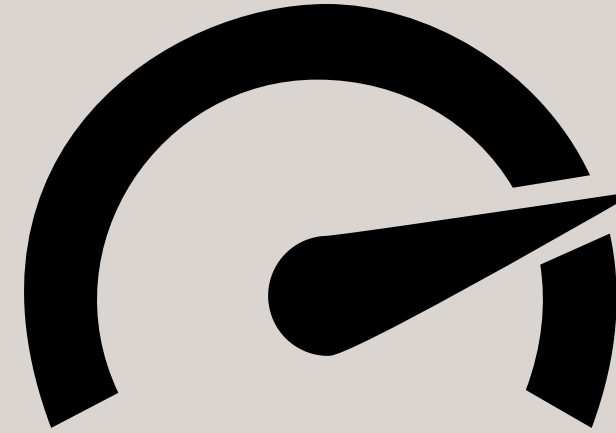
1. Overview of Disaster



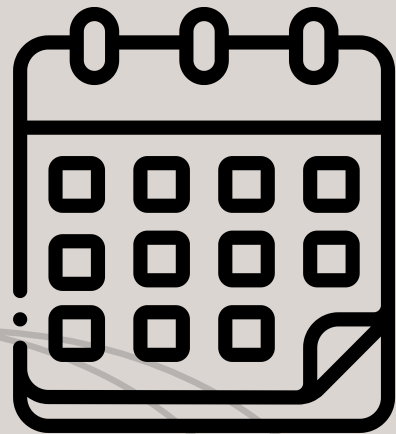
1. Overview of Disaster



Moore, Oklahoma
and adjacent areas



340 km/h
at peak



20 May 2013



Last 39
minutes



devastating trail of destruction
along its 22.3 km path through
densely populated regions,
particularly Moore, Oklahoma

1. Overview of Disaster

Enhanced Fujita Scale

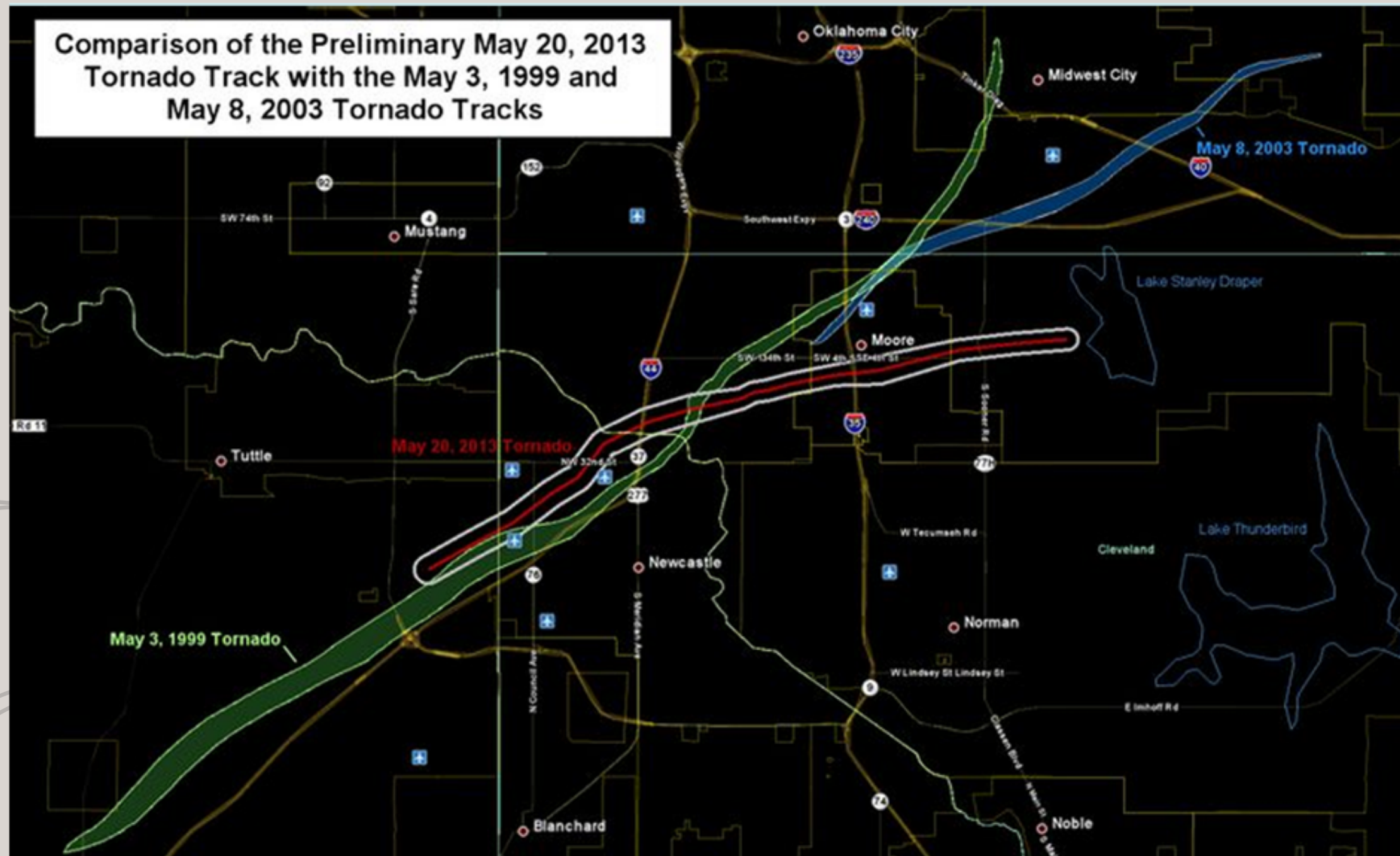
EFU	Unknown	No surveyable damage
EF0	65–85 mph	Light damage
EF1	86–110 mph	Moderate damage
EF2	111–135 mph	Considerable damage
EF3	136–165 mph	Severe damage
EF4	166–200 mph	Devastating damage
EF5	>200 mph	Incredible damage

