



CITY OF FORT LAUDERDALE

# WE ARE READY

*We are a resilient and safe coastal community.*

## Municipal King Tide Toolkit

### Purpose

This Municipal King Tide Toolkit was developed by the City of Fort Lauderdale Public Works Sustainability Division. Its purpose is to provide other coastal municipalities with communication concepts, terminology, information, and outreach examples based on our experience with flooding due to seasonal extreme high tides, often referred to as king tides.

Known as the "Venice of America," Fort Lauderdale enjoys seven miles of shoreline and 165 miles of inland waterways. However, our flat topography, location on a peninsula, dense coastal development, and shallow, porous aquifer make us one of the world's most vulnerable communities to the effects of climate change and sea level rise. Seasonal extreme high tides threaten our community annually. We take a number of actions to coordinate internally and communicate with our residents regarding the nature, impacts, and responses needed to address these tidal events. We hope that other coastal communities throughout the South Florida region can use the examples in this toolkit as templates to support their efforts to alert their constituents and raise awareness of king tides and sea level rise.

### Coastal Flooding and King Tides

King tides generally occur in the fall when the alignment of the sun, moon and earth generate higher than normal tides. Local weather conditions causing onshore winds, rising sea levels and inclement weather including extreme precipitation can combine to exacerbate flooding risks, especially in low-lying coastal areas.

Based on the National Oceanic and Atmospheric Administration's tide predictions, above-average high tides will occur in August – November 2015 on the following dates:

- August 29 - September 2
- September 26 - October 2
- October 24 - 31
- November 24 - 27



## Information Sources

The development of this toolkit and enclosed contents are a result of a collective effort among the City of Fort Lauderdale staff and partners with whom we have collaborated over the years. We rely on the sea level rise projection guidance provided to us by the Southeast Florida Regional Climate Change Compact (Compact).

More information about the Compact and sea level rise projections can be found at:

Compact: <http://www.southeastfloridaclimatecompact.org/>

Southeast Florida Sea Level Rise Projection: Look under Compact Resources on the above website and locate "A Unified Sea Level Rise Projection for Southeast Florida".

We use tide predictions and real time tidal data from two key NOAA websites.

NOAA Tides and Currents :- [https://tidesandcurrents.noaa.gov/tide\\_predictions.html?gid=198](https://tidesandcurrents.noaa.gov/tide_predictions.html?gid=198)

Real Time Data: NOAA Tides online - <http://tidesonline.noaa.gov/> . Click the Regional List, click east. Tidal stations for South Florida are at the bottom of the list and include: Lake Worth Pier, FL ,Virginia Key, FL , Vaca Key, FL and Key West, FL

## How to Use

The resources provided herein are intended to serve as models for ways your community can communicate about these issues. They are intended to be amended based on your own agency's and community's unique tidal experiences and challenges.

It is important that the contents within this toolkit reach the right audience. For example, the tone throughout our documents reflects familiarity and as appropriate, a different approach when communicated internally vs. externally. We have shared certain information citywide with our City Commissioners, across all departments' staff and notified members in our community, whom we consider as our *neighbors*, about what to expect.

When applying the items for your use, please consider the target audience as appropriate. For example, while some items are well-suited for elected officials, others best utilized by select groups employed within your agency i.e. professionals such as:

- Communicators and outreach staff (e.g. Public Affairs, Public Information Officers)
- Policy developers
- Operations staff (e.g. subject experts, engineers, utilities, and managers within fleet and solid waste and recycling, parks, and facilities etc.)
- emergency management staff (e.g. within Police and Fire departments)
- Master Planners and Designers

In addition, there are categories of public groups that will understand the ideas derived from the items in this toolkit from their unique perspectives. Keep this in mind as you tailor our items to produce some of your own to be publicly distributed out from your agency.



Some other potential perspectives to consider may be:

**Boating community:** Bridge height clearance; shallow areas that might be submerged at a more extreme high tide;

**Civic/Residential Associations:** Street flooding / road impacts/ landscaping concerns;

**Commercial businesses:** Temporary business location closures, access to the business or to parking;

**Event programmers:** Traffic impacts, tournaments, sporting events

By informing others, we like to encourage all be aware and to prepare for potential tidal flooding. Please also let us know if you have any suggestions to help us improve upon the tools provided.

Toolkit contents include:

### **Internal Communication**

- Memos to the City Commission
- FAQs for Customer Service Hotline
- Map of Areas Barricaded to Prevent Cars Driving into Canals
- Excerpt from City Manager's Newsletter to City Staff

### **Public Communications**

- Press Release
- Website Article
- Social Media – Next Door Communication

Should you have any questions on these documents, please contact Nancy Gassman, Ph.D. Assistant Public Works Director –Sustainability or Shannon Vezina, Public Information Specialist, Public Information Office, City of Fort Lauderdale.

[ngassman@fortlauderdale.gov](mailto:ngassman@fortlauderdale.gov)

[svezina@fortlauderdale.gov](mailto:svezina@fortlauderdale.gov)



**Memorandum****Memorandum No: 15-168****Date:** August 26, 2015**To:** Honorable Mayor and Commissioners**From:** Lee R. Feldman, ICMA-CM, City Manager

A handwritten signature in blue ink that reads "L. R. Feldman".

**Re:** Seasonal Extreme High Tides

---

The City of Fort Lauderdale is a beautiful coastal community featuring 300 miles of canal coastline and many low lying areas. From time to time, we experience both nuisance and severe flooding associated with extreme weather events and seasonal high tides. Fortunately, your region and your City are actively planning for events like these in the short term and for sea level rise concerns in the long term. We are distributing this memorandum in preparation for the highest tides of the year, often referred to as king tides, which will begin this week. Please share this information with our neighbors in your districts in order to inform, and to the extent possible, prepare for potential tidal flooding.

