

# NAI How-to Guide for Flood Warning & Response Case Study: Pinellas County Coastal Flooding Response Program

Pinellas County is located between Tampa Bay, Florida and the Gulf of Mexico. It is home to St. Petersburg and 23 smaller municipalities, 12 on barrier islands in the Gulf of Mexico. It is the second smallest county in the state, but the most densely populated with nearly a million year-round residents.

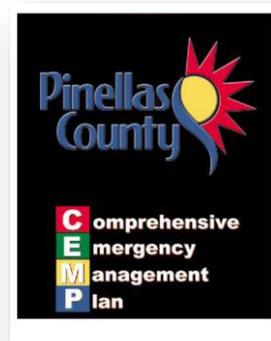


Forty percent of the county's land area is within the Special Flood Hazard Area. While the flood threat comes from coastal storm surge and inland overbank and local drainage sources, this summary focuses on the coastal hazard. Here are some background notes from the county's Comprehensive Emergency Management Plan that underline the need for an effective warning and response program for coastal flooding:

- "Coastal flooding from storm surge is by far the most dangerous of the tropical depression hazards, historically causing nine out of 10 hurricane related deaths."
- "This surge, when coupled with the breaking waves, will cause great destruction...."
- "Because of the high shoaling factor (shallow water and gradual slope of the Gulf bottom) off the central west coast of Florida, Pinellas County will receive higher surges than those in other coastal areas..."
- Coastal flooding is accompanied by the hazards of high winds and shoreline erosion.
- "Approximately 60% of the county's 918,496 permanent residents are vulnerable to the storm surge of a major hurricane."
- The greatest exposure to injury and damage is on the 34 miles of barrier islands. These are connected to the mainland by a series of 14 causeways and bridges. All but two islands are densely populated and completely built out (CEMP Base Plan, pp. 8-13).

**Organization:** The CEMP establishes the framework for the county and cities to manage the response to emergencies. It is the emergency operations plan. It assigns responsibilities and has annexes for specific emergency topics. The table of contents on the next page conveys the organization and breadth of topics covered.

The CEMP adopts the National Incident Management System as the comprehensive framework for all of the county's response and recovery operations. Experience has shown that it works to coordinate all levels "to manage incidents no matter what the cause, size or complexity." By vote in 2005, the Pinellas County Board of Commissioners officially adopted the NIMS framework. FEMA's guidance on NIMS can be found at <https://www.fema.gov/nims-doctrine-supporting-guides-tools>.



**Pinellas County Comprehensive Emergency Management Plan  
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Annexes to the CEMP

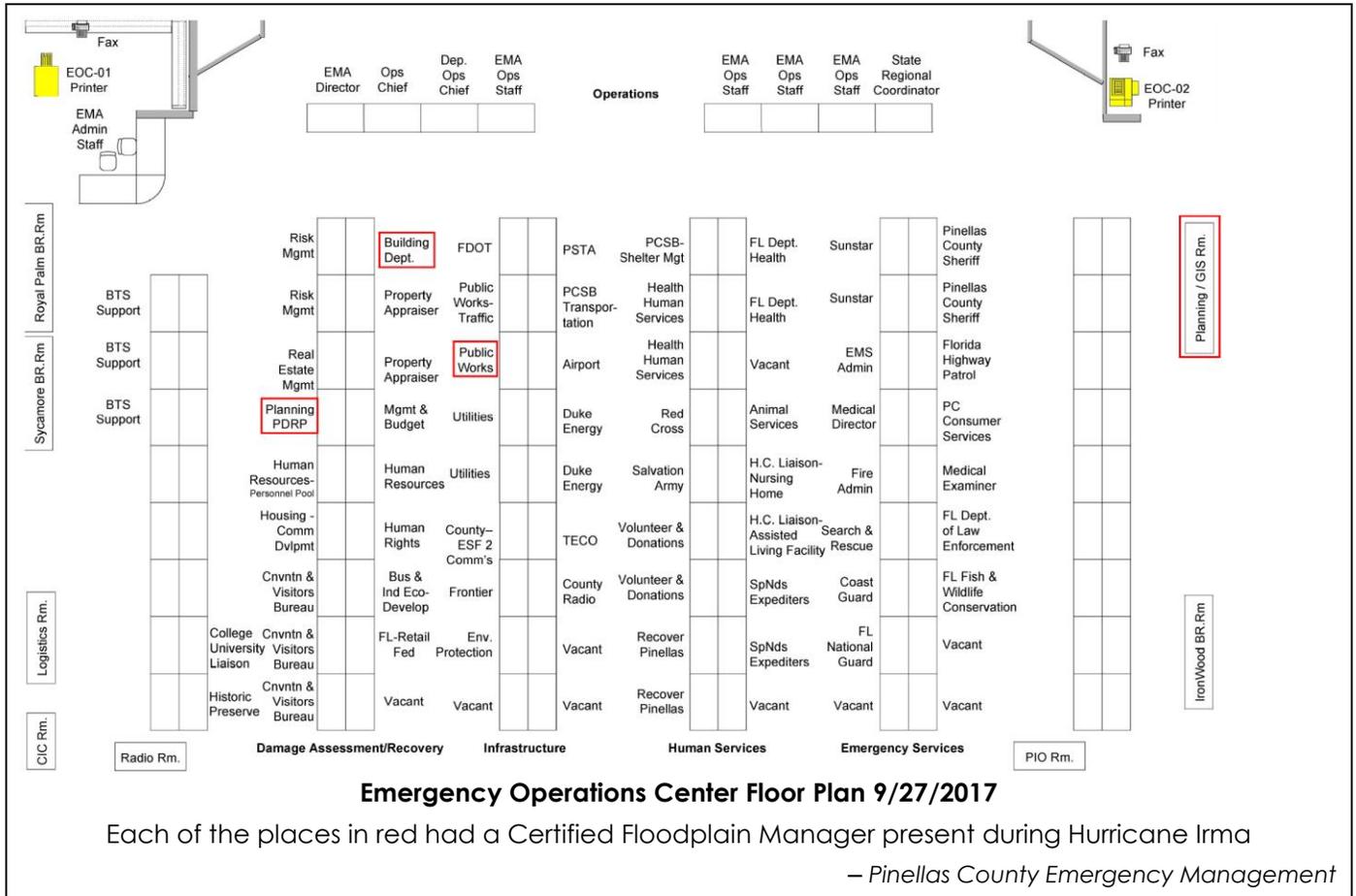
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When an emergency occurs, an incident commander provides direction and control at an incident command post. For example, if there is a fire, the city's fire department will provide the incident commander. If the emergency grows in size, the organization does too. If it involves more than one local government, a unified incident command may be used. Having all agencies and organizations on this same system greatly facilitates responding to large incidents that involve several jurisdictions.

