

Tropical Storm Fay

STORM DAMAGE ASSESSMENT

August 29, 2008

A study of the installation of manufactured/mobile homes
and the effects of storm damage.



prepared by the
Bureau of Mobile Home and RV Construction
Division of Motor Vehicles
Department of Highway Safety and Motor Vehicles



MOBILE/MANUFACTURED HOME DAMAGE ASSESSMENTS FROM TROPICAL STORM FAY

The Purpose for Mobile/Manufactured Home Assessments

In 1996, the Bureau of Mobile Home and RV Construction implemented the Mobile Home Licensed Installer's program in accordance with Section 320.8249, Florida Statute. This program includes the testing, licensing and sanctioning of individuals who install mobile homes. A major function of this program is training county and city building officials on how to inspect the set-up of a mobile home to ensure it meets the department rules. In addition to this training responsibility, staff also investigates complaints relating to improper installation of homes.

The Bureau also serves as an inspection agency for the U.S. Department of Housing and Urban Development (HUD) and monitors the construction of mobile/manufactured homes built in Florida. In July 1994 HUD amended its regulations governing mobile home construction to ensure that they were more resistant to wind damage.

The assessments of mobile home damage from different storms gives the Bureau insight as to the effectiveness of its Installation Program and HUD's Manufactured Home Construction and Safety Standards. The effectiveness of installation components, building department training and installer training is also measured.

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 inspected. In addition, due to debris, entry into some mobile/ manufactured homes is 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.

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**DEPARTMENT OF HIGHWAY SAFETY AND MOTOR VEHICLES
DIVISION OF MOTOR VEHICLES
BUREAU OF MOBILE HOME AND RV CONSTRUCTION**

ASSESSMENT

Tropical Storm Fay's rain and wind seemed to affect most every county in the State. The Bureau of Mobile Home and Recreational Vehicle Construction personnel investigated mobile/manufactured homes in areas where tornados touched down and or where mobile homes were reported as flooded.

After checking with Emergency Operation Centers and County Building Departments the Bureau investigated mobile home parks in Sebastian, Melbourne, Cape Canaveral, and Lake Wales. River flooding and its effects on mobile/manufactured home installation was checked in Leon, Gadsden, and Wakulla Counties. Bureau staff investigated any movement of homes on their foundation and when movement was noted, piers, anchors and other tie down equipment were checked and the approximate time of installation was noted along with the age of the home.

Tornado and wind damage was found in two mobile/manufactured home parks.

- **Barefoot Bay Mobile Home Community** – Sebastian, Indian River County. A tornado touched down in this community destroying approximately 6 homes, tearing off carports, awnings, and screened rooms. Two older homes, one a pre HUD and one early HUD home moved on their foundations. Both homes moved due to "old style installation techniques" (no longer allowed) and rusted straps.
- **Camp Rosalie** – Lake Wales, Polk County. A minor tornado or wind shear caused damage to roof overs. The homes in this older park were produced in the 50s, 60s and 70s. No homes moved on their foundations.

