



# Coastal Resilience Overlays in Community Planning: Building Resilience in Bristol County, Rhode Island

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## Coastal resilience overlays may be a useful tool in helping communities become more resilient.

Coastal resilience is the concept that a community can recover more quickly following a major event (i.e., coastal storms, flooding, hurricanes, etc.) through community-wide planning, instead of allowing “short-term hazard[s]” to become “long-term . . . disaster[s]”.<sup>1</sup> To be resilient, communities must plan for these major events. One way that communities may plan for resilience is through coastal resilience overlays.

Overlay districts are zoning districts that apply broadly to larger areas rather than specific lots of land. Most municipalities codify overlay districts within the municipal zoning code or ordinance. Overlay districts have guidelines for what activities may or may not take place within the district and what activities require a special use permit.

Overlay districts are applied in conjunction with other zoning ordinances and determinations. They are typically implemented for purposes other than those covered by traditional zoning ordinances, i.e., use restrictions. Overlay districts may be tailored to hazards that affect larger areas, such as

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<sup>1</sup> *What is Resilience?* NAT’L OCEANIC & ATMOSPHERIC ADMIN., <https://oceanservice.noaa.gov/facts/resilience.html> (last visited May 31, 2022).



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flooding and fire. Some communities in the United States have used overlay districts to support coastal resilience planning in their communities. At present, no towns in Bristol County, Rhode Island, which is comprised of the towns of Bristol, Warren, and Barrington, have a coastal resilience overlay district. As low-lying coastal communities in a state already experiencing flooding, sea level rise, and increased storm frequency and intensity, Bristol County may want to consider the use of coastal resilience overlays to address current and future effects of climate change.

This memorandum will explore the possibility of towns in Bristol County, Rhode Island, creating coastal resilience overlays to assist in making those towns more resilient to changes in climate and weather. First, this memorandum will explore a similar overlay district, a floodplain overlay district, currently in effect in Barrington, Rhode Island. This provides a framework for creating a coastal resilience overlay district in Barrington and in Bristol County. Second, this memorandum will look to other examples of overlay districts related to resilience and climate change in Rhode Island. These examples provide further models of what towns in Bristol County may consider for creating coastal resilience overlays. Third, this memorandum will explore coastal resilience overlays in other areas of the United States, which may provide potential useful models for creating coastal resilience overlays in Bristol County. Finally, this memorandum will conclude with some suggestions of next steps for Bristol County to consider in creating coastal resilience overlays.

## 1 Relevant Overlay in Bristol County: Barrington Floodplain Overlay District

The town of Barrington, Rhode Island has established a floodplain overlay district in order to “ensure public safety, minimize hazards to persons and property from flooding, to protect watercourses from encroachment, and to maintain the capability of floodplains to retain and carry off floodwaters.”<sup>2</sup> The areas within the overlay district are those special flood hazard areas that are designated on Bristol County Flood Insurance Rate Map (FIRM) and the Federal Emergency Management Agency (FEMA) digital FIRM.<sup>3</sup> Certain use restrictions and permit requirements are imposed on development and other activities that may take place within the overlay district. All such requirements and permits are in addition to all regular permits for development in non-floodplain districts.<sup>4</sup> While the Barrington floodplain overlay district does not directly address resilience in its purpose, increased flooding is an effect of climate change, and the floodplain overlay district may be considered planning for those effects and hazards. The floodplain overlay district may be a good place to start planning for resilience in Barrington and Bristol County; it establishes a precedent for creating other overlay districts related to specific climate change effects in Barrington or other communities in Bristol County.

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<sup>2</sup> TOWN OF BARRINGTON, R.I. CODE § 185-144 (2021).

<sup>3</sup> *Id.* § 185-145(a).

<sup>4</sup> *Id.* § 185-146(c).

Despite a lack of coastal resilience overlays in Bristol County, there is an in-state example of a coastal resilience overlay in South Kingstown, Rhode Island. Further, South Kingstown has a Coastal Community Overlay District that may provide useful information for resilience planning in Bristol County communities.

## 2 Examples of resilience overlays in Rhode Island that may provide guidance for Bristol County.

### 2.1 South Kingstown Coastal Resiliency Overlay District.

The town of South Kingstown established a coastal resiliency overlay district in order to “protect the public health, safety, and general welfare by promoting awareness of future projections of sea level rise and the associated impacts from flooding and storm surge to current and future property owners.”<sup>5</sup> The area within the overlay district is an area that has been designated on the Coastal Resources Management Council (CRMC) Design Elevation Map as being “vulnerable to storm surge during a one hundred-year storm event with the presence of five-feet of sea level rise (SLR) that lies outside of the [FEMA] Special Flood Hazard Areas.”<sup>6</sup> This overlay is specifically designed to address the effects of climate change in the overlay district.

