

Module 1

Risk and Hazard Concepts

Danielle Swallow
Planner, DNREC Delaware Coastal Programs

May 19, 2017

Hazard (*Flooding)



Heavy
Precipitation
Events



Coastal
Storms



Sea Level
Rise

Exposure



People



Property



Systems

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

Vulnerability



Land Uses
and Building
Standards



At-risk
populations

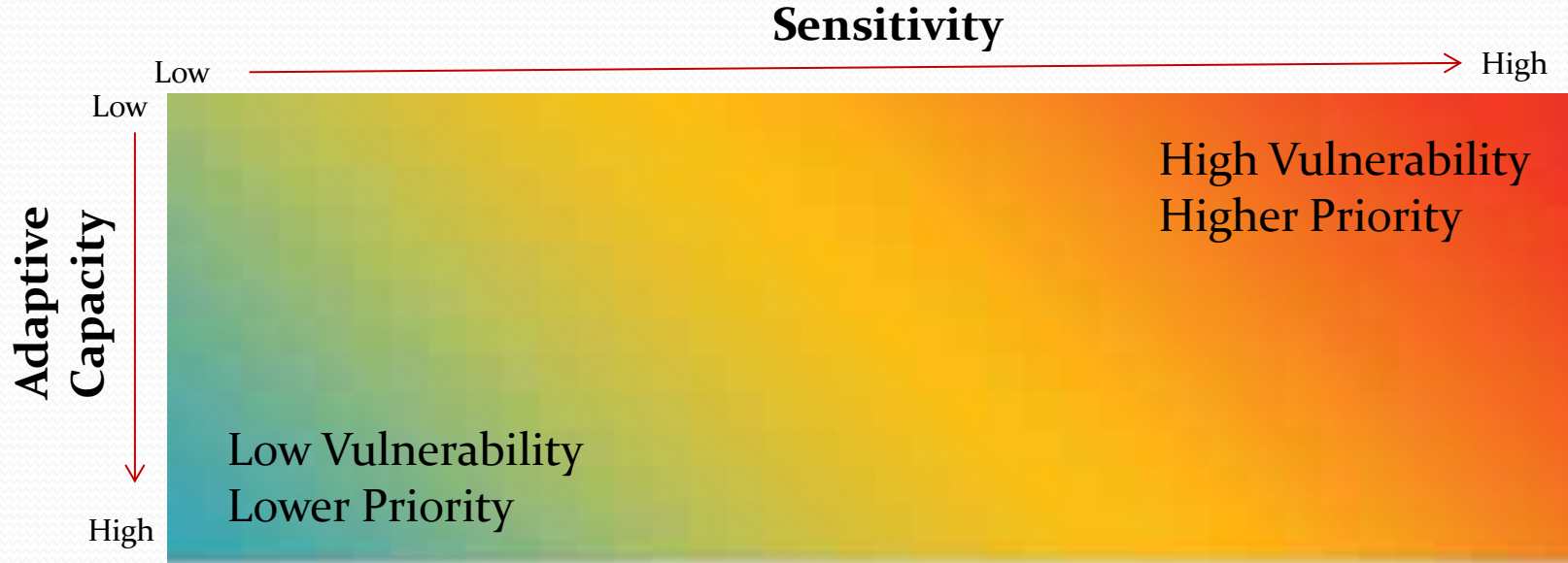


Flood
Attenuation

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

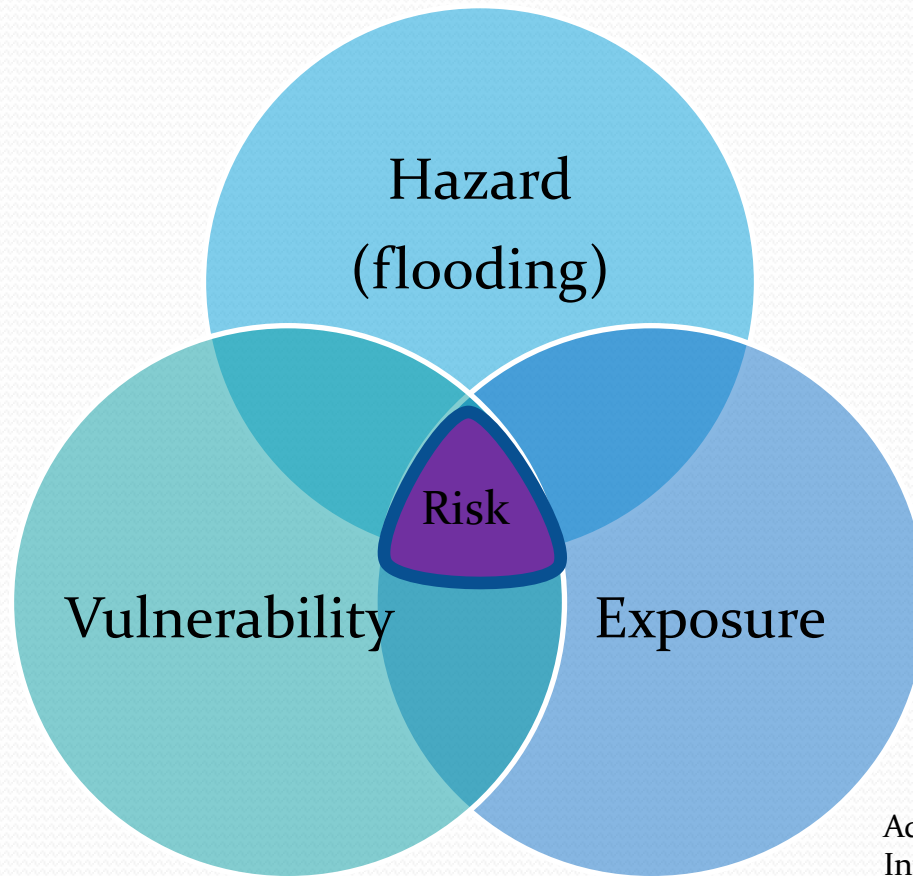
Vulnerability, continued:

- Consider whether the asset is subject to existing stress now (stressed systems are more likely to be sensitive/have reduced adaptive capacity)
 - Examples: development patterns, invasive species, infrastructure decay



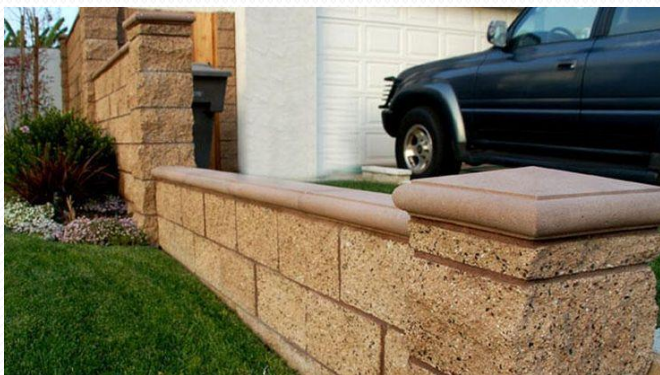
Graphic courtesy of Daniella Hirschfeld, The Resiliency Place

Risk = Hazard + Exposure + Vulnerability



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

Mitigate and Adapt to Reduce Risk



Avoid



Protect



Accommodate



Retreat

These strategies are implemented in different ways...

- Comprehensive Plan updates
- Town codes and ordinances
- Zoning designations
- Design and engineering projects
- Outreach and education
- Emergency response plans
- Changes in behavior

