

# The Big One

How Can We Work Together When the Inevitable  
Major Metro Tornado/Tornado Outbreak Occurs?

*How Can We Best Address Today's Vulnerability?*



**April 21, 1967**

**Feb 28, 2017**

**Ricky Castro, Matt Friedlein, Mike Bardou**  
**National Weather Service – Chicago/Romeoville, IL**



# The 1967 Tornado Paths if Today



## Housing Units Impacted by the 21 April 1967 Violent Tornadoes

<b>Tornado</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>
<b>Belvedere</b>	686	1,073	1,224	1,703	2,268
<b>Lake Zurich</b>	50	71	116	167	252
<b>Oak Lawn</b>	3,955	4,318	4,419	4,515	4,580

<b>1970-2010 Housing Units Change</b>	<b>1970-2010 % change</b>
1,582	230%
202	404%
625	16%

**4,691**

**7,100**

**+2,409**

**151%**

# Oak Lawn Tornado Then and Now

OAK LAWN TORNADO

MAP # 1

Oak Lawn Tornado  
Write a description for your map.

Legend  
○ EF4  
● Feature 1

Drive-in theatre  
now a shopping  
center

Busy intersection  
now one of many

Numerous dense  
residential areas



Hickory Hills

Oak Lawn

Chicago Ridge

Palos Hills

TRANSMISSION LINE  
Down

CONTOUR INTERVAL 5 FEET

1 KILOMETER

4000 ft

# 1967 Impacts: Vulnerable Groups

## Schools & Activities

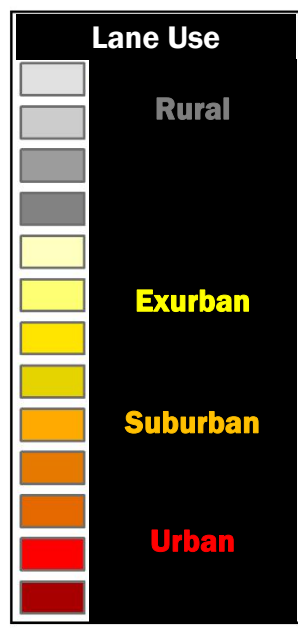
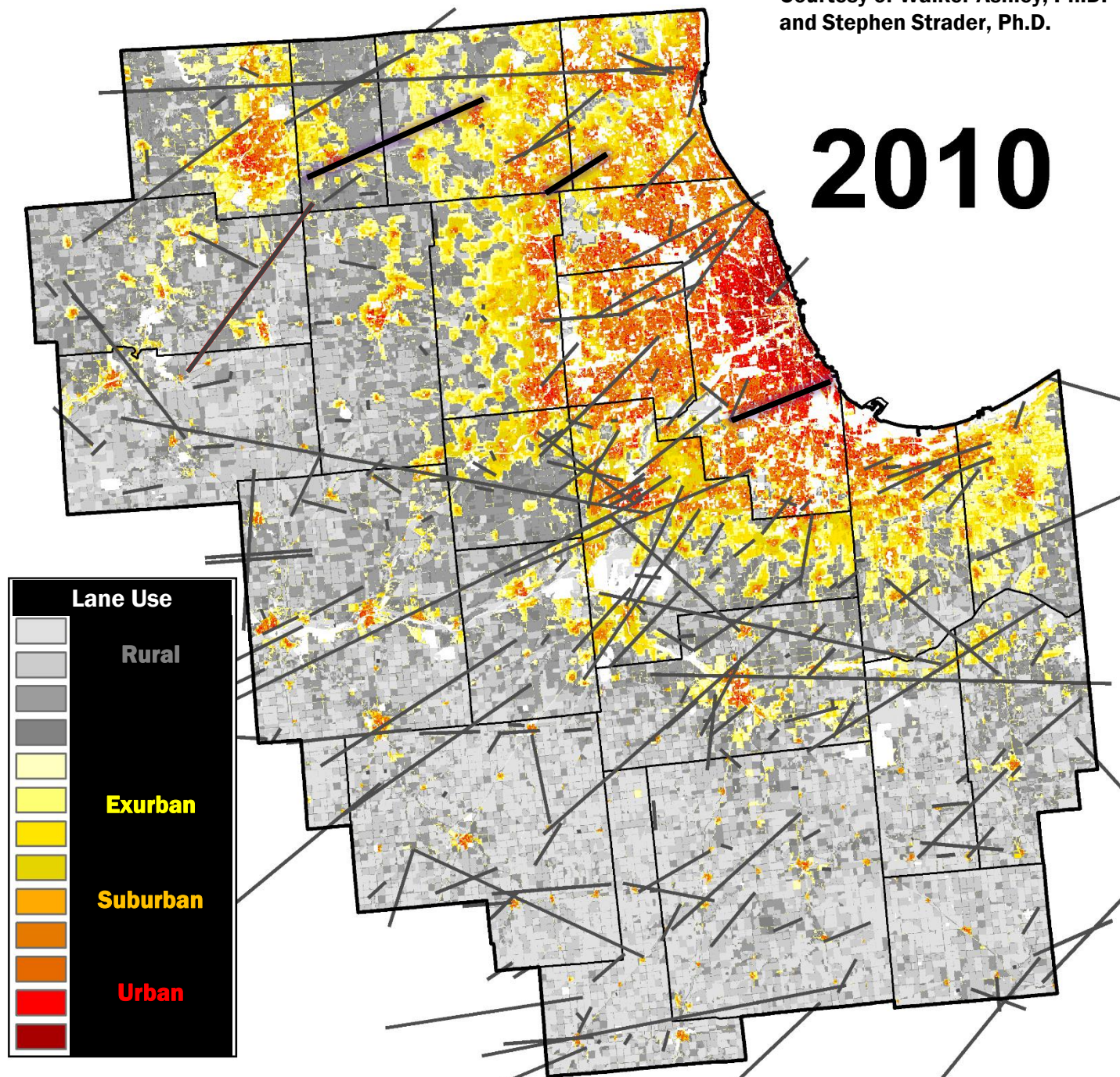
- 58 killed
- 1000+ injured
- High school dismissal (Belvidere)
- Seth Plaine School destroyed (Lake Zurich)
- Heavy school damage (Oak Lawn)
- Buses tossed (Belvidere & Oak Lawn)

