

# Living with Flood Hazards in the City of New Castle

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May 10, 2023



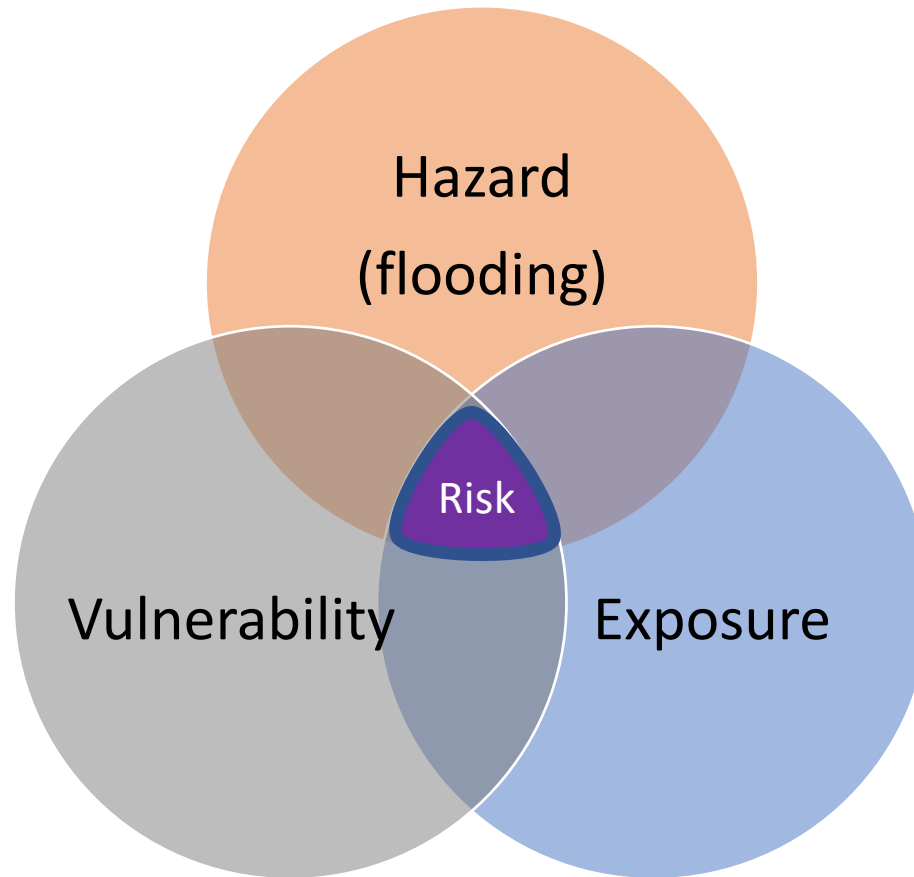


# A Snapshot of the Presentation

- Understanding flood risks and what it means to be resilient to them
- A brief overview of the FEMA floodplain
- Flood Insurance
- Emergency Preparedness Strategies

# Understanding Risk

Risk = Hazard + Exposure + Vulnerability



Adapted from FEMA, IS-393.A  
Introduction to Hazard Mitigation

Hazard  
(\*Flooding)



Heavy  
Precipitation  
Events



Coastal  
Storms



Tidal



Sea Level Rise

# Heavy Precipitation Events



# Coastal Storms



Tropical Storm Fay, 2002

# Tidal Flooding



Photo: Joe Raedle/Getty Images North America

## Reedy Point, DE

Year	Flood Days
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2021	6
------	---

### Projected High Tide Flood Days

Year	Flood Days
------	------------

2022	2 - 5
------	-------

2050	35 - 65
------	---------

Average No. of flood days in 2000: 1

Record No. of flood days: 5

Flood threshold is 0.57m above MHHW

\*Source: NOAA State of High Tide Flooding and 2022 Outlook

[https://tidesandcurrents.noaa.gov/HighTideFlooding\\_AnnualOutlook.html](https://tidesandcurrents.noaa.gov/HighTideFlooding_AnnualOutlook.html)

