N.J. Coastal & Climate Resilience Conference

Navigating Changing Tides

Getting to Yes, Quicker, for Flood Resiliency and Adaptation Projects

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NJ COASTAL RESILIENCE COLLABORATIVE

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

AGENDA

- The Need For Speed
- A Structured Collaborative Approach
- Case Studies
  - Dutch Dialogues
  - New Jersey Sandy Recovery
  - Annapolis Md. – City Dock Resiliency
  - Fargo-Moorhead - Flood Diversion

The Need for Speed

Water Protection Infrastructure
ASCE 2025 Report Card "D-D+"

- **STORMWATER - GRADE "D":** Impaired rivers and Streams is 703,000 miles. 20-year need for large stormwater systems is "$115 Billion. Still a large funding gap. more than 60% of the nation's stormwater utilities have explained that aging infrastructure poses a significant concern for their long-term needs.
- **LEVEES – GRADE "D+":** 24,000 miles of levees across the US. 2/3rds not assessed for flood risks posed to communities. Protect 23 million people $2 Trillion worth of property, seven million buildings, and five million acres of farmland. Limited funding streams.
- **DAMS – GRADE "D+":** 92,0001 dams in the U.S. that generate electricity, supply drinking water, and protect communities and critical infrastructure. Nearly 17,000 of these dams are considered high risk hazard. Average age 60 years old.
- **WASTEWATER – GRADE "D+":** Sewers are worth over $1 trillion and include nearly 17,500 treatment plants. Over the last decade, renewal and replacement rate for large capital projects decreased from 3% to 2% while the average number of failures for combined water utilities increased from 2 to 3.3 per 100 miles of pipe,

The Need For Speed & Solutions

- Climate impacts are accelerating.
  - Deteriorating infrastructure
  - Increasing storm intensity
  - Increasing sea level rise
- Delays in resiliency projects directly result in increased loss & damage.
- Traditional project approvals and delivery can take decades
- Changes in governments can change, stall or stop efforts
- Conflicting interests can form adversaries that fail to talk and see common interests

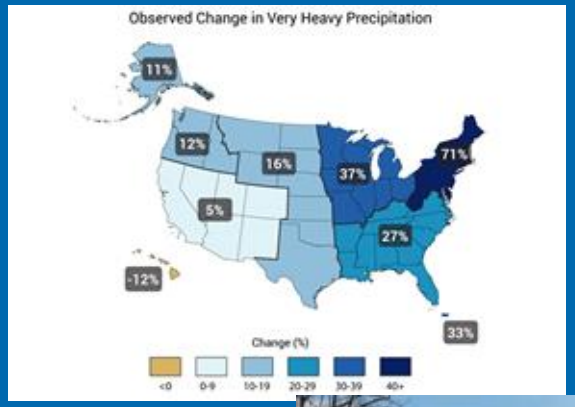


Table 4.3. Sea-level Rise Projections (ft. above year 2000 average sea level) for New Jersey From 2030 to 2150 Under Low, Moderate and High Emissions Scenarios. The likely range represents the range of levels between which there is 66% chance that SLR will occur (Kopp et al. 2019).

	Chance SLR Exceeds	2030	2050	2070 Emissions			2100 Emissions			2150 Emissions		
				Low	Mod.	High	Low	Mod.	High	Low	Mod.	High
Low End	*> 95% chance*	*0.3*	*0.7*	*0.9*	*1.0*	*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

Notes: All values are 19-year means and are measured with respect to a 1991-2009 baseline. Projections are 19-year averages based on Kopp et al. (2014), Rasmussen et al. (2018), and Bamber et al. (2019). Moderate (Mod.) emissions are interpolated between the high and low emissions scenarios. Rows correspond to different projection probabilities. For example, the 'Likely Range' rows correspond to at least a 2-in-3 (66-100% chance) chance of sea-level rise from the relevant projections considered, consistent with the terms used by the Intergovernmental Panel on Climate Change (Mastrandrea et al. 2010). Note alternative methods may yield higher or lower estimates of the chances of low-end and high-end outcomes.

