

Regional Framework for Coastal Resilience in Southern Connecticut:

Legal, Policy, and Regulatory Assessment



Read Porter

Marine Affairs Institute, Roger Williams University School of Law

Rhode Island Sea Grant Legal Program

December 2016

About the Marine Affairs Institute

We are:

- a partnership among RWU School of Law, Rhode Island Sea Grant, and URI
- home to the Rhode Island Sea Grant Legal Program
- an academic and research institute: we do not advocate or litigate

Our mission:

- educate the next generation of marine law and policy professionals
- serve as a legal and policy resource on marine and coastal issues
- convene diverse experts to address issues in marine law and policy



Project team

Rhode Island Sea Grant Legal Program / Marine Affairs Institute

Julia Wyman, Director

Read Porter, Staff Attorney

Rhode Island Sea Grant Law Fellows:

Zachary Bourdony

Jamison Jedziniak

Logan Pearce

John Ryan-Henry

Sean Carney

THE
UNIVERSITY
OF RHODE ISLAND



Roger Williams University
SCHOOL OF LAW

Marine Affairs Institute

Project overview

- *Purpose:* To assess and advance legal and policy opportunities to:
 - reduce risk from large-scale storm events,
 - increase the viability and resiliency of natural ecosystems in the project area, and
 - create a Regional Framework for Coastal Resilience in Southern Connecticut