Anyone that seeks to obtain a building permit within the overlay district is required to first obtain information regarding projected sea level rise scenarios for that property and that information is recorded by the town planning department in the town land evidence records so that it may be accessed by future owners of the property.<sup>7</sup> There are also development standards and dimensional requirements for projects, however, elevating structures is not a requirement.<sup>8</sup> A development project can refer to, “[n]ew construction of a structure intended for occupancy, substantial improvement of a structure, as determined by the building official, repair and/or renovation of a substantially damaged structure, as determined by the building official, or any improvement of a structure that has a cumulative improvement value equal to or exceeding fifty (50) percent of the value of the structure.”<sup>9</sup> Requiring property owners to obtain information on projected sea level rise provides an opportunity for property owners to become more educated on the effects of climate change, and could encourage property owners to make decisions based on likely future conditions of their properties. This may result in property owners and communities making decisions that not only conform to the overlay district, but exceed requirements of the overlay district to be even more responsive to changing conditions.

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<sup>5</sup> TOWN OF SOUTH KINGSTOWN, R.I. CODE app. A § 609.2 (2019).

<sup>6</sup> *Id.* § 609.1.

<sup>7</sup> *Id.* § 609.3.

<sup>8</sup> *Id.* §§ 609.3, 609.4.

<sup>9</sup> *Id.* §609.4, referencing § 601.3.C.

## 2.2 South Kingstown Coastal Community Overlay District.

The town of South Kingstown has established a coastal community overlay district for the purpose of managing changes to legal non-conforming residential communities that are important to South Kingstown's identity, and to allow those structures to continue to exist and be utilized, while also planning for future climate change.<sup>10</sup> The overlay district provides standards for construction and renovation to accommodate for sea level rise and other effects of climate change.<sup>11</sup> The coastal community overlay is a small district and demonstrates how a community can create an overlay for a small, select area to address specific concerns of the community. The coastal community overlay details specific changes to structures a homeowner may wish to make on a property and details the level of approval required for those changes.<sup>12</sup> For example: building an access ramp to the property requires approval from a zoning enforcement officer; adding a small deck would require the approval of a technical review committee; and converting an enclosed porch to living space would require an issuance of a special use permit by the zoning board of review.<sup>13</sup> The coastal community overlay district also details prohibited changes in the community, such as building a second story on a house.<sup>14</sup>

Having clear guidance for permitted and prohibited actions in a special area like the coastal community overlay district can be beneficial to property owners and community planners alike, allowing all parties to understand the reasonable limitations on properties in the district. They can also serve as an educational tool regarding the effects of climate change on vulnerable areas. When planning for climate change, communities in Bristol County may consider overlay districts like those in South Kingstown as an opportunity to begin to set stricter regulations in areas that are likely to be vulnerable to flooding or sea level rise. Both of the South Kingstown overlays demonstrate a community in Rhode Island successfully implementing coastal resilience overlays. Planners in Bristol County may consider connecting with planners in South Kingstown to discuss challenges that South Kingstown may have faced enacting and enforcing the overlays. This could help Bristol County avoid similar challenges, or at least understand how to better address those challenges.

## 3 Examples of resilience overlays in other states that may provide guidance for Bristol County.

### 3.1 Norfolk: Coastal Resilience Overlay and Resilience Quotient.

In 2018, the city of Norfolk, Virginia redrafted their zoning ordinance and established two significant ordinance sections that aimed to reduce flood risks, manage stormwater, and improve

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<sup>10</sup> *Id.* § 608.1.

<sup>11</sup> *Id.* §§ 608.1, 608.5-608.9.

<sup>12</sup> *Id.* §§ 608.5-7.

