Resilient Community Partnership

Danielle Swallow
DNREC's Delaware Coastal Programs

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Presentation Overview:

- Resilient Community Partnership
- What's causing the City's flooding problems
- Why flooding events may worsen
- How can we improve the City's resilience?

Resilient Community Partnership

<u>GOAL</u>: To help communities undertake the necessary planning to enhance their capacity to become *resilient* to coastal hazards

Definition of Coastal Resiliency:

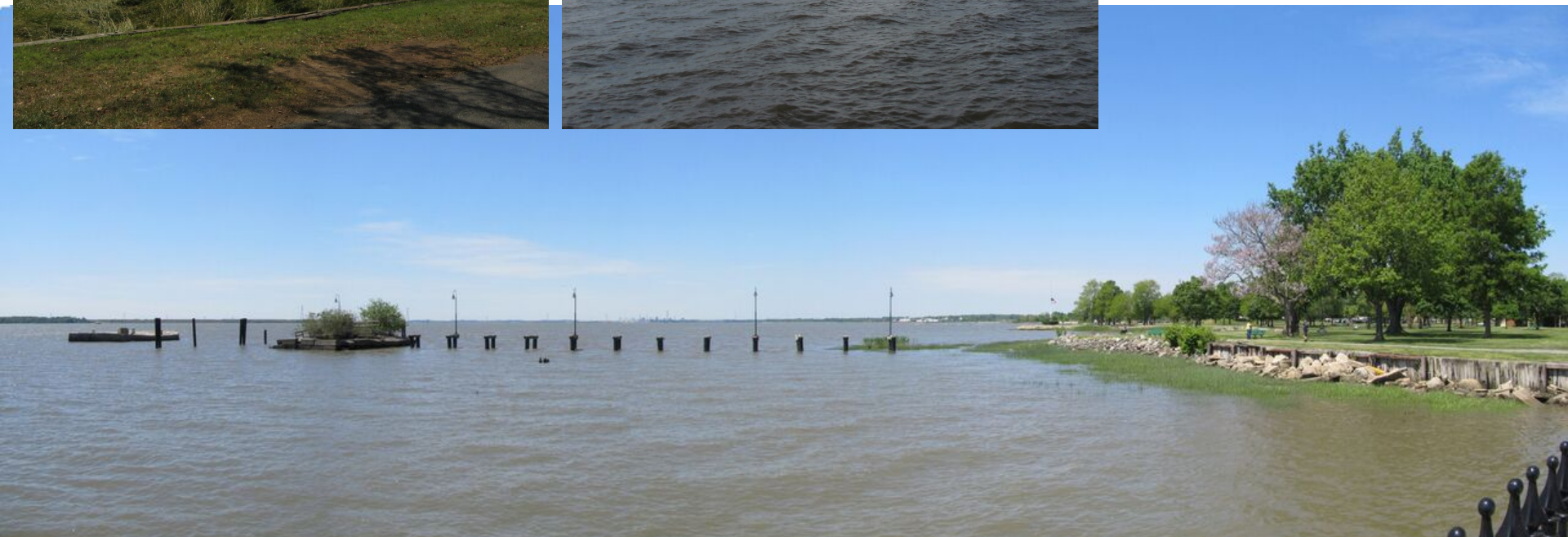
The ability of a community to prepare for and *bounce back* after hazardous events like coastal storms.

How long before life returns to “normal?”

RCP Project:

Analyze City's Vulnerability to Flooding and Recommend Adaptation and Mitigation Strategies

