Island Wide Economic Flood Risk Study

A Study of Businesses, Revenues, and Jobs at Risk in Coastal Zones on Long Island's North and South Shore

10/21/2025

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LIRPC/LiRo GIS Collaboration

- **Long Island's First Waterfront Zoning and Uses GIS Inventory**
  - Study of Land Use and Zoning Along the South Shore
  - ¼ mile coastal buffer study area; 79 jurisdictions; 600 zoning designations
  - The collaboration between LIRPC and LiRo GIS resulted in a valuable GIS-based database that can be applied in development, planning, or economic studies.
  - Available as a web-based "Story Map" on **LIRPC website** in the "Environment" Section

- **Long Island Economic Flood Risk Study**
  - Believed first study of its kind – to focus on flood risk threatening businesses, employees, and revenues – not residential property. Made use of Data Axle Business Location data – but not filtered by use.
  - Focused on the South Shore
  - Risk zones created using FEMA Flood Zones and "anecdotal zones" – that is areas bounded by Montauk Highway and Sunrise Highway
  - The study was very well received

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- **Island Wide Long Island Economic Flood Risk Study**
  - Expanded to include the North Shore
  - Required a uniform risk area dataset that applied to both the South and North Shore
  - The New York State Department of State Downstate Coastal Risk Areas were adopted. The dataset originated from Sandy and has been maintained.
  - Jurisdictions were expanded beyond the South Shore to include applicable North Shore jurisdictions
  - The Data Axle business location data was updated for 2025.

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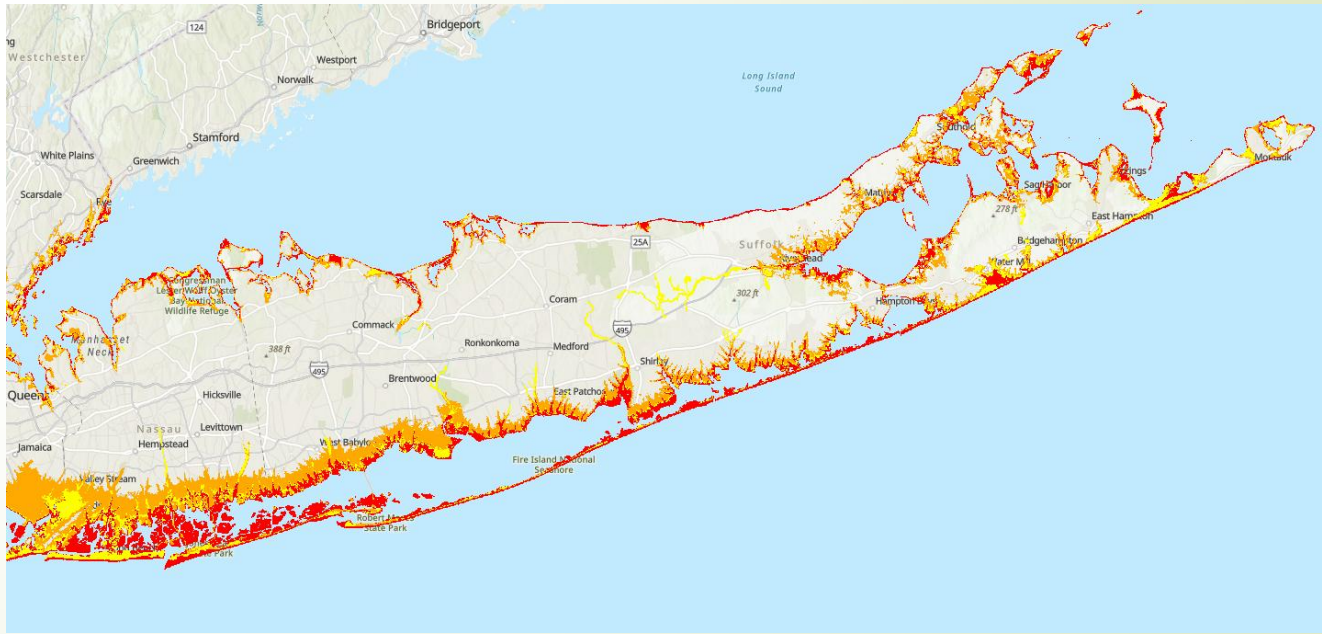
Study Data

- **NYS Coastal Risk Areas**
  - The dataset displays Risk Areas which help illustrate the geographic **distribution of coastal risk.** The objective of mapped Risk Areas is to define areas at risk from coastal hazards. Data were collected from sources accurate enough to differentiate geographic areas according to the likelihood of **flooding, erosion, waves and storm surge**. Mapped Risk Areas are classified into three categories: **Extreme, High, and Moderate**.