# Sea Level Rise



Source: Massachusetts Audubon Center

Appears as an increase in average tide height over time

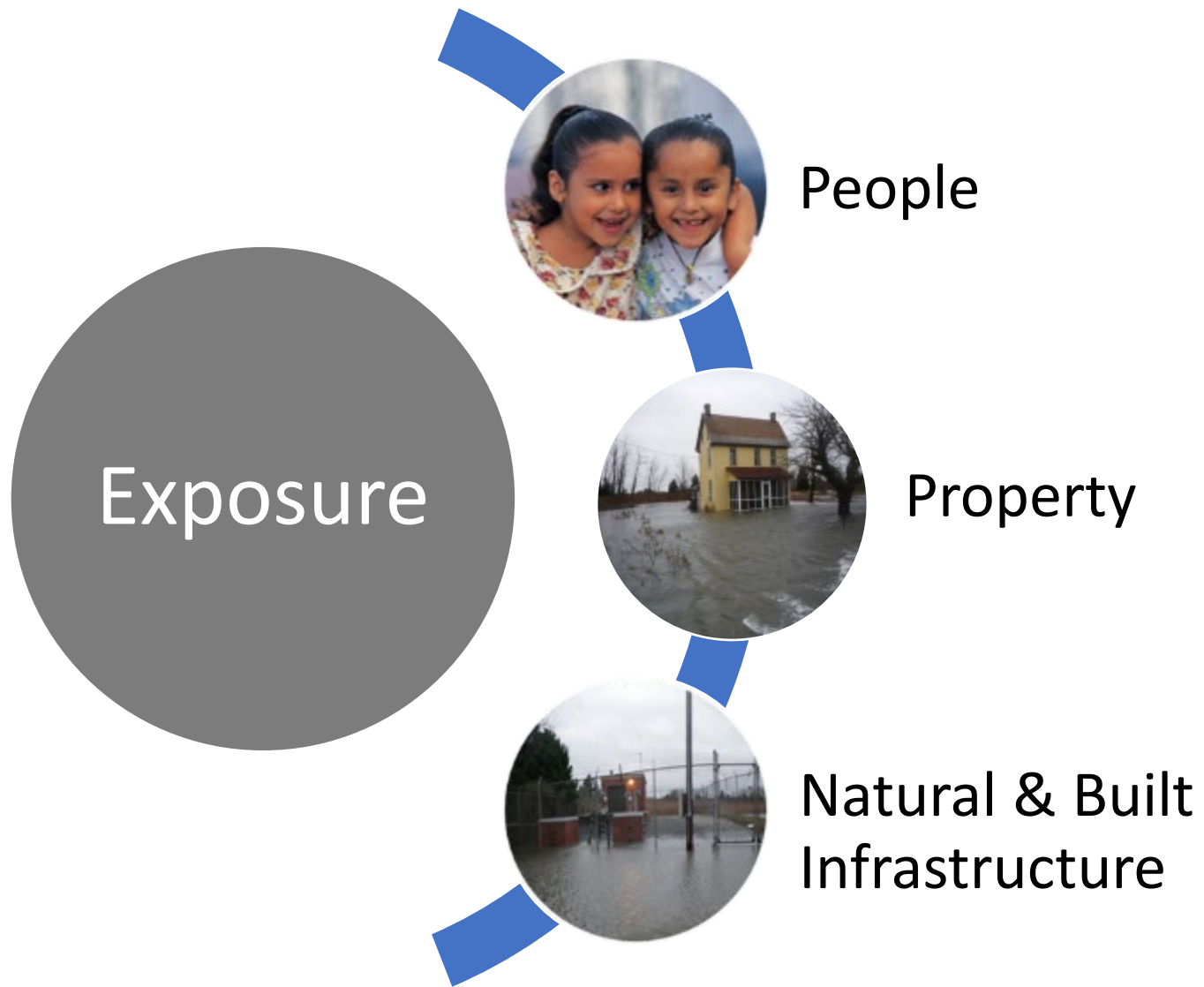




On average, the U.S. will see as much **sea level rise by 2050** as seen in the last century



*By 2050, “moderate” (typically damaging) flooding is expected to occur, on average, more than 10 times as often as it does today, and can be intensified by local factors. – 2022 Sea Level Rise Technical Report*



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CITY OF  
NEW CASTLE  
100026

Zone AE  
(EL 8)

Zone AE  
(EL 9)

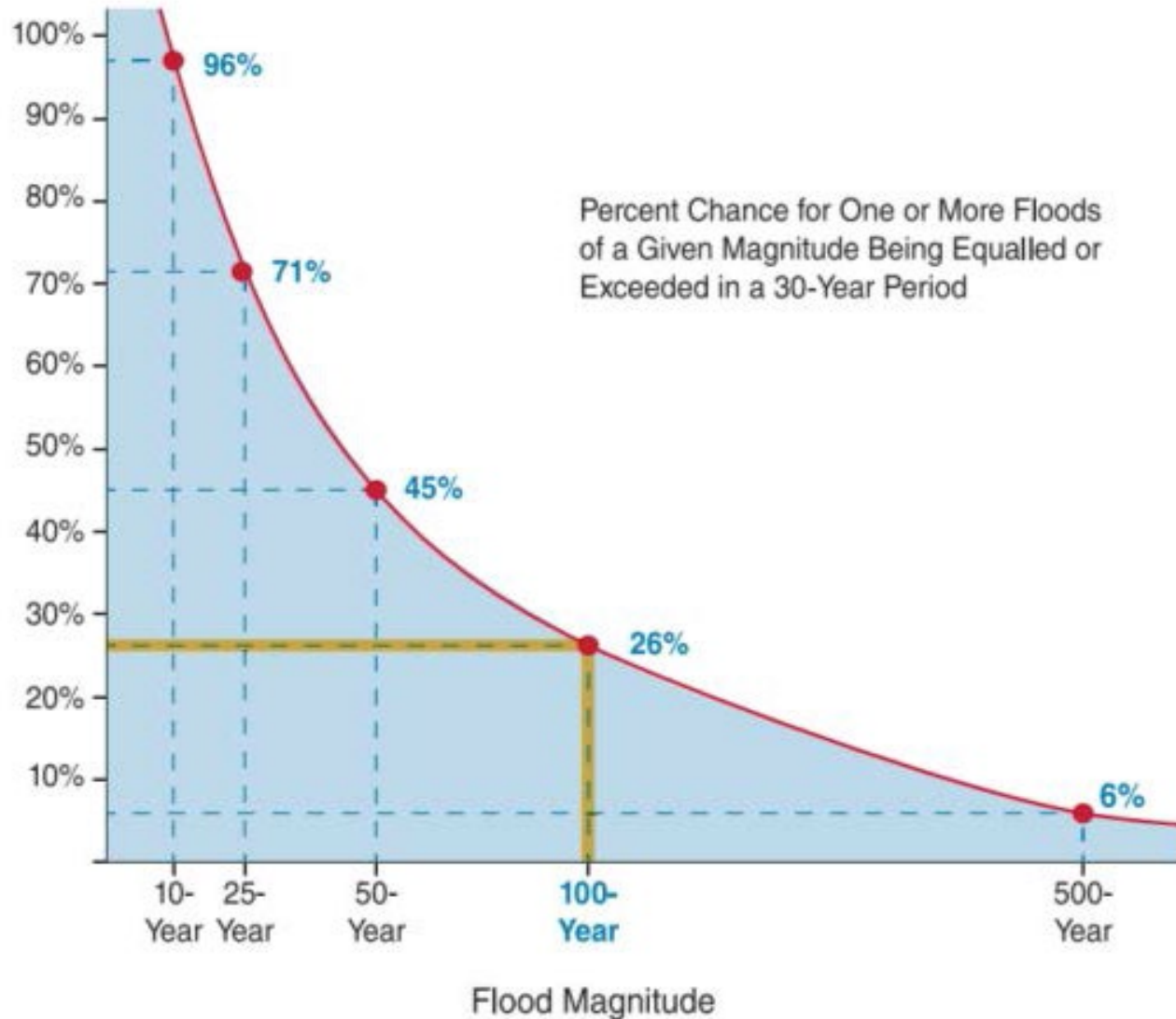
Zone AE  
(EL 10)