Before & After Superstorm Sandy

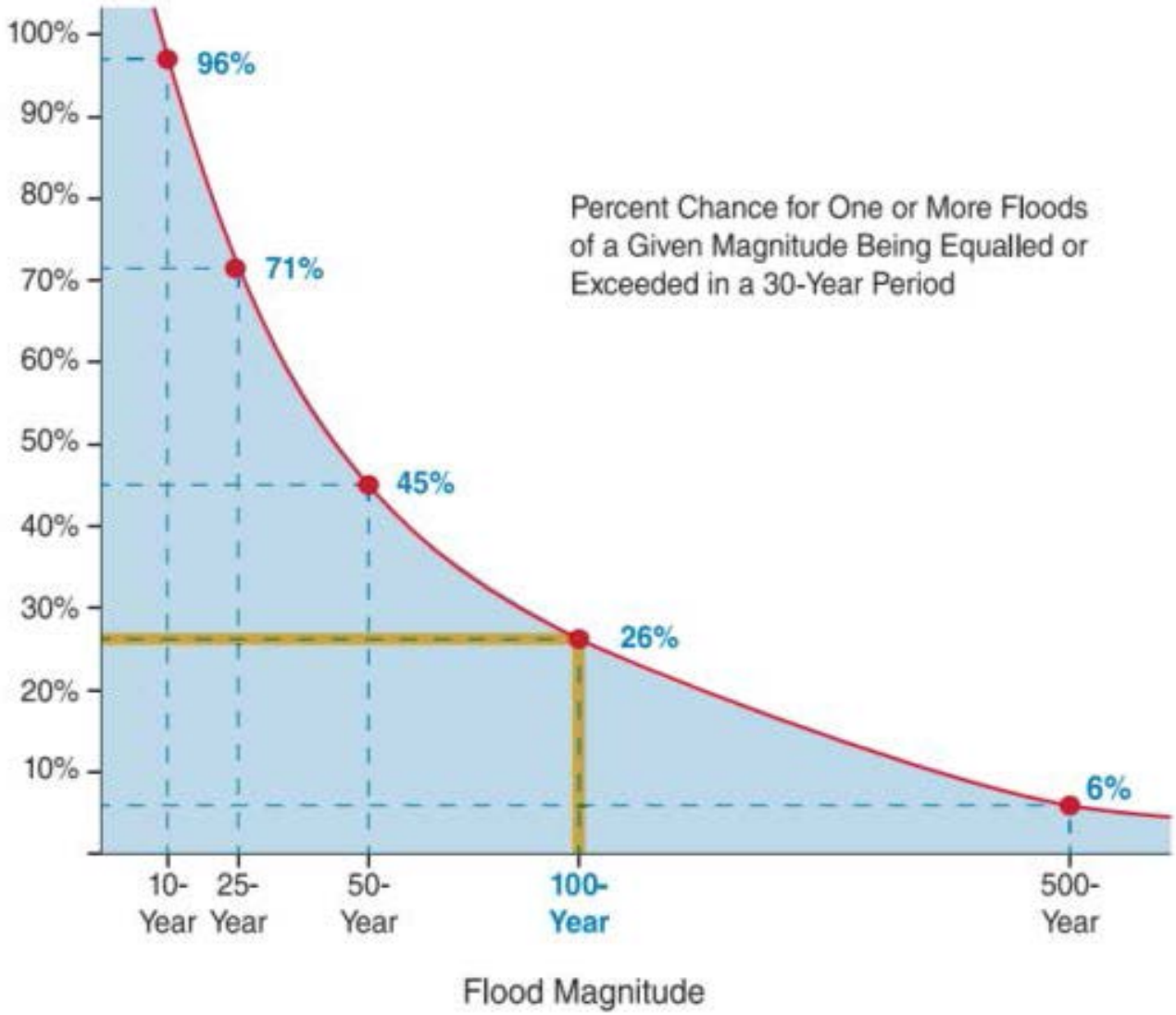


Flood Risks in the City of New Castle

- Storms, including storm surge
- Extreme high tides
- Heavy precipitation events
- Sea level rise

FEMA Flood Insurance Rate Map (FIRM)

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



Seven years of 500-year storms

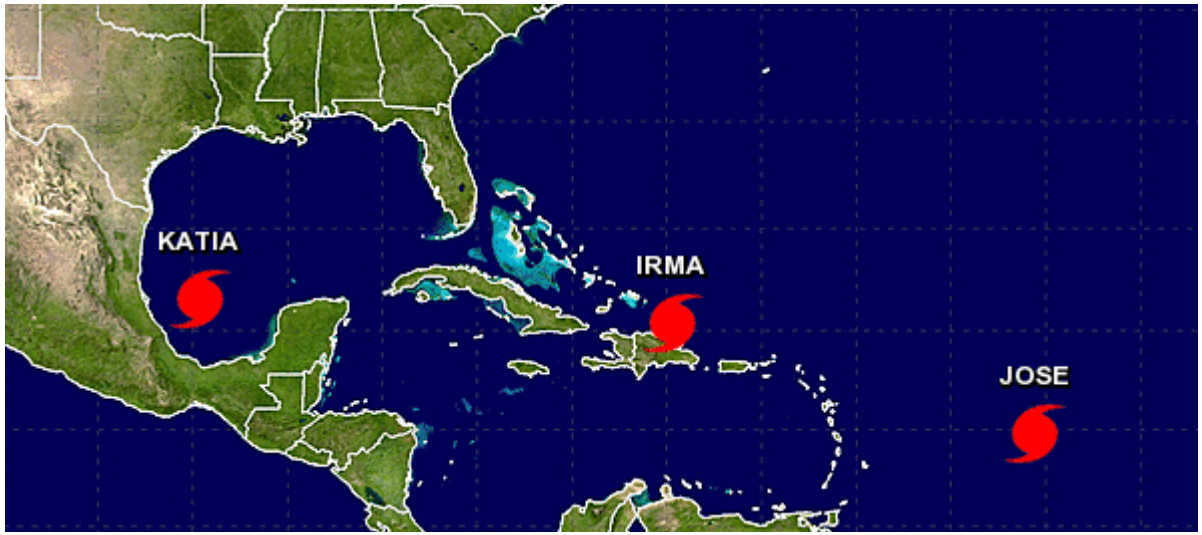
Locations of major 500-year rains since 2010 analyzed by the Hydrometeorological Design Studies Center of the National Weather Service

