

MOBILE/MANUFACTURED HOME DAMAGE ASSESSMENTS FROM TORNADOES THAT HIT IN VOLUSIA AND LAKE COUNTIES



**Bureau of Mobile Home and RV Construction
Division of Motor Vehicles
Department of Highway Safety and Motor Vehicles**

December 27, 2006

MOBILE/MANUFACTURED HOME DAMAGE ASSESSMENTS FROM TORNADOES THAT HIT IN VOLUSIA AND LAKE COUNTIES

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NOTE: LIMITATIONS OF THE REPORT

The purpose of this report is strictly for the use of the Florida Department of Highway Safety and Motor Vehicles to determine the effectiveness of current department administrative rules governing the installation of mobile/manufactured homes.

All statistics reported here are from a sample of mobile home parks and areas visited. In addition, due to debris, entry into some areas was not possible to make more specific determinations. Consequently, the statistics reported here are estimates. There may be differences between what is reported here and determinations by local building departments, insurance companies or other government agencies

When reporting the number of homes "destroyed or non-repairable" the totals represent homes with severe roof damage to the point of the roof being blown from the home, one or more exterior walls being separated from the home or water completely penetrating the unit.



State of Florida
DEPARTMENT OF
HIGHWAY SAFETY AND MOTOR VEHICLES
TALLAHASSEE, FLORIDA 32399-0500

FRED O. DICKINSON
Executive Director

DATE: December 27, 2006

TO: Phil Bergelt, Program Manager
Bureau of Mobile Home and RV Construction

FROM: John Priester, Community Assistance Consultant
Bureau of Mobile Home and RV Construction

SUBJECT: Tornado Damaged Mobile Homes in Deland/Leesburg

The National Weather Service has confirmed that three tornadoes touched down in Volusia and Lake Counties on December 25, 2006. An F-2 tornado packing winds between 113 and 157 mph damaged several mobile homes in the Deland area. An F-0 tornado touched down in Leesburg packing winds between 40 and 72 mph.

Officials stated that more than 200 mobile homes were damaged at the Fernwood, Orangewood and Rosewood Terrace mobile home parks near Deland. A small section of Meadowlea Estates, Sunrise Mobile Home Park and Brittany in Leesburg sustained some damage.

We have confirmed over a hundred homes damaged in the following mobile home parks:

Volusia County

- **Orangewood MHP** – Out of 70 homes in the park we found about 35 damaged. Seven were beyond repair due to aluminum attachments to the homes, inadequate tie downs and others due to trees. Most of the homes were pre-HUD or early HUD units.
- **Rosewood MHP** – Out of 65 homes in the park we found 30 damaged. 15 pre-HUD homes were destroyed beyond repair. All the homes built after 1994 and installed to the March 1999 requirements had only superficial damage and are repairable. Two of the homes had the Byrd System and very minor damage.
- **Fernwood MHP** – Out of 89 homes in the subdivision we found 43 damaged. The 26 homes destroyed beyond repair were mostly pre-HUD units. Most of the homes built after 1994 and installed to the March 1999 requirements had only superficial damage and are repairable.

- **Ponderosa MHP** – Out of 30 homes in the subdivision we found 8 damaged. Four homes were destroyed beyond repair, two pre-HUD and two early HUD units. The damage was caused by the aluminum attachments to the home.
- **Meadowlea Estates** – Out of 240 homes in the park we found 15 damaged. Three homes were destroyed beyond repair due to aluminum attachments to the homes. The homes built after 1994 and installed to the March 1999 requirements had only superficial damage and are repairable.
- **Sunshine** – Out of 30 units only a few were damaged by fallen limbs. All the units were pre or early HUD units.

Lake County

- **Brittany Estates** – Out of 209 homes in the park we found 15 damaged. Three homes were destroyed beyond repair due to aluminum attachments to the homes. The other homes were early HUD units with minor superficial damage.

Most of the damage to the mobile homes was due to aluminum attachments to the home without a fourth wall. So when the attachment was blown away it took the roof (see the pictures attached). Requiring a fourth wall for all aluminum attachments may prevent this type of damage in the future.

