



Resilient Environments and Landscapes

- High Level Overview of Proposed REAL Rule Changes
 - Case for Action
 - Key Provisions
 - Concerns and Impacts
- Adapted from NJDEP and various federal climate-related websites; Rutgers STAP 2019 report; Lomax Consulting documents



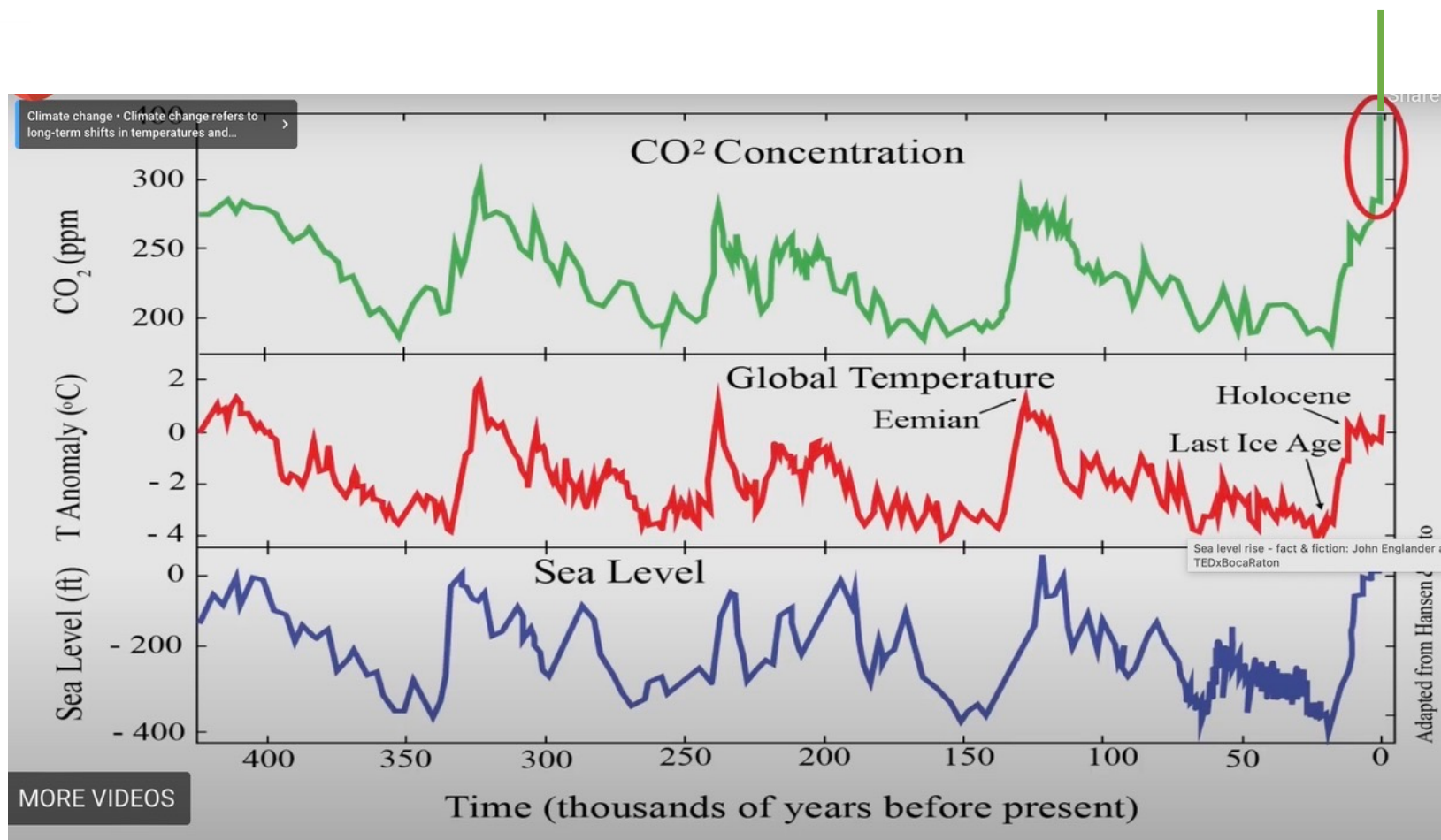
REAL Overview



- What is REAL and who will be impacted?
 - NJ State policy changes to existing regulations to address sea level rise, extreme weather intensification, and chronic flooding
 - New and revised land use regulations impact new development, redevelopment and renovation (> 50% structure market value) in flood risk zones
- Why is this legislation being proposed?
 - Best available science indicates GHG emissions will not meet targets due to continued steep rise in energy demand and delays in renewable energy projects
 - NJ sea level rise is twice the global averages
- Is the federal gov't proposing changes?
 - Yes! FEMA “encouraging” changes via flood policy discounts (CRS points)