WAPO.ST/**WONKBLOG**

Source: National Weather Service

Today's Flood Maps Do Not Account For:

- Changes in storm climatology and sea level rise
- Shoreline erosion, wetland loss, subsidence
- Upland development or topographic changes
- The effects of multiple storm events



City of New Castle Dike System

Components of the Dike System

Delaware Is Experiencing Changing Climate Conditions

- Local Sea Levels Are Rising at Twice the Global Avg

Global rate = 1.7 mm/yr
Reedy Point, DE rate = 3.54 mm/yr

- Increasing Intensity in Precipitation

Sources: NOAA, DE State Climatologist, and Dr. Katharine Hayhoe, et al

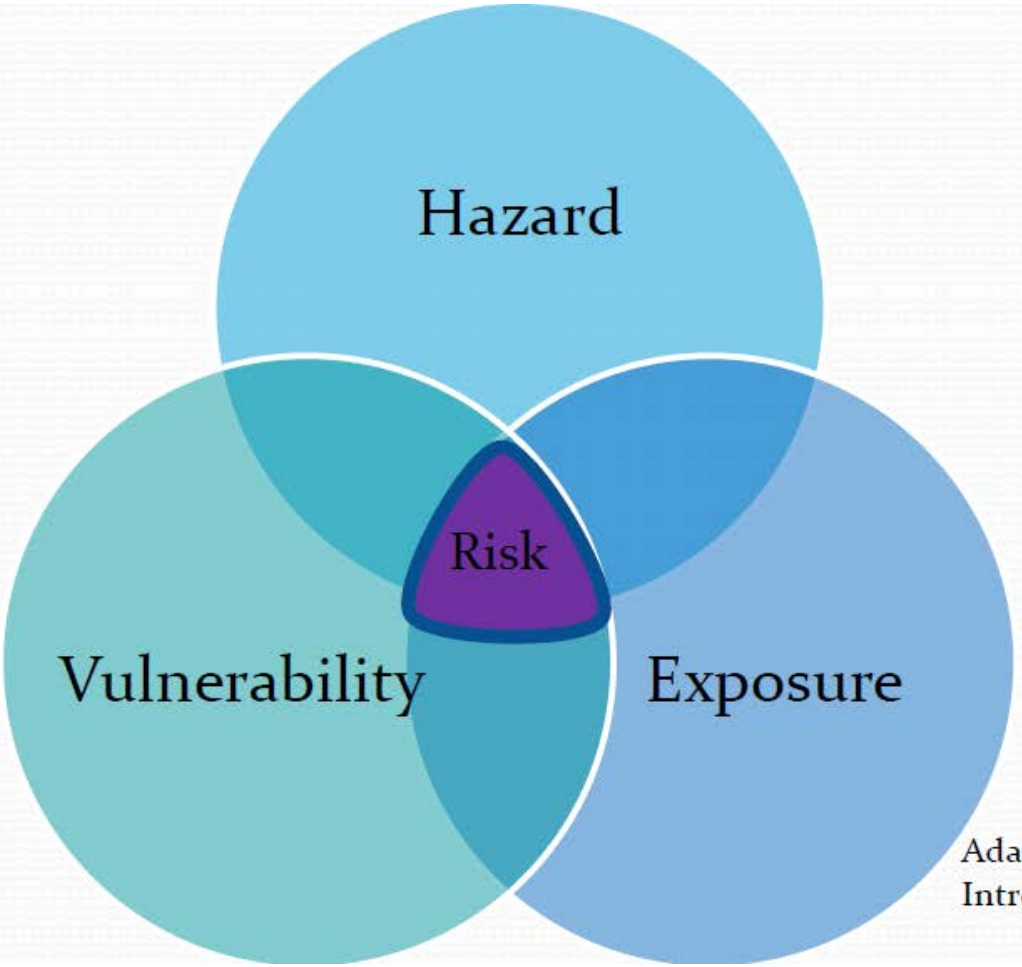
DE Sea Level Rise Planning Scenarios

- Updated in 2017 with the latest scientific info
- RCP team selected a conservative planning scenario for this analysis:

