Analysis of Secondary Topics Identified as Inconsistent Between Title 17 of the Newport Code of Ordinances and the 2017 City of Newport Comprehensive Plan

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1. Report Introduction

In February 2017, the City of Newport finalized its Comprehensive Land Use Plan (CP), setting out the current state of the City, goals for the City's future, and plans on how to reach those goals. One plan is to amend the City's Zoning Ordinance (Title 17) to bring it into conformity with the CP.

The City, through the Roger Williams University Community Partnerships Center at Roger Williams University, partnered with the Marine Affairs Institute at Roger Williams University School of Law (MAI) for assistance with identifying ways to make Title 17 more consistent with the CP's goals. In the first part of this project, the MAI identified the inconsistencies, consistencies, and ambiguities between Title 17 and the CP.

After reviewing the report of Part 1, MAI and the City identified a series of topics to focus on for Part 2's in-depth analysis. Three topics identified as high priority or time sensitive were addressed in a previous report: (1) development plan review (DPR), (2) creation of a parking surface ordinance, and (3) analysis of the potential for a coastal overlay. Additional topics of interest were less time-sensitive: (1) renewable energy; (2) historic district zoning; (3) cluster subdivisions; (4) nonconforming development; and (5) urban fire threat. This report examines these topics in more detail.

2. Renewable Energy

2.1 Background

Part 1 of this project noted that the CP emphasizes the importance of renewable energy to Newport's future and calls on the City to increase development of renewable energy sources.[1] Currently, the City has only adopted zoning regulations for wind energy systems.[2] In discussing potential to expand renewable energy production within the City, the CP also considers solar and geothermal energy production.[3] This section examines options for Newport to consider in expanding wind, solar, and geothermal energy.

Rhode Island has acknowledged the importance of renewable energy. The General Assembly recognized the importance of promoting renewable energy throughout the state to diversify energy sources, stabilize energy costs, reduce the environmental harms of traditional energy production, and promote public health.[4] To accomplish these goals, it set renewable energy standards, requiring obligated entities[5] to source at least three percent of their retail electricity supply in 2007

[1] CITY OF NEWPORT, R.I., COMPREHENSIVE LAND USE PLAN Goals EN-1, EN-3 (Feb. 2017) [hereinafter COMPREHENSIVE PLAN].
[2] NEWPORT, R.I., CODIFIED ORDINANCES tit. 17, ch. 90 (MuniCode 2018).
[3] COMPREHENSIVE PLAN, *supra* note 1, at 11-2, 11-4.
[4] R.I. GEN. LAWS § 39-26-1 (2018).
[5] Obligated entities are defined in the statute as "a person or entity that sells electrical energy to end-use customers in Rhode Island, including, but not limited to: nonregulated power producers and electric utility distribution companies, as defined in § 39-1-2, supplying standard offer service, last resort service, or any successor service to end-use customers; including Narragansett Electric, but not to include Block Island Power Company as described in § 39-26-7 or Pascoag Utility District[.]" *Id.* § 39-26-2(16).

from renewable-energy resources[6] with percentage increases each year thereafter.[7] Rhode Island has a renewable energy portfolio that calls for renewable energy to supply 38.5 percent of the state's energy by 2035.[8] In March of 2017, Governor Gina Raimondo announced a strategic goal to increase clean energy projects in Rhode Island to 1,000 megawatts (MW) by 2020.[9] As of the second quarter of 2018, the state had reached 297 MW utilizing hydropower, offshore and onshore wind, landfill gas/anaerobic digestion, and solar.[10]

Energy 2035, the Rhode Island State Energy Plan, "projects the need for over 500 MW of local, distributed renewable energy systems developed by 2035."[11] One of the major hurdles in the development of renewable energy systems is that zoning ordinances frequently do not cover siting of these systems.[12] When siting is not covered in an ordinance, a property owner seeking to install a system is typically required to apply for a use-variance.[13] By including renewable energy siting in its zoning ordinance, Newport could ease the burden on property owners seeking to install systems.[14]

The following sections will discuss zoning for wind, solar, and geothermal energy systems, but the state's goals are not limited to these sources. A Solar Energy Siting Advisory Working Group was recently convened by the Rhode Island Office of Energy Resources (OER) and Division of Statewide Planning (Planning).[15] That group crafted thirteen Renewable Energy Siting Principles that should be considered in all renewable energy siting ordinances.[16] Those standards can be found in Appendix A.

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[6] Identified renewable energy resources include solar, wind, ocean energy, geothermal, hydroelectric, biomass fuels, and waste-to-energy combustion. *Id.* § 39-26-5.
[7] *Id.* § 39-26-4. The eventual percentage increases total 40 percent by 2035, although there is language in the statute that allows for lower percentages if there are not adequate renewable-energy supplies to meet the requirements. *Id.*
[8] STATE OF R.I. OFFICE OF ENERGY RES. & R.I. DIV. OF STATEWIDE PLANNING, SOLAR SITING INFORMATION: PUBLIC DRAFT #2 6 (2018), *available at* http://www.energy.ri.gov/renewable-energy/solar/model-ordinance.php [hereinafter SOLAR GUIDANCE].
[9] R.I. Office of Energy Resources, *Governor's 1,000 by '20 Clean Energy Goal*, STATE OF R.I., available at http://www.energy.ri.gov/renewable-energy/governor-clean-energy-goal.php (last visited Sept. 26, 2018).
[10] *Id.* Small hydropower projects account for 11 MW, offshore wind 30 MW, landfill gas and anaerobic digestion account for 35 MW, and solar and onshore wind account for most of the production at 98 MW and 123 MW, respectively. *Id.*
[11] R.I. OFFICE OF ENERGY RES., R.I. LAND-BASED WIND SITING GUIDELINES 9 (2017), *available at* http://www.energy.ri.gov/documents/landwind/WindSitingGuidelines_1-31-2017_FINAL.pdf [hereinafter WIND SITING GUIDELINES].
[12] DELAWARE VALLEY REG'L PLANNING COMM'N, RENEWABLE ENERGY ORDINANCE FRAMEWORK: GEOTHERMAL 1 (2012), *available at* https://www.dvrpc.org/EnergyClimate/ModelOrdinance/Geothermal/pdf/2012-11-30_AEOWGGeothermalFrameworkFINAL.pdf.
[13] *Id.*
[14] *See id.*
[15] SOLAR GUIDANCE, *supra* note 8, at 4.
[16] *Id.* at 9.

2.2 Wind Energy

2.2.1 Current Wind Energy Regulation

Currently, wind energy is the only renewable energy source that is addressed in Newport's zoning ordinance.[17] The identified purpose of the wind energy zoning ordinance is "to accommodate wind energy systems in appropriate geographic locations, while simultaneously protecting the public health, safety and welfare."[18]

Newport has completely banned "utility scale" wind energy systems because of the inconsistency between the large size of such systems and the dense development of Newport.[19] All wind energy systems, even small-scale systems, are prohibited within Newport's local historic district because they "impact neighborhood esthetics and character [and] are not in keeping with preserving the historic and cultural fabric" of the historic district.[20]

For permissible wind energy systems, the developer must obtain a building permit, and, if a residential system will exceed the zoning height requirements, the developer must also get a special use permit and a dimensional variance.[21] All commercial-scale systems require a special use permit.[22] Each property is limited to one wind energy system.[23] The developer must also obtain a use variance if the lot area is below the minimum size: 10,000 square feet for residential systems and 40,000 square feet for commercial-scale systems.[24] Tower systems must allow a setback of 125 percent of the system height from all property lines.[25] Height limits are also established under the ordinance: (1) roof systems are limited to ten feet above the roof ridge line; and (2) towers are limited to 50 feet for residential systems and 80 feet for commercial systems.[26]

The zoning ordinance also places limitations on the effects of operating the systems. The energy systems cannot generate sound exceeding the established noise ordinance for the underlying zoning district.[27] The system cannot produce a shadow flicker effect on any neighboring properties.[28] Signage beyond warnings and manufacturer information are prohibited, and the system must be a neutral color.[29] The system must also comply with all applicable laws.[30]

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[17] NEWPORT, R.I., CODIFIED ORDINANCES tit. 17, ch. 90 (MuniCode 2018).
[18] *Id.* § 17.90.010.
[19] *Id.* Systems greater than 100 kW are prohibited. *Id.* § 17.90.020.
[20] *Id.* § 17.90.010.
[21] *Id.* § 17.90.030. Permit applications must include "structural drawings, plans and specifications that are certified by a licensed engineer." *Id.* § 17.90.040. The requirements for the site plan details are included in Newport Codified Ordinances § 17.90.050.
[22] *Id.* § 17.90.030.
[23] *Id.*
[24] *Id.* § 17.90.060.
[25] *Id.* § 17.90.070. The blades must also have a minimum ground clearance of 15 feet. *Id.*
[26] *Id.* § 17.90.080.
[27] *Id.* § 17.90.090.
[28] *Id.* § 17.90.100.
[29] *Id.* §§ 17.90.110, 17.90.140. To further reduce visual disturbance, all overhead wires and lighting (other than those required by the Federal Aviation Administration) are prohibited. *Id.* § 17.90.140.
[30] *See id.* §§ 17.90.120 (state building code), 17.90.130 (Federal Aviation Administration regulations), 17.90.160 (Federal Communications Commission and state electrical code).

Finally, the zoning ordinance establishes rules for abandoned wind energy systems. A system that has been out of use for one year is considered abandoned, and the owner is required to remove the system and all associated equipment.[31] Once abandoned, any associated special use permit is void.[32]

2.2.2 Potential Zoning Changes for Newport to Consider

In Rhode Island's push to meet its renewable energy goals, "[l]and-based wind is anticipated to play a supportive role."[33] Newport is well situated to utilize wind energy systems given its geographic location and high winds.[34] Additionally, multiple studies have shown that wind turbines have little to no effect on property values.[35] However, the Rhode Island Renewable Energy Siting Partnership has raised concerns that most property value studies have examined the impact of large-scale wind farms in rural areas, and single turbine projects in densely populated areas could have different results.[36] This could be a concern in Newport where property values and tourism are central to the City's economy.[37]

Some provisions in Newport's wind siting ordinance could inhibit wind energy development in the City. If the City decides to encourage wind-turbine development, changes to these provisions could be considered. In 2017, OER created a guide for siting land-based wind energy systems.[38] Many of the suggestions put forth in that guide are addressed herein. Additionally, the guide includes a checklist for municipalities to consider in drafting a wind energy zoning ordinance. That checklist is included as Appendix B.

OER's guidebook provides a suggested methodology for creating a wind energy zoning ordinance. First, the municipality should evaluate each zoning district and decide if wind energy systems should be permitted by right, permitted with a special use permit, or prohibited.[39] The municipality should then set standards for public safety, community, and environmental impacts within each

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[31] *Id.* § 17.90.180. After one year of system inoperability, the zoning officer may issue a notice of abandonment to the owner, and the owner has a right to respond within 30 days of the notice. If the owner does not successfully contest the abandonment, s/he must remove the system within 90 days of the notice of abandonment. *Id.*

[32] *Id.*

[33] WIND SITING GUIDELINES, *supra* note 11, at 9.

[34] *See id.* at 7 (noting that "the most significant wind energy resources [in Rhode Island] are concentrated in areas along the coast"); CITY OF NEWPORT, R.I., NATURAL HAZARD MITIGATION PLAN § 3.2.2.4 (2016) [hereinafter NEWPORT HAZARD MITIGATION PLAN]; R.I. RENEWABLE ENERGY SITING PARTNERSHIP, FINAL REPORT, VOL. I 4 (2012), *available at* https://www.crc.uri.edu/download/resp_volume_1_final.pdf. The Renewable Energy Siting Partnership (RESP) identified areas within the state with sufficient winds to support wind energy development. A very small percentage of the state met the criteria, but almost all of Newport was included in that portion. R.I. RENEWABLE ENERGY SITING PARTNERSHIP, *supra* at ch. 1 fig.11.

[35] WIND SITING GUIDELINES, *supra* note 11, at 11.

[36] R.I. RENEWABLE ENERGY SITING PARTNERSHIP, *supra* note 34, at 7.

[37] COMPREHENSIVE PLAN, *supra* note 1, at 3-1 (noting that the majority of the City's revenues are based in property taxes), 4-4 (explaining that Newport's economy is heavily dependent upon tourism).

[38] *See, generally*, WIND SITING GUIDELINES, *supra* note 11.

[39] *Id.* at 12.

zone.[40] These standards could address matters like setback requirements, noise limits, and shadow flicker restrictions.

Although Newport's ordinance already addresses these issues, the ordinance was adopted in 2012. The City may benefit from repeating this organizational process to determine whether any shifting priorities within the City over the last six years justify modifications. Consultation with planners, attorneys, engineers, environmental scientists, and other experts will be critical to ensuring that diverse interests are considered during this process.

The current zoning ordinance already contains some key elements for promoting wind energy development. For example, the requirement of compliance with existing noise ordinances rather than creation of additional restrictions for wind energy systems reduces barriers to development.[41] Additionally, the current set-back requirement of 125 percent of the height of a tower system is below the OER recommended maximum.[42] Despite these supportive provisions, modification of other provisions within Newport's zoning ordinance could further promote wind development.

2.2.2.1 Permit Utility-Scale Wind Energy Projects

Currently, Newport prohibits utility-scale wind energy projects, defined as those over 100 kilowatts (kW).[43] By prohibiting the largest wind energy projects, the ordinance limits the quantity of wind energy that can be produced within the City. The City set this prohibition because of the inconsistency between the large size of such systems and the dense development of Newport.[44] Accordingly, the City could consider, in consultation with planners, attorneys, environmental scientists, and engineers, whether any sites exist that might be suitable for utility-scale projects.

A guide by the Clean Energy States Alliance (CESA) suggests permitting utility-scale systems in all non-residential districts.[45] In Nebraska, all applications for commercial wind energy facilities require review by the Nebraska Power Review Board, and different review standards are specified depending upon whether the production potential will be less than or greater than 10,000 kW.[46] Brown County, Minnesota permits wind energy systems up to 5,000 kW by right in agriculture districts, and in business and industrial districts, these systems are conditionally permitted.[47] Even

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[40] *Id.* According to the OER guide, community and environmental impact standards may vary by district, but public safety standards should be consistent across all districts. *Id.*

[41] *See* TOM STANTON, PUT IT THERE!—WIND ENERGY & WIND-PARK SITING AND ZONING BEST PRACTICES AND GUIDANCE FOR STATES tbl.ES-3 (The Nat'l Regulatory Research Inst. eds. 2012), *available at* https://pubs.naruc.org/pub.cfm?id=539BA6EE-2354-D714-5157-359DDD67CE7F.

[42] WIND SITING GUIDELINES, *supra* note 11, at 13 (recommending a setback requirement of 1.5x tower height); *see also* DANA DRUGMAND AND VAL STORI, CLEAN ENERGY STATES ALLIANCE, DISTRIBUTED WIND ENERGY ZONING AND PERMITTING: A TOOLKIT FOR LOCAL GOVERNMENTS 9 (2017), *available at* https://cesa.org/assets/2017-Files/Distributed-Wind-Toolkit.pdf (recommending a setback of at least the height of the tower plus blades); STANTON, *supra* note 41, at tbl.ES-3. It is worth noting that Providence, Rhode Island requires a setback of only 110 percent of the tower height. PROVIDENCE, R.I., CODE OF ORDINANCES §§ 27-1202(K)(CC)(10), (11) (MuniCode 2018).

[43] NEWPORT, R.I., CODIFIED ORDINANCES §§ 17.90.010, 17.90.020.

[44] *Id.* § 17.90.010.

[45] DRUGMAND AND STORI, *supra* note 42, at 13.

[46] NEB. REV. STAT. ANN. § 70-1014.01 (Westlaw 2018).

[47] BROWN COUNTY, MN., ZONING ORDINANCE § 734.4 (2016).

larger systems are conditionally permitted within the agriculture district.[48] If Newport identifies sites suitable for utility-scale wind energy development, it could eliminate the complete ban on these large systems and instead adopt a detailed review system for applications for utility-scale projects.

2.2.2.2 Increase Height Limits

Newport limits tower heights to 50 feet for residential systems and 80 feet for commercial systems.[49] However, a minimum tower height of 60 feet is recommended "to achieve good energy production."[50] In Henry County, Illinois, a small wind system may reach up to 100 feet.[51] Riley County, Kansas defines a small wind energy system as one that is less than 175 feet high.[52] Utility-scale turbines are permitted to be significantly taller.[53]

Lehi City, Utah and Long Lake Township, Michigan take tiered approaches to height limits. In Lehi City, Utah, small wind energy system that are sited on parcels of less than five acres may only be 45 feet high, but when sited on parcels five acres or larger, towers may reach 65 feet high.[54] In Long Lake Township, towers on lots smaller than two acres are limited to 35 feet.[55] Larger parcels located in identified zoning districts may contain towers up to 60 feet high.[56] Additionally, a developer may apply to the Planning Commission for an additional 30 feet over these regulations "due to site features such as topography or trees."[57] Large wind energy systems must be located on at least 2.5 acres and may reach up to 199 feet, not counting the height of the blade.[58]

2.2.2.3 Permit Multiple Towers on a Single Lot

Newport currently permits only one wind energy system per lot.[59] However, the CESA guide suggests permitting multiple systems on a single lot, subject to a special use permit.[60] This approach would allow expansion of wind energy systems on appropriate spaces, but the special use permit requirement would give the City the control to prevent multiple towers in inappropriate locations.[61]

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[48] *Id.*
[49] NEWPORT CODE § 17.90.080.
[50] DRUGMAND AND STORI, *supra* note 42, at 10.
[51] HENRY COUNTY, ILL., ORDINANCES app. B, § 2.05(8) (2018).
[52] RILEY COUNTY, KAN., ZONING REGULATIONS § 2 (2016).
[53] HENRY COUNTY ORDINANCES app. B, §§ 2.06(1)(c), 2.06(5) (2018) (600-foot limit as long as lot size and turbine location requirements are met); BANKS TOWNSHIP, MICH., ZONING ORDINANCE art. VIII, § 8.03(14)(d) (2010) (400-foot limit but also allowing for increases provided the additional height does not trigger additional Federal Aviation Administration lighting requirements); BROWN COUNTY ORDINANCES § 734.7(3)(A) (2016) (200-foot limit).
[54] LEHI CITY, UTAH, MUNICIPAL CODE § 19.050(C)(3) (2018). A small wind energy facility is defined as a "wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics and is intended to primarily reduce on-site consumption of utility power…typically designed for on-site home, farm, and small commercial use." *Id.* § 19.030.
[55] LONG LAKE TOWNSHIP, MICH., ZONING ORDINANCE § 4.25(4) (2015).
[56] *Id.*
[57] *Id.* § 4.25(2)(d).
[58] *Id.* § 19.56(2)(c)(2).
[59] NEWPORT, R.I., CODIFIED ORDINANCES § 17.90.030 (MuniCode 2018).
[60] DRUGMAND AND STORI, *supra* note 42, at 13.
[61] *See id.*

A common method to address density issues without restricting the number of towers that may be on a single lot is to set minimum spacing between any two towers. Such spacing is typically measured between the tips of blades when the blades are parallel to the ground.[62] In Henry County, Illinois, turbines must be at least 200 feet apart.[63] Huron County, Michigan requires that the separation be equal to three times the turbine diameter.[64] Density can also be regulated by acreage. In Lehi City, wind turbines are limited to one turbine per acre, although small wind energy systems remain limited to one per lot.[65]

Another option is to limit towers by lot but set the limit higher than one tower. Long Lake Township, Michigan permits two small wind energy systems per lot by right, where otherwise permitted, and three or more towers are conditionally permitted on a single lot.[66] Providence, Rhode Island allows for multiple turbines on a single lot. However, all turbines within a single system must be "of a generally consistent size, design, and color, of similar height and rotor diameter, and rotate in the same direction."[67] Newport could consider whether specific limitations to multiple-turbine systems would sufficiently protect the City's interests while allowing for expansion of wind energy development. The City should consult with its planners, engineers, and attorneys in making this determination.

2.2.2.4 Ease Shadow Flicker Restrictions

While it is common to set shadow flicker limits,[68] Newport's complete prohibition of shadow flicker reaching beyond the boundary of the subject property is highly restrictive. OER recommends a limit of no more than 30 hours of flicker per year on any structures or sites that are *occupied* at the time of construction of the tower.[69] A provision to allow for screening to protect properties otherwise impacted by shadow flicker could also be considered as an alternative to an outright ban.[70] A third alternative for turbines that will only create flicker during extreme solar angles (such as around the summer and winter solstices) is to reduce or cease operation during those limited time periods.[71]

Providence, Rhode Island has a more liberal shadow flicker regulation than Newport, prohibiting flicker "on any window of an existing structure or within the buildable area of an adjacent lot."[72] Long Lake Township, Michigan similarly requires evidence that shadow flicker will not fall on

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[62] *See* HENRY COUNTY ORDINANCES app. B, § 2.06(3) (2018).
[63] *Id.*
[64] HURON COUNTY, MICH., ZONING ORDINANCE art. X, § 5.3(C)(5) (2015).
[65] LEHI CITY, UTAH, MUNICIPAL CODE §§ 19.040(D)(5), 19.050(C)(2) (2018).
[66] LONG LAKE TOWNSHIP, MICH., ZONING ORDINANCE §§ 4.25(2)(c), (12) (2015).
[67] PROVIDENCE, R.I., CODE OF ORDINANCES § 27-1202(K)(CC)(6)(c) (MuniCode 2018).
[68] STANTON, *supra* note 41, at tbl.ES-3.
[69] WIND SITING GUIDELINES, *supra* note 11, at 13, 24. The 30 hours should be based on a "worst-case scenario modeling" projection assuming constant day-time sunshine and continuous turbine operation. However, for non-residential districts, OER offers that a realistic model, which accounts for weather variability and other factors, may be appropriate. OER also recommends requiring the owner of the property to be developed to sign an acknowledgment of any projected shadow flicker impact on his/her own property. *Id.* at 24, 25.
[70] *See id.* at 25.
[71] *Id.* at 25.
[72] PROVIDENCE CODE § 27-1202(K)(CC)(13).

adjacent roadways or habitable structures on neighboring parcels.[73] Banks Township, Michigan requires that the developer utilize landscaping to counter the effects of shadow flicker on neighboring residences and roadways.[74] Antis Township, Pennsylvania merely requires that the developer "make every reasonable effort to minimize" flicker on occupied buildings on neighboring properties.[75]

The State of Wisconsin has mandated shadow flicker regulations for all municipalities that require a developer to minimize shadow flicker on "residence[s] and occupied community building[s]" on neighboring properties.[76] During the planning phase, the developer is required to use a computer modeling system to estimate shadow flicker, and flicker must be limited to 30 hours per year on any applicable neighboring building.[77] If normal operation would result in more than 30 hours of shadow flicker, the wind energy system must be shut down for periods of time when flicker would occur to ensure the annual limit is met.[78] For any residence or community building experiencing more than 20 hours of flicker per year, the developer is required to provide reasonable mitigation upon complaint by the affected property owner.[79]

Both shadow flicker and noise primarily cause problems for neighboring properties.[80] However, the City could enact an ordinance that would allow neighbors to waive restrictions on both noise and flicker.[81] This may allow a renewable energy project to proceed if the neighbors value its development more highly than the inconvenience of increased noise or a shadow flicker, or if the developer is willing to compensate the neighbors.

Huron County, Michigan limits shadow flicker to 30 hours per year.[82] However, projects that will produce more than the 30 hour limit may be approved if written consent is obtained from the affected property owners "stating that they are aware of the Wind Energy Facility and the shadow flicker limitations imposed by [the zoning ordinance], and that consent is granted to allow shadow flicker limits to exceed the maximum limits otherwise allowed."[83] Under this scenario, a shadow flicker easement will be recorded on the deeds of both properties to advise subsequent owners of the consent.[84] Wisconsin's state regulations similarly allow for an affected property owner to

[73] LONG LAKE TOWNSHIP, MICH., ZONING ORDINANCE § 4.25(14) (2015).
[74] BANKS TOWNSHIP, MICH., ZONING ORDINANCE art. VIII, § 8.03(14)(j)(c) (2010).
[75] ANTIS TOWNSHIP, PA., CODE OF ORDINANCES tit. XV, § 152.14(B) (Am. Legal Publ'g Corp. 2018).
[76] WIS. ADMIN. CODE PSC § 128.15(1) (Westlaw 2018).
[77] *Id.* § 128.15(1)(c).
[78] *Id.* § 128.15(2).
[79] *Id.* § 128.15(3). The affected property owner shall "choose a preferred reasonable mitigation technique." *Id.* § 128.15(3)(e).
[80] Research studies have discredited concerns of flicker triggering epileptic episodes, finding that rotational speeds more than three times faster than common speeds would be required to trigger an episode. Therefore, the remaining health concern is "annoyance." WIND SITING GUIDELINES, *supra* note 11, at 25.
[81] STANTON, *supra* note 41, at tbl.ES-3. For example, if shadow flicker is only likely to affect a property during a time when the property owners are rarely home, they may consent to the flicker effect. *Id.* at 25.
[82] HURON COUNTY, MICH., ZONING ORDINANCE art. X, § 5.3(B)(6) (2015).
[83] *Id.*
[84] *Id.*

waive the shadow flicker limits and mitigation requirements, and the waiver "is an encumbrance on the real property and runs with the land until the wind energy system is decommissioned."[85]

Given the potentially far reaching impact of both noise and shadow flicker, the City should consult planners, attorneys, environmental scientists, and other experts to ensure that allowing such a waiver will not have a negative impact on the community at large or the natural environment. As shadow flicker from projects near the border could potentially impact properties in Middletown, Rhode Island, Newport could also consult with Middletown on any changes to its ordinance.[86]

2.2.2.5 Permit Wind Energy Systems in the Historic District

One major limiting factor to development of wind energy systems within Newport is the complete prohibition of systems within the historic district. About 40 percent of Newport's land area is within the historic district,[87] so a substantial portion of the City is completely closed off from wind energy development. The City has prohibited development of wind energy systems within the historic district because they "impact neighborhood esthetics and character [and] are not in keeping with preserving the historic and cultural fabric" of the historic district.[88] However, setting increased review standards may help alleviate these harmful impacts.