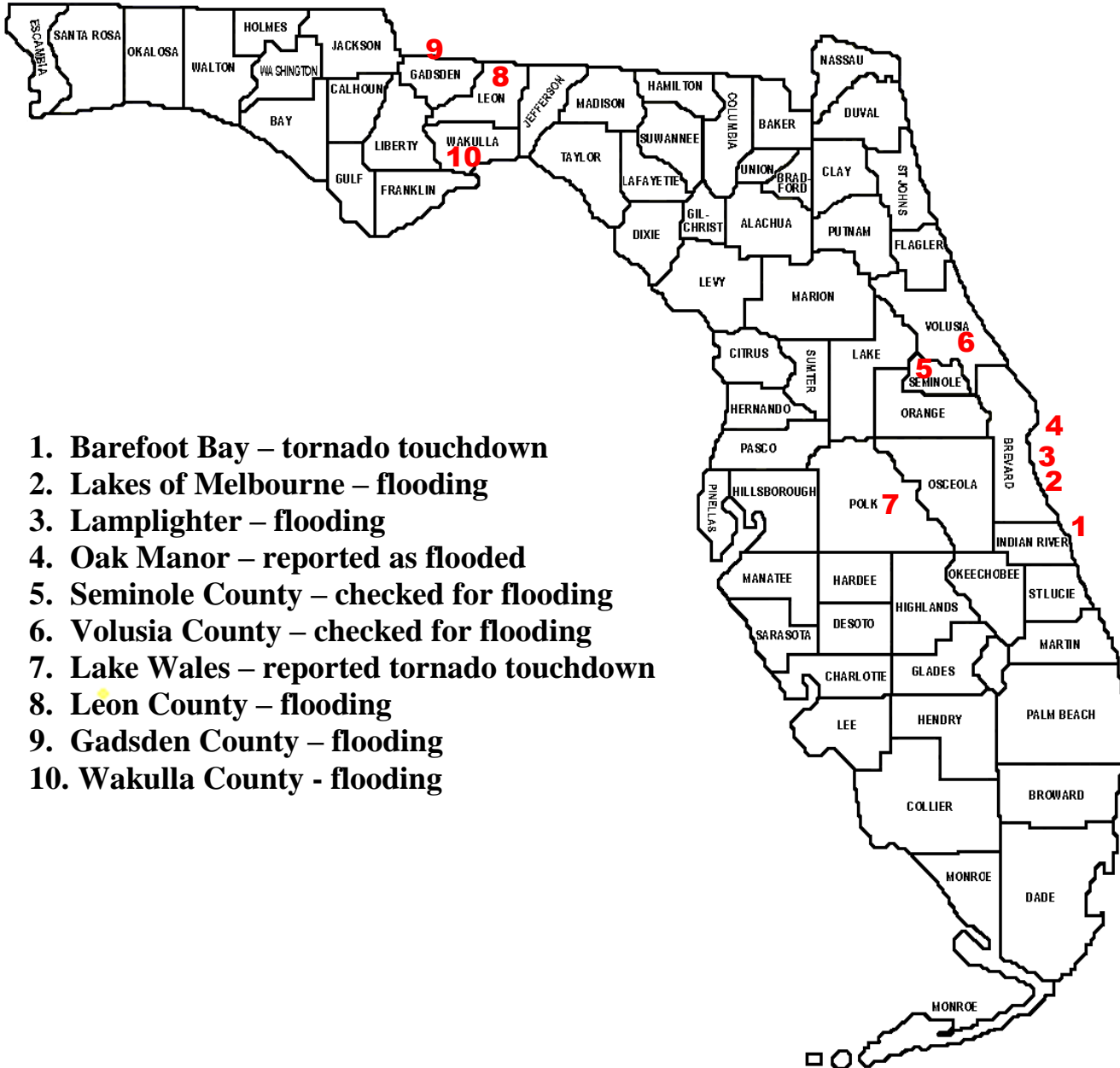
Areas of reported flooding were investigated in three mobile home parks, two counties (Seminole and Volusia) and rivers in Gadsden, Leon, Wakulla Counties.

- **Lamplighter MHP** – Melbourne, Brevard County. This community received extensive flooding and had the National Guard on duty inside the park. Approximately 180 homes had some flooding under the homes. Many carports, lanais, screened rooms and storage rooms were flooded. About 2.5 percent of the homes had water intrusion inside the homes. Floor damage from flood water may be extensive, however no homes moved on their foundations.
- **Lakes of Melbourne** – Melbourne, Brevard County. Flooding occurred in this park, but not to the extent of Lamplighter. Approximately 100 homes had water under the homes with a possible 10 having water inside the homes. No homes moved on their foundations.
- **Oak Manor MHP** – Cape Canaveral, Brevard County. This park was reported on the internet as having flooded. No evidence was found of flooding under the homes. No homes moved on their foundations.

- **Seminole County** – Seminole County was checked by the Bureau and no mobile/manufactured homes were found flooded or damaged.
- **Volusia County** – Volusia County was checked by the Bureau and no mobile/manufactured homes were found flooded or damaged.
- **Rivers of Gadsden, Leon, Wakulla Counties** – approximately 20 homes were found with flood water under the homes and 12 of those had flood water intruding inside the home, but no homes were found with any movement from the foundation. The Bureau continues to monitor these areas.

After several days of investigating mobile/manufactured homes in areas affected by Tropical Storm Fay, the Bureau found only two homes that had moved on their foundations. Both were the result of a tornado spawned by the storm. The two damaged homes were built in the 70s and installed in the same time frame. While the installation may have been correct at the time, no retrofitting had occurred since the initial installation. No homes were found with movement on their foundations as a result of flood waters (flotation or velocity action). Flood waters are still high in the panhandle and the Bureau will continue to monitor any movement of homes on their foundations. Should any homes be found with movement a supplemental report will be issued.