**King Tides**

In Southeast Florida, tides peak to a high and low water level twice a day. Typically the City experiences its highest tides during the months of August, September, October, and November (see attached Figure 1). These high tides cause ocean and canal waters to rise, overtopping seawalls and travelling up the stormdrains into the streets throughout the City and South Florida, thus causing tidal (saltwater) flooding of those areas.

Rainfall that coincides with the predicted high tide cannot only exacerbate tidal flooding in the coastal areas, but also cause stormwater (freshwater) flooding further inland. As the high tide moves into the stormwater pipes and up into the catch basins, it takes up capacity in the stormwater management system and prevents stormwater from being discharged. This results in freshwater flooding for those neighborhoods upstream of the discharge point, as the stormwater cannot drain off the land until the tide recedes.

The attached table (Table 1) provides the predicted king tides for 2015 at the Andrews Avenue Bridge. The date, time and magnitude of each of the daily high tides are shown. The height of the high tide is measured in feet from the average low tide (e.g. 2.31 feet above mean low lower water). This does not directly translate to surveyed land elevation. Also keep in mind that the actual tidal height may vary from the predicted. When weather conditions differ from what is considered average, water levels can be significantly altered. Generally speaking, prolonged onshore winds (wind towards the land out of the east) or a low barometric pressure can produce higher sea levels than predicted, while offshore winds (wind away from the land out of the west) and high barometric pressure can result in lower sea levels than predicted.

#### City Efforts to Prepare and Address Tidal Flooding

Knowledge of the tide times and predicted heights are important to various applications such as: traffic congestion; emergency preparedness; maritime navigation; the construction of bridges, docks, and seawalls; residential solid waste collection, and the operation of wastewater and storm water collection systems.

The City has a robust stormwater master plan and is instituting both aggressive maintenance and innovative adaptation solutions such as tidal valves. Since 2011, more than 50 tidal valves have been installed in affected neighborhoods to reduce the impacts of the high tides in those locations. Storm drain and catch basin are regularly cleaned and maintained to minimize potential flooding.

Interdepartmental meetings to prepare for and address the king tides are ongoing. Staff is discussing ways to improve public outreach, the timing of construction activities, interagency coordination for roadway and traffic issues, potential impacts to city events and opportunities for using these tidal events for emergency operations training. The Customer Service Center will receive additional information to address frequently asked questions.

#### What Our Neighbors Can Do

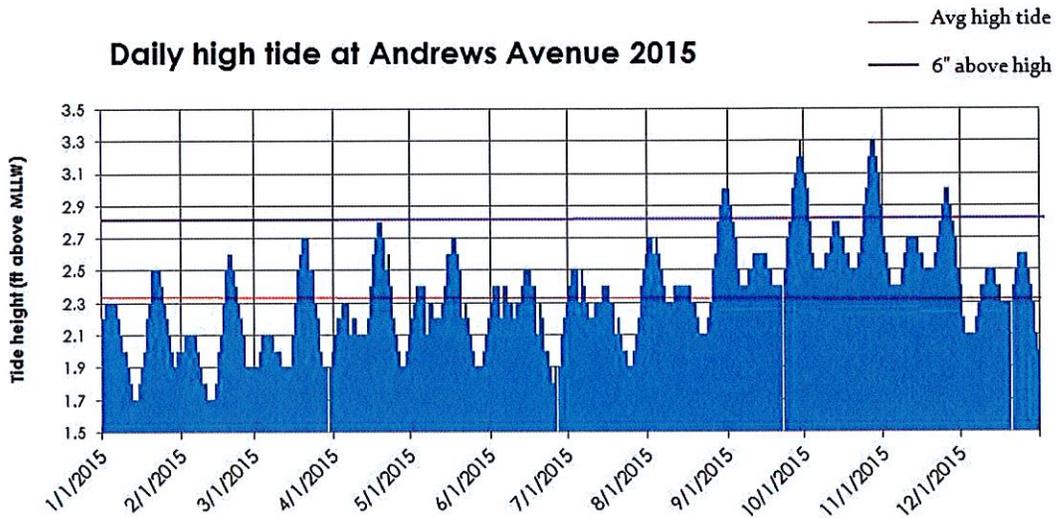
Awareness is key to keep our neighbors safe and dry. We will be distributing press releases and messages through social media. Neighbors should be aware of the timing of these events and plan to avoid areas that are known to flood. They should take care driving on flooded streets near canals. When in doubt, they should turn around. Neighbors that do drive through tidally flooded streets should consider taking their vehicles through a car wash equipped with an undercarriage sprayer to remove the saltwater.

The City's website also provides a wealth of information on flood prevention activities and links to useful guides from the County and Federal Emergency Management Agency. Those links include:

<http://gyr.fortlauderdale.gov/greener-government/hurricane-season-is-coming-are-you-ready>  
<http://www.fortlauderdale.gov/home/showdocument?id=8143> (Flood Protection Flyer)  
<http://gyr.fortlauderdale.gov/greener-government/climate-resiliency>  
<http://gyr.fortlauderdale.gov/greener-government/climate-resiliency/climate-and-weather-in-fort-lauderdale>  
<http://www.fortlauderdale.gov/Home/Components/News/News/505/16>  
<http://www.fortlauderdale.gov/departments/fire-rescue/emergency-management/other-natural-and-man-made-hazards/flood-and-flood-insurance>

Attachments: (1) Figure 1 – Predicted Tide Heights for 2015  
(2) Table 1 – Extreme High Tides at the Andrews Avenue Bridge in 2015

C: Stanley D. Hawthorne, Assistant City Manager  
Susanne M. Torriente, Assistant City Manager  
Cynthia A. Everett, City Attorney  
Jeffrey A. Modarelli, City Clerk  
John C. Herbst, City Auditor  
Department Directors



### Predicted High Tide >6 Inches Above Average High Tide

Aug 29-Sept 2    Sept 26 - Oct 2    Oct 24-31    Nov 24-27

Figure 1. Predicted Tide Heights for 2015. Red line shows the height of the average high tide as measure above the average low tide also known as mean lower low water (MLLW). The purple line shows the elevation of these more extreme “king” tides which exceed the average high tide elevation by six inches or more.