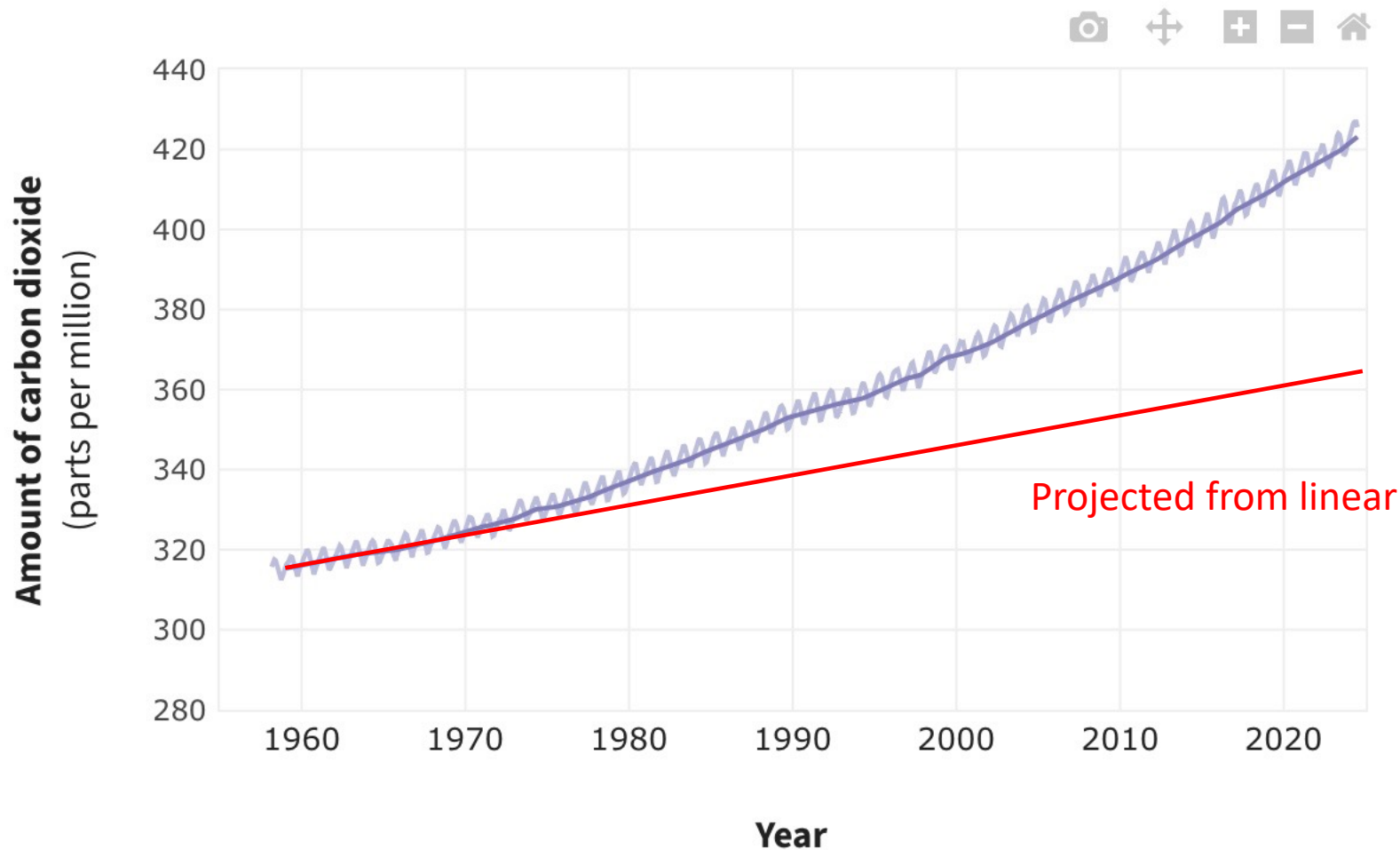


Sea Level Rise Tracks CO₂





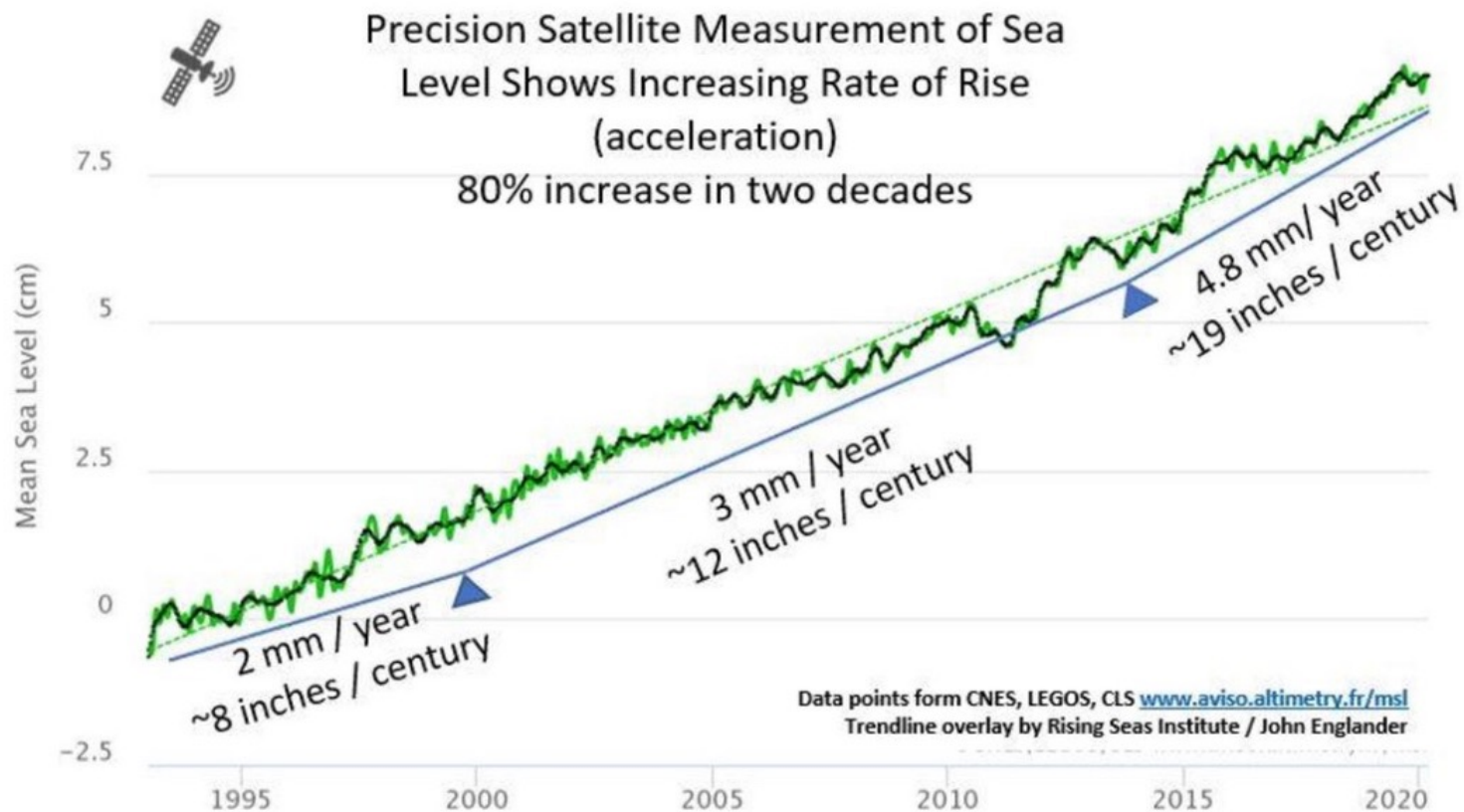
“Recent” CO₂ Concentration



NOAA @ Climate.gov

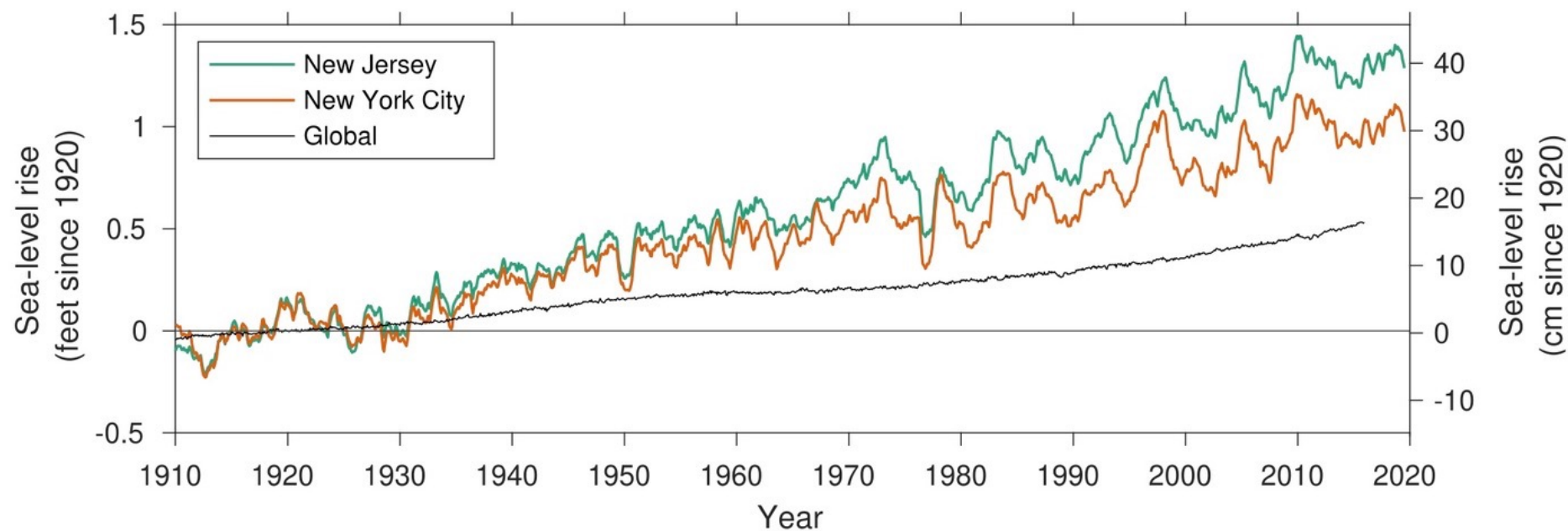


Sea Level Rise Rate Increasing





NJ Sea Level Rise 2X Global