One strategy to allow development within the historic district without sacrificing historic and cultural value would be to require a special use permit for wind energy development within the district. In addition to the standard review by the historic district committee, the City could also require an elevated review process, such as DPR or other special review requirements.[89] OER recommends requiring the developer to conduct a viewshed analysis and provide photographic renderings of post-development conditions.[90] Such projections could help the historic district commission to evaluate proposals within the historic district to determine whether a given wind energy system would have a negative impact on the historic value of the neighborhood.[91]

Wind energy systems, particularly roof-mounted systems, can also be designed to fit within a historic district or provide an aesthetically appealing building feature. Washington University received approval to place seven wind turbines on the roof of one of its buildings within a historic district.[92] The turbines were to be designed as an "architectural feature" and illuminated at night to make them more appealing.[93]

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[85] WIS. ADMIN. CODE PSC § 128.15(4) (Westlaw 2018).
[86] WIND SITING GUIDELINES, *supra* note 11, at 14.
[87] COMPREHENSIVE PLAN, *supra* note 1, at 10-3.
[88] NEWPORT, R.I., CODIFIED ORDINANCES § 17.90.010.
[89] *See* LEHI CITY, UTAH, MUNICIPAL CODE § 19.040(A)(2) (2018); WIND SITING GUIDELINES, *supra* note 11, at 14; DRUGMAND AND STORI, *supra* note 42, at 13.
[90] WIND SITING GUIDELINES, *supra* note 11, at 13, 29.
[91] *See* NEWPORT CODE § 17.80.050; *see also* R.I. RENEWABLE ENERGY SITING PARTNERSHIP, *supra* note 34, at 6.
[92] Lawrence Biemiller, *Washington U. Adds Wind Turbines to Historic-District Building in Renovation Project*, THE CHRONICLE OF HIGHER EDUCATION (June 22, 2009), https://www.chronicle.com/blogs/buildings/washington-u-adds-wind-turbines-to-historic-district-building-in-renovation-project/7099.
[93] *Id.* Images of the finished system can be viewed at https://www.paric.com/project/washington-university-corner-building/.

Much of the special review that would be necessary to construct wind energy systems in the historic district will require consultation with outside experts. In order to avoid the burden of the review process becoming prohibitively expensive for the developer, OER suggests setting a maximum cost to the wind developer for third party consultations.[94]

As visual impacts from projects near the border could potentially impact properties in Middletown, Newport could consult with Middletown on any changes to its ordinance.[95] Newport should also consult with its historic district commission, attorneys, planners, and other experts in evaluating whether permitting wind energy systems in the historic district would have a net positive or negative impact on the district.

2.2.2.6 Requiring a Special Use Permit or Development Plan Review

An in-depth review process may provide benefits not just within the historic district but for wind energy permitting within the entire City. Rather than allowing wind energy systems in identified locations by right and prohibiting them in others, Newport could consider allowing systems in a broader area but requiring a special use permit or DPR for all systems.[96]

OER suggests a two-level special use permit process: (1) a special use permit with minimal review requirements for wind energy projects that meet the City's specifications for noise, flicker, and other impacts; and (2) an "increased impact" special use permit for proposed projects that exceed the City's specifications but may be suitable for development given special circumstances or consent of neighbors.[97] If the City chooses to adopt an "increased impact" special use permit system, OER has resources available to help design the system and draft regulations, notice letters, and permit language.[98]

Other Rhode Island municipalities also require special use permits for wind energy systems. For example, West Warwick permits wind energy systems in identified residential and commercial districts, but all systems require a special use permit.[99] Providence permits wind energy systems by right in identified industrial districts, but it requires a special use permit for systems sited in its mixed-use waterfront district.[100]

If Newport wants an even more in-depth review than that obtained through a special use permit, it could require that wind energy system applications go through DPR. Elevated review may not be necessary for all systems, such as small, residential systems.[101] Rather, DPR could be limited to projects that call for greater oversight, such as commercial-scale projects or projects located within the historic district.

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[94] WIND SITING GUIDELINES, *supra* note 11, at 14.
[95] *Id.*
[96] *See* R.I. DIV. OF PLANNING, RENEWABLE ENERGY SITING GUIDELINES PART 1 13, 15 (2012), *available at* http://www.planning.ri.gov/documents/LU/energy/Wind_Energy_FacilityGuidelines_June-2012_.pdf.
[97] *See* WIND SITING GUIDELINES, *supra* note 11, at 14.
[98] *Id.*
[99] WEST WARWICK, R.I., CODE OF ORDINANCES app. A, art. I, § 5.3.1 (MuniCode 2018).
[100] PROVIDENCE, R.I., CODE OF ORDINANCES § 27-1201 (MuniCode 2018).
[101] *See* DRUGMAND AND STORI, *supra* note 42, at 9.

Lehi City, Utah requires a site plan approval (similar to the DPR process) for all wind energy development systems, and the city's planning commission is permitted to apply "reasonable conditions or restrictions" to the proposed development.[102] For the site review, the applicant must submit: (1) a written project description; (2) a plot plan prepared by a licensed surveyor or engineer describing the plot boundaries, proposed turbine locations, support infrastructure, identification of sensitive sites such as historic sites or wetlands, and proposed landscaping and fencing; (3) a detailed drawing of each wind turbine; (4) a lighting plan; (5) a construction schedule and plan; (6) a visual impact study; (7) a feasibility study identifying optimal height and location of the turbines; (8) a shadow flicker study; (9) a noise analysis; (10) an assessment of potential electromagnetic interference; (11) an emergency response plan, including fire protection; and (12) a decommissioning plan.[103] Small wind energy systems have a smaller site plan review process requiring: (1) evidence that the height is within manufacturer recommendations; (2) a drawing of the electrical components of the system; (3) information demonstrating that the primary purpose will be to reduce on-site use of traditionally-sourced electricity; (4) confirmation of coordination with the electric utility servicing the property; (5) a visual analysis and plans for visual screening; and (6) a decommissioning plan.[104]

The City should consult with its planners, engineers, and attorneys in deciding whether and how to add heightened review for wind energy systems.

2.2.2.7 Add Provisions for Environmental Considerations

It is worth noting that nothing in Newport's current wind energy zoning ordinance requires evaluation of the environmental effects of wind energy systems, other than a requirement that the systems meet all federal, state, and local laws.[105] OER recommends "pre- and potentially post-construction site characterization visits and/or surveys as outlined by the [U.S. Fish and Wildlife Service's (USFWS)] voluntary guidelines" as well as consultation with Rhode Island Department of Environmental Management, USFWS, and other relevant groups to identify and address any negative environmental effects of wind energy systems.[106]

Addition of environmental considerations around the country range from specific, direct requirements to broad analyses. In Lehi City, Utah wind turbines must be set back at least 500 feet from any delineated wetlands.[107] In Providence, Rhode Island, applicants are required to engage a wildlife expert to perform a wildlife assessment on the potential impacts of the proposed system on local wildlife and habitat, specifically considering migratory birds and bats.[108] The expert is also required to develop a mitigation plan to limit these wildlife risks.[109] In Huron County,

[102] LEHI CITY, UTAH, MUNICIPAL CODE § 19.040(A)(2) (2018).
[103] *Id.* § 19.040(C).
[104] *Id.* § 19.050(B); *see supra* note 54 for definition of small wind energy system.
[105] *See* NEWPORT, R.I., CODIFIED ORDINANCES § 17.90.150 (MuniCode 2018).
[106] WIND SITING GUIDELINES, *supra* note 11, at 13, 27; *see also* STANTON, *supra* note 41, at tbl.ES-3 (observing that "[e]xclusion zones should be identified in concert with state and federal wildlife agencies based on the best available scientific information and pre- and post-construction monitoring" to minimize harm to birds and bats).
[107] LEHI CITY CODE § 19.040(D)(2)(e).
[108] PROVIDENCE, R.I., CODE OF ORDINANCES § 27-1202(K)(CC)(7) (MuniCode 2018). Wind turbines are prohibited within identified bird and bat migration corridors. *Id.*
[109] *Id.*

Michigan, the site plan review process includes an avian analysis "to assess the potential impact of proposed Wind Energy Facilities upon bird and bat species, and any information on critical flyways."[110] In addition to an initial analysis, the developer must provide proposed mitigation plans as well as plans for a post-construction monitoring study.[111]

Newport could consider adding similar or additional provisions to its zoning ordinance in order to protect the City's natural resources and environment. If the City decides to utilize a heightened review process, such as DPR, environmental considerations could be integrated into that review, like in Huron County. In evaluating the extent of such an addition, the City should consult with planners, attorneys, environmental scientists, and other experts.

2.2.2.8 Require Decommission Preparation

The City could also consider expanding requirements for decommissioning plans prior to allowing wind energy system development, including escrow accounts. Currently, the zoning ordinance permits Newport to remove abandoned systems "at the owner's expense."[112] However, the developer is not required to set aside any money at the time the system is installed. An escrow account could cover decommissioning, and it could also be designated to cover legal costs for complaints from neighbors for noise, flicker, or damage caused by the wind energy system.[113]

Lehi City, Utah requires a decommissioning plan to be filed as part of the site plan review prior to project approval.[114] The decommissioning plan must include: (1) the projected life of the system; (2) the estimated decommissioning and restoration cost in current dollars; (3) an explanation of the estimated decommissioning cost; (4) a plan to ensure fund availability at the end of the projected system life; (5) a plan to reevaluate the decommissioning cost throughout the life of the project; and (6) a detailed plan for executing decommissioning and restoration.[115] Newport should consult with its attorneys to determine the limits of what it may require from a developer in anticipation of decommissioning at the end of the system's life.

2.2.3 Wind Energy Conclusion

The options listed above are some of the more common approaches that other municipalities and counties utilize to manage their wind energy systems. The City should consult with its planners, attorneys, engineers, environmental scientists, and other experts to determine whether any of the provisions would be beneficial additions to the current zoning ordinance. If the City concludes that softening of the wind energy system zoning ordinance does not fit with its goals for Newport, other forms of renewable energy could be considered.

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[110] HURON COUNTY, MICH., ZONING ORDINANCE art. X, § 5.3(A) (2015).
[111] *Id.*
[112] NEWPORT, R.I. CODIFIED ORDINANCES § 17.90.180.
[113] *See* STANTON, *supra* note 41, at tbl.ES-3.
[114] LEHI CITY, UTAH, MUNICIPAL CODE § 19.040(C)(12) (2018).
[115] *Id.*

2.3 Solar Energy

2.3.1 Background

While the CP emphasizes the importance of renewable energy development, it does not specify required energy sources.[116] The CP does discuss the potential for expansion of solar energy within the City.[117] Solar energy is not currently addressed in Newport's zoning ordinance, but solar panels are already in use within the City.[118] Statewide, solar usage is "modest" in comparison to national trends.[119] This low solar utilization exists despite the fact that the "total solar power potential in Rhode Island easily exceeds the entire electric needs of the State."[120] The current major limiting factor is available land and roof space to house solar projects.[121]

While the state seeks to encourage development of solar energy systems, siting of such systems is left to the discretion of local governments.[122] As of January 1, 2018, all municipalities are required to use a statewide solar photovoltaic permit application.[123] This universal application, however, does not affect municipal authority to create zoning ordinances for siting solar energy systems; it only dictates the contents of the application.

The state places few direct limits on solar development. Any properties with state or local conservation bonds, easement agreements, or other negotiated restrictions are not permitted to install ground-mounted solar systems.[124] The state also requires that all solar energy systems meet state building codes.[125] The Rhode Island Fire Safety Code Board of Appeal and Review issued a blanket statewide variance in February 2018 for ground-mounted solar projects.[126] Project developers are permitted to create a Vegetative Management Plan and submit the plan to the local fire marshal for review for a fire permit variance.[127] While these details are covered under state law, control of siting of solar systems remains with the local zoning authority.

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[116] *See* COMPREHENSIVE PLAN, *supra* note 1, at Goals EN-1, EN-3.
[117] *See id.* at 11-2.
[118] *See id.*
[119] STATE OF R.I. OFFICE OF ENERGY RES. & R.I. DIV. OF STATEWIDE PLANNING, RENEWABLE ENERGY GUIDELINES: SOLAR ENERGY SYSTEMS – MODEL ORDINANCE TEMPLATES DRAFT #1 3 (2018), *available at* http://www.energy.ri.gov/documents/renewable/Solar%20Siting%20and%20Taxation%20Ordinance%20Templates%20for%20Solar%20Energy%20Systems%20Public%20Draft%201%209.13.2018.pdf [hereinafter SOLAR SITING MODEL ORDINANCE].
[120] *Id.*
[121] *Id.*
[122] *Id.* at 4. A stakeholder group created by OER submitted a proposed bill during the last General Assembly session that would require all municipalities to create solar siting ordinances. H. 7793, 145th Leg. (R.I. 2018); Alex Kuffner, *Worry over solar sprawl spreads across Rhode Island*, THE PROVIDENCE JOURNAL (Mar. 17, 2018, 11:40 PM), http://www.providencejournal.com/news/20180316/worry-over-solar-sprawl-spreads-across-rhode-island. The bill passed the House on June 22, 2018, but it did not go before the Senate during the last legislative session. Legislative Status Report, H. 7793, http://status.rilin.state.ri.us/ (last visited Nov. 29, 2018).
[123] R.I. GEN. LAWS § 45-68-3 (2018).
[124] SOLAR GUIDANCE, *supra* note 8, at 8.
[125] R.I. GEN. LAWS § 23-27.3-100.1.7.
[126] SOLAR GUIDANCE, *supra* note 8, at 13.
[127] *Id.*

2.3.2 Rhode Island's Model Solar Zoning Ordinance

To assist municipalities in promoting solar energy, OER and Planning have been drafting a solar siting guidance document as well as a model zoning ordinance.[128] As of the date of this report, both are still in draft form. The guidance document provides suggested approaches for municipalities in drafting a solar siting ordinance. This report details some of the suggestions provided in the guidance document and provides examples from other Rhode Island municipalities' ordinances. In determining whether these suggestions would benefit Newport's energy future, the City should consult with its attorneys, planners, and other experts.

The OER and Planning guidance provides an outline of key planning steps in designing a solar siting ordinance. The current draft model ordinance is included in Appendix C. This section details some of the possible solar siting ordinance provisions from the guidance document and model ordinance, providing examples from other Rhode Island municipalities.

2.3.2.1 Permitted Uses and Zoning Districts

Similar to the recommendation in the wind siting guidance discussed above, the first step is to assess the existing zoning districts and decide whether solar systems are appropriate within each district.[129] For each district, solar energy systems should be (1) not permitted; (2) permitted by right; (3) permitted as an accessory use; (4) permitted subject to a special use permit; (5) permitted subject to siting conditions; or (6) permitted subject to DPR or major land development review.[130] If appropriate locations for solar energy systems do not align with existing zoning districts, one or multiple overlay district(s) could be created to designate where solar systems will be permitted.[131] In particular, OER and Planning note that a municipality could consider increased flexibility for lots such as "landfills, gravel pits, commercial and industrial lots" where solar may be one of few beneficial uses.[132] OER and Planning also suggest permitting roof mounted systems in all zoning districts, although all proposed developments within the historic district would remain subject to review by the historic district commission.[133]

In Burrillville, solar energy systems are included among the use tables in the town's zoning ordinance.[134] Systems are divided into four categories based upon size.[135] Each category is then either permitted, prohibited, or permitted subject to a special use permit within each zoning district.[136] Cranston also includes solar energy under its zoning schedule of uses and permits solar systems by right as principle uses only within low-density residential as well as industrial and open

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[128] R.I. Office of Energy Res., *Solar Guidance and Model Ordinance Dev.*, STATE OF R.I., http://www.energy.ri.gov/renewable-energy/solar/model-ordinance.php (last visited Dec. 3, 2018). Both the guidance document and ordinance template are in draft form with OER and Planning. They are due to release final versions in the near future. *Id.*

[129] SOLAR GUIDANCE, *supra* note 8, at 17.

[130] *Id.* at 17, 19.

[131] *See id.* at 17.

[132] *Id.* at 30.

[133] *See id.* at 32.

[134] BURRILLVILLE, R.I., REV. GEN. ORDINANCES § 30-71, tbl.I (MuniCode 2018).

[135] *Id.* Small-scale systems have capacity up to and including 25 kW, Medium-scale systems have capacity greater than 25 kW up to and including 250 kW, Commercial-scale systems have capacity greater than 250 kW but less than 1 MW, and Large-scale systems have capacity ranging from 1 MW up to 5 MW. *Id.* § 30-211(c)(6).

[136] *Id.* § 30-71, tbl.I.

space districts.[137] North Kingstown follows a system of varied review requirements depending upon the zoning district, but notably, the town does not prohibit solar systems from any district.[138]

2.3.2.2 Review of Applications

OER and Planning suggest using a tiered DPR approach for permitting solar development.[139] Under the suggested approach, planning staff could review small projects, such as accessory uses below a designated production threshold.[140] For accessory use systems larger than the designated threshold, the City could require formal review by the Planning Board, including an informational public meeting.[141] Extra review steps and criteria could be necessary for special areas, such as Newport's historic district.[142] Particularly for principal use development within residential districts, notice to abutters could be integrated into review procedures.[143]

In Burrillville, all systems other than small-scale and net metering systems[144] designed to offset the cost of energy used on-site are subject to DPR.[145] The review is completed by the Planning Board.[146] Applicants must submit the following documents for the review: (1) a site plan; (2) blueprints of the proposed solar system, including potential shading from nearby structures; (3) electrical diagrams showing compliance with the current electrical code; (4) documentation of the major system components; (5) contact information for the system installer, land owner, applicant, and any agents or attorneys representing the project; (6) an operation and maintenance plan; (7) proof of liability insurance; (8) description of required financial surety; and (9) a decommission plan.[147]

Exeter similarly uses a tiered system for review of solar energy proposals. Residential/small scale facilities require only application for a building permit or a special use permit, depending upon the underlying zoning district.[148] However, utility-scale solar energy facilities are subject to site plan

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[137] CRANSTON, R.I., CODE OF ORDINANCES § 17.20.030 (MuniCode 2018).
[138] NORTH KINGSTOWN, R.I., REV. ORDINANCES art. III (MuniCode 2018).
[139] SOLAR GUIDANCE, *supra* note 8, at 20.
[140] *Id.*
[141] *Id.* OER and Planning recommend review by the Planning Board rather than the Zoning Board because Planning Boards typically has more expertise in DPR, are more familiar with site characteristics, and are more accustomed to considering off-site impacts. *Id.* at 21.
[142] *See id.* at 20.
[143] *See id.* at 41.
[144] Net metering allows energy customers to receive credit for energy produced on-site to decrease the cost of energy consumption from a power supplier. R.I. Office of Energy Resources, *Net Metering*, http://www.energy.ri.gov/policies-programs/programs-incentives/net-metering.php (last visited Nov. 26, 2018). Virtual net metering allows credits for renewable energy produced off-site from the recipient. *Id.*
[145] BURRILLVILLE, R.I., REV. GEN. ORDINANCES §§ 30-201(c)(10), 30-211(d)(1) (MuniCode 2018).
[146] *Id.* § 30-211(d)(1).
[147] *Id.* § 30-211(f).
[148] EXETER, R.I., CODE OF ORDINANCES app. A, § 11.1.B(d)(1) (MuniCode 2018). A residential/small scale system is defined as "the equipment and requisite hardware that provide and are used for collecting, transferring, converting, storing, or using electricity for water heating, space heating, cooling and reducing on-site consumption of utility power, or other applications that would otherwise require the use of a conventional source of energy such as petroleum products, natural gas, manufactured gas, or electricity produced from a nonrenewable resource." *Id.* app. A, § 11.1.B(c).

review as a major land development.[149] The application requirements are nearly identical to those of Burrillville, although the zoning ordinance does allow for waiver of any requirement by the Planning Board.[150]

2.3.2.3 Siting Standards

A list of siting standards may also be created indicating conditions that must or should be met by developers.[151] OER and Planning identified some common issues with solar systems, and these could be considered when creating siting standards. Waiver of standards may be granted, as is done in North Kingstown, subject to a special use permit.[152]

2.3.2.3.1 Soil Disturbance & Stormwater Issues

Issues may arise in relation to risks from top soil disturbance, particularly at abandoned industrial sites.[153] Improper sediment control can disturb neighboring properties and nearby wetlands,[154] so requirements to mitigate habitat disturbances may be advisable.[155] Poor stormwater management, especially during the installation phase, can lead to flooding of neighboring properties.[156]

Cranston requires that top soil disturbance be limited to that "required for installation" of the system, and soil must be kept on-site.[157] Exeter requires that "[e]rosion and sedimentation control shall conform to the Rhode Island Department of Environmental Management Stormwater Design Manual" as well as applicable state and local laws.[158] South Kingstown incorporates stormwater and erosion concerns into its DPR process, requiring the applicant to detail a "soil erosion, runoff and sediment control plan that meets the requirements of the Town's Soil Erosion, Runoff and Sediment Control ordinance, and identifies the extent of proposed limits of clearing and/or disturbance, including the areas cleared and/or disturbed during construction" as well as a "grading and drainage plan, indicating any necessary regrading of the site and the provisions for accommodating run-off from the solar energy system."[159] Like Exeter, South Kingstown requires compliance with the Rhode Island Stormwater Design and Installation Standards Manual.[160]

2.3.2.3.2 Environmental Protection

Suggestions from OER and Planning also relate to ensuring environmental and wildlife protection for ground mounted systems at undisturbed sites.[161] These include limiting the use of herbicides, having a plan to control invasive plant species, minimizing soil disturbance, and requiring use of

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[149] *Id.* app. A, § 11.1.A(d)(14). Utility-scale facilities are defined as "the equipment and requisite hardware that, as a primary purpose, provide and are used for collecting, transferring, converting, storing, or using electricity and off-loading said electricity to the grid." *Id.* app. A, § 11.1.A(c).
[150] *Id.* app. A, § 11.1.A(d)(14).
[151] *See* SOLAR GUIDANCE, *supra* note 8, at 19.
[152] NORTH KINGSTOWN, R.I., REV. ORDINANCES § 21-323(d) (MuniCode 2018).
[153] *See* SOLAR GUIDANCE, *supra* note 8, at 26.
[154] *Id.*
[155] *See id.* at 27.
[156] *See id.* at 26.
[157] CRANSTON, R.I., CODE OF ORDINANCES § 17.24.020(A) (MuniCode 2018).
[158] EXETER, R.I., CODE OF ORDINANCES app. A, § 11.1.A(d)(10) (MuniCode 2018).
[159] SOUTH KINGSTOWN, R.I. CODE OF ORDINANCES app. A, §§ 510.2(F)(6), (9) (MuniCode 2018).
[160] *Id.* app. A, § 510.3(H).
[161] SOLAR GUIDANCE, *supra* note 8, at 34.

pollinator-friendly seed mixes as well as native plants for on-site vegetation.[162] If fencing is required around the system, require fencing that allows small wildlife to pass, and, if large wildlife may be impacted by the fencing, allow for waiver of fencing requirements.[163]

Burrillville seeks to protect its forested areas and prohibits clear-cutting of forest for the purpose of installing solar systems.[164] Cranston limits clearing of natural vegetation to that "necessary for the construction and operation" of the system.[165] In addition to limiting clearing of vegetation to that necessary for construction, South Kingstown also requires that the applicant receive a tree permit prior to removal of trees located within the town's right-of-way, and said permit "shall be approved at the discretion of the Town Tree Warden."[166]

South Kingstown additionally has provisions ensuring protection of farmland, placing special requirements on systems "located on prime farmland or farmland of statewide importance, as determined by the United States Department of Agriculture Natural Resources Conservation Service within the most recent Rhode Island Soil Survey."[167] After the solar system is installed, the area disturbed must be reseeded using native grasses or low growth vegetation.[168] Buffers must also be comprised of native species, with a preference for pollinator-friendly species.[169] Any disturbed soil must be stored on site, and that soil must be used to replant the site, again with native species, after the decommissioning process at the end of the system's life.[170] Invasive species must be managed without the use of herbicides to ensure that the land remains viable for future agriculture.[171] Finally, South Kingstown also requires that "wildlife passage features for small mammals and birds" be included in the design of any perimeter fencing.[172]