Day	Date	Time	Feet
AUGUST			
Sat	8/29/2015	9:31 PM	2.9
Sun	8/30/2015	9:55 AM	2.9
Sun	8/30/2015	10:19 PM	3
Mon	8/31/2015	10:46 AM	3
Mon	8/31/2015	11:07 PM	3
SEPTEMBER			
Tue	9/1/2015	11:38 AM	3
Tue	9/1/2015	11:57 PM	2.9
Wed	9/2/2015	12:31 PM	2.9
Sat	9/26/2015	7:50 AM	2.9
Sat	9/26/2015	8:16 PM	3
Sun	9/27/2015	8:44 AM	3.1
Sun	9/27/2015	9:06 PM	3.1
Mon	9/28/2015	9:35 AM	3.2
Mon	9/28/2015	9:54 PM	3.1
Tue	9/29/2015	10:26 AM	3.3
Tue	9/29/2015	10:43 PM	3.1
Wed	9/30/2015	11:17 AM	3.2
Wed	9/30/2015	11:33 PM	3
OCTOBER			

Thu	10/1/2015	12:09 PM	3.1
Fri	10/2/2015	12:24 AM	2.9
Fri	10/2/2015	1:03 PM	3
Sat	10/24/2015	6:58 PM	2.9
Sun	10/25/2015	7:32 AM	3
Sun	10/25/2015	7:51 PM	3
Mon	10/26/2015	8:26 AM	3.2
Mon	10/26/2015	8:42 PM	3.1
Tue	10/27/2015	9:17 AM	3.3
Tue	10/27/2015	9:31 PM	3.1
Wed	10/28/2015	10:08 AM	3.3
Wed	10/28/2015	10:21 PM	3.1
Thu	10/29/2015	10:58 AM	3.2
Thu	10/29/2015	11:10 PM	3
Fri	10/30/2015	11:48 AM	3.1
Sat	10/31/2015	12:01 AM	2.8
Sat	10/31/2015	12:39 PM	2.9
NOVEMBER			
Tue	11/24/2015	7:10 AM	2.9
Tue	11/24/2015	7:21 PM	2.8
Wed	11/25/2015	8:01 AM	3
Wed	11/25/2015	8:12 PM	2.8
Thu	11/26/2015	8:51 AM	3
Thu	11/26/2015	9:01 PM	2.8
Fri	11/27/2015	9:39 AM	2.9

Table 1. Extreme High Tides at the Andrews Avenue Bridge in 2015. These high tides are predicted to be six inches higher than an average high tide for 2015. The date, time and magnitude of each of the daily high tides are shown. The tidal height is measured in feet above the average low tide and does not directly translate to surveyed land elevation. The actual tidal height may vary from the predicted depending on weather conditions.

## Frequently Asked Questions About Extreme High Tides (King Tides)

### What is a king tide?

The word “tide” is a generic term used to define the rise and fall of sea level with respect to land. The timing and height of the tide are predictable. In Southeast Florida, tides peak to a high and low water level twice a day, i.e. high tides occur roughly every 12 hours and 20 minutes. Tides are influenced by the gravitational attraction of the moon and sun. Tides are affected by other factors such as: coastline configuration, local water depth, wind speed and direction, and other weather conditions. Typically the City experiences its highest tides called King Tides during the months of September, October, and November. These tides can be 6 inches or more above the average high tide for the year.

### How often do King Tides occur?

Typically, the City experiences its highest tides called King Tides during the months of September, October, and November on or near the full moon. These extreme tides last for 5- 7 days. This fall the predicted king tides will occur:

Saturday, August 29 – Wednesday, September 2

Saturday, September 26 – Friday, October 2

Saturday, October 24 – Saturday, October 31

Tuesday, November 24- Friday, November 27.

### Why didn't my coastal street flood last fall but it is flooded today?

Tide predictions can differ from the actual sea level rise or fall that occurs. Predicted tidal heights are those expected during average weather conditions. When weather conditions differ from what is considered average, water levels can be significantly altered. Generally, prolonged onshore winds (wind towards the land from the east) or a low barometric pressure can produce higher sea levels than predicted, while offshore winds (wind away from the land) and high barometric pressure can result in lower sea levels than predicted.

### I live in a coastal neighborhood and my street is flooded at high tide. How long will the flooding last?

In Southeast Florida, tides peak to a high and low water level twice a day, i.e. high tides occur roughly every 12 hours and 20 minutes. Tidal flooding in low lying areas will be greatest a few hours before and after the peak of the high tide.

### **Why do the streets flood during these tides?**

There are two types of flooding that occurs during high tides: tidal flooding and storm flooding. These high tides cause ocean and canal waters to rise, overtopping seawalls and travelling up the storm pipes through the catch basins and into the streets throughout the City and South Florida. This is tidal (saltwater) flooding of those areas.

Rainfall that coincides with the predicted high tide cannot only exacerbate tidal flooding in the coastal areas, but also cause stormwater (freshwater) flooding further inland. As the high tide moves into the stormwater pipes and up into the catch basins, it takes up capacity in the stormwater management system and prevents stormwater from being discharged. This results in freshwater flooding for those neighborhoods upstream of the discharge point, as the stormwater cannot drain off the land until the tide recedes.