  - Similar to FEMA flood zones but not exactly the same. FEMA Flood zones are used to determine flood insurance and regulate development.



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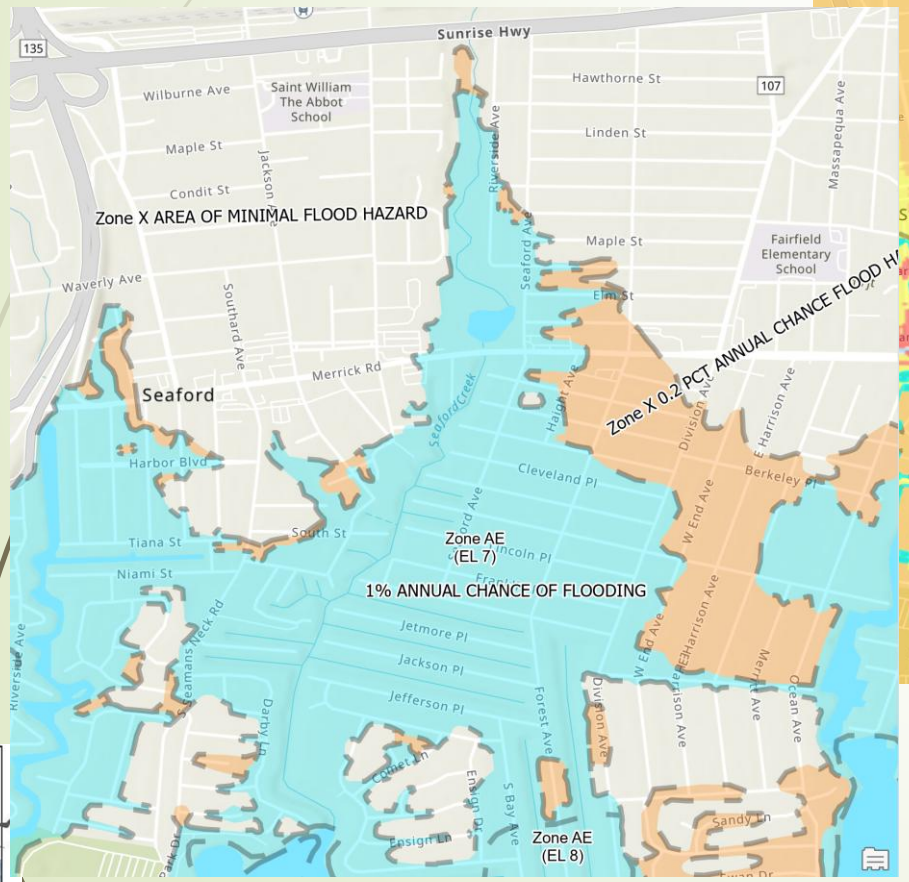
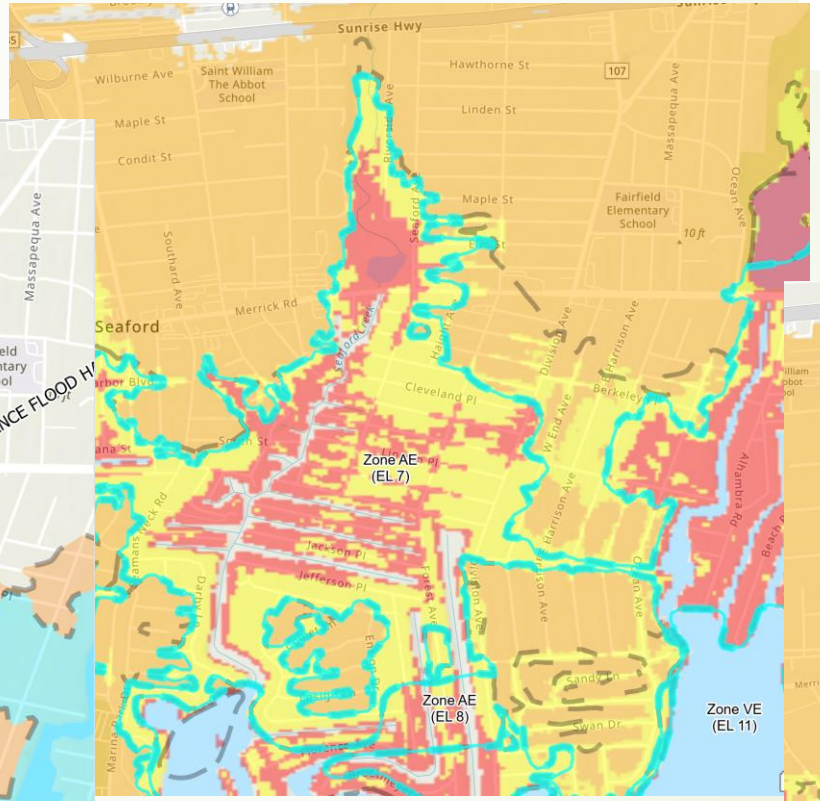
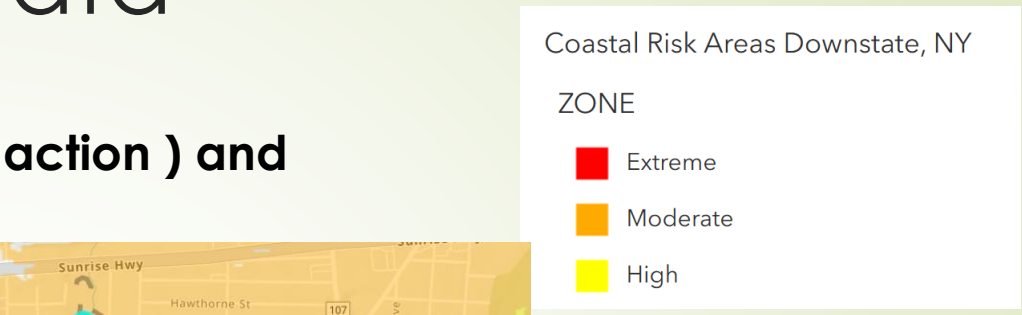
Study Data