210 mph at peak classifies as **EF5 - Incredible damage**



- EF-4 and EF-5 damages at properties
- Approximately 1150 homes destroyed
- 2B\$ overall damage
- 212 injury - 25 fatalities

1. Overview of Disaster



3 major tornadoes in the area in 15 years

2013 is the second most damaged after 2003

2. Precautions



2. Precautions

WFO Norman issued **55 tornado warnings** and hundreds of statements and social media posts with better accuracy than national average on both POD and False Alarm Rate



“severe weather outlooks were distributed to NWS partners and the public as many as 6 days in advance”

WFO Norman **got together in the early hours** on the 20th of May and planned solutions such as alarming the community as well as support decisions

WFO = Weather Forecast Office

NWS = National Weather Service POD = Probability of Detection

2. Precautions

NWS Norman @NWSNorman 17 May
What to expect: Monday - severe storms expected W and C OK afternoon. Tornado, hail and wind threat, but more uncertain. #okwx #bwx
Expand Reply Retweet Favorite More

3 days before tornado

NWS Norman @NWSNorman 19 May
We're going to be dealing with more severe weather tomorrow. #okwx
pic.twitter.com/Utmpux9wzz
Hide photo Reply Retweet Favorite More

NWS Norman @NWSNorman 23h
Increasing concern for more tornadoes today, especially along and south of I-44! Please retweet this and help us spread the word. #okwx
Expand

NWS Norman @NWSNorman 20 May
Attention school systems, parents and students!! We may be dealing with dangerous storms at school dismissal time! Plan ahead! #okwx
Expand


NWS Norman @NWSNorman 20 May
Get ready! More svr storms today with tornadoes/giant hail 1 pm-midnight SE Wichita Falls to Stillwater. #okwx #bwx
Expand




they predicted school damage

2. Precautions

NWS Norman gave **16 minutes of warning** to community before it began



 **US National Weather Service Norman Oklahoma** · 55,250
like this
May 20 at 7:52am · 🌐

We are very concerned that we could be dealing with dangerous storms - possibly including tornadoes - around school dismissal time today, and certainly during afternoon rush hour. Please stay very alert today and think about how you might need to change your plans this afternoon. Please share this with your family and friends.


Like · Comment · Share 📄 2,178

👍 492 people like this.

NWS = National Weather Service

2. Precautions

I listened to your feed on FB explaining what was expected to happen and when. After hearing you talk about violently explosive storms forming, I immediately cancelled a meeting that 5 other people were coming for. Next i texted my entire family and asked where their "safe place" was going to be. Then I drove to pick up my daughter in law and took her home to our above ground storm shelter. Called my husband at work and my next door neighbors. They all came to the storm shelter just as the first sirens were blowing. I would not have done all of that if I had not listened to you feed about what to expect.

