



NJPACT & NJDEP's Land Resource Protection Rules

Vince Mazzei, P.E., Assistant Commissioner
Watershed and Land Management Program

New Jersey Department of Environmental Protection
7 October 2020

NJ PACT: OVERVIEW

Executive Order 89

Establishes the Statewide Climate Change Resiliency Strategy; established the Climate and Flood Resilience Program at NJDEP lead by the CRO; and created an Interagency Council on Climate Resilience to promote mitigation, adaptation, and resilience.



Executive Order 100

Directed NJDEP to identify specific rules, guidance documents and other regulatory mechanisms to revise by integrating climate change considerations, including sea level rise.



Administrative Order 2020-01

Implements EO 100 and set deadlines for NJDEP rule changes, including the Coastal Zone Management Rules, Freshwater Wetlands Rules, Flood Hazard Control Act Rules, and Stormwater Management Rules.



Land Use Rules FHA, CZM, FWW- Stakeholdering and Revision

Objective

To address the unavoidable impacts of climate change, such as sea-level rise, extreme weather, and chronic flooding, targeted regulatory reform will modernize the land use rules and focus on increased resiliency throughout the State.



Impacts of Climate Change

- NJDEP's Scientific Report on Climate Change is consistent in stating the negative economic impacts that the effects of climate change will have on the State and its communities.
- Impacts such as ocean acidification, loss of forest due to pests and increase risk of fires, loss of wetlands, and reduced agricultural production due to drought, among others, all affect those communities who rely on those resources as an economic engine.
- By addressing climate change now through these rules, the State can attempt to reduce the negative economic impact that climate change will have on individual communities in the future by preserving and protecting resources now.



Impacts of Climate Change

- NJ currently ranks as the third highest state in paid NFIP claims due to the number of people and properties at risk, having been paid over \$6 billion since 1978.
- By better managing development in flood prone areas the number of properties that would require flood insurance would be reduced, thus saving the property owner money.





Guiding Principles

1. **Develop** regulatory standards that are commensurate with the anticipated level of risk
2. **Provide** tools to help homeowners, developers, and public entities make informed decisions about their investments
 - Property owners and public agencies should inventory their investments to determine vulnerability and risk (a.k.a. “don’t wait for the State”)
 - Local communities can adopt higher resiliency standards
3. **Evaluate**
 - The intended use of a proposed structure (public, private, recreational, etc.)
 - The criticality of the proposed structure (schools, hospitals, evacuation routes)
 - The likelihood the structure is proposed in an area that will be inundated during its anticipated lifetime – either by daily tides or in flood conditions

Inundation & Flood Damage

1

Establish a new regulatory area known as the **inundation risk zone** to account for land inundated by SLR

2

Redefine the **tidal** flood hazard area to account for future expansion due to SLR

3

Redefine the **fluvial** flood hazard area to account for future expansion due to increased precipitation and runoff

Inundation & Flood Damage

Rutgers University's Science and Technical Advisory Panel (STAP) Report indicates a 50% probability that sea level rise will exceed 3.3 feet and a 17% probability that sea level rise will exceed 5.1 feet by 2100 assuming moderate emissions.

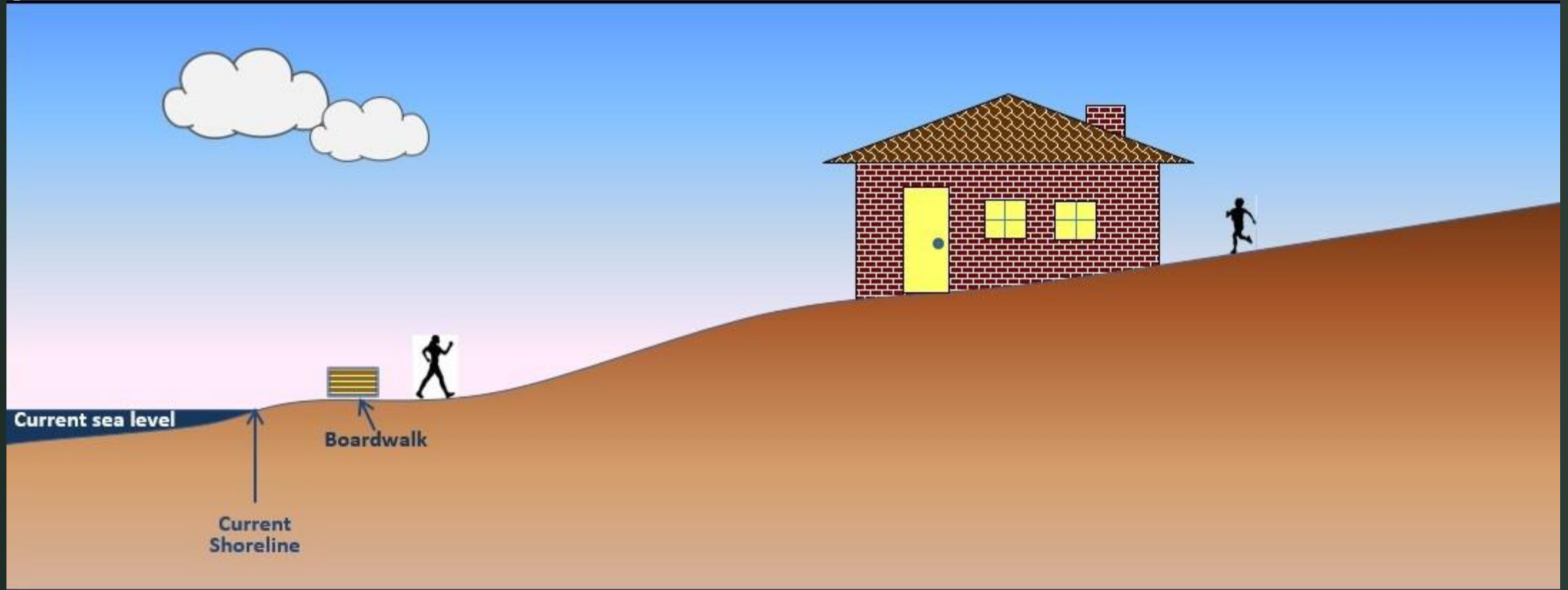
Sea-level rise:

Table ES-1: New Jersey Sea-Level Rise above the year 2000 (1991-2009 average) baseline (ft)*

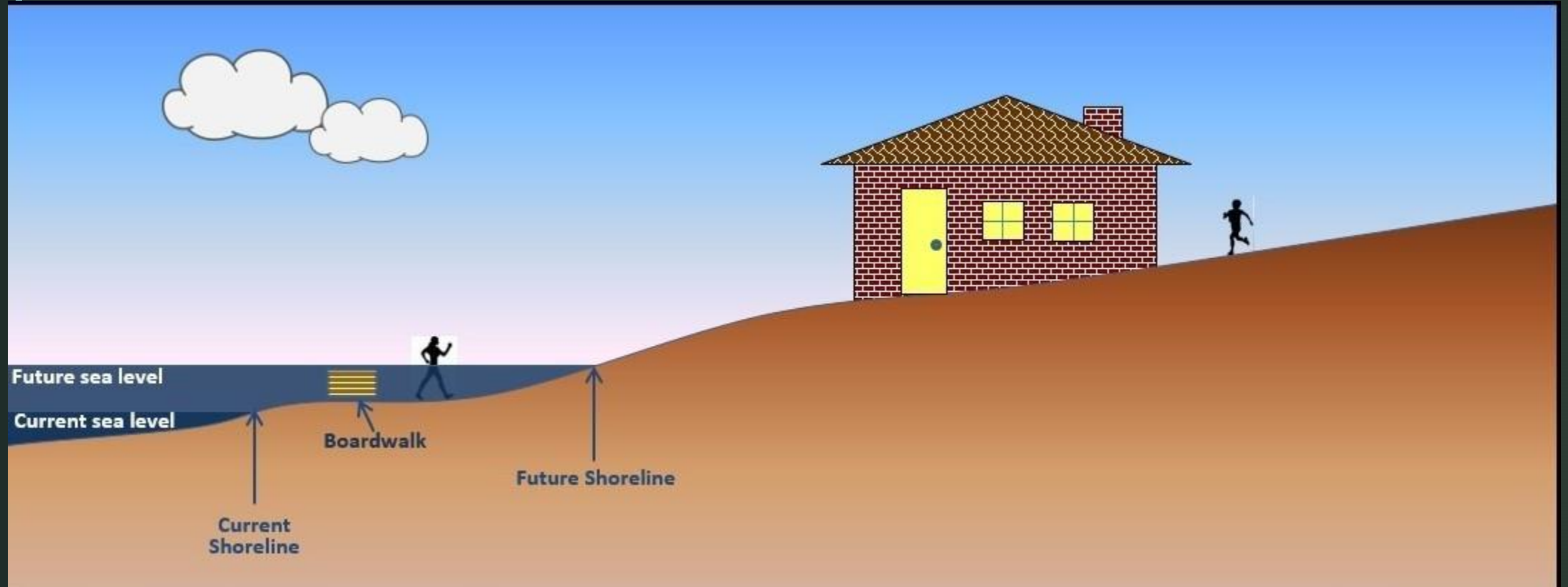
| | | 2030 | 2050 | 2070 | | | 2100 | | | 2150 | | |
|---------------------|--------------|------|------|-----------|------|------|------|------|------|------|------|------|
| | | | | Emissions | | | | | | | | |
| Chance SLR Exceeds | | | | Low | Mod. | High | Low | Mod. | High | Low | Mod. | High |
| Low End | > 95% chance | 0.3 | 0.7 | 0.9 | 1 | 1.1 | 1.0 | 1.3 | 1.5 | 1.3 | 2.1 | 2.9 |
| Likely Range | > 83% chance | 0.5 | 0.9 | 1.3 | 1.4 | 1.5 | 1.7 | 2.0 | 2.3 | 2.4 | 3.1 | 3.8 |
| | ~50 % chance | 0.8 | 1.4 | 1.9 | 2.2 | 2.4 | 2.8 | 3.3 | 3.9 | 4.2 | 5.2 | 6.2 |
| | <17% chance | 1.1 | 2.1 | 2.7 | 3.1 | 3.5 | 3.9 | 5.1 | 6.3 | 6.3 | 8.3 | 10.3 |
| High End | < 5% chance | 1.3 | 2.6 | 3.2 | 3.8 | 4.4 | 5.0 | 6.9 | 8.8 | 8.0 | 13.8 | 19.6 |

