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Connecticut Climate Change Laws

How municipalities can plan for sea level rise and increased flooding events

Patricia L. Boye-Williams
860.240.6168 | pboyewilliams@murthalaw.com

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Overview

- Impacts of Climate Change on Municipalities
- Statutory Requirements
- Next Steps for Municipalities / Impacted Programs
  - Coastal Management Programs
  - Floodplain Management
  - Zoning

Impacts to Connecticut Towns

- Shoreline towns: Sea level rise
  - Flooding in areas not previously seen, more often
  - Shoreline flooding, but also flooding of rivers upstream
- More Significant Rainfall events
  - Including hurricanes but also heavier rain storms
- Storm Surges, but also higher mean high tides
- Wind

Financial Impacts

- "100 year" storm events occurring more often
  - By 2100, occur every 17 to 32 years
- Damage estimates $19 billion per event
  - Up to $13 billion within shoreline communities
- Moody's: will review resiliency and climate change planning as part of its credit rating process for municipalities

Climate Change Impacts (NOAA 2012 Report)

- Sea Level rise by 2100
  - 0.5 meters: little ice sheet loss, primarily just ocean warming
  - 1.2 meters: limited ice sheet loss
  - 2.0 meters: greatest possible ice sheet loss

6 feet (<2m) rise; inundated land in purple

State Response

- 2012: PA 12-101
- Updated statutes in 2013 (PA 13-179) and 2018 (PA 18-82)
- Consider climate change for state and municipal:
  - Plans of Conservation and Development
  - Evacuation and Hazard Response Plans
- 2016 Connecticut State Building Code requirements

Public Act 12-101

- State Policy: consider the impacts of sea level rise in all coastal management planning activities
  - Sea level rise defined based on historical sea level rise using tide gauges in Bridgeport & New London
- Provided for the study of sea level rise by DEEP, UConn, and Connecticut State Colleges & Universities
- Pilot program: innovative and low impact design for shoreline protection and adaptation

Public Act 13-179

- Explicitly required planners to consider sea level change when revising:
  - State and municipal Plans of Conservation & Development
  - Municipal evacuation & hazard mitigation plans
  - State civil preparedness plan & program
- Defined sea level rise based on forward looking approaches: NOAA Technical Report
  - UConn to update projections once every 10 years

Public Act 18-82: An Act Concerning Climate Change Planning & Resiliency

- State: Reduce greenhouse gas emissions to 45% of 2001 levels by January 1, 2030
  - Continue goal of reduce to 80% of 2001 levels by 2050
- Sea level rise: defined to be the SLR calculated by UConn for a scenario applicable to state coastline
- Flood-proofing requires freeboard above base flood elevation

Senate Bill 7: What is not in PA 18-82

- Of note, the Governor's draft SB 7 included:
  - Requirements for updated the coastal boundary to account for sea level change scenario
  - Obligation for municipal planning commission to adopt or amend municipal coastal boundary within one year of revised sea level change scenario
- Not in the Act that passed.

State Plan of Conservation & Development

Conn. Gen Stat. § 16a-27

- State must:
  - Consider risks associated with increased coastal flooding and erosion
  - Identify impacts of increased flooding and erosion on infrastructure and natural resources
  - Make recommendations for future siting of infrastructure and property development, considering flooding and erosion

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Municipal Plan of Conservation & Dev.

Conn. Gen Stat. § 8-23

- Updated every ten years
- Required to consider:
  - The objectives of energy-efficient patterns of development, the use of solar and other renewable forms of energy
  - The most recent sea level change scenario as updated by Marine Sciences Division of UConn

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Evacuation & Hazard Mitigation Plans

Conn. Gen Stat. § 25-68o

- On and after October 1, 2019, municipalities shall consider the most recent sea level change scenario (as updated by UConn's Marine Sciences Division) in preparing its evacuation plan or hazard mitigation plan

Coastal Management

Conn. Gen Stat. § 22a-90, 25-68b

- Coastal development: consider sea level change scenario as determined by UConn and published by DEEP
- For state projects: property located in the state's coastal boundary must be "flood-proofed":
  - At least two feet of freeboard above base flood level; and
  - Any additional freeboard necessary to account for sea level change

UConn Sea Level Change ("SLC")

- At least once every 10 years
- Local analysis incorporating NOAA and global calculations
- Public hearing + 60 days later publish the SLC scenario for the state
  - Most recent public hearing held October 2, 2018
  - SLC not yet published
  - Report: 0.5 meters (~ 20 inches) greater than National Tidal Datum in 2050

Sea Level Rise: 2100

- 0.5 meters: little ice sheet loss, primarily just ocean warming
- 1.2 meters: limited ice sheet loss
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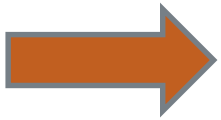

Projections: not certainty, planning challenges.

