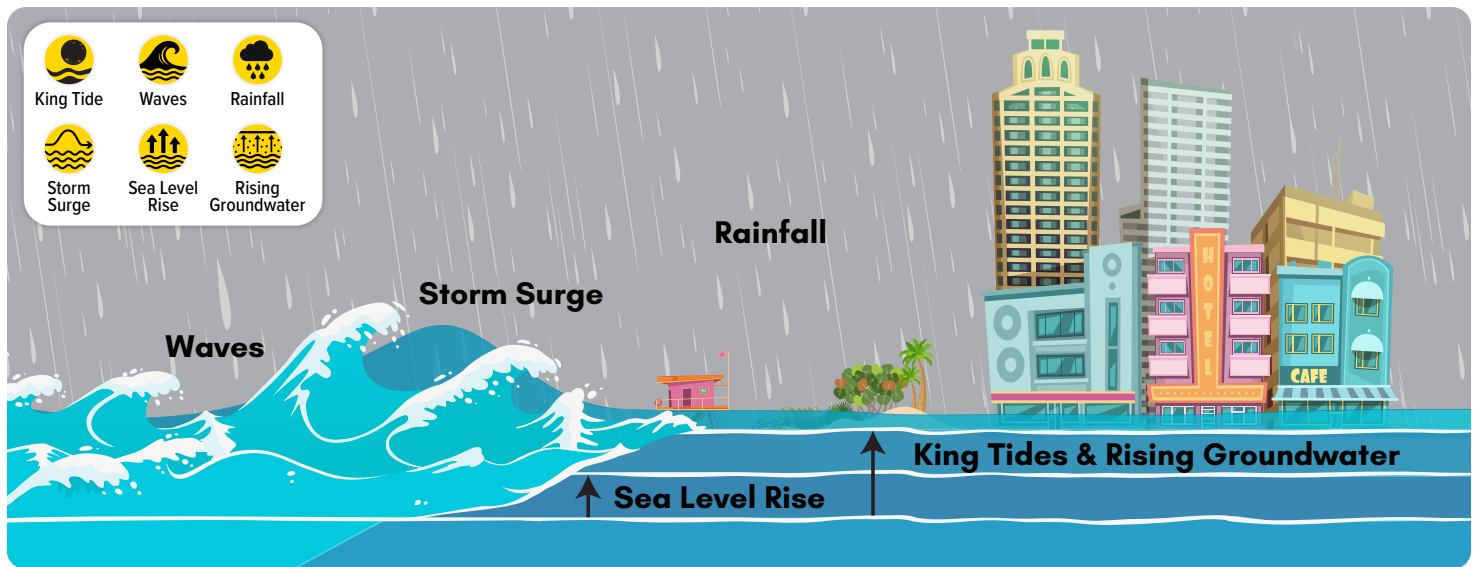


Sea Level Rise Vulnerability Assessment

Prioritizing At-Risk City Assets

The City of Miami Beach is a beautiful coastal community, surrounded by the waters of the Atlantic Ocean and Biscayne Bay. The City's setting on a low barrier island with porous limestone bedrock also makes the area vulnerable to flooding during heavy rainfall events, annual king tides, wave overtopping during windy days, and periods of high groundwater conditions. As sea level rises, flooding due to these factors will extend further inland, increasingly affecting city infrastructure and facilities. To better understand this risk, the City completed a Sea Level Rise Vulnerability Assessment (Assessment) through the Resilient Florida grant program to **identify and prioritize over 67,000 assets** vulnerable to flooding. **The Assessment highlights key vulnerabilities that will inform the City's adaptation planning efforts.** The assessment was conducted by the consultant AECOM, that also recently completed the Stormwater Modeling and Master Plan (2024).



Assets were evaluated using the best available data and stormwater modeling techniques to assess **exposure to flooding scenarios through 2070**, **sensitivity to floodwaters**, and the **community consequences of their failure**. Assets that ranked highly across these three categories were considered highly vulnerable to sea level rise. The City will **use the findings to pursue targeted project funding** to address the identified vulnerabilities.

Exposure



Sensitivity



Consequence



Total Vulnerability Score

Types of Assets Evaluated



Community Centers



Critical Buildings



Drinking Water



Natural Resources



Stormwater



Electrical and Communications



Emergency Facilities



Public Transit



Roads and Bridges



Wastewater

A range of assets that support the community were considered in the Assessment. Vulnerability profiles were developed for each of these asset groups to summarize identified susceptibilities and make it easier for departments to identify the City's most vulnerable assets and communicate the findings of this Assessment. The findings from the asset groups also provide the City with more targeted vulnerability information that can better inform future adaptation plans and designs.

A Community-Focused Process

While developing the Assessment, the project team incorporated input from **over 150 City residents** using focus group meetings and pop-up workshops at City events to prioritize highly valued community assets. The team also identified assets in socially disadvantaged communities to allow for equity considerations in the prioritization process.

Key Vulnerabilities

Citywide

- The west (Bay) side is at the greatest risk of flooding due to the low elevation of its seawalls.
- Currently, the City experiences king tide flooding in low areas adjacent to the Bay shoreline and low inland areas. However, with one foot of sea level rise, nearly half the City's assets could be affected. With three feet of sea level rise, king tide flooding could expand to expose nearly all City assets.
- Even without the effects of sea level rise, storm surge flooding remains the City's greatest flooding threat.

North Beach

- Higher vulnerability assets are concentrated along canal shorelines in Biscayne Point and North Shore neighborhoods.
- The region includes the largest number of socially disadvantaged neighborhoods as defined by the federal government.
- North Beach has the greatest proportion of highly vulnerable wastewater pipelines.

Mid Beach

- Higher vulnerability assets are primarily located in the southern part of the region, in the Nautilus, Bayshore, and Ocean Front neighborhoods.
- The region has numerous vulnerable emergency response facilities including Mt. Sinai Hospital, Fire Station #3, and the marine patrol building.
- The region contains the most vulnerable bus stop locations, including those in socially disadvantaged neighborhoods.

South Beach

- Higher vulnerability assets in the region are located in the West Ave and Bay Road neighborhoods.
- Several emergency response facilities, including the police station headquarters and the existing Fire Station #1, are highly vulnerable to flooding.
- Nearly all stormwater pumps in this region are projected to be impacted by future flooding events.
- South Beach has the largest number of vulnerable bridges.
- Flamingo and Lummus and West Ave and Bay Road neighborhoods have the highest concentration of vulnerable wastewater pipelines in socially disadvantaged neighborhoods.

Next Steps

The Assessment is an important initiative to strengthen the City's resilience to future climate impacts. The key vulnerabilities identified in the Assessment, in tandem with previous City plans and studies, will be used to inform the development of adaptation pathways to reduce asset risk and community impacts from flooding. These pathways will be developed in the City's forthcoming Adaptation Plan, which will be completed through early 2025. The Vulnerability Assessment will enable the City to apply for local and federal grant opportunities, and the Adaptation Plan will help to inform design policies and projects that address the key vulnerabilities identified.



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