I also noticed that most of the pre and early HUD units had rim-joist and bottom board rot which could not withstand an F-2 tornado. Most of these homes were installed too close to the ground without proper ventilation that probably caused the problem. Several of the homes had rusted anchors that would not support or hold the home from going airborne in an F-2 tornado. These homes would have benefited from the retrofit program.

These statistics are estimates only from my observations of the mobile homes in the Deland and Leesburg areas. More specific determination was not possible because I was unable to gain entry to most homes.

**PHOTOS OF MOBILE/MANUFACTURED
HOME DAMAGE CAUSED BY
THE TORNADOES THAT HIT VOLUSIA
AND LAKE COUNTY**



The aluminum attachment to the above home caused the damage to the roof. The picture below is of a home with a fourth wall that prevented the home from being totaled.





These pictures show the rusted anchors and straps that failed to keep the home from going airborne and moving from its foundation.





These pictures show the rim-joist rot on the mobile homes that caused the walls to collapse during the F-2 tornado.





These two mobile homes had the Byrd system installed and only had minor skirting damage.





The above picture was a mobile home that flipped three times while a family of four was inside during the tornado. No one was seriously injured. The picture below is of an RV flipped onto the side of a mobile home. Fortunately no one was there.



FIGURE 1

Volusia County

(Deland in Center)