*2010 (2001-2019 average) Observed = 0.2 ft

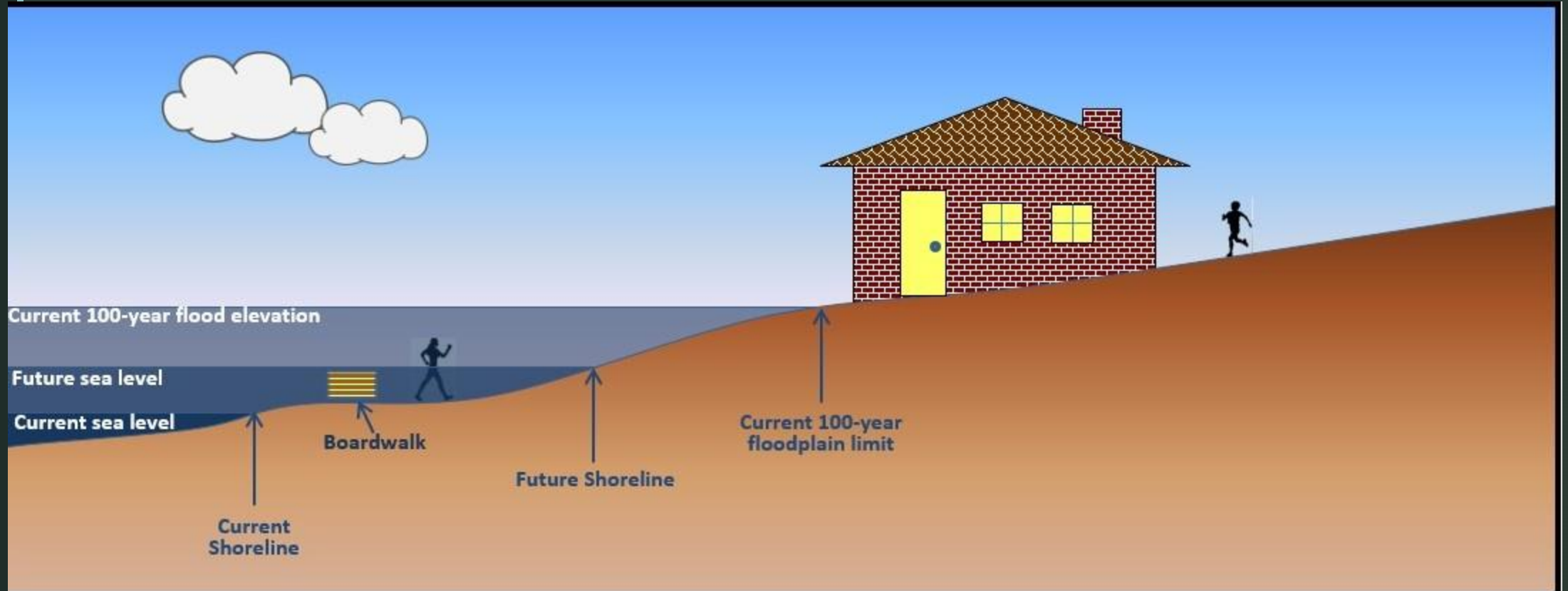
Inundation & Flood Damage



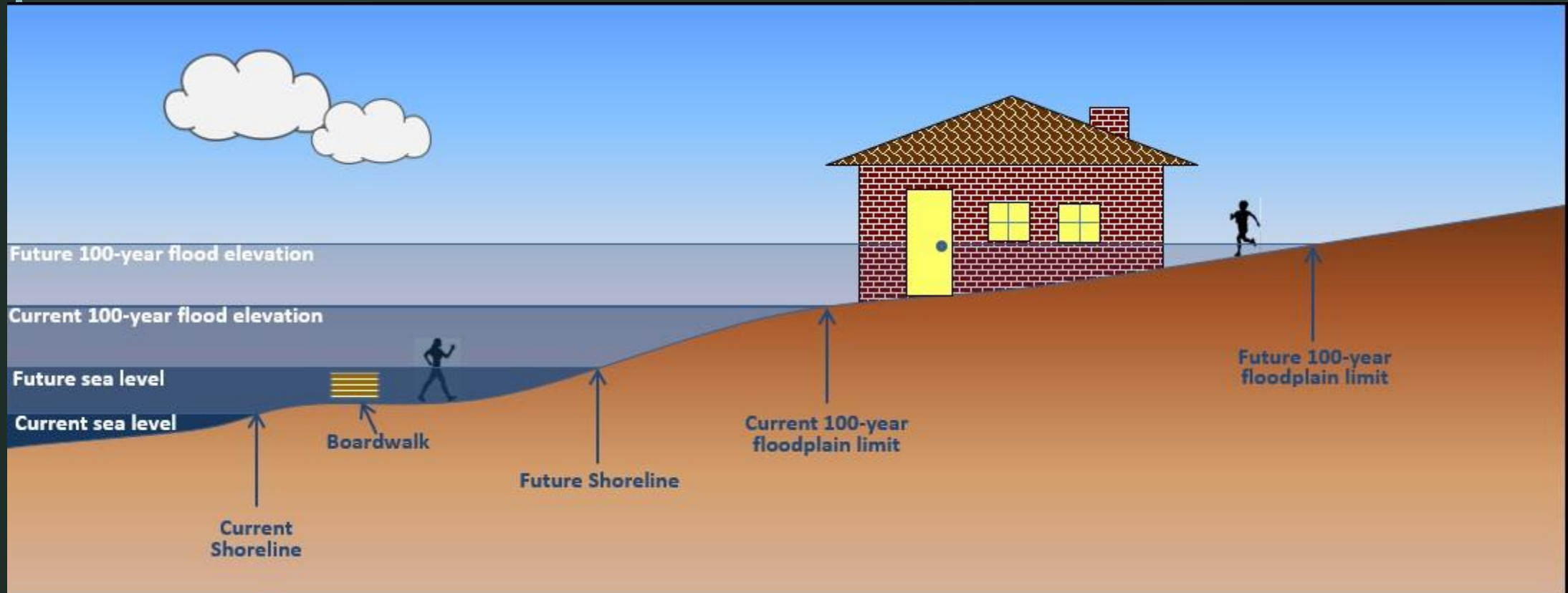
Inundation & Flood Damage

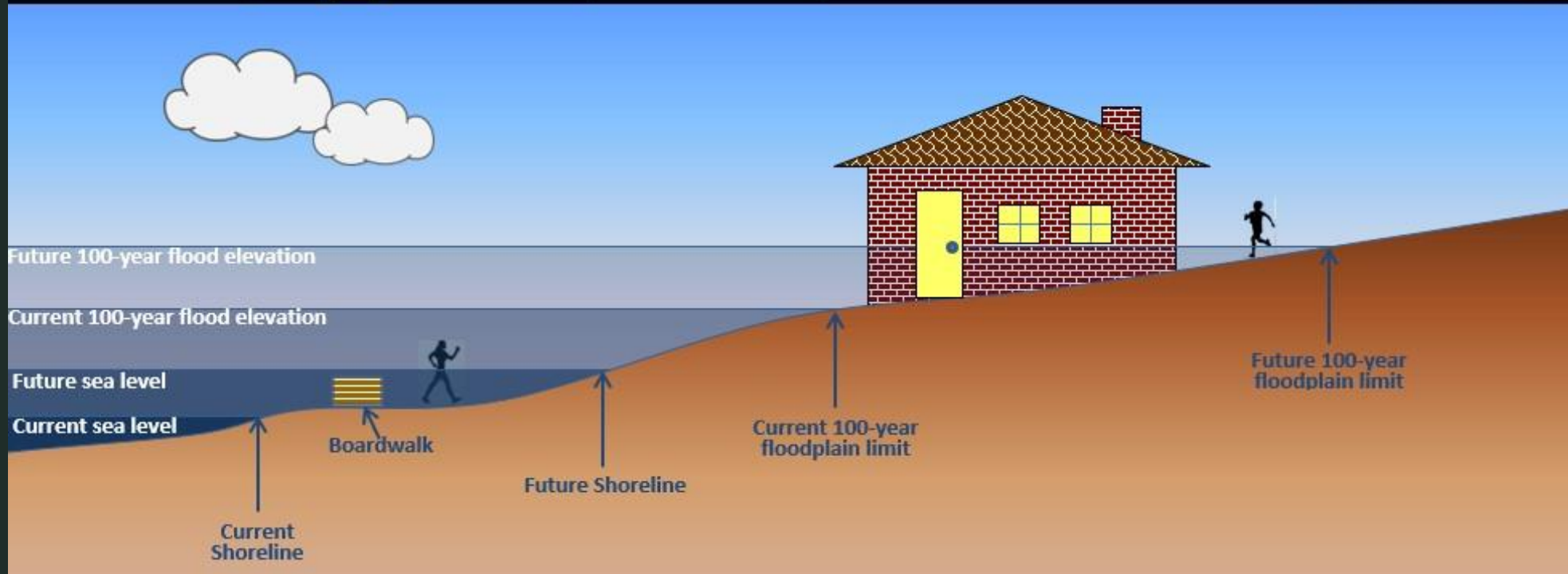
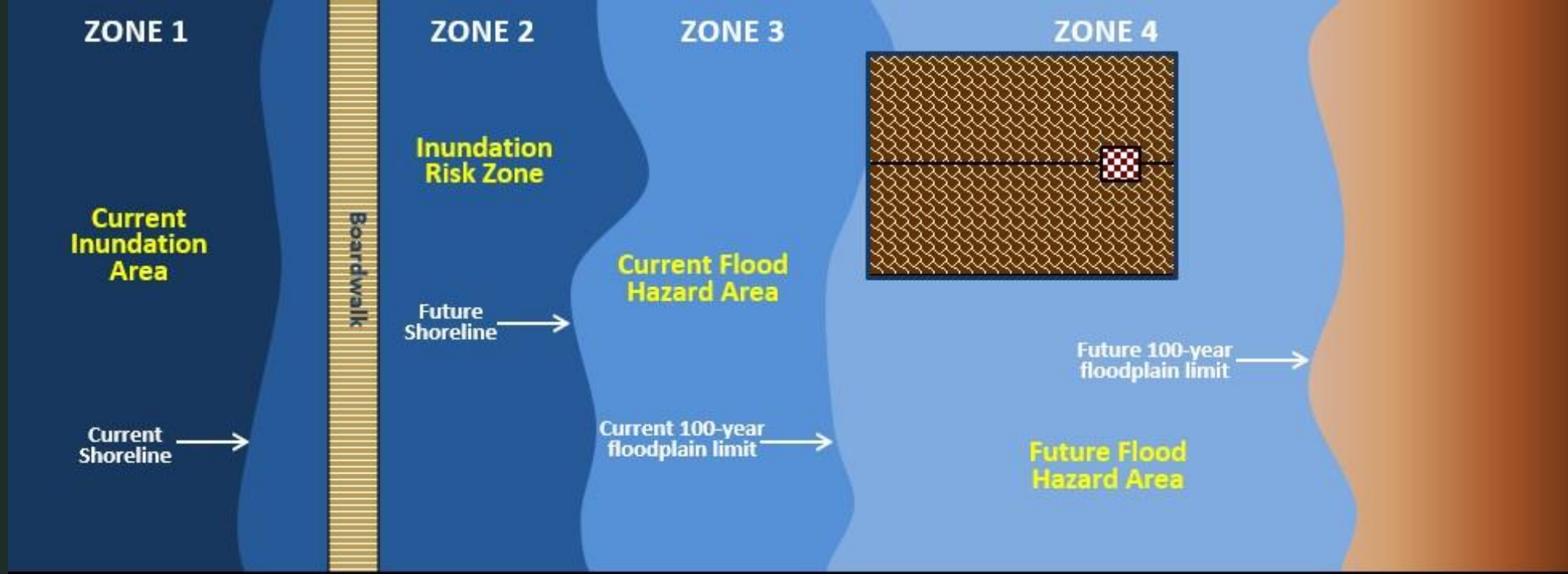