AREAS OF COVERAGE



Barefoot Bay Mobile Home Community, Sebastian – Indian River County

Area of damage from tornado.

1 OUR OFFICE
First Choice Properties, Inc.
 “Little white building with the bright blue awnings.”
 7656 US Hwy. #1
 “Just north of traffic light to Barefoot Bay.”
 (772) 664-0066

2 MAIN COMMUNITY CENTER

- Heated Pool & Deck Overlooking Lake
- Lounge
- Billiards and Card Rooms
- Meeting Rooms
- Auditorium
- Dressing Rooms
- Picnic Area
- Bocci Ball
- Tennis Courts
- Horseshoes
- Shuffleboard

3 SHOPPING CENTER

- Convenience Store
- Two Banks
- Doctor's Office
- Insurance Office
- Barber/Beauty Shop
- Post Office
- Gift Shop
- Laundromat with Drop-off
- Drycleaning & Shoe Repair

4 GOLF COURSE
 Community Building with Lounge, Pro Shop, Meeting Rooms, Dressing Room.

5 RECREATION AREA

- Heated Pool
- Dressing Rooms

6 RECREATION AREA

- Heated Pool
- Dressing Rooms

7 SHOPPING CENTER

- Winn-Dixie Market Place
- Restaurant
- Vision Center
- Miscellaneous Shops

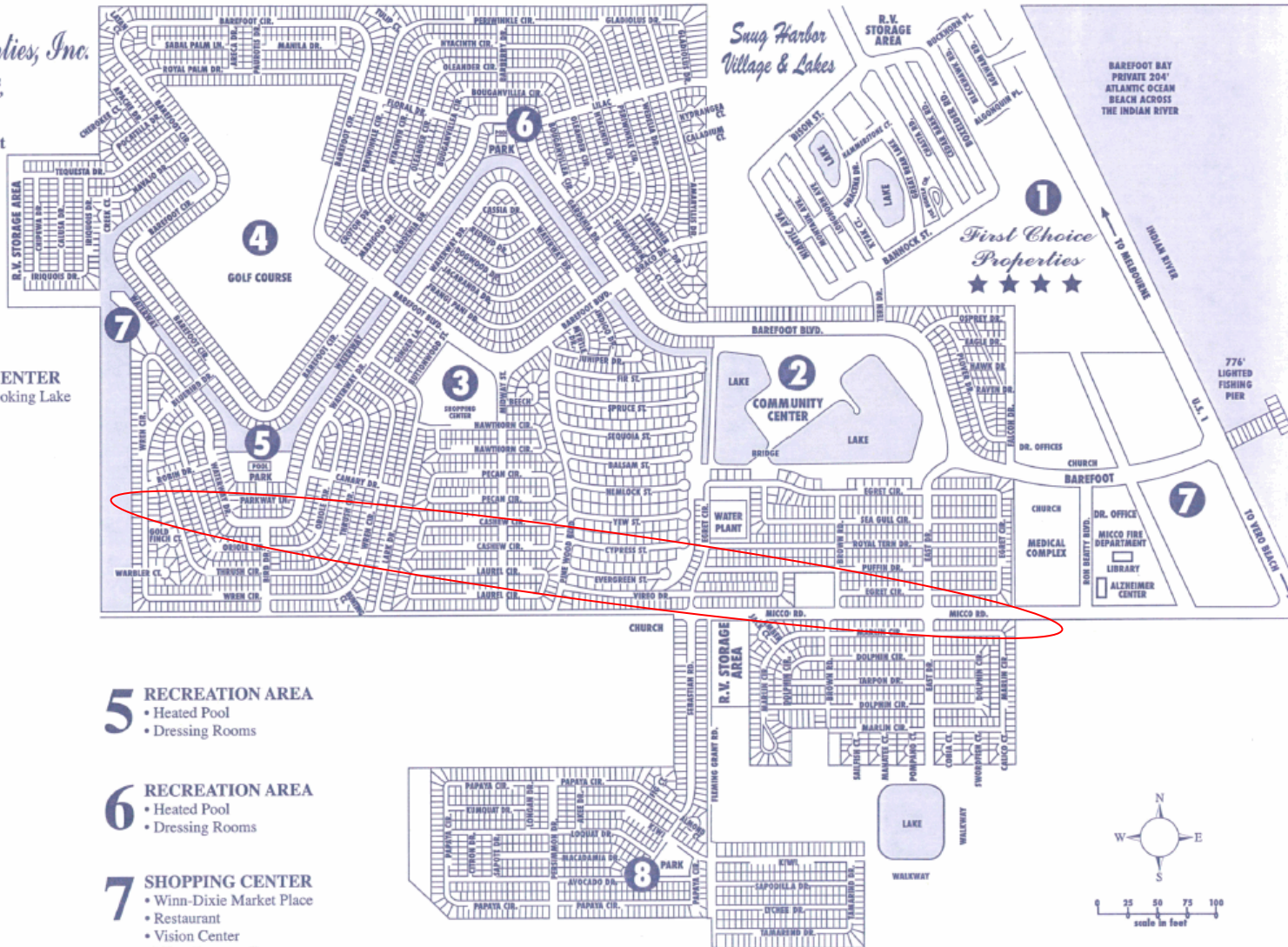


TABLE 1

TROPICAL STORM FAY

**A Study of Mobile/Manufactured Home installation in
Indian River, Brevard, Polk, Volusia, Seminole, Gadsden, Leon & Wakulla Counties**