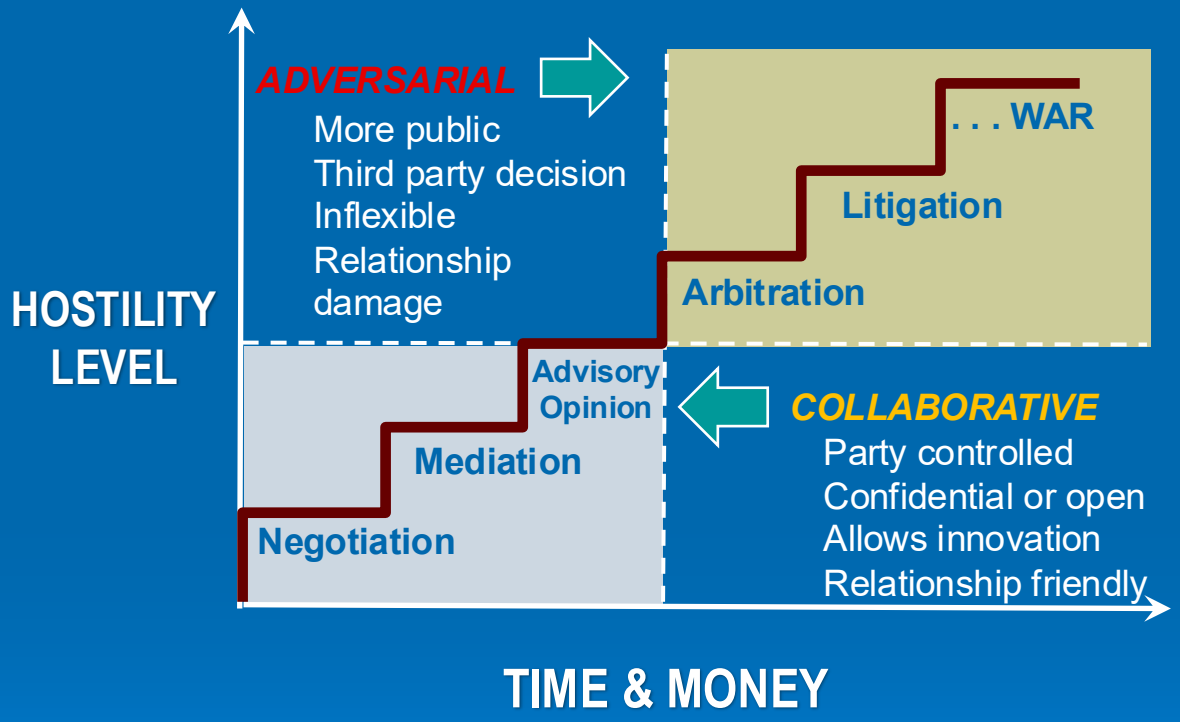
Obstacles to Resiliency Action

- ✓ Diverse stakeholders, jurisdictions and interests
- ✓ Lack of a governance structure crossing jurisdictions
- ✓ Funding shortages and need for long term O&M

- ✓ Multiple permits and approvals
- ✓ Some groups w/o resources to participate
- ✓ Resistance to “managed retreat”
- ✓ Difficult decisions on design – FEMA Flood map

A Structured Collaborative Approach

Conflict Resolution Continuum



A Collaborative Process

Overview - people affected by or responsible for the decision

- actively work together to shape the outcome,
- rather than having it dictated by a single authority or in isolated silos.

Key elements:

1. Inclusive Participation
2. Open Communication and Transparency
3. Joint Problem-Solving
4. Mutual Respect and Trust
5. Shared Ownership of Outcomes
6. An Executed Implementation Agreement

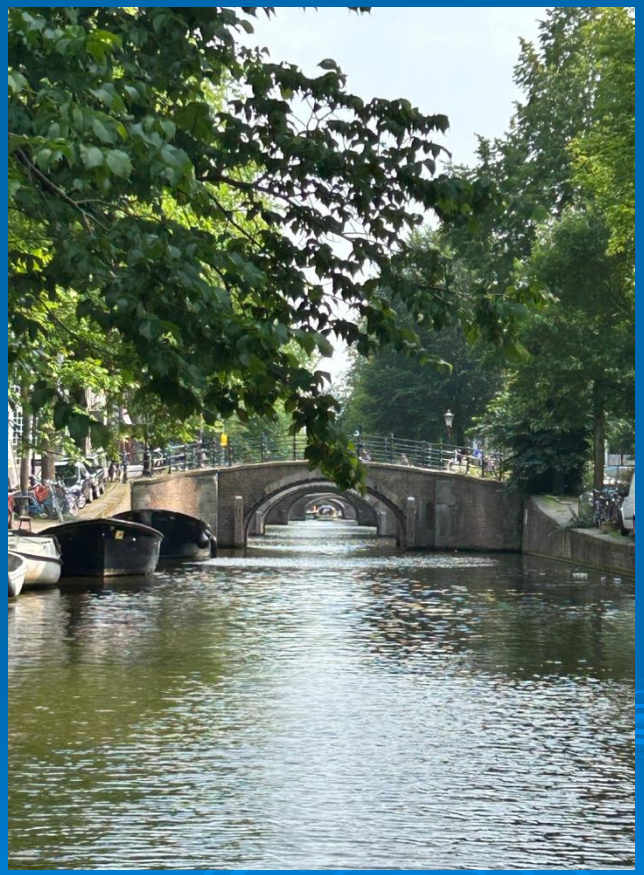
Steps to a Structured Collaborative Approach