Inundation & Flood Damage



Inundation & Flood Damage







Total Water Levels Tool

Flood Hazards

Map Layers

Basemaps

Save / Share / Print

Legend

Layer Control



1 mi



📊 Total Water Levels Tool

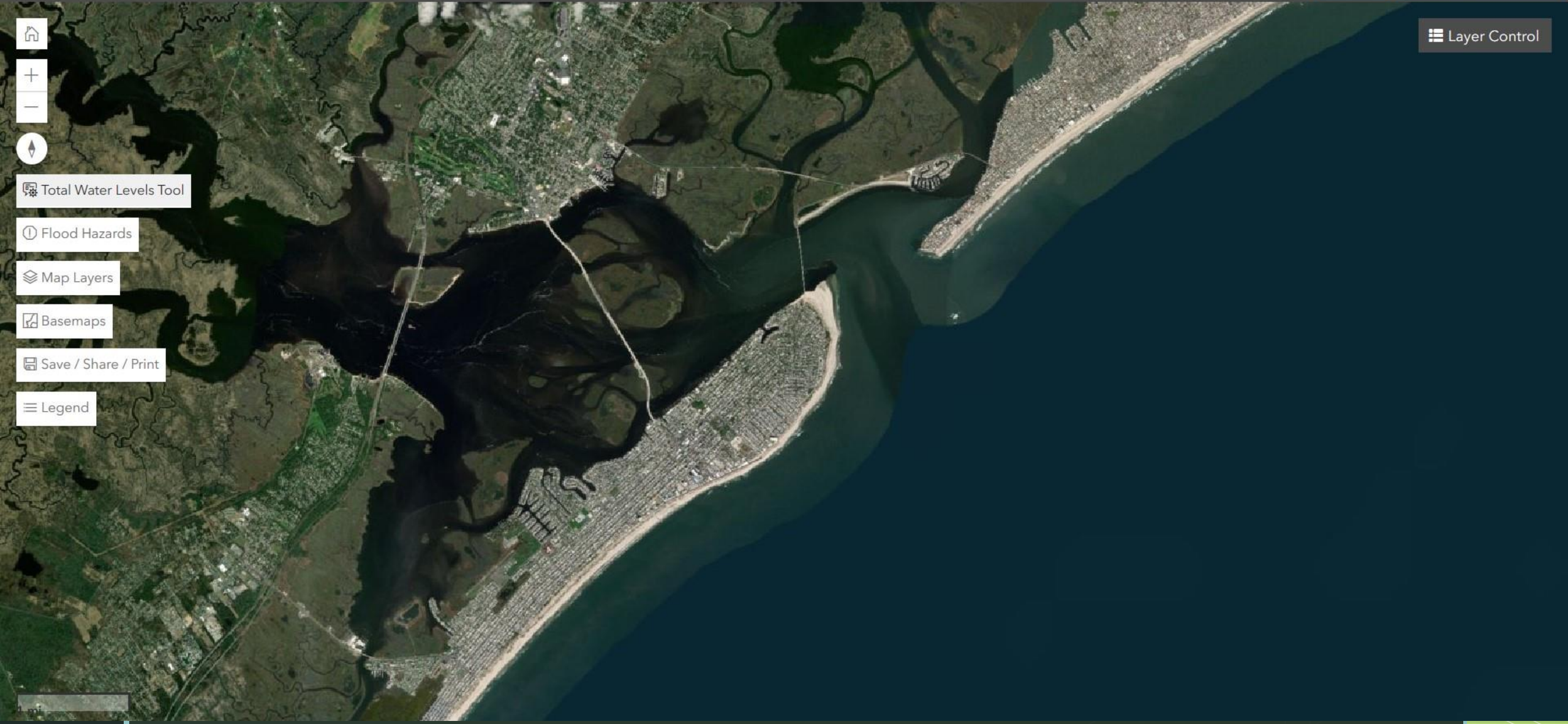
🕒 Flood Hazards

📁 Map Layers

🗺️ Basemaps

📄 Save / Share / Print

☰ Legend





Total Water Levels Tool

Flood Hazards

Map Layers

Basemaps

Save / Share / Print

Legend

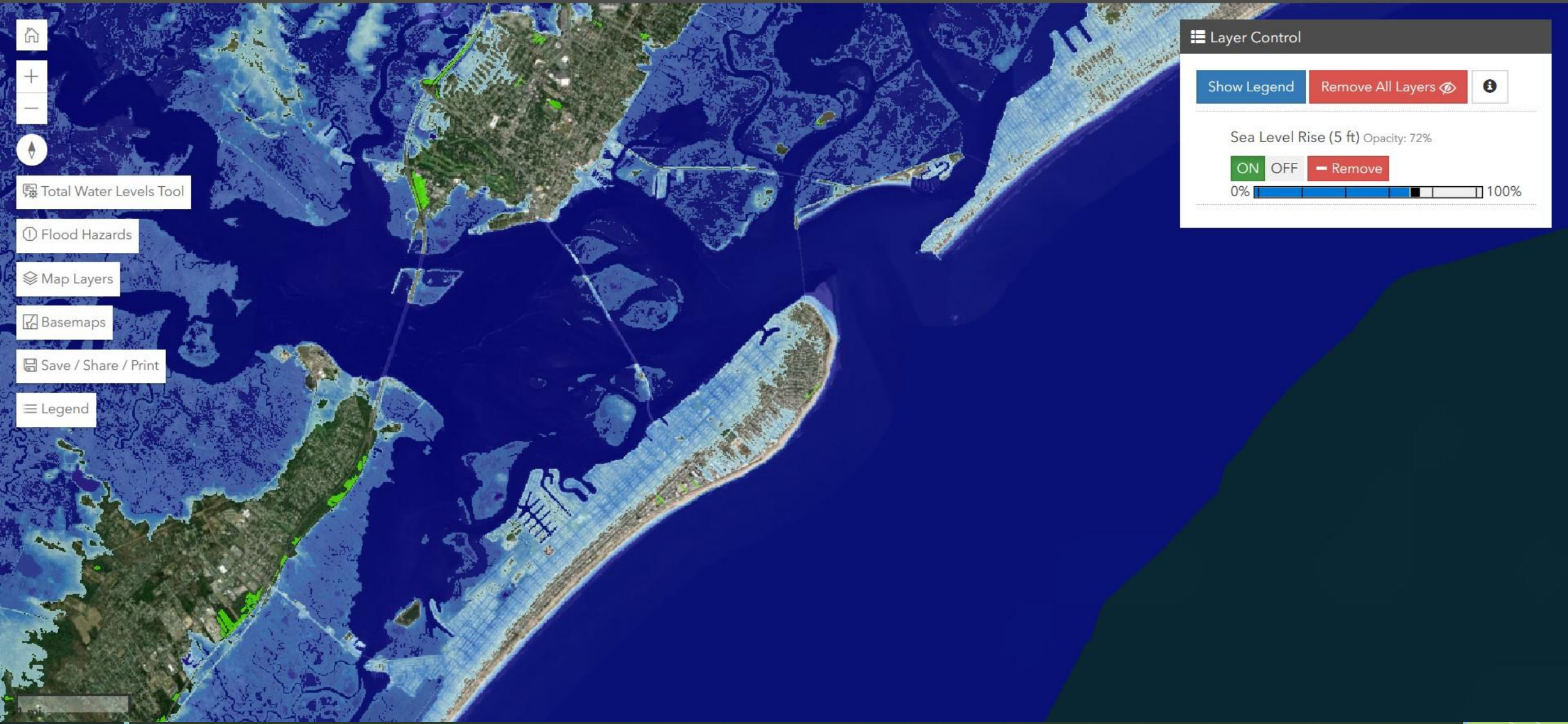
Layer Control

Show Legend Remove All Layers [Info]

Sea Level Rise (5 ft) Opacity: 72%

ON OFF

0% [Progress Bar] 100%





Total Water Levels Tool

Flood Hazards

Map Layers

Basemaps

Save / Share / Print

Legend

Layer Control

Show Legend Remove All Layers

FEMA Flood Zones Opacity: 40%

ON OFF

0% 100%





🗺️ Total Water Levels Tool

🕒 Flood Hazards

📄 Map Layers

🗺️ Basemaps

📄 Save / Share / Print