Date of Inspection and Mobile Home Park Identification					Estimations						
Date	Mobile Home Park	Address	City	County	Age of park by decade	Homes in park	Homes destroyed or non repairable	post 94 homes	post 94 homes damaged	Homes flooded underneath	Homes flooded inside
8/20-22/08	Barefoot Bay	Micco Rd.	Sebastian	Indian River	70s - 00s	5,100	6	400	0	0	0
8/22-24/08	Lamplighter	500 Lantern Blvd.	Melbourne	Brevard	70s - 90s	639	0	100	0	180	15
8/22/08	Lakes of Melbourne	4000 Hollywood Blvd.	Melbourne	Brevard	70s - 90s	602	0	100	0	100	10
8/25/08	Oak Manor	8705 Atlantic Ave. N	Cape Canaveral	Brevard	60s - 70s	48	0	0	0	0	0
8/25/08	Camp Rosalie	3000 Camp Rosalie Rd	Lake Wales	Polk	50s - 70s	59	0	0	0	0	0
TOTALS					50s – 00s	6,448	6	600	0	280	25

**Barefoot Bay – 6 homes destroyed by
tornado spawned by Tropical Storm Fay.**



Barefoot Bay – tornado damage



**Barefoot Bay – this pre-HUD home
moved 18 inches from its original set.**



**Strap had rusted away from the anchor head.
Only 3 anchors per side and no diagonal ties.**



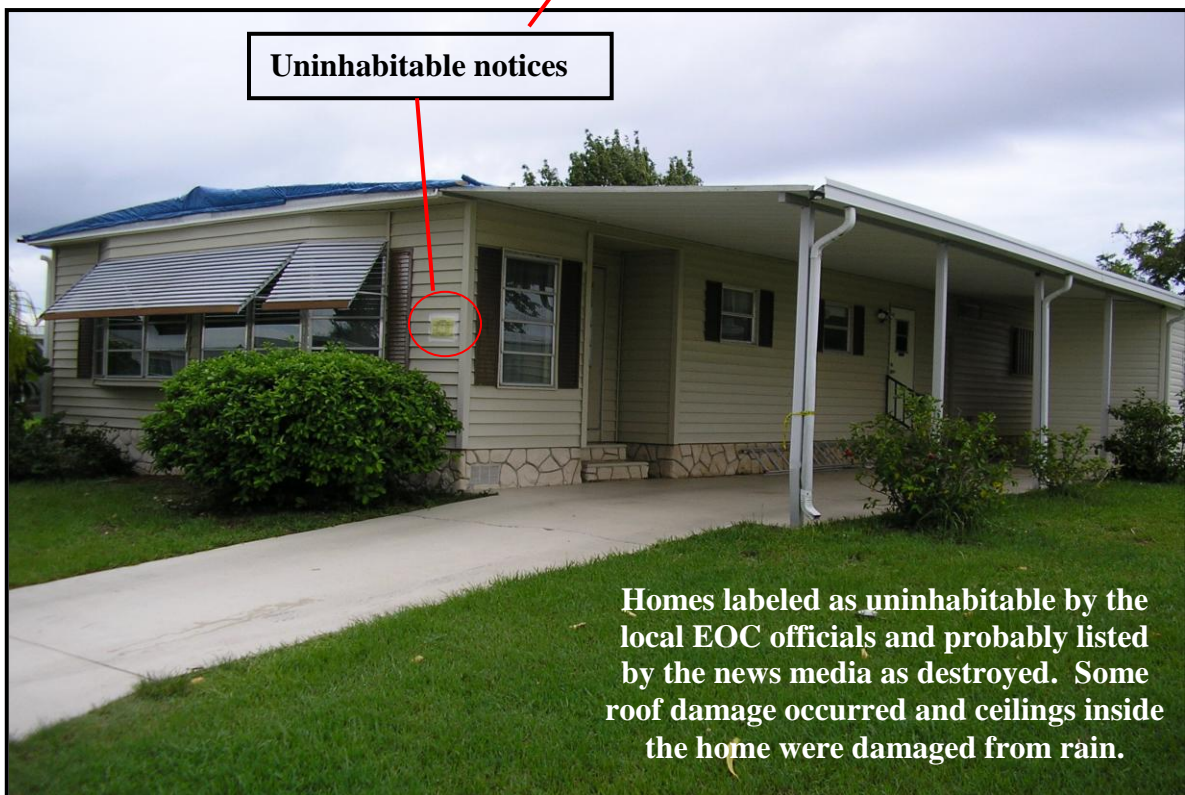
**Barefoot Bay - early
HUD model. Home
moved 10 inches off its
foundation.**