2.3.2.3.3 Common Conflicts with Neighbors

Establishing a solar energy system can create conflicts with neighbors if not considered at an early stage. Neighbors frequently complain of inadequate screening or other buffering between residential areas and ground-mounted solar projects.[173] A lack of decommissioning plans can also create concerns for neighbors as well as municipal staff.[174] An emergency response plan, submitted to the local fire and police departments, is also advised to alleviate neighbor's concerns.[175]

Some buffer or screening requirement is common. In Burrillville, a vegetated buffer "designed to screen the installation but not impede its solar energy capture efficiency" is required for the

[162] *Id.*
[163] *Id.*
[164] BURRILLVILLE, R.I., REV. GEN. ORDINANCES § 30-211(e)(8) (MuniCode 2018).
[165] CRANSTON, R.I., CODE OF ORDINANCES § 17.24.020(A) (MuniCode 2018). Exeter has the same requirement. EXETER, R.I., CODE OF ORDINANCES app. A, § 11.1.A(d)(11) (MuniCode 2018).
[166] SOUTH KINGSTOWN, R.I. CODE OF ORDINANCES app. A, § 510.3(K) (MuniCode 2018).
[167] *Id.* app. A, § 510.3(L).
[168] *Id.* app. A, § 510.3(L)(1).
[169] *Id.* app. A, § 510.3(L)(4).
[170] *Id.* app. A, § 510.3(L)(1).
[171] *Id.* app. A, § 510.3(L)(2).
[172] *Id.* app. A, § 510.4(B).
[173] *See* SOLAR GUIDANCE, *supra* note 8, at 26.
[174] *See id.* at 27. A decommissioning plan could include a financial guarantee for decommissioning and site restoration. *Id.* at 33.
[175] *Id.* at 33.

perimeter of the solar system.[176] North Kingstown sets a broad requirement that roof mounted systems "shall be designed and located to prevent reflective glare toward any adjacent properties."[177] The town additionally requires screening from street view of all components other than roof mounted panels.[178]

Exeter requires consideration of response of emergency services, requiring concurrence of the director of public works and the fire marshal for utility-scale solar systems to ensure that emergency response will be feasible on the site.[179] South Kingstown requires a "public safety preparedness and response plan" to be included with the application to address potential emergencies.[180]

Burrillville sets several requirements for decommissioning. The town requires that developers procure a surety bond for the cost of removal before any building permit will be issued.[181] Once a system has reached the end of its useful life, the owner has 180 days to remove it.[182] This decommissioning includes physical removal of the structures, security barriers, and transmission lines, disposal of any solid or hazardous waste, and restoration of the site, including stabilization and revegetation.[183] The town will also notify the owner of any system determined to be abandoned, and the system must be removed within 90 days.[184] If the property or system owner fail to remove the system within the allotted time, the town is authorized to enter the property and decommission the system, placing a lien on the property until the owner(s) pay the decommissioning costs.[185] Other municipalities require the same decommissioning steps, although the deadline for removal varies.[186]

2.3.2.4 Limiting Lot Coverage

Owners of properties enrolled in the Farm, Forest, and Open Space Program are limited to utilizing only 20 percent of their land for solar development without incurring penalties; however, municipalities can choose to set a smaller percentage permitted if there is a greater desire to protect

[176] BURRILLVILLE, R.I., REV. GEN. ORDINANCES § 30-211(e)(6) (MuniCode 2018).
[177] NORTH KINGSTOWN, R.I., REV. ORDINANCES § 21-323(c)(2) (MuniCode 2018).
[178] *Id.* § 21-323(c)(3). For free-standing systems, a six-foot tall privacy fence is required in single- and multi-family zones. *Id.* § 21-323(d)(5)(a).
[179] EXETER, R.I., CODE OF ORDINANCES app. A, § 11.1.A(d)(8) (MuniCode 2018).
[180] SOUTH KINGSTOWN, R.I. CODE OF ORDINANCES app. A, § 510.2(F)(12) (MuniCode 2018). The town also requires an on-site training with the police, fire, and emergency medical services departments within one month of system installation. *Id.* § 510.2(G)(2). All three departments as well as the department of public works must be involved in the DPR process as well. *Id.* §§ 510.2(H), (I).
[181] BURRILLVILLE ORDINANCES § 30-211(d)(6). Cranston also requires a surety bond, and that bond is set at no more than 125 percent of the "cost of removal and compliance as determined by a qualified engineer hired by the city and paid for by the owner operator." CRANSTON, R.I., CODE OF ORDINANCES § 17.24.020(G) (MuniCode 2018).
[182] BURRILLVILLE ORDINANCES § 30-211(j)(2).
[183] *Id.*
[184] *Id.* § 30-211(j)(1).
[185] *Id.* § 30-211(j)(3).
[186] CRANSTON CODE §§ 17.24.020(D), (E) (requiring removal within 150 days from date of abandonment or end of useful life); PROVIDENCE, R.I., CODE OF ORDINANCES § 27-1202(Y)(4) (MuniCode 2018) (requiring removal within one year from date of abandonment); SOUTH KINGSTOWN, R.I. CODE OF ORDINANCES app. A, § 510.8(A) (MuniCode 2018) (requiring removal within 180 days from abandonment).

agricultural uses.[187] Smaller percentage requirements are advised for areas with large farms, so Newport may not need to decrease this limit.[188]

Some municipalities may also choose to set area restrictions for all solar systems. In Burrillville, solar systems cannot cover more than 20 percent of any lot.[189] In Narragansett, when solar energy systems are installed as accessory structures, their footprint is added to that of the other structures on the lot, and the combined footprint cannot exceed the established lot coverage limit for the underlying zoning district.[190] South Kingstown limits ground-mounted solar systems to 10 percent of parcel size in designated low-density residential districts, 50 percent in industrial districts, and 30 percent in all other districts.[191]

2.3.2.5 Other Considerations

OER and Planning also suggest that a solar ordinance should explicitly state that all systems must comply with state and local laws as well as any existing property restrictions or easements.[192] Burrillville and South Kingstown have such provisions.[193]

Other provisions not addressed in the OER and Planning guidance have been used by some municipalities and could be considered by Newport. In Burrillville, the town is permitted to install solar energy systems on town-owned property regardless of the underlying zoning district.[194] Burrillville also requires that the system owner maintain comprehensive liability coverage for both personal injury and property damage.[195] Narragansett allows solar energy systems to exceed the building height limits for the underlying zoning districts, although systems exceeding 18 feet require a special use permit and site review.[196]

In North Kingstown, ground-mounted systems "shall not interfere with the view of, or from, sites of significant public interest such as public parks or national, state or locally designated scenic byways."[197] Providence requires that solar panels attached to buildings "be integrated into the structure as an architectural feature."[198] Such provisions, providing some protection for historical properties, may be particularly of interest to Newport with its high priority of protecting the historic character of the City.[199]

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[187] *See* SOLAR GUIDANCE, *supra* note 8, at 36.
[188] *See id.*
[189] BURRILLVILLE ORDINANCES § 30-211(e)(3). This provision does not apply to small-scale solar energy systems. *Id.*
[190] NARRAGANSETT, R.I., CODE OF ORDINANCES app. A, § 7.3(1) (MuniCode 2018).
[191] SOUTH KINGSTOWN CODE app. A, §§ 510.6(B), 510.7(A).
[192] SOLAR GUIDANCE, *supra* note 8, at 33.
[193] BURRILLVILLE ORDINANCES §§ 30-211(d)(4), (g)(1); SOUTH KINGSTOWN CODE app. A, § 510.3(A).
[194] BURRILLVILLE ORDINANCES § 30-211(d)(3); *see also* NORTH KINGSTOWN, R.I., REV. ORDINANCES § 21-323(e) (MuniCode 2018).
[195] BURRILLVILLE ORDINANCES § 30-211(d)(5).
[196] NARRAGANSETT CODE app. A, §§ 7.6(d), 7.3.
[197] NORTH KINGSTOWN REV. ORDINANCES § 21-323(d)(6).
[198] PROVIDENCE, R.I., CODE OF ORDINANCES § 27-1302(Q)(2)(d) (MuniCode 2018).
[199] COMPREHENSIVE PLAN, *supra* note 1, at goal HC-1.

2.3.3 Taxation Ordinance

Development of renewable energy systems impacts the taxation of properties. In Rhode Island, state law exempts renewable energy resources from local taxation when used in residential systems or by manufacturers.[200] However, municipalities are authorized to create a tax system for renewable energy systems not covered by these exemptions, such as commercial systems, pursuant to OER's rules and regulations.[201]

To limit burdens on both developers and municipal staff, OER and Planning suggest creating a renewable energy taxation ordinance at the same time as a solar siting ordinance, ensuring compatibility of the two systems.[202] OER, the Rhode Island League of Cities and Towns, the Rhode Island Tax Assessors Organization, and the renewable energy community created a Model Renewable Taxation Ordinance in 2016.[203] That ordinance can be found at Appendix D.

State law also prescribes some tax considerations. OER's regulations prescribe taxation formulas for assessing tangible taxes on commercial renewable energy systems that executed their interconnection agreements after December 31, 2016.[204] Any property exempted from state taxes through the Farm, Forest, and Open Space Program cannot convert more than 20 percent of its "total acreage of land that is actively devoted to agricultural or horticultural use" to commercial renewable energy systems, or they will be subject to a land use change tax.[205] Also for affected properties, the local tax assessor may only withdraw a portion of the property from farmland classification if that portion is used for renewable energy and not concurrently used for farmland.[206]

In Bristol, tax exemptions are available for the additional assessed value created by adding a solar energy system to a property; the property is not exempt from all local taxes. [207] The scope of Bristol's tax exemption is solar energy systems that produce energy to be used on-site or sold to off-set the cost of on-site energy use, not commercial systems primarily designed to sell energy for a profit.[208] Warren permits the tax assessor to

> exempt from taxation the additional value of any solar device which is being utilized as a primary or auxiliary power system for the purpose of heating or otherwise supplying the needs of residential property in which it is located, for a period of twenty (20) years from the date of installation.[209]

[200] R.I. GEN. LAWS §§ 44-3-3(48), (49) (2018). Renewable energy system components are also exempt from state sales tax. *Id.* § 44-18-30(57).
[201] *Id.* § 44-5-3(c); *see* H. 8354 Sub. A, January Session, A.D. 2016 § 7 (R.I. 2016); 300-00-00-2 R.I. CODE R. § 2.1 *et seq* (Westlaw 2018).
[202] SOLAR GUIDANCE, *supra* note 8, at 29.
[203] *Id.*
[204] 300-00-00-2 R.I. CODE R. §§ 2.2, 2.6.
[205] R.I. GEN. LAWS § 44-27-10.1(a).
[206] *Id.* § 44-27-10.1(b).
[207] BRISTOL, R.I., TOWN CODE pt. IV, § 27-28 (MuniCode 2018).
[208] *Id.* pt. IV, §. 27-26.
[209] TIVERTON, R.I., CODE OF ORDINANCES § 7-122 (MuniCode 2016).

2.3.4 Solar Energy Conclusion

This section has provided only some examples of topics that the City could address in a solar siting ordinance, if the City elects to create such an ordinance. As Newport considers creation of a solar ordinance, it could seek technical assistance from OER and Planning, which are offering technical assistance to municipalities updating or adopting solar siting or taxation ordinances.[210] Additionally, the City will want to seek guidance from its planners, attorneys, environmental scientists, tax assessors, and other experts.

2.4 Geothermal Energy

2.4.1 Background on Geothermal Energy Use

Geothermal energy is also not addressed in Newport's zoning ordinance. The CP advances the idea of increasing geothermal energy development within Newport, but it acknowledges that Newport is not highly rated for geothermal power potential.[211] In light of this lesser economic potential for geothermal energy development, this report will limit its review to some basic background to begin a geothermal discussion without expanding on geothermal options in the same depth as wind and solar energy.

Geothermal energy is produced using the heat from within the Earth.[212] Geothermal energy production systems use steam captured from the hot layer under the surface or produced from heated water from this layer to drive turbines that then produce electricity.[213] One of the benefits of geothermal power is that the source is continuous as opposed to forms like solar or wind that fluctuate in intensity.[214] Another advantage is that, while solar and wind energy systems can be used to generate electricity, geothermal energy also has applications in the thermal and transportation energy sectors.[215] Direct use systems, as opposed to energy production systems, use steam and hot water drawn from geothermal wells to heat buildings, de-ice roads, and provide other heat-energy-based benefits.[216]

Geothermal potential for commercial energy production is highest near volcanic areas and tectonic plate boundaries.[217] Having neither, the entirety of Rhode Island has low energy production potential.[218] However, even low amounts of energy potential could be tapped for residential or

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[210] *See* SOLAR SITING MODEL ORDINANCE, *supra* note 119, at 4.
[211] COMPREHENSIVE PLAN, *supra* note 1, at 11-4.
[212] Union of Concerned Scientists, *How Geothermal Energy Works*, USCUSA.ORG (Dec. 22, 2014), https://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/how-geothermal-energy-works.html#.W-mpzaeZNPM.
[213] *Id.*
[214] *Id.*
[215] R.I. DIV. OF PLANNING, ENERGY 2035: R.I. STATE ENERGY PLAN 15 (2015), *available at* http://www.planning.ri.gov/documents/LU/energy/energy15.pdf. The thermal sector "comprises energy use in residential and commercial buildings, primarily for space and water heating, and industrial sector fuel consumption to generate process heat." *Id.* at 10. The transportation sector is comprised of the "energy used to move goods and people throughout the state." *Id.*
[216] Union of Concerned Scientists, *supra* note 212.
[217] *Id.*
[218] *Id.* Newport faces an additional hurdle to commercial-scale geothermal development. Geothermal power plants require one to eight acres per MW, and wellfields can span over 2,000 acres. Power plant owners typically purchase five to ten acres to site the physical plant and lease subsurface rights for the wellfield. Residential uses are

small-scale energy systems, such as direct use heating of individual homes, taking advantage of the relatively constant 50 to 60 degree Fahrenheit temperatures just below the Earth's surface.[219] Direct use home heating and cooling systems are 25 to 50 percent more efficient than traditional heating and cooling systems.[220]

There are a few potential effects on neighboring properties when even residential, direct-use systems are employed. The initial development, involving drilling one or multiple wells, can generate substantial noise.[221] However, with proper use of technology and land acquisition, most drilling can be maintained at 60 to 65 decibels.[222] For geothermal systems that involve removing fluid or gas from the earth without reinjection, there is some risk of minimal subsidence of the land from loss of that fluid or gas.[223] There is also a potential risk of dewatering a source aquifer and affecting a public water supply when a system either does not reinject extracted water or reinjects it at too great of a distance from the source.[224] While there are some anecdotal reports from neighbors of increased seismic activity following development of a geothermal power plant, there is no confirmed evidence that geothermal development increases risk of seismic activity.[225] In determining whether any of these issues may call for geothermal prohibitions or restrictions, the City should consult with its planners, engineers, environmental scientists, and attorneys.

2.4.2 Zoning for Geothermal Energy Systems

Like the Newport Codified Ordinances, the Rhode Island General Laws do not set any requirements for geothermal energy systems. The only discussion of geothermal energy systems is found within taxation laws related to tax credits for renewable energy systems.[226] Under this taxation law, geothermal systems are defined as "systems that produce[] and store[] energy to heat buildings, cool buildings or produce[] hot water."[227]

The Delaware Valley Regional Planning Commission (DVRPC) created a guidance document to help municipalities integrate geothermal energy systems into their ordinances.[228] This guidance document provides a model geothermal zoning ordinance.[229] The American Planning Association has also put forth guidance on designing a geothermal ordinance.[230]

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disfavored along commercial geothermal wells; agriculture or open space are the preferred uses. ERICA HELLER, AMERICAN PLANNING ASSOCIATON, ZONING PRACTICE: PLANNING AND ZONING FOR GEOTHERMAL ENERGY 3 (2010). Given Newport's dense development and high tourism rate, a geothermal power plant may not be logistically feasible.

[219] DELAWARE VALLEY REG'L PLANNING COMM'N, *supra* note 12, at 3; Union of Concerned Scientists, *supra* note 212. These home heating and cooling systems do rely on a heat exchanger, which runs on electricity. DELAWARE VALLEY REG'L PLANNING COMM'N, *supra*.

[220] HELLER, *supra* note 218, at 5.

[221] *Id.* at 3.

[222] *Id.* at 4.

[223] *Id.*

[224] DELAWARE VALLEY REG'L PLANNING COMM'N, *supra* note 12, at 5.

[225] HELLER, *supra* note 218, at 4.

[226] R.I. GEN. LAWS § 44-57-4(a) (2018).

[227] *Id.* § 44-57-2(37).

[228] DELAWARE VALLEY REG'L PLANNING COMM'N, *supra* note 12, at 1.

[229] *Id.* at 5.

[230] HELLER, *supra* note 218.

First, a determination should be made on whether geothermal energy systems will be permitted throughout the City, only within designated zoning districts, or only within a geothermal energy overlay district.[231] Different standards could be applied for commercial energy production systems and direct use home heating systems.[232] Geothermal development may also be permitted either by right or require a special use permit.[233] Special use permits are a popular approach because geothermal systems are a relatively new concept, and the special use permit allows consideration of unique opportunities or challenges on a given plot of land.[234]

The ordinance may either require compliance with applicable state and federal laws, or it may incorporate and restate those requirements in the zoning ordinance itself.[235] It is also important for zoning ordinances to define geothermal uses in order to be sure that all components, such as drilling wells, will be flagged as subject to applicable state laws.[236] Under Rhode Island law, well drilling must conform to the state building code's regulations.[237] The Newport Codified Ordinances requires that drilling work cannot create a "noise disturbance across a residential real property boundary."[238]

A common approach to address the detailed regulations of geothermal development is for a municipality to adopt use standards for geothermal systems.[239] The American Planning Association surveyed existing geothermal energy ordinances and identified the following common use standards:

- Emergency standards, such as requiring contingency plans for system failures;
- Drilling regulations, such as requiring special noise limitations and dust abatement;
- Noise standards for post-drilling operation;
- Abandonment plans, such as requirements to restore the property to its pre-development state and to revegetate after initial drilling;
- Deterrents to public access to any above-ground components, such as fencing;
- Compliance with state and federal laws relating to air and water quality as well as building codes;
- Protections for historic sites, cultural resources, and natural habitat;
- Separation requirements for schools, hospitals, or residences to protect against noise and other negative effects;
- Mitigation of land subsidence risks; and

[231] *Id.* at 5, 6.
[232] *Id.* at 5.
[233] *Id.*
[234] *Id.* at 7.
[235] DELAWARE VALLEY REG'L PLANNING COMM'N, *supra* note 12, at 5-6.
[236] *Id.* at 5; HELLER, *supra* note 218, at 5.
[237] R.I. GEN. LAWS § 46-13.2-3 (regulating drilling of drinking water wells). The state also sets standards for contractor licenses to drill wells. *Id.* §§ 5-65.2-1 et seq.
[238] NEWPORT, R.I., CODIFIED ORDINANCES § 8.12.140(A) (MuniCode 2018).
[239] HELLER, *supra* note 218, at 6.

- For large-scale projects, infrastructure requirements such as standards for road improvements and traffic impacts.[240]

Although these are common use standards, some may not be applicable to Newport's specific conditions or to the direct use home heating applications that are most likely to be feasible in Newport. If the City decides to pursue a geothermal zoning ordinance, it should consult with engineers, planners, environmental scientists, and attorneys in evaluating the best use standards for Newport.

2.5 Renewable Energy Conclusion

In order to meet the CP's goal of increasing renewable energy within Newport, the City could adopt new zoning ordinance provisions to encourage any of the three energy sources discussed here. There are other potential renewable energy sources, such as hydropower and anaerobic digestion, but this report has focused on wind, solar, and geothermal as those are the three renewable energy sources identified by the CP for Newport's future. In deciding whether and how to create new renewable energy zoning ordinances, the City should consult with its attorneys, planners, engineers, and other experts.

3. Historic District Zoning

3.1 Background

As noted in Part 1 of this project, Chapter 80 of Title 17, Historic District Zoning, is generally consistent with the CP's goals of historic preservation.[241] However, the CP also has a large focus on increased resiliency in light of climate change.[242] Several portions of Newport's historic district are vulnerable to sea level rise.[243] The CP notes that there are 968 historic properties in the floodplain,[244] and Goal HC-2 calls for the City to "enhance the protection and survivability of historic resources from the impacts of climate change, sea level rise and storm hazards." Despite the CP's emphasis on climate change and coastal resilience, there is nothing in Chapter 80 of Title 17 that takes sea level rise into account. This section will examine options for addressing risks in historic areas, avenues available to the City to implement these adaptation options, and strategies for prioritizing adaptation actions throughout the historic district.

3.2 Addressing Flood Risks in Historic Districts

The problem of flooding and other coastal hazards impacting historic buildings is a wide-spread issue. Buildings in floodplains risk damage from immersion in floodwaters as well as structural collapse from the moving force of the water.[245] One of the challenges property owner's face is maintaining the structure's historic designation while adapting to these hazards.[246] Designers and

[240] *Id.* at 5, 6.
[241] *See* COMPREHENSIVE PLAN, *supra* note 1, at 10-3, Goal HC-1.
[242] *See id.* at Goal HC-2.
[243] *See id.* at Maps 3-4, 13-1, 13-2, and 13-4.
[244] *Id.* at 10-2.
[245] NAT'L FLOOD INS. PROGRAM, FED. EMERGENCY MGMT. AGENCY, FLOODPLAIN MGMT. BULLETIN: HISTORIC STRUCTURES 8 (2008), *available at* https://www.fema.gov/media-library/assets/documents/13411 [hereinafter FLOODPLAIN MGMT. BULLETIN].
[246] *Id.* at 10.

builders have devised a wide array of strategies to address this conflict. The strategies vary greatly in scope, cost, effectiveness, and impact on the historical characteristics of the property.[247] In determining which strategy to apply, each individual property needs to be considered with its unique risks, qualities, and conditions. This section presents some of the common options available to address coastal hazard risks to historic buildings.

