



## **Frequently Asked Questions on How Surfside is Preparing for Sea-Level Rise and Climate Change**

*\*Please note: This document will be regularly updated.  
Please check the Town website for the most up-to-date information.*

### **What is the Town of Surfside doing to prepare for the future impacts of sea-level rise and climate change?**

Over the next 40 years, sea levels around South Florida are projected to rise 17 to 31 inches. That's the projection being adopted by more than 100 South Florida cities, counties and towns, including Surfside, in the [Southeast Florida Regional Climate Change Compact](#). These estimates are based on extensive research by scientists and government agencies working at regional, national and international levels, and they're alarming. Higher seas will likely mean more sunny day flooding, higher storm surge, growing vulnerability of sewers and other critical infrastructure, and changes to flood insurance rates and property values. That's why the Town of Surfside is refining and expanding its work to responsibly address climate change for present and future generations.

Top initiatives to date, as explained further down in this document, include the following:

- Creating a comprehensive [Climate Crisis Report and Action Plan](#) - currently in its first edition - to outline the Town's vulnerabilities and measures needed to respond
- Hiring of the Town's first Sustainability & Resiliency Officer, to serve as a conduit for climate-related information and engagement among residents, businesses, Town staff, government agencies and other key stakeholders
- Partnering with the University of Miami's School of Architecture Littoral Urbanism Lab (LU\_Lab) to help Surfside work with residents to address environmental, infrastructure and quality-of-life challenges exacerbated by climate change
- Partnering with the American Flood Coalition and the international engineering and design company Atkins to assess flood risk and model the efficacy of possible adaptation efforts
- Preparing a greenhouse gas inventory to identify, set reduction targets and ultimately reduce the greatest sources of Surfside's emissions

- Securing a \$17.9 million beach renourishment project funded by the U.S. Army Corps of Engineers, which will significantly enhance the Town’s defenses against storm surge
- Developing a Stormwater Master Plan to better understand how water moves through the Town and what future infrastructure improvements may be needed to deal with rising seas and stronger storms
- Participating in the [Resilient305](#) program to identify and respond to climate change and other quality-of-life challenges across Miami-Dade County.
- Participating in the [Southeast Florida Regional Climate Change Compact](#), to identify and share local and regional best practices for climate resilience
- Passing over 90 environmentally-focused ordinances and resolutions since 2011. Find a list [here](#).

### **Why did the Town Commission declare a Climate Crisis?**

At the Regular Town Commission Meeting held on December 10, 2019, the Town Commission declared a [Climate Emergency](#) to coincide with the release of Surfside’s Climate Crisis Report. Scientific evidence shows that we are facing a global climate crisis, as temperatures and oceans rise and the world becomes more vulnerable to fires, droughts, severe weather, food shortages and the loss of many animal and plant species.

The primary reason for this declaration is to urge the U.S. Congress and the State of Florida legislature to take immediate action. Across the U.S. and around the world, momentum is building for climate emergency declarations, as evidenced by the more than 1,200 local governments, including the City of Miami Beach and the City of Miami, representing 26 countries around the world. Surfside understands that the declarations by themselves are not sufficient; efforts to dramatically reduce greenhouse gas emissions and equitably prepare communities for climate impacts must be undertaken at all levels of government. So, through its declaration, Surfside is specifically requesting regional collaboration and continued state and federal support in its efforts towards adaptation, mitigation, and resiliency, including the implementation of the actions identified in the Town’s Climate Crisis Report

### **What is the Climate Crisis Report?**

In collaboration with Calvin, Giordano & Associates and the University of Miami’s School of Architecture Littoral Urbanism Lab (LU\_Lab), the Town of Surfside developed a Crisis Climate Report and Action Plan. The Crisis Climate Report was unanimously adopted by the Town Commission on December 10, 2019 with direction to the Administration to develop a timeline for implementation of actions, working collaboratively with the Sustainability and Resiliency Committee and the Planning and Zoning Board, and present the recommendations at the April 2020 Commission Meeting for community input, discussion, and policy direction. In the meantime, the Town Commission directed the Administration to convene a public workshop to

present and discuss the Climate Crisis Report. The Crisis Climate Report is currently in its first edition and will be updated continually to reflect the most current state of climate change and its impacts on Surfside.