### **I don't live in a coastal neighborhood, why am I seeing flooding with these high tides?**

When it rains, stormwater collects in the nearest catch basin and flows through a series of pipes to the nearest waterbody for discharge. As the high tide moves into the stormwater pipes and up into the catch basins, it takes up capacity in the stormwater management system and prevents stormwater from being discharged. Even if you live miles from the nearest canal, river or other waterbody, the gathering rain water may cause flooding in those neighborhoods upstream of the discharge point. The stormwater will begin to drain off the land and relieve the flooding only once the high tide recedes.

### **I have lived here for many years and never had a problem before, why are we experiencing these kinds of issues with King tides now?**

Fort Lauderdale recently celebrated its 100 year anniversary with many neighborhoods being built 50, 60 or 70 years ago. In the last century, sea level has risen by nearly 10 inches. The result is tides that are nearly a foot higher than when some of these properties were built. Sea level is continuing to rise meaning this problem will persist into the future.

### **What is the City doing to address this?**

Prior to the king tide "season", City staff gather to discuss the potential impacts of the tides on emergency preparedness; maritime navigation; the construction of bridges, docks, and seawalls; the operation of wastewater and storm water collection systems.

The City has installed more than 50 tidal valves in affected neighborhoods which have reduced the impacts of the high tides in those locations. The City is also implementing a 10 year Stormwater Master Plan to improve the drainage throughout the City.

**What did the City do during the most recent Hi tide event in August?**

- Catch basins in the areas of concerns were cleaned in advance of the high tide event.
- We maintained all of the inline checkmate tidal valves installed throughout city.
- We were performing daily inspections of our stormwater pumping stations.
- Staff put up barricades in areas known to flood to reduce the potential for neighbors driving into canals off flooded streets (see attached map).
- We piloted a mobile tide flooding reduction flooding technology (see Figures 1 and 2) in the Isle of Capri/ Mola Drive neighborhood.

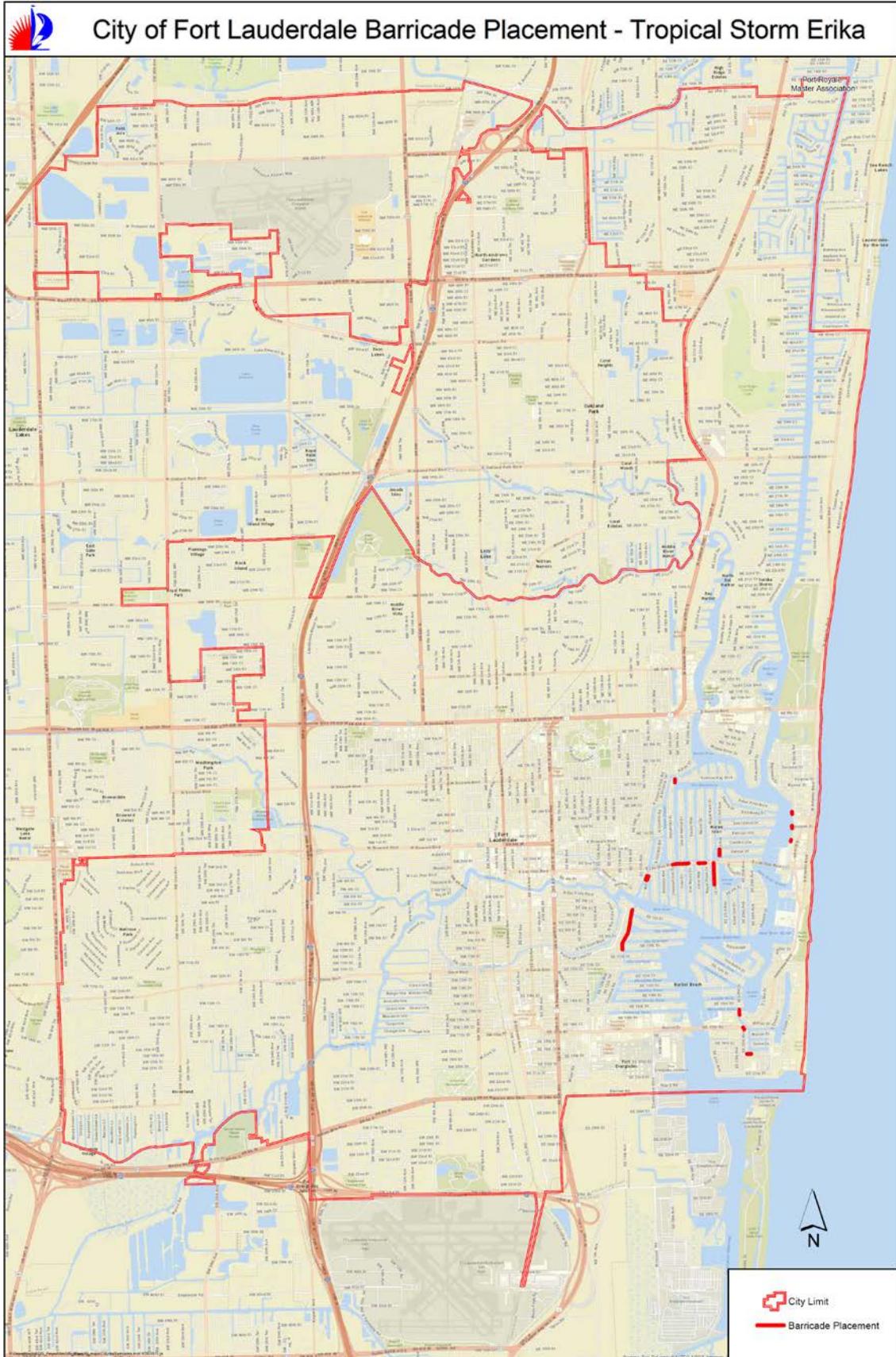


Figure 1 - Catch Basin on Mola Drive with Tide Water Rising.