Many relatively simple measures can be taken that will minimize, although not eliminate or even significantly reduce, damage from coastal hazards:

- Elevate utilities and mechanical equipment to above the base flood elevation (BFE);[248]
- Relocate building contents, especially culturally-significant items, above the BFE;
- Add fill to increase the grade around the building perimeter to provide positive drainage away from the building;
- For basements constructed of flood-resistant material, such as stone, rubble, or dirt, remove all modern finishes and contents to allow the basement to flood without causing damage;
- During repairs, utilize flood resistant materials below the BFE;
- Abandon and fill the basement;[249]
- Build mini-floodwalls to protect openings, such as window wells, from low level floods;
- Utilize temporary flood protection, such as sand bags, especially in places where flooding is infrequent and predictable;[250]
- Replace foundational materials for greater stability against wind and water forces; or
- Install removable and/or water-resistant wainscoting on the first floor to the BFE.[251]

While these relatively simple steps will reduce the damage of a single flood event, repeat exposure to flood waters will deteriorate the structure over time, so long-term preservation will generally require a more extreme response.[252]

One common technique to significantly reduce flood damage is increasing building elevation.[253] As long as an engineer or architect designs the elevation technique and foundation type based on the specifics of the building construction and flood impacts at the site, elevation is a highly effective method of adapting to flood hazards.[254] Elevation can involve raising the entire structure onto a new foundation, or the lowest floor of the building can be internally raised, leaving the exterior intact.[255] In addition to increasing the structure's safety from flooding, elevating a

[247] *See id.*
[248] *Id.* BFE is the expected water elevation of the one-percent-annual chance flood. *Id.* at 12.
[249] *Id.* at 11. Basements are particularly vulnerable because they are impacted not only by floodwaters, but also by rising groundwater caused by sea level rise. Newport Restoration Foundation, *74 Bridge St. Case Study*, KEEPING HISTORY ABOVE WATER, http://historyabovewater.org/74-bridgest/ (last visited Dec. 3, 2018). In some regions, basements flood daily with the tide. Rodney Rowland, Strawbery Banke, Portsmouth, Presentation at the 2018 N.H. Coastal Climate Summit: A Hidden Impact of Rising Sea Levels—Rising Groundwater Video (June 20, 2018).
[250] FLOODPLAIN MGMT. BULLETIN, *supra* note 245, at 12.
[251] *Id.* at 15.
[252] *Id.* at 10.
[253] *See id.* at 12.
[254] *Id.*
[255] *Id.* Interior floor elevation is typically utilized for older stone buildings that have high ceilings and can therefore accommodate a raised floor. *Id.*

structure's lowest habitable floor to or above the BFE will significantly lower flood insurance premiums.[256]

One concern about elevating a historic structure is the impact on the structure's appearance. However, "[e]levation of a historic structure does not have to be achieved by unsightly pilings or other foundation that would impair the aesthetics of a historic district."[257] After elevating a structure, a façade consistent with the architectural design of the building can be added to maintain consistency with the rest of the structure as well as the neighborhood.[258] Landscaping can also serve as a means to block incongruous structural supports.[259]

If elevation is not feasible or desirable for a given property, the building can be floodproofed, dry or wet, to allow the building to survive flood events with minimal damage.[260] Dry floodproofing involves sealing a building to become watertight.[261] When a building is dry floodproofed, it must also be anchored and reinforced so that the external forces of the water do not cause the building to shift, float, or collapse.[262]

Wet floodproofing allows for flooding of a building's interior in order "to counteract hydrostatic pressure on the walls, surfaces, and supports of the structure by equalizing interior and exterior water levels during a flood."[263] Wet floodproofing is not recommended in high velocity zones.[264] Wet floodproofing historical structures is complicated by the need to protect the building's materials, so flood resistant materials should be used where feasible.[265] Furnishing of the areas below BFE should also be kept sparse and portable to allow easy relocation when flooding conditions are expected.[266] Wet floodproofing may be more feasible when only the basement is subject to flooding conditions.[267]

The most effective form of action to protect a property from coastal hazards is relocation away from the coast.[268] During relocation, a historic building is moved out of the floodplain, either in its entirety or through dismantling and reassembling the structure.[269] In addition to nearly eliminating flood risks, relocation also allows for severe reduction or elimination of flood insurance premiums.[270] For structures located on large lots that have suitable space outside of the floodplain, they can be relocated to a higher elevation on the same parcel.[271] Otherwise, a new lot must be

[256] *Id.* at 10.
[257] *Id.* at 13.
[258] *Id.*
[259] *Id.*
[260] *Id.* at 16.
[261] *Id.*
[262] *Id.*
[263] *Id.* at 11.
[264] *See id.* at 16.
[265] *See id.*
[266] *See id.*
[267] *See id.*
[268] *See id.* at 10.
[269] *Id.* at 18.
[270] *Id.* at 10, 18.
[271] *Id.* at 18.

identified to relocate the structure.[272] Relocation to new lots creates special concerns for historic structures where the surrounding location may play a role in the significance of the structure, so the overall character of the neighborhood should be carefully considered before choosing to relocate a historic structure.[273]

There is no single solution that would work for all properties throughout the City, and the options presented here are not an exhaustive list of all available adaptation strategies. Even for a single structure, multiple adaptation strategies may be employed simultaneously or sequentially.[274] For example, a property could be wet floodproofed and have its electrical and mechanical components elevated above BFE. Alternatively, a basement might be filled to allow a property to remain at its current location for a time with the understanding that the property will be relocated in the future when sea level rise necessitates the move. However, current and future adaptation strategies should be considered simultaneously because, for example, investing in floodproofing a property that will later be demolished or relocated could be a waste of resources.[275]

The City could evaluate each property independently as well as within the context of a neighborhood to determine which strategies are the best fit for each historic structure. It is imperative to consult with architects, engineers, the City's historic preservation team, design professionals, licensed contractors, and other experts familiar with historic property preservation and coastal hazards when making these evaluations.[276]

3.3 Avenues for Newport to Consider to Implement Flood Resilience

3.3.1 Zoning

3.3.1.1 Current Zoning Treatment

The heart of Newport's current treatment of historic properties is its historic district zoning, which was established in 1965.[277] The purpose of this zoning scheme is "to protect [the City's] historic assets and to guide new growth in ways that enrich and maintain Newport's sense of place and authentic historic character, for now and for future generations."[278] To accomplish this goal, the City regulates "the construction, alteration, repair, moving, and demolition" of structures located within the designated historic district.[279] Property owners must apply for a certificate of appropriateness for any of this work.[280]

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[272] *Id.*
[273] *See id.*
[274] City of Portsmouth, N.H., *Portsmouth Historic Vulnerability Assessment*, PORTSMOUTHNH.MAPS.ARCGIS.COM, https://portsmouthnh.maps.arcgis.com/apps/MapJournal/index.html?appid=302cb9580dfb4dddbd66dbb39055a88e (last visited Dec. 3, 2018).
[275] *Id.*
[276] *See* FLOODPLAIN MGMT. BULLETIN, *supra* note 245, at 10-11.
[277] *See* City of Newport, R.I., *Historic District Comm'n*, CITYOFNEWPORT.COM, http://www.cityofnewport.com/departments/zoning-inspections/historic-district-commission (last visited Dec. 3, 2018).
[278] NEWPORT, R.I., CODIFIED ORDINANCES § 17.80.010 (MuniCode 2018).
[279] *Id.* §§ 17.80.010, 17.80.030.
[280] *See id.* § 17.80.050(A)(1).

The historic district commission reviews applications for a certificate of appropriateness.[281] A certificate is required before any work may begin, and the applicant cannot receive a building permit without one.[282] The commission's review solely considers the exterior of the building.[283] In evaluating an application, the commission will consider (1) the historical and architectural significance of the structure; (2) the contribution of the structure to the historical and architectural significance of the surrounding historic area; (3) the appropriateness of the plans, including the design, textures, materials, and siting; and (4) the Newport standards for treatment of historic properties.[284]

The Newport standards are adapted from the Secretary of the Interior's *Standards and Guidelines for Rehabilitating Historic Buildings, 36 CFR 671, as amended*.[285] The Newport standards are "basic principles to be applied in a reasonable manner to preserve historic districts and structures, while allowing for reasonable change, architectural variety, innovation and imagination."[286] The standards set different requirements for structures based upon the relationship to the historic district:

- For structures that contribute to the historic status of the district, alterations must
    - retain the historic character of the structure;
    - avoid use of architectural features that skew the structure's history;
    - maintain existing historically significant alterations;
    - preserve evidence of craftsmanship and construction techniques;
    - favor repair with existing materials over replacement;
    - avoid chemical or physical treatments that could damage historic materials; and
    - ensure that additions are compatible with the existing structure.[287]
- For noncontributing structures and existing walls, gates, and fences, alterations
    - must "be generally of such size, scale, siting, massing, setback, materials, and detail as will be compatible with" the surrounding historic area; and
    - should preserve any features that do contribute to the historic district.[288]
- For new construction or reconstruction, the new structures
    - shall be compatible with the surrounding area "in terms of size, scale, siting, massing, setback, materials, and details;"
    - should be "of thoughtful and considered architectural design;" and
    - should "not present a false historic appearance."[289]
- For applications to demolish an existing structure,
    - the demolition will be reviewed as a major alteration; and

[281] *Id.* § 17.80.050(A)(1). For minor alterations, alterations to a noncontributing structure, or in-kind replacement, the commission may authorize the director of planning, zoning, development, and inspections to grant a certificate of appropriateness without review by the commission. *Id.* § 17.80.040(C)(2)(c).
[282] *Id.* § 17.80.050(A)(3).
[283] *Id.* § 17.80.050(C)(3).
[284] *Id.* § 17.80.050(C)(1).
[285] *Id.*
[286] *Id.*
[287] *Id.* § 17.80.060(A).
[288] *Id.* § 17.80.060(B).
[289] *Id.* § 17.80.060(C).

- for contributing structures, demolition will only be approved if a structural study reveals that the building does not "retain integrity of condition."[290]

In addition to the Newport Standards, the Historic District Commission published a set of Standards and Guidelines in 2016 to aid contractors and property owners in understanding the requirements of the historic district.[291]

3.3.1.2 Possible Zoning Amendments the City Could Consider

The City could amend its current historic district zoning scheme to address climate change and coastal hazard impacts on Newport's historic properties. However, the amendments that the City will be able to enact are limited because the administrative structure of historic district zoning is prescribed by state law.[292] Regardless, there are amendments that the City could enact to impact the treatment of historic structures.

While the administrative structure of historic district zoning is prescribed by law, designation of the standards utilized in evaluating applications for certificates of appropriateness is left to the discretion of the municipality.[293] Accordingly, the standards are a route that the City could utilize to address coastal hazard impacts on historic properties. The CP actually calls for the City to develop "a comprehensive set of guidelines and related design expectations" on use of historic properties.[294] These concerns of increasing flood resilience of historic properties could be incorporated into the Newport standards and any additional guideline work. Consultation with the City's historic preservation team, design professionals, engineers, and others with special knowledge of local flooding risk and historic properties can help identify specific standards to add to the Newport standards.

The current historic district zoning framework does not require property owners to make changes to their properties; it merely oversees changes that owners desire.[295] This scheme is laid out in the state law that enables the City to utilize historic district zoning.[296] Therefore, in order for the City to require changes to historic properties, the City would need to lobby the General Assembly for an amendment to state law. Otherwise, the City may employ other techniques to persuade historic property owners to make alterations to increase the resilience of their properties.

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[290] *Id.* § 17.80.060(D).
[291] *See* NEWPORT HISTORIC DISTRICTS COMM'N, STANDARDS AND GUIDELINES FOR THE NEWPORT LOCAL HISTORIC DISTRICT ii, 1-6 – 1-12 (2016), *available at* http://www.cityofnewport.com/home/showdocument?id=12248.
[292] *See* R.I. GEN. LAWS §§ 45-24.1-3, 45-24.1-4 (2018).
[293] *See id.* § 45-24.1-4(a).
[294] COMPREHENSIVE PLAN, *supra* note 1, at Policy HC-1.4. Bristol, Rhode Island has guidelines for development in the historic district available at http://www.bristolri.us/DocumentCenter/View/310/Guidelines-for-Rehabilitation-Additions-and-New-Construction-PDF. While the overall format may provide a useful model, these guidelines were adopted in 1987. They would require updating, and nothing in the guidelines accounts for the impacts of sea level rise and other coastal hazards. BRISTOL HISTORIC DISTRICT COMM'N, GUIDELINES FOR REHABILITATION, ADDITIONS, AND NEW CONSTRUCTION BUILDINGS WITHIN THE DESIGNATED DISTRICT AND INDIVIDUALLY LISTED BUILDINGS OUTSIDE OF THE DISTRICT, *available at* http://www.bristolri.us/DocumentCenter/View/310/Guidelines-for-Rehabilitation-Additions-and-New-Construction-PDF (last visited Dec. 3, 2018).
[295] City of Newport, R.I., *Historic District Comm'n*, CITYOFNEWPORT.COM, http://www.cityofnewport.com/departments/zoning-inspections/historic-district-commission (last visited Dec. 3, 2018).
[296] *See* R.I. GEN. LAWS §§ 45-24.1-4, 45-24.1-7.

3.3.2 Coordinate with Institutional Property Owners

Many of Newport's historic properties are owned by institutions, such as the Newport Restoration Foundation (NRF), the Preservation Society of Newport County, the Newport Historical Society, and Salve Regina University.[297] As these organizations own a substantial number of historic buildings and many are specifically dedicated to preserving historic structures, focusing the City's attention on these institutions may prove the most efficient way to address the impacts of coastal hazards on historic properties.[298]

Newport is already on the forefront of historic preservation in the floodplain through the NRF's Keeping History Above Water (KHAW) program.[299] KHAW began as a 2016 conference focused on sea level rise and the impacts on historical coastal communities.[300] The conference goal was to help prepare local planners, designers, engineers, preservation societies, and others involved in maintaining historic properties for the threat of inundation associated with sea level rise.[301] The great success of the initial conference has led to an ongoing effort by NRF, including case studies, conferences, workshops, and other programs to engage this diverse community.[302]

At the inception of the KHAW program, NRF performed a case study using a Newport historic property at 74 Bridge Street, the Christopher Townsend House.[303] While this property has historically survived many floods, sea level rise and increasing storm surge are now placing the property at risk of serious and permanent damage.[304] Sea level rise has pushed the groundwater above the basement floor, so pumps must run continuously to keep the basement from flooding.[305] To begin protecting the property from inundation, NRF elevated all electrical wiring and appliances above the current mean high water level, although the organization recognizes that waters will continue to rise and this is a short term fix.[306]

However, some proposed changes to increase this property's resilience are inconsistent with its historic character. To meet standards set by the Federal Emergency Management Agency (FEMA), the property should be elevated by seven feet.[307] The case study investigated alternatives to this jarring elevation option. One option was to fill the basement and raise its floor level by three feet,

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[297] *See* COMPREHENSIVE PLAN, *supra* note 1, at 10-6 - 10-7. NRF alone owns over 70 historic properties in Newport. Newport Restoration Foundation, *Mission*, NRF, https://www.newportrestoration.org, (last visited Dec. 3, 2018).
[298] *See* COMPREHENSIVE PLAN, *supra* note 1, at Policy HC-1.3 (calling on the City to advocate for private sector action to protect historic resources), Goals & Actions HC-1(F) (calling for the continuance of public-private partnerships for historic restoration).
[299] *See* KEEPING HISTORY ABOVE WATER, http://historyabovewater.org (last visited Dec. 3, 2018).
[300] Newport Restoration Foundation, *About*, KEEPING HISTORY ABOVE WATER, http://historyabovewater.org/about/ (last visited August 24, 2018).
[301] *Id.*
[302] *Id.*
[303] Floodlist, *Protecting Heritage Resources from Flooding—the U.S. Experience*, FLOODLIST.COM (Dec. 21, 2016), http://floodlist.com/protection/protecting-heritage-resources-flooding-us-experience; Newport Restoration Foundation, *74 Bridge St. Case Study*, KEEPING HISTORY ABOVE WATER, http://historyabovewater.org/74-bridgest/ (last visited Dec. 3, 2018).
[304] Floodlist, *supra* note 303.
[305] *Id.*
[306] *Id.*
[307] *Id.*

leaving only a crawl space for ventilation.[308] NRF would also grade the surrounding land to encourage water flow away from the building.[309] However, NRF concluded that these steps would only protect against current mean high water; current storm surges and future sea level rise would again place the building in jeopardy.[310]

To increase protection of historic structures, more extreme measures such as elevation, floodproofing, and relocation are necessary.[311] The restoration societies and other institutions have the ability to act with regards to their properties. NRF has relocated historic properties in the past, largely for the purpose of concentrating historic properties in a single location.[312] However, a similar relocation effort could move structures out of the floodplain. NRF and other organizations are working to address the flooding issues via "[c]ommunity forums, panels, hydrology studies, and committees," with particular emphasis on the vulnerable Point Neighborhood.[313] Newport's continued coordination in this work could help generate ideas and avenues for addressing coastal hazard risks to historic structures throughout the City.

Institutional owners are likely willing to act to protect their historic properties from inundation, especially the institutions whose missions focus on historic preservation. However, non-preservation institutions may lack incentives to act, and all institutional owners may have insufficient funds to respond to coastal hazard threats.

3.3.3 Tax Incentives and Funding Assistance

Owners of historic properties, both institutional and private individuals, may want to alter their properties, but financial constraints may present a significant burden. Currently, tax incentives and funding assistance are available for building rehabilitation from government and private entities, and the City could consider adding such financial incentives of its own.

A 20 percent federal tax credit is available for rehabilitation of qualifying certified historic structures.[314] Rhode Island has offered tax incentives for rehabilitation of income-producing historic properties;[315] however, no money has been allocated for that purpose since 2013.[316] Additionally, property owners can sell or donate historic preservation easements to preservation

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[308] *Id.*
[309] *Id.*
[310] *Id.*
[311] *See* Part 3.2.
[312] Pieter N. Roos, Newport Restoration Foundation, *Keeping 74 Bridge Street Above Water: Lessons from the City of Newport and the Point Neighborhood on protecting historic structures and neighborhoods from the impacts of climate change* 6 (2016), http://historyabovewater.org/wp-content/uploads/2016/09/74-Bridge-Case-Study-Booklet.pdf [hereinafter *Keeping 74 Bridge Street Above Water*].
[313] Pieter N. Roos, Newport Restoration Foundation, *Climate Change in Newport*, KEEPING HISTORY ABOVE WATER (Sept. 4, 2015), http://historyabovewater.org/climate-change-in-newport/.
[314] 26 U.S.C. § 47 (2017); National Park Service, *Tax Incentives for Preserving Historic Properties* https://www.nps.gov/tps/tax-incentives.htm (last visited Dec. 3, 2018). A 10 percent tax credit for rehabilitation of non-historic buildings was repealed in 2017. *Id.* (citing Pub. L. No. 115-97).
[315] R.I. Historical Preservation & Heritage Comm'n, *Tax Credits & Loans: State Historic Tax Credits*, RI.GOV, http://www.preservation.ri.gov/credits/commstate.php (last visited Dec. 3, 2018).
[316] Sean Flynn, Daily News, *Historic preservation has major economic impact on state, study finds*, NEWPORTRI.COM (Mar. 21, 2018, 8:30 PM), http://www.newportri.com/01066eeb-69e6-51d3-8280-51d2ba2553cd.html.

societies.[317] Most easements require that the property owner permanently maintain the structure as a historic property.[318] Depending upon the nature of the easement, the property owner may be entitled to tax incentives.[319] Finally, adaptation techniques that increase a property's resilience to coastal hazards will significantly reduce the property's flood insurance premiums.[320]

Currently, Newport's only tax incentive related to historic preservation is a five year, pro-rata tax exemption for "expansion, renovation, or adaptive reuse of an existing building or structure of greater than fifty (50) years old" that increases the building's assessment value.[321] However, the CP calls on the City to "[r]establish Tax Incentive Programs for the protection and enhancement of historic structures."[322] In addition to tax incentives based purely on historic preservation, a special tax incentive could be devised for owners of historic properties that elevate, floodproof, or otherwise increase the resilience of their historic structures.

Even more than tax incentives, providing funding assistance to property owners would further promote action to protect structures from flooding. The Rhode Island Historical Preservation & Heritage Commission offers low-interest loans for preservation of properties listed on the State Register of Historic Places.[323] These loans are available to public, non-profit, and private owners.[324]

Newport could also offer grants or low-interest loans for adaptation work. The funding could come from Newport's funds, or the City could seek funds from grants and other funding sources.[325] The Rhode Island Historical Preservation & Heritage Commission offers funding to municipalities to "operate a local revolving loan program."[326] If the City applied for and received this funding, it could offer low-interest loans to property owners and specifically target historic properties vulnerable to coastal hazards.

In evaluating whether to utilize tax incentives or funding assistance, the City must consider the value gained from keeping historic properties safe from flood damage. A recent study

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[317] National Park Service, *Tax Incentives for Preserving Historic Properties* https://www.nps.gov/tps/tax-incentives.htm (last visited Dec. 3, 2018). For example, the Rhode Island Historical Preservation & Heritage Commission operates a preservation easement program. R.I. Historical Preservation & Heritage Comm'n, *Tax Credits & Loans: Overview*, RI.GOV, http://www.preservation.ri.gov/credits/ (last visited Dec. 3, 2018).
[318] National Park Service, *Tax Incentives for Preserving Historic Properties* https://www.nps.gov/tps/tax-incentives.htm (last visited Dec. 3, 2018).
[319] *Id.*
[320] Federal Emergency Mgmt. Agency, *How can I pay less for flood insurance?*, FEMA.GOV, https://www.fema.gov/how-can-i-pay-less-flood-insurance (last visited Dec. 3, 2018). Even though designated historic structures are eligible for subsidized flood insurance even if they do not meet the NFIP floodplain requirements, properties that undertake even minimal adaptation measures will see a reduction in insurance rates. FLOODPLAIN MGMT. BULLETIN, *supra* note 245, at 1, 9.
[321] NEWPORT, R.I., CODIFIED ORDINANCES § 4.08.110 (MuniCode 2018).
[322] COMPREHENSIVE PLAN, *supra* note 1, at Goals & Actions HC-1(A).
[323] R.I. Historical Preservation & Heritage Comm'n, *Tax Credits & Loans: Low-Interest Loans*, RI.GOV, http://www.preservation.ri.gov/credits/loans.php (last visited Dec. 3, 2018). Only anticipated preservation work is eligible for loans; completed work cannot be reimbursed through this loan program. *Id.*
[324] *Id.*
[325] *See* COMPREHENSIVE PLAN, *supra* note 1, at Goals & Actions HC-1(E).
[326] R.I. Historical Preservation & Heritage Comm'n, *Tax Credits & Loans: Low-Interest Loans*, RI.GOV, http://www.preservation.ri.gov/credits/loans.php (last visited Dec. 3, 2018).

commissioned by the Preservation Society of Newport County and Preserve Rhode Island found that about 9.8 million "heritage visitors" come to Rhode Island each year, spending $1.4 billion within the state.[327] Newport receives a substantial portion of this income because it is "the state's principal tourist center and resort community, attracting approximately 3.5 million visitors annually."[328] Therefore, upon consultation with planning and finance experts, the City may find that offering grants, loans, or tax incentives results in net financial benefits for the City.

3.3.4 Education to Encourage Private Action

The CP calls on the City to "advocate for appropriate private sector actions" to preserve Newport's historic and cultural resources.[329] It also seeks for the City to "[e]stablish a system of communicating plans affecting Newport's historical and cultural assets to citizens to encourage community involvement."[330] Accordingly, the City could implement an education and outreach program to increase awareness and interest in adapting historic structures for coastal hazards.

The first step in increasing public support for adaptation is increasing awareness of the problem. In Newport, historical hurricanes like the Hurricane of 1938 and Hurricane Carol "provide well-documented benchmarks for tidal flooding and help [property owners] understand the impact for low-lying areas."[331] Messaging that combines the knowledge of historic flooding, such as historic hurricanes or the 2010 flood, with evidence showing an eight-inch rise in the Newport high tide mark over the last seventy-five years[332] allows many residents to extrapolate from personal experience and better understand the coming risks.

Once property owners are aware of the risks, they also require information and assistance to act. NRF's website provides resources for homeowners on maintaining historic properties.[333] The CP calls on the City to similarly compile resources for the public in the form of a guidebook for historic property owners.[334] The Rhode Island Coastal Property Guide produced by CRMC, University of Rhode Island's Coastal Resources Center, and Rhode Island Sea Grant may serve as a useful starting model as it provides practical guidance on coastal adaptation options.[335]

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[327] Flynn, *supra* note 316. A "heritage visitor" was defined as "somebody who visited a landmark or historic site; visited a museum; expressed a particular interest in cultural activities or attractions; or expressed a particular interest in historic places, sites and landmarks." *Id.*

[328] *Id.*

[329] COMPREHENSIVE PLAN, *supra* note 1, at Policy HC-1.3; *see also id.* at Goals & Actions HC-1(F) (calling for the continuance of public-private partnerships for historic restoration).

[330] *Id.* at Goals & Actions HC-1(B).

[331] Roos, *supra* note 313.

[332] *Id.*

[333] Newport Restoration Foundation, *Homeowner Resources*, https://www.newportrestoration.org (last visited Dec. 3, 2018).

[334] COMPREHENSIVE PLAN, *supra* note 1, at Goals & Actions HC-1(G) (setting a goal to "[e]stablish historic property guidebook for historic property owners").

[335] Coastal Res. Mgmt. Council, *New guide helps RI homeowners, businesses protect property from flooding and erosion* (Jul. 18, 2014), http://www.crmc.ri.gov/news/2014_0718_propertyguide.html; *see, generally*, COASTAL RES. MGMT. COUNCIL, COASTAL RES. CENTER, AND R.I. SEA GRANT, RHODE ISLAND COASTAL PROPERTY GUIDE: WHAT COASTAL PROPERTY OWNERS, RENTERS, BUILDERS AND BUYERS SHOULD KNOW ABOUT RHODE ISLAND'S SHORELINE (2014), *available at* http://www.beachsamp.org/wp-content/uploads/2014/09/Rhode-Island-Coastal-Property-Guide-2014.pdf [hereinafter COASTAL PROPERTY GUIDE].

3.3.5 Direct Actions by Newport

The final avenue available to Newport to respond to historic properties at risk of coastal flooding is to undertake adaptation procedures on its own. The City could (1) make alterations to historic structures or (2) update City infrastructure to ease flooding in the historic district.

If the City identifies City-owned historic structures that are at risk of damage from coastal hazards, it could undertake adaptation strategies to address those risks. Additionally, if the historic district commission determines that the owner of a historic property is allowing the structure to fall into such disrepair that the structure is at risk of permanently losing important historical elements, the commission has the authority to execute repairs itself.[336] The City is then authorized to place a lien upon the property for the cost of the repairs.[337] However, whether the risk of damage from climate change qualifies as a legitimate risk to trigger this ability has not yet been established.

In addition to alterations to specific historic structures, changes to Newport's infrastructure could have positive impacts on historic properties without actually changing the structures themselves. In addition to storm surge flooding, Newport experiences flooding from heavy rain events that coincide with high tide because the stormwater is unable to drain at high tide.[338] The City has installed tide gates to keep tide waters out of the stormwater infrastructure.[339] When a heavy rain event coincides with high tide, the stormwater drainage is blocked by the tide gates and backs up into the streets.[340]

The NRF study at 74 Bridge Street identified additional actions that the City could take to reduce risks to neighborhoods subject to frequent flooding.[341] These actions include upgrading the City's stormwater pipe-work, upgrading tide gates, creating dry-wells and cisterns in areas subject to frequent flooding, and developing greenways, detention ponds, and other places for the water to safely collect.[342] The City should consult with its planners, attorneys, the historic district commission, engineers, and other design professionals in selecting the most effective infrastructure upgrades.