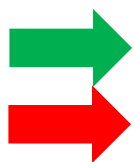
Predicted Sea Level Rise



Table 6. New Jersey Sea-Level Rise above the year 2000 (1991-2009 average) baseline (ft)*

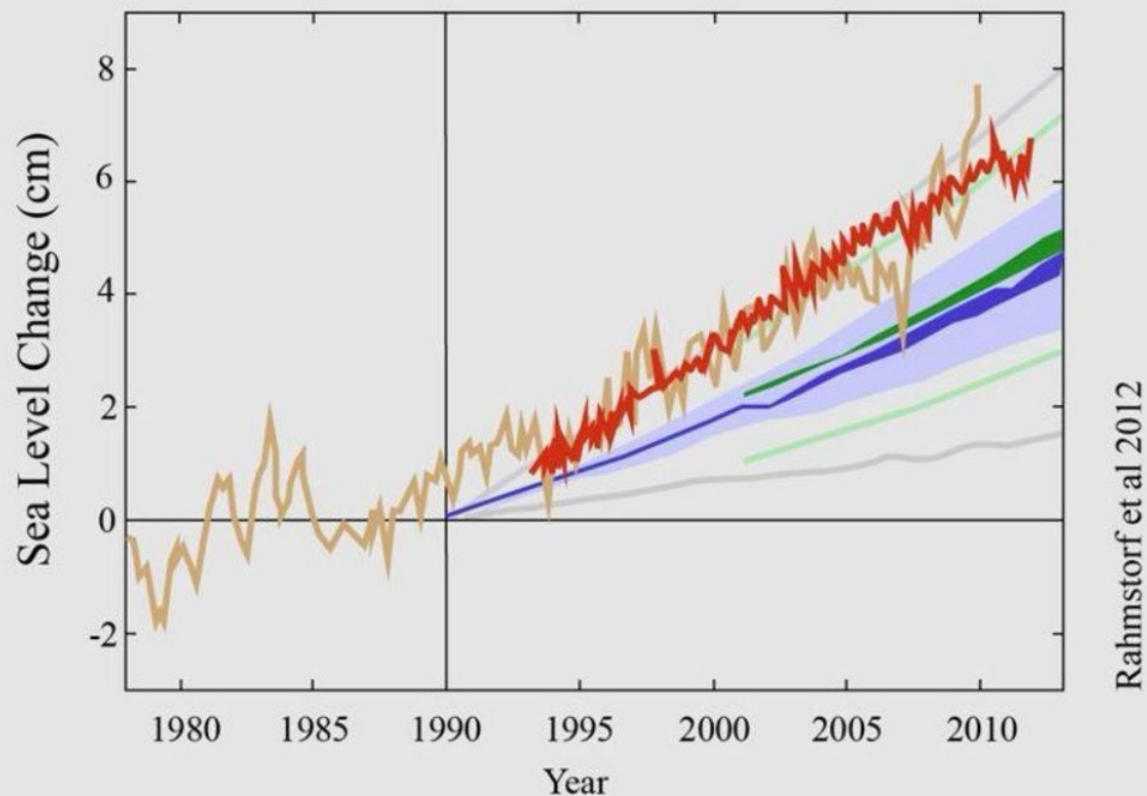
		2030	2050	2070			2100			2150		
				Emissions								
Chance SLR Exceeds				Low	Mod.	High	Low	Mod.	High	Low	Mod.	High
Low End	> 95% chance	0.3	0.7	0.9	1	1.1	1.0	1.3	1.5	1.3	2.1	2.9
Likely Range	> 83% chance	0.5	0.9	1.3	1.4	1.5	1.7	2.0	2.3	2.4	3.1	3.8
	~50 % chance	0.8	1.4	1.9	2.2	2.4	2.8	3.3	3.9	4.2	5.2	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