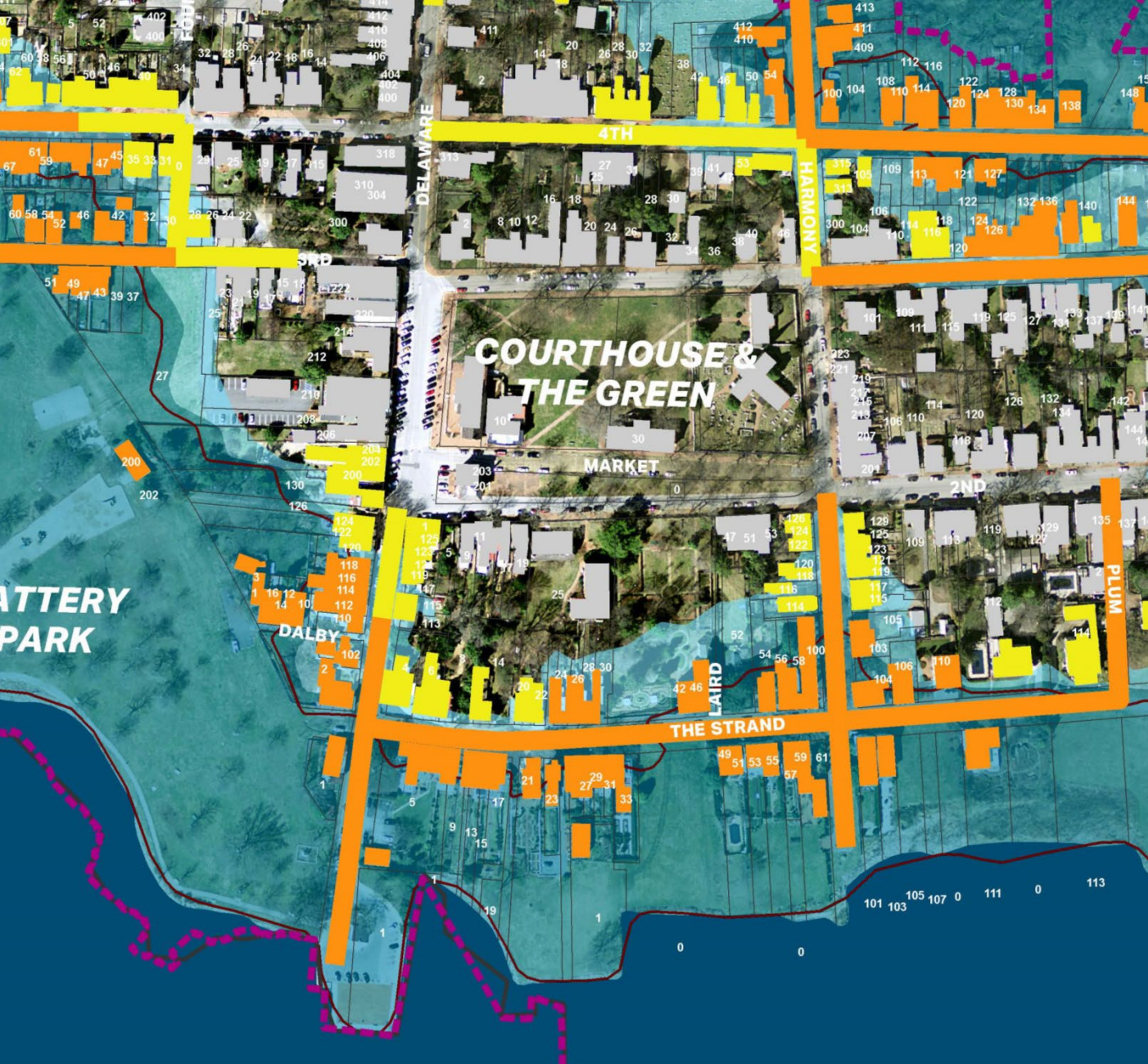
Zone  
(EL

## FEMA Flood Insurance Rate Map (FIRM)

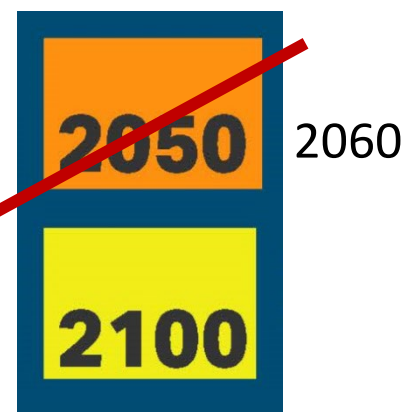
FEMA Flood Map Service Center: <https://msc.fema.gov/portal/home>

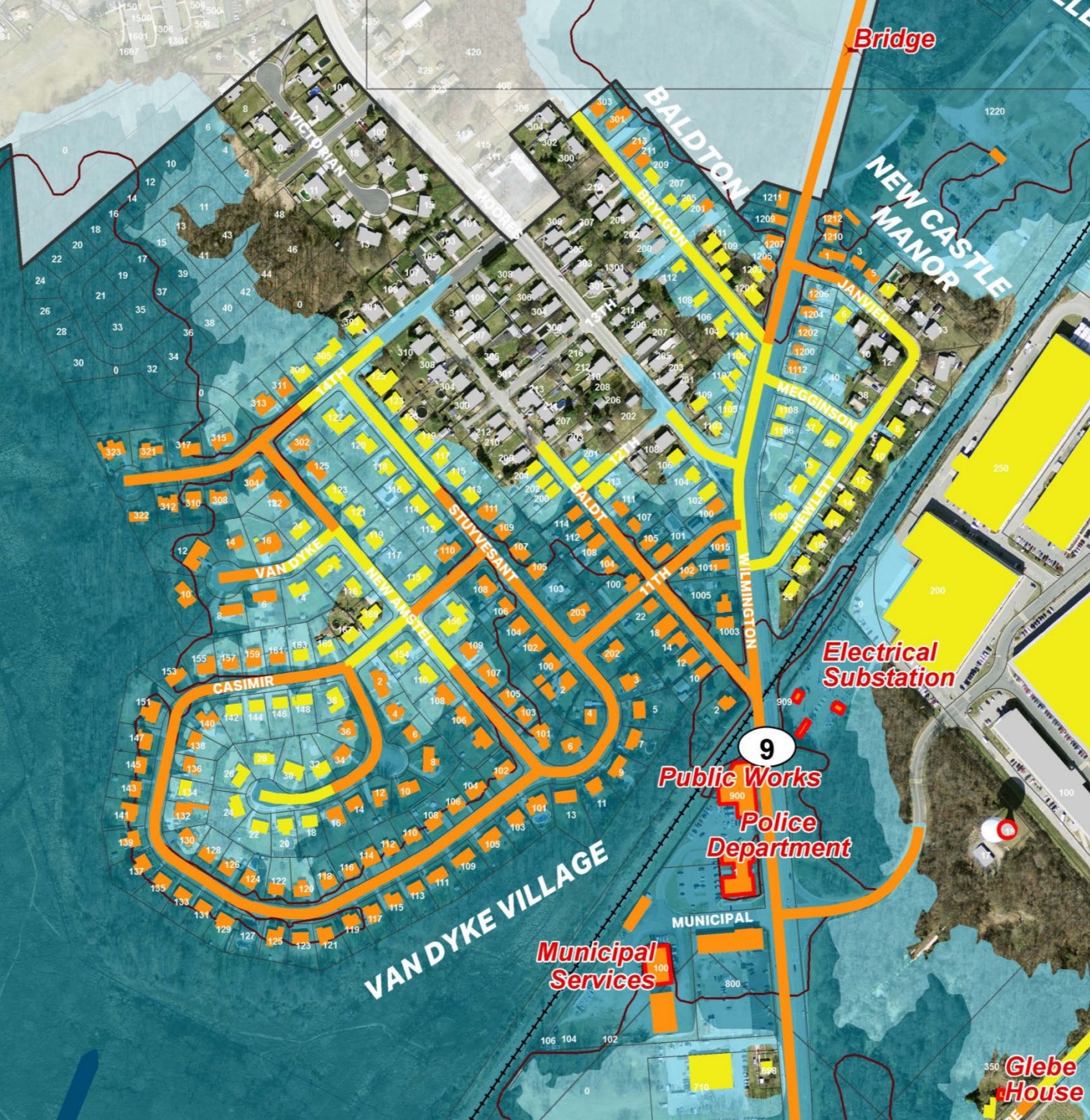
# 100 Year Floods, or 1% Floods Have a 26% Chance of Occurring In Any 30 Year Period