Figure 2 - Catch Basin on Mola Drive with a Temporary Tidal Box Deployed.

# MAP of AREAS BARRICADED to PREVENT CARS DRIVING INTO CANALS



## First Tuesday of the Month

On this first Tuesday of the month, I would like to start by thanking Erika for not paying us a visit. I also want to thank the Community Builders who hoped for the best, but were ready for the worst. While we were in the potential path of the storm, ongoing communication and decisive action helped coordinate widespread precautionary measures throughout our organization. You made sure we were prepared by setting up barricades, clearing stormdrains, removing shade canopies, securing vehicles, acquiring fuel, safeguarding facilities, burying seaweed, visiting construction sites, and more.

Erika was an important reminder that we live in an active hurricane zone and we all need to be ready to respond when needed. If you have not done so, review your department's Hurricane Plan and emergency protocols. Store 954-828-5900 in your phone so you can call the Employee Hotline to get updates on the status of City operations. And remember, the City website has a lot of useful safety tips and property protection measures. Hopefully Tropical Storm Grace will be just as gracious as Erika, but we are only half way through Hurricane Season and it is best to be prepared so you can stay safe.

### Be Aware of Seasonal King Tides

The City typically experiences its highest tides, or "King Tides" during the months of September, October, and November, on or near the full moon. These extreme tides last for about five to seven days, and can result in standing water in low-lying areas. I wanted to thank our Public Works and Parks and Recreation employees who took precautions to help safeguard our community during the first round of high tides, between August 29 and September 2. The crews checked stormdrains for clogs to ensure they were operating at maximum capacity, put up barricades along the waterways to keep pedestrians and drivers out of harm's way, and responded to questions that came into the 24-Hour Customer Service Center. Fortunately there were no major reports of flooding, but even [higher tides are anticipated in the coming months](#). While we have installed 50 tidal valves and continue to implement proactive measures to adapt to changing climate conditions, I encourage employees to be vigilant during high tide season. Do



not walk or drive through flood water, turn around and find another way. If you drive through tidal water, it is a good idea to wash the undercarriage of your vehicle to minimize damage from the salt water. And finally, you can help minimize the local flood risk by calling 954-828-8000 to report clogged stormdrains. [Additional information is available on the City website.](#)

Having trouble viewing this email? [Click here](#)



## CITY OF FORT LAUDERDALE

### High Tides August - November 2015

Flooding in low-lying areas is more likely when the close proximity of the moon, high tides, rising sea levels and inclement weather conditions combine to exacerbate flooding risks. As a beautiful coastal community with 300 miles of canal coastline and numerous low-lying areas, Fort Lauderdale will experience these impacts and neighbors are advised to be especially vigilant during the upcoming "King Tides." The City anticipates above-average high tides on the following dates in 2015:

- August 29 - September 2
- September 26 - October 2
- October 24 - 31
- November 24 - 27

We are sharing this information to inform our neighbors and encourage them to prepare for potential tidal flooding. Please take the time to evaluate your property's readiness, review your insurance policy, create an emergency plan and read the tips below. The City's website also provides a [wealth of information on tides](#), [flood prevention](#) activities and what the City is doing to increase [Fort Lauderdale's Climate Resiliency](#).



### Stay Safe

- Do not walk through flood waters. It is dangerous and can be a health hazard.
- Do not drive through flooded areas, turn around and find another way. In addition to being a threat to life safety, it can lead to both short and long term damage to your vehicle. Also, creating waves in flooded areas can cause additional damage to landscaping and property.
- If you are a boater, be aware that these high tides cause lower clearance under fixed bridges. Check the tides before leaving the dock.

### Know Your Flood Hazard

- To determine the flood zone for your property, use the [GIS Application on the City website](#), complete the [Flood Zone Request form](#) on the home page of the City website, or call the City's floodplain manager, Richard Benton at 954-828-6133.

## Insure Your Property

- Homeowner and renter insurance policies usually do not cover flood damage. The City of Fort Lauderdale encourages neighbors who rent or own property in a Special Flood Hazard Area to purchase flood insurance to protect their home and possessions against loss from flood damage.

## Protect Your Property

- Neighbors that drive through tidally flooded streets should consider taking their vehicles through a car wash equipped with an undercarriage sprayer to remove the saltwater.
- The City responds to flood protection inquiries. If you have a question regarding flood, sewer or drainage problems, contact the City of Fort Lauderdale's 24-Hour Customer Service Center at 954-828-8000.

## Build Responsibly

- Prior to starting any construction, residents or builders should contact the City's [Department of Sustainable Development](#) at 954-828-6520 to ask about required permits.

## Protect Natural Floodplain Functions

- State law prohibits dumping anything into the storm drain system and unauthorized obstructions or alterations of the drainage features. Residents should report illegal dumping into the stormwater system or clogged storm drains by calling the City of Fort Lauderdale 24-Hour Customer Service Center at 954-828-8000.

## Local Proactive Measures

- The location and natural geography of the City makes certain neighborhoods more susceptible to flooding from high tides and extreme rainfall. Fortunately, the City and the region are actively planning for events like these in the short term and for sea level rise concerns in the long term.
- The City has a robust stormwater master plan and is instituting both aggressive maintenance and innovative adaptation solutions such as tidal valves. Since 2011, more than 50 tidal valves have been installed in affected neighborhoods to reduce the impacts of high tides in those locations.
- Storm drains and catch basins are regularly cleaned and maintained to minimize potential flooding.
- In addition, the City has worked hard to earn points toward the Community Rating System resulting in a 20% discount for flood insurance premiums within the City.