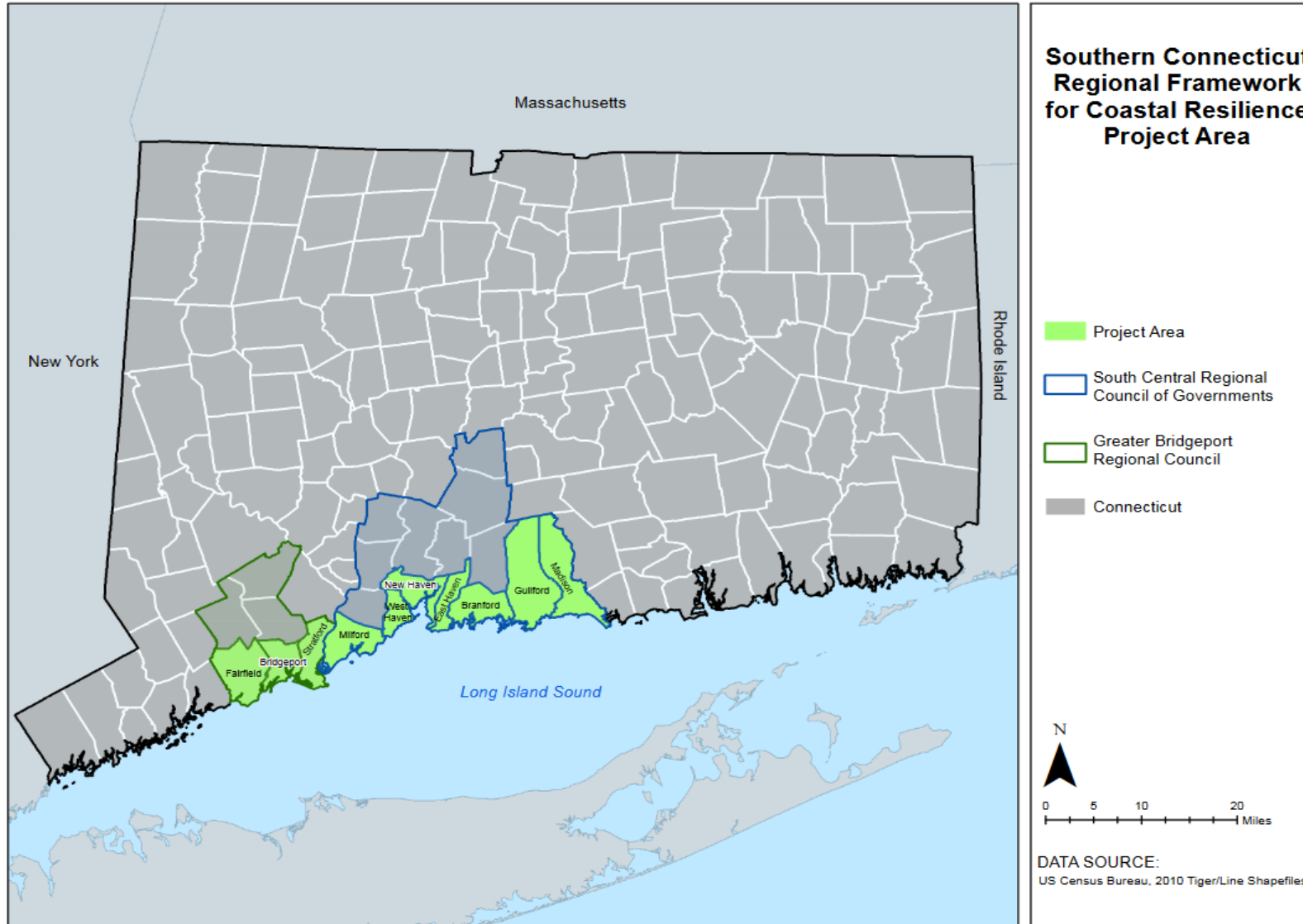
- *Partners:*



- *Funding Source:* Hurricane Sandy Coastal Resiliency Grant - Department of the Interior through National Fish and Wildlife Foundation



Geographic Scope of Project



Process

1. *Interviews*

Semi-structured interviews, based on interview protocol, with town officials and state government officials

2. *Legal research*

Focused research to identify federal, state, and local laws, regulations, and ordinances relevant to coastal green infrastructure and resiliency

3. *Report drafting*

Drafted written report, with one chapter produced in each of the three project phases, integrating interview findings and legal research

4. *Review*

Peer review by partners and town officials on each chapter and the report as a whole, with revisions to incorporate feedback into final report



Project Elements

- **Inventory** of federal, state, and local laws and regulations related to coastal green infrastructure and resiliency
- Town-by-town **audit** of key regulations and ordinances
- Discussion of **policy options** and **case studies** for improving coastal green infrastructure and resiliency



Coastal Resiliency Strategies

Coastal Land Use

- Coastal Zoning Districts
- Coastal Site Plan Review
- Coastal Setbacks
- Natural Protective Barrier Protection
- Flood and Erosion Control Structures

Open Space

- Transferable Development Rights
- Cluster Development
- Open Space Set-Asides
- Financial Mechanisms

Transportation Resiliency

- Highway Stormwater Sewer Capacity
- Green Infrastructure in Highway Design
- Highway Elevation
- Highway Abandonment and Decommissioning

Flood Hazard Mitigation

- Suitability of Building Lots
- Defining Flood-prone Areas
- Enhanced Building Requirements
- Stormwater and Low-Impact Development



Coastal Land Use: Coastal Zoning Districts

- Do municipalities have zoning or overlay districts specific to coastal areas?

Municipality	Coastal District(s)	Type
Branford	Coastal Management	Overlay
Bridgeport	Mixed Use - Waterfront	Zoning
East Haven	--	--
Fairfield	Beach	Zoning
Guilford	Coastal Area	Overlay
Madison	--	--
Milford	Beach Erosion Zone	Zoning
	Boating Business	Zoning
	Waterfront Design	Zoning
New Haven	Coastal Management District	Overlay
	Light Industry – Marine	Zoning
	Marine	Zoning
Stratford	Coastal Area Management	Overlay
	Coastal Industrial	Zoning
	Waterfront Business	Zoning
West Haven	Waterfront Design	Zoning



Coastal Land Use: *Coastal Zoning Districts*

- Urban – rural division on zoning of coastal areas:
 - Urban: use waterfront as economic driver via mixed-use development
 - Suburb/rural: waterfront districts generally used to restrict development rather than to drive development
- Differences in inclusion of building requirements in urban development districts
 - Bridgeport does not incorporate resiliency or SLR, therefore relies on coastal site plan review;
 - West Haven does require building standards in waterfront districts (e.g., elevation with at-grade parking).
- Zoning districts are tool to effectively and consistently implement other resiliency policies on a granular level



Coastal Land Use: Coastal Site Plan Review

- How is the required CSPR implemented?
 - Overlay CAM district or regulations based on coastal boundary
 - Follow state law on exemptions and other provisions, except different setbacks to trigger CSPR for otherwise-exempt work

CSPR Exemption	Municipality	Setback limit
Minor additions to or modifications of existing buildings or detached accessory buildings...	Guilford	100 ft
	Madison	25 ft
	Stratford	100 ft
	West Haven	50 ft
Construction of new or modification of existing structures incidental to the enjoyment and maintenance of residential property	Madison	25 ft; regrading affecting topography
	West Haven	50 ft
Construction of new or modification of existing on-premise structures . . . as will not substantially alter the natural character of coastal resources or restrict access along the public beach	Madison	25 ft; regrading affecting topography
	West Haven	50 ft



Coastal Land Use: Coastal Setbacks



- How close can coastal development be located to the water or other coastal resources?