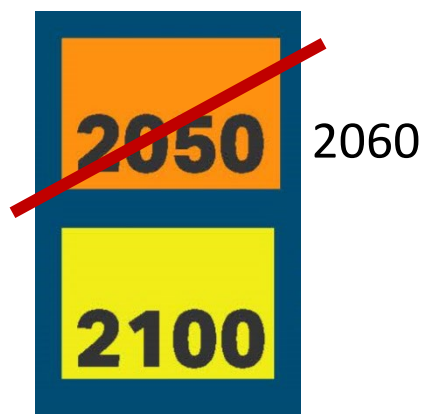


Buildings and roads exposed to inundation at high tide due to sea level rise

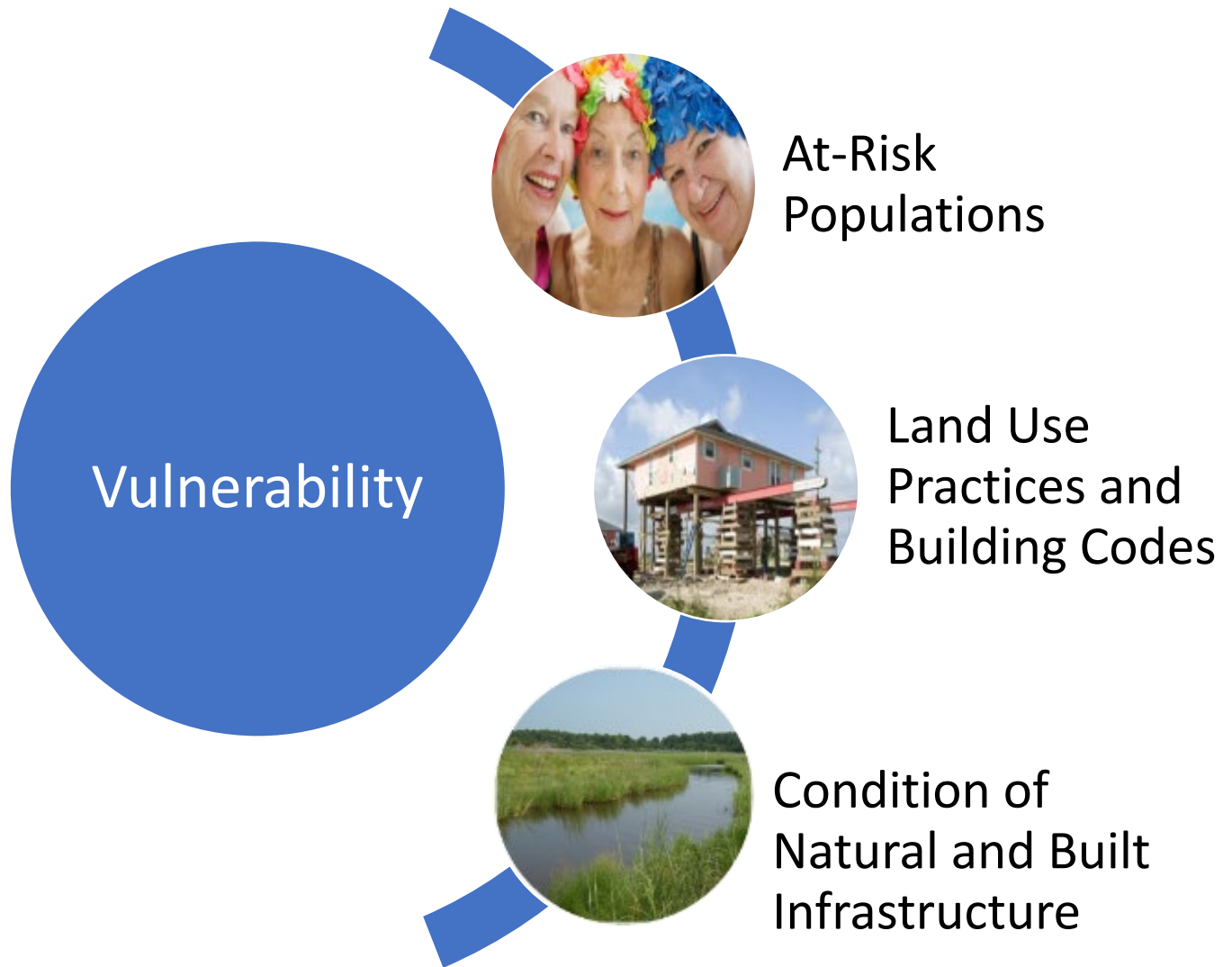




Buildings and roads exposed to inundation at high tide due to sea level rise



Source: Vulnerability Assessment and Adaptation Plan, 2018



Adapted from FEMA, IS-393.A  
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# Sensitivity