3.4 Prioritizing Structures

Regardless of the approach selected, Newport will need to develop a method to prioritize structures for adaptation. FEMA suggests that "one of the first steps to undertake is to assess the flood risk and estimate the amount of potential flood losses."[343] Newport already has inundation projections

[336] NEWPORT, R.I. CODIFIED ORDINANCES § 17.80.070(F) (MuniCode 2018).
[337] *Id.* § 17.80.070(F).
[338] *Keeping 74 Bridge Street Above Water*, *supra* note 312, at 9.
[339] *Id.*
[340] *Id.*
[341] Floodlist, *supra* note 303.
[342] *Id.* Even more ambitious responses were suggested, although with the recognition that these solutions would be extremely expensive and complicated, including elevating entire neighborhoods or installing large-scale flood barriers. *Id.* The study also recognized that neighborhood-wide elevation would result in loss to the character of the historic neighborhoods. *Id.*
[343] FLOODPLAIN MGMT. BULLETIN, *supra* note 245, at 9.

for both current storms and future sea level rise.[344] To best utilize that data, an indexing system developed in Portsmouth, New Hampshire provides a possible model for Newport.

Like Newport, Portsmouth "contains cultural and historical resources and assets which give the City's waterfront a distinct and unique character."[345] In 2013, Portsmouth devised a plan through its Coastal Resilience Initiative to address at-risk historic properties.[346] Portsmouth had already mapped vulnerability to sea level rise and coastal storms as part of its Coastal Resilience Initiative.[347] It utilized this flood vulnerability data to assign a flood risk value of 1 to 5 for each historic property.[348] The city then conducted an assessment of its historic properties, giving each a valuation score of 1 to 5 based upon its historical significance, presence of modern alterations, and maintenance of historic features and materials.[349] Combining the two values, the city created a composite map identifying a gradient from high-value, high-risk structures down to low-value, low-risk structures.[350] Based upon this composite map, the city identified sixteen structures for in-depth evaluation of adaptation options, including evaluating sequencing, feasibility, and cost of each option.[351]

Newport could utilize a similar survey process to identify top candidate historic structures for adaptation. Whether the City follows Portsmouth's example or creates its own model to evaluate options, it will likely undertake some form of survey or other evaluation and create an adaptation plan. The Rhode Island Historical Preservation & Heritage Commission administers a Certified Local Government (CLG) Grant Program for survey and planning projects related to a municipality's historic district.[352] This grant could help the City finance a historic preservation plan.

3.5 Conclusion on Historic District Zoning

Newport's CP and current zoning ordinance make clear that maintenance of the historic character of the City is critical.[353] While the current zoning ordinance focuses on ensuring historic

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[344] COMPREHENSIVE PLAN, *supra* note 1, at Maps 13-1, 13-2, and 13-4.
[345] CITY OF PORTSMOUTH, N.H., PORTSMOUTH COASTAL RESILIENCE INITIATIVE: CLIMATE CHANGE VULNERABILITY ASSESSMENT AND ADAPTATION PLAN 40 (2013), http://www.planportsmouth.com/cri/CRI-Report.pdf.
[346] *Id.*
[347] Portsmouth Planning Department, *Historic Properties Climate Change Vulnerability*, CITY OF PORTSMOUTH, NH, https://www.cityofportsmouth.com/planportsmouth/historic-properties-climate-change-vulnerability (last visited Dec. 3, 2018).
[348] Peter Britz, City of Portsmouth, N.H., Presentation at the 2018 N.H. Coastal Climate Summit: Portsmouth Historic Vulnerability Assessment (June 20, 2018); *see also* CITY OF PORTSMOUTH, N.H., PORTSMOUTH'S HISTORIC DISTRICT AND SEA LEVEL RISE 14 (2018), *available at* http://www.nhcaw.org/wp-content/uploads/2018/06/csvii_12_Britz.pdf.
[349] Britz, *supra* note 348; *see also* PORTSMOUTH'S HISTORIC DISTRICT AND SEA LEVEL RISE, *supra* note 348, at 8-12.
[350] Britz, *supra* note 348; *see also* PORTSMOUTH'S HISTORIC DISTRICT AND SEA LEVEL RISE, *supra* note 348, at 8-12.
[351] *Portsmouth Historic Vulnerability Assessment*, *supra* note 274; *see also* Britz, *supra* note 348; PORTSMOUTH'S HISTORIC DISTRICT AND SEA LEVEL RISE, *supra* note 348, at 8-12.
[352] R.I. Historical Preservation & Heritage Comm'n, *Local Preservation: CLG Grants*, RI.GOV, http://www.preservation.ri.gov/local/local_grants.php (last visited Dec. 3, 2018). Newport is one of the Certified Local Governments eligible for this grant.
[353] COMPREHENSIVE PLAN, *supra* note 1, at goal HC-1 (setting a goal to protect the City's cultural and historical resources), 10-1 (stating that "Newport's historic, architectural, and maritime resources are the City's greatest assets

preservation, the CP recognizes that a large portion of the City's historic properties are at risk from sea level rise and other coastal hazards.[354] The options presented above could help Newport balance the need to preserve historic properties both from inappropriate modernization and from rising seas. In evaluating the strategies presented or creating new ideas, the City should consult with the historic district commission, planners, attorneys, engineers, and other experts.

4. Cluster Subdivisions

4.1 Background

The cluster subdivision provision of the Newport zoning ordinance permits developers to take advantage of significantly reduced minimum lot sizes by creating a planned development on contiguous parcels of land at least 400,000 square feet in dimension.[355] This subdivision opportunity is only available in R-120 and R-160 districts, which require minimum lot sizes of 120,000 and 160,000 square feet respectively.[356] Instead of meeting these minimum lot sizes, a cluster subdivision allows lots as small as 30,000 square feet.[357] To compensate for this reduced lot size, the developer must designate a portion of the total original parcel(s) for open space.[358] The developer must also designate a legal entity to own and maintain the open space, or the developer can deed the open space to the City.[359]

Cluster subdivisions can provide some benefits, such as allowing for flexibility from an otherwise rigid zoning ordinance and giving the local government authority to "negotiate benefits such as additional open space, recreational facilities, better design, and contributions to infrastructure" in exchange for that flexibility.[360] Cluster subdivisions and other planned unit developments (PUDs) can be particularly beneficial to the developer when a zoning ordinance is outdated, as it may be easier for a prospective developer to agree to include some community benefits in exchange for zoning relief rather than go through the cumbersome process of seeking zoning changes.[361] However, the original intent of PUDs was not to provide a work-around for outdated zoning but rather to provide design flexibility that accounts for the special characteristics of a given site.[362]

PUD use has moved far beyond this original intent, into uses of questionable value. The U.S. Environmental Protection Agency (EPA) has identified several short-comings of cluster subdivisions and other PUDs. As noted above, PUDs can allow a developer to bargain for

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in shaping a vision for the future"); NEWPORT, R.I., CODIFIED ORDINANCES § 17.80.050 (MuniCode 2018) (requiring review by the historic district commission prior to development within the historic district).

[354] COMPREHENSIVE PLAN, *supra* note 1, at 10-2.

[355] *See* NEWPORT CODE § 17.84.020.

[356] *Id.* §§ 17.44.030, 17.48.030.

[357] *Id.* § 17.84.020.

[358] *Id.* § 17.84.020(A)(4).

[359] *Id.* § 17.84.020(B).

[360] Kevin Nelson, U.S. Envtl. Prot. Agency, *Essential Smart Growth Fixes for Urban and Suburban Zoning Codes*, EPA.GOV 10 (Nov. 2009), https://www.epa.gov/sites/production/files/2014-01/documents/2009_essential_fixes_0.pdf.

[361] *Id.*

[362] *Id.* For example, a cluster subdivision ordinance could allow clustering in one portion of a site to compensate for keeping a wetland or other sensitive portion of the site undeveloped. *Id.*

specialized treatment rather than seek updates to a potentially outdated zoning ordinance.[363] PUD use, originally intended for special circumstances, is now used for an estimated 40 percent of all new residential development in the United States.[364] With so much individualized negotiation, many cities are no longer "the products of their land use plans and zoning codes."[365]

This exchange of community planning for individual negotiation results in several potential harms to the community, including, (1) uncertainty for both developers and nearby property owners on future development potential; (2) a less efficient and more politically-controlled planning process; (3) potential loss of public input; (4) weakening of environmental and design standards; and (5) increased complexity for municipal staff in administering diverse PUDs.[366] In addition to these problems with PUDs generally, Newport's CP identified that districts R-120 and R-160 are designed for "estate-like" development with large lots.[367]

The current iteration of Newport's cluster subdivision ordinance was adopted in 1994 and last amended in 2000.[368] Given the age of the current framework, the City may benefit from conducting an evaluation of its priorities to determine whether its current cluster subdivision approach is still in Newport's best interest. In making this evaluation, it is worth noting that the City currently has a high housing vacancy rate and does not need to promote additional residential development.[369] Consultation with planners, attorneys, environmental scientists, and other experts will be essential to this evaluation.

4.2 Potential Options for Newport to Consider

The EPA has offered some suggestions on how to reduce these negative impacts of the PUD process:

- Update zoning districts and design standards to accurately reflect current development preferences for the municipality;
- Restrict PUDs to large projects that are able to provide added value to the community without compromising environmental and design standards;
- Develop unique design standards that apply to all PUDs (or to those in an identified area) to limit the developer's ability to use political influence to negotiate for terms potentially harmful to the community;[370] or
- Create zoning districts or overlays for areas where PUDs may be beneficial, and adopt specific design and other standards for those areas.[371]

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[363] *Id.* at 11.
[364] *Id.*
[365] *Id.*
[366] *Id.*
[367] COMPREHENSIVE PLAN, *supra* note 1, at 3-7, 3-15. The City's website additionally indicates that these southern districts are zoning for large lots both to maintain the historic, estate character and because the soil conditions are ill-suited for septic systems. City of Newport, *Land Use*, http://www.cityofnewport.com/departments/planning-development/community-profile/land-use (last visited Nov. 5, 2018).
[368] NEWPORT, R.I., CODIFIED ORDINANCES § 17.84.010 (MuniCode 2018).
[369] COMPREHENSIVE PLAN, *supra* note 1, at 5-23.
[370] Nelson, *supra* note 360, at 11.
[371] *Id.* at 13.

Other municipalities in Rhode Island permit cluster subdivisions or other PUDs with provision that differ from Newport, and the City could consider modeling these as it re-evaluates its own cluster subdivision provision. Bristol has created a special "Residential cluster overlay zone," and cluster subdivisions are permitted only within these zones.[372] In Burrillville, in addition to setting unique dimensional requirements for cluster subdivisions, as Newport does, the zoning ordinance also requires compliance with a series of standards:

- the general site planning techniques of the Burrillville Subdivision Regulations;
- state and local regulations for water supply and wastewater treatment;
- abstention of development in designated environmentally sensitive areas; and
- perpetual designation of open space, including useable upland, of at least 50 percent of the land area.[373]

The Town of Exeter has adopted an elaborate "planned village development" (PVD) strategy that incorporates many of the EPA suggestions. This PVD approach grew out of a stakeholder engagement system were the town sought feedback from residents through workshops, surveys, and other forms of outreach.[374] Through this process, the town learned that the preference of the majority of the public was to cluster development in "villages" and maintain rural areas between the villages.[375] This village-style development model was incorporated into the comprehensive plan.[376] The workshops identified not only the general preference for village-style development, but they also identified six preferred sites within the town as potential village sites.[377]

To further understand the potential of village development, the town, through a grant from the Rhode Island Statewide Planning Program, held a second series of workshops and meetings to consider the effects of village development on town finances, traffic, quality of life, and drinking water quality.[378] This second phase more closely examined the potential village sites identified in the first phase,[379] but it did not officially designate any sites as planned village overlay districts (PVODs).[380] However, the lessons learned from this stakeholder engagement process were used to create the town's PVD system and zoning ordinance amendment.[381]

Under Exeter's PVD system, PVDs are only permitted within PVODs.[382] A developer seeking to build a PVD must first apply for a zoning change to establish a PVOD in the desired area, unless

[372] BRISTOL, R.I., TOWN CODE, § 28-3(7) (MuniCode 2018).
[373] BURRILLVILLE, R.I., REV. GEN. ORDINANCES § 30-203(c)(1) (MuniCode 2018).
[374] EXETER, R.I., A VISION FOR EXETER: IMPLEMENTING THE GAME PLAN OF OUR FUTURE, PHASE II FINAL REPORT 4 (Dec. 2011), http://www.planning.ri.gov/documents/LU/2015/2009_Exeter_Final.pdf.
[375] *Id.*
[376] *Id.* at 5.
[377] *Id.*
[378] *Id.* at 6.
[379] *Id.*
[380] *Id.* at 8.
[381] *Id.* at 8-9.
[382] EXETER, R.I., CODE OF ORDINANCES § 10.1.2 (MuniCode 2018).

a PVOD has already been established in that location.[383] PVD applications may then be submitted, but approval of the PVD application will be conditional on the approval of the associated PVOD.[384]

Like many cluster subdivision provisions, including Newport's, Exeter's PVD system limits overall development density to the same that would be available under traditional zoning when the entire parcel is taken into account.[385] However, Exeter also allows for development beyond this limit if the developer makes use of a transfer of development rights (TDR) system.[386] Under this system, a developer can purchase development rights from a sending area and apply them to a proposed PVD in a receiving area, allowing for greater density development within the PVD in exchange for the sending area owner's agreement to limit development.[387] Even with the TDR system, development density is capped at 15 units per acre within a single PVD lot and eight units per acre for the entirety of the PVOD.[388] Several Rhode Island municipalities have similar village development districts designed to encourage development of mixed-use communities with diverse housing options.[389]

These approaches are just a few of the ways that different municipalities have elected to place additional limits and controls on cluster subdivisions and other PUDs. The City should consult its planners, attorneys, and other experts to evaluate its current cluster subdivision ordinance and decide whether modification would be in the best interests of the City.

5. Nonconforming Development

5.1 Background

Chapter 17.72 of the Newport zoning ordinance addresses substandard lots and nonconforming uses. In addressing the CP's goal of increasing the City's resilience to coastal hazards,[390] treatment of nonconforming uses[391] raises a red flag. Part 1 of this project identified an inconsistency between the Newport zoning ordinance's allowance of rebuilding structures damaged by flooding and the CP's goals of increasing resilience to climate change. Structures that are destroyed during coastal storms are currently permitted to be rebuilt but cannot be altered,[392] and for the reasons

[383] *Id.* The Town has delineated several factors that must be met in order to designate an area a PVOD: (1) at least one lot must have adequate frontage for access; (2) the proposal must be consistent with the comprehensive plan; and (3) the proposed site must be at least 10 acres, unless the proposed site is to be integrated into an existing, adjacent PVOD. *Id.* § 10.1.3.
[384] *Id.* § 10.1.4(B).
[385] *Id.* § 10.2.2; *see* NEWPORT, R.I., CODIFIED ORDINANCES § 17.84.020(A)(1) (MuniCode 2018).
[386] EXETER CODE § 10.3.1.
[387] *See id.* § 10.3.2. In Exeter, receiving areas are those within approved PVODs, and sending areas are undeveloped or agricultural lots within identified districts. *Id.*
[388] *Id.* § 10.2.2(A). For commercial establishments, square footage limits are set instead of unit density limits. *Id.* § 10.2.3.
[389] *See*, *e.g.*, JAMESTOWN, R.I., REV. CODE OF ORDINANCES § 82-1100 (MuniCode 2017); NARRAGANSETT, R.I., CODE OF ORDINANCES app. A, §§ 4.8.1, 4.8.3 (MuniCode 2018).
[390] COMPREHENSIVE PLAN, *supra* note 1, at 1-8, goal NHCC-1.
[391] In Newport, a nonconforming use means "a building, structure, or parcel of land, or use thereof, lawfully existing at the time of the adoption or amendment of this zoning ordinance and not in conformity with the provisions of this zoning code or amendment." A structure or parcel can be nonconforming by use or by dimension. NEWPORT, R.I., CODIFIED ORDINANCES § 17.08.010 (MuniCode 2018).
[392] *Id.* §§ 17.72.020, 17.72.030.

described in this section, the City could consider altering its zoning provisions to promote greater coastal resilience in light of climate change and sea level rise.

Structures built in the floodplain create problems and risks both for the owners of the structures and for neighboring properties. Unsurprisingly, one major concern about development in the coastal zone is the risk of flood damage. As sea levels rise and storm surge increases, flooding is expected to become more frequent and severe.[393] Properties located within the floodplain will be subject to repeated inundation, and potentially even destruction. Coastal properties also have started facing routine basement flooding due to groundwater inundation, further adding to the property damage.[394] This repeated damage will be a financial burden for the property owner and potentially for the tax payer if the property has subsidized flood insurance through the National Flood Insurance Program.[395] However, the harms done by properties existing in the floodplain go beyond the boundaries of the property itself.

During a storm, structures located within the floodplain can create hazards. For structures—or parts of structures—that are not designed to withstand a given storm, resulting debris can be cast about and damage neighboring properties, infrastructure, and the natural environment.[396] For structures located on the active beach, the presence of the hardened structures (including buildings and shoreline protection structures) can interfere with the natural transport of sand.[397] In addition to affecting sand transport, hardened structures can also have negative ecological effects and impede public access along the shore.[398]

An indirect effect of development in the coastal zone is that municipalities need to maintain infrastructure, such as roads and utilities, in order to support that development. As climate change and sea level rise affect coastal communities, infrastructure will be impacted as well. A study by Rhode Island Statewide Planning identified 85 miles of roadways in the state that will flood under a five-foot sea level rise scenario.[399] The cost to maintain infrastructure will continue to rise as

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[393] R.I. COASTAL RES. MGMT. COUNCIL, SHORELINE CHANGE SPECIAL AREA MGMT. PLAN § 2.3.1(1) (2018) [hereinafter Beach SAMP].

[394] Newport Restoration Foundation, *74 Bridge St. Case Study*, KEEPING HISTORY ABOVE WATER, http://historyabovewater.org/74-bridgest/ (last visited Dec. 3, 2018); Rowland, *supra* note 249.

[395] Steve Ellis, *Federal flood insurance costs taxpayers billions without reducing storm damage*, USATODAY.COM (June 21, 2018, 7:00 AM), https://www.usatoday.com/story/opinion/2018/06/21/federal-flood-insurance-fails-fix-flawed-funding-hurricane-season-column/715398002/ (reporting that the NFIP has cost taxpayers over $30 billion).

[396] Tammy Leitner, Natalie Valdés, and Erik Ortiz, *After Florence's fury, North Carolina homeowners confront devastation, cleanup*, NBCNEWS.COM (Sept. 20, 2018, 11:40 AM), https://www.nbcnews.com/news/weather/after-florence-s-fury-north-carolina-homeowners-confront-devastation-cleanup-n911376 (reporting on destruction including a quote from a resident that "there was just stuff everywhere" and a report of a 36-foot boat that crashed into two houses during Hurricane Florence).

[397] When a beach is undeveloped, storm surge will at times overtop the coastal feature, delivering sediment to the salt marsh or uplands beyond. This overwash process raises the elevation of the upland area, making it more resilient to sea level rise and other coastal hazards. This process is "critical for barriers to continue to migrate in response to storms and sea level rise." The presence of hardened structures interferes with this natural transport, resulting in negative effects on the beach seaward of the structure as well as on neighboring properties. Beach SAMP, *supra* note 393, §§ 4.3.1.4, Storm surge (4), (5), 4.3.1.5, Impact of shoreline protection structures (1).

[398] *Id.* §§ 4.1.7, 4.3.1.5, Impact of shoreline protection structures (6).

[399] Beach SAMP, *supra* note 393, § 4.1.19.

additional repairs from flood and storm damage will be required, and the City will need to bear this expense.

Based upon these negative effects of development in the floodplain, the City may desire to discourage non-water-dependent development within the floodplain, as discussed in the prior report in relation to coastal overlays. For nonconforming development that already exists in the floodplain, the City has options to limit or discouraged its continued existence.

5.2 Current Newport Zoning

In Newport, nonconforming developments are allowed to continue "until they are removed or abandoned."[400] The Newport zoning ordinance defines abandonment as "some overt act, or failure to act, which would lead one to believe that the owner of the nonconforming use neither claims nor retains any interest in continuing the nonconforming use unless the owner can demonstrate an intent not to abandon the use."[401] The zoning ordinance explicitly states that involuntary interruption, "such as by fire and natural catastrophe," will not constitute abandonment, although failure to reinstitute the use within a year will establish a rebuttable presumption of abandonment.[402]

The Newport zoning ordinance also places limitations on an owner's ability to alter a nonconforming development. The zoning ordinance states that "[n]o nonconforming use of land or nonconforming use of a structure shall be changed except to a conforming use or structure."[403] Alterations to dimensionally nonconforming structures are permitted by right, as long as the alteration itself conforms to current zoning regulations and does not intensify the dimensional nonconformity of the entire structure.[404] Alterations and increases to a dimensionally nonconforming element are permitted as long as the owner obtains a special use permit.[405] Owners are not permitted to relocate a nonconforming structure to another part of the lot or outside the lot unless the relocation will reduce or end the nonconformity.[406] Despite the limitations on alterations, owners are permitted to conduct ordinary maintenance and to strengthen or restore any structure that is declared to be in an unsafe condition and a risk to public safety.[407]

The outcome of Newport's current zoning regulations on nonconforming uses is that structures within the floodplain are permitted to remain, and they can even be rebuilt if they are destroyed by a coastal storm, although changes may be required, such as meeting current building codes or elevating the building if the property is subject to the National Flood Insurance Program.[408] Additionally, actions to increase those structures' resilience to coastal hazards can be hindered by

[400] NEWPORT, R.I., CODIFIED ORDINANCES § 17.72.020 (MuniCode 2018).
[401] *Id.*
[402] *Id.*
[403] *Id.* § 17.72.030(C).
[404] *Id.*
[405] *Id.*
[406] *Id.* § 17.72.030(B).
[407] *Id.* § 17.72.030(A).
[408] *See* R.I. GEN. LAWS § 23-27.3-106.2 (2018); 44 C.F.R. §§ 59.1, 60.3 (2018); 10-3-1 R.I. CODE R. 6 (Westlaw 2018); *see also* COASTAL PROPERTY GUIDE, *supra* note 335, at 19.

the restrictions on modification and relocation of nonconforming structures. However, Newport could consider some options to alleviate these conflicts and promote coastal resilience.

5.3 Potential Options for Newport to Consider

5.3.1 Disallow Rebuilding of Nonconforming Uses Destroyed by Coastal Storms

As explained above, the best option for resilience is to move non-water-dependent structures out of the floodplain. However, even if the City were to change development regulations in the coastal zone, existing structures would be permitted to remain as nonconforming uses until they are removed or abandoned.[409] Therefore, even if a structure is destroyed by a coastal storm, the property owner is permitted by law to repair or rebuild that structure.[410] It is worth noting that structures damaged more than 50 percent will be required to meet updated building codes and flood regulations during any repairs and rebuilding.[411]

In light of the resilience benefits associated with removing structures from the floodplain, the City could benefit from removing the provision that declares that destruction by natural catastrophe is not considered abandonment. However, this provision is expressly called for in state law. The Rhode Island General Laws require that a zoning ordinance permit the continuation of nonconforming development, and that "[a]n involuntary interruption of nonconforming use, as by fire and natural catastrophe, does not establish the intent to abandon" the nonconforming use.[412] In light of this state law requirement, Newport's only option to change this provision would be to petition the General Assembly for an amendment. However, Newport could alter other portions of its nonconforming development ordinance to encourage property owners to increase the resilience of their nonconforming uses.

5.3.2 Permit Alterations to Nonconforming Uses

A municipality does have some flexibility in treating applications for alterations to nonconforming structures. Under state law, the municipality may permit alterations by right, or it may require a special use permit, thus allowing for city review.[413] An ordinance addressing alterations to nonconforming uses "may require that the alteration more closely adheres to the intent and purpose of the zoning ordinance."[414]

Generally, a prohibition of alterations to nonconforming development is consistent with attempts to limit the continued use of the development and encourage conformity with the current zoning laws. However, some alterations may increase a structure's resilience to coastal hazards without bringing the structure into conformity with current zoning law, such as floodproofing a nonconforming commercial structure within a residential district or allowing elevation of a structure despite the fact that its size exceeds zoning limits.

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[409] NEWPORT, R.I., CODIFIED ORDINANCES § 17.72.020.
[410] *Id.*
[411] R.I. GEN. LAWS § 23-27.3-106.2 (2018); 44 C.F.R. §§ 59.1, 60.3 (2018); 10-3-1 R.I. CODE R. 6 (Westlaw 2018); *see also* COASTAL PROPERTY GUIDE, *supra* note 335, at 19.
[412] R.I. GEN. LAWS §§ 45-24-39(b), (c).
[413] *Id.* § 45-24-40.
[414] *Id.* § 45-24-40(b).

Newport's prohibition of alterations is broad, prohibiting "change[]" to any nonconforming use or structure.[415] Many municipalities in Rhode Island utilize different terminology, prohibiting addition, enlargement, expansion, or intensification of a nonconforming use.[416] By specifying that the prohibition relates to expansion of the nonconformity and not strictly of any alterations to the structure, the City could permit adaptive changes to nonconforming uses without losing the protection of limiting nonconforming development.