At a certain point, the incident may grow beyond the capabilities of the first response organizations, triggering activation of the Emergency Operations Center. When there is a hurricane or flood warning, the county emergency management director is in charge from the start.

Each municipality has a primary and a secondary EOC, as does the county. The number and types of organizations that can be at the county EOC are illustrated in the EOC floor plan (pg. 3).

The CEMP identifies major responsibilities for the various departments. The departments most likely to have floodplain managers involved in emergency management activities are shown on the bottom of this page.



**Pinellas County Comprehensive Emergency Management Plan**

**Table 13 County Department Responsibilities**

DEPARTMENT	EOC	RESPONSE FUNCTION	RECOVERY FUNCTION
Animal Services	X	Large Animal Evacuation Animal Shelter Pet Friendly Shelters	Animal Protection Animal Collection VMAT Coordination
Building	X	-	Damage Assessment Habitability Determination
Communications	X-CIC	Public Information Warning Media Relations	Public Information Recovery Information Media Relations
Community Development	X	-	Damage Assessment Post Disaster Redevelopment Emergency Housing
Parks and Conservation Resources	X	Evacuation Parks	County Staging Areas Points of Distribution Debris Staging
Planning	X	Planning and Information Logistics Section	Planning and Information Redevelopment

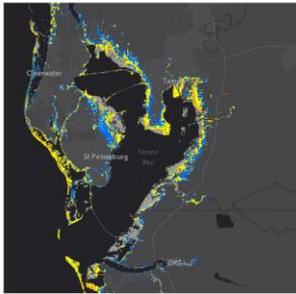
**Flood threat recognition:** As with most southeastern coastal communities, Pinellas County relies on the National Weather Service for alerts and predicted storm surge levels. Messages come through the Internet or telephone alerts with information from the National Hurricane Center's models of different storm scenarios. These models are updated every six hours based on real-time conditions.

Where there is adequate lead time (which usually occurs with tropical storms), a webinar or briefing is possible. An example from one is to the right.