**Old style buckle allowed
the strap to loosen and
the home slide off its
foundation.**



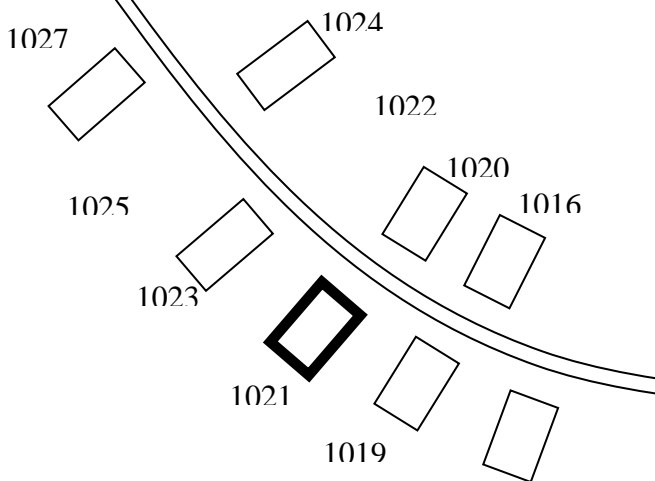
Barefoot Bay homes



Uninhabitable notices

Homes labeled as uninhabitable by the local EOC officials and probably listed by the news media as destroyed. Some roof damage occurred and ceilings inside the home were damaged from rain.

1021 Oriole Circle
2005 Home built to improved HUD
Construction Standards and installed to State's
improved installation standards. Some other
homes in the vicinity did not fare as well.



This home is a 2005 home and installed to the State's installation standards implemented in March of 1999. This home was undamaged while other older homes had some type of damage with two homes being listed as uninhabitable and are being demolished.

- 1024 Carport damaged by flying debris
- 1022 Vacant lot
- 1020 Roof damaged and being demolished
- 1016 Roof damaged and being demolished
- 1027 Roof damaged and carport blown away
- 1025 Vacant
- 1023 Carport and screened room blown away
- 1021 No damage**
- 1019 Minor damage from flying debris



**909 Cashew Circle
carport damage**



**913 Cashew Circle
missing screen room**



**917 Cashew Circle
Uninhabitable**



Home built to improved HUD
Standards and installed to State's
improved installation standards.