- Implement through:
 - Floodplain management ordinances/regulations
 - Zoning regulations
- Setbacks can be universal, for particular districts, or based on presence of critical coastal resources

Municipality	Baseline	Setback (feet)
Branford	Coastal Jurisdiction Line	0
	Critical Coastal resources	25
Bridgeport	Mean High Tide	0
East Haven	Coastal Jurisdiction Line	25
Fairfield	Mean High Tide	0
	In Beach District	25 (min.)
Guilford	Coastal Jurisdiction Line	25
	Critical coastal resources	25-100 (min.)
Madison	Coastal Jurisdiction Line	0
	Critical Coastal Resources	50
Milford	Mean High Tide	0
	Seasonal high water, MHT, or legally established boundary	25
New Haven	Coastal Jurisdiction Line	25
Stratford	Mean High Tide	50
	Tidal wetlands, coastal bluffs and escarpments, and beach and dune systems	75
West Haven	Coastal Jurisdiction Line	0

Coastal Land Use:

Natural Protective Barrier Protection

- How do municipalities protect dunes and other natural barriers landward of the CJL?
- Universal prohibition on alteration of dunes
- 3 municipalities protect vegetation/natural protective barriers



Municipality	Protection beyond alteration of dunes
Branford	Vegetated buffers must be retained and new buffers may be required
Bridgeport	--
East Haven	--
Fairfield	--
Guilford	Vegetated buffer may be required
Madison	--
Milford	Retain “sand dunes, barrier beaches, and other natural protective barriers”
New Haven	--
Stratford	--
West Haven	--

Coastal Land Use:

Flood and Erosion Control Structures

- How do municipalities govern FECS *landward of the CJL*?
- Most FECBs dormant; 2 have enhanced authorities, 2 absent
- Law is silent on FECB authority to create green infrastructure

Municipality	Authority	Powers beyond those given by state statute
Fairfield	FECB	--
Bridgeport	FECB	--
Stratford	--	--
Milford	FECB	--
West Haven	FECB	Hears appeals from decisions by Director of Planning related to flood management
New Haven	--	--
East Haven	FECB	--
Branford	FECB	Hears appeals from decisions and requests for variances under town floodplain management regulations
Guilford	FECB	--
Madison	FECB	--

Coastal Resiliency Strategies

Coastal Land Use

- Coastal Zoning Districts
- Coastal Site Plan Review
- Coastal Setbacks
- Natural Protective Barrier Protection
- Flood and Erosion Control Structures

Open Space

- Transferable Development Rights
- Cluster Development
- Open Space Set-Asides
- Financial Mechanisms

Transportation Resiliency

- Highway Stormwater Sewer Capacity
- Green Infrastructure in Highway Design
- Highway Elevation
- Highway Abandonment and Decommissioning

Flood Hazard Mitigation

- Suitability of Building Lots
- Defining Flood-prone Areas
- Enhanced Building Requirements
- Stormwater and Low-Impact Development



Open Space:

Transferable Development Rights

- TDR gives developers incentives to reduce density or not develop in one area (“sending area”) in exchange for enhanced density or other benefits in another location (“receiving area”)
- Municipalities have not implemented TDR programs
 - A variety of incentive programs exist for e.g., affordable housing, transit-oriented development
 - No municipalities have created incentives for transfers



Open Space: *Cluster Development*

- Authorizes densification of (residential) development in certain areas of a parcel in exchange for other areas left open
- Low-density residential: cluster development required or allowed by special exception
 - East Haven, Fairfield, Guilford, Madison, Milford
 - Not allowed in SFHA: Guilford
 - Requires undeveloped open space for new subdivisions or development: not common along CT shoreline
- Urban areas: PZC may modify lot area and setbacks (Bridgeport)