☰ Legend

☰ Layer Control

Show Legend Remove All Layers

Total Water Level (15 ft) Opacity: 80%

ON OFF

0% 100%



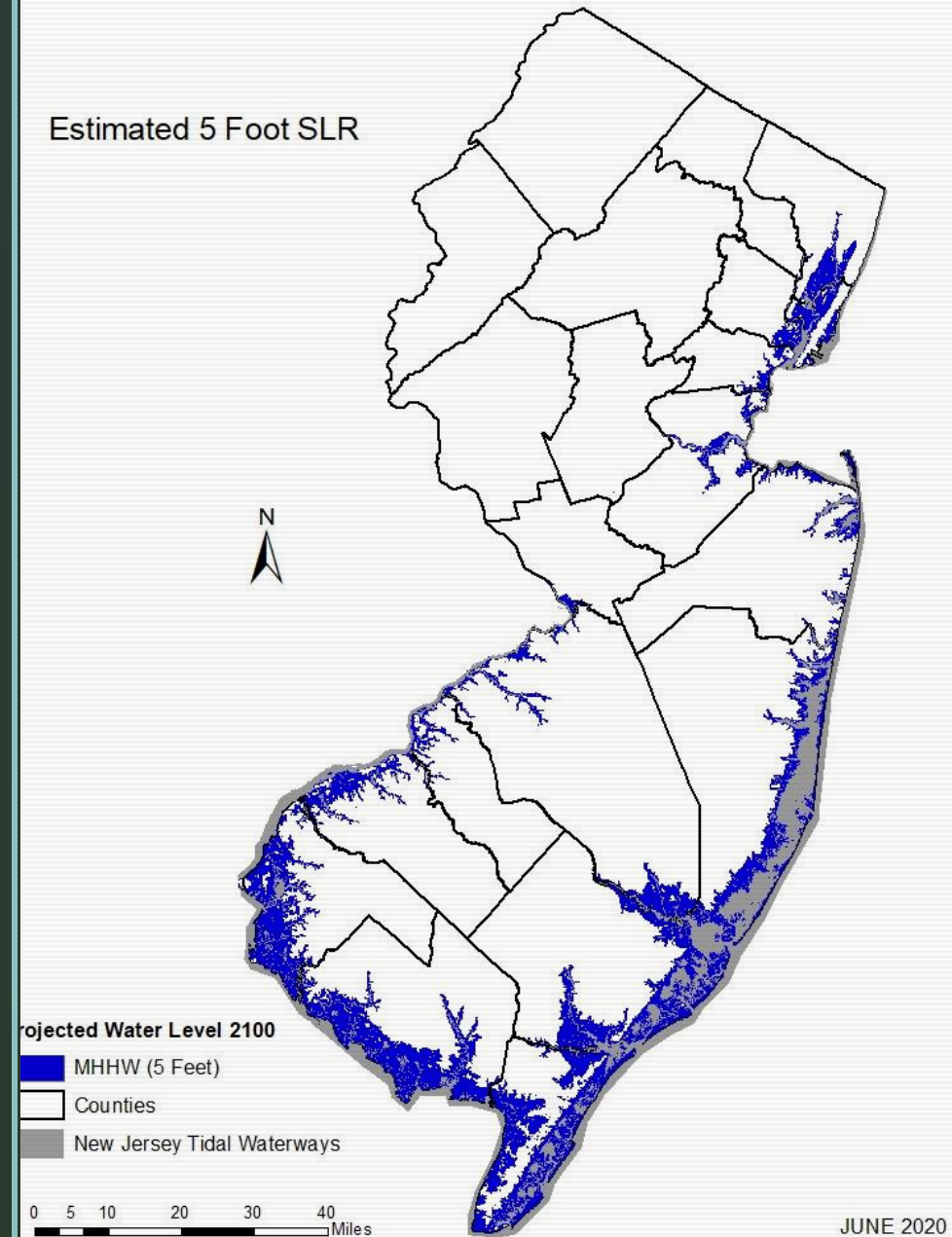
Inundation and Flood Damage

The impact of sea level rise on dry land will change over time.



Inundation Risk Zone

- Consists of land that is now mostly dry but is expected to be inundated by tidal waters at least twice per day, or permanently, by the year 2100.
- Encompasses all land that lies below the IRZ elevation, which is calculated by adding five feet to the elevation of the mean higher high water (MHHW).
- Development within the IRZ will have more protective standards than the remainder of the floodplain beyond it.



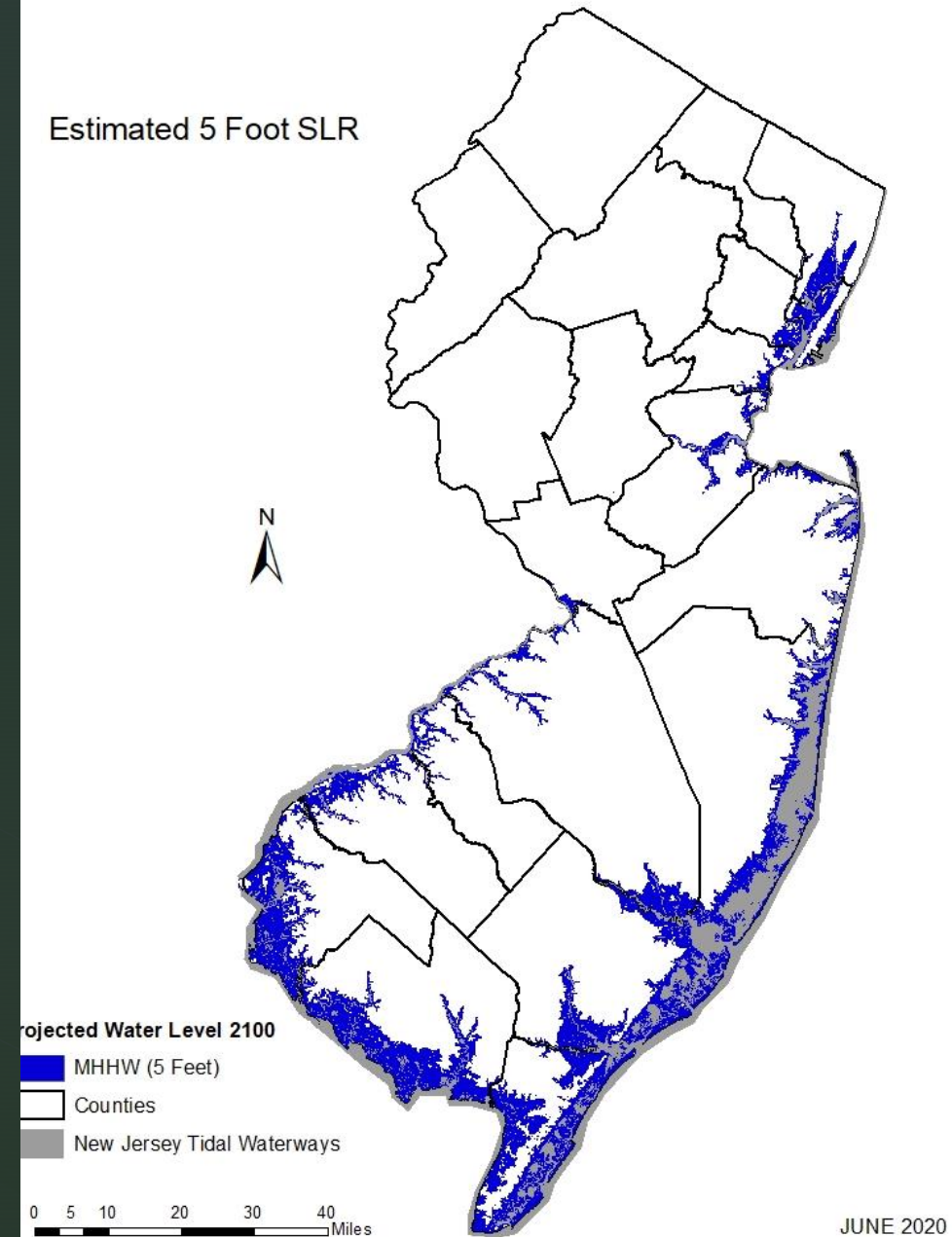
JUNE 2020

This map is for information only, not for regulatory purposes.
FEMA Flood Zones not included in this review.