Actual Sea Level Rise Exceeding Projections



Blue – 1990 Projections

Gold – Actual Sea level

Green – 2002 Projections

Red - SL with trend line smoothing



Impact of Storms on Future Flood Events

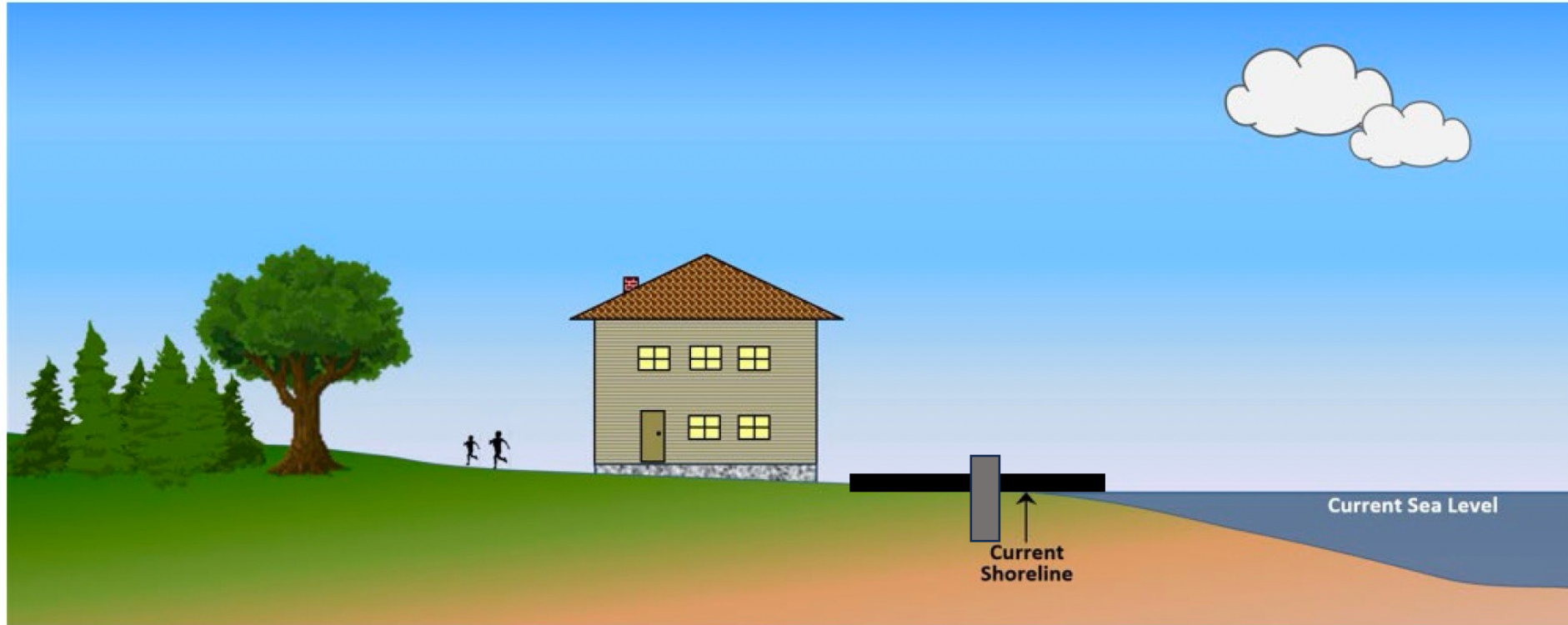


Table 7. Future Projections of Current and Historical Flood Event Heights (ft relative to 2000 MHHW)