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BEYOND THE STATE CLIMATE CHANGE STATUTES: LOCAL ZONING CHANGES

Planning Considerations

- Critical Infrastructure in the Coastal Boundary may require different considerations than residential use
  - Water Pollution Control Facilities
  - Utility substations
  - Schools
  - Emergency Shelters
- May wish to assume higher levels of SLR for critical infrastructure developments

Building Requirements: NFIP

- National Flood Insurance Program
  - Minimum standards of floodplain management regulations
  - Every municipality in Connecticut meets these standards
- Habitable portions of new and substantially improved residential structures: elevated to at or above Base Flood Elevation ("BFE")
- Non-residential may be flood-proofed to BFE

Building Requirements: State Building Code

- Mandatory minimum elevation requirements for floodplain buildings
- Building Code elevation requirements are almost universally higher than BFE
  - Building Code is in many cases more stringent than NFIP
- Not all shoreline towns incorporate Building Code requirements in floodplain management ordinances

Review and fix this if needed!!

NFIP & Building Code: Minimum Requirements

- Municipalities have authority to implement zoning ordinances that "secure safety from . . . flood and other dangers." (Conn. Gen. Stat. § 8-2)
- Financial concerns and resiliency to hazards warrant considering more stringent zoning protections for at least certain applications or certain locations

Building recommendations from CIRCA

- Adopt the Minimum Elevation Requirements of the Connecticut State Building Code
- Consider adopting elevation standards adopted by the American Society of Civil Engineers (ASCE 24-14) as already done by Clinton, Old Saybrook, and Waterford
- Consider adding at least two feet of freeboard above BFE (consistent with state “flood-proofing” definition)
  - Maybe greater if anticipated life of service >30 years

Zoning Changes

- Coastal A Zone: enhanced requirements to account for wave effects, velocity flows, and erosion.
  - Not separately insured under NFIP
  - Provides additional protections for A Zone buildings in coastal areas
- Already in place for Clinton, Groton, Old Saybrook, Waterford, and Westbrook

Building Height Conflicts

- Increase BFE + Freeboard vs. building height limited by zoning regulations
- Variance case-by-case: requires additional work and cost by property owner and town
  - Subject to public hearing, review and potential appeal
- Enact ordinance to address
  - Efficient, but lose some control on individual buildings

Additional Height

- Grant additional height to elevated structures in floodplains (8 towns have ordinances)
- Can be based on height above grade (e.g., for each foot of difference between grade and BFE, an additional foot of height)
- Or, based on BFE, e.g., total height is calculated from BFE instead of grade

Wind

- Increasing height increases risk of wind damage
- Consider incorporating requirements to evaluate and, if needed, retrofit the buildings

NFIP Community Rating System

- Earn flood insurance discounts for town (up to 45%) by accumulating credits for going beyond the minimum requirements of NFIP, e.g.:
  - Improve floodplain mapping
  - Tighten regulatory requirements
  - Enhance public information activities
  - Freeboard requirements alone = 5% discount on insurance

Forthcoming Planning Assistance

- Connecticut Institute of Resilience & Climate Adaptation (CIRCA)
  - Municipal Resilience Planning Assistance for Sea Level Rise, Coastal Flooding, Wastewater Treatment Infrastructure, and Policy
  - Anticipated Completion Date: December 2018
- https://circa.uconn.edu/projects/municipal-resilience-planning/

Next Steps

- Plan on 0.5m (20 inch) SLR by 2050
- Review town ordinances: confirm complying with State Building Code; consider additional protections
  - Evaluate building usage, life expectancy for significant projects
- Good practices now will save money later—and potentially preserve credit ratings

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