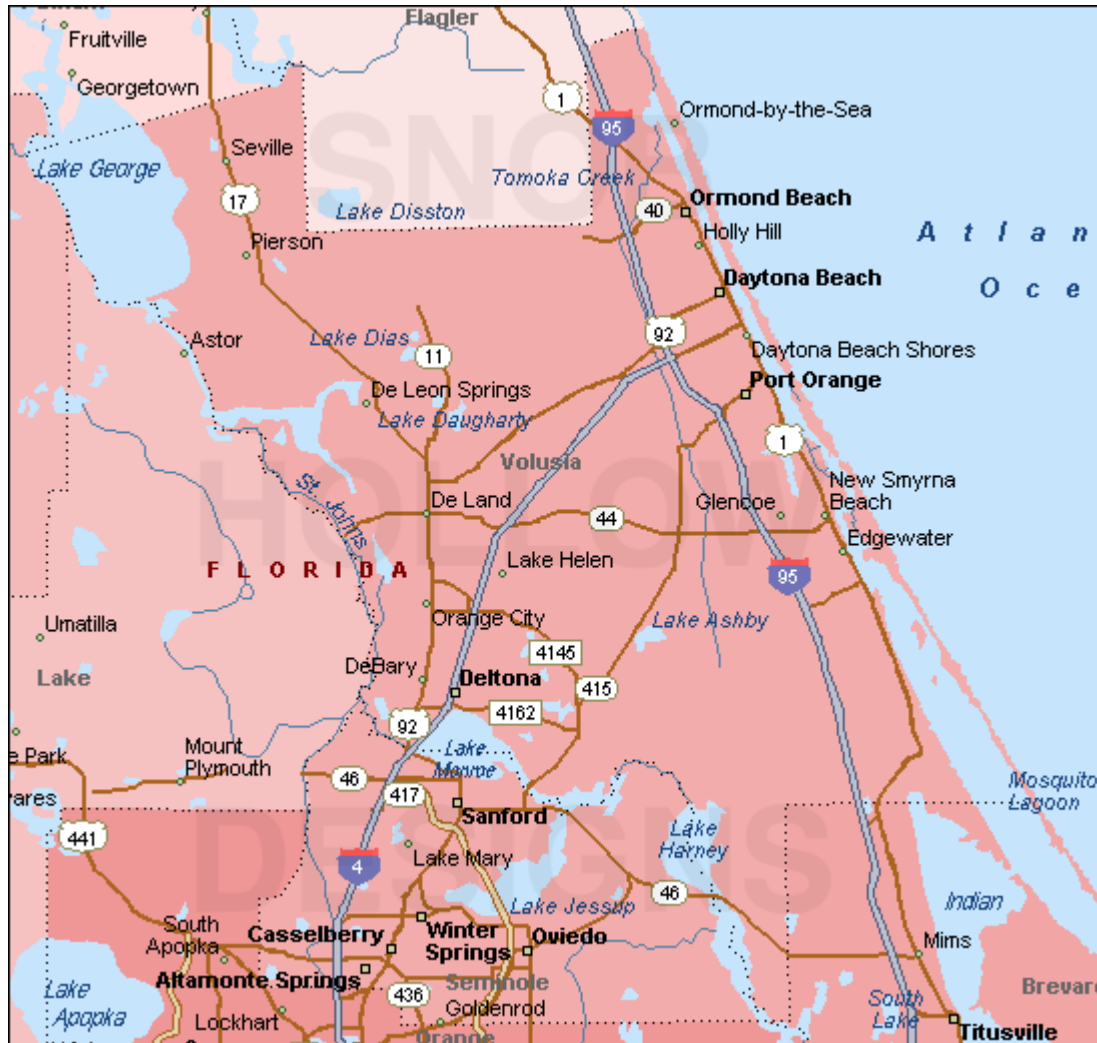
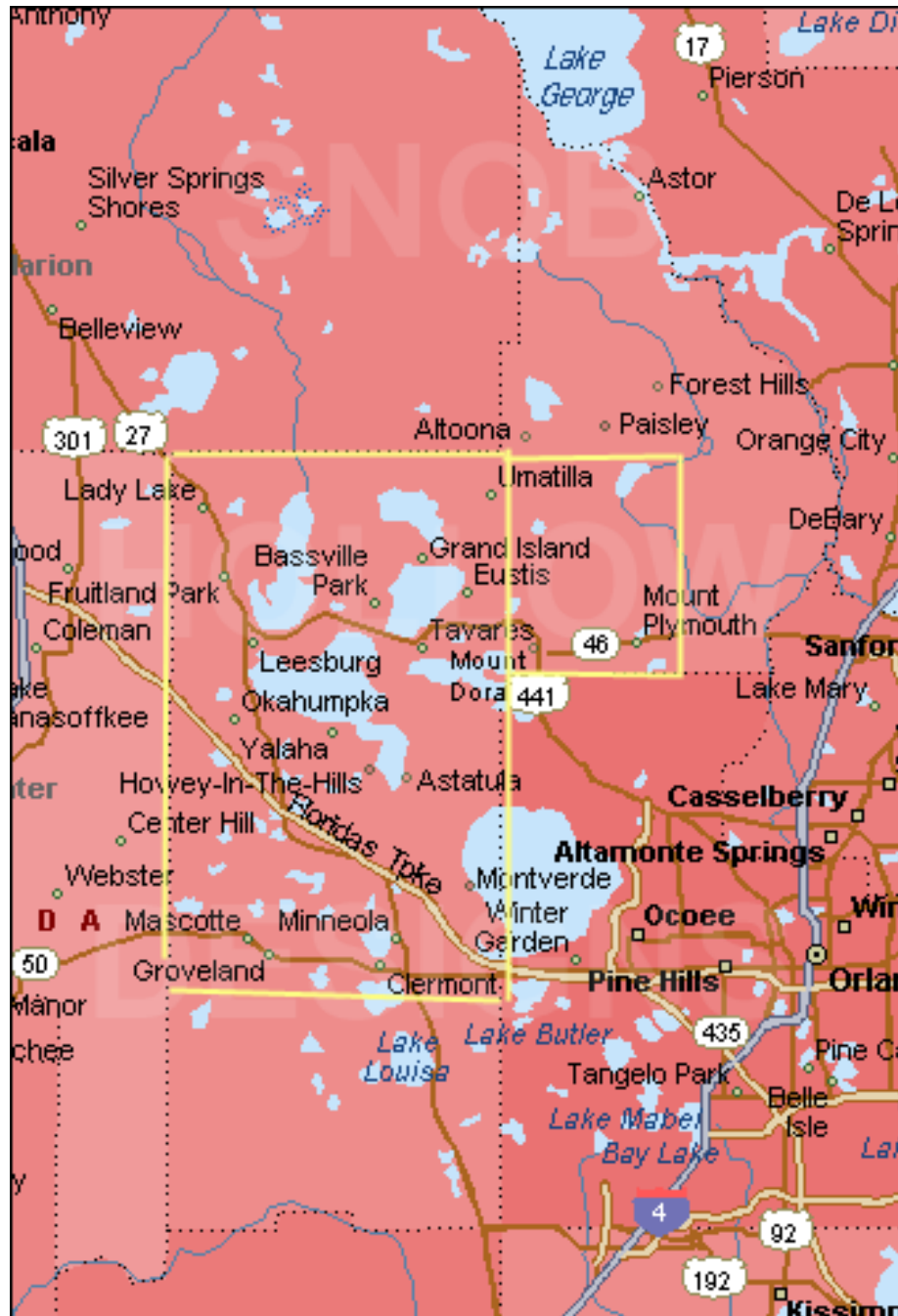