Potential Storm Surge Flooding

Tampa Bay Area  
WEATHER FORECAST OFFICE

Hurricane Irma



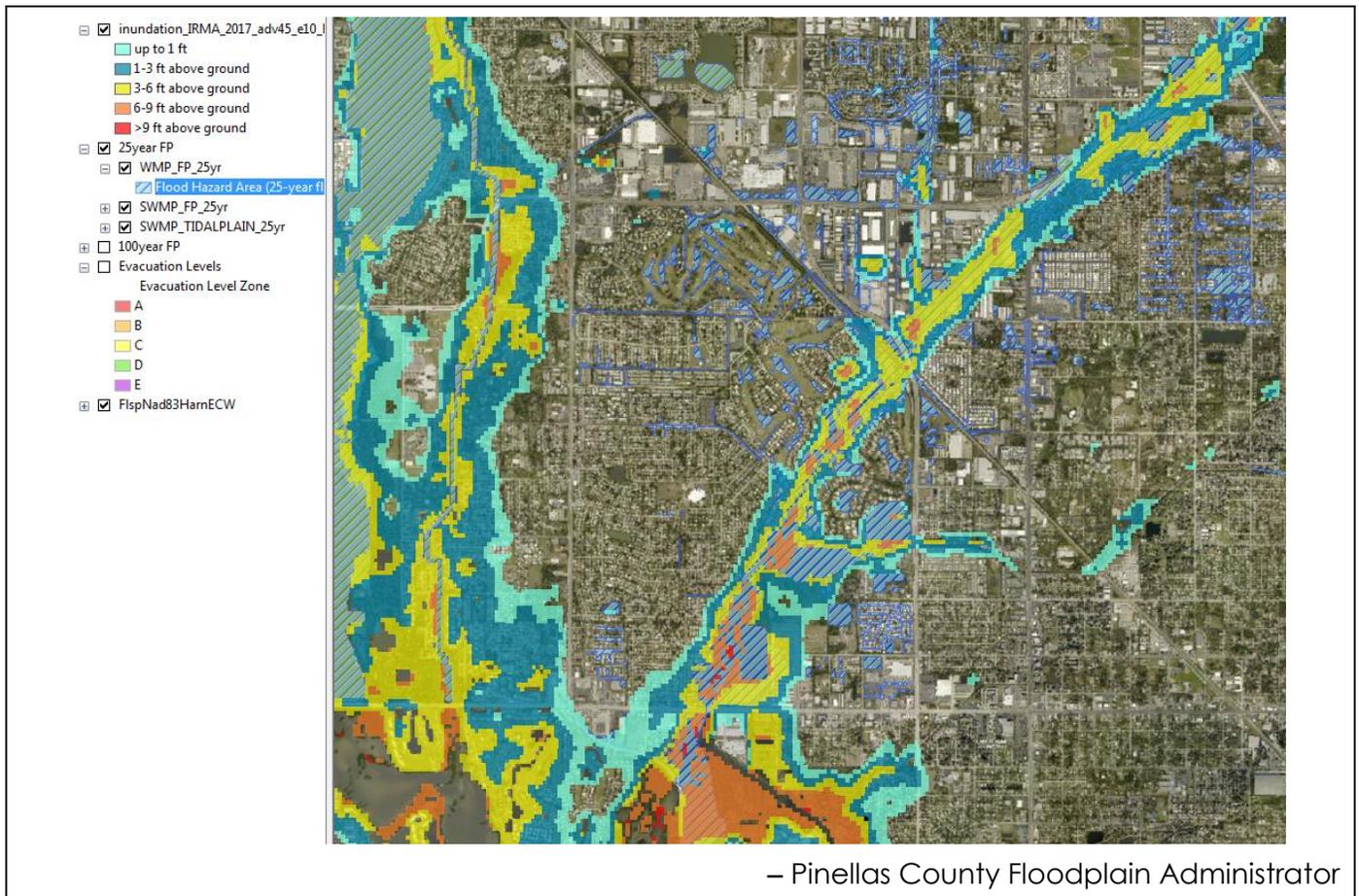
- Highest 5-8 feet AGL; highest in northeast Hillsborough Bay.
- Timing: Storm surge inundation could begin around 2 am Monday with the highest surge during high tide (5:27 AM Hillsborough Bay)
- Expect a 12 hour event, longer directly at the coast

**Note:** This graphic shows where storm surge inundation could occur in any one location. It depicts a reasonable worst case scenario.

9/10/2017 6:51 AM [fb.com/NWSTampaBay](https://www.facebook.com/NWSTampaBay) [@NWSTampaBay](https://twitter.com/NWSTampaBay) [weather.gov/tampabay](https://www.weather.gov/tampabay) [NWS Tampa Bay Tropical Products](https://www.weather.gov/tampabay)

Screenshot from the National Weather Service  
"Hurricane Irma Briefing" 9/10/2017

**Flood Inundation Mapping:** Pinellas County uses GIS software to plot the delineation of a predicted storm surge. The map below was prepared during Hurricane Irma and shows flood depths during the predicted surge. It also shows the 25-year riverine floodplain, which was taken from inundations maps prepared for watershed management plans, well before the storm.



With GIS tools, the emergency response planners have determined what will be flooded, isolated and/or evacuated at different surge levels. This information can be very detailed.

Below is an excerpt from the inventory of the bridges throughout the county that shows the level they will be impacted. The storm categories ("Cat 1," "Cat 2," etc.) are related to the evacuation levels and zones discussed on the following pages.

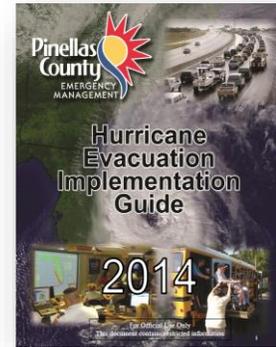
Storm Category	Evacuation Level
1	A
2	B
3	C
4	D
5	E
9 – (Dry, -999, 0)	X