Scenario / Year	2000	2030	2050	2070	2100
Moderate Emissions <i>Likely</i> (3.3 ft SLR by 2100)					
100-year flood (1% AEP)	4.8	5.6	6.2	7.0	8.1
Sandy Storm Tide	4.1	4.9	5.5	6.3	7.4
10-year flood (10% AEP)	3.3	4.1	4.7	5.5	6.6
Annual Flood (99% AEP)	2.5	3.3	3.9	4.7	5.8
High Tide Flooding Threshold	1.8	2.6	3.2	4.0	5.1
Permanent Inundation (MHHW)	0.0	0.8	1.4	2.2	3.3



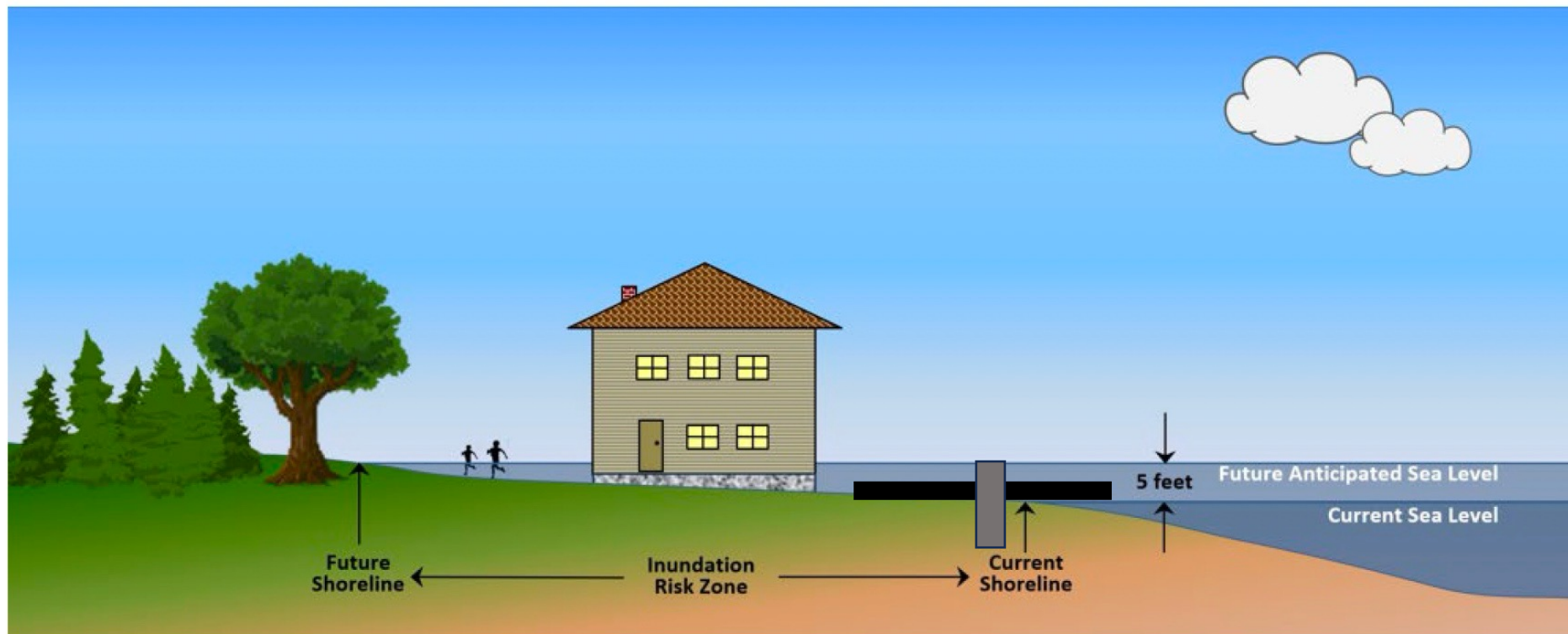
Diagram 2. Current Sea Level in MHHW



Graphics Excerpts: NJDEP REAL Webinar 1: Sea Level Rise & Inundation Risk Zone, May 20, 2024



Diagram 3. Future Anticipated Sea Level (Year 2100) in MHHW



Graphics Excerpts: NJDEP REAL Webinar 1: Sea Level Rise & Inundation Risk Zone, May 20, 2024