## Upcoming High Tide Table

Date	Day	Time	Predicted height above mean low lower water (ft)
8/29/2015	Sat	9:31 PM	2.9
8/30/2015	Sun	9:55 AM	2.9
8/30/2015	Sun	10:19 PM	3
8/31/2015	Mon	10:46 AM	3
8/31/2015	Mon	11:07 PM	3
9/1/2015	Tue	11:38 AM	3

9/1/2015	Tue	11:57 PM	2.9
9/2/2015	Wed	12:31 PM	2.9

For more information, [visit the City website.](#)

**City of Fort Lauderdale**  
100 N. Andrews Avenue  
Fort Lauderdale, Florida 33301  
[www.fortlauderdale.gov](http://www.fortlauderdale.gov)



# FortLauderdale.gov

## City News

### High Tides August - November 2015

**Post Date:** 08/31/2015 8:10 AM

Flooding in low-lying areas is more likely when the close proximity of the moon, high tides, rising sea levels and inclement weather conditions combine to exacerbate flooding risks. As a beautiful coastal community with 300 miles of canal coastline and numerous low-lying areas, Fort Lauderdale will experience these impacts and neighbors are advised to be especially vigilant during the upcoming "King Tides." The City anticipates above-average high tides on the following dates in 2015:

- August 29 - September 2
- September 26 - October 2
- October 24 - 31
- November 24 - 27

We are sharing this information to inform our neighbors and encourage them to prepare for potential tidal flooding. Please take the time to evaluate your property's readiness, review your insurance policy, create an emergency plan and read the tips below. The [City's website](#) also provides a wealth of information on tides, flood prevention activities and what the City is doing to increase [Fort Lauderdale's Climate Resiliency](#). View the [sanitation service page](#) for tips during inclement weather.

The location and natural geography of the City makes certain neighborhoods more susceptible to flooding from high tides and extreme rainfall. Fortunately, the City and the region are actively planning for events like these in the short term and for sea level rise concerns in the long term. The City has a robust stormwater master plan and is instituting both aggressive maintenance and innovative adaptation solutions such as tidal valves. Since 2011, more than 50 tidal valves have been installed in affected neighborhoods to reduce the impacts of high tides in those locations. Storm drains and catch basins are regularly cleaned and maintained to minimize potential flooding. In addition, the City has worked hard to earn points toward the Community Rating System resulting in a 20% discount for flood insurance premiums within the City.

### Stay Safe

- Do not walk through flood waters. It is dangerous and can be a health hazard.
- Do not drive through flooded areas, turn around and find another way. In addition to being a threat to life safety, it can lead to both short and long term damage to your vehicle. Also, creating waves in flooded areas can cause additional damage to landscaping and property.
- If you are a boater, be aware that these high tides cause lower clearance under fixed bridges. Check the tides before leaving the dock.

### Know Your Flood Hazard

- To determine the flood zone for your property, use the [GIS Application on the City website](#), or complete the "[Flood Zone Request](#)" form on the home page of the City website, or call the City's floodplain manager, Richard Benton at 954-828-6133.

## Insure Your Property

- Homeowner and renter insurance policies usually do not cover flood damage. The City of Fort Lauderdale encourages neighbors who rent or own property in a Special Flood Hazard Area to purchase flood insurance to protect their home and possessions against loss from flood damage.

## Protect Your Property

- Neighbors that drive through tidally flooded streets should consider taking their vehicles through a car wash equipped with an undercarriage sprayer to remove the saltwater.
- The City responds to flood protection inquiries. If you have a question regarding flood, sewer or drainage problems, contact the City of Fort Lauderdale's 24-Hour Customer Service Center at 954-828-8000.

## Build Responsibly

- Prior to starting any construction, residents or builders should contact the City's [Department of Sustainable Development](#) at 954-828-6520 to ask about required permits.
- Protect natural floodplain functions State law prohibits dumping anything into the storm drain system and unauthorized obstructions or alterations of the drainage features. Residents should report illegal dumping into the stormwater system or clogged storm drains by calling the City of Fort Lauderdale 24-Hour Customer Service Center at 954-828-8000.

## Protect Natural Floodplain Functions

- State law prohibits dumping anything into the storm drain system and unauthorized obstructions or alterations of the drainage features. Residents should report illegal dumping into the stormwater system or clogged storm drains by calling the City of Fort Lauderdale 24-Hour Customer Service Center at 954-828-8000.

## Sanitation Service Tips

### High Tide Table August - November 2015

<b>Date</b>	<b>Day</b>	<b>Time</b>	<b>Predicted Height above MLLW (ft)</b>
8/29/2015	Sat	9:31 PM	2.9
8/30/2015	Sun	9:55 AM	2.9
8/30/2015	Sun	10:19 PM	3
8/31/2015	Mon	10:46 AM	3
8/31/2015	Mon	11:07 PM	3
9/1/2015	Tue	11:38 AM	3