Inundation Risk Zone

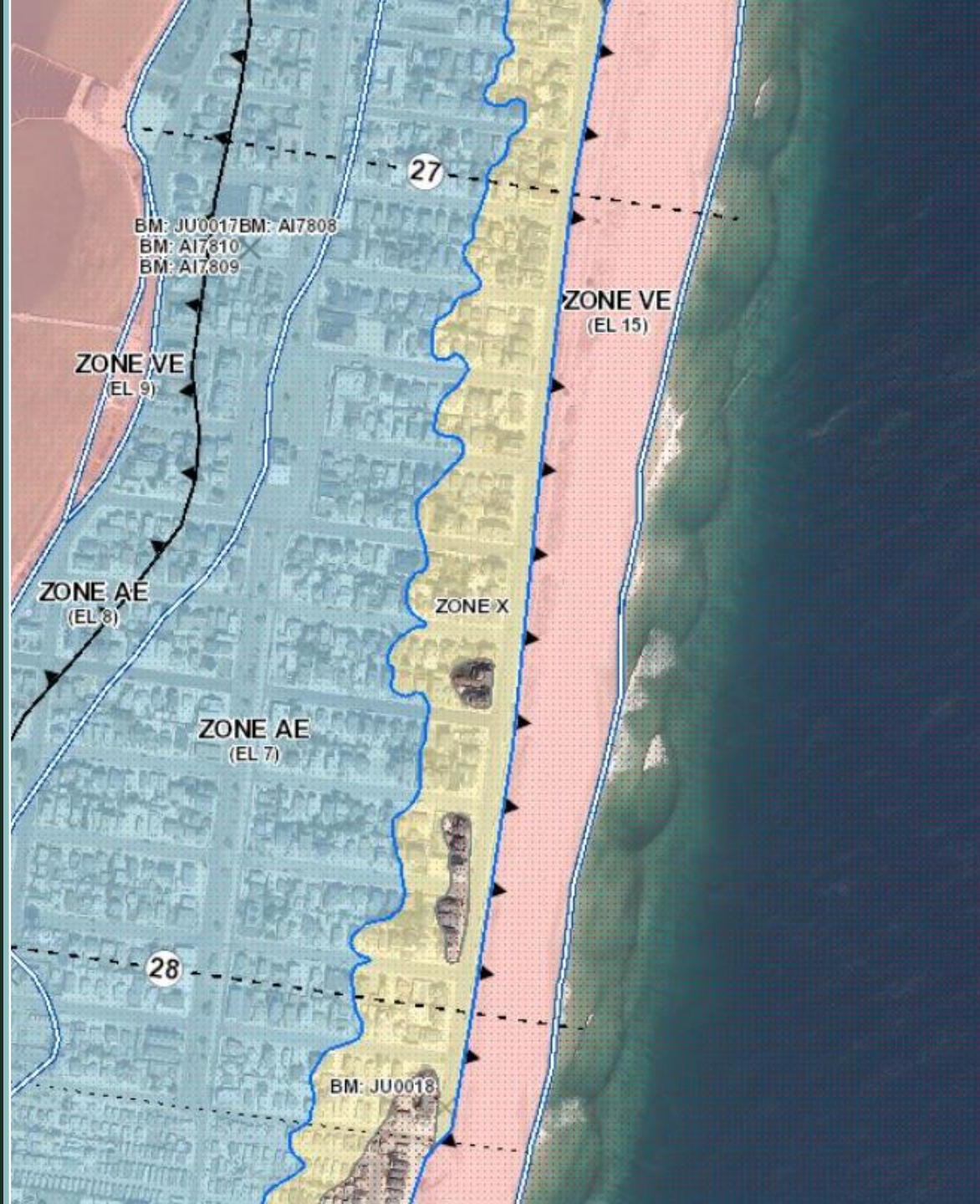
- Examples of uses appropriate for the IRZ include recreational uses such as parks, trails, and boardwalks, shoreline protection and environmentally beneficial projects, water-dependent activities, and activities with short lifespans, such as solar panels.
- New buildings and new critical infrastructure would generally be prohibited.

Estimated 5 Foot SLR



JUNE 2020

This map is for information only, not for regulatory purposes.
FEMA Flood Zones not included in this review.

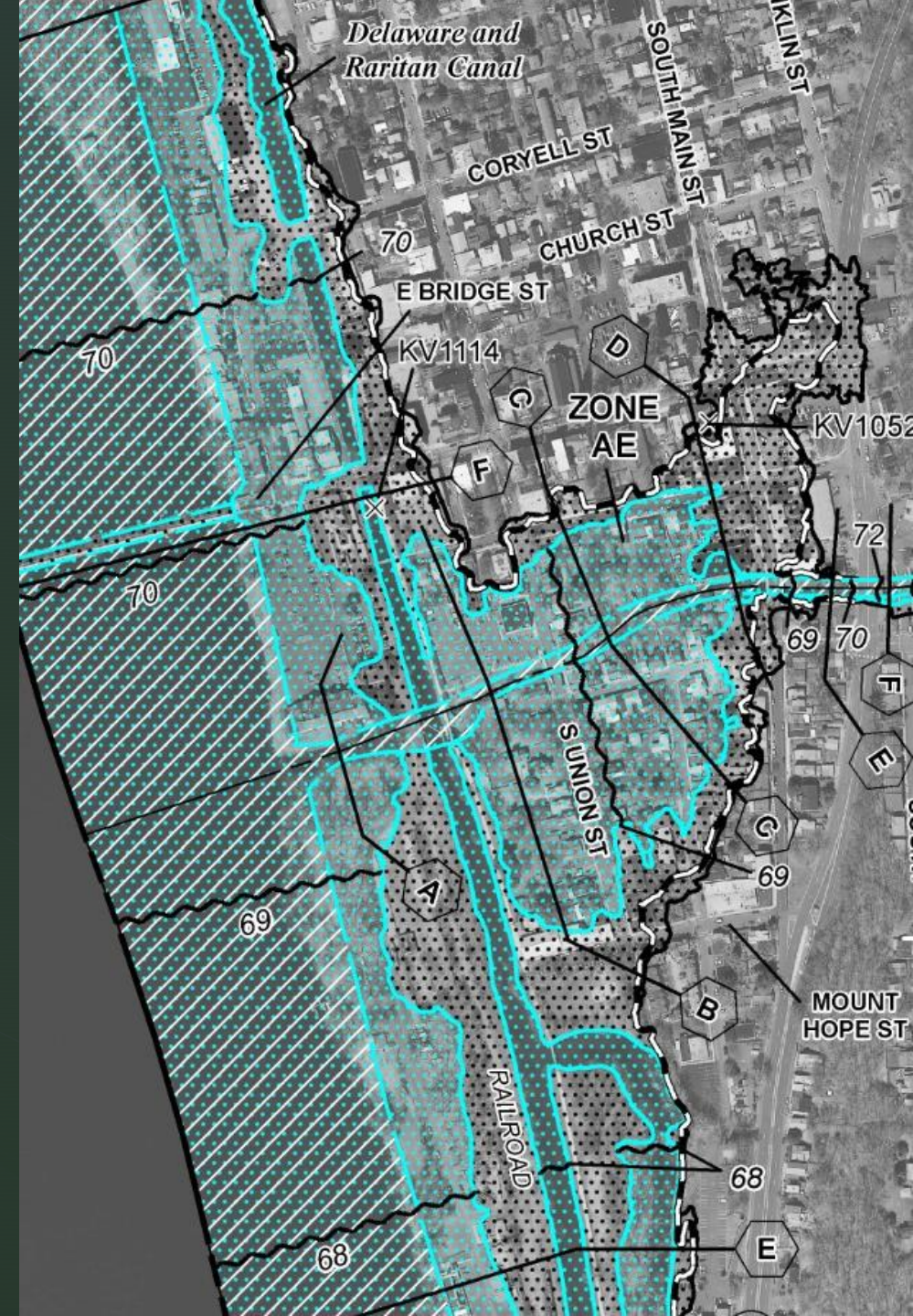


Tidal Flood Hazard Areas

- Existing tidal floodplain is based on the higher of FEMA's effective or preliminary 100-year flood elevation.
- FEMA mapping is based on data that considers only past flooding events and does not anticipate a changing climate.
- Proposal would add 5 feet to FEMA's flood elevation in order to account for expected rises in sea level.