NAME	TYPE	ELE - VATION	Cat 1 Surge Low Tide	Cat 1 Surge High Tide	Cat 2 Surge Low Tide	Cat 2 Surge High Tide	Cat 3 Surge Low Tide	Cat 3 Surge High Tide	Cat 4 Surge Low Tide	Cat 4 Surge High Tide	Cat 5 Surge Low Tide	Cat 5 Surge High Tide
580 over Tampa bay E end	Fixed	8.00	0	0	2.67	3.19	7.56	8.24	12.44	13.09	17.06	17.60
580 over Tampa Bay W end	Fixed	27.90	0	0	0	0	0	0	0	0	0	0
586 over Tampa Bay E end	Fixed	10.12	0	0	0.41	0.93	5.30	5.98	10.18	10.82	14.80	15.34
586 over Tampa Bay W end	Fixed	14.05	0	0	0	0	0	0.09	4.24	4.62	7.68	8.43
Bay Pines E end	Fixed	7.69	0	0	1.24	1.82	5.02	5.77	9.63	10.17	12.13	13.18
Bay Pines W end	Fixed	6.57	0	0	2.43	3.01	6.21	6.95	10.82	11.36	13.32	14.36
Bayside Bridge N end	Fixed	30.06	0	0	0	0	0	0	0	0	0	0
Bayside Bridge S end	Fixed	10.52	0	0	0	0.00	3.65	4.33	8.87	9.32	13.17	13.63
Bayway (SPB) - Structure C, W end	Bascule	5.65	0	0.34	2.69	3.28	5.47	6.28	10.25	11.02	12.93	14.17
Bayway (SPB) - Structure C, E end	Bascule	5.79	0	0.21	2.55	3.15	6.15	6.92	10.11	10.89	12.80	14.03
Bayway (Tierra Verde) - Structure E, N end	Bascule	5.27	0	0.11	2.40	3.01	5.79	6.60	9.65	10.57	11.80	13.26
Bayway (Tierra Verde) - Structure E, S end	Bascule	6.90	0	0	1.87	2.48	5.26	6.08	9.12	10.04	11.27	12.73
Beckett Bridge N end	Bascule	5.78	0	0	4.83	5.35	9.72	10.40	14.60	15.24	18.76	19.22
Beckett Bridge S end	Bascule	9.01	0	0	1.60	2.12	6.49	7.17	11.37	12.01	15.53	15.99

Appendix II-8 – Bridge Surge Vulnerability Table  
Pinellas County Hurricane Evacuation Implementation Guide 2014, Chapter II – page 25

This information is assembled in the *Pinellas County Hurricane Evacuation Implementation Guide*. The guide has tables similar to the above for hospitals, government facilities, water treatment plants and other critical facilities, and is updated every year.

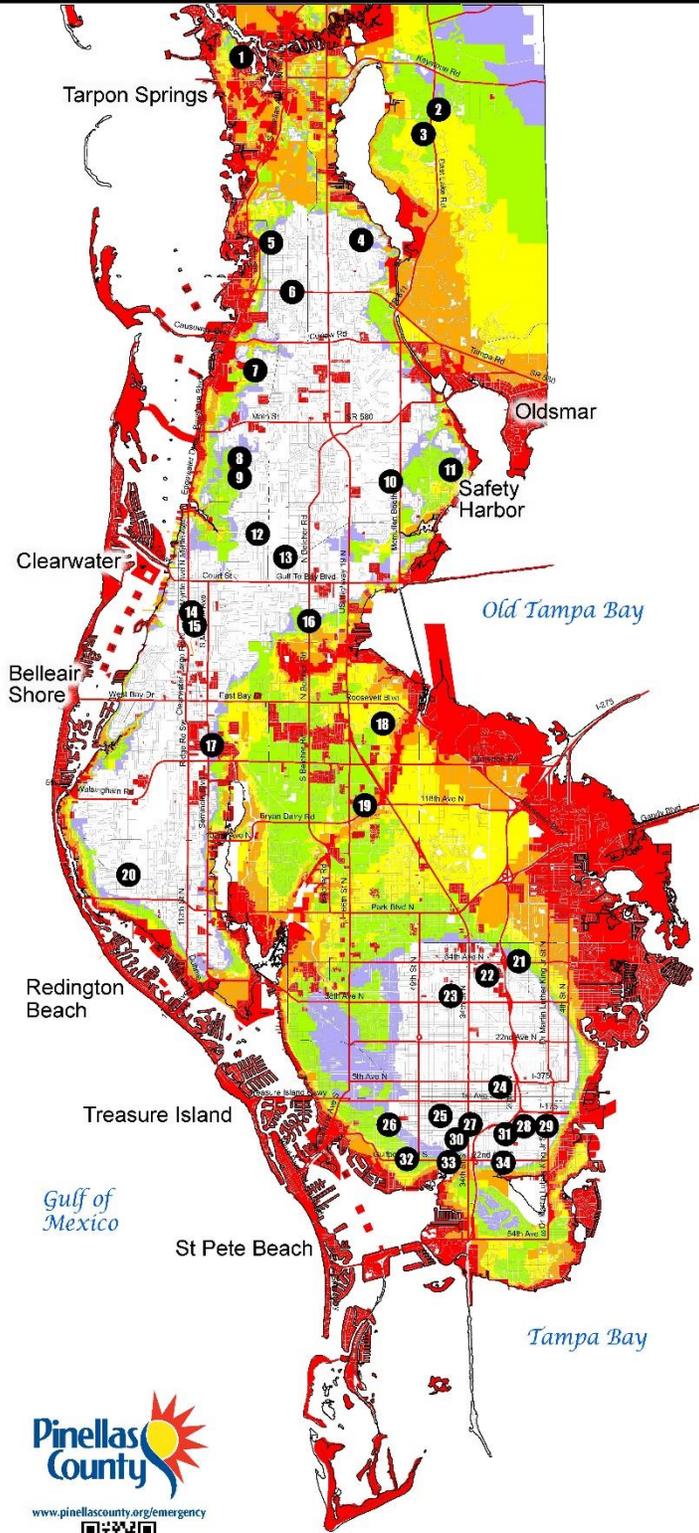
The technical information from the inundation mapping has been simplified for the public. There is a static map that shows which areas are underwater at different predicted surge levels. One version is on the next page. It also shows the location of shelters outside evacuation zones.