<b>9/1/2015</b>	<b>Tue</b>	<b>11:57 PM</b>	<b>2.9</b>
<b>9/2/2015</b>	<b>Wed</b>	<b>12:31 PM</b>	<b>2.9</b>
<b>9/26/2015</b>	<b>Sat</b>	<b>7:50 AM</b>	<b>2.9</b>
<b>9/26/2015</b>	<b>Sat</b>	<b>8:16 PM</b>	<b>3</b>
<b>9/27/2015</b>	<b>Sun</b>	<b>8:44 AM</b>	<b>3.1</b>
<b>9/27/2015</b>	<b>Sun</b>	<b>9:06 PM</b>	<b>3.1</b>
<b>9/28/2015</b>	<b>Mon</b>	<b>9:35 AM</b>	<b>3.2</b>
<b>9/28/2015</b>	<b>Mon</b>	<b>9:54 PM</b>	<b>3.1</b>
<b>9/29/2015</b>	<b>Tue</b>	<b>10:26 AM</b>	<b>3.3</b>
<b>9/29/2015</b>	<b>Tue</b>	<b>10:43 PM</b>	<b>3.1</b>
<b>9/30/2015</b>	<b>Wed</b>	<b>11:17 AM</b>	<b>3.2</b>
<b>9/30/2015</b>	<b>Wed</b>	<b>11:33 PM</b>	<b>3</b>
<b>10/1/2015</b>	<b>Thu</b>	<b>12:09 PM</b>	<b>3.1</b>
<b>10/2/2015</b>	<b>Fri</b>	<b>12:24 AM</b>	<b>2.9</b>
<b>10/2/2015</b>	<b>Fri</b>	<b>1:03 PM</b>	<b>3</b>
<b>10/24/2015</b>	<b>Sat</b>	<b>6:58 PM</b>	<b>2.9</b>
<b>10/25/2015</b>	<b>Sun</b>	<b>7:32 AM</b>	<b>3</b>
<b>10/25/2015</b>	<b>Sun</b>	<b>7:51 PM</b>	<b>3</b>
<b>10/26/2015</b>	<b>Mon</b>	<b>8:26 AM</b>	<b>3.2</b>
<b>10/26/2015</b>	<b>Mon</b>	<b>8:42 PM</b>	<b>3.1</b>
<b>10/27/2015</b>	<b>Tue</b>	<b>9:17 AM</b>	<b>3.3</b>
<b>10/27/2015</b>	<b>Tue</b>	<b>9:31 PM</b>	<b>3.1</b>
<b>10/28/2015</b>	<b>Wed</b>	<b>10:08 AM</b>	<b>3.3</b>

<b>10/28/2015</b>	<b>Wed</b>	<b>10:21 PM</b>	<b>3.1</b>
<b>10/29/2015</b>	<b>Thu</b>	<b>10:58 AM</b>	<b>3.2</b>
<b>10/29/2015</b>	<b>Thu</b>	<b>11:10 PM</b>	<b>3</b>
<b>10/30/2015</b>	<b>Fri</b>	<b>11:48 AM</b>	<b>3.1</b>
<b>10/31/2015</b>	<b>Sat</b>	<b>12:01 AM</b>	<b>2.8</b>
<b>10/31/2015</b>	<b>Sat</b>	<b>12:39 PM</b>	<b>2.9</b>
<b>11/24/2015</b>	<b>Tue</b>	<b>7:10 AM</b>	<b>2.9</b>
<b>11/24/2015</b>	<b>Tue</b>	<b>7:21 PM</b>	<b>2.8</b>
<b>11/25/2015</b>	<b>Wed</b>	<b>8:01 AM</b>	<b>3</b>
<b>11/25/2015</b>	<b>Wed</b>	<b>8:12 PM</b>	<b>2.8</b>
<b>11/26/2015</b>	<b>Thu</b>	<b>8:51 AM</b>	<b>3</b>
<b>11/26/2015</b>	<b>Thu</b>	<b>9:01 PM</b>	<b>2.8</b>
<b>11/27/2015</b>	<b>Fri</b>	<b>9:39 AM</b>	<b>2.9</b>

## What is a Tide?

The word “tide” is a generic term used to define the rise and fall of sea level with respect to land. Tides are influenced by the gravitational attraction of the moon and sun. In addition, tides are affected by other factors such as: coastline configuration, local water depth, wind, and weather conditions. Twice a day, tides peak to a high and low water level, commonly referred to as “high tide” and “low tide.”

Knowledge of the tide times and predicted heights are important to various applications such as: emergency preparedness; maritime navigation; the construction of bridges, docks, and seawalls; and the operation of wastewater and storm water collection systems. Tide information is indispensable to the fishing, boating, surfing, and other water-related industries. Currently, this information is critical to understanding flooding which impacts the City during weather events, particularly in low-lying areas.

## Tide Predictions

Tide predictions can differ from the actual sea level rise or fall that occurs. Predicted tidal heights are those expected during average weather conditions. When weather conditions differ from what is considered average, water levels can be significantly altered. Generally, prolonged onshore winds (wind towards the land) or low barometric pressure can produce higher sea levels than predicted, while

offshore winds (wind away from the land) and high barometric pressure can result in lower sea levels than predicted.

High tides are produced from the flow of water toward positions on Earth where the gravitational forces of the sun and moon are the strongest. Low tides are created at a point midway between the two positions. The alternating between high and low tides is caused by the daily rotation of the Earth. There are peak high tides in each month. Typically the City of Fort Lauderdale experiences its highest tides during the months of September, October and November.

These high tides may cause ocean and canal waters to rise above elevations of land, including streets and seawalls in low-lying areas of Fort Lauderdale and throughout South Florida, thus causing tidal flooding of those areas.

The City's installation of 37 tidal valves in flood prone neighborhoods to date has reduced the impact of high tides in those locations. Onshore winds can exacerbate coastal flooding and concurrent rain events may increase incidences of flooding further inland as the high tides impede drainage.

In addition, to reduce flooding from tides and rains, the City is currently implementing its Stormwater Master Plan to improve system operation and reduce flooding incidence through means including additional one-way tidal valves, bioswales, pervious pavers, stormwater preserves, improved pumping stations, and seawall repairs.