2 feet (2050) and 5 feet (2100) of sea level rise

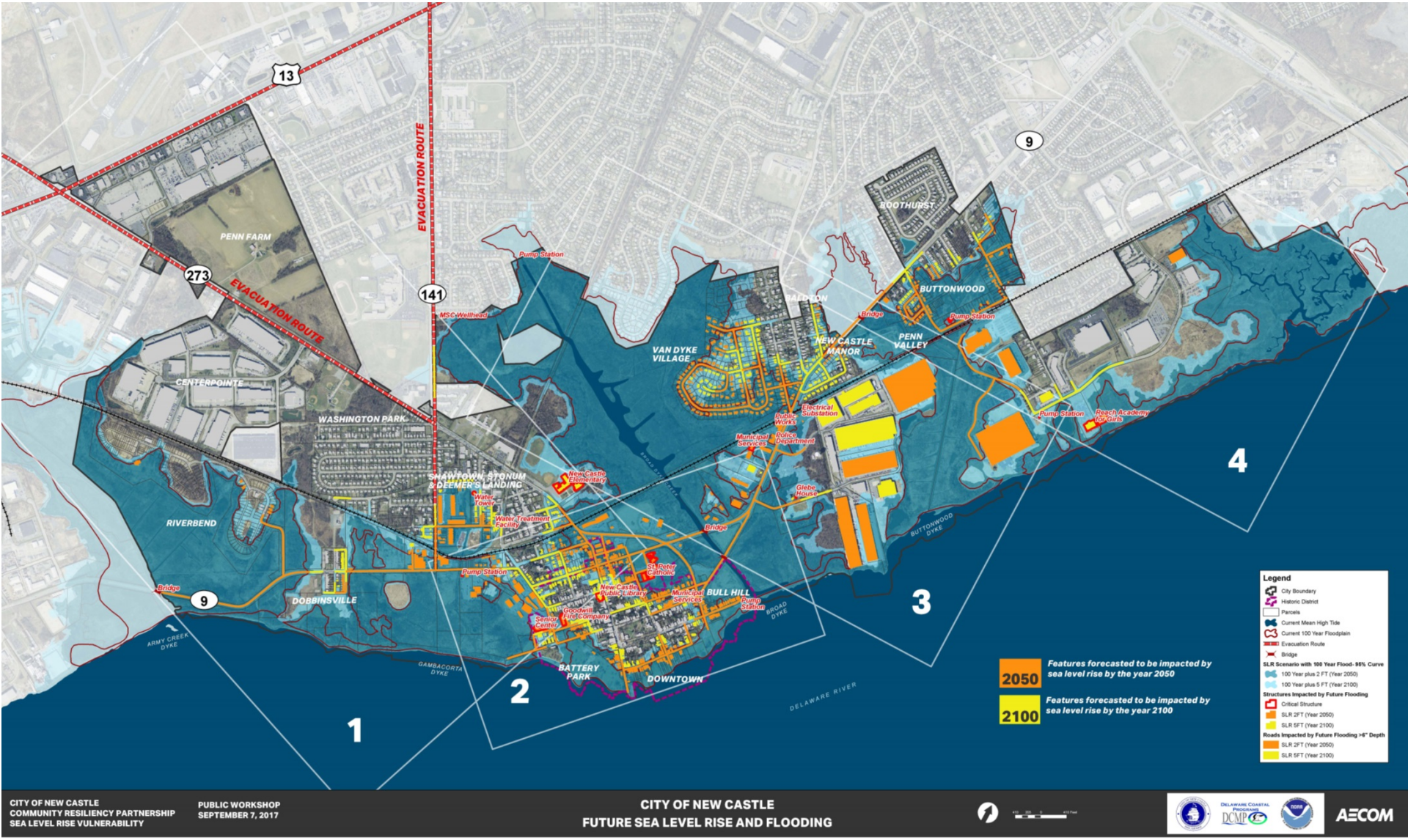
- Appropriate choice for critical infrastructure
- The use of two timeframes allows greater flexibility for adaptation planning and mitigation