FIGURE 2

Lake County (Leesburg in Center)



**NEWS ARTICLES ABOUT THE
TORNADOES THAT HIT VOLUSIA AND
LAKE COUNTIES**

Wesh.com

F2 Tornado Rips Through Central Florida

Two Shelters Open; Hundreds Of Homes Damaged

POSTED: 10:18 am EST December 21, 2006

UPDATED: 8:17 pm EST December 25, 2006

ORLANDO, Fla. -- An F2 tornado left widespread damage across Central Florida on Christmas Day.

The National Weather Service confirmed that a tornado with winds around 120 mph touched down at an apartment complex in **Daytona Beach** on Monday afternoon.

WESH 2 Weather Plus meteorologist Amy Sweezey said F2 tornados produce wind speeds between 113 and 157 mph, similar to a Category 3 hurricane, which produces winds between 111 and 130 mph.



Photo of a mobile/manufactured home destroyed near Deland by one of the tornadoes.

The National Weather Service said it will send storm investigators to **Leesburg and DeLand** on Tuesday to determine if tornados touched down there, too.

People across Central Florida reported damage from the storms, including downed trees, damaged roofs, flipped trailers and injuries.

In **Daytona Beach**, the storms left a wide swath of damage, including downed trees and power lines and ripped off roofs, reported Volusia County bureau chief Claire Metz.

She said the primary area of damage is between Orange Avenue and International Speedway Boulevard and from Embry-Riddle University east to Beach Street.

The Sutton Place apartment complex on Nova Road, just west of Orange Avenue, was ravaged by an F2 tornado. Several of the buildings were demolished, with entire sides of buildings and the roof gone. Personal items, such as computers, furniture and Christmas trees, are exposed in the apartments.

Five people suffered minor injuries and a couple of people were briefly entrapped but they are OK.

Officials said there weren't more injuries because many people were not at home. Hundreds of people, including many college students, live in the apartments.

The entire place has been evacuated and the Red Cross has been called in to offer help. City officials have opened a shelter at the Daytona Beach City Church at 211 Bay Street.

The storm also caused extensive damage at Embry-Riddle Aeronautical University in Daytona Beach. Small planes flipped over, and one of the planes slammed into a university building.

Officials said 5,100 customers in Daytona Beach were without power at one point. As of Monday night, 4,300 were still without power.

The storms destroyed nine power poles and numerous feet of electrical line. Crews will work through the night to restore power, and they hope to get all but 200 to 400 customers back in service within 24 hours.

The damage from the storm caused Daytona Beach officials to close the following roads: Nova Road from Orange Avenue to Bellevue; Clyde Morris from Richard Petty to Bellevue; Bellevue Extension closed; Ridgewood Avenue closed from International Speedway Boulevard to Magnolia; Segrave from International Speedway Boulevard to Magnolia and Beach Street from International Speedway Boulevard to Magnolia.

In **DeLand**, between 100 and 200 homes were damaged and seven people were hurt, including two seriously.

Officials said homes in four mobile home parks in an unincorporated area north of DeLand were affected, including Orangewood Mobile Home Park, Fernwood Mobile Home Park, Meadowlea Estates and Rosewood Mobile Home Park.

The American Red Cross has opened an emergency shelter at Liberty Baptist Church at 1365 W. Plymouth Ave. in DeLand for residents whose homes were damaged and who have lost electricity.