May 21 at 12:30pm via mobile · Like ·  1

Comment to social media post above a day later

3. The Management Afterwards

Oklahoma Governor declared a state of emergency on May 20th

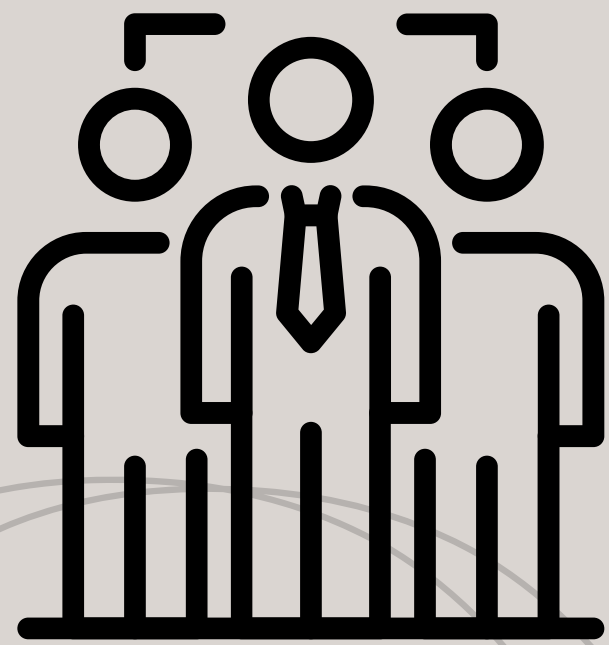
Law enforcement agencies were monitoring area access and enforcing curfews to ensure the safety of community and aid workers