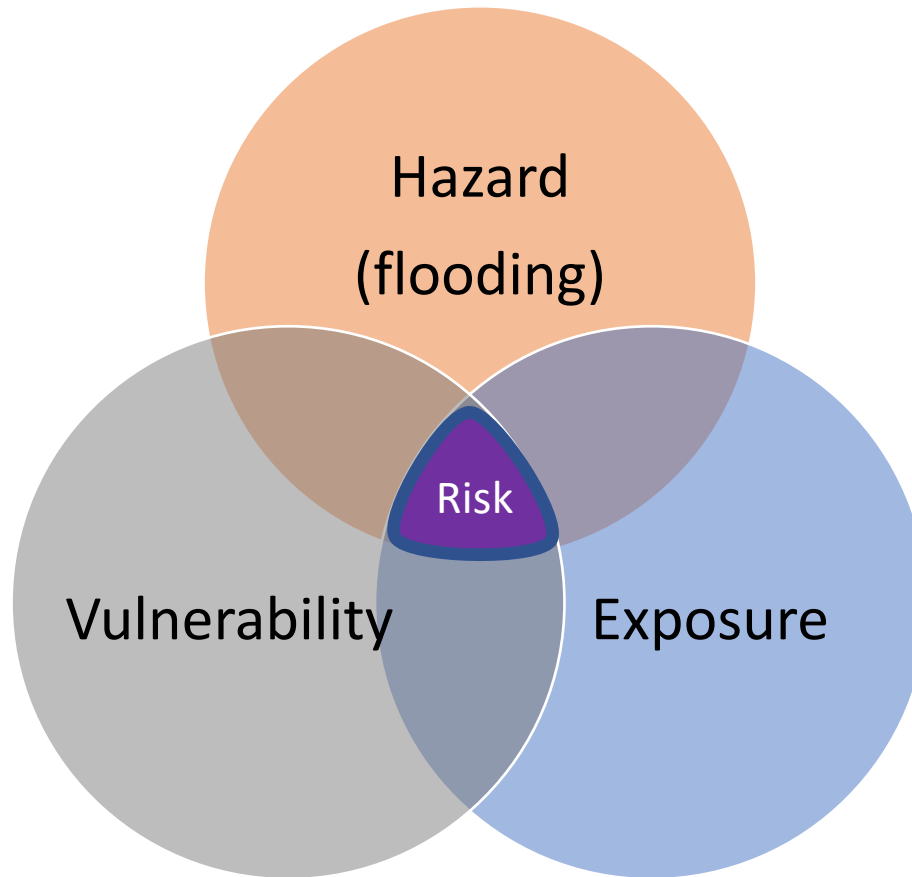


# Adaptive Capacity





# Use These Factors To Assess Your Risks



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Introduction to Hazard Mitigation

# Resilience:

The ability to bounce back after disruptive events



Remnants of Hurricane Ida, Wilmington, DE 2021



How long before life returns to “normal?”

