



LAUDERTRAC

RESILIENCY UPDATE FORT LAUDERDALE

Tracking Progress on Commission Priorities for 2021



October 2021

CREATING A STRONGER COMMUNITY

Progress in Becoming More Resilient to King Tide Events

King tides are the highest predictable high tides of the year. They are caused by the gravitational forces of the moon and the sun. King tides are technically called, “perigean spring tides,” and they occur in both the spring and fall seasons. In fact, the highest tides in southeast Florida occur in the fall, in part because the warmer ocean water causes thermal expansion, and the seasonal winds drive water levels higher. The City of Fort Lauderdale experienced substantially less king tidal flooding through October 2021 when compared to prior years. By September 2020, 60 high tides exceeded the threshold where low lying roadways were impacted. By September 2021, only 25 high tides exceeding that threshold were recorded, and the peak tide elevation was approximately ten inches lower than previous years. With much of the City’s land elevations being a few feet above sea level, ten inches makes a remarkable difference in the spatial extent and severity of impact from more extreme high tides.

Many factors such as wind direction, weather, proximity to tropical storm systems and the speed of the Gulf Stream impact the elevation and duration of king tides. A favorable combination of these factors resulted in a mild king tide season this year. Rainfall increases tidal flooding during high tides, but fortunately 2021 has brought less rain than 2020. By the end of September 2020, the southeast portion of the City received 65.2 inches of rainfall, as opposed to only 42.7 inches of rain through September of this year.

Another reason for the reduction in tidal flooding is attributed to infrastructure improvements and repairs. The City installed a total 185 tidal valves, with 16 added so far in 2021. In some instances, one tidal valve can eliminate tidal inundation on an entire street. Many of the installations included improvements to the existing catch basins and stormwater piping. In addition, nearly half a mile of City-owned seawalls on Isle of Palm and Cordova Road were elevated, resulting in major access roads remaining devoid of tidal flooding.

In fiscal year 2022, the City plans to invest \$2.6 million to elevate nearly 1,100 linear feet of seawall in seven locations; four on the south side of East Las Olas Boulevard, one on Southeast 10th Street, and two on Hendricks Isle. In fiscal year 2023, improvements are planned for an additional 530 linear feet of City-owned seawall.

It is too early to tell if this king tide trend will continue through the end of 2021, with the next king tides predicted to arrive November 3rd – 9th. In the meantime and going forward, the City will continue to make infrastructure improvements that reduce the frequency, intensity and duration of roadway flooding across the City.



Figure 1 - King Tide overtopping seawall near San Marco and Las Olas Boulevard. With the milder king tides this fall, the earthen berm was adequate to prevent tidal impacts on Las Olas Boulevard. In preparation for future sea level rise, the City will be elevating this seawall in the next 18 months.



Figure 2 - Storm Drain with a tidal valve installed. Only the last storm drain before the discharge point is a candidate for a tidal valve and most of the 185 catch basins with a tidal valve are marked with a medallion.