Through a climate risk assessment, the Town's Climate Crisis Report thoroughly highlights the effects currently felt by the Town due to climate change, the effects that are projected for the future, and initiatives to date that the Town has taken to mitigate such effects. It includes a call-to-action on the matter and a list of the Town's vulnerabilities in the face of climate change and sea-level rise. One of the main components of the report is Surfside's Climate Action Plan, which outlines objectives and actions in twelve key areas to build resilience into the community from the projected impacts of climate change. Among the recommended actions are reviewing the Town's seawall strategy, mitigating flooding through increasing free board, proper dune management and ecological health initiatives, an effective communications strategy, conducting a flood vulnerability assessment, and developing a stormwater master plan.

### **Why did Surfside hire a Sustainability & Resiliency Officer?**

The Town of Surfside faces a climate crisis like all other communities across the globe; however, its risk exposure is magnified due to its coastal location. Therefore, the Town created the role of Sustainability and Resiliency Officer to help oversee and coordinate work on first and future editions of the Climate Crisis Report. The Officer will work to ensure that community members and staff are educated on climate change and the recommended actions, and that they receive clear and consistent communication through workshops, trainings, the Surfside Gazette and other outreach. Additionally, the Officer will draw from their knowledge of local, regional, state, federal and global resilience efforts to assist residents, Town staff, the Town Commission and the Sustainability and Resiliency Committee in an ongoing process of identifying, refining, prioritizing and funding policies and projects to adapt to climate change impacts and mitigate future greenhouse gas emissions. Many of these policies and projects are actions within the Climate Crisis Action Plan; others may be identified and recommended in the years to come.

### **What is the University of Miami's role with the Town of Surfside?**

In November 2019, the Town of Surfside announced a new partnership with the University of Miami School of Architecture's LU\_Lab. The Littoral Urbanism Lab, or LU\_Lab, operates as a knowledge gathering center and project-based design group focused on an approach that blends urbanism (architecture) and the environment.

Through the partnership, LU\_Lab will identify infrastructure and urban resilience opportunities in Surfside and will work with residents to incorporate their ideas and needs in adapting the Town to climate change. The LU\_Lab recently hosted an interactive Community Resilience Workshop with Surfside residents. Find a recap [here](#).

**How will the Town determine vulnerabilities and the appropriate approach to take in order to address this matter?**

The Town of Surfside is a member of the American Flood Coalition, a nonpartisan group of cities, elected officials, military leaders, businesses and civic groups that work together on national solutions that support flood-affected communities. Through the Coalition, Surfside received a grant to work with the international engineering and design company Atkins on a digital model of the Town, showing its present infrastructure, homes and businesses, as well as data on rainfall, future tidal flooding, storm surge and sea-level rise. Different scenarios will be run through this “City Simulator” model to identify Surfside’s vulnerabilities and the efficacy and cost-effectiveness of possible adaptations. Results are expected in early 2020.

**What were the findings of the Greenhouse Gas Inventory?**

The Town is in the process of reviewing the results of its first-ever greenhouse gas inventory. Ultimately, as part of the Climate Crisis Report and Action Plan, this assessment will be used to prioritize areas where greenhouse gas emissions can be reduced.

**What is the purpose of the Stormwater Master Plan?**

The purpose of this plan is to give an overall sense of where all stormwater systems are located, the associated capacity and how water moves around the entire Town. It will help determine which areas are most vulnerable to flooding and where it is most cost-effective to put new pumps and other measures to adapt to weather events and rising seas. It is also the underlying plan that will allow the Town to design and develop new stormwater management projects. The Town Commission approved the development of this plan.

**What is the Beach Renourishment Project and how is it relevant to climate change adaptation?**

To repair Surfside’s critically eroded public beach, the Town is currently undergoing a \$17.9 million Beach Renourishment Project by the U.S. Army Corps of Engineers, Miami-Dade County and contractor Continental Heavy Civil Corp, as part of the Miami-Dade County Beach Erosion Control and Hurricane Projection Project.