# Emergency Preparedness Strategies



**“Winging It” is NOT a good plan!**

# Emergency Notification Systems



## Emergency Alert System Radio Stations:

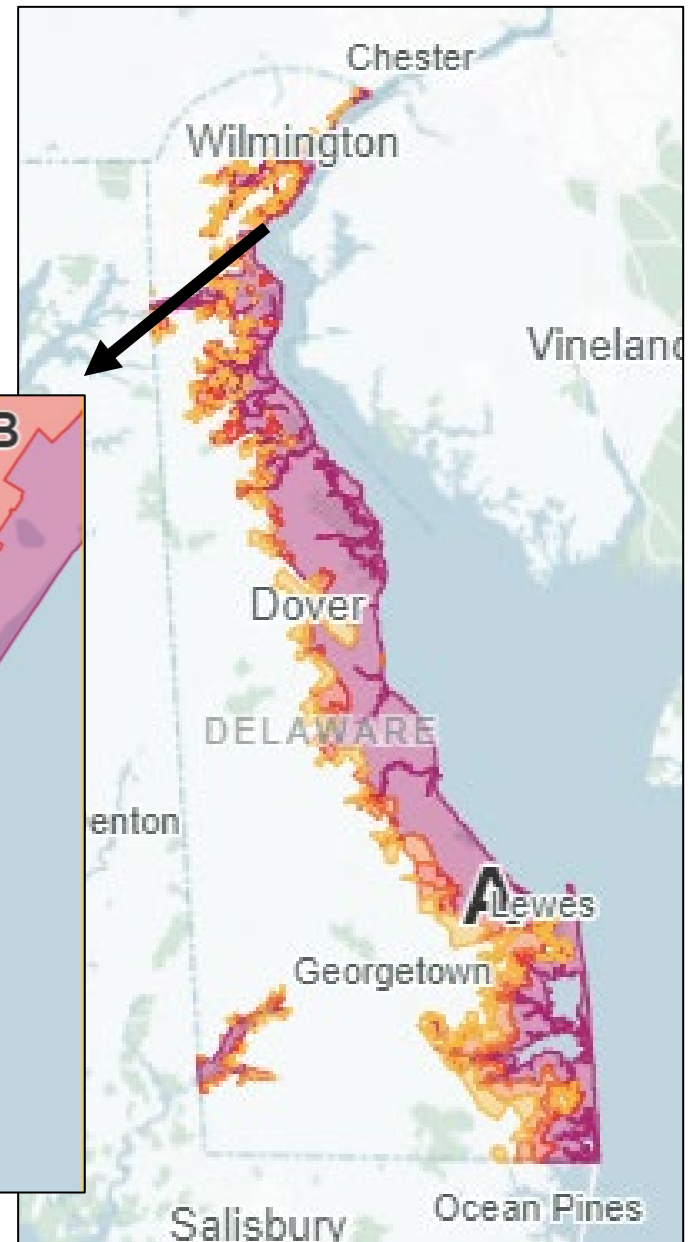
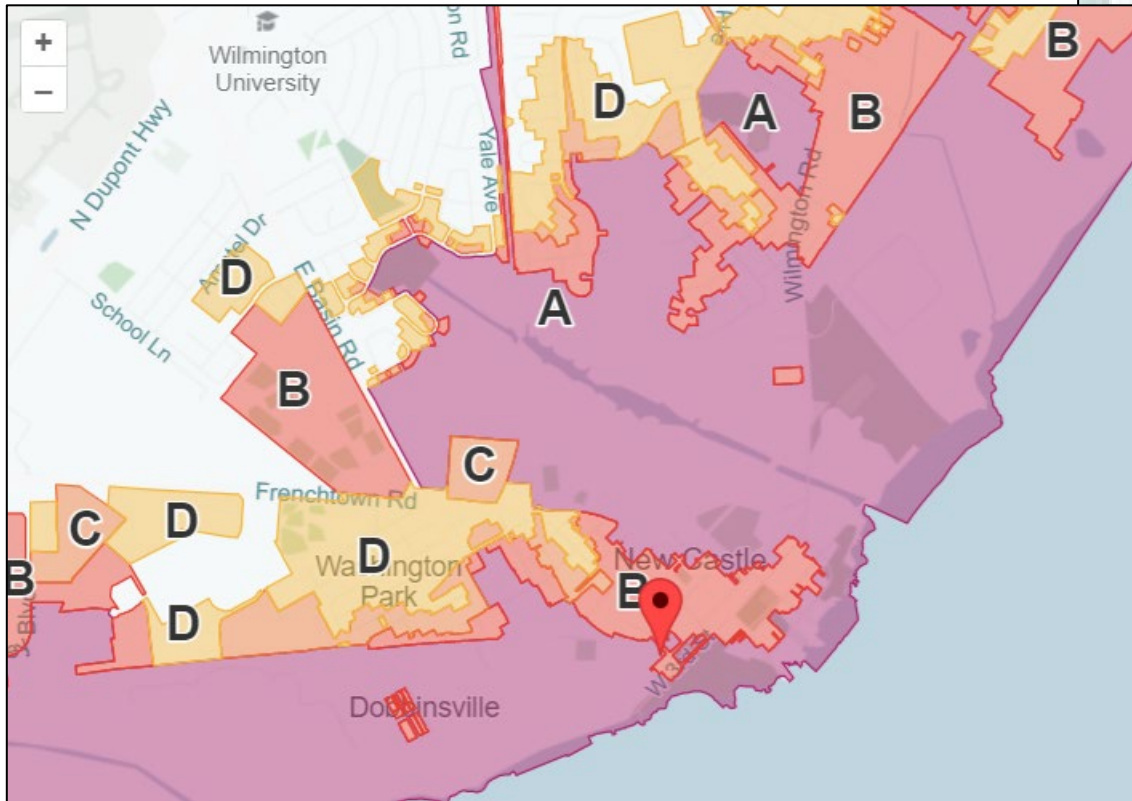
- WDEL – AM 1150 / FM 101.7
- WTMC – AM 1380 (DeIDOT Traffic Advisory Station)
- WILM – AM1450
- WSTW – FM 93.7
- WWTX-AM 1290
- WJBR – FM 99.5