Burrillville permits alteration of a nonconforming use subject to a special use permit and requires that the zoning board of review find:

> (a) [t]he alteration does not constitute an enlargement; (b) [t]he new use is not more nonconforming than the original use; (c) [t]he proposed alteration is in harmony with the purposes and intent of the comprehensive plan and this zoning chapter; (d) [t]he proposed alteration shall serve the public convenience; and (e) [t]he proposed alteration shall not be injurious to the surrounding neighborhood nor create conditions which will be inimical to the public health, safety, morals and general welfare of the community.[417]

Jamestown likewise requires a special use permit for alterations. In most districts, the zoning board is required to ensure that a special use permit is only granted if there will be no expansion of the nonconforming use, but the zoning board is able to permit alterations and expansions at its discretion within the commercial and waterfront districts.[418] Newport could consider using such detailed standards and/or require a special use permit to ensure that alterations that would benefit coastal resilience may be allowed without risking undesirable alterations.

It is worth noting that the Rhode Island Supreme Court has interpreted Newport's nonconforming uses provision to allow for alterations as long as those alterations do not amount to an expansion of the use.[419] Therefore, some adaptive alterations may be possible under the current wording of the zoning ordinance. However, altering the language of Section 17.72.030, such as to expressly permit coastal hazard adaptations, could reduce the risk of potential legal challenges to such alterations. The City should consult with its attorneys, planners, and other experts to identify the most effective language to balance the needs of minimizing expansion of nonconforming uses and allowing adaptation to coastal hazards.

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[415] NEWPORT, R.I., CODIFIED ORDINANCES § 17.72.030(C) (MuniCode 2018).

[416] *See, e.g.*, BRISTOL, R.I., TOWN CODE §§ 28-218(5) - (7) (MuniCode 2018); CENTRAL FALLS, R.I., REV. ORDINANCES app. A, §§ 206.5 - 206.8 (MuniCode 2018); EXETER, R.I., CODE OF ORDINANCES app. A, §§ 3.2(5) - (8) (MuniCode 2018).

[417] BURRILLVILLE, R.I., REV. GEN. ORDINANCES § 30-73(a)(5) (MuniCode 2018). Hopkinton additionally requires a special use permit for alternations of nonconforming development. HOPKINTON, R.I., CODE OF ORDINANCES app. A, § 8(C) (MuniCode 2017).

[418] JAMESTOWN, R.I., REV. CODE OF ORDINANCES § 82-704 (MuniCode 2017).

[419] Cohen v. Duncan, 970 A.2d 550, 563 (R.I. 2009) (holding that extensive renovations at a Newport hotel that was nonconforming by use were not prohibited alterations because the renovations actually reduced the capacity of the hotel and reasoning that § 17.72.030(C) "by its plain meaning allows some alterations, as long as they do not change the use, extend the use, or move the use" that constitutes the nonconformity).

5.3.3 Permit Relocation Away from the Floodplain

Under Newport's current zoning ordinance, nonconforming development may not be relocated unless the relocation ends the nonconformity.[420] However, permitting owners of nonconforming development within the floodplain to relocate their properties may provide benefits that outweigh the desire to limit changes to nonconforming development. As noted above, structures located within the floodplain are not only a risk to themselves, but they pose threats to surrounding properties as well. Accordingly, Newport could consider creating an exception to allow relocation of nonconforming development when the development is located within the floodplain and is relocated out of the floodplain (or at least further inland).

There is no state requirement to prohibit relocation of a nonconforming use, and therefore, the City could eliminate this provision entirely. Neither Cranston nor Hopkinton have provisions that prohibits relocation of nonconforming uses.[421] In St. Paul, Minnesota, relocation of nonconforming uses is permitted provided that the relocation is "compatible with the surrounding neighborhood."[422] Relocation of a nonconforming use requires a nonconforming use permit, and St. Paul has an extensive list of standards that control the granting of a permit.[423] Newport could consider establishing a similar permit system to allow the inland relocation of nonconforming uses located within the floodplain. In evaluating whether to allow relocation of nonconforming development, the City should consult with its planners, attorneys, and other experts.

6. Urban Fire Threat

6.1 Background

Part 1 of this project noted that the CP discusses Newport's Hazard Mitigation Plan, including a plan to update the zoning ordinance as part of an action to reduce urban fire threat.[424] Toward this same end, the CP also identified a goal to "provide adequate fire and police protection facilities and services to ensure the safety of the people and the protection of property in the city."[425] This report will examine the risks of urban fire, Newport's Hazard Mitigation Plan, and some strategies available to reduce the risk of fire in urban areas.

House fires can be caused by lightning during thunderstorms,[426] but they are more commonly caused by human action, such as cooking, smoking, burning candles, or failure to replace faulty or

[420] NEWPORT CODE § 17.72.030(B).
[421] *See* CRANSTON, R.I., CODE OF ORDINANCES ch. 17.88 (MuniCode 2018); HOPKINTON, R.I., CODE OF ORDINANCES app. A, § 8 (MuniCode 2007).
[422] ST. PAUL, MINN., CODE OF ORDINANCES pt. II, § 62.101 (MuniCode 2018).
[423] *Id.* pt. II, § 62.109.
[424] COMPREHENSIVE PLAN, *supra* note 1, at 13-13.
[425] *Id.* at Goal CFS-3. Nested under this goal are policies and actions aimed at minimizing fire loss, promoting public awareness of fire safety, and providing adequate training of fire fighters. *Id.* at Policy CFS-3.1, Policy CFS-3.2, Action CFS-3(A).
[426] *Id.* at 13-5.

outdated wiring.[427] Fires can also be secondary to direct natural hazard damage, such as a broken gas line or downed power line following a storm.[428]

Fires in urban areas present some special hazards not present in suburban or rural areas. The higher densities found in urban areas allow fires to spread between properties more quickly than in less densely populated areas.[429] The problem is further exacerbated in historic urban areas where structures are generally wooden, lack updated fire resistant features, and may even utilize outdated electrical systems or pose other fire threats.[430] Urban fires are particularly dangerous in residential areas where building occupants may be asleep and not become aware of the fire in time to safely evacuate the building.[431]

Newport is no stranger to urban fire. In 1912, a fire began in a hardware store and quickly spread through the area, killing a number of people and destroying many businesses.[432] A 1955 fire on Thames street destroyed the Opera House's top floor and the Perry House Hotel next door.[433] In 1973, a fire destroyed a dense development area in what is currently Queen Anne Square.[434] Even greater examples can be found in other urban areas where entire urban centers were decimated by a single fire event, such as the Great Fire of London in 1666 and the Great Chicago Fire of 1871.[435] Most recently, in June 2017, Grenfell Tower in West London was the site of a large fire that engulfed most of the tower and resulted in seventy-two deaths.[436] Urban fires remain a deadly problem today, and the City has set a goal to address this risk.

6.2 Newport's Current Framework

6.2.1 Newport's Hazard Mitigation Plan

Newport's Hazard Mitigation Plan identifies addressing urban fire threat as a "medium priority."[437] However, in ranking actions to address hazards in the City, urban fire moved up eight spots between 2008 and 2016, and it now sits as the tenth highest priority.[438] Newport's Hazard

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[427] STATE OF WASHINGTON, STATE HAZARD MITIGATION PLAN tab 5.14, p. 4 (2013); Tiago Miguel Ferreira, Romeu Vicente, Jose Antonio Raimundo Mendes da Silva, Humberto Varum, Anibal Costa, Rui Maio, *Urban Fire Risk: Evaluation and emergency planning*, 20 J. OF CULTURAL HERITAGE 739, 745 (2014); Prananda Navitas, *Improving Resilience against Urban Fire Hazards through Environmental Design in Dense Urban Areas in Surabaya, Indonesia* 135 PROCEDIA – SOCIAL AND BEHAVIORAL SCIENCES 178, 179 (2013).

[428] NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 3.2.2.4.

[429] *See* Navitas, *supra* note 427, at 180 (noting that buildings should have some distance between them because of the manner in which fire spreads).

[430] *See* NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 3.4.2; Ferreira *et al*, *supra* note 427, at 739.

[431] STATE OF WASHINGTON, *supra* note 427, at tab 5.14, p. 4. The risk is even greater in areas where there is a mixture of commercial/industrial and residential uses, such as commercial/industrial on the first floor with residences above. The commercial/industrial presence increases the risk of fire, but the residential use increases the likelihood of someone becoming aware of the fire too late to avoid harm. NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 5.3.1; Ferreira *et al*, *supra* note 427, at 743, 745.

[432] NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 3.2.2.4.

[433] COMPREHENSIVE PLAN, *supra* note 1, at 10-6.

[434] *Id.* at 8-6.

[435] *See* Ferreira *et al*, *supra* note 427, at 739.

[436] British Broadcasting Corp., *Grenfell Tower: What happened*, BBC NEWS (June 18, 2018), https://www.bbc.com/news/uk-40301289.

[437] NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, at tbl.13-3.

[438] *Id.* at 136, 145.

Mitigation Plan calls for reducing urban fire threat through updating the zoning ordinance, the fire code, the building code, and removing grandfather laws.[439]

6.2.2 The Rhode Island Building Code

In Rhode Island, the building code is managed by the state.[440] Municipalities are required to adopt the state building code, and they cannot create their own requirements.[441] The Rhode Island General Assembly has declared that a statewide building code "is necessary to establish adequate and uniform regulations governing the construction and alteration of buildings and structures within the state."[442] The building code is to utilize "current scientific and engineering knowledge" as well as "modern materials and methods of construction" in order to protect "the public health, safety, and welfare."[443] Fire safety is one of the public safety concerns to be addressed by the building code.[444] The General Assembly created the state building code standards committee to promulgate and administer the state building code.[445]

In addition to regulations for new development, the state building code also includes a rehabilitation code that sets regulations for existing structures.[446] Existing structures must adhere to the rehabilitation code "when altered, renovated, reconstructed[,] repaired[,] or [when] a change of use occurs."[447] Additionally, a building official can declare an existing structure unsafe if its condition constitutes a fire hazard.[448] If a building official declares a structure unsafe, the owner must either take action to make the structure safe or demolish it.[449]

Part of Newport's adoption of the state building code includes identifying "fire limits" within the City. Fire limits are areas that are subject to heightened fire risks, and new construction within fire limits must meet elevated building standards for fire-resistance, including use of fire walls to limit the spread of fire between structures.[450] Expansion (height and area) is prohibited for buildings that do not meet the established construction types for fire-resistance.[451] The fire limits of Newport include all areas zoned general business, waterfront business, and limited business.[452]

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[439] COMPREHENSIVE PLAN, *supra* note 1, at tbl.13-3. A grandfather clause was previously included in the state Fire Code that exempted existing structures from compliance with the code. However, in 2003, in the aftermath of the Station Nightclub fire, that clause was removed from the fire code. R.I. FIRE SAFETY CODE BD. OF APPEAL AND REVIEW, DECISION RE: 267 SPRING STREET, NEWPORT, No. 120156 (Feb. 14, 2013), *available at* https://www.ri.gov/RIFSC/decisions/dec_details.php?id=2313&agency=FSC. All structures, new and existing, are now required to comply with Section 8 of the state Fire Code (the Life Safety Code), which predominately deals with fire alarms, emergency exits, and other measures protecting human life in case of a fire. *See id.*
[440] R.I. GEN. LAWS § 23-27.3-100.1.2 (2018).
[441] *Id.* § 23-27.3-100.1.7.
[442] *Id.* § 23-27.3-100.1.2.
[443] *Id.*
[444] *Id.* § 23-27.3-100.3.
[445] *Id.* § 23-27.3-100.1.3(a).
[446] *Id.* § 23-27.3-100.1.5.3.
[447] *Id.* § 23-27.3-106.0.
[448] *Id.* § 23-27.3-124.1.
[449] *Id.* § 23-27.3-124.2. If the building is deemed to present an immediate hazard, the building inspector may board and demolish it him/herself at the owner's expense. *Id.* § 23-27.3-125.5.
[450] NEWPORT, R.I., CODIFIED ORDINANCES §§ 15.08.030, 15.08.040, 15.08.060(A) (MuniCode 2018).
[451] *Id.* § 15.08.050.
[452] *Id.* § 15.08.030(B).

Although municipalities cannot adopt their own building code, conflicts can still occur between the state building code and the local zoning ordinance. When such a conflict occurs, the state building code will control with respect to "structural strength, adequate egress facilities, sanitary conditions, equipment, light and ventilation, and fire safety."[453] However, the zoning ordinance will control with regard "to location, use and type, permissible area, and height."[454]

6.2.3 The Rhode Island Fire Safety Code

Like it has for the building code, Rhode Island has adopted a state fire safety code.[455] However, unlike for the building code, municipalities are permitted to adopt more stringent regulations for their fire codes, provided any amendments are approved by the state.[456] Newport has adopted the state fire safety code with few additions.[457]

Also unlike the building code, the fire safety code applies to all structures, including existing structures.[458] However, the state fire marshal has the authority to enforce the provisions of the fire safety code in a practical and efficient manner with regard to existing buildings so as not to create an unreasonable burden on the property owner.[459] This flexibility does not apply to the life safety code provisions, which must be applied to all structures.[460] Until recently, existing structures fell under a "grandfather" law and did not have to comply with the fire safety code, but that provision has been eliminated.[461]

The Rhode Island General Assembly adopted the National Fire Protection Association, Inc.'s Fire Code (NFPA 1) and Life Safety Code (NFPA 101) as the Rhode Island fire safety code, with some state-based amendments made by the Fire Safety Code Board of Appeal and Review.[462] NFPA 1's purpose is "to prescribe minimum requirements necessary to establish a reasonable level of fire and life safety and property protection from the hazards created by fire, explosion, and dangerous conditions."[463] It covers diverse elements including, among others, construction design, inspection of buildings and equipment, fire protection systems, hazardous materials, public education, and structure occupancy.[464] Developers are permitted to propose alternatives to the requirements, and the Fire Safety Code Board of Appeal and Review may approve the alternatives as long as they

[453] R.I. GEN. LAWS § 23-27.3-101.3 (2018).
[454] *Id.*
[455] *See id.* § 23-28.1-2.
[456] *Id.* § 23-28.1-2(b)(3). Municipalities are not permitted to adopt their own fire code provisions in regards to (1) handling of explosives, (2) installation and specifications of fire alarms and fire protection systems, and (3) fireworks and pyrotechnics. *Id.* § 23-28.1-2(b)(5).
[457] NEWPORT CODE § 8.08.010. Newport has banned outdoor open flames without permission of the fire chief. *Id.* § 8.08.110. Newport has adopted additional provisions for the handling and storage of liquified petroleum gas, and it has prohibited the use of an open flame as a means to remove paint from any structure. *Id.* § 8.08.030. The City has also designated fire lanes throughout the City. *Id.* § 8.08.100.
[458] R.I. GEN. LAWS § 23-28.1-6.
[459] *Id.* NFPA 1, which is incorporated into the fire safety code, sets different standards for new construction and existing structures. NAT'L FIRE PROT. ASS'N, NFPA 1: FIRE CODE § 1.3.6 (2012) [hereinafter NFPA 1].
[460] 450-00-00-8.1 R.I. CODE R. 8.1 (Westlaw 2018).
[461] 450-00-00-9 R.I. CODE R. § 9.1(A).
[462] R.I. GEN. LAWS § 23-28.1-2(a).
[463] NFPA 1, *supra* note 459, § 1.2.
[464] *Id.* § 1.1 (2012)

provide equivalent or better fire protection.[465] NFPA 101 is dedicated to protection of life and focuses on topics such as fire alarms, building egress, fire suppression systems, and regulations for uses that create special risks.[466] While many fire safety code requirements do not apply to residential buildings occupied by three families or less, all structures are required to have smoke and carbon monoxide alarms.[467]

6.2.4 Newport's Zoning Ordinance and Other Fire-Related Actions

In addition to enforcing the state building and fire codes, Newport has taken additional steps to promote fire safety. One of the stated purposes of the Newport zoning ordinance is "[p]romoting safety from fire."[468] For development projects subject to DPR, adequate provision of fire protection are considered during the review process.[469] Fire hazards are also a consideration when evaluating special use permits.[470] Additionally, signage cannot block egress from any fire escape, door, window, or other exit.[471]

The Newport fire department responds to fire emergencies to provide fire suppression. The department's goal is to respond to all calls within the national average of five minutes, and from 2010 to 2014, it was able to meet this goal 82 percent of the time.[472] In addition to fire suppression services, the fire department also provides fire safety education to the community.[473]

6.3 Potential Options for Newport to Consider to Increase Fire Safety

Given the diversity of causes of house fires, there is no solution that will eliminate the start of fires. Even if outdated wiring is fully addressed, many fires are started by basic life utilities like space heaters, stoves, matches, or cigarettes.[474] While efforts to minimize fire ignition are still important, the City can also take steps to slow or stop the spread of fire once it has begun.

In evaluating options, some of Newport's goals set forth in its Hazard Mitigation Plan are helpful to keep in mind: (1) "[p]rotect public health, safety and welfare;" (2) reduce property damages; (3) minimize social dislocation; (4) minimize disruption of local business; and (5) protect critical facilities.[475] All of these goals speak to an objective to reduce urban fire overall as well as to contain fires that do start.

Additionally, the special fire hazards of Newport need to be taken in to account. Over 50 percent of the structures in Newport were built prior to 1950, and most are predominantly wooden.[476]

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[465] 450-00-00-7 R.I. CODE R. § 7.1.1; *see also* NFPA 1, *supra* note 459, § 1.4.2.
[466] 450-00-00-8.1 R.I. CODE R. § 8.1; NAT'L FIRE PROT. ASS'N, NFPA 101: LIFE SAFETY CODE tbl. of contents, § 1.1 (2018).
[467] R.I. GEN. LAWS § 23-28.1-2(b)(2).
[468] NEWPORT, R.I. CODIFIED ORDINANCES § 17.04.020(J) (MuniCode 2018).
[469] COMPREHENSIVE PLAN, *supra* note 1, at 3-13.
[470] NEWPORT CODE § 17.108.020(G).
[471] *Id.* § 17.76.120(E).
[472] COMPREHENSIVE PLAN, *supra* note 1, at 6-8. The Newport fire department does not have fire boats, but it has arrangements with nearby Mutual Aid Communities that will provide fire boats to aid in fire suppression in the harbor area. *Id.* at 6-8.
[473] *Id.*
[474] STATE OF WASHINGTON, *supra* note 427, at Tab 5.14, p. 4.
[475] NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 4.
[476] *Id.* § 3.2.2.4.

These structures were not built to today's fire protection standards, and they were constructed in close proximity to each other.[477] One additional concern in Newport is that, given its coastal city status, Newport experiences high winds that can spread a fire more quickly.[478] Accordingly, solutions to contain a fire to a single structure are key to reducing urban fire threat in Newport.

6.3.1 Building Code Updates

The Newport Hazard Mitigation Plan calls for addressing fire hazards through the building, fire safety, and zoning codes.[479] The building code presents the most base-level construction requirements for structures to meet safety requirements.[480] While the building code is designed to utilize "current scientific and engineering knowledge" as well as "modern materials and methods of construction,"[481] consultation with the chief of the City's fire division as well as qualified engineers may reveal amendments to the building code that would strengthen fire protection. However, as noted above, municipalities have no authority to alter the code.[482] Therefore, if the City desires any changes to the building code, it will need to propose those changes to the Rhode Island General Assembly or the state building code standards committee.[483]

6.3.2 Fire Safety Code Additions

As noted above, the fire safety code sets minimum standards that a municipality may increase.[484] However, Newport has added very few unique provisions.[485] The City has the option to amend its fire code to add stricter provisions to increase fire safety, provided that it submits any amendments to the state for approval.[486] In evaluating Newport's fire code to determine if any provisions could benefit from strengthening, the City would benefit from consultation with the chief of the City's fire division as well as engineers or other fire safety experts.

Many Rhode Island municipalities have relied largely on the state fire safety code, making few local additions. However, the City of Central Falls, a dense, urban community, has adopted several fire safety provisions within its code of ordinances that may provide helpful models to Newport.

Central Falls requires developers undergoing DPR, which requires review by the fire marshal, to submit a fee for that review.[487] All fees obtained under this provision are used exclusively for the city fire prevention bureau for fire inspections, fire education, and training of firefighting personnel.[488] The Town of Jamestown similarly requires use of plan review fees to support "the

[477] *Id.*
[478] *Id.*
[479] COMPREHENSIVE PLAN, *supra* note 1, tbl.13-3.
[480] *See* R.I. GEN. LAWS §§ 23-27.3-100.1.2, 23-27.3-100.3 (2018).
[481] *Id.* § 23-27.3-100.1.2.
[482] *Id.* § 23-27.3-100.1.7.
[483] *See id.* §§ 23-27.3-100.1.5, 23-27.3-100.1.6, 23-27.3-109.3.
[484] *Id.* § 23-28.1-2(b)(3).
[485] *See* NEWPORT, R.I., CODIFIED ORDINANCES § 8.08.010 (MuniCode 2018).
[486] R.I. GEN. LAWS § 23-28.1-2(b)(3).
[487] CENTRAL FALLS, R.I., REV. ORDINANCES § 20-2(a) (MuniCode 2018).
[488] *Id.* § 20-2(b).

operations of the fire prevention services provided by the fire department."[489] Use of a similar fee provision for DPR could direct City funds towards fire prevention purposes.

Central Falls also places explicit restrictions on uses that constitute special fire hazards, prohibiting them in residential structures, places of assembly, and schools.[490] Prohibited activities include indoor or porch use of charcoal or gas grills; indoor use of flammable gas- or liquid-powered equipment; and indoor welding, cutting, or other "hot work."[491] Additionally, in places of assembly and schools, flammable liquids must be stored in cabinets approved by the Occupational Safety and Health Administration, and flammable liquids cannot be used as cleaning solvent.[492] Central Falls also specifies that all portable heaters must be approved by Underwriters Laboratories (UL) and not altered, and the chief of the fire division has the authority to prohibit all portable heater use if the use would present a danger to life or property.[493] Newport already has restrictions on storage of certain materials, including prohibiting bulk storage of flammable liquids in residential areas.[494] However, greater restrictions on hazardous activities as well as storage could provide additional protections, particularly in places with elevated risks to human life, such as Central Falls' extra protections for residences, places of assembly, and schools.[495]

Providence, another city with dense urban areas, requires inspection of the interior of all buildings, except for private dwelling areas. These inspections occur two to four times per year to check for potential fire hazards or obstructions that would prevent evacuation in case of fire.[496] In addition to scheduled inspections, authorized fire personnel may conduct additional inspections upon receipt of a complaint of a fire hazard.[497] Routine inspections could increase fire safety in Newport by identifying and remedying fire hazards generated by day-to-day activity.

Newport's Hazard Mitigation Plan envisions the City taking steps to ensure compliance with the building and fire codes. The plan calls for a study to evaluate structures built prior to modern building codes with a particular goal to identify structures where the cost to bring the structure up to code would exceed 75 percent of the building's value.[498] It is unclear from the Hazard Mitigation Plan what the City would do with the identified structures, but options could include requiring the owners to bring them up to code, providing financial assistance to do so, or purchasing the property for demolition. If the City decides to utilize a buyout program, discussed below, then this study could be useful to identify target structures for the buyout.

[489] JAMESTOWN, R.I., REV. CODE OF ORDINANCES § 26-3(c) (MuniCode 2017).
[490] CENTRAL FALLS ORDINANCES § 20-7.
[491] *Id.* § 20-7(1).
[492] *Id.* § 20-7(2).
[493] *Id.* § 20-8.
[494] NEWPORT, R.I., CODIFIED ORDINANCES § 8.08.070 (MuniCode 2018).
[495] *See* CENTRAL FALLS ORDINANCES § 20-7.
[496] PROVIDENCE, R.I., CODE OF ORDINANCES § 9-34 (MuniCode 2018).
[497] *Id.* § 9-35.
[498] NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 5.3.1.

6.3.3 Buyouts

The high density of some areas of Newport, particularly older neighborhoods, increases the risk of urban fire spreading beyond just one structure.[499] A buyout program is one method available to address the density issues. In fact, the City's Hazard Mitigation Plan identifies a Primary Action to "[d]evelop an acquisition program," which could be used to purchase buildings at risk for fire, at risk of spreading fire between structures, or located in an area where expansion of the street would aid movement of emergency vehicles.[500]

It is worth noting that Newport's population is shrinking, and there is no anticipated need for expansion of the housing market.[501] The vacancy rate identified in the 2010 U.S. Census was 18.8 percent.[502] Therefore, buyouts or other removal of existing properties, especially properties that are currently unoccupied, are not likely to place a burden on the overall housing market. However, if this approach is taken, the City must be careful to consider seasonal housing needs. Currently, over 500 units are vacant for part of the year but occupied seasonally.[503]

Buyout and removal of buildings could allow for area revitalization. Newport has taken steps towards such revitalization in the past. After a fire in 1973 in a dense development area, the City created Queen Anne Square, restoring the historic Trinity church and redeveloping the entire area.[504] The CP identifies Queen Anne Square as "an icon for sustainably redeveloping historic parks" because the Square incorporates aspects of the past updated with today's safety standards, such as historic gas light fixtures retrofitted with LED lighting.[505]

Given the City's experience with revitalizing areas and the availability of more than adequate housing, a buyout program could be a feasible approach for Newport to address urban fire risk, provided that the City finds that the cost of a buyout is worth the benefits. A buyout program could be voluntary or done through the City's eminent domain powers.