Inundation Risk Zone = 65%

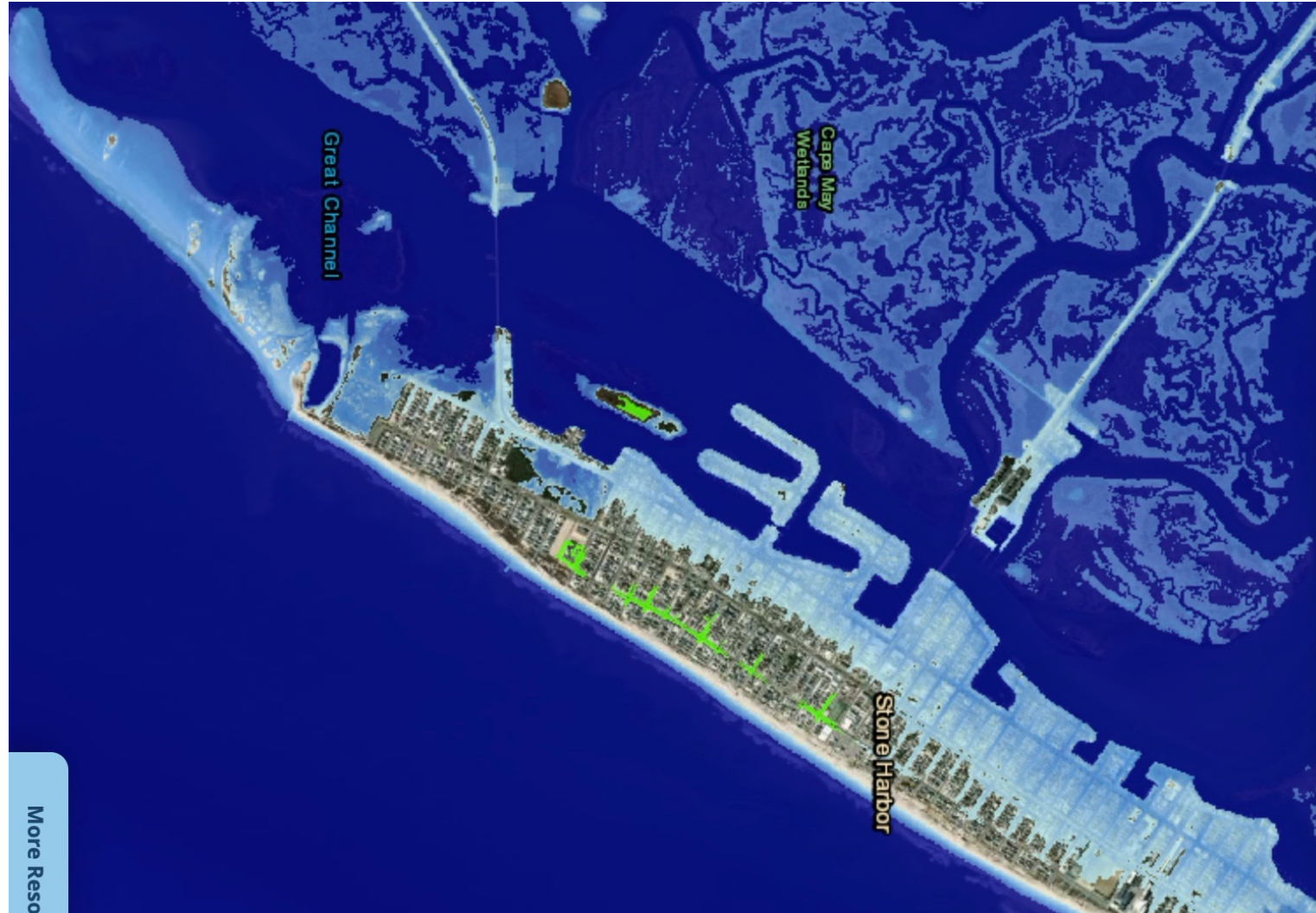
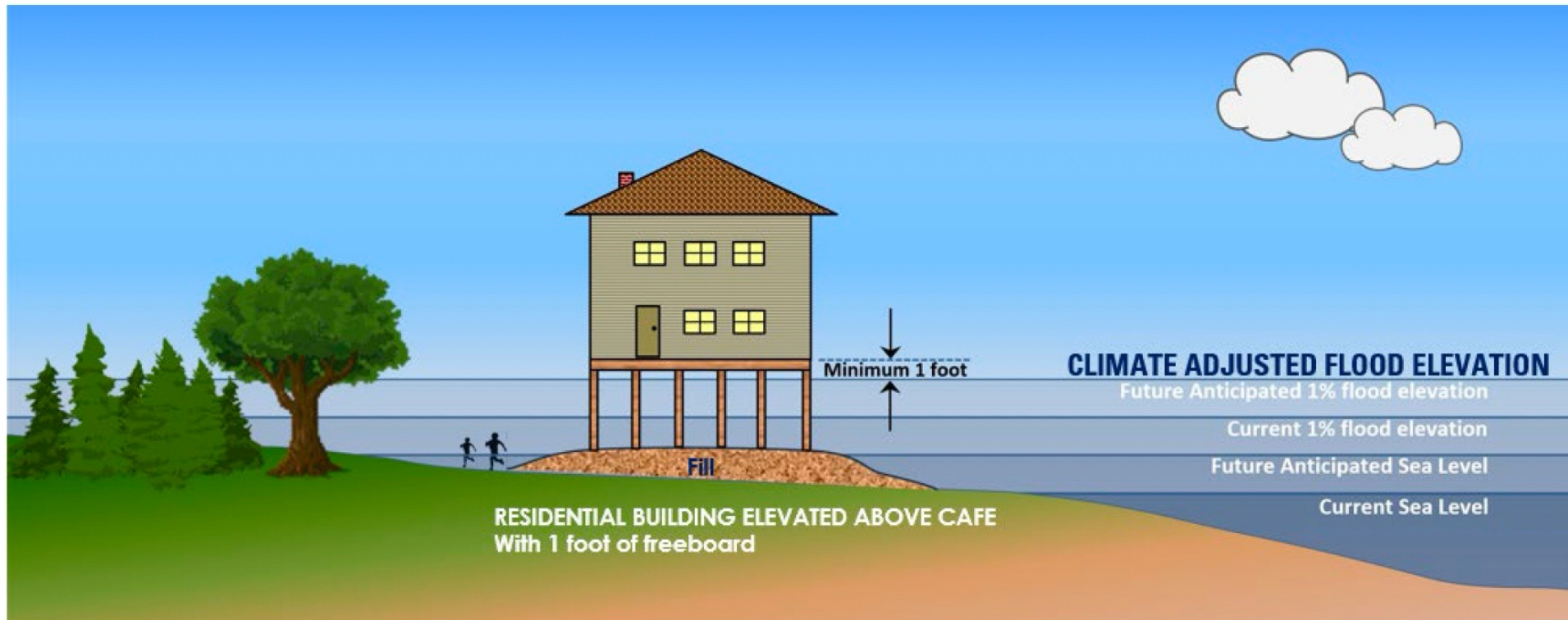