## Transportation & Motorists

- Tri-State Tollway crossed
- Suburbia struck (Oak Lawn)
- Drive-in theater hit (Chicago Ridge)
- 25-40 cars thrown at traffic jammed intersection (Oak Lawn)
- Dan Ryan crossed with semi flipped

Courtesy of Walker Ashley, Ph.D.  
and Stephen Strader, Ph.D.

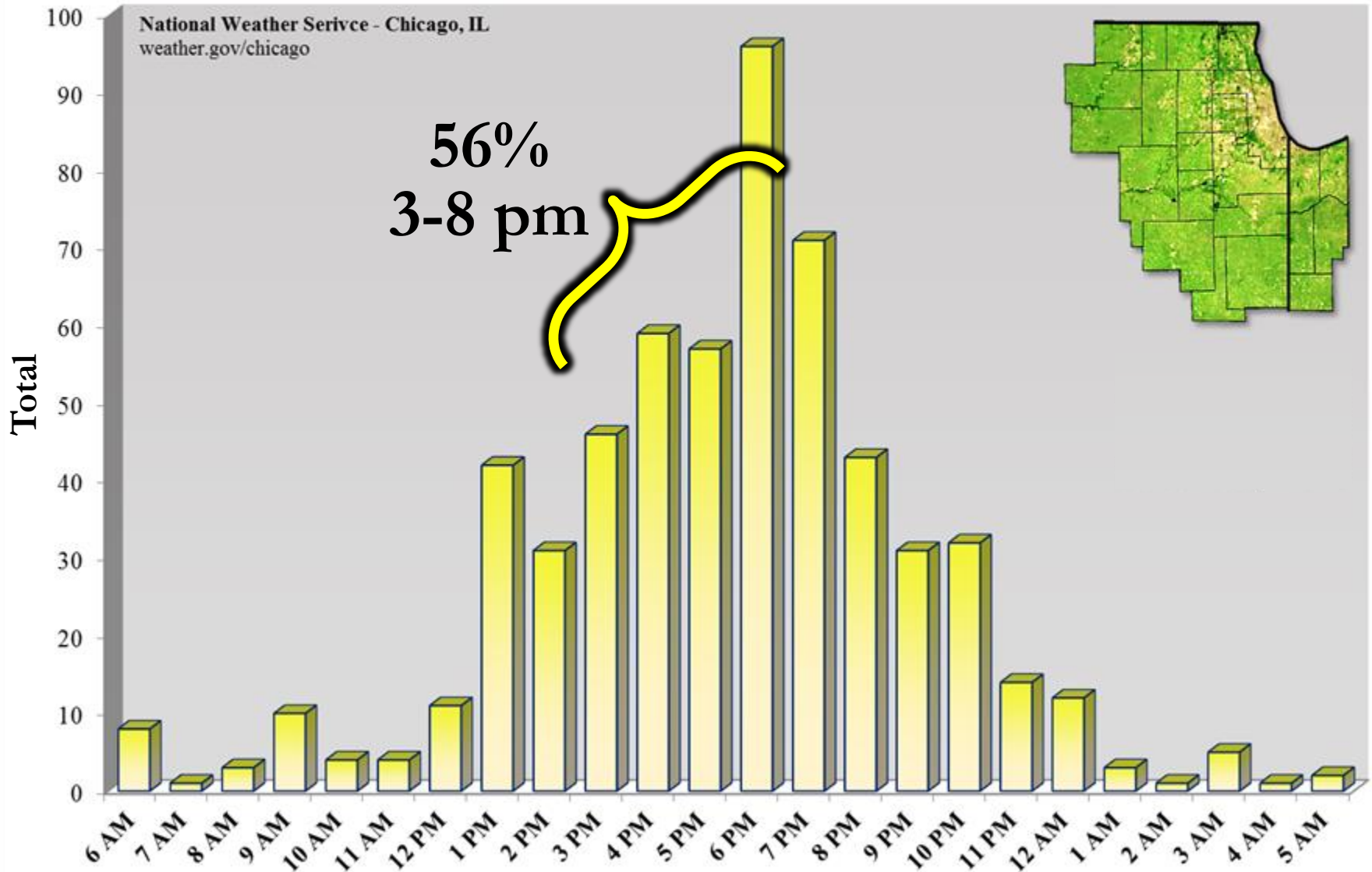
# 2010





# Tornadoes by Time of Day

Northern Illinois & Northwest Indiana: 1950-2015



# Tornadoes Do Happen in Cities & Suburbs

Densely populated areas are every bit as susceptible to tornado strikes and recent years have shown this

**Brooklyn, NY (2007)**

**Atlanta, GA (2008)**

**St. Louis, MO (2011)**

**Raleigh, NC (2011)**

**Tuscaloosa, AL (2011)**

**Joplin, MO (2011)**

**Springfield, MA (2011)**

**Moore, OK (1999 & 2013)**

**New Orleans, LA (2017)**



**Joplin, MO (2011)**



**St. Louis, MO (2011)**



**Moore, OK (2013)**



**New Orleans, LA (2017)**

A dramatic, dark sky with heavy, grey clouds and a bright, glowing light source in the center, creating a sense of an approaching storm or tornado.

# **TORNADO READY**

LEARN WHAT YOU CAN DO TO STAY SAFE.

[www.ready.illinois.gov](http://www.ready.illinois.gov)

# Tornado Sheltering Guidelines

Seek the best available refuge area **immediately** when a Tornado Warning is issued.  
Your chance of surviving a tornado is excellent if you follow these guidelines.

## WORST OPTIONS

- Mobile homes
- Vehicles
- Underneath a highway overpass

## BAD OPTIONS

- Large open rooms like gymnasiums
- Manufactured housing

## GOOD OPTIONS

- Interior room of a well-constructed home or building
- Basement

## BEST OPTIONS

- Above or below ground Tornado Storm Shelter (NSSA/ICC 500 compliant)\*
- Specifically-designed FEMA Safe Room\*

Find another option



Stay in place until all clear

PHOTO: U.S. Air Force -Tech. Sgt. Bradley C. Church

\*Recommended by FEMA



# TORNADOES AND ROAD SAFETY

## WHAT TO DO

Get off the road. The best option is to drive to a designated shelter, basement or safe room.