Aerial assessment was completed first days to understand the impact

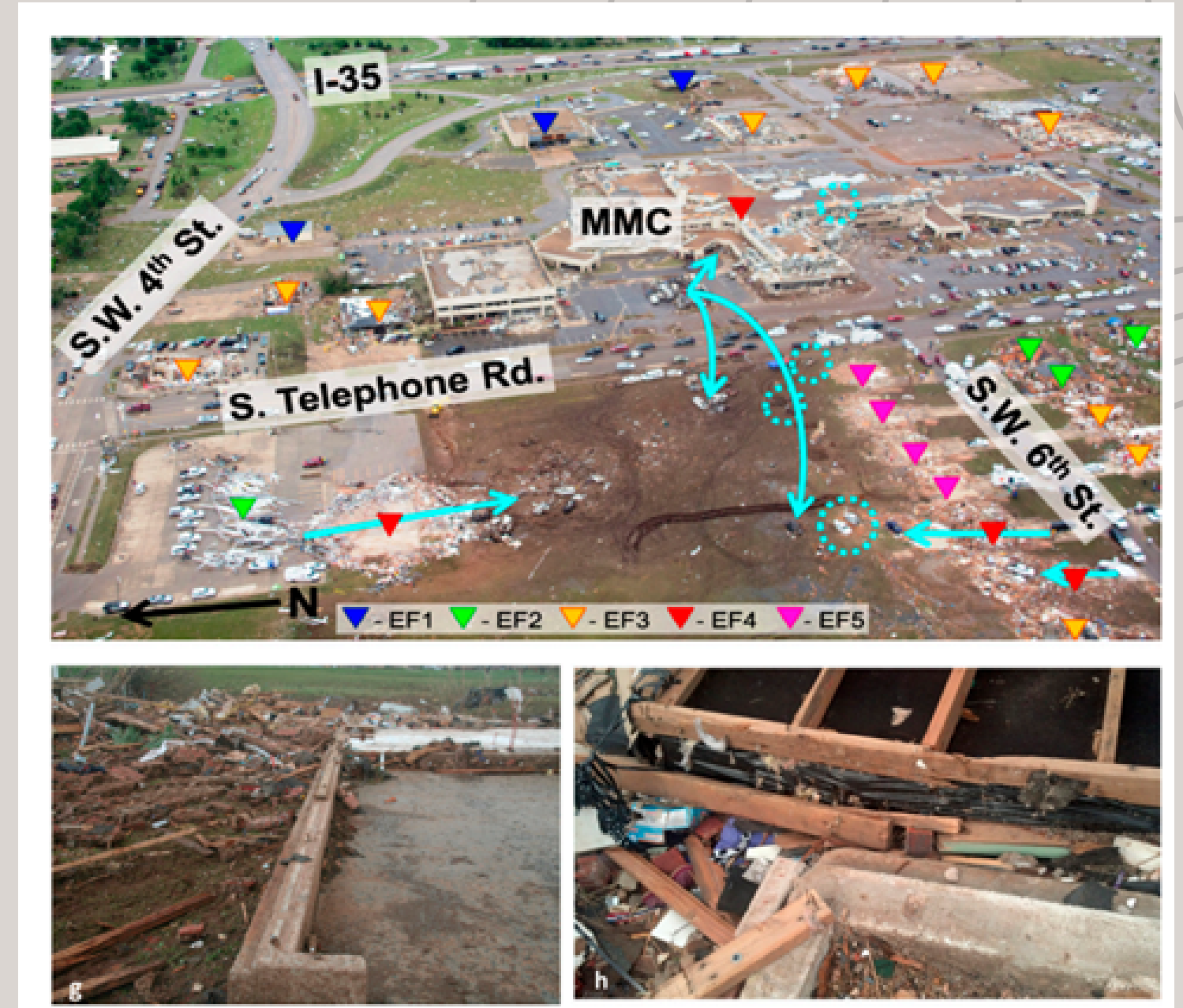
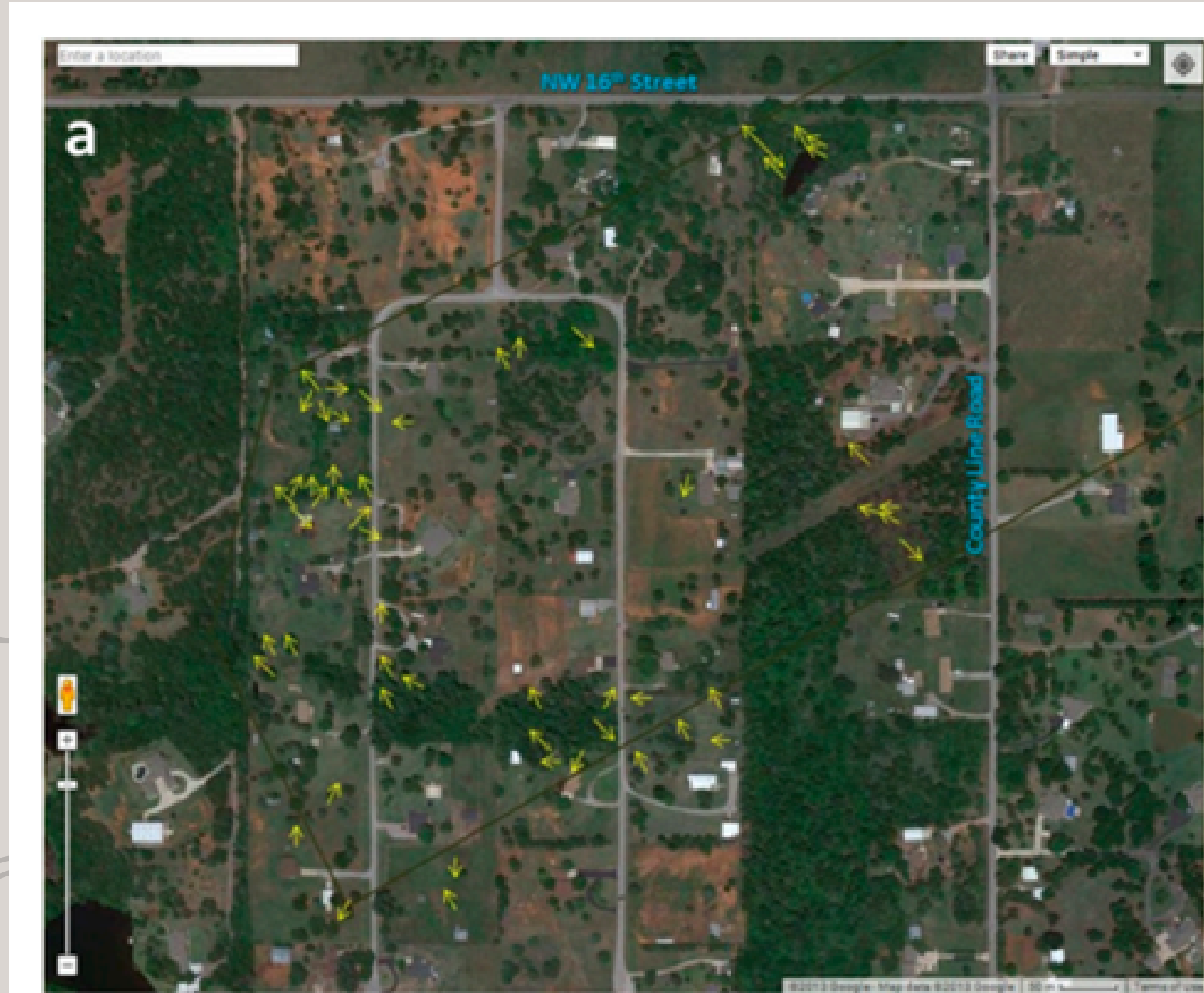
President Obama declared a major disaster for the state of Oklahoma