- **NYS Coastal Risk Areas**
  - **Extreme – Includes both FEMA Zone V (wave action) and Zone AE (no wave action)**
  - **High – Zone AE**
  - **Moderate – Sort of "Zone X"**







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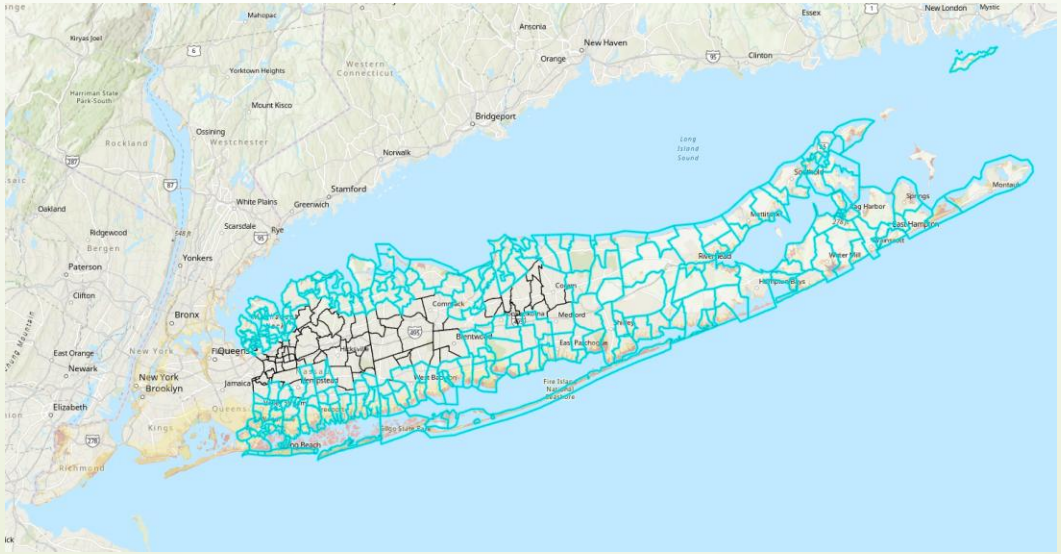
Study Data

- **Jurisdictions**
  - 216 in the Island Wide Study:
    - 139 Census Designated Places (unincorporated areas within the Nassau and Suffolk County)
    - 73 Incorporated Villages
    - 2 Cities
    - Jones Beach State Park
    - Poospatuck Reservation
    - For context, the original South Shore Study had 79 jurisdictions
  - The criteria for selection is that a jurisdiction had to intersect a NYS DOS Risk Area