To the right is the evacuation zone legend for the map on the next page. The map is part of a public information campaign, "It's not All Sunshine, Find out Your Flood Risk." The objective is to inform everyone of their exposure to flooding and where evacuation shelters are located.

EVACUATION ZONES	Up to 35'	Evacuate red, orange, yellow, green and purple areas and all mobile homes
<b>E</b>	Up to 28'	Evacuate red, orange, yellow and green areas and all mobile homes
<b>D</b>	Up to 20'	Evacuate red, orange and yellow areas and all mobile homes
<b>C</b>	Up to 15'	Evacuate red and orange areas and all mobile homes
<b>B</b>	Up to 11'	Evacuate red areas and all mobile homes
<b>A</b>		

# PINELLAS COUNTY EVACUATION ZONES & SHELTERS



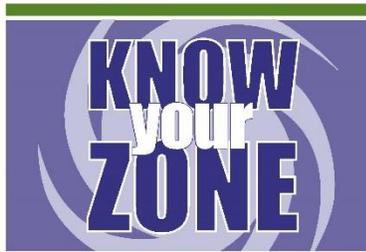
Pinellas County collaborates with the American Wild Disaster Relief.

Produced in cooperation with the Pinellas County Emergency Management and Statistics & Communications Department. 2/17

Not every shelter will open for every evacuation. Please check [www.pinellascounty.org/emergency](http://www.pinellascounty.org/emergency) or call the Citizens Information Center at (727) 464-4333 or TDD (727) 464-3075, which is open during emergencies.

NORTH COUNTY		
1	Tarpon Springs Middle School 501 N. Florida Ave. • Tarpon Springs	🏠
2	Brooker Creek Elementary School 3130 Forelock Road • Tarpon Springs	🏠
3	East Lake High School 1300 Silver Eagle Drive • Tarpon Springs	🏠
4	Carwise Middle School 3301 Bentley Drive • Palm Harbor	🏠
5	Palm Harbor University High School 1900 Omsaha St. • Palm Harbor	🏠
6	Palm Harbor Middle School 1800 Tampa Road • Palm Harbor	🏠
7	Dunedin Community Center 1920 Pinehurst Road • Dunedin	🏠
8	Dunedin Highland Middle School 70 Patricia Ave. • Dunedin	🏠 🦮
9	Dunedin Elementary School 900 Union St. • Dunedin	🏠
10	Mohr-Hill Elementary School 3025 Union St. • Clearwater	🏠
11	Safety Harbor Middle School 901 First Ave. N. • Safety Harbor	🏠
12	Clearwater Fundamental Middle School 1660 Palmetto St. • Clearwater	🏠
13	Skycrest Elementary School 10 N. Corona Ave. • Clearwater	🏠
14	Belleair Elementary School 1156 Lakeview Road • Clearwater	🏠
15	Bess Horton Recreation Center 1426 S. Milk Jr. Ave. • Clearwater	🏠
16	Oak Grove Middle School 1370 S. Belcher Road • Clearwater	🏠 🦮
SOUTH COUNTY		
17	Largo High School 410 Missouri Ave. N. • Largo	🏠
18	High Point Elementary School 5821 126th Ave. N. • Clearwater	🏠
19	Pinellas Park High School 6305 118th Ave. N. • Pinellas Park	🏠
20	Boulder Elementary School 12755 86th Ave. N. • Seminole	🏠
21	John Sexton Elementary School 1997 54th Ave. N. • St. Petersburg	🏠
22	Lealman Innovation Academy 4900 28th St. N. • St. Petersburg	🏠
23	New Heights Elementary School 3901 37th St. N. • St. Petersburg	🏠
24	St. Petersburg High School 2501 Fifth Ave. N. • St. Petersburg	🏠
25	Fairmount Park Elementary School 575 41st St. S. • St. Petersburg	🏠
26	Boca Ciega High School 924 58th St. S. • Gulfport	🏠
27	Gilbis High School 850 34th St. S. • St. Petersburg	🏠
28	John Hopkins Middle School 701 16th St. S. • St. Petersburg	🏠 🦮
29	Campbell Park Elementary School 1051 Seventh Ave. S. • St. Petersburg	🏠
30	Jawerson Elementary School 1200 37th St. S. • St. Petersburg	🏠
31	St. Petersburg College Midtown Campus 1300 22nd St. S. • St. Petersburg	🏠
32	Gulfport Elementary School 2014 52nd St. S. • Gulfport	🏠
33	Thurgood Marshall Middle School 3901 22nd Ave. S. • St. Petersburg	🏠
34	James Sanderson Elementary School 2350 22nd Ave. S. • St. Petersburg	🏠