3 Tornadoes Touched Down On Christmas Day, Forecasters Say

POSTED: 8:27 am EST December 26, 2006

UPDATED: 5:16 pm EST December 26, 2006

Residents across Central Florida started the long and painful cleanup process on Tuesday from Christmas Day's severe storms.

The National Weather Service has confirmed that three tornadoes touched down in two counties. F2 tornadoes tore through **Daytona Beach** and **DeLand** in **Volusia County** on Monday afternoon and an F0 tornado caused damage in Leesburg in Lake County.

F2 tornadoes pack winds between 113 and 157 mph and F0 tornadoes reach wind speeds of 40 of 72 mph.

On Tuesday afternoon, the Volusia County Property Appraiser's Office said the initial damage assessment is \$32.5 million, which includes \$2.5 million in damages in West Volusia and \$30 million in Daytona Beach.

The county said it is requesting federal disaster assistance, and the governor declared Volusia and Lake counties disaster areas.

Officials have set up phone numbers for victims of the tornadoes.

The American Red Cross has established a number for people looking for information on friends and family living in the affected areas. Call 386-226-1400, extension 129 for more information.

People can call Daytona Beach's Emergency Operation Center at 386-671-3333 for tornado recovery information. Victims will be referred to various support groups, and the line will be staffed until 7 p.m. Tuesday and from 7 a.m. to 7 p.m. on Wednesday.

Also, the United Way is coordinating volunteers and donations. Interested donors should call 386-253-0563 or 877-253-9010.

At the Sutton Place Apartments on Nova Road in Daytona Beach, roofs and walls are gone, exposing the residents' belongings to the elements.

Daytona Beach police have the complex on lockdown to make sure no one loots or gets hurt. So far, officials have condemned 40 of the community's 240 apartment units.

The tornado struck the apartment complex around 1:45 p.m. on Monday ripping off walls and roofs from three of the buildings. Everyone was evacuated from the two-story, wood-frame apartment complex, and officials aren't sure when those who live in the undamaged apartments will be able to return.

Residents said they cannot believe the damage.

"I was home and (there were) two big flashes of lightning and the power flashed, and I was like, 'This is not right,'" said resident Justin Van Woert. "Then the winds started picking up and then everything started shaking and I just ran in the bathroom because it looked like everything was coming down."

"I didn't even realize what was going on. I looked out the window and I saw all the debris flying and I came out, and this is what I saw," one resident said. "It was awful. I never experienced anything like it."

Six people were injured at the apartments but none of the injuries was life-threatening.

Authorities said at least 12 vehicles were destroyed at the Daytona Beach police compound, which is across the street from Sutton Place.

Planes Tossed Like Toys

Embry-Riddle Aeronautical University administrators met Tuesday to discuss getting the tornado-damaged campus cleaned up before students return from the holidays on Jan. 7.

The National Weather Service confirmed that an F2 tornado packing winds around 120 mph tore through the Daytona Beach campus on Christmas Day. The twister damaged 50 of the school's 65 teaching planes tethered to the tarmac.

Even with a tornado warning, the few people on campus didn't have enough time to prepare.

"As you look around the campus, you can see rather extensive damage to some of the buildings, including Spruance Hall which is our administration building. They're even talking about it might be condemned," said Embry-Riddle's Jim Hampton.

The tornado also damaged most of the Embry-Riddle buildings, tearing the roof off a hangar and sweeping part of the floor clean. No one was injured.

A fire also started in one of the buildings. Officials said it appears the fire started when the winds drove a part of an airplane through a wall into a building used for training and research.

Hundreds Of Mobile Homes Damaged

More than 200 homes were damaged at the Fernwood, Orangewood and Rosewood Terrace mobile home parks near **DeLand**. Small sections of Meadowlea Estates and Sunrise mobile home parks also sustained damage, officials said.

"I was in my house, and all of the sudden, it sounded like a freight train," said Melinda Lopes, who lives in Orangewood. "Everything was shaking in our trailer. We just stayed huddled up in our bathtub."

Several of her family members live in Orangewood or in neighboring mobile home communities. Her grandmother's home in Rosewood was so badly damaged that she can't live in it anymore.