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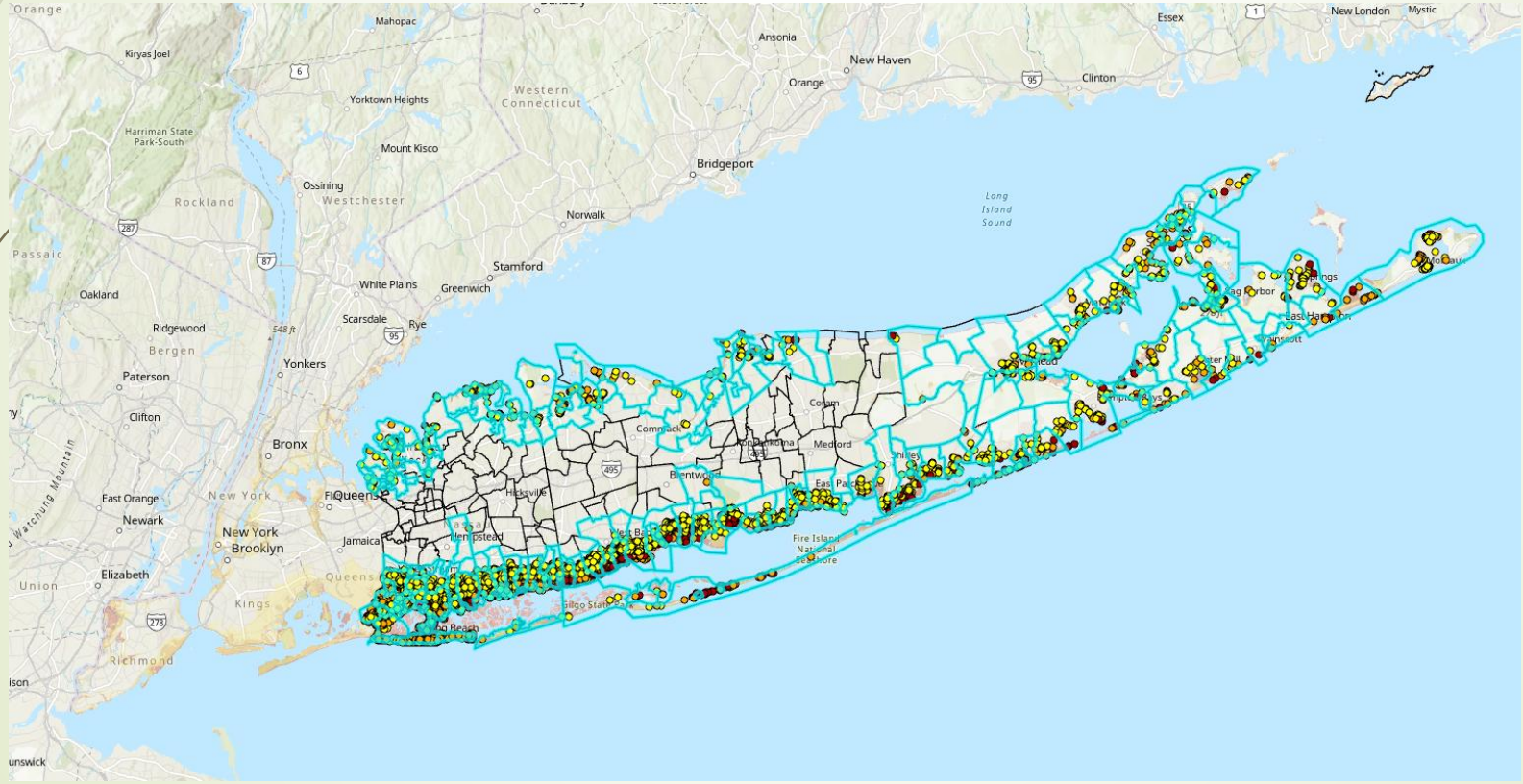
Study Data

- **Business Data**
  - Same dataset used in previous studies and updated - 2025 Data Axle Update
  - The first analysis task was to identify those jurisdictions that had business data that is contained within a Risk Area. This set reduced the number of jurisdictions to 177.