1. Identify/recruit a **"Public Champion and Convenor"**
2. Engage a **Facilitator** to help structure & manage process
3. **Identify All Stakeholders** and their interests
4. **Review all existing information** and identify and **fill gaps**
5. Identify all **potential funding** and financing sources
6. Perform **analysis of alternatives** and cost/benefit
7. Conduct meetings to **educate and engage** stakeholders
8. Gather groups to **deliberate, problem solve**, commit
9. Advance a **Written Agreement**, with broad "consensus"

Case Studies

Dutch Dialogues:
What It Is & How It Works

- Collaborative, multi-day workshops pairing Dutch water experts with local teams (engineering, planning, landscape, hydrology).
- Grounded in the Dutch “living with water” approach: reduce risk by integrating water into urban design instead of fighting it.
- Works across scales (region → watershed → neighborhood) with science-based, place-specific analysis.
- Produces actionable ideas: principles, conceptual designs, and roadmaps that feed into Urban Water Plans and capital projects.



References: City of Charleston: Dutch Dialogues (2019); Waggonner & Ball: Dutch Dialogues® New Orleans; HRPDC: Dutch Dialogues Virginia (2014–2015)

Hoboken Rebuild by Design
Superstorm Sandy Recovery

- The Hoboken Coastal Resiliency Project was a response to devastation caused by Sandy.
- **Rebuild by Design** is a non-profit organization founded in 2013 in response Sandy and sponsored a proposal by NJ state and local groups.
- A consensus-building process considered the participants' social, economic, engineering and environmental factors.
- The resulting comprehensive storm water plan addressed impacts from coastal storm surge flooding and rain flooding experienced during Sandy.
- 10 years following Sandy, construction begun.

Annapolis Resiliency Project

CITY DOCK FLOODING

Year	Flood Days Per Year
1969	4
2013	39
2014	52
2065	365

CITY DOCK ACTION COMMITTEE

2019 -2020

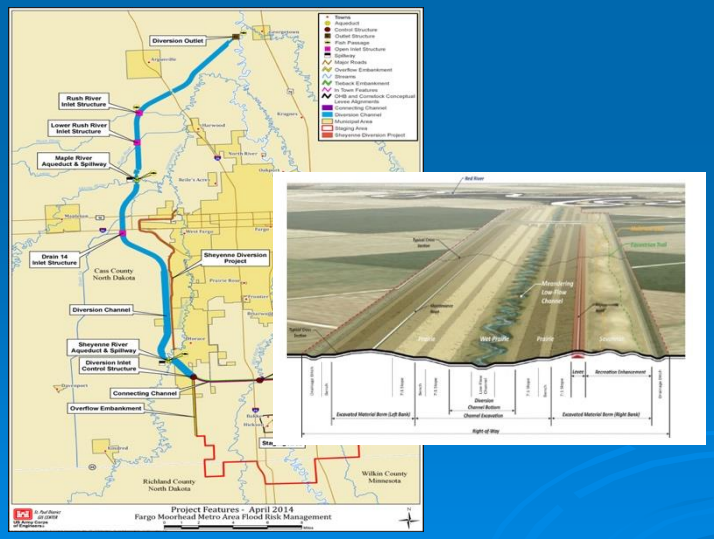
- Formed in 2019 at behest of Mayor Gavin Buckley
- Nearly 100 residents, experts, & stakeholders
- After nearly a year of meetings, issued report recommending rebuilding the garage in conjunction with redevelopment of City Dock
- Recommended forming a public private partnership

Fargo ND-Moorhead MN (FM) Flood Diversion Project

METRO FLOOD DIVERSION AUTHORITY

CITY OF Fargo · MOORHEAD MINNESOTA · CLAY COUNTY · CASS COUNTY GOVERNMENT · CCJWRD Cass County Joint Water Resource District

Plan



Actual

+70% Complete

Thank You!

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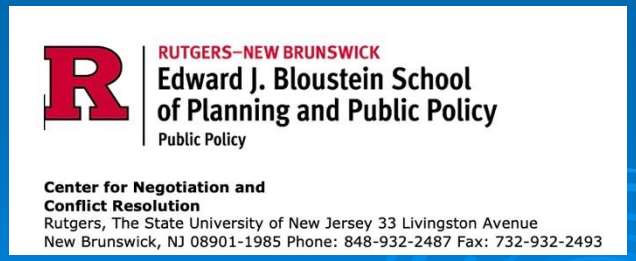

Questions?