"She is devastated. She just moved into it. She just bought the trailer, and now they're talking about condemning it. She's going to have to stay with us for awhile and get back on her feet," Lopes said.

All night long, crews scrambled to make sure no one was trapped underneath all the rubble.

Homes flipped over, roofs were ripped off of houses and furniture is scattered everywhere.

Eight people in the DeLand area were rushed to hospitals, and two of them have critical injuries.

The Red Cross set up a shelter for families who lost their homes. About 20 families initially sought shelter at the Liberty Baptist Church.

"I just want to thank the Lord right now, and I feel sorry for the other families on our street. They lost their trailers. Nobody is hurt on our street as far as we know, except for a little head injury," one resident said. "I saw the tornado behind our house and told my mom, 'Tornado.' And we all ran in the closet and kept saying over and over again, 'Lord Jesus, please protect my family.' And I believe he did it."

"It was like a big train coming right at you and you couldn't get out of the way," said Jane Castro, a child at the shelter. "It was hard."

She said she lost all but two of her Christmas presents.

Two shelters remain open in Volusia County for people with damaged homes or no power.

People can head to Liberty Baptist Church on Plymouth Avenue in DeLand or to the Daytona Beach City Church on Bay Street.

The storms that ripped through Daytona Beach destroyed nine power poles and electrical lines. That knocked out power to 5,100 Florida Power and Light customers at the height of the storm. About 600 customers are still without power, and crews are still working to restore service. More than three dozen manufactured homes in the Brittany Estates mobile home park near Leesburg in Lake County were also damaged, officials said. Twisting winds tore sheets of metal paneling off of the roof of a business in Leesburg. The metal ended up twisted around power lines.

No injuries were reported.

The Christmas Day storms left miles of destruction behind as they made their way to Central Florida. The storms first tore through Pasco County, just north of Tampa, early Monday morning.

The sheriff's office said a tornado damaged or destroyed more than 100 homes. Two people were hurt.

In **Columbia County near Jacksonville**, three homes along with a business warehouse were destroyed.

The damage estimates stand at \$5 million. The storm also damaged at least 10 other homes. One person had minor injuries.

Wesh.com

Tornado Victims Try To Pick Up Pieces

Red Cross Number For Info: 386-226-1400, Ext. 129

POSTED: 8:33 am EST December 27, 2006

UPDATED: 5:06 pm EST December 27, 2006

Some tornado victims got their first look at their damaged homes on Wednesday.

Residents of the Sutton Place apartments in **Daytona Beach** were allowed into the complex between 10 a.m. and 2 p.m., WESH 2 News reported.

A number of apartments were destroyed by an F2 tornado that touched down in the apartment complex on Nova Road. Walls are gone and belongings have been thrown everywhere. Other apartments suffered only minor damage.

The renters looked for anything not twisted, torn or crushed. The tornado did a lot of physical damage, but as people picked through what was left of their material things, it was clear that this storm has left emotional scars.

Mike Ryan said he and his wife were in New York visiting relatives.

"I heard about it Christmas Day and I got down here as quick as I could," he said. "When I first saw it, I was shaking like a leaf. Even when I was coming down the street, Nova, yesterday, with the backup, I was shaking in my car because it's pretty sad."

Ryan said the most important things he found in his apartment were his wife's jewelry and a painting of his wife.

"I don't know if I'm going to be able to keep it," he said.

The **city of Daytona Beach** has condemned 40 of the 240 apartments. The people who live in those buildings had until 2 p.m. Wednesday to retrieve their stuff. They had to be escorted in and wore hard hats for safety.

The most damaged buildings will be leveled. The others with minor damages will be repaired. Some places actually are fine, showing the tornado was powerful yet narrow.

Residents of the undamaged apartments started moving back in again at 4 p.m. Wednesday. Contractors were at Embry-Riddle Aeronautical University to assess the extensive damage the tornado caused on the school's campus.

Several buildings were hit hard, and with 50 of the school's 65 planes damaged or destroyed, administrators face an uphill battle in getting things back up and running before students return on Jan. 10.