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The Numbers

ISLAND WIDE

	Number of Businesses (est)	Annual Sales Volume (est)	Number of Employees (est)
Extreme Risk	1,824	$3,587,422,000	14,899
High Risk	5,114	$8,308,026,000	43,570
Moderate Risk	20,300	$30,787,075,012	147,853
GRAND TOTAL	**27,238**	**$42,682,523,012**	**206,322**

	Number of Businesses (est)	Annual Sales Volume (est)	Number of Employees (est)
Extreme Risk	6.7%	8.4%	7.2%
High Risk	18.8%	19.5%	21.1%
Moderate Risk	74.5%	72.1%	71.7%
GRAND TOTAL	**100%**	**100%**	**100%**

NASSAU COUNTY

	Number of Businesses (est)	Annual Sales Volume (est)	Number of Employees (est)
Extreme Risk	1,094	$2,716,909,000	9,315
High Risk	3,783	$6,162,036,000	31,957
Moderate Risk	12,518	$18,611,066,012	90,250
GRAND TOTAL	**17,395**	**$27,490,011,012**	**131,522**

	Number of Businesses (est)	Annual Sales Volume (est)	Number of Employees (est)
Extreme Risk	6.3%	9.9%	7.1%
High Risk	21.7%	22.4%	24.3%
Moderate Risk	72.0%	67.7%	68.6%
GRAND TOTAL	**100.0%**	**100.0%**	**100.0%**

SUFFOLK COUNTY

	Number of Businesses (est)	Annual Sales Volume (est)	Number of Employees (est)
Extreme Risk	730	$870,513,000	5,584
High Risk	1,331	$2,145,990,000	11,613
Moderate Risk	7,782	$12,176,009,000	57,603
GRAND TOTAL	**9,843**	**$15,192,512,000**	**74,800**

	Number of Businesses (est)	Annual Sales Volume (est)	Number of Employees (est)
Extreme Risk	7.4%	5.7%	7.5%
High Risk	13.5%	14.1%	15.5%
Moderate Risk	79.1%	80.1%	77.0%
GRAND TOTAL	**100.0%**	**100.0%**	**100.0%**

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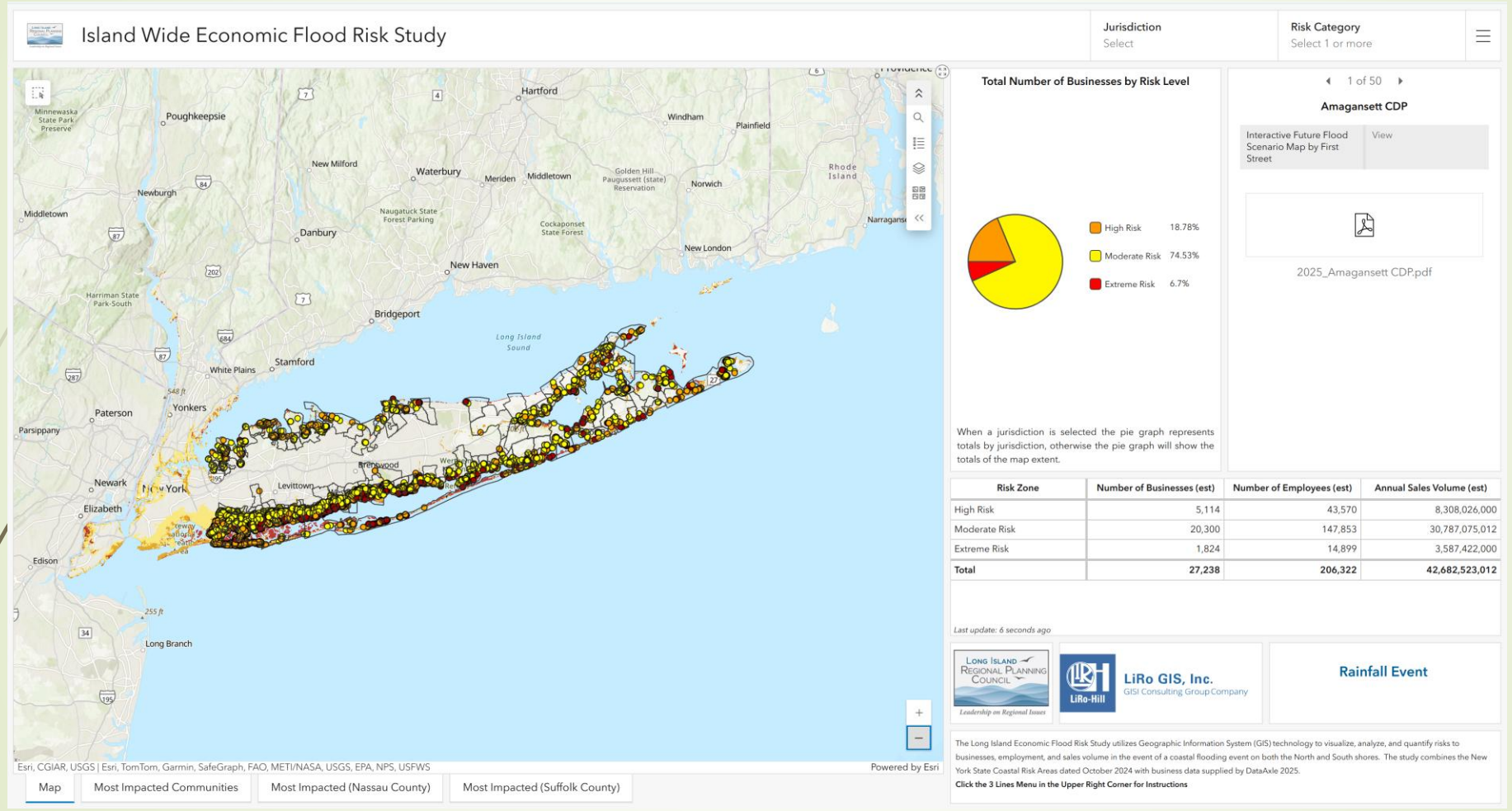
Map Demonstration