If a buyout approach is selected, whether voluntary or involuntary, Newport will need to identify which structures are the best targets for purchase and removal. A fire-hazard evaluation project conducted in Portugal may provide some insight on this process. A group of researchers devised a methodology to score buildings according to fire risk based on four factors: (1) fire ignition risk, (2) propagation risk, (3) evacuation potential, and (4) fire combat potential.[506] The researchers plotted the buildings of the city using a GIS-application to create a map of fire vulnerability.[507]

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[499] *See* NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 3.2.2.4.
[500] *See id.* § 5. Many of the streets in Newport were first constructed in the eighteenth and nineteenth centuries, and they retain their narrow design to this day. *Id.* § 3.3.1.3.
[501] COMPREHENSIVE PLAN, *supra* note 1, at 5-3, 5-8.
[502] NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 1.2.3.
[503] *Id.*
[504] COMPREHENSIVE PLAN, *supra* note 1, at 8-6.
[505] *Id.*
[506] Ferreira et al, *supra* note 427, at 740. Another study in Indonesia rated fire risk based upon a series of factors: (1) population density; (2) building density; (3) fire occurrence data; (4) building and structural conditions; (5) land use intensity; and (6) water availability. The Surabaya, Indonesia area that was examined in this study is a mixture of modern and traditional structures, so this study would provide a good comparison for Newport's mix of modern and historic structures. Navitas, *supra* note 427, at 179-80.
[507] Ferreira et al, *supra* note 427, at 742.

Unsurprisingly, the most vulnerable buildings were those with "derelict or obsolete electrical installations; structural safety problems; significant fire loading due to activities developed in those buildings; lack of [or] inoperability of fire detection means, alert and alarm systems[; and] constrained or even inaccessible evacuation routes."[508] A similar indexing system could aid the City in determining which properties to target for buyout.[509]

6.3.3.1 Voluntary buyouts

Voluntary buyouts are not commonly used for addressing urban fire risk. However, with the recent swath of major coastal storms throughout the nation, floodplain buyout programs are becoming commonplace.[510] These programs provide insight on issues to consider in designing a buyout program. After a hurricane decimated Princeville, North Carolina, residents were offered the opportunity for a buyout from FEMA that would deed their properties to the city "with the agreement that no new structures would be built on the flood-prone terrain."[511] While the buyout itself was funded by FEMA-funds, the city still faced financial issues with this option because of the large tax loss from the transition of properties from homes to open space, which is not taxable in Princeville.[512] Accordingly, Newport must consider the financial burden of a buyout program, both the initial purchase funds and the impacts on tax revenues. If the City determines that the cost is both something that the City can absorb and worth the associated value of fire risk reduction, then a buyout program could be an option to meet the City's fire safety goals.

While voluntary buyout programs are more politically palatable than utilizing the City's eminent domain power to acquire property, buyouts also rely on the willingness of homeowners to sell. Even if some owners are willing, the City will have less control over whether properties in key locations will have willing owners. Utilizing eminent domain, the City could purchase properties strategically selected to reduce fire spread.

6.3.3.2 Eminent Domain

Eminent domain "refers to the right of the sovereign, or of those to whom the power has been delegated, to condemn private property for public use, and to appropriate the ownership and

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[508] *Id.*

[509] As noted above, the City may also consider creating an index of coastal hazard risk for historic properties. *See*, *supra* Part 3.4. If the City elects to undertake surveys and indexing to identify risks for both factors, the two efforts should be coordinated as some properties may be subject to both coastal hazards and fire hazards.

[510] *See*, *e.g.*, Andrew Schneider, *Home Buyouts, City Building Repairs Top Priorities For Pending Harvey Aid, Turner Says* (Feb. 14, 2018, 3:26 PM), https://www.houstonpublicmedia.org/articles/news/2018/02/14/267752/home-buyouts-city-building-repairs-top-priorities-for-pending-harvey-aid-turner-says/ (Houston, TX buyout after Harvey); Charlotte-Mecklenburg Storm Water Services, *Floodplain Buyout (Acquisition) Program*, CHARLOTTENC.GOV, http://charlottenc.gov/StormWater/Flooding/Pages/FloodplainBuyoutProgram.aspx (last visited Dec. 4, 2018) (Charlotte, NC proactive buyout program).

[511] Catey Traylor, *Princeville, N.C., Refuses to be Swept Away*, THE MUNICIPAL (Mar. 13, 2017), http://www.themunicipal.com/2017/03/princeville-n-c-refuses-to-be-swept-away/. Many communities have utilized similar buyout programs including Houston, Texas; Charlotte, North Carolina; and New York State. *See* Schneider, *supra* note 510; Charlotte-Mecklenburg Storm Water Services, *supra* note 510; Governor's Office of Storm Recovery, *Buyout & Acuqisition Programs*, NY.GOV, https://stormrecovery.ny.gov/housing/buyout-acquisition-programs (last visited Dec. 4, 2018).

[512] Traylor, *supra* note 511.

possession thereof for such use upon paying the owner a due compensation."[513] Under both state and federal law, eminent domain can only be utilized to take property for a public use, and the owner must receive just compensation.[514]

If the City condemns a property via eminent domain, the owner may raise a takings claim if s/he believes that the reason for the condemnation is not a public use.[515] Courts have long recognized the right of a city to condemn and destroy property in the path of an active fire in order to halt the fire's spread.[516] However, this right is not an exercise of the city's eminent domain powers but rather rooted in public necessity.[517] A case law review did not reveal any instances in which cities have faced challenges in relation to acquiring properties through eminent domain as part of a buyout program targeted to proactive fire safety. However, courts have upheld a municipality's right to take property through eminent domain for generally blighted property where fire hazard concerns were among the reasons for condemnation.[518]

Other takings cases outside the fire context give insight into the bounds of permissible use of eminent domain. In Kelo v. City of New London, the U.S. Supreme Court found that the defendant city was utilizing the petitioners' property for a public use when the property was condemned as part of an economic revitalization project.[519] The Court observed that "public use" does not necessarily imply public access; rather, the use of appropriated land should serve a broad public purpose.[520]

Accordingly, while there is insufficient case law to establish that a court would find urban fire protection to qualify as a "public use," such purpose does fit with the general themes of public protection and improvement upheld in other cases. The U.S. Supreme Court recognized in Kelo that local needs vary throughout the country, and the courts owe some deference to local legislatures' decisions on how best to manage their community for the public welfare.[521] Accordingly, the City's best defense against a takings claim associated with use of eminent domain would be detailed research and planning showing that removal of identified structures is targeted to increase public safety. However, even if the City is able to withstand challenge to acquiring property through eminent domain, such action will be costly and politically unpopular. The City must weigh all of these considerations before initiating such a program.

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[513] R.I. Econ. Dev. Corp. v. The Parking Co., 892 A.2d 87, 96 (R.I. 2006) (citing 26 AM. JUR. 2D *Eminent Domain* § 2 (2004)).
[514] *Id.* (citing U.S. CONST. amend. V; R.I. CONST. art. 1, § 16).
[515] *See* Kelo v. City of New London, 545 U.S. 469, 472 (2005).
[516] *See* Field v. City of Des Moines, 39 Iowa 575, 578 (1874); Atken v. Village of Wells River, 40 A. 829, 830 (Vt. 1898).
[517] *Atken*, 40 A. at 830.
[518] *See*, *e.g.*, Grubstein v. Urban Renewal Agency of City of Tampa, 115 So.2d 745, 747 (Fla. 1959); Grunwald v. Cmty. Dev. Auth. of City of West Allis, 551 N.W.2d 36, 42-43 (Wis. Ct. App. 1996).
[519] *Kelo*, 545 U.S. at 472, 484.
[520] *Id.* at 479-480.
[521] *Id.* at 482-83.

6.3.4 Public Education and Outreach

One of the Primary Actions identified in the City's Hazard Mitigation Plan is to increase public education and dissemination of information on fire safety.[522] Public engagement is encouraged by the NFPA, which specifically endorses a concept of Community Risk Reduction (CRR) through providing the community with resources on fire safety.[523] Some case studies examined by the NFPA included home fire inspections offered by the local fire departments or trained volunteers,[524] public education, and free installation of smoke detectors.[525] These community outreach programs showed great success in raising awareness and reducing fire fatalities.[526] One lesson learned by multiple municipalities is that it is essential to consider population demographics. Communities that offered educational materials and courses in different languages or used local volunteers from different ethnic communities experienced a more receptive public audience.[527] Increased public education and outreach, alone or in conjunction with other options addressed in this report, would benefit the community's safety and cooperation.

6.3.5 Zoning Amendments

While education is an important step in fire safety, it alone is not a solution. Addressing fire risk through a buyout program can be expensive. Additionally, as noted above, voluntary buyout programs do not allow for a planned method to address fire risk because the City must rely on property owner's willingness to participate. Instead, amending the Newport zoning ordinance could provide for an inexpensive method for the City to address urban density and fire risk through a designed system.

The primary method available to address urban fire risk through the zoning ordinance would be reducing density allowances.[528] Actual lot size allowances could be amended. However, increasing minimum lot size would merely allow for construction of larger houses just as close together. As the heart of the density issue is proximity of buildings, another choice would be to increase set back requirements, which would increase the minimum distance between structures on adjacent lots.

Setbacks could be amended for established districts. As discussed above, in residential districts, fire presents a heightened risk to life because people are more likely to be asleep and unaware of a risk early enough to evacuate.[529] Therefore, residential districts may be a good target for

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[522] NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 5.

[523] THE NFPA URBAN FIRE AND LIFE SAFETY TASK FORCE, COMMUNITY RISK REDUCTION: DOING MORE WITH MORE 1 (2016), *available at* https://www.nfpa.org/-/media/Files/Public-Education/By-topic/Urban/Urban-Task-Force/UrbanPaper2016.ashx?la=en. CRR is a multi-faceted, cooperative approach that includes public outreach and education, engagement with the state legislature for laws that reduce fire risks, and coordinating with other state and local agencies to ensure smooth coordination during an emergency. *Id.*

[524] *Id.* at 4. Use of trained volunteers can prove particularly helpful in culturally diverse communities as volunteers can come from each community and even offer inspections in languages not available from the local fire department. *Id.*

[525] *Id.* at 6-7.

[526] *Id.* In Tennessee, offering home inspections, smoke detectors, and other assistance resulted in a 25 percent reduction in calls for structural fires and an 83 percent reduction in fire fatalities. *Id.* at 7.

[527] *Id.* at 4, 11.

[528] *See* NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, § 3.2.2.4 (identifying high densities as a fire risk).

[529] *See* STATE OF WASHINGTON, *supra* note 427, at tab 5.14, p. 4.

increased setback requirements, particularly in the high-density districts. Also discussed above, Newport has established fire limits.[530] As the City has already established these areas as subject to heightened fire risks, a zoning overlay covering these fire limits could provide for increased setbacks.[531] In selecting the best area(s) to address and establishing proper distance for setbacks, the City would benefit from consultation with the chief of the fire division as well as city planners and attorneys.

However, there are also disadvantages to utilizing zoning changes to address fire risk. The changes will be prospective and will not impact existing structures unless the property loses its permissible non-conforming use protection through alteration or abandonment.[532] Additionally, zoning can be politically unpopular.

Residents could also challenge the zoning amendment. Reasonable municipal regulation designed to protect the public health, safety, and welfare is generally acceptable, but "if regulation goes too far," a court may find that the municipality has taken the owner's property without just compensation.[533] If the setback requirement were set so high that a lot became unbuildable, the City would be at risk of a takings claim for denying the property owner of all economically viable use of his/her property.[534] If instead, the setback merely reduced the development options or the potential building size, then a court would analyze a takings claim under an *ad hoc* analysis balancing (1) "the character of the governmental action," (2) "[t]he economic impact" on the property owner, and (3) "the extent to which the regulation has interfered with distinct investment-backed expectations."[535] Accordingly, before enacting any zoning amendments, the City should follow its standard zoning amendment procedures and consult with city attorneys, the chief of the fire division, and other subject-matter experts to reduce the risk of exposure to legal challenge.

6.4 Conclusion on Fire Risk Options

As Newport evaluates which approach to select, it must carefully balance several factors: (1) ensuring the safety and welfare of the population; (2) maintaining the City's historic features to continue to attract tourism; (3) protecting the property tax base as it is a large revenue source for the City; and (4) protecting emergency response and other critical infrastructure so that services remain available to the public without interruption.[536]

7. Conclusion

This report has examined several topics where inconsistency exists between the City of Newport's existing zoning regulations and its CP: (1) renewable energy development, (2) historic district

[530] *See* NEWPORT, R.I., CODIFIED ORDINANCES §§ 15.08.030, 15.08.040.
[531] *See id.* §§ 15.08.030, 15.08.040.
[532] *Id.* §§ 17.72.020, 17.72.030.
[533] Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).
[534] *See* Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1015 (1992) (citing Agins v. City of Tiburon, 447 U.S. 255, 260 (1980)).
[535] *See* Penn Central Transportation Co. v. City of New York, 438 U.S. 104, 124 (1978).
[536] *See* COMPREHENSIVE PLAN, *supra* note 1, at 10-1; NEWPORT HAZARD MITIGATION PLAN, *supra* note 34, §§ 3.3.1.2, 3.3.1.3, 4. Critical infrastructure within the urban fire zone includes Fire Station 1, City Hall, and the City's Police Station. NEWPORT HAZARD MITIGATION PLAN, *supra* § 3.3.1.3.

zoning, (3) cluster subdivisions, (4) nonconforming development, and (5) urban fire threat. As noted throughout this report, these topics are affected by state law, state policy, and the need to protect Newport's population, visitors, and natural environment. In light of the diverse mandates and considerations that affect local decision-making on these topics, the City should consult with engineers, planners, attorneys, environmental scientists, and other relevant experts when evaluating its options and deciding on the best course of action.

Appendix A – Solar Energy Siting Advisory Working Group's Renewable Energy Siting Principles[537]

1. Accelerate the pace toward achieving Rhode Island's renewable energy and greenhouse gas reduction goals through thoughtful and strategic development of renewable energy projects of all sizes.
2. Build support for achieving Rhode Island's renewable energy and greenhouse gas reduction goals by increasing public understanding of the multiple benefits of renewable energy including to the economy, the environment, to promote equity and to cultivate climate resiliency.
3. Provide predictability, consistency and fairness in state and local rules, regulations, zoning and ordinances to support development of renewable energy projects.
4. Promote proactive, comprehensive utility distribution system planning.
5. Ensure that regulations governing renewables are applied in a fair and balanced manner with those governing other land uses, while recognizing that local zoning is the authority of communities to establish public health and safety standards.
6. Honor commitments to keep permanently protected land free from development.
7. Encourage renewable energy development on commercial and industrial zoned land, on already developed land, and in other locations with environmental alterations such as closed landfills, brownfields, parking lots, commercial and residential rooftops, sand and gravel pits.
8. Support the economic viability of farms through appropriate renewable energy development as a complementary use in a manner which keeps farms in agricultural production while preserving agricultural soils.
9. Promote policies that recognize ecological services and sensitivity as well as habitat connectivity in the siting of renewable energy projects.
10. Respect landowner rights to realize value from their property within the context of established planning and zoning principles.
11. Ensure equitable access to renewable energy installations for all consumers, and recognize that delaying the transition to renewable energy disproportionately burdens environmental justice communities.
12. Provide local governments with guidance on smart renewable energy siting and to ensure consistency between the state guide plan and local ordinances and policies. Establish a timeline for all municipalities to adopt renewable energy siting ordinances and associated processes.
13. Provide opportunities for state and municipal governments to lead by example and use renewables to exercise more control over their energy use and production in meeting their energy needs.

[537] SOLAR GUIDANCE, *supra* note 8, at 9-10.

Appendix B – Municipal Wind Energy Development Proposal Checklist[538]

The following checklist is meant to serve as a reference for municipalities as they draft their project proposal guidelines and zoning ordinances. The list is in no particular order.

All wind turbine proposals and/or ordinances should address the following topics:

1. Check if the development will meet safety, community, and environmental standards—setbacks, noise, shadow flicker, visual impacts, signal interference, and environmental impacts
2. Noise analysis(es)
3. Shadow flicker analysis
4. Visual impact study and photographic renderings
5. Copy of communication tower notification
6. Environmental literature review, results of site characterization visit(s), and comments from RI DEM, U.S. FWS and/or other environmental groups
7. Results of further environmental studies (if required)
8. Decommissioning plan, including funding considerations
9. Turbine visual appearance—such as advertising, color, lighting, and appropriate safety signage
10. Construction issues—such as erosion, water quality, noise, habitat loss and/or fragmentation, and component transportation. All applicable permits should be sought by the developer
11. Turbine certifications
12. Mitigation strategies applicable for potential project impacts
13. Compliance/enforcement protocols
14. Safety protocols—who operates the machine(s), how are different weather scenarios handled, are fire safety protocols in place?
15. Turbine specifications
16. Application fees
17. Grid interconnection documentation
18. Complaints—collection, disclosure and investigation procedures
19. Public hearings, public notices, and/or notifying neighbors
20. Professional Engineer (P.E.) certified foundation
21. Applicable local and state building codes
22. Compliance with the Federal Aviation Administration (FAA). See Code of Federal Regulations here: http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=61302bd90d79271a583474ad2f9dcd7e&rgn=div5&view=text&node=14:2.0.1.2.9&idno=14#14:2.0.1.2.9.2.1.3. Or use their Notice Criteria Tool here: https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm
23. Compliance with the Department of Defense (DOD). Since radar systems can be affected by wind turbines as return signals may give the appearance of a moving aircraft on a 2-dimensional radar screen. The DOD has a preliminary "wind siting tool" that helps identify potential areas of interference:https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showLongRangeRadarToolForm
24. Bonding for owner/operator default or bankruptcy situations
25. Liability insurance

[538] WIND SITING GUIDELINES, *supra* note 11, at 32-33.

26. Signed acknowledgements from land owner(s) of the property to be developed if impacts greater than the standards set by the municipality are likely to occur
27. A description of tangible project benefits to the municipality

Appendix C- Model Solar Ordinance[539]

Solar Energy Systems (SES) Ordinance Template

(The use of italics in text boxes indicate commentary and guidance. The commentary is not intended to be included in ordinances)

Zoning is authorized in Rhode Island by Rhode Island General Law § 45-24. Town/City Councils are given authority by the Law to adopt zoning and it is required to be consistent with the comprehensive community plan. Zoning is typically written by the Planning Board/Commission (without or without technical assistance) and recommended to the Council for adoption. The Council must hold a public hearing before it can adopt or change a zoning ordinance. If requested by Council and/or Planning Boards/Commissions, the Office of Energy Resources and Division of Statewide Planning will provide technical assistance on updating or adopting for the first-time solar siting or taxation ordinance(s).

Communities should address solar energy systems as a land use within their zoning ordinance. Solar installations are a form of development and zoning ordinances need to incorporate the variety of development forms that solar installations can take. Solar development regulation can help educate staff and community, as well as alleviate potential conflicts or confusion. ***Rhode Island State Law leaves solar development regulation to local governments; the State does not pre-empt or guide solar development except for enabling local governments to regulate through development regulations****. Various development review concerns are discussed herein with recommendations such as; defining solar energy related terms, determining what types of systems are appropriate for their community, stating where solar energy systems will be allowed as primary or accessory use in each zoning district, and setting development standards such as buffers, height, lot coverage, storm water control, and others. The standards should relate to the context of siting solar energy systems in relation to existing residential, farms, commercial, industrial, nonresidential, new development, infill development, or redevelopment when establishing such standards.*

Municipalities may decide which standards of review are desirable based upon their staff capabilities, land use, natural and built resources. Urban communities where the primary form of solar develop is likely to be accessory uses on rooftops may have significantly different ordinances than rural communities, where solar development is more likely to be accessory installations and or large ground mounted solar installations as a principal use. The suggestions contained in this template are for informational purposes only and are not intended to constitute any legal advice. ***Municipalities should always consult with their legal staff/solicitor before enacting or amending any ordinances.*** *Nothing in this guidance is construed to supersede or diminish any regulatory or planning authority granted or delegated to a municipality by state or federal statute.*

The purpose of this guidance to promote the creation of roof- and ground-mounted solar installations by meeting the need for standards for the placement, design, construction, operation, monitoring, modification and removal of such installations that address public safety, minimize impacts on abutting properties, scenic, natural and historic resources, and are compatible with the general neighborhood in which they are located.

[539] SOLAR SITING MODEL ORDINANCE, *supra* note 119 (emphasis in original). Note that this is a first draft. A final model ordinance, when released, will be available to view at http://www.energy.ri.gov/renewable-energy/solar/model-ordinance.php.

The zoning template is laid out as follows:

Title

1.0 Purpose and Consistency with Comprehensive Plan

2.0 Definitions

3.0 Permits Required

4.0 District Use Regulations

5.0 Site Requirements Generally

6.0 Review Requirements
6.1 Additional Development Plan Review requirements for Primary Use Solar energy Systems
6.2 Reviews for eory Solar Systems

7.0 Abandonment and Removal

8.0 Violations

Title: Solar Energy Systems (SES)

1.0 Purpose and Consistency with Comprehensive Plan

This is a required provision of an ordinance per § 45-24-32 (the Zoning Enbling Act). It is the citation of the basic police power of the community to adopt zoning. This is where the intent and the "why" (protecting public, health, welfare, etc.) the municipality is adopting the ordinance should be described. Simply put, this section describes the reasons for putting this section into the ordinance.

The Law empowers each town and city to establish and enforce standards and procedures for the management and protection of land, air, and water as natural resources, and to employ contemporary concepts, methods, and criteria in regulating the type, intensity, and arrangement of land uses, and provides authority to employ new concepts as they may become available and feasible. Solar energy systems are an example of a new land use which towns and cities may choose to regulate.

The Town/City Council finds that it is in the public interest to provide for and encourage solar energy systems to preserve the health, safety, and welfare of the community by promoting the safe, effective and efficient use of active solar energy systems to reduce the on-site consumption of fossil fuels reducing carbon and other greenhouse gas emissions or utility-supplied electric energy. The Town/City of_ has adopted this ordinance to achieve the following goals:

a. To preserve the health, safety, and welfare of the Town's/City's citizens by promoting the safe, effective, and efficient use of active solar energy systems installed to reduce the consumption of fossil fuels and mitigate climate change.
b. To encourage the use of local renewable energy resources, including appropriate applications for solar.
c. To assist homeowners, local businesses, commercial/industrial uses, and farms to lower financial and regulatory risks and improve their economic and environmental sustainability.
d. To efficiently invest in and manage public infrastructure systems to support development and growth.
e. To reduce our dependence on nonrenewable energy resources and decrease the air and water pollution that results from the use of conventional energy sources.
f. To upgrade and enhance the reliability and power quality of the power grid.
g. To encourage local economic development, diversify the Town's/City's energy supply portfolio, and limit exposure to fiscal risks associated with imported fossil fuels.
h. To offer additional energy choice to local consumers and improve competition in the electricity supply market.
i. To provide for orderly growth and development that recognizes the goals and patterns of land use contained in the comprehensive plan of the Town/City of_____.

2.0 Definitions

Definitions are another required provision of zoning ordinances. This is the section where terms that will appear in the ordinance are explained. This part or the ordinance should include specific definitions that have meanings only for this use (solar energy systems). Any specific or technical terms related to the review of solar energy systems should be explained here.