🏠 General Shelters    🦮 Special Needs Shelters    🐕 Pet-Friendly Shelters (check with pet/caregiver)



[www.pinellascounty.org/emergency](http://www.pinellascounty.org/emergency)

## EVACUATION GUIDELINES (mobile homes MUST always evacuate)

(Potential surge heights in feet)

EVACUATION ZONES	Surge Height	Evacuation Areas
E	Up to 35'	Evacuate red, orange, yellow, green and purple areas and all mobile homes.
D	Up to 28'	Evacuate red, orange, yellow and green areas and all mobile homes.
C	Up to 20'	Evacuate red, orange and yellow areas and all mobile homes.
B	Up to 15'	Evacuate red and orange areas and all mobile homes.
A	Up to 11'	Evacuate red areas and all mobile homes.

Arrows shown in white are non-evacuation zones. Surge height will vary depending on ground elevation.

– [http://www.pinellascounty.org/map/EOC\\_ShelterList.jpg](http://www.pinellascounty.org/map/EOC_ShelterList.jpg)

“Know Your Zone” is well publicized through a variety of media, as seen on the website screenshot on the previous page. Residents are told to find their zone on the website or to contact the phone center, floodplain management or emergency management office. Their zone is also shown on their utility bills.

The county’s floodplain management website has a tool where anyone can enter an address to find their Flood Insurance Rate Map zone. Someone looking to find out if they are in a SFHA will see their evacuation zone and emergency preparedness information, such as how to sign up for alerts. An example of the product is below.

**Pinellas County Flood Information**

Introduction | Real Estate Flood Disclosure | FEMA FIRM | County Flood Hazard Area | Elevation Certificates | Evacuation Zone | Storm Surge | Natural Floodplains | Current Water Levels - Riverine

**Prepare Ahead**

Making sure you and your loved ones will survive the storm is a year-round task that requires attention to your personal business, your family members and pets, your home and your vehicles. It is not a task that can be done in just 24 hours, so start your planning now!

**Know your Zone**  
Look up your evacuation zone on the evacuation zone tab!

**Stay Connected**

- Sign up for **ALERT Pinellas** - You will be notified of an emergency with phone and text messages!
- Sign up for **E-Lert** - Receive a monthly newsletter with the latest emergency education information and receive emergency bulletins and instructions during emergencies via email.
- Follow us on **Facebook** and **Twitter**.
- Get a weather alert radio.

**Protect Your Property**

- Elevate your equipment, such as water heaters, AC units, etc.
- Install sewer backflow valves.
- Clear storm drains to prevent flooding.

**ELEVATION CERTIFICATE (partial)**

In this example, the BFE is 125.0 feet.  
The slab-on-grade house was elevated on fill 2 feet above the BFE; the vented garage is 2.5 feet below the BFE.

**Pinellas County** | Flood Map Service Center | FEMA Data Info

Enter address (address, city)

**Legend**

**Pinellas Evacuation Zones**

Evacuation Zones

- A; MOBILE HOME
- B
- C
- D
- E

**NFHL (click to expand) - From FEMA**

Flood Hazard Boundaries

- Limit Lines
- SFHA / Flood Zone Boundary
- Other Boundaries

Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

<https://bit.ly/2wghSjo>

Emergency Mgmt. Home

All Other Hazards

Hurricane Information

Residents

Know Your Zone

Prepare Ahead

Special Needs

Pet Preparedness

Shelter Options

Host Homes

It's Coming...Now What?

After the Storm-Recovery

Información en Español

Business & Professional

Business

Home Healthcare Providers

Healthcare Facilities

Hotels / Motels / RV Parks

For Emergencies Only

Resources

[Safety & Emergency Services](#)

[About Us](#)

Emergency Management  
10750 Ulmerton Rd.  
Building 1, Suite 267  
Largo, FL 33778  
(727) 464-3800  
FAX: (727) 464-4024  
TDD: (727) 464-4431  
[gmap](#)

[Closed County Holidays](#)



## Hurricane Preparedness



In order to know when to evacuate for hurricane surge flooding, you must **KNOW YOUR ZONE!** Keep in mind, you evacuate to avoid deadly surge flooding.