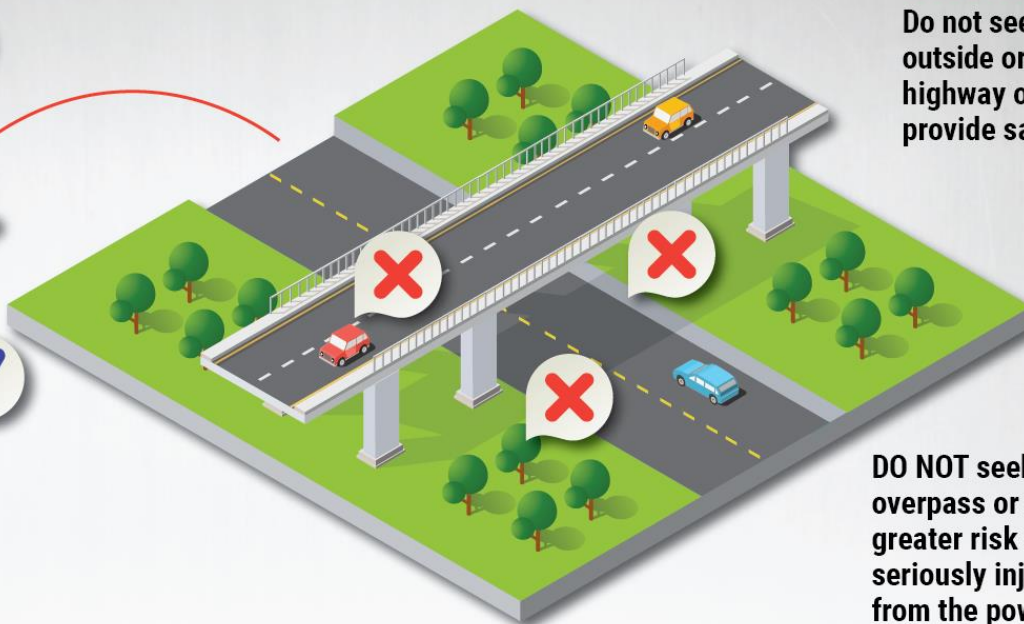


The next best option is a small, windowless room or hallway on the lowest floor of a sturdy building.



## WHAT NOT TO DO

Do not seek refuge in a vehicle, outside or under an overpass. A highway overpass does not provide safety from a tornado.



DO NOT seek shelter under an overpass or a tree. This puts you at greater risk of being killed or seriously injured by flying debris from the powerful tornadic winds.



# Plan, Practice, Monitor, Act!

## Severe Weather Preparedness

### PPMA

- **Plan**
  - Home, work, school, outdoor activities
  - Identify safe areas
  - Have a disaster kit
  - Know how to stay weather aware
- **Practice! Practice! Practice!**
- **Monitor**
  - Weather Watcher
  - Multiple ways to receive warnings
- **Act**
  - When severe weather threatens
  - Activate your plan!



@NWSChicago



weather.gov/Chicago

### MAKE SURE YOU KNOW

#### Severe Weather Safety

This is a checklist of five basic things you should know about severe weather safety. Knowing this information and utilizing these tips should improve your chances of being safe if severe weather threatens. Be sure that you, and your family or coworkers, are familiar with everything on this list.

- Three Basic Things to Include in Your Severe Weather Safety Plan**
  - Where to Shelter
  - How to Reach Each Other (*communication*)
  - Meet-up spot if You Get Separated
- Knowing Important Sources of Weather Information**
  - NWS Chicago Weather Watcher Page
  - Watches and Warnings
- Have Multiple Ways to Get Weather Information**
- Ensure Wireless Emergency Alerts are Enabled on Smartphone**
- "Get In, Get Down, Cover Up"**

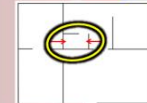
★ Self-Assessment: Can you check all five boxes? ★

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### SEVERE WEATHER SAFETY PLAN

Three basic things everyone in your home or business should know...

#### 1. Pick A Spot



Find a safe normal sheltering location, and let everyone know that's where they should go during severe weather

#### 2. How To Get In Touch

Everyone should know how to reach one another afterwards. In disasters, texting is often better than calling.



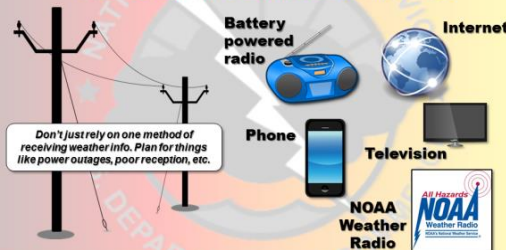
#### 3. Choose a "Meet Up Spot"

It's a good idea to have a standard meet up spot that everyone knows.



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### HAVE MULTIPLE WAYS TO GET WEATHER INFO



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### When a TORNADO WARNING is Issued

#### "Get In, Get Down, Cover Up"

#### 1. Get In

Get into a sturdy building and put as many walls between you and the outside as possible.



#### 2. Get Down

Get as low in the building as possible – the basement or the lowest floor.



#### 3. Cover Up

Flying and falling debris are a storm's number one killer. Use pillows, blankets, helmets, etc. to cover up and protect yourself.



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### WATCH VS. WARNING

Do YOU know the difference?



You should be...