<sup>13</sup> *Id.*

<sup>14</sup> *Id.* §§ 608.8.

and promote coastal resilience in the city.<sup>15</sup> The two significant ordinance regulations are: the Coastal Resilience Overlay (CRO) and the Resilience Quotient system.<sup>16</sup>

The CRO regulations seek to “increase resilience to sea level rise, storm-related flooding events, and other shocks and stresses specific to the coastal environment.”<sup>17</sup> The CRO applies to all land that is identified in the Flood Plain/Coastal Hazard Overlay.<sup>18</sup> Notable requirements of the CRO include: electrical and mechanical systems being elevated one foot above (otherwise required) finished floor elevations, a prohibition on basements, salt tolerant and native species for landscaping, pervious materials for parking lot surfaces, and open space set-asides that contain “pervious surfaces capable of infiltrating stormwater.”<sup>19</sup>

The Resilience Quotient was developed to further Norfolk’s commitment to “being the coastal community of the future” and all new development (and applicable redevelopment) within the city are required to meet a resilience quotient.<sup>20</sup> This quotient is a points-based system and covers three components of consideration: risk reduction, stormwater management, and energy resilience.<sup>21</sup> In general, the Resilience Quotient allows for flexibility in development choices outlined in the resilient point system tables (each line item has a different earned point value), while still requiring a baseline compliance point total per component.<sup>22</sup>

The CRO and the Resilience Quotient system notably intersect by the CRO requiring more stringent standards on developments contained therein, than those outlined in the city-wide Resilience Quotient system.<sup>23</sup> These increases in building points apply to residential, non-residential, and mixed-use development as outlined in the Resilience Quotient system.<sup>24</sup> Specifically, the increased standards apply to two components of the Resilience Quotient system: 1) Risk Reduction, which includes options for generator installation, independent electrical sources, or increased elevations of the ground story finished floor and electrical/mechanical equipment, and 2) Stormwater Management, which includes options for green roofs, rain gardens that infiltrate stormwater, pervious pavement, and preserving large native species trees on site.<sup>25</sup>

The Norfolk CRO and Resilience Quotient are novel ways to combat sea level rise and storm-related flooding events. The CRO, applying to all flood plain and coastal hazard zones, increases the likelihood of resilience and adaptability in these areas by minimizing their exposure to significant risk through the outlined resiliency-focused requirements. Further, the adoption of a resilience quotient

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<sup>15</sup> CITY OF NORFOLK, VA., ZONING ORDINANCE §§ 1.7.1, 3.9.18, 5.12.1 (2022).

<sup>16</sup> *Id.*

<sup>17</sup> *Id.* § 3.9.18.

<sup>18</sup> *Id.* §§ 3.9.18(B).

<sup>19</sup> *Id.* §§ 3.9.18(C).

<sup>20</sup> *Id.* §§ 5.12.1, 5.12.4(A).

<sup>21</sup> *Id.* §§ 5.12.6, 5.12.7.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* § 3.9.18(C)(5).

<sup>24</sup> *Id.*

<sup>25</sup> *Id.* §§ 3.9.18(C)(5), 5.12.6, 5.12.7.

may be an attractive model for Bristol County due to its inherent flexibility, which may prove beneficial should individual towns have specific compliance requirement requests. For example, if one town has more historical sites, but still wanted to encourage resilience adaptation, a line-item could be added that addresses this concern. With a resilience quotient, compliance is still required, but prescriptive methods are loosened to afford for unique circumstances.

### 3.2 Boston: Coastal Flood Resilience Overlay District.

In order to promote, *inter alia*, resilient planning, consistent standards, long-lived investment, and adaptation strategies, the city of Boston, Massachusetts has established a coastal flood resilience overlay district.<sup>26</sup> The overlay applies to both new construction and substantial renovation of existing properties in the district.<sup>27</sup> The overlay regulations enumerate use and dimensional regulations that are based on FEMA flood maps and engineering and scientific data.<sup>28</sup> Any project that is proposed to take place within the overlay district is subject to a resilience review.<sup>29</sup> Additionally, special consideration is given to historic structures, allowing for a possible variance from the coastal overlay for reconstruction or restoration of those specified structures.<sup>30</sup>

The Boston overlay may be a good place to take inspiration for a proposed coastal resilience overlay district in Bristol County. The towns within Bristol County are not as large as Boston, but they have similar historic waterfronts and may want to consider preserving the historic character of their communities.

Both the Boston and Norfolk overlay districts provide good examples of how to craft coastal resilience overlay districts that are responsive to the needs of the community. The Boston overlay district regulations bar the issuance of a permit if the proposed project fails to meet resilience standards. This enforcement provides a good incentive for compliance. Some of the aspects of these two overlay districts could be incorporated into a proposed overlay in Bristol County. It may be useful for planners in Bristol County to connect with planners in Norfolk and Boston to better understand the processes that went into the creation of both overlays.