[See larger version](#)

[Click Here to find your Evacuation Zone](#)

- ▼ [Many Ways to Learn Your Zone](#)
- ▼ [Storm Surge Flooding Kills](#)
- ▼ [Should You Stay or Should You Go?](#)
- ▼ [How Do Flood Zones and Evacuation Zones Differ](#)
- ▼ [Mandatory and Recommended Evacuations](#)
- ▼ [Evacuation Route Map](#)



There are many ways to learn your zone.

- [County Evacuation Map](#)
- **The NEW Ready Pinellas App:** For checklists, preparedness assistance and information download the new mobile app at [Google Play](#) and [Apple Store](#). [Ready Guide](#)
- **[Check out Pinellas County's Evacuation Level / Zone Lookup. Storm surge levels have changed. Your evacuation zone may be impacted. Check your zone.](#)** Enter your address and you will be provided not only information on your evacuation level, but also the closest shelter, the closest special needs shelter and the closest hotel accommodation.
- Call the Pinellas County Interactive Hurricane Evacuation Inquiry Line at (727) 453-3150 and key in your home phone number without the area code to hear your home's evacuation zone.
- Call Pinellas County Emergency Management at (727) 464-3800 for help looking up your home's evacuation level. Regular business hours are from 7:30 a.m. until 4:30 p.m. Monday through Friday.
- Your evacuation zone is printed on your [Pinellas County Utility bills](#) and the Truth in Millage (TRIM) Notices sent by the Property Appraiser.
- To learn more, go the the [Evacuation Level FAQ page](#)
- View Maps:
  - [GIS Evacuation Level Lookup](#)
  - [County Evacuation Map](#)
  - [North County Evacuation Routes & Shelters](#)
  - [Mid County Evacuation Routes & Shelters](#)
  - [South County Evacuation Routes & Shelters](#)



[Evacuation Level / Zone Lookup](#)



**Remember.... All residents living in mobile homes/manufactured homes must evacuate, even if their homes are located in a non-evacuation area.**

<http://www.pinellascounty.org/emergency/knowyourzone.htm>

The link "[Click here to find your Evacuation Zone](#)" on the Hurricane Preparedness "Know Your Zone" page allows the user to enter an address. Below is an example of the result. In addition to the evacuation zone, the user can click to find appropriate shelters and accommodations.

– <http://egis.pinellascounty.org/apps/knowyourzone/>

Also on the "Know Your Zone" site is the box to the right. Clicking it on and entering an address takes one to the page shown below. This is for the same address as the example above (8301 W Gulf Blvd is the red dot in the middle of the aerial photograph). This site provides a very graphic image of the depth of the storm surge at the property.



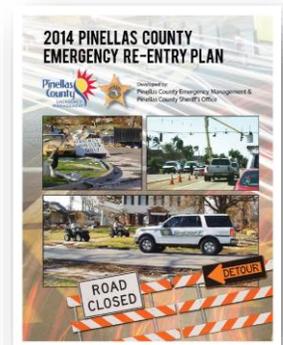
– <http://egis.pinellascounty.org/apps/stormsurgeprotector/index.html>

## Flood Response

The most important flood-response action is evacuating people from areas threatened by storm surge. With only a few bridges and a very large population at risk, this calls for detailed advanced planning. The key document is the *Hurricane Evacuation Implementation Guide*, parts of which are excerpted above.

The guide has an entire chapter devoted to the protocol of issuing an evacuation order. There are numerous tables on what is done at different levels. For example, one table identifies how many buses are needed to evacuate each health care facility, organized by evacuation zone. They go down to the detail of how many patients in each facility will need to be evacuated by ambulance. The guide also identifies evacuation routes, location of each traffic signal on those routes, which signals have closed-circuit TV cameras that can be monitored in the EOC, and the number of hours needed to clear each zone.

There is a separate guide for activities to be implemented after the flood subsides. The *2014 Pinellas County Emergency Re-entry Plan* sets priorities for entry (e.g., search and rescue, utilities, law enforcement, medical staff, etc. have "Level 1 Access"). Special guidelines are set for re-entry to the barrier islands because they include so many smaller municipalities and the few bridges can be quickly clogged while the sheriff's office checks people's identifications.



## Critical facilities

Pinellas County emergency management has lists and contact information for critical facilities as varied as EOCs, county garages, hospitals, home health care companies, oxygen companies, volunteer groups and utilities. Special warnings and early notifications are delivered to all critical facilities via text messages, email and/or a commercial emergency notification system.

Under Florida state law, Pinellas County is required to review and approve emergency plans for the 341 health care facilities in the county, ranging from hospitals to adult day care centers. The *Hurricane Evacuation Implementation Guide* lists all emergency operations centers and their vulnerability to flooding.

New flood inundation maps triggered the desire to update and finish an inventory of vulnerability information on all county-owned buildings. It would help emergency response and continuity of operations planning by the departments by identifying what would likely still be operational after a hurricane.

In 2013, every building owned by Pinellas County was assessed. The departments were given vulnerability information sheets with the building's elevation and its storm surge evacuation zone, along with suggestions for minimizing damage, loss of records, etc. An example is on the next page.