**911 Cashew Circle
home destroyed**

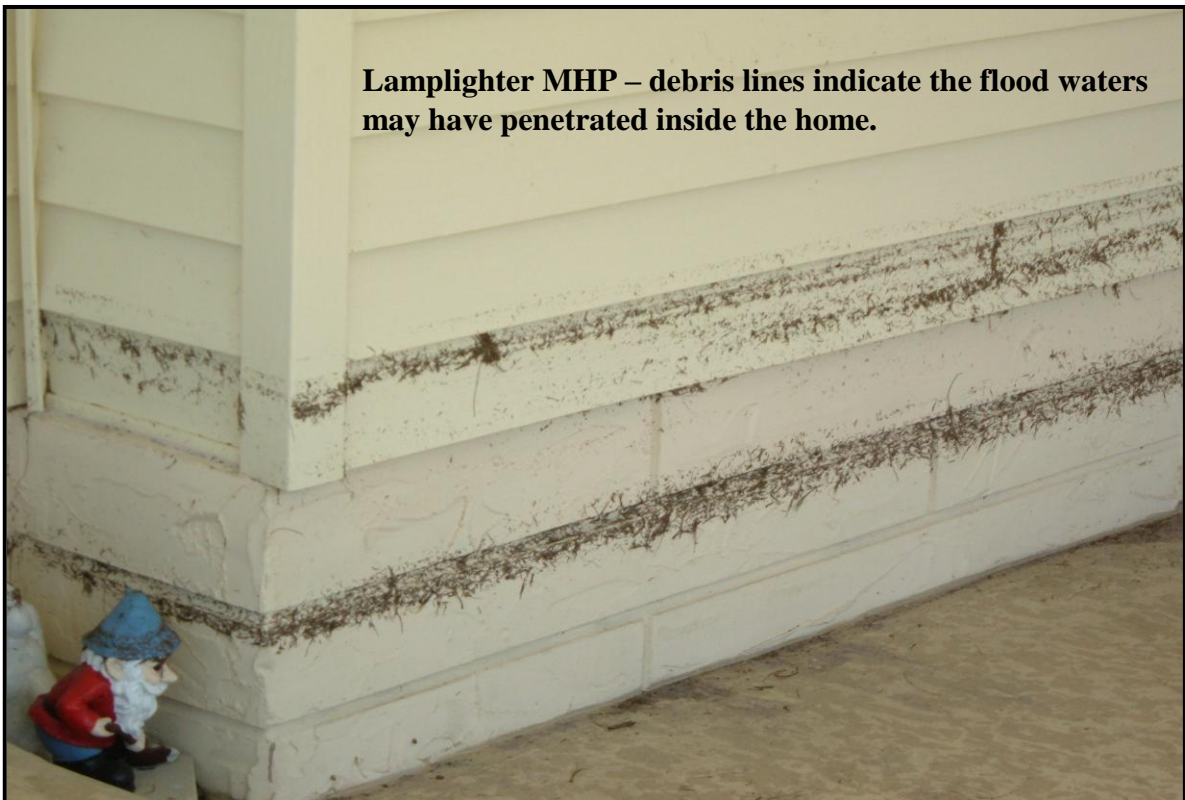


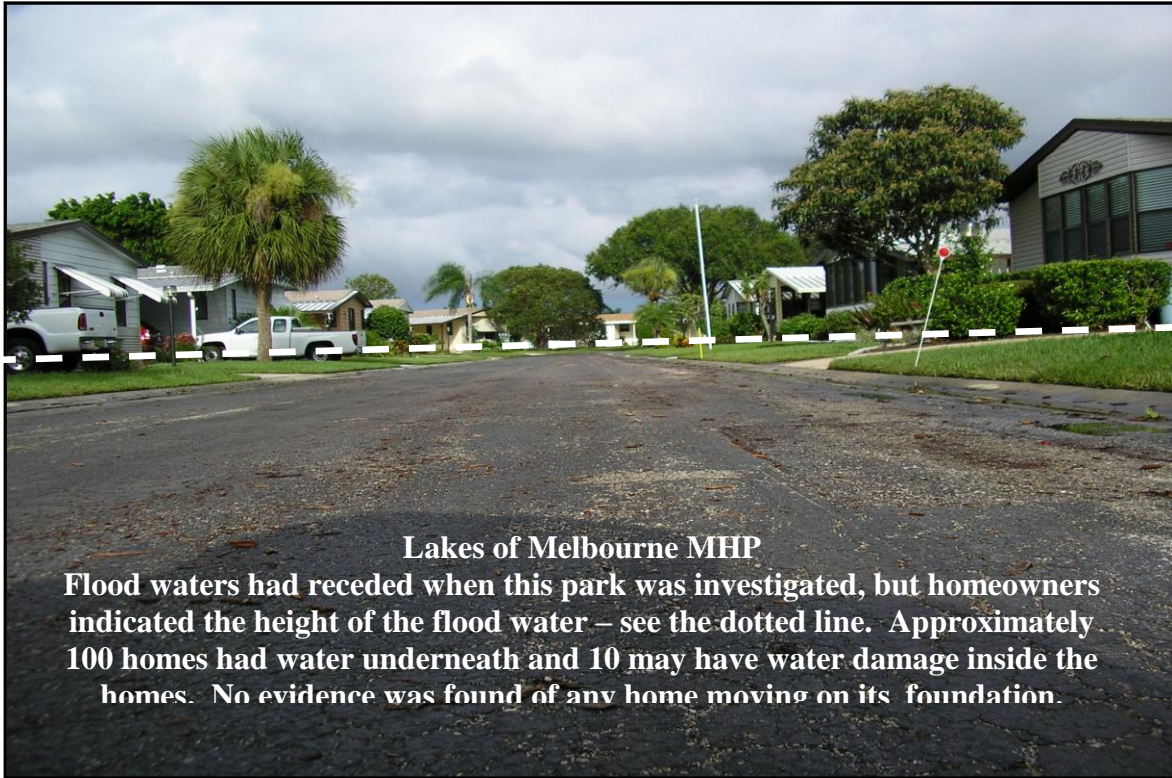
**915 Cashew Circle
2005 Homes of Merit
carport damage**



