

Sea Level Rise: North Bay Village

Mean Sea Level Trend 8724580 Key West, Florida



Observed Sea Level at Key West Tide Gauge (1992-2017)



- MSL



Sea level is projected to be 1 foot higher 14 years – 40 years

Observed sea levels agree with the SLR projections





Existing data on vulnerability

- Miami-Dade County's Office of Resilience (and other departments) have already invested in gathering high-quality data on the vulnerability of different parts of the County
- This information can be shared with North Bay Village whenever it is needed
- A few examples of the type of information available is provided on the next few slides



Link: http://citizeneyes.org/app/



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Link: http://citizeneyes.org/app/



Link: http://citizeneyes.org/app/





3D visualizations of flooding's impact on buildings - Here showing 2 feet higher than today's Mean High **High Water**

Link:

https://mdc.maps.arcgis.com/apps/webappvie wer3d/index.html?id=b92a9fa4ff8847bf97f3e6 28a195a398

Showing *parcels* impacted by water levels 2 feet higher than today's Mean High High Water - Red parcels = highest risk

Link:

https://mdc.maps.arcgis.com/apps/webappvie wer3d/index.html?id=b92a9fa4ff8847bf97f3e6 28a195a398

Showing *parcels* impacted by water levels 3 feet higher than today's Mean High High Water - Red = highest risk

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Link:

https://mdc.maps.arcgis.com/apps/webappvie wer3d/index.html?id=b92a9fa4ff8847bf97f3e6 28a195a398

Showing *parcels* impacted by water levels 4 feet higher than today's Mean High High Water - Red = highest risk

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Sea level rise vs. flooding

- Sea level rise is amplifying other flooding risks; however, <u>North Bay</u> <u>Village is already exposed to storm surge risks which could happen</u> <u>any year</u>
- Taking actions that protect the islands from storm surge will help prepare for long-term sea level rise



Miami-Dade County FLIPPER tool - Link: <u>https://gisweb.miamidade.gov/flipper/</u>



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North Bay Village

increase

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Current Base Flood Elevations (specified by FEMA)

- New FEMA maps are coming in 2019/2020
- New flood insurance rates are also coming ~2020

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0.05

0.1

0.2 Mies

With sea level rise the Base Flood Elevations will

The computed **elevation** to which floodwater is anticipated to rise during the **base flood**. **Base Flood Elevations** (BFEs) are shown on **Flood** Insurance Rate Maps (FIRMs) and on the **flood** profiles. The BFE is the regulatory requirement for the **elevation** or floodproofing of structures

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What options are available to adapt to changing flood risks?

Low Rise Multi-family

Adaptation options: Short-term:

- elevate key equipment (generators etc.)
- Install flood barriers (doors)
- Salt-tolerant landscaping
 Long-term:
 - Requirements for rebuilding
 - Higher freeboard above current BFEs
 - Higher sea walls
 - Higher elevation above crown of road

High Rise Multi-family

Adaptation options: Short-term:

- Flood-proof ground floor (elevate generators, protect elevator shafts etc.)
- Flood barriers (first floor doors)
- Salt-tolerant landscaping & enhance drainage Long-term:
 - Requirements for rebuilding
 - Higher freeboard
 - Higher sea walls
 - Higher elevation above crown of road



Low single family

Adaptation options:

Short-term:

- elevate key equipment (HVAC etc.)
- Salt-tolerant landscaping
- Grants/incentives for rebuilding higher
 Long-term:
- Requirements for rebuilding
 - Freeboard (higher)
 - Elevation well above crown of road

Newer (higher) single family

Adaptation options:Short-term:

- elevate key equipment (HVAC etc.)
- Salt-tolerant landscaping Long-term:
 - Requirements for rebuilding
 - Elevation of property (driveways, yards)
 - Higher freeboard for buildings
 - Elevation above crown of road
 - Elevation on stilts



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Public right of way

Adaptation options: Short-term:

- Salt-tolerant streetscape
- Upgrade water/waste water to be submersible
- Design new drainage based on future groundwate levels (avoid saturated French drains)

Long-term:

- Elevation of roadways
- Moving away from exfiltration trenches



Commercial

Adaptation options: Short-term:

- Don't allow building below the BFE (commercial buildings currently allowed to flood-proof below the BFE)
- Elevation of key equipment (HVAC, electrical, etc)
 Long-term:
- Elevation of lot
- Higher sea walls
- Drainage built to accommodate SLR

What resources are available?

The best resources are other local governments who are working on these same issues

Link: http://www.southeastfloridaclimatecompact.org/

- Suggest joining the Compact to begin working with peer communities in the region
- Many resources available thru the compact including case studies and suggested action plans
- Staff can help you get going – contact Lauren Ordway at lordway@sustain.org



VIPLAN RESOURCES NEWS SUMMIT ABOUT CONTACT 🔍

ECOMMENDATIONS MUNICIPALITIES CASE STUDIE



The County can provide needed data!

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Other free resources:

Surging Seas **RISK FINDER**

North Bay Village, Florida, USA

Water level (ft) ? English

Summary



- Warming oceans and melting glaciers and ice sheets are raising global sea levels.
- About 1,600 people in North Bay Village live on exposed land below 3 ft (the selected level) (). <u>More threats</u>↓
- The selected sea level scenario
 i points to a 73% risk
 of at least one flood over 3 ft taking place between today
 and 2050 in the North Bay Village area. More scenarios
- Learn about <u>related places</u>↓ and <u>how to reduce risks</u>↓

DOWNLOADS





North Bay Village area land below 3 ft is colored yellow through red to denote zones with low through high property value per acre. Blue shading indicates

Link: <u>https://riskfinder.climatecentral.org/place/north-bay-</u> village.fl.us?comparisonType=place&forecastType=NOAA2017_int_p50&impact=Pro perty&impactGroup=Buildings&level=3&unit=ft&zillowPlaceType=place

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Sea level tools and analysis by CLIMATE COD CENTRAL

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1755 79th Street Cswy, North Bay Village, FL 33141, 🛛 🗙

This property is at risk 0

1681 79th St Cswy, North Bay Village, FL 33141 is already at risk of flooding from a **Category 1 hurricane** storm surge. As sea levels rise, this risk increases.

Note: Our projections **do not include rain**, which can make floods even worse.

Sea level rise increases flood risks 🖞 📀

Sea levels in the **North Bay Village** area will increase by **5.88 (in)** in the next **15** years, according to the US Army Corps of Engineers



DOWNLOAD FULL FLOOD IQ PDF REPORT

HURRICANE CATEGORY 1 🗸

2018 🗸

WHAT CAN I DO?

Link: https://floodiq.com/poi/e5638ea638db91b 4cc855b5c116e88d0



Contacts

James Murley Chief Resilience Officer MDC Office of Resilience James.Murley@MiamiDade.gov

Karina Castillo Resilience Coordinator MDC Office of Resilience Karina.Castillo@MiamiDade.gov Katherine Hagemann Resilience Program Manager (Adaptation) MDC Office of Resilience Katherine.Hagemann@MiamiDade.gov @BlueGreenMiami

Monica Gregory Resilience Coordinator (Adaptation) MDC Office of Resilience Monica.Gregory@MiamiDade.gov