# Hurricane Vulnerability Information

for:

4255 142<sup>nd</sup> Avenue N., Clearwater, FL 33762

## Facility Details

Name: Airport AFSS Building  
Occupant: Airport  
Number of Floors:  
Building Elevation: 5.29  
Evacuation Zone: B  
Facility Wind Rating (estimated)\*: Category 3  
Vertical Evacuation\*\* : N/A

Anticipated Storm Surge Depth at Facility (In Feet)\*\*:

Category 1	Category 2	Category 3	Category 4	Category 5
0'	5'	10'	15'	19'

## Specific Guidance

- Place vital equipment and records in **water resistant containers**.
- **Move equipment** to the central core area of the building and avoid window areas. Close doors to exterior offices with windows.
- **Consider evacuation** of vital equipment and records for a Category 2 or greater storm.
- If there are plans to **use the building for operations** during a storm it is important that you use the information enclosed here and work with Emergency Management and Real Estate Management to ensure the feasibility of those plans.

Note: Be sure to see the BTS “Disaster Preparation for Departments” and the “BTS Continuity of Operations for Applications & Data” document you should have received with this for additional guidance on computer movement and what software applications have a disaster capability.

\***Facility Wind Rating** is the category of hurricane that facility is built to withstand. That does not mean windows are protected and if not protected they are vulnerable, and therefore so is the rest of the building and contents. A hurricane of a higher category than the building rating may cause substantial damages and/or total failure, especially if it is in combination with storm surge. If it is not vulnerable to storm surge the building will most likely survive with substantial damage.

\*\***Vertical evacuation** is the ability to secure vital equipment and records, in water resistant containers, on-site in an interior space at a level within the structure that is significantly higher than the anticipated storm surge.

\*\*\***Anticipated storm surge depth at facility** is the expected depth of flood waters at the facility during a particular category of hurricane based on elevation and storm surge modeling.

Each county department develops its own emergency response plan for its facilities. They include personnel rosters and lists of key equipment, such as trucks and cars. Building evacuation plans are included with aerial photos that show the rendezvous areas. Checklists show actions to protect the facilities and their contents at various warning levels. Some excerpts are below.

**Response Level 6: Hurricane Season (June 1st – November 30th)**

- Review and update Personal Preparedness Plan
- Maintain fuel levels above ½ full in vehicles, equipment
- Maintain adequate supply of eight (8) propane tanks for forklifts
- Completely stock Haz-to-Go Box Truck (use checklist)
- Replenish supplies bi-weekly, as needed
- Locate and reserve rental generator to have available

**Response Level 5: Hurricane Alert (48 – 120 hours)**

- Conduct a pre-event staff meeting
- Verify employee contact information
- Inspect fire protection and safety/spill equipment
- • •
- Move 40 pallets into warehouse (rear area)
- Phase 1 personnel to secure their family and home, and then return with 3-day supply of clothing and personal hygiene items

**Response Level 4: Hurricane Watch (36 – 48 hours)**

- Dispose of latex paint/trash and non-hazardous electronics
- Fuel all vehicles, equipment and forklifts
- Move chemicals in storage bays off the floor (determined by storm event)
- • •

**Response Level 3: Hurricane Warning (24 – 36 hours)**

- Close HEC3 to public, as determined by Director
- • •
- Strap down and lock fuel tanks in sump area
- Secure and lock the electronics semi door(s), contact vendor for semi movement
- Remove hoses, signage, fire extinguisher, and any other loose objects and store in building/warehouse
- Move propane tank storage rack and secure inside warehouse
- Charge ALL radios, cell phones, handheld computers

**Response Level 2: Hurricane Evacuation (12 – 24 hours)**

- Open grates and sump valve
- Secure pickup truck and message board sign in warehouse
- Secure Haz-To-Go Box Truck in warehouse
- Perform final inspection, lock and secure the collection center area

**Response Level 1: Hurricane Landfall (0 – 12 hours / 40 mph or higher winds)**

- Place vehicles, trailer and equipment in secure location, as directed by Manager
- Ensure that Phase 1 staff is sheltered in Administration or WTE plant
- Await "All Clear"

Emergency response checklist for the Household Electronics & Chemical Collection Center, Pinellas County, Solid Waste Department Emergency Response Plan, 2017

**Hurricane Irma:** Reports are that the county and department emergency response plans worked very well. Many of them were tested for the first time, but they had been prepared with the knowledge and experience of previous floods and emergency incidents and had gone through a rigorous review process.

The floodplain managers and all other offices shown on the EOC floor plan on page 3 were fully involved. This included five certified floodplain managers from public works, building and development review services, and planning.

The floodplain managers did not experience any big problems, but as they worked, they took notes on concerns and recommendations for improvements. One example is that in addition to the storm surge maps during a coastal storm, staff should use the riverine floodplain maps more than they did. That would help with evacuation and sheltering. The comments are also being incorporated into the county's after action report.



Pinellas County had its cycle verification visit in 2014, under the latest *CRS Coordinator's Manual*. The county received 350 out of the 365 maximum possible points for communities not subject to tsunamis.