## Useful Resources

The City website provides detailed information about flooding including [flood zones](#), [mitigation](#), [safety and protection measures](#). The site includes links to useful guides, maps and resources from the City, Broward County, Federal Emergency Management Agency (FEMA) and other organizations.

Neighbors may visit the following links for additional information:

[Federal Emergency Management Agency](#)

[Flood Smart](#)

[Flood Protection Flyer](#)

[Request a Property Flood Zone Determination Letter](#)

[Tide Table](#)

Neighbors may contact the City's 24-Hour Customer Service Center at 954-828-8000 with questions or concerns or to report incidents of flooding.

Customer Service may also be reached via [LauderServ](#), the City's mobile application. For more information about LauderServ or to download the mobile application, please visit [www.fortlauderdale.gov/lauderserv](http://www.fortlauderdale.gov/lauderserv).

[Return to full list >>](#)

**From:** [Nextdoor City of Fort Lauderdale Public Works](#)  
**To:** [Nancy Gassman](#)  
**Subject:** Be Prepared for King Tides Beginning August 29  
**Date:** Tuesday, August 25, 2015 10:56:50 AM

---

 Shannon Vezina, City of Fort Lauderdale AGENCY

Flooding in low-lying areas is more likely when the close proximity of the moon, high tides, rising sea levels and inclement weather conditions combine to exacerbate flooding risks. As a beautiful coastal community with 300 miles of canal coastline and numerous low-lying areas, Fort Lauderdale will experience these impacts and neighbors are advised to be especially vigilant during the upcoming "King Tides." The City anticipates above-average high tides on the following dates in 2015:

- August 29 - September 2
- September 26 - October 2
- October 24 - 31
- November 24 - 27

We are sharing this information to inform our neighbors and encourage them to prepare for potential tidal flooding. Please take the time to evaluate your property's readiness, review your insurance policy, create an emergency plan and read the tips below. The City's website also provides a wealth of information on tides, flood prevention activities and what the City is doing to increase Fort Lauderdale's Climate Resiliency. <http://www.fortlauderdale.gov/Home/Compo...>

The location and natural geography of the City makes certain neighborhoods more susceptible to flooding from high tides and extreme rainfall. Fortunately, the City and the region are actively planning for events like these in the short term and for sea level rise concerns in the long term. The City has a robust stormwater master plan and is instituting both aggressive maintenance and innovative adaptation solutions such as tidal valves. Since 2011, more than 50 tidal valves have been installed in affected neighborhoods to reduce the impacts of high tides in those locations. Storm drains and catch basins are regularly cleaned and maintained to minimize potential flooding. In addition, the City has worked hard to earn points toward the Community Rating System resulting in a 20% discount for flood insurance premiums within the City.

#### Stay Safe

- Do not walk through flood waters. It is dangerous and can be a health hazard.
- Do not drive through flooded areas, turn around and find another way. In addition to being a threat to life safety, it can lead to both short and long term damage to your vehicle. Also, creating waves in flooded areas can cause additional damage to landscaping and property.

- If you are a boater, be aware that these high tides cause lower clearance under fixed bridges. Check the tides before leaving the dock.

#### Know Your Flood Hazard

- To determine the flood zone for your property, use the GIS Application on the City website at <http://gis.fortlauderdale.gov/FemaFloodZ...>, complete the "Flood Zone Request" form on the home page of the City website, or call the City's floodplain manager, Richard Benton at 954-828-6133.

#### Insure Your Property

- Homeowner and renter insurance policies usually do not cover flood damage. The City of Fort Lauderdale encourages neighbors who rent or own property in a Special Flood Hazard Area to purchase flood insurance to protect their home and possessions against loss from flood damage.

#### Protect Your Property

- Neighbors that drive through tidally flooded streets should consider taking their vehicles through a car wash equipped with an undercarriage sprayer to remove the saltwater.
- The City responds to flood protection inquiries. If you have a question regarding flood, sewer or drainage problems, contact the City of Fort Lauderdale's 24-Hour Customer Service Center at 954-828-8000.

#### Build Responsibly

- Prior to starting any construction, residents or builders should contact the City's Department of Sustainable Development at 954-828-6520 to ask about required permits.
- Protect natural floodplain functions State law prohibits dumping anything into the storm drain system and unauthorized obstructions or alterations of the drainage features. Residents should report illegal dumping into the stormwater system or clogged storm drains by calling the City of Fort Lauderdale 24-Hour Customer Service Center at 954-828-8000.

#### Protect Natural Floodplain Functions

- State law prohibits dumping anything into the storm drain system and unauthorized obstructions or alterations of the drainage features. Residents should report illegal dumping into the stormwater system or clogged storm drains by calling the City of Fort Lauderdale 24-Hour Customer Service Center at 954-828-8000.

#### High Tides August 29 - September 2, 2015

Date Day Time Predicted Height above MLLW (ft)

8/29/2015 Sat 9:31 PM 2.9

8/30/2015 Sun 9:55 AM 2.9

8/30/2015 Sun 10:19 PM 3

8/31/2015 Mon 10:46 AM 3

8/31/2015 Mon 11:07 PM 3

9/1/2015 Tue 11:38 AM 3

9/1/2015 Tue 11:57 PM 2.9

9/2/2015 Wed 12:31 PM 2.9

Aug 25 in General to City of Fort Lauderdale

[View or reply](#) [Thank](#) · [Private message](#)

You can also reply to this email or use Nextdoor for [iPhone](#) or [Android](#)

---

Not interested in hearing from the City of Fort Lauderdale? [Adjust your email settings](#)

Nextdoor, Inc. 760 Market St., Suite 300, San Francisco, CA 94102