Fluvial Flood Hazard Areas

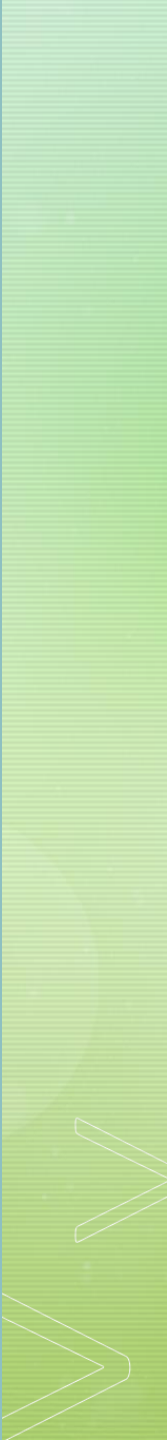
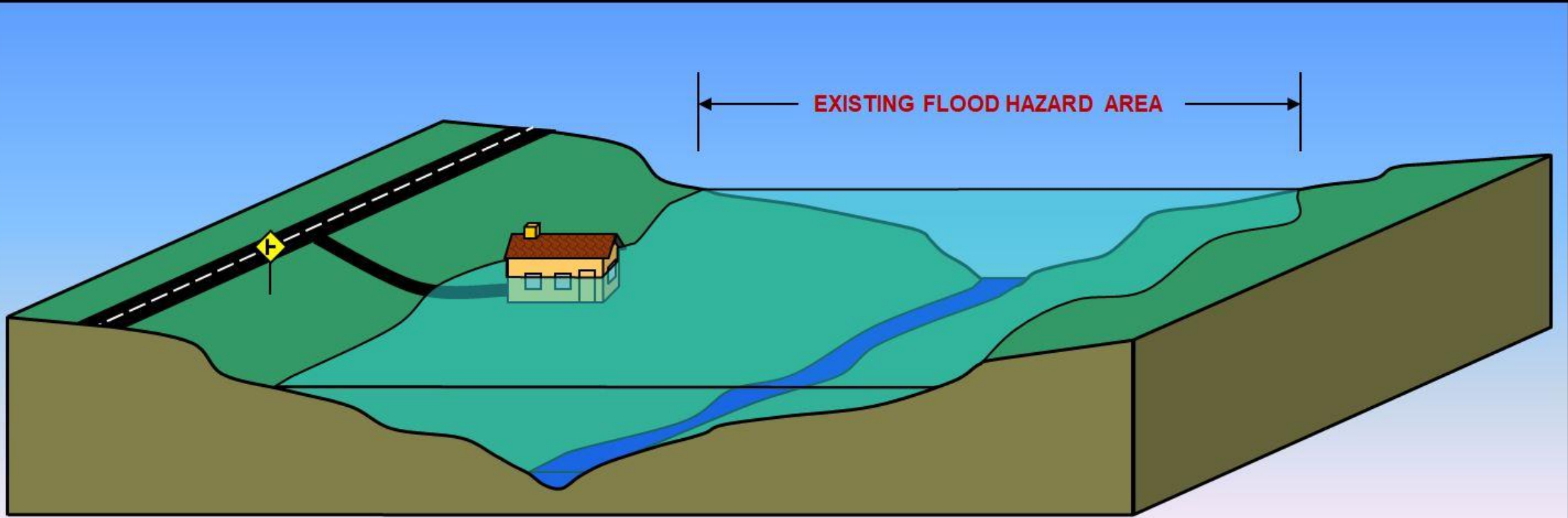
- Existing fluvial floodplain is based on the higher of FEMA's effective or preliminary 100-year flood elevation with a 1-foot factor of safety (unless NJDEP flood study indicates an even higher design flood elevation).
- FEMA and NJDEP flood mapping is based on data that considers only past flooding events and does not anticipate a changing climate.

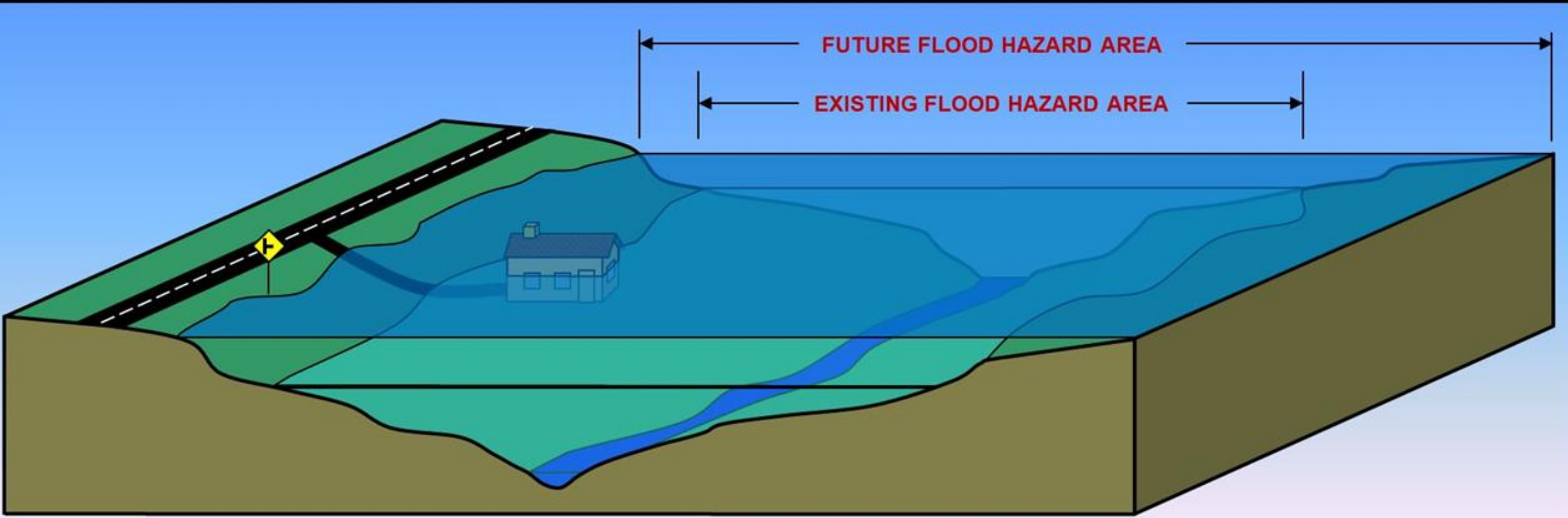


Fluvial Flood Hazard Areas

- A recent New York study concludes that precipitation intensities in northern New Jersey are likely to increase by as much as 35% by 2100.
- NOAA's current 500-year 24-hour precipitation intensity is roughly 38% higher than today's 100-year 24-hour storm, the 500-year flood is a suitable surrogate.
- Along waters for which FEMA mapping is not available, the predicted 100-year rainfall of the year 2100 would be used to calculate the future regulatory floodplain, plus an additional 25%.







FUTURE FLOOD HAZARD AREA

EXISTING FLOOD HAZARD AREA

Protecting Critical Facilities and Infrastructure



NJDEP's proposed rulemaking would:

- Create a new definition for critical facilities and critical infrastructure as informed by the NFIP and Office of Emergency Management definitions.
- Amend the definition of critical building to match the Flood Design Classes published by the American Society of Civil Engineers.
- Adopt more protective design and construction standards for critical facilities and infrastructure, which are commensurate with the level of anticipated risk, such as requiring a higher elevation and/or floodproofing.