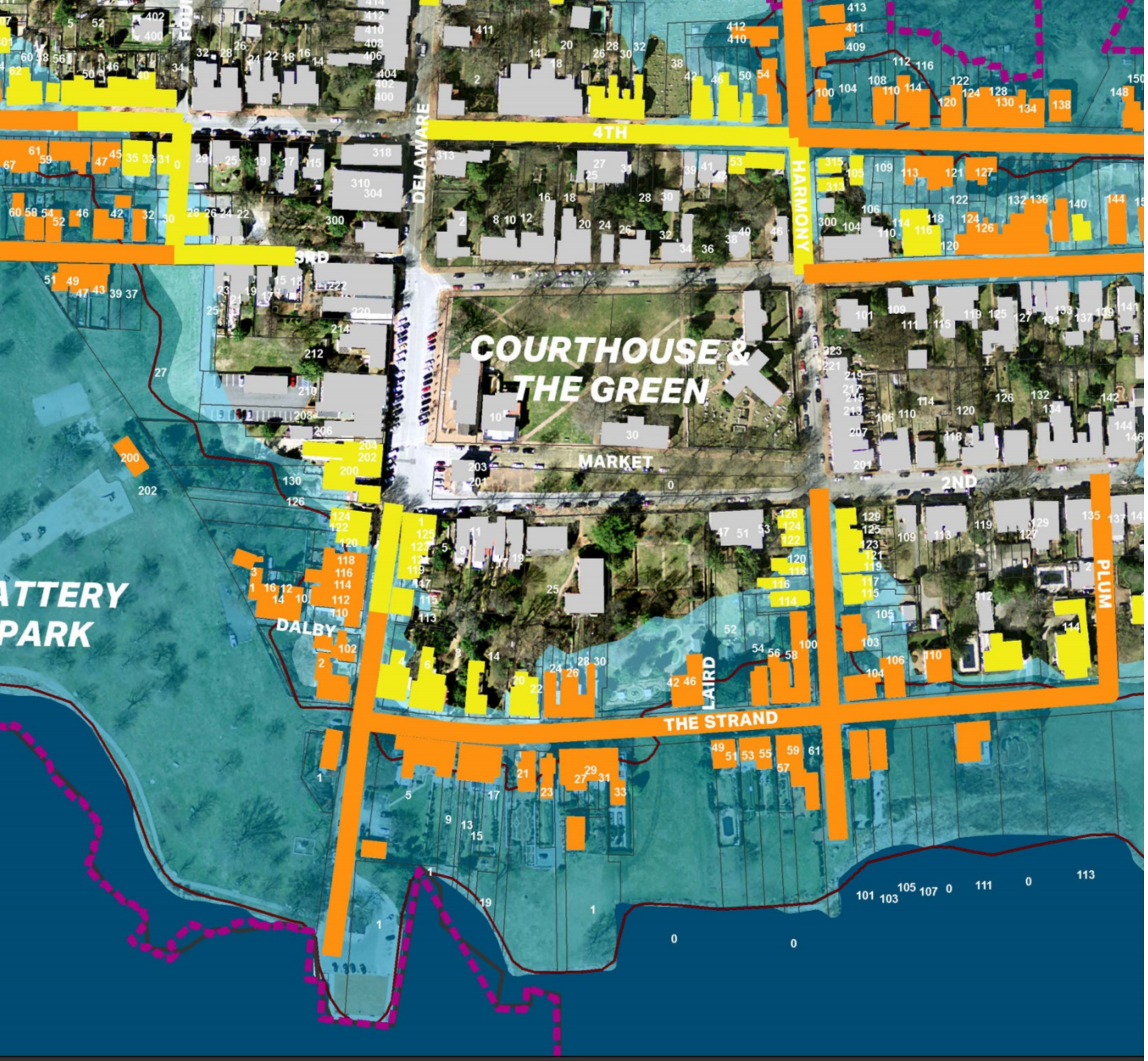
Risk = Hazard + Exposure + Vulnerability



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

Inundation Maps: Year 2050 and 2100





2050

2100

2 DOWNTOWN | BULL HILL

Bridge
BALDTON
NEW CASTLE MANOR
MERIDIAN
BRIDGE
JANVIER
MEGGINSON
HEWLETT
14TH
13TH
12TH
11TH
BALDT
STUYVESANT
VAN DYKE
NEW AMSTEL
CASIMIR
WILMINGTON
Electrical Substation
9
Public Works
Police Department
MUNICIPAL
Municipal Services
VAN DYKE VILLAGE
Glebe House