Delaware Emergency  
Notification System (DENS)

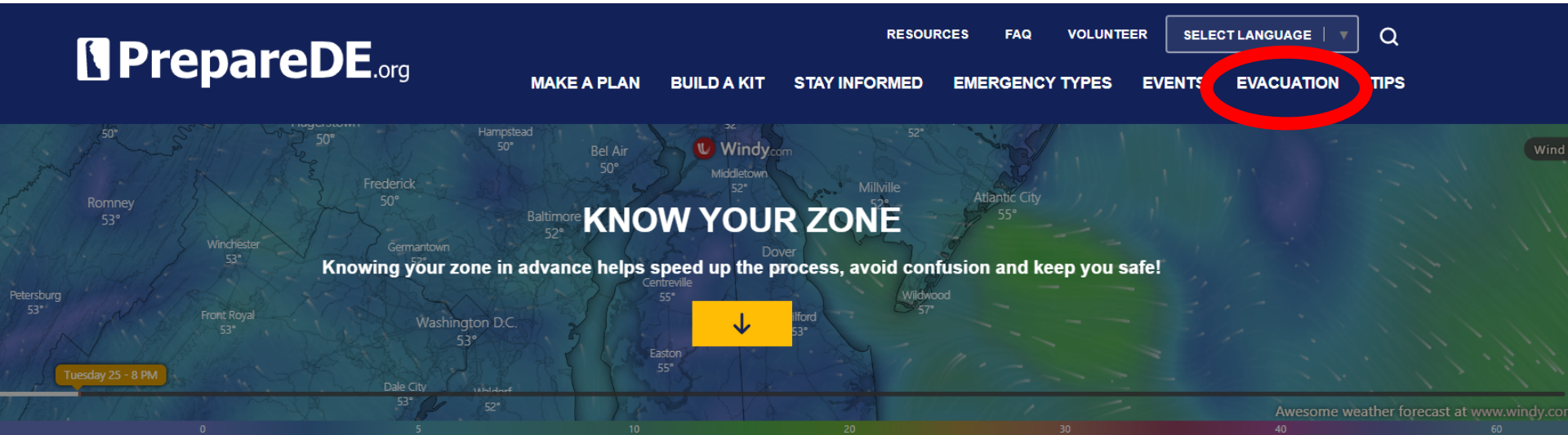
<https://preparedede.org/stay-informed/>

# Know Your Zone:

Evacuation zones are low-lying areas that are prone to flooding & storm surge: A, B, C, D



# Know Your Zone: <https://preparede.org/know-your-zone/>



## Find Your Evacuation Zone to Stay Safe!

Your evacuation zone informs you on **when and how to evacuate in case of emergency.**

[LEARN MORE](#)

## What is an Evacuation Zone?

Evacuation Zones encompass low-lying areas, susceptible to flooding and storm surge.