[Link to Map]



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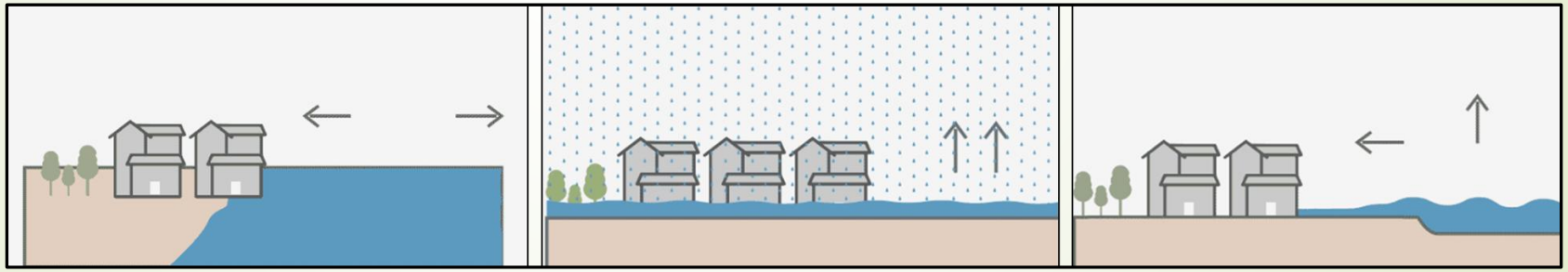
Flood Types

Conventional Risk Area Modeling

Frequency Increasing →

Flood Type	Description	Adaptation Infrastructure
River	Flooding resulting from the overflow of rivers or streams due to heavy rainfall or snowmelt, inundating adjacent land areas	Floodwall, Levee, Dikes, Dams
Coastal	Flooding when seawater inundates coastal areas due to storm surges, high tides, or sea-level rise	Seawalls, Living breakwaters
Precipitation	Flooding caused by excessive rainfall leading to surface water accumulation	Floodwall, Levee