Open Space

Open Space Set-Asides

- Required transfer of a portion of land into perpetual conservation in exchange for development approval
- Elements of municipal OS set-aside requirements:
 - Area: all minimum 10%; Fairfield Open Space Subd: 40%
 - Land Type: differences in treatment of undevelopable land (e.g., wetlands)
 - Purpose: provide for one or more specific purposes
 - Ownership: placed in town ownership, land trust, HOA: different levels of security
 - In-lieu fees: all offer payment of ILF instead of dedication: 10% of FMV
- Because a function of subdivision, may not be useful for coastal areas other than use of ILF

Open Space:

Financial Mechanisms

- Tax Increment Financing:
 - Uses expected future increases in property tax receipts to fund infrastructure or otherwise encourage development
 - Connecticut authorizes TIF in five scenarios, including redevelopment, urban renewal, redevelopment of contaminated property
 - Could be used for elevation or other resiliency activity in urban areas
 - Not for remediating contaminated properties that will be inundated
- Development Impact Fees:
 - Fee for approval of development to defray the costs of related public services
 - No current state authority to use DIFs



Coastal Resiliency Strategies

Coastal Land Use

- Coastal Zoning Districts
- Coastal Site Plan Review
- Coastal Setbacks
- Natural Protective Barrier Protection
- Flood and Erosion Control Structures

Open Space

- Transferable Development Rights
- Cluster Development
- Open Space Set-Asides
- Financial Mechanisms

Transportation Resiliency

- Highway Stormwater Sewer Capacity
- Green Infrastructure in Highway Design
- Highway Elevation
- Highway Abandonment and Decommissioning

Flood Hazard Mitigation

- Suitability of Building Lots
- Defining Flood-prone Areas
- Enhanced Building Requirements
- Stormwater and Low-Impact Development



Flood Hazard Mitigation: *Suitability of Building Lots*

- Can prohibit building on/subdividing lot that is unsuitable for development due to hazards
- Restrictions located in subdivision regulations

Municipality	Relevant Explicit Unsuitability Criteria
Branford	Flooding, Erosion
Bridgeport	
East Haven	Flooding
Fairfield	
Guilford	Flooding
Madison	Flooding
Milford	Flooding, Erosion
New Haven	
Stratford	Flooding
West Haven	

Flood Hazard Mitigation: *Defining Flood-prone Areas*

- What zones has each municipality designated as the special flood hazard area?
- No municipality has included areas other than V and A zones in its SFHA.



Flood Hazard Mitigation: *Enhanced Building Requirements*

- Municipalities can require building standards in flood zones beyond those required for participation in the NFIP/state law
- Limited expansions of required freeboard above BFE



Municipality	Applicable Zone	Freeboard/floodproofing required above BFE
Branford	A,AE,VE	1 foot (Branford Code §§ 161-18, 161-19).
Bridgeport		--
East Haven		--
Fairfield		--
Guilford		--
Madison		--
Milford		--
New Haven	A,AE,VE	1 foot (New Haven Code Tit. IV § 5.3)
Stratford	VE	1 foot (Stratford Code § 102-19)
West Haven		--

Flood Hazard Mitigation: *Stormwater and Low-Impact Development*

- How have municipalities incorporated LID techniques into their stormwater management requirements?
- Baseline: compliance with state stormwater manual
- 5 subcategories:
 - Triggering events for stormwater management planning
 - LID techniques and green infrastructure
 - Peak flow offset requirements
 - Stormwater retention
 - Limits on Impervious Surfaces

Flood Hazard Mitigation: Stormwater and LID

Triggering events for stormwater management

- Stormwater management plans required only in certain instances

Municipality	Stormwater management required for...					
	Site plan	Coastal site plan	Special exception	Special permit	Inland wetlands permit	Subdivision plan
Branford	Y		Y			
Bridgeport	Any project with potential stormwater impacts					
East Haven	Y	Y	Y		Y	Y
Fairfield						
Guilford	Y	Y		Y		
Madison	Y					Y
Milford						
New Haven	Any project requiring zoning approval					
Stratford	Projects in certain listed zoning districts					
West Haven	Projects with > 10,000 sq. ft. impervious surface Projects in certain listed zoning districts					

Flood Hazard Mitigation: Stormwater and LID

LID techniques and green infrastructure

- Explicit support for green infrastructure and/or low-impact development in stormwater regulations may encourage its use

Municipality	LID/GI Techniques Incorporated?
Branford	LID explicitly supported
Bridgeport	Green infrastructure supported
East Haven	LID explicitly supported
Fairfield	--
Guilford	LID explicitly supported for vulnerable local watershed districts and coastal site plans
Madison	Green infrastructure supported
Milford	--
New Haven	--
Stratford	--
West Haven	--