Volunteers Help Tornado Victims

In **DeLand**, volunteers have been lifting the spirits of tornado victims. Crews are clearing fallen trees, limbs and siding.

Volunteers from across Central Florida have shown up to help.

"I just want to help out, and this is the work that I do every day," said volunteer Andrew Ware. "I just want to be of service."

Churches have also been organizing helpers.

"I think it's devastating. My heart goes out to all the people here, and our church family came out to see what we can do to help," said volunteer Gail Hallmon. "We feel very blessed. Many of us were very close to this and yet our houses were fine, so we want to do what we can do to help clean up a little bit."

Joyce Pope said she's just glad to be alive.

"I got a cut on my arm, I don't know how. Something hit me in the head. I was on the porch when it hit going in the house," she said. "Everyone says, 'What will you do?' I said, 'We'll go on. The good Lord takes care of drunks and fools and everything else, and we're everything else.'"

While federal emergency officials surveyed the damage at the west Volusia County mobile home parks on Wednesday, a good Samaritan was spreading cheer at Fernwood Estates. Michelle McGraw brought Christmas presents for the families who lost so much on Christmas Day.

"There should be cars lined up out here to help and donate," she said.

Other people dropped off food, clothing and gift certificates for mini-storage units.

A friend offered Debby Squires and her daughter a place to stay. Their trailer in the Fernwood mobile home park was badly damaged during the tornado.

"But we can't stay anywhere for too long. You don't want to overstay your welcome," Squires said.

Her insurance company is giving her a hotel voucher for a couple of nights, but the closest room available is in Ormond Beach.

"It's kind of scary just knowing that I don't have a home anymore," Shannon Squires, 14, said. Debby Squires is on disability and she said her next check is a week away and her food stamps are running out.

"We are totally stuck. And unless I can get emergency food stamps, I don't get my food stamps until Jan. 11, and I've got \$22 in my account," she said.

The family's Christmas Day dinner is still in the oven. Their lives changed in the 30 seconds it took the F2 tornado to tear through their home.

Volusia County officials said the United Way is coordinating volunteers and donations. The telephone numbers are: 211, 386-253-0563 and 877-253-9010.

Victims of the storm with no place to go can still get shelter, thanks to the Red Cross. The Daytona Beach City Church on Bay Street and Liberty Baptist Church on Plymouth Avenue in DeLand will remain open as shelters on Wednesday night.

A voluntary boil-water order is in effect for the Orangewood, Fernwood and Rosewood Mobile home parks in DeLand.

The National Weather Service said F2 tornadoes touched down in **DeLand** and **Daytona Beach** and an F0 tornado tore through **Leesburg** on Christmas Day.

Governor Declares State Of Emergency

The state has committed to helping the four counties hit hardest by the Christmas Day storms.

Gov. Jeb Bush has declared a state of emergency in Lake, Volusia, Columbia and Pasco counties.

Early damage estimates in Volusia County are staggering -- \$32.5 million in damages have been reported so far.

No estimates are available yet from **Lake County**, but three dozen mobile homes are destroyed there.

Daytona Beach city leaders said they know several people want to try and move forward, so they are going to help.

Starting on Wednesday, city workers will hand-deliver residential building permits to homeowners. The permits will allow people to make the repairs needed on their homes. Daytona Beach will waive fees for the permits through Jan. 5.

The state said Wednesday that it has activated the Florida Agriculture and Consumer Services Department's price-gouging hot line for the four counties covered by the governor's state of emergency declaration.

Residents in those counties who see any examples of excessive prices for essential items such as shelter, gas, food, water, ice, generators or lumber are urged to call the state at 800-HELP-FLA (800-435-7352). To reach an operator who speaks Spanish, call 800-FLAYUDA (800-353-9832).

The state said anyone who gouges storm victims could face fines up to \$1,000 per violation or a maximum fine of \$25,000 a day.

The American Red Cross has established a telephone number for people looking for information on friends and family living in the areas hit by the severe weather. That number is **386-226-1400, extension 129**.

PHOTOS OF SOME OF THE DEVASTATION

THESE TORNADOES AFFECTED MORE THAN JUST
MOBILE/MANUFACTURED HOMES