River **Precipitation** **Coastal**

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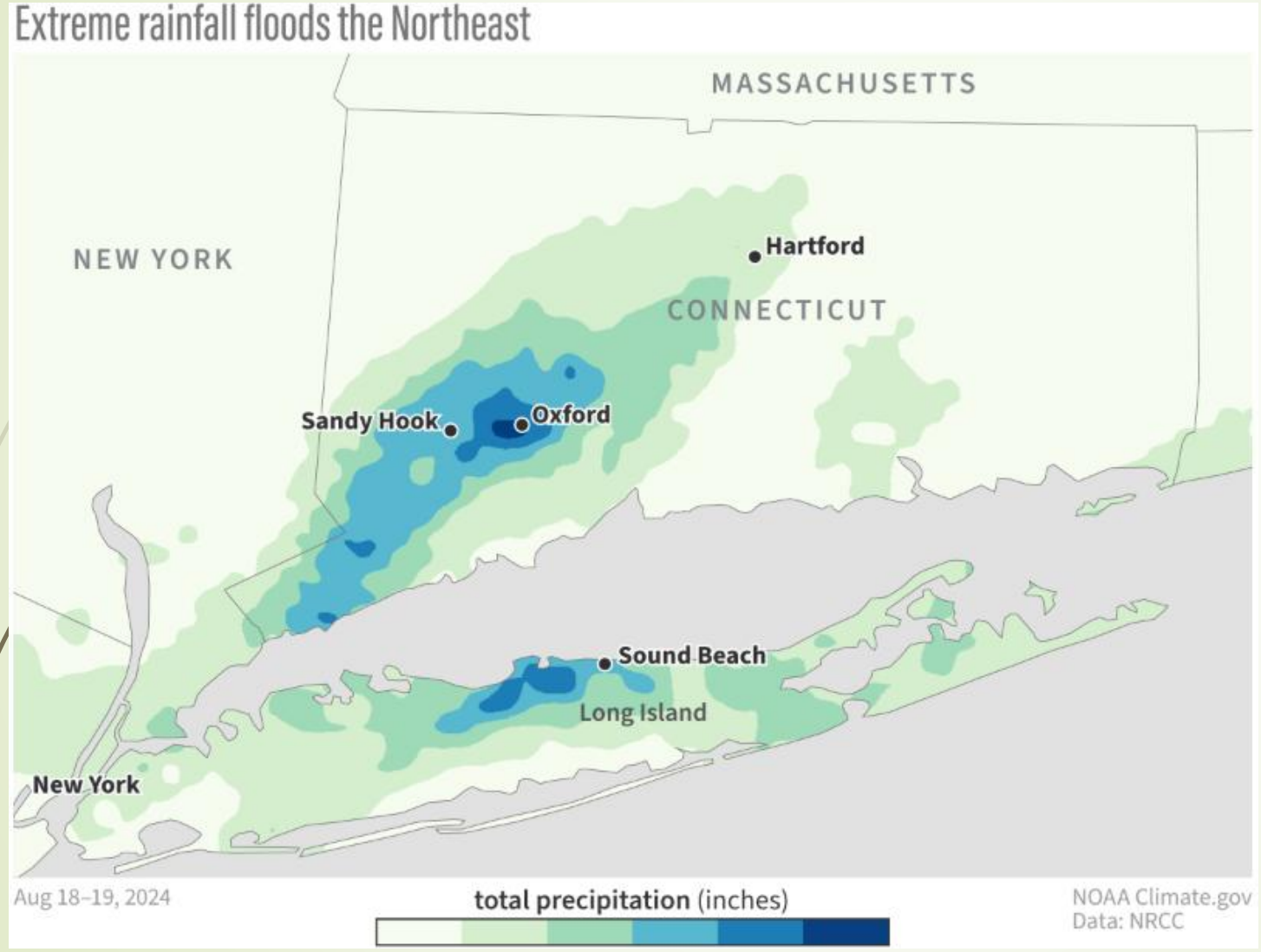
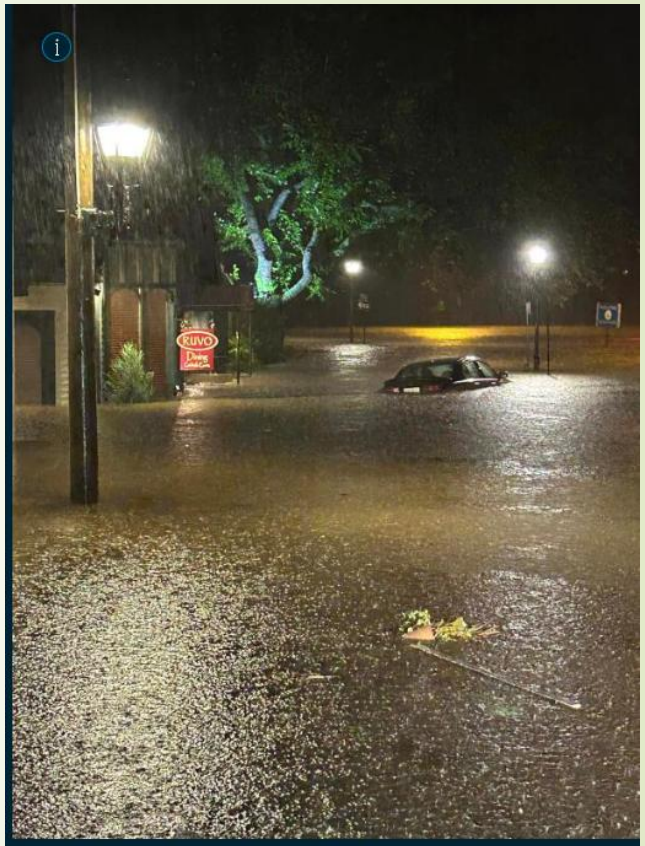
August 2024 Rainfall Event





Port Jefferson, NY Flash Flooding during the early morning hours August 19, 2024. Photo courtesy of the Port Jefferson Fire Department.