## 4 How can Bristol County municipalities utilize coastal resilience overlays and what are considerations for other communities considering these resilience tools?

Bristol County, or individual towns in Bristol County, may want to consider the use of coastal resilience overlays for future planning. Most of the examples explored in this memorandum are specific to one municipality. However, another option that may be available to Bristol County is a

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<sup>26</sup> CITY OF BOSTON, MASS., BOSTON REDEVELOPMENT AUTHORITY ZONING CODE § 25A-1 (2021).

<sup>27</sup> *Id.* § 25A-4.

<sup>28</sup> *Id.* §§ 25A-3, 6.

<sup>29</sup> *Id.* § 25A-7.

<sup>30</sup> *Id.* § 25A-6.

county-wide overlay. This would be a collaborative effort between Warren, Barrington, and Bristol, and would have uniform regulations across the county. The three towns could work to create a model coastal resilience overlay district that each town could then tailor to their own unique needs. This would provide relatively uniform standards across the county while allowing each town to adjust certain aspects to suit their zoning requirements and local context.

When a community decides that it wants to create a coastal resilience overlay, it must determine what the specific goals of the overlay will be. There must be strong support from the community for the goals of the overlay. The community should also clearly determine what types of projects they want the overlay to apply to. Smaller overlay districts, such as the coastal community overlay district in South Kingstown, may be easier to establish at first, while larger overlays, such as the Boston coastal flood resilience overlay district, may take more time and community will to build support for.

Another consideration for communities is how to label the overlay district. While not discussed explicitly in this memorandum, each of the communities discussed in the memorandum likely carefully chose the title of their ordinance. The term “resilience” is not a word that is regularly used by the general public in the context of coastal hazards. By including the term “flood” in the title, a town may garner more public support and understanding of what the town is trying to accomplish with the overlay district. If planners in Bristol County reach out to planners in South Kingstown, Norfolk, and Boston, they may wish to inquire about the rationale for the titles of the overlay districts in their communities.

As a first step, Bristol County may want to consider adopting smaller overlay for specific areas of concern, such as South Kingstown’s coastal community overlay. As Bristol County considers larger overlays, it may consider an overlay modeled on Norfolk’s Resilience Quotient system. Assigning point values based on identified criteria and modifying the point allowances based on the intended overlay change would allow for modification specific to each municipality while still providing a uniform system and common purpose. Additionally, Bristol County could incorporate the historic preservation qualifier of Boston’s overlay district. In this special provision for historic structures, key variations are afforded for these historic structures, which could prove vital for maintaining flexibility for important historical structures in Bristol County.

Coastal resilience overlays can be created in many different forms and no one overlay works for every community. Communities such as those in Bristol County can look to existing overlays in Rhode Island and throughout the United States for models of what may work in their communities. After examining those overlays and discussing challenges of their creation and implementation with other community planners, communities should start to evaluate the specific needs of their communities.

## Table of Referenced Ordinances

(provided for ease of reference)

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South Kingstown Code of Ordinances	<a href="https://library.municode.com/ri/south_kingstown/codes/code_of_ordinances?nodeId=14928">https://library.municode.com/ri/south_kingstown/codes/code_of_ordinances?nodeId=14928</a>
Warren Zoning Ordinance	<a href="https://library.municode.com/ri/warren/codes/zoning_ordinance?nodeId=15202">https://library.municode.com/ri/warren/codes/zoning_ordinance?nodeId=15202</a>
Barrington Code	<a href="https://ecode360.com/BA1328">https://ecode360.com/BA1328</a>
Bristol Code of Ordinances	<a href="https://library.municode.com/ri/bristol/codes/code_of_ordinances?nodeId=10105">https://library.municode.com/ri/bristol/codes/code_of_ordinances?nodeId=10105</a>
Norfolk, VA Zoning Ordinance	<a href="https://www.norfolkva.gov/norfolkzoningordinance/#Norfolk-ZO/3_9_Overlay_Districts_and_Designations.htm">https://www.norfolkva.gov/norfolkzoningordinance/#Norfolk-ZO/3_9_Overlay_Districts_and_Designations.htm</a>
Boston, MA Zoning Code	<a href="https://library.municode.com/ma/boston/codes/redevelopment_authority?nodeId=ART25ACOFLEOVDI">https://library.municode.com/ma/boston/codes/redevelopment_authority?nodeId=ART25ACOFLEOVDI</a>