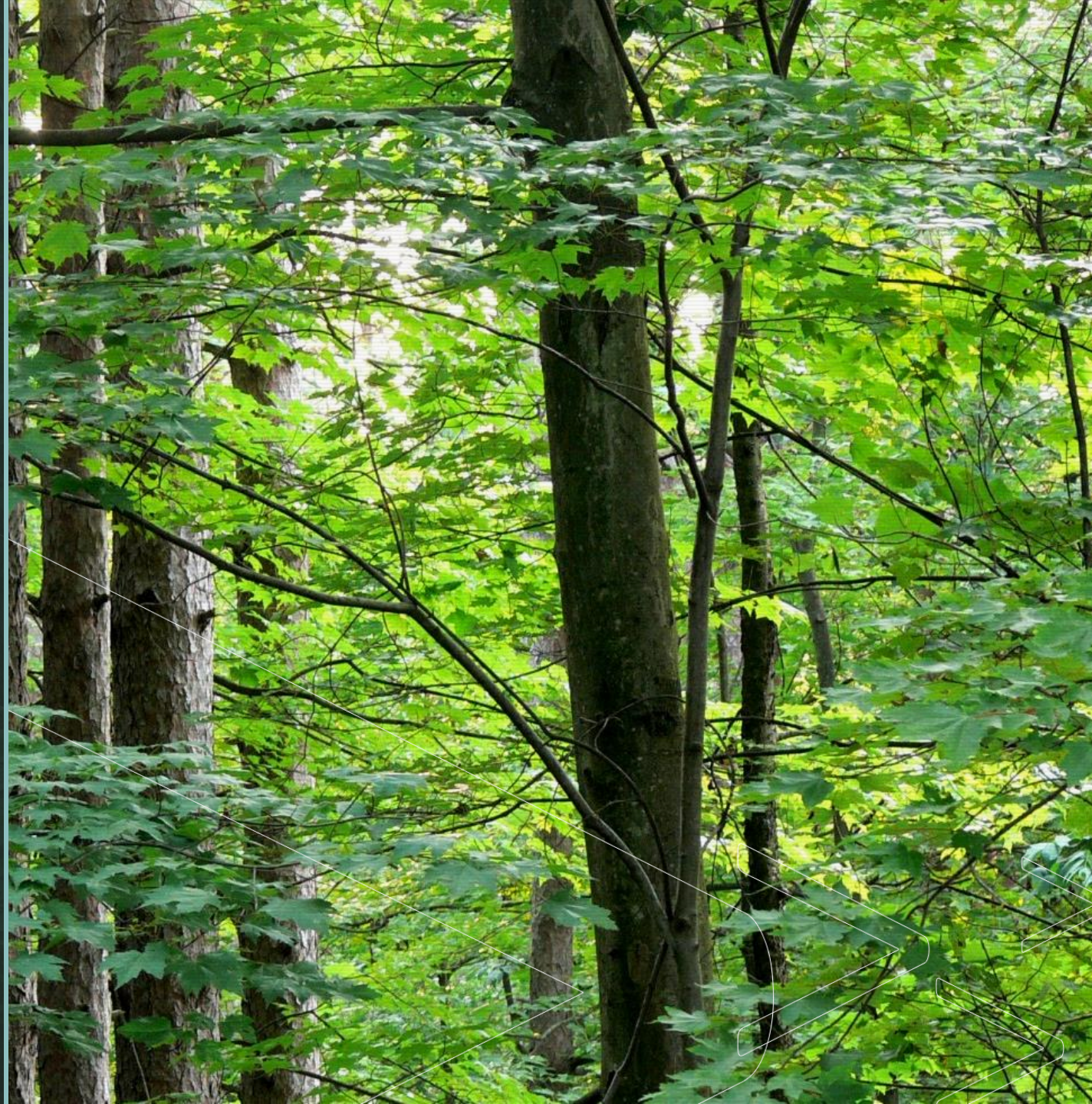


Permits-by-Registration

- New type of authorization that replaces most permits-by-rule.
- Online registration would enable DEP to track cumulative impacts on a watershed-wide basis and adjust standards to address 303(d) impaired waters and TMDLs and/or to reflect the State's planning goals.
- Provides a record of regulated activities and better aligns with FEMA's requirement to record and track approvals under the NFIP.
- Some permits-by-rule would be converted into permits-by-certification or general permits.

Riparian Zone Standards

- Staff is analyzing the current regulatory framework
- Focus on increased protections to vegetation nearest to top of bank
- Added protections for forested areas
- Enhanced mitigation requirements are being considered, which would be applied on a watershed-specific basis





Freshwater Wetlands and Transition Areas

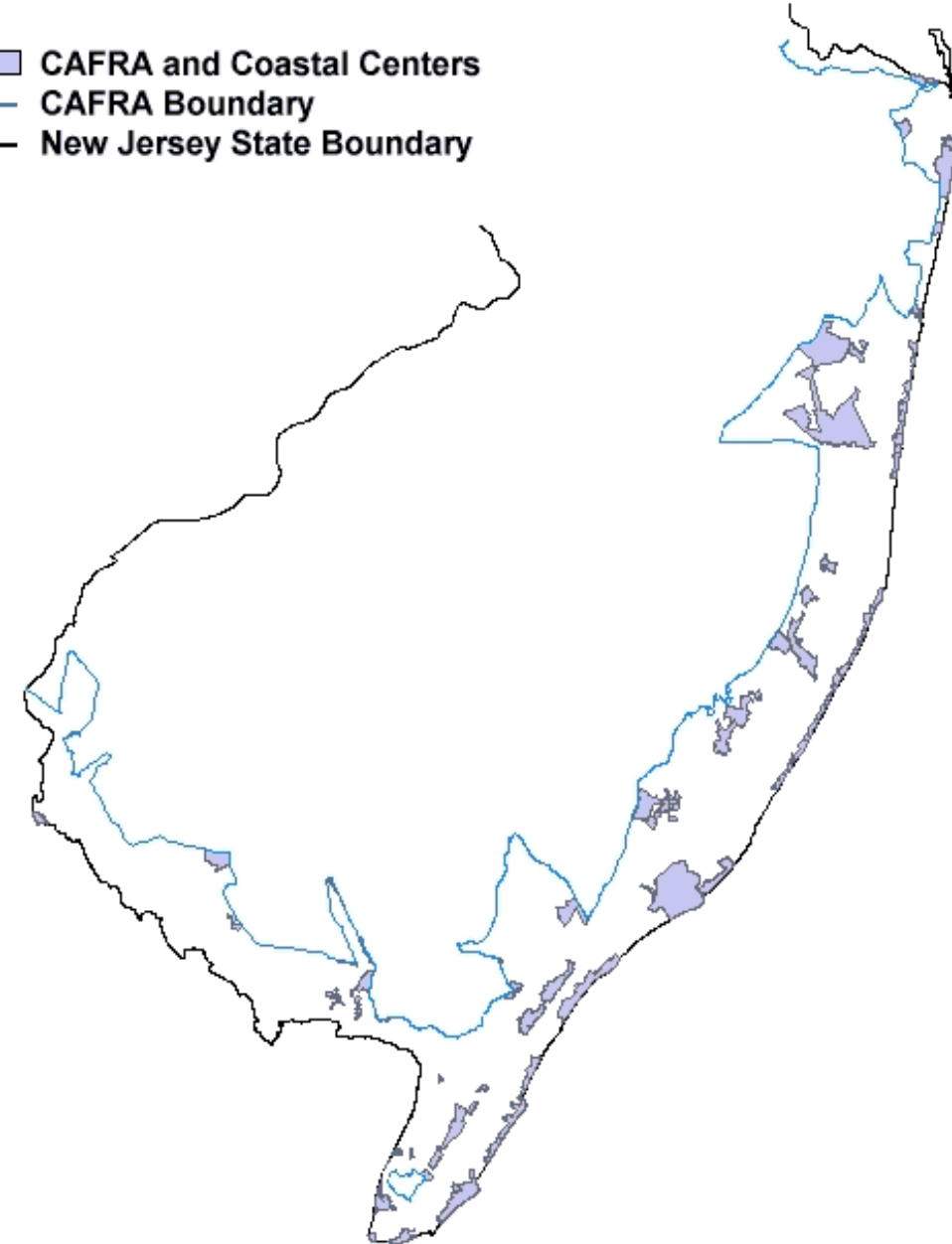
- Staff is analyzing the current regulatory framework
- New limitations on averaging plans and general permits
- Enhanced mitigation requirements are being considered, which would be applied on a watershed-specific basis

CAFRA

- The non-mainland coastal centers were delineated by the Department and did not undergo the comprehensive planning associated with the State Planning Commission's Plan Endorsement process.
- The Department is considering repealing the non-mainland coastal centers, and instead have those municipalities go through the plan endorsement process.

(State boundary shown for reference only)

- CAFRA and Coastal Centers
- CAFRA Boundary
- New Jersey State Boundary

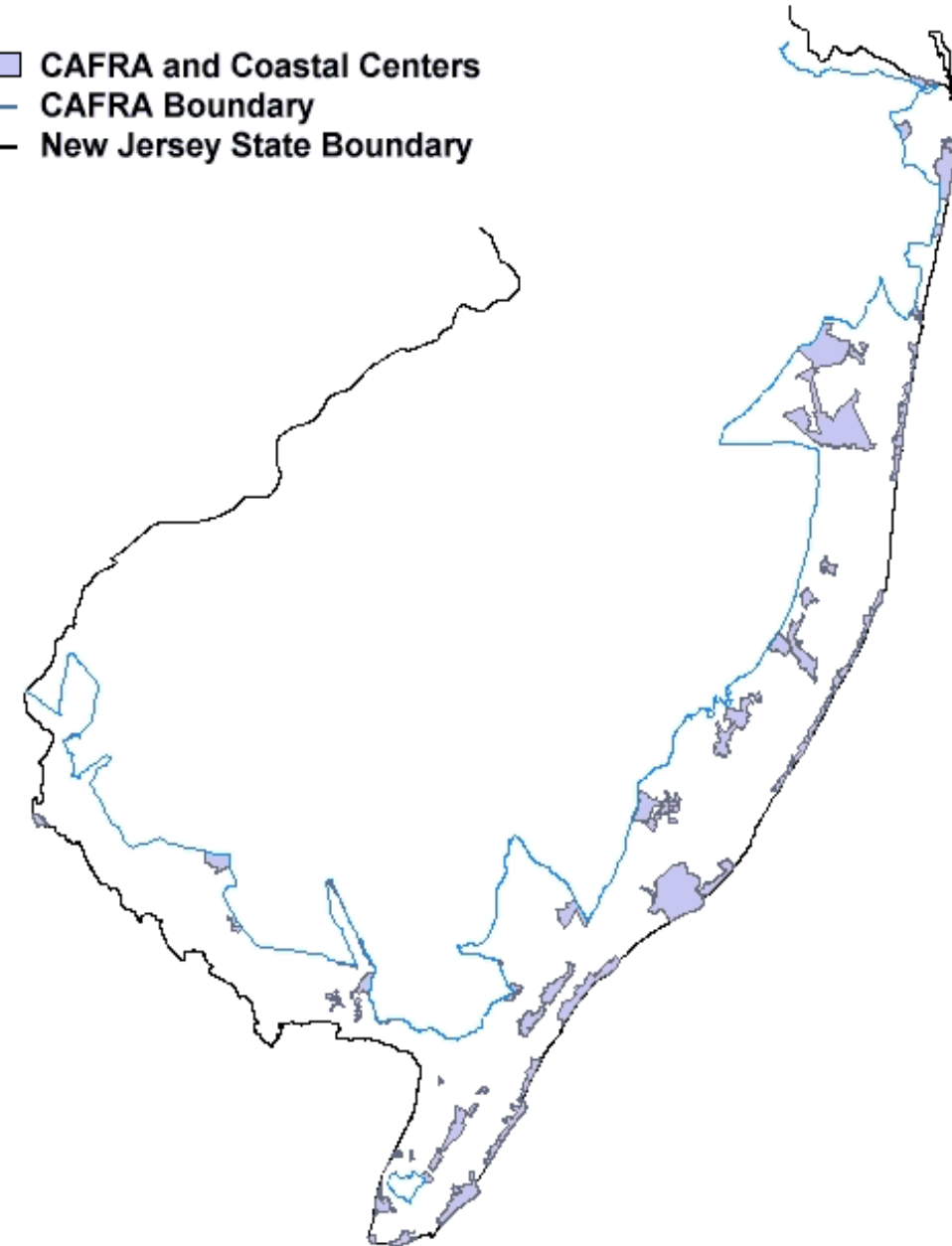


CAFRA

- State Planning Commission centers, cores, nodes have expiration dates, whereas the CAFRA centers, cores and nodes do not.
- Forces municipalities to go back through the process of re-designation.