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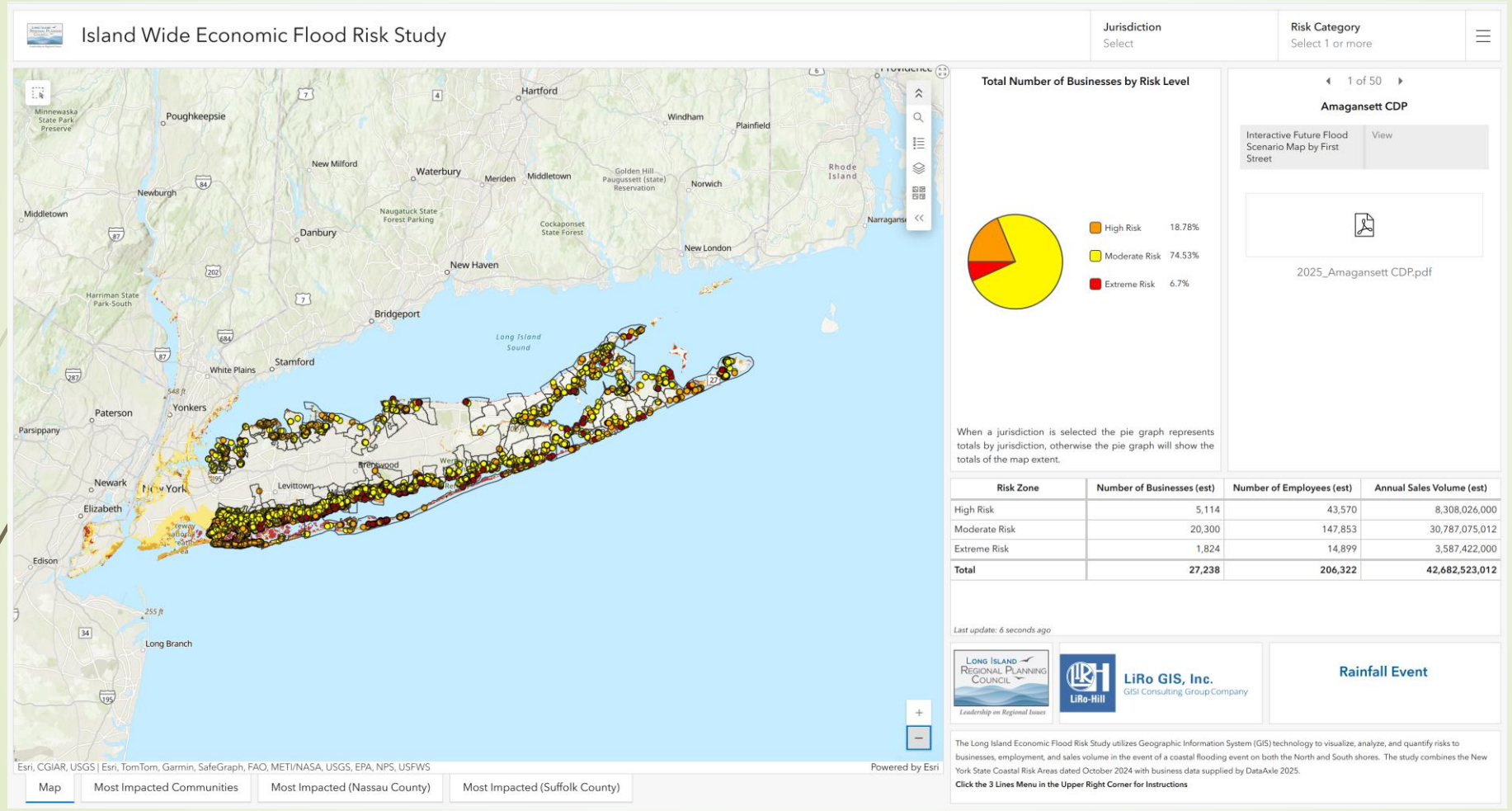

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