Flood Hazard Mitigation: Stormwater and LID

Peak flow offset requirements

- Stormwater management systems must be designed so that development does not increase peak flow from a design storm
- Dramatic differences – no requirement up to 100-year storm
- Reduced peak flow required in Bridgeport

Municipality	Peak flow offset requirement
Branford	No increase from 100-year storm
Bridgeport	No increase under any conditions 10% reduction for some districts up to 50 year storm
East Haven	No increase in “urban” stormwater
Fairfield	--
Guilford	No increase from 2-year storm
Madison	No increase from 100-year storm
Milford	--
New Haven	No increase from “various storm events”
Stratford	No increase from 25-year storm Town engineer may require no increase from 50- or 100-year storm
West Haven	--

Flood Hazard Mitigation: Stormwater and LID

Stormwater retention

- Developers must retain a certain amount of stormwater on-site
- Larger retention requirements can serve flood management as well as pollution prevention role (Branford)

Municipality	On site retention required
Branford	25-year storm
Bridgeport	1" rainfall; up to 50-year storm
East Haven	1" rainfall
Fairfield	--
Guilford	1" rainfall
Madison	1" rainfall
Milford	--
New Haven	1" rainfall
Stratford	1" rainfall
West Haven	--

Flood Hazard Mitigation: Stormwater and LID

Limits on Impervious Surfaces

- Numeric limits on impervious cover are rare
- Common requirement to “minimize” cover
- Guilford: specific maximum impermeable surface as percentage of lot size (by zoning district), with reduced allowance in coastal areas

Coastal Resiliency Strategies

Coastal Land Use

- Coastal Zoning Districts
- Coastal Site Plan Review
- Coastal Setbacks
- Natural Protective Barrier Protection
- Flood and Erosion Control Structures

Open Space

- Transferable Development Rights
- Cluster Development
- Open Space Set-Asides
- Financial Mechanisms

Transportation Resiliency

- Highway Stormwater Sewer Capacity
- Green Infrastructure in Highway Design
- Highway Elevation
- Highway Abandonment and Decommissioning

Flood Hazard Mitigation

- Suitability of Building Lots
- Defining Flood-prone Areas
- Enhanced Building Requirements
- Stormwater and Low-Impact Development



Transportation Resiliency:

Highway Stormwater Sewer Capacity

- Storm sewer systems key to avoiding flooding/draining flood water
- Minimum standards differ in units & standards
- Often left to Town Engineer discretion

Municipality	Storm frequency / severity requirement	Pipe diameter requirement
Branford		
Bridgeport		
East Haven	2"/hr (4"/hr for culvert)	
Fairfield	25-year storm	15" minimum
Guilford	10-year storm 50-year storm (culvert)	15" minimum
Madison		
Milford	10-year storm	15" minimum (main) / 12" minimum (lateral)
New Haven		
Stratford		
West Haven		15" minimum



Transportation Resiliency: *Green Infrastructure in Highway Design*

- Do municipalities explicitly consider / accept GI for roadways?
- Town Engineer can generally accept or not
- Explicit acceptance in four municipalities:
 - Branford
 - Madison
 - Milford
 - New Haven
- Acceptance is commonly in subdivision regulations, which has limited applicability in redevelopment areas or existing streets
- Acceptance only applies within the roadway ROW

Transportation Resiliency: *Highway Elevation*

- Have municipalities adopted elevation policies for new or reconstructed roadways?
- Fairfield: center line must be 7.5' or more based on 1929 datum
- Guilford: “such elevation or shall be suitably protected” to allow emergency access during flooding
- No other municipalities have explicit treatment of elevation, so leave to discretion of Town Engineer

Transportation Resiliency: *Highway Abandonment and Decommissioning*

- “Abandonment” = transfer to private ownership
- Decommissioning = remove or reduce level of maintenance (e.g., gravel) or use (e.g., greenway)
- New Haven has abandonment processes in place
- West Haven has discontinuance process in place
- Other municipalities may or may not be authorized to abandon or decommission roadways if desired without legal reform



Thank you!

Read Porter
rporter@rwu.edu
(401) 254-5734

THE
UNIVERSITY
OF RHODE ISLAND



Roger Williams University
SCHOOL OF LAW

Marine Affairs Institute