Diagram 5. Climate Adjusted Flood Elevation (Year 2100)



Graphics Excerpts: NJDEP REAL Webinar 1: Sea Level Rise & Inundation Risk Zone, May 20, 2024



Potential Impacts on Residential Development and Redevelopment



- **Stricter Building Standards** in flood-prone areas
- **Limitations on Redevelopment** and/or extensive adaptive measures
- **Increased Costs and Delays** for permitting and construction
- **Shift in Development Patterns** to less vulnerable areas
- **Potential for Property Value Impacts**
- **Infrastructure and Compliance Costs** to local governments

How do we transition from now to then?



Cape May County Concerns



- 17% probability @ year 2100 SLR basis
- Lack of detailed economic assessment
- Increase in construction costs for both public and private
- Decreasing amount of developable land (mainland issue)
- Harm to the tourist industry
- Resolutions of Opposition adopted by all 16 municipalities



SH Flood Mitigation Activities



- ✓ Ocean-side protection established in 2002 with dune project
- Bay-side protection from raising of bulkhead elevations (4' > 6' > 8')
- Storm drain outfall pipe value re-fits to minimize tidal flooding
- Building ordinance increases 1st floor elevation 2' greater than FEMA
- Flood mapping to identify "hot spots"
- Multiple activities from FEMA CRS assessment
- Grading ordinance raising property levels



103rd St Beach 1998





Hot Spot – 81st St Marina 2023





SH Flood Mitigation Activities



- ✓ Ocean-side protection established in 2002 with dune project
- Bay-side protection from raising of bulkhead elevations (4' > 6' > 8')
- Storm drain outfall pipe value re-fits to minimize tidal flooding
- Building ordinance increases 1st floor elevation 2' greater than FEMA
- Flood mapping to identify “hot spots”
- Multiple activities from FEMA CRS assessment
- Grading ordinance raising property levels