(State boundary shown for reference only)

- CAFRA and Coastal Centers
- CAFRA Boundary
- New Jersey State Boundary



An aerial photograph of a coastline, showing waves breaking on a sandy beach. The water is a deep blue, and the sand is a light tan color. The sky is a pale, hazy blue. The image is used as a background for the slide.

Coastal Buffer Zone

- The CBZ is a new special area being considered that would overlap with the IRZ but would have differing regulatory goals.
- Consists of the land area adjacent to a beach, dune or coastal bluff along the Atlantic Ocean or Delaware Bay/River, that is, or will be, vegetated with native coastal vegetation.
- Acts as a natural transition zone between the beach, dune or coastal bluff and adjacent upland development to accommodate ongoing natural sand exchange and storage to support and sustain the beach and dune system.

An aerial photograph of a large, powerful wave crashing onto a wide, sandy beach. The water is a deep blue-green color, and the sand is a light tan. The wave is curling over, creating a white foam as it hits the shore. The background shows the ocean extending to the horizon under a clear sky.

Coastal Buffer Zone

- The wider a beach or dune system is, and the more space between the sea and any developed or populated areas, the more effective and efficient the system will be at reducing the impacts of coastal hazards, provide for coastal habitat and erosion and flood control benefits to promote resiliency while we see increased storm intensity and erosional impacts due to sea level rise.



Coastal Buffer
Zone Setback



Dune



Beach



Google Earth Pro

File Edit View Tools Add Help

Search

ortley beach

Search

ext: 37 25' 19.1"N, 122 05' 06"W

Get Directions History

Ortley Beach

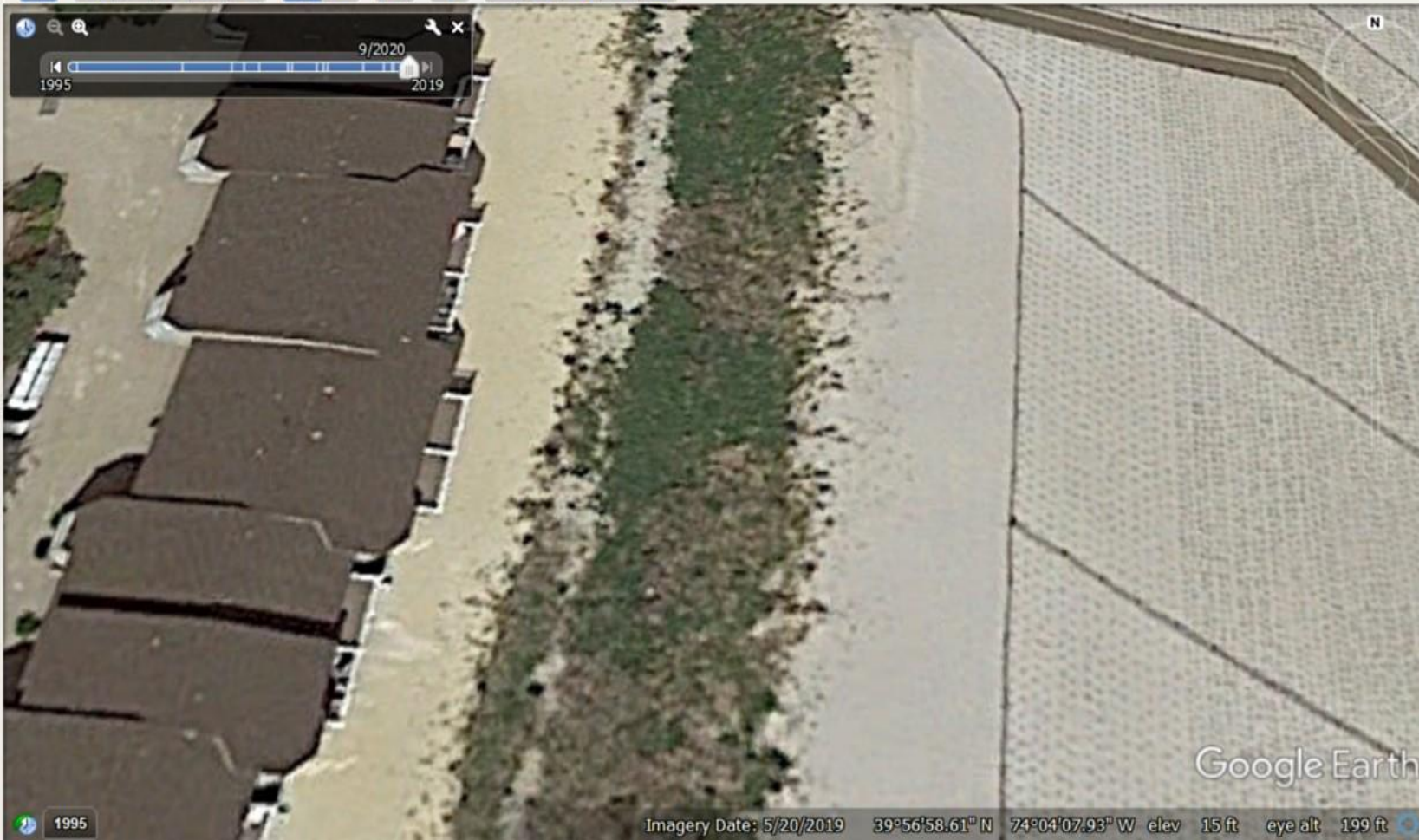
Places

My Places

Sightseeing Tour

Make sure 3D Buildings layer is checked

Temporary Places



Google Earth

Layers

1995

Imagery Date: 5/20/2019 39°56'58.61" N 74°04'07.93" W elev 15 ft eye alt 199 ft



Bunting Ave

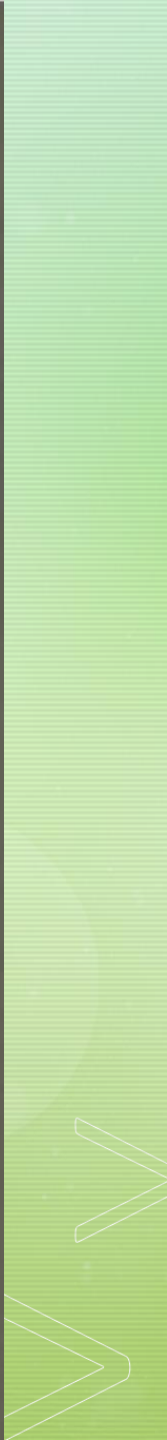
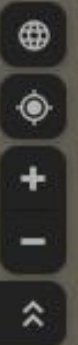
ton St

E Houston St

Bunting Ave

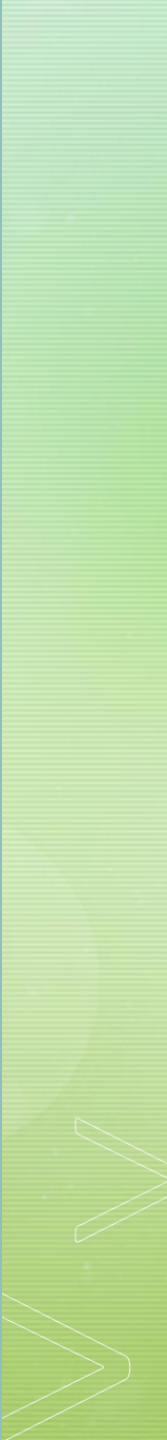
Bunting Ave

Google





Stormwater Management

- Recent Cornell study indicates that precipitation in NJ is likely to increase by 30 to 35% by 2100 assuming moderate emission levels.
 - As precipitation increases due to climate change, today's stormwater management systems may not be able to collect and transport the additional volumes of runoff anticipated for the future.
- 

Stormwater Management

- Stormwater systems should be designed to function for today's precipitation as well as tomorrow's.
- NJDEP is considering amending the threshold for major development due to increased precipitation.
- NJDEP is considering adopting new standards for redevelopment activities, such as requiring water quality treatment for runoff from reconstructed impervious surface, even if no new impervious surface is proposed.



National Flood Insurance Program

- FEMA has recently undertaken an assessment of NJDEP's rules and found areas where compliance with minimum Federal flood reduction standards are not uniformly achieved.
- NJDEP intends to amend the CZM and FHA rules where necessary to ensure that minimum NFIP standards are met.
- NJDEP may also include a statement on its permits clarifying that issuance of a CZM or FHA permit does not guarantee minimum NFIP standards are met.

Create a Toolbox

There are many great tools available:

- Inundation mapping & Rutgers STAP Report
- Vulnerability assessment tools (such as NYNJPA's model)
- Objective: to help homeowners, developers, and public entities make informed decisions

“Don't wait for the State”

- Property owners and public agencies should inventory their investments to determine vulnerability and risk
- Local communities can adopt resiliency standards





THANK YOU

Please contact us to share additional comments or concerns at:

jill.aspinwall@dep.nj.gov