Pope Francis offered prayers and support and extended an offer to assist United Nations recovery efforts

State of Emergency = a situation of national danger or disaster in which a government suspends normal constitutional procedures in order to regain control



3. The Management Afterwards



First aerial assessments with the help of Google Crisis Map and Oklahoma Highway Patrol helicopter

3. The Management Afterwards

The Moore City became the first city in the U.S. to surpass national standards for tornado resilience

“Following the disaster, the city of Moore received a \$26.3 million recovery fund under the U.S. Department of Housing and Urban Development - Disaster Recovery program, allocating \$16 million of this fund for the reconstruction of residences”

In 30 days, the initial disaster response phase completed and long-term recovery and rebuilding phase began



4. Specific Actions

FEMA released updated safe room guide documents. These documents provided significant guidance for the design and construction of safe rooms

American Red Cross quickly intervened in the region to provide shelter, food, water, and other basic necessities to disaster victims

First American Bank provided emergency financial assistance to customers and the community affected by the Moore disaster



FEMA



**American
Red Cross**



4. Specific Actions

“On May 29, NBC aired the Healing in the Heartland: Relief Benefit Concert held at the Chesapeake Energy Arena in Oklahoma City to raise funds for recovery efforts”



5. Rights & Wrongs



Warning Systems and Preparedness

National Weather Service, timely warnings, forecasting, warning time



Community Support and Solidarity

President Obama, FEMA, disaster declaration, assistance, Governor, shelters, donations.



Emergency Response

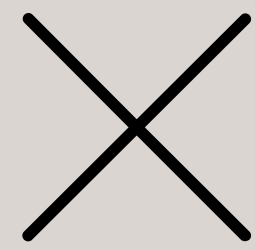
First responders, firefighters, police officers, search and rescue, Oklahoma Department of Emergency Management, Oklahoma Highway Patrol



Rebuilding Efforts

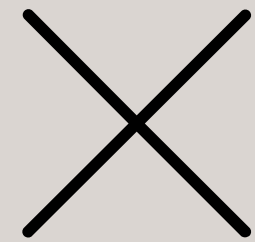
Government agencies, non-profit organizations, volunteers, infrastructure repair, home and business reconstruction, Moore city council

5. Rights & Wrongs



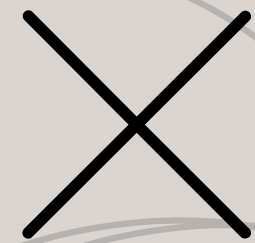
Insufficient Shelter Options

Tornado-prone area, inadequate shelter options, infrastructure basements, public schools safe rooms



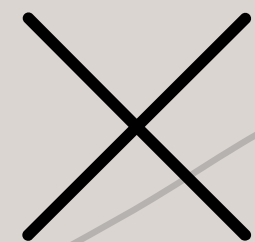
Communication Breakdowns

Warning systems, timely alerts, accurate information, confusion



Logistical Challenges in Response

Coordination, managing donations, damaged infrastructure, impassable roads,



Time Management

Bad coordination in rural areas, waste of time and manpower

6. Lessons Learned



Importance of Building Codes and Infrastructure
Resilient infrastructure, enforce stricter building codes



Enhanced Warning Systems and Communication
Improve communication channel in rural areas



Community Preparedness and Education
Regular drills in schools, educating the community about severe weather conditions

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**Thank
You**