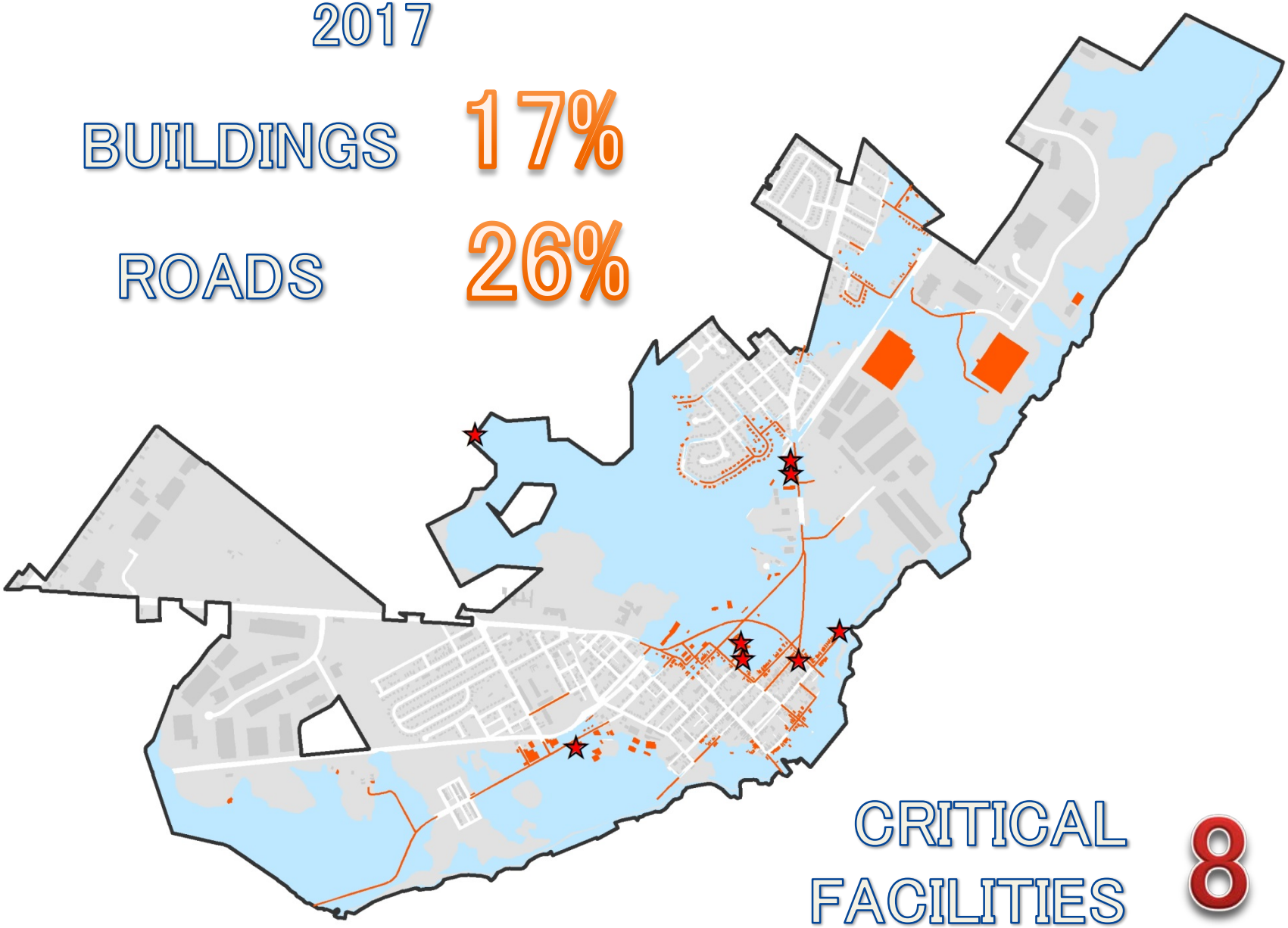
2050

2100

2017

BUILDINGS 17%

ROADS 26%

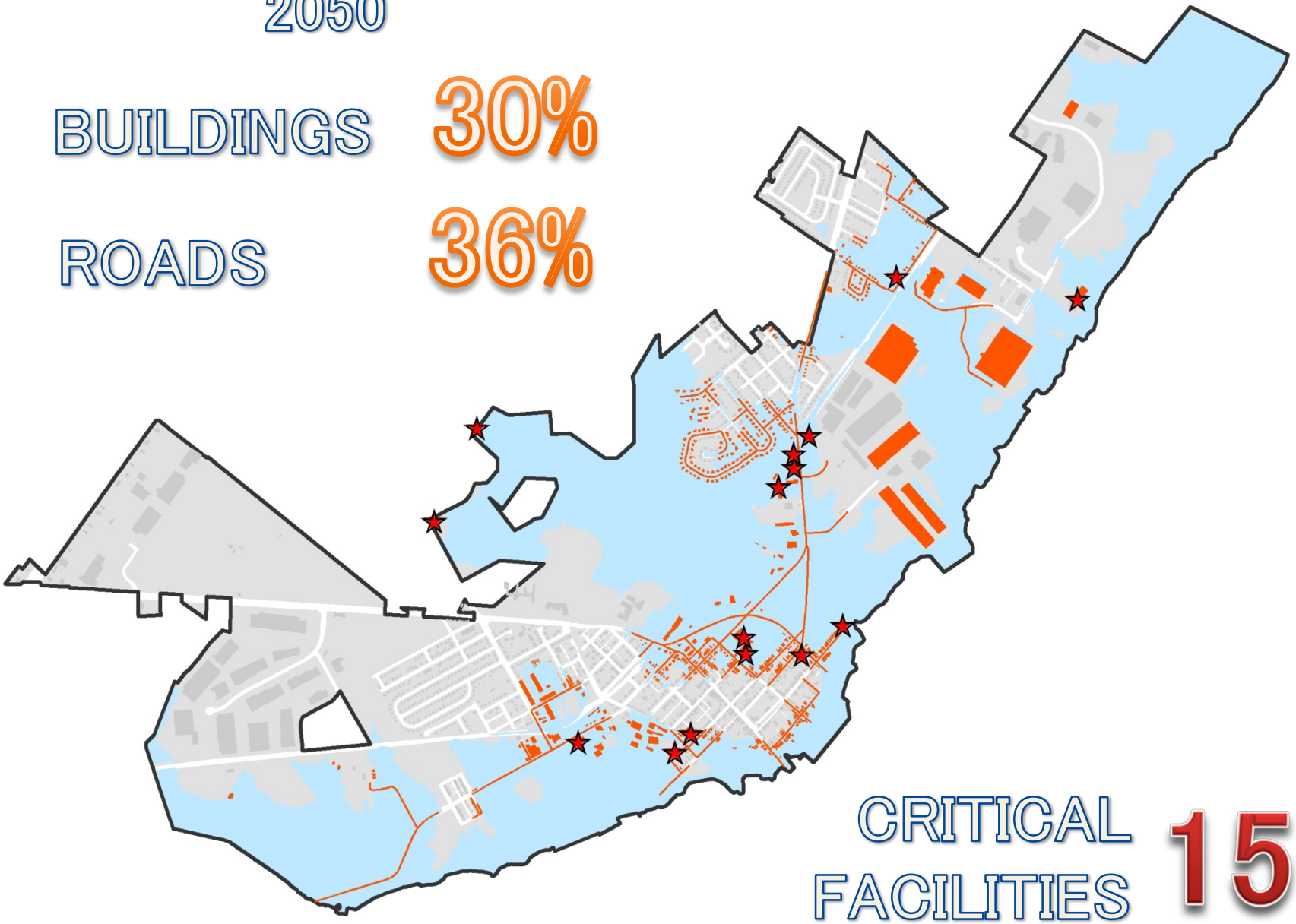


CRITICAL FACILITIES 8

2050

BUILDINGS 30%

ROADS 36%

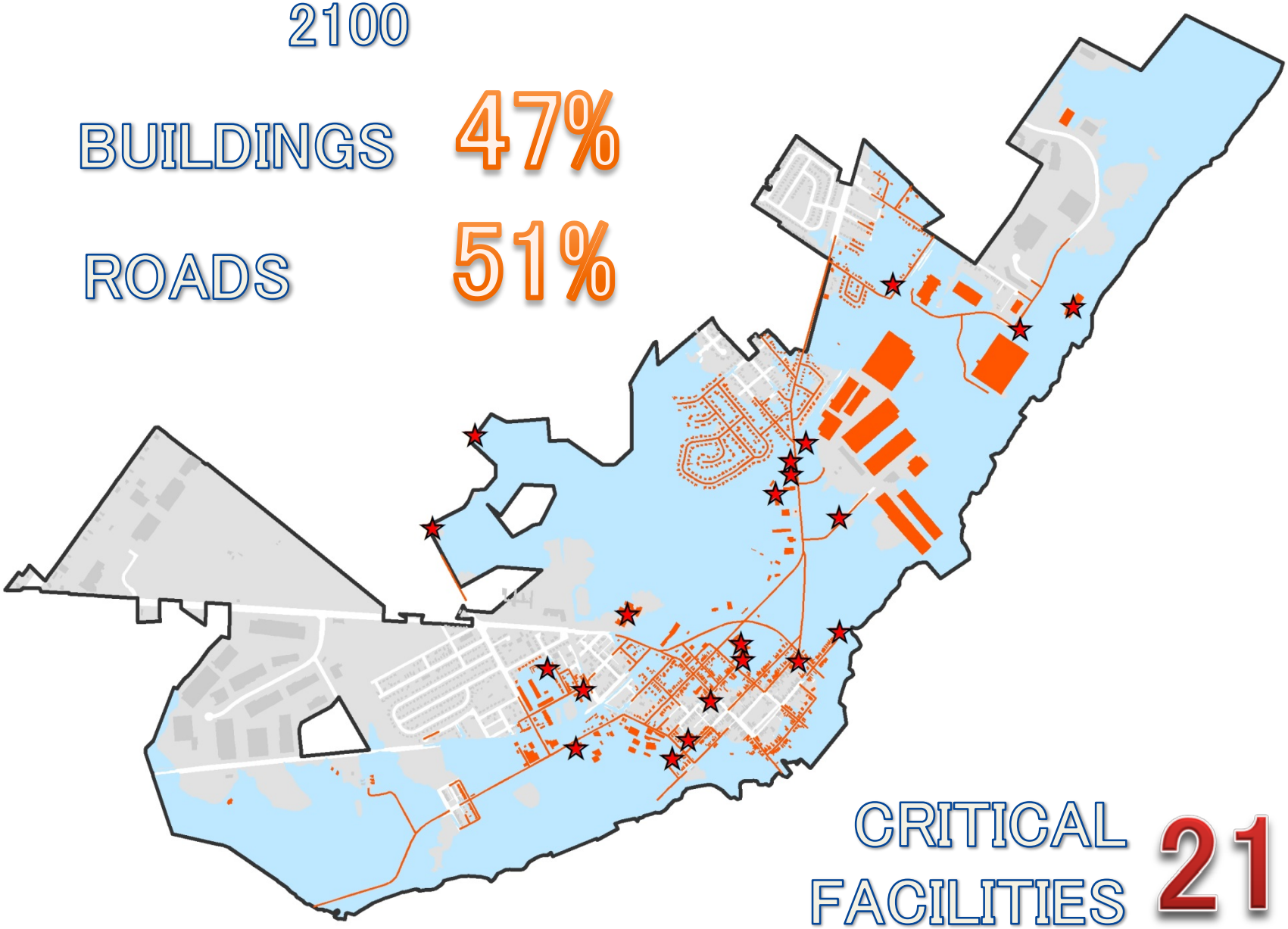


CRITICAL FACILITIES 15

2100

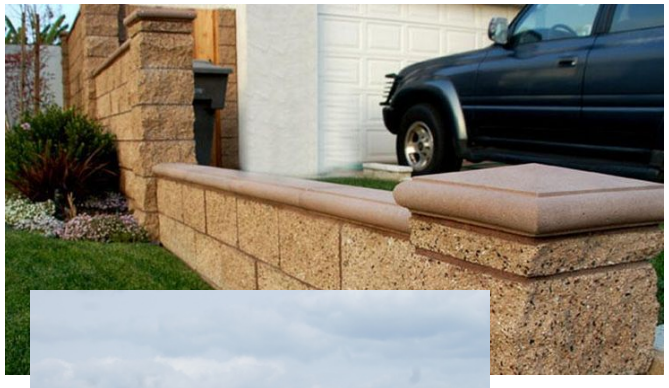
BUILDINGS 47%

ROADS 51%



CRITICAL FACILITIES 21

Adaptation and Mitigation Options Fall Into 4 Main Categories



Protect

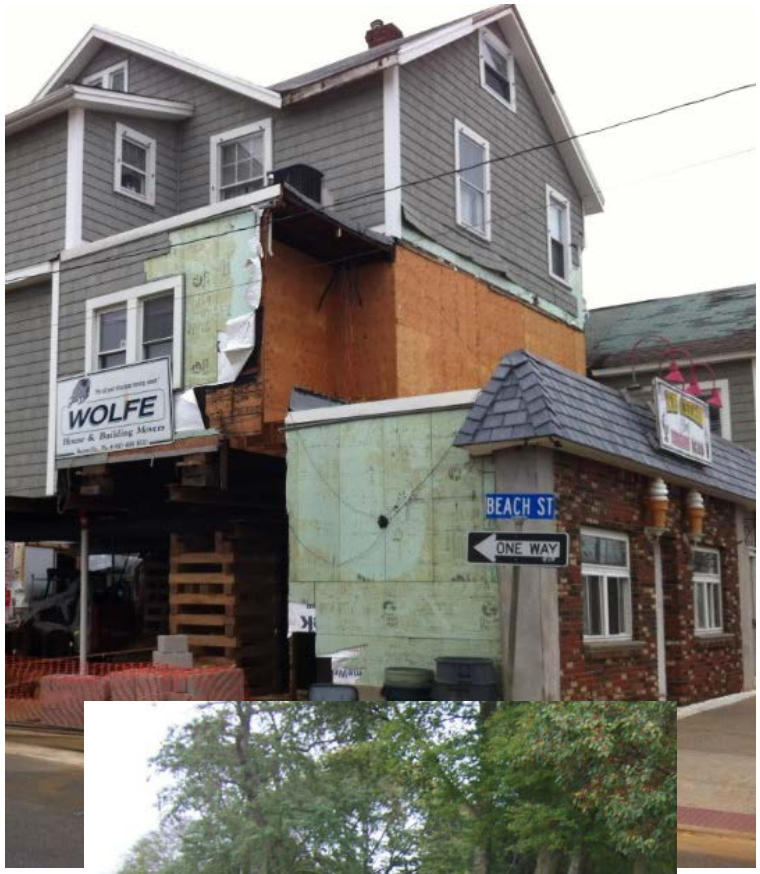
Accommodate

Avoid

Retreat

And Are Implemented In Different Ways

- Comprehensive and Emergency Plans
- Town codes / ordinances
- Zoning designations
- Design and engineering projects: “Grey or Green”
- Outreach and education
- Changes in behavior



Adaptation and Mitigation Projects are Carried Out at Different Scales:

Federal
State
County
Community
Property Owner

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

Photos courtesy of Amy Parker and Bill McSpadden

“Floods are an act of God, but flood losses are largely an act of man.”

-Gilbert F. White

Resilient Community Partnership: *Tasks Completed and Next Steps*

- ✓ Characterized Risks of Flooding into the Future
- ✓ Established Flood Preparedness Task Force
- ✓ Introduced Project to the Community

- Identify the City's Most Vulnerable Infrastructure
- Identify Adaptation and Mitigation Strategies to Manage Risks and Improve Resiliency
- Produce Recommended Strategies
- Brief the Community on the Results this Winter

You're Invited!

- Learn more about FEMA floodplain regulations
- Review our flood and sea level rise inundation maps
- Share your input via our "Sticky Dot" voting and by completing our comment sheets
- Questions? Experts are standing by…

Which category of *public* services and infrastructure should receive priority attention by the City for resiliency planning?

Red = Priority 1 (highest priority)

Green = Priority 2

Yellow = Priority 3

Blue = Priority 4 (lowest)