#### WATCH

**BE ALERT!** Severe storms or tornadoes MIGHT form and affect your area.



Keep an eye on the sky

#### WARNING

**TAKE ACTION!** A severe storm or tornado is expected in your area.

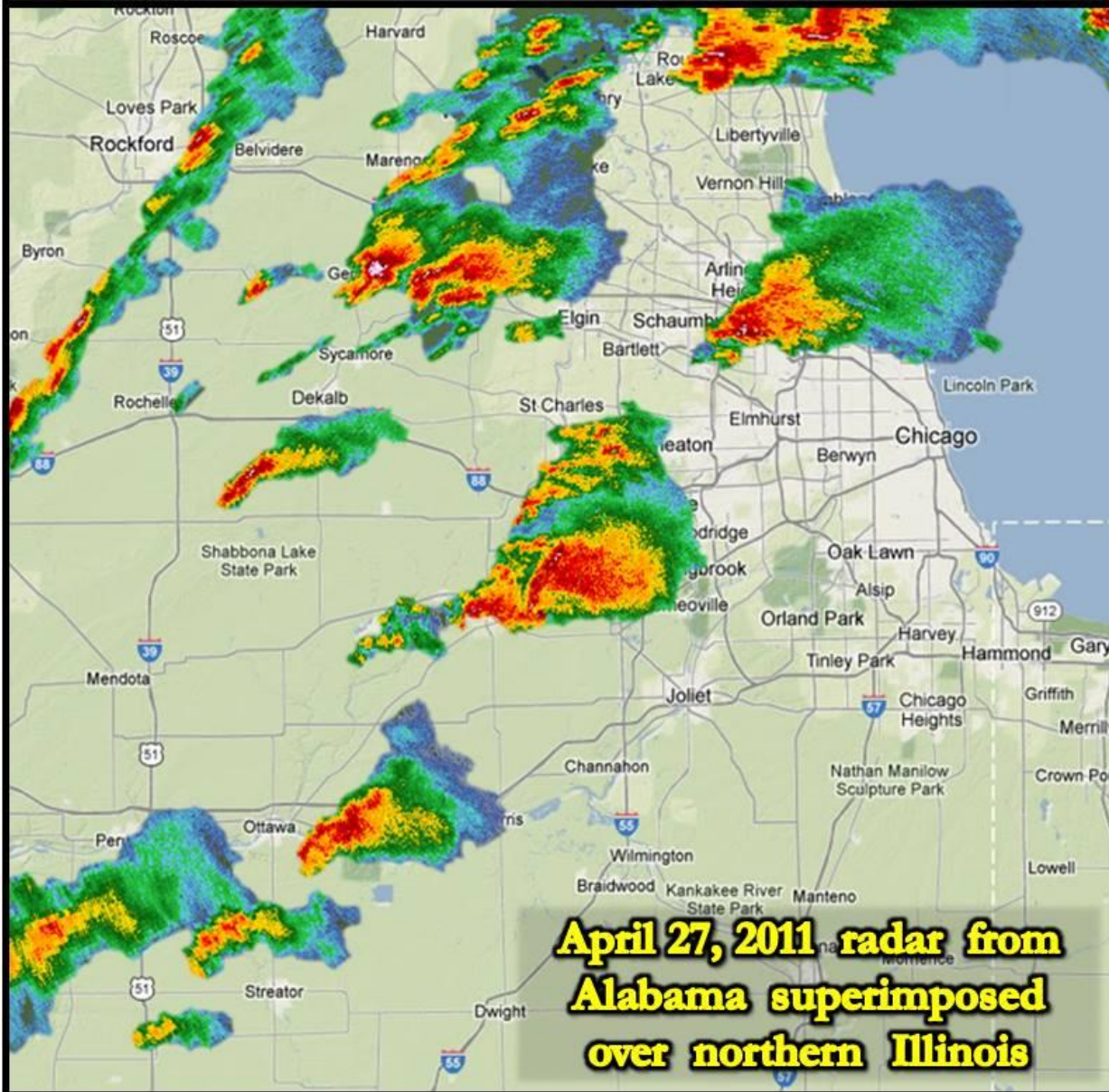


ACT IMMEDIATELY. GET IN, GET DOWN, AND COVER UP.

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[weather.gov/chicago/severeprep](http://weather.gov/chicago/severeprep)

**Will you be prepared when  
such an outbreak occurs here?**





# **Challenges for Local Meteorologists When the Big One Occurs**

- **Northern Illinois and Chicago metro considered the most vulnerable to major losses from a major tornado/tornado outbreak**
- **Significant tornadoes have happened nearby, but the metro areas have largely been lucky**
- **How do we effectively message the strong likelihood of a major tornado outbreak?**
  - **Analogous to major winter storm?**
  - **Will people change plans/work from home like they would for a snowstorm?**
- **How do we address the road safety issue for thousands/millions of commuters?**
  - **Do we need to come up with different safety guidelines/recommendations for our area?**

**Discuss!**