**919 Cashew Circle
home destroyed**









Ochlockonee River flooding

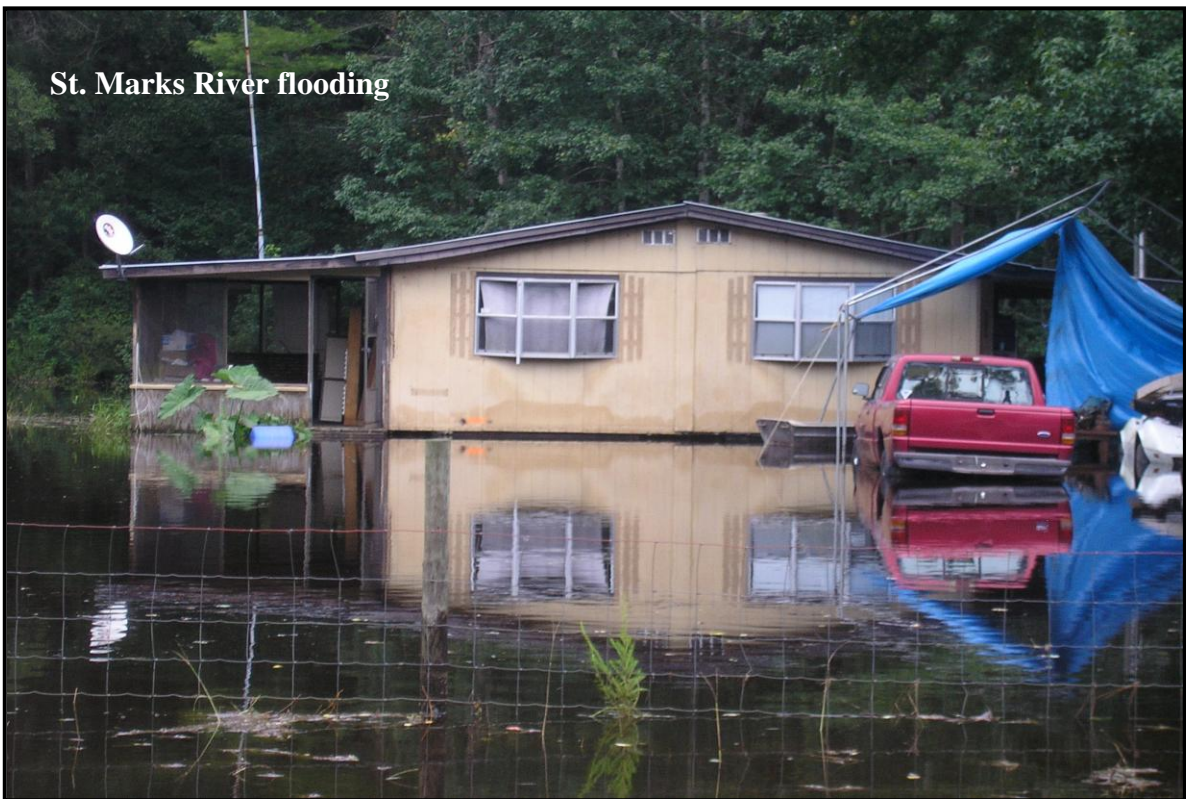


Ochlockonee River flooding
with some velocity





St. Marks River flooding



St. Marks River flooding