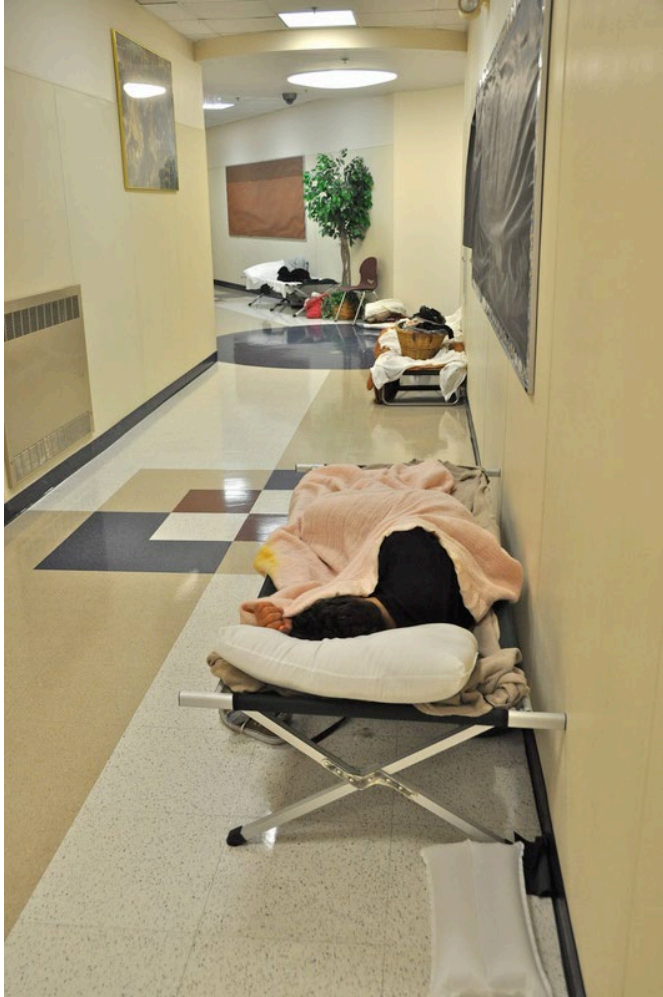
[LEARN MORE](#)

## Why is an Evacuation Zone important?

It's important to know your Evacuation Zone **before a disaster strikes.**

[LEARN MORE](#)

# Evacuation Procedures and Shelters



- Make a plan for how you will leave and where you will go
- Take an emergency supply kit
- Head evacuation instructions
- Keep full tank of gas
- Use shelters as a last resort
- Bring ID and proof of address

Shelter, Hurricane Irene 2011

# Household Communications Plan

- Write down phone numbers and email addresses of household members
- Become familiar with the emergency response plans of schools, daycare and workplaces
- Identify an out-of-town individual that each member calls to report location and condition
- Designate emergency meeting places
- Make copies of the plan for each member to carry





# Pets and Service Animals

- Create a pet emergency supply kit
  - 3 days supply of food, medications, water, blanket
  - Photo of you and your pet together
  - Pet adoption and vaccine records
  - Leash and traveling crate
- Pet should wear collar with rabies tag and ID tag
- Create a buddy system to help with your pet



# Health and Mobility Needs

- Obtain early refills of prescriptions
- Keep medication in water-tight bags or containers
- Store single use ice packs for refrigerated medications
- Have back ups for assistive devices if necessary
- Identify plan B for life-sustaining treatment
- Write down medications, doctors, allergies, etc.



# Create a Support Network

- Who Are Your “Preparedness Buddies?”
- Periodically Touch Base and Update Them



## Share:

- Communications Plan
- Copies of Keys
- Medical Information
- Instructions On the Use of Medical Equipment



# Sheltering in Place


- Safeguard important paperwork
- Know how to turn off your electric and gas
- Do not operate generators indoors
- Secure outside furniture, lawn ornaments
- Place containers of frozen water in refrigerator
- Fill laundry machine with water



# Protect Your Property

- Elevate utilities or install barriers
- Install back flow valves
- Trim tree branches and shrubs
- Clear gutters, drainage ditches
- Seal basements and crawlspaces
- Install a flood alert system





You can't control the  
weather, but you can  
**prepare for it.**

## **Invest in Flood Insurance**

- Renters and homeowner's policies typically do not cover flooding
- Federal assistance to the non-insured is limited
- More than 20% of flood claims come from outside of high risk flood zones
- Insurance policies take 30 days to go into effect
- Visit [FloodSmart.gov](https://www.floodsmart.gov) for more information



# Invest in Community Preparedness, Response and Recovery

- Support the expansion of social services in your area
  - Particularly to vulnerable populations
- Volunteer in networks
- Organize a Community Emergency Response Team (CERT)
- Support investments in flood mitigation and community resilience





**Community Resiliency Begins With YOU:  
Know Your Risks  
Plan for the future  
Act NOW**