In addition to the significant quality-of-life benefits that come with a healthy beach, the beach serves as the Town’s first line of defense against storm surge (expected to increase in strength due to climate change) and also benefits the community financially and environmentally. It is slated to be complete by spring 2020. View more information here: [Beach Renourishment - Surfside, Florida.](#)

## **What is Resilience?**

Resilience is about planning ahead and reacting proactively to possible disruptions, particularly disruptions brought on by climate change and sea-level rise. A community's resilience plan can include everything from urban planning and roads to parks and green spaces and shared gardens, to new seawalls and stormwater systems, to events and outreach where residents identify shared challenges with mobility, property values and overall quality of life.

The goal of resilience is to create solutions that are inclusive and address multiple challenges at once. For example, a resilient park design might include additional trees (to provide relief from hot temperatures and help reduce greenhouse gases); a basketball court that doubles as a water storage area; and a community building that has solar panels, a generator and cell phone charging capabilities for residents to use after a hurricane. A park like this responds to multiple challenges at once, while also providing opportunities for a community to have fun outdoors – exactly what you want from a park in the first place!

## **How is Mobility Related to Resilience?**

The mobility partnership between Surfside and the LU\_Lab at the University of Miami School of Architecture is one notable example of what resilience efforts look like in Surfside. LU\_Lab originally partnered with the Town to improve transportation and mobility, particularly for pedestrians and cyclists. But the partnership has evolved to take on a more holistic focus. LU\_Lab is now working on possible strategies for how the Town could someday change its streets and public spaces to include new, safer walking and cycling options – while also including additional opportunities for water storage, Florida-friendly landscaping and gray-green infrastructure such as solar panels. Residents are invited to contribute feedback and ideas at LU\_Lab workshops such as the one in [November 2019](#) and pop-ups at Third Thursdays and other Town events.

For additional examples of present and future resilience opportunities in Surfside, please see the Town's [Climate Crisis Report & Action Plan](#).

## **What is the Town's Resiliency Reserve?**

The Resiliency Reserve was discussed at a Town Commission Meeting in regards to ensuring that the Town of Surfside would have funding for projects that will become necessary as the nature and magnitude of local climate change impacts become more evident. The idea of the Reserve is to help ensure the Town's safety and quality of life in the coming years and decades.

A policy on the use of the Reserve has yet to be determined by the Town Commission. Presently the Reserve consists of a development proffer with the Town's matching contribution. A recently approved project has committed additional funding.

## **What is the Purpose of the ShoreLock Coastal Erosion Pilot Project? How Does ShoreLock Work?**

During the January 14, 2020 Regular Town Commission Meeting, the Town Commission unanimously approved Surfside's participation in a pilot project to implement a new, green technology called ShoreLock in a small test site on the public beach. This pilot will be overseen and funded by the State of Florida.

ShoreLock is a biodegradable, non-toxic powder, designed to reduce beach erosion. It creates an interaction between sand and water that increases cohesion among sand molecules. The effect is similar to what happens if you're trying to build a sand castle and you add water to very dry sand. As any good sand castle-builder will tell you, adding water to dry sand makes the sand stick together better. For a beach treated with ShoreLock, the additional microscopic layer of water decreases erosion and increases sand attenuation (buildup).

To date, ShoreLock has been piloted at sites in Jamaica under the purview of the United Nations Environment Program, in the Bahamas and in Turks and Caicos. These international studies, as well as extensive laboratory testing in the United States, have deemed ShoreLock harmless to humans and wildlife, and effective at reducing beach erosion. Application of ShoreLock is minimally invasive: During the application process, ShoreLock (in powder form) is mixed with water onsite, then put into shallow holes along the beach. Wave action and tidal fluctuation mix ShoreLock with the sand, creating the cohesive effect.

The ShoreLock coastal erosion pilot in Surfside would last one year and would take place on approximately 1,000 feet of public beach. If it is funded by the Florida Legislature in the 2020 budget cycle, the Department of Environmental Protection would work with ShoreLock, the Town of Surfside, the Florida Fish & Wildlife Commission and other stakeholders on the permitting process, wildlife monitoring and developing a work plan. The state of Florida would provide approximately \$200,000 for the pilot. There would be no cost to the Town of Surfside.