This can be a standalone section or incorporated into the overall general definition section of the zoning ordinance. Many people prefer to keep it within the section on solar energy systems so all information related to the topic is found in one place. This is the most user-friendly way. It is not necessary to repeat any terms already contained in the general definition section of the Zoning Ordinance.

a. Abandonment - when the solar energy system either reaches the end of its useful life, or is disconnected.
b. Accessory Solar System – accessory to the primary land use, designed to supply energy for the primary use.
c. Array – Consist of the entire group or section of PV Panels.
d. Cleared Area – The area that includes the fenced in area but also outside the fenced area in which trees have been removed as not to shade the array.
e. Decommissioning / Restoration Plan – A plan for site restoration and a financial guarantee for the dismantling of a solar system after the system is no longer operational.
f. DEM – Rhode Island Department of Environmental Management.
g. Emergency Access Road – A separate entrance road for emergency personnel to have access to the solar system site.
h. Interconnection Feasibility Study – A utilities study indicating the options and associated costs for interconnection of a renewable energy system to the utilities electric distribution system.
i. Fenced Area – The perimeter of the safety fence that surrounds the solar system and associated infrastructure.
j. Interconnection – The point (Point of Interconnection "POI") at which the solar system is connected to the electric distribution system. The interconnection of the system by the utility will generally be located at the street outside of the fenced area.
k. Inverter – An equipment device that converts Direct Current into Alternating Current from the production of the solar system.
l. Kilowatts "kW" - 1000 watts (Used mainly in reference to small and commercial scale solar systems.)
m. Megawatts "MW" - One million watts (Used mainly in reference to large commercial solar systems.)
n. Micro-inverter – inverter that is attached to the back of each solar panel (typically used in residential and commercial projects)
o. Panel Coverage - Panel Size X # of Panels (this excluded the inter-row spacing which can be 12 – 17 feet form the back of one row to the front of next row).
p. Photovoltaic ("PV") Panels aka Solar Panel / aka Solar Modules - absorb sunlight as a source of energy to generate electricity. Panels are comprised of solar cells, normally 60 cells or 72 cells per panel.
q. Racking (also known as mounting equipment) – The infrastructure equipment used to secure solar panels to various surfaces such as roofs, building façades, or the ground.

r. Solar Clearing Area - Total area where the location and height of vegetation or structures must be managed to allow for unobstructed access to direct sunlight
s. Solar Energy – Radiant energy received from the sun that can be collected in the form of heat or light by a solar panel.
t. Solar Energy System (SES) - A series of devices to provide for the collection, conversion, storage and distribution of energy derived from solar radiation for space heating or cooling, electricity generation, or water heating. Solar energy systems are further defined:

Solar Energy Systems as Principal or Accessory Uses: *Section § 45-24-31, Definitions, sets forth standardized definitions that communities must use in their ordinances. Two of these terms are principal use and accessory use. Zoning ordinances allow that landowners may use their land for a principal permitted use and for other activities (accessory) that are related to the principal use. Accessory uses are uses of land that are found on the same parcel as the principal use but are subordinate and incidental to the principal use.*

Accessory uses cannot exist without a principal use. This template provides for allowing some solar energy installation as an accessory use to the primary residential or nonresidential use. Accessory solar systems can be installed as roof or ground amounted systems, much like heating and cooling units already are for buildings. Solar energy systems can also be the primary use of a lot where large arrays of panels are the only use of the property. As a primary land use there are substantially different issues that need to be addressed in a different manner than accessory uses.

1. Solar System - Accessory Use– A solar energy system for electricity generation or transfer of stored heat, secondary to the use of the premises for other lawful purposes. An accessory solar energy system cannot exist without a primary use on the same lot.

2. Solar System - Primary Use - A solar energy system that is the primary use of a lot or lots for commercial generation of power that is subject to review and the unique requirements contained in this Zoning Ordinance.

The Ordinance should distinguish whether a solar energy system will be an accessory use to an existing use or the primary use of a proposed site, not the system size. ***Eligible solar system sizes and power production are regulated by the by National Grid, Pascoag Utility, Block Island Power and the Public Utilities Commission.***

3.0 Permits Required

This is where the general requirement for permits and review of solar energy systems as a land use should be established. The purpose of a zoning ordinance is to regulate the nature and extent of the use of land for residential, commercial, industrial, institutional, recreational, agricultural, open space, or other uses including solar energy systems, or combination of uses, as determined by the Town's/City's comprehensive community plan.

It is also the way municipalities are authorized to permit, prohibit, limit, and restrict buildings, structures, land uses, and other development by performance standards, or other requirements, related to air and water and groundwater quality, noise and glare, energy consumption, soil erosion and sedimentation.

All solar energy systems shall require review, and construction, installation and demolition approvals from the Town/City Planning Board/Commission, Building Official, Public Works, Police, and Fire Departments as outlined in this Ordinance. Solar energy systems must be consistent with all applicable State and Federal fire and electrical safety codes and shall obtain a statewide solar permit from the Building Official.

The municipality should insert the appropriate review authorities to be consulted based upon; the various staff and board/commissions they have, the distinction between primary or accessory use for the systems, and set forth the types of review deemed necessary for each. Be careful to avoid including non-zoning related concerns in the ordinance that are covered by other State laws. R.I. Gen. Law §23-27.3-100.1.7, *Effect of Local Codes – Repeal of Local Authority, states that municipalities are not allowed to adopt building code standards that exceed statewide building code standards that are not recognized by the RI Building Code Commission (BCC). The BCC sent a letter to all municipal building/electric officials in 2018 on this matter relative to local solar siting ordinances.*

On January 1, 2018, a single ***Statewide Solar Building and Electric Permit Application*** *for all scales of solar projects that are submitted to a municipality was adopted. All Municipal Building Offices are required to use this state application form and can no longer use their local building/electric permit application for solar projects.*

Also in February 2018, the ***RI Fire Safety Code Board of Appeal and Review*** *unanimously adopted a* ***blanket statewide variance*** *for all proposed ground mounted solar projects to have the ability to provide a Vegetative Management Plan and Fire Permit Variance to local fire marshals for review and approval. The Board staff notified local fire marshals of this variance process.*

4.0 District Use Regulations

Another general provision from §45-24-36, Division into Districts, *is that a zoning ordinance divides a community into use districts, which may include overlay/floating zone districts, the number, kind, type, shape, and area suitable to carry out the purposes of the comprehensive plan. Regulations and standards shall be consistent for each land use, type of development, or type of building or structure within a district, but may differ district by district. Zoning use districts are depicted by type and location on the zoning map.*

Municipalities should review each of their districts (including special districts such as historic, aquifer, and or other overlay districts) and determine whether solar energy systems will be permitted or prohibited within each district. Once the decision of permitted or not is made by district, then communities should determine the best review process based upon where various system types will be allowed. The regulatory options for solar systems through zoning in Rhode Island are:

> Not a permitted use.

> Allowed as a permitted use- no additional review beyond Building/Zoning Officials.

> Allowed by a Special Use Permit in all or certain districts with siting standards to be met.

> Allowed in all or some districts but Development Plan Review is required.

> Allowed in all or some districts but Major Land Development Review is required.

> *Allowed within an Overlay District with siting standards to be met:*

- An Overlay can be floating or mapped to limit overlay to certain districts.

- Review can be either Special Use Permit, Development Plan Review, and Major Land Development.

A zoning ordinance usually contains a table describing which uses are allowed within the different zoning districts of the community, and what permits / review process will be required for the uses. An illustrative use table is shown below. Municipalities should insert a similar type table reflecting their own zoning districts. Consider allowing opportunities for varying sizes of solar systems somewhere in the community. The table illustrates how different sizes of solar energy systems can be addressed in differing zoning districts. It is for illustrative purposes only.

The Table is a recommendation to consider, not a directive to permit or prohibit, solar systems in any kind of district. *That is the responsibility and authority of local officials in municipalities. Nothing in this guidance is construed to supersede or diminish any regulatory or planning authority granted or delegated to a municipality by state or federal statute.*

PRELIMINARY SOLAR SITING DISTRICT USE TABLE RECOMMENDATIONS

	Zoning Districts*				
	Residential (R-5,000 to R-5 acres)**	Commercial (General, Neighborhood, Highway)	Industrial (Heavy, Light,)	Protected Lands/ Conservation Open Space	Comments***
Type of Solar Energy Systems					
Accessory - Solar Systems • Roof Mounted	P	P	P	P	See also Historic X, Chapter XX
• 20% or Less of Total Farm Acreage on farms recognized by DEM	D-PB	D-S	D-S	N	See also Development Plan Review, Chapter XX****
• Parking Lot Solar Canopies	D-PB	PD-S	PD-S	N	See also Development Plan Review, Chapter XX
Primary Use – Solar Systems***** • Commercial and large ground mounted	D-PB	D-PB	D-PB	N	See also Development Plan Review, Chapter XX
• 21% or more of Total Farm Acreage on farms	D-PB	D-PB	D-PB	N	See also Development Plan Review, Chapter XX

N = Not Permitted

P = Permitted, once the necessary solar permit is issued.

D = Development Plan Review: D-S= by Staff **or** D-PB = by Planning Board

***** *For Illustrative purposes only. Actual districts may differ in number by community. The existing use table should be tailored to address solar systems within each of the zoning districts in a community.*

****** *Minimum lot sizes vary in residential districts. Some urban areas may have lot sizes which are too small for large, ground mounted systems and communities may want to prohibit large solar energy systems in these districts. Some preexisting uses in residential zones with difficult redevelopment potential maybe be appropriate for solar energy systems such as landfills, brownfields, scrap yards, and or gravel banks need special consideration within a zoning use table.*

******* *Historic and or other regulations may apply. This is the column to cross reference where other portions of the Ordinance that may be relevant.*

******** *Development Plan Review (DPR) - The purpose of development plan review is to assure that the best design and planning practices and best available technology are used by applicants to avoid or minimize impacts of development on the natural and manmade environment by applicants. In addition, it ensures that an application for a proposed use demonstrates consistency with the local comprehensive community plan and design standards of the Subdivision and Land Development Regulations of the community.* Communities are authorized to set specific and objective guidelines, standards and minimum requirements for DPR by Rhode Island General Law § 45-24-49. *DPR is recommended and the scale of the review is dependent on the size and location of the project. DPR means essentially the use is a permitted use but subject to siting standards for the location, setbacks, buffers, landscaping, signage, safety, and all environmental impacts must be met for approval. If the standards are not met, applications can be denied approval. It is important to define a review threshold criterion in the DPR Section to determine which applications would be eligible for staff review and which will be reviewed by the Planning Board. Many ordinances do this by the lot size of the proposed project. Some communities may not choose this option for local reasons and have all applications be reviewed by the Planning Board.*

> *For example, less than 1 acre = reviewed by staff, greater than I acres = reviewed by the Planning Board. This threshold should be determined by each community for what is appropriate to their staff expertise and administrative resources. Ensure that there is a provision which would allow Staff to refer any proposal to the Planning Board for review if needed. Make sure the DPR review by the Planning Board contains a notice process for abutters for at least an informational meeting, if not a formal public hearing. Consider conducting an informational public hearing at minimum where large scale commercial systems are proposed in residential zones. Each community will need to decide what is an appropriate notice area to use.*

NOTES:

1. *Consider staff DPR approval for solar energy systems as primary uses on sites with difficult redevelopment potential within all zoning districts. Examples of such sites could be superfund sites, inactive or active gravel pits, brownfields, closed landfills, closed or active metal scrap yards and disturbed and undisturbed commercial and industry activity parcels regardless of their zoning district. These types of sites will vary by community. Staff review can address any siting concerns but allow approval in a more succinct fashion than review by the Planning Board.*

2. *Regarding the 20% or less on recognized farms – An adopted principle of the advisory working group was that communities should support the economic viability of farms through appropriate renewable energy development as a complementary use in a manner which keeps farms in agricultural production while preserving agricultural soils. This percentage should be examined by each municipality, depending on the size and number of farms within a municipality. For example - If a town has a majority of farms that are 50+ acres, then the percentage may want to be reduced to 5- 10% compared to towns where their farms are not greater than 5-10 acres.*

5.0 Siting Requirements Generally

This is where the general standards for reviews should be stated. The principles to be applied to every solar energy system application should be outlined here. Farther on within this guidance, there are distinctions made for whether the solar energy system will be a primary use or accessory use and tiered submission and review requirements to be applied based on that distinction. These principles should be used by local officials to determine if applications meet the intent of the principals to make a basis for findings of fact needed for approval. It is way for a community to state what is valuable and important to them. In setting the principles, develop the general principles which would apply to all solar energy systems first, then, add additional requirements for specific types of systems, i.e. accessory use verse primary use.

Most of the requirements below have evolved out of the Rhode Island Principles for Renewable Energy Siting Principles developed with assistance from an advisory stakeholder working group assembled by the OER and DOP. Others were added from research on the existing ordinances adopted in RI. The inventory of existing ordinances can be found in Appendix A. The inclusion or exclusion of one, all, and or any of the standards below by a community within an ordinance is a ***local*** *land use decision which should developed after careful study, discussion and deliberation for appropriateness at public meetings. The list is illustrative and should be tailored to the needs of each community.*

a. Solar energy systems shall be manufactured and designed to comply with applicable industry standards, including the American National Standards Institute (ANSI), Underwriters Laboratories (UL), the American Society for Testing and Materials (ASTM), and other appropriate certifying organizations.

b. Solar energy systems shall be constructed, installed, operated, and located to minimize potentially adverse impacts on nearby properties, natural resources, and or individuals.

c. Natural vegetation or additional landscape screening shall be provided to mitigate impacts to views and buffers. Pollinator-friendly seed mixtures shall be used along with native sustainable plants to the maximum extent possible.

d. Solar energy systems shall be constructed to minimize the use of herbicides.

e. Solar energy systems shall be constructed to be safe and secure. Where fencing is used, consideration for small and large terrestrial wildlife shall be incorporated into the fencing design. Where projects abut permanently protected conservation lands, fencing may be waived by the Planning Board and alternative landscaping used to secure the perimeter of the system.

Fence construction is a standard item that most Zoning Ordinances in RI regulate in some way. Check to see what fencing requirements already exist in the ordinance first. Fence construction requirements depend on the location of the property, proposed use, location of the fence, height and construction materials.

Fencing requirements for solar energy systems may be clarified in future versions of the National Electric Code and the RI State Fire Code. Consult with the Building Inspector and Fire departments when adding special fencing requirements for solar energy systems. Other site related fencing concerns are locally related to the site of the proposed system such as where should the security fencing be on the parcel; at the perimeter or the edge of the solar arrays?

f. For installations of farms, the entire site should be presented as a whole with areas designated within the total acreage for farming use, buffers, and solar energy systems.

g. No topsoil or prime agricultural soil shall be removed from the site for installation of the facility.

h. Solar energy systems connected directly to a distribution or a transmission system must submit an approved interconnection agreement with the interconnecting electric utility.

i. All solar energy systems are subject to the town/ city soil erosion and sediment control provision of this Ordinance as well as the storm water control provisions of the Subdivision and Land Development Regulations.

j. Power and communication lines running between banks of solar panels and to nearby electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by the Planning Board in instances where written documentation for shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines.

k. Exterior lighting within the solar energy system shall be the minimum necessary. All fixtures shall be full-cut off fixtures approved by the International Dark Sky Association.

l. A solar energy system shall not be located on any lot or portion of a lot that is protected from development by a conservation easement, preservation easement, and or deed restriction.

m. The front, side and rear yards shall be at least fifty (50) feet or the minimum front, side and rear yards required in the zoning district, whichever is greater, measured from the property line to the perimeter of the solar energy system. Clearing of any vegetation within the front, rear and sideboard setbacks is prohibited, unless specifically approved by the Planning Board to prevent shading of the panels

n. A vegetative buffer at least twenty-five (25) feet wide shall be maintained between the security fence and the boundaries of the lot. The Planning Board shall have the authority to require a wider vegetative buffer.

o. Nothing herein shall preclude the town / city of XX from installing ground-mounted or other solar energy system on any town-owned or controlled property regardless of the zoning district

6.0 Review Requirements

For all solar systems, the following requirements supplement the individual application requirements for Development Plan Review applications contained in other sections of this Ordinance and or the Town/City Subdivision and Land Development Regulations.

This is where the development criteria for approval of all solar energy systems should be spelled out. Applicants should be able to use this section a checklist to prepare the required information they need to submit to obtain the necessary review and approval. Solar energy systems are not one size fits all. Based on the various types of systems defined, the municipality should consider differing review requirements and standards to address the anticipated level of impact from the various systems. These requirements would be unique to solar energy systems in addition to the normal standards and requirements for applications for Development Plan Review.

The DPR process in most communities already has detailed application submission and public notice requirements and should cover the range of general siting conditions solar energy systems should address. Most communities already have detailed application DPR checklists, so therefore, there really is not a need to repeat the same requirements in this portion of the ordinance. It is recommended if an existing DPR process does not have a notice provision for an informational hearing for items reviewed by the Planning Board, that a such a procedure be added to the existing process.

6.1 Additional Development Plan Review Requirements for Primary Use Solar Energy Systems

The applicant shall provide the following documents, which are generally those of the Development Plan Review checklist, provided however, that the Planning Board may, at its discretion, waive any document requirement as it deems appropriate upon written request(s) of the applicant.

a. Narrative Report - The applicant shall provide a summary narrative report containing:

1. Name, address and contact information for proposed system installer, system operator, landowner, applicant, designated agents representing the project.
2. A project construction schedule.
3. An operation and maintenance plan.
4. A rendering or photo simulation showing the proposed completed project with landscaping.
5. Evidence of compliance with any applicable state environmental regulations and state permits.
6. An emergency response plan for public safety officials.
7. A decommission Plan and proposed financial security and how calculated.
8. A seeding / vegetation plan and maintenance schedule.
9. Evidence of preliminary interconnection study application with utility.
10. An estimation of annual taxation revenue.

b. Development Plans - All plans related to design, construction, installation or modification of a solar energy system shall be prepared, signed and stamped by either a Rhode Island professional engineer, a Rhode Island registered land surveyor (for property line information), and or a Rhode Island registered landscape architect (for landscape information). Site plans shall show the following information:

1. Class I survey site plan showing:
    I. Property lines and all physical features for the project site.
    II. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, access points, emergency access provisions, fencing, and screening vegetation or structures.

2. Blueprints or drawings of the entire solar energy system showing the proposed layout of the system and any potential shading from nearby structures or vegetation.

3. One- or three-line electrical diagrams detailing the solar energy system, associated components and electrical interconnection methods, with all current state electrical code compliant disconnects and over current devices.

4. Documentation of the major system components to be used, including the photovoltaic panels, mounting system and inverter.

6.2 Reviews for Accessory Solar Energy Systems

This section should be used to define how smaller sized systems can be permitted without exhaustive reviews. It makes sense to consider such systems as necessary mechanical equipment for the principal use such as heating or cooling systems. The size of the principle use(s) will generally dictate the size of the accessory solar system in most cases.

With two exceptions, this section requires no more information to be submitted than any other type of permit approved and issued by the local building/plumbing/electrical inspectors. The exceptions are accessory solar systems on recognized farms and parking lot solar canopies as they may involve more land area and raise other environmental impacts.

Solar energy systems are allowed as an accessory use in all zoning districts where structures of any sort are allowed, subject to requirements of this Section. Systems shall be located on the same lot as the principal use being served. Where there is no principal building, accessory solar systems are not allowed.

a. Building- or roof-mounted solar energy systems - For height measurement, accessory solar energy systems shall be given an equivalent exception to height standards as building mounted mechanical devices or equipment.

b. Ground Mounted Accessory Solar Energy Systems shall not exceed the height of the principal structure or twenty feet.

c. All accessory structure setbacks for the zoning district where system is located must be met. Ground mounted solar energy systems may not extend into any required yard setbacks when oriented at minimum design tilt. Setbacks shall be measured as the distance from the outer edge of the system to the adjacent property line.

d. No portion of any Accessory solar energy system shall extend into any easement, right of way or public way.

e. All exterior electrical and plumbing lines shall be buried below ground and placed in suitable conduits.

f. Compliance with State Building Codes - All accessory solar energy systems shall comply with State Building, Electrical, and Plumbing Codes and shall be required to submit the statewide solar permit application to municipal building and electric office for review and approval.

g. Accessory Solar Systems on Farms – Any proposed solar system that is 20% or less of the total acreage is permitted but shall be subject to Development Plan review by staff.

7.0 Abandonment and Removal

Any solar energy system which has reached the end of its useful life shall be removed within 180 days from the date of discontinued operations and the owner shall send notice to the town/ city zoning enforcement official by certified mail, of the proposed date that the site will be remediated. A decommissioning plan shall be required to ensure that facilities are properly removed after their useful life. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation, and a financial security ensuring financial resources will be available to fully decommission the site. Decommissioning shall consist of:

a. Physical removal of all solar energy system structures, equipment, security barriers and transmission lines from the site. The utility company the system is interconnected to must be contacted within 90 days of system de-energization to remove the transmission lines from the site.

b. Disposal of all solid and hazardous waste in accordance with all federal, state and local laws, regulations and ordinances.

c. Disposal of all components, wiring, and/or foundations in accordance with the provisions of the town/city solid waste ordinance.

d. Stabilization or revegetation of the site as necessary to minimize erosion and in compliance with all state and local laws, regulations and ordinances. Final site conditions shall be set by the Planning Board /Planning Staff through Development Plan Review approval and inspected by the town/ city zoning enforcement official.

e. The property owner or company running the system shall remove the system and all associated structures and components and restore the property as closely as possible to its pre-development condition within ninety (90) days of the day the system ceases operation.

f. The applicant shall submit a decommissioning plan, a detailed estimate and explanation of the cost of restoration and removal with the application for development plan review. The Administrative Officer or other designated official shall recommend to the Planning Board the amount of the financial security the applicant must provide to insure facility removal and site restoration. The Planning Board shall set the amount of the financial security.

If specialized knowledge or experience is necessary to evaluate the accuracy of the cost estimate or restoration plan, the Planning Board or Administrative Officer may refer the matter to one of the town's consulting engineers for review and comment. Ensure that the ordinance states that applicant shall be responsible for the cost of any such review as is standard with peer review for other land developments conducted by the community.

g. Before the Statewide Solar Building and Electric Permit is issued, the applicant shall submit the financial guarantee to the finance director in cash or in the form of a security instrument. The finance director shall approve the form and duration of the guarantee and notify the Building Inspector.

Consult with the finance officer/ department as to which forms are acceptable. The forms could be different in each community. Some communities accept bonds, or letters of credit or the establishment of an escrow account to ensure proper decommissioning. The entire cost should be calculated as if the community must remove the inactive system not the property owner or company running the power system. Additionally, the cost should include not only the removals of solar panels and their mounts but all underground materials, such as transmission lines and restoration of the original soils, if on a farm. Remember to include inflation in the calculation for removal over the estimated life of the system.

h. If the owner and or operator fail to remove the solar energy system in accordance with the provisions of this Section, the town/city may enter the property and physically remove the solar energy system. The cost of such removal shall be the responsibility of the owner and operator of the solar energy system and the town/city will have all rights associated in compliance with the decommissioning agreement, including the recording of a municipal lien against the landowner in the land evidence records for all costs associated therewith.

8.0 Violations

It shall be unlawful for any person or entity to construct, install, operate, or substantially modify a SES that is not in compliance with the provisions of this ordinance or with any condition contained in a permit issued pursuant to this ordinance.

9.0 Severability

The provisions of this ordinance are severable, and the invalidity of any section, subdivision, paragraph, or other part of this ordinance shall not affect the validity or effectiveness of the remainder of the ordinance.

Note on Enforcement: *Anyone who fails to comply with an applicable provision of a zoning ordinance or an approval issued pursuant to a zoning ordinance is subject to enforcement and penalties as stipulated in that zoning ordinance. The zoning ordinance is enforced in most areas by the Building / Zoning or Code Enforcement Officials. R.I. General Law § 45-24-60 provides the procedure and penalties for addressing violations including, provisions for legal action for assistance with enforcement. Municipalities may request court actions or injunctions. In extreme cases, municipalities may pursue in court, criminal actions with fines or imprisonment as penalties.*

OER worked with the RI League of Cities and Towns, RI Tax Assessors Organization and the renewable energy community on a model renewable taxation ordinance in the Summer/Fall of 2016. It is recommended that municipalities adopt ***both*** *solar siting and renewable taxation ordinances at the same time to ensure that both Planning and Taxation Offices know what the rules are before solar applications are submitted. As of August 2018, 18 municipalities have adopted taxation ordinances.*

Appendix D- Model Taxation Ordinance[540]

OER worked with the RI League of Cities and Towns, RI Tax Assessors Organization and the renewable energy community on a model renewable taxation ordinance in the Summer/Fall of 2016. It is recommended that municipalities adopt ***both*** *solar siting and renewable taxation ordinances at the same time to ensure that both Planning and Taxation Offices know what the rules are before solar applications are submitted. As of August 2018, 18 municipalities have adopted taxation ordinances.*

MODEL ORDINANCE
NO. XX ORDINANCES OF
THE TOWN/CITY OF

TAXATION

****

Article XX

Taxation of Renewable Energy Systems

§XXXX. Findings.

Pursuant to Section 44-3-3 (a)(48)(49) of the Rhode Island General Laws, residential and manufacturing properties that install renewable energy systems are exempt from local taxation.

Pursuant to Section 44-5-3 (c)-(e) of the Rhode Island General Laws, commercial renewable energy systems shall be subject to a tangible tax payment to the municipality through rules and regulations that have been adopted by the Rhode Island Office of Energy Resources for all commercial renewable energy systems.

Pursuant to 44-3-21 of the Rhode Island General Laws, city or town councils of the various cities and towns may, by ordinance, exempt from taxation any renewable energy system located in the city or town.

§XXXX. Action.

In accordance with Section 44-5-3 (c) of the RI General Laws the city/town of XXXX hereby authorizes its assessor to levy a tax on renewable energy tangible property as defined in 39-26-5 in accordance with the rules and regulations executed by the Rhode Island Office of Energy Resources.

[540] SOLAR SITING MODEL ORDINANCE, *supra* note 119, at 19-20 (emphasis in original).

In accordance with 44-3-21 of the RI General Laws the city/town of XXXX hereby exempts from taxation commercial net-metered renewable energy systems whose sole purpose is to offset electricity bills and not to sell power back to the electric distribution system.

Property owners installing renewable energy systems shall be required to provide the interconnection application between the renewable energy developer and the electric distribution company (National Grid or Pascoag Utility) and any documentation of program enrollment (e.g., renewable energy growth or net metering enrollment forms) to the town/city indicating if the renewable energy system is net-metered or if the system is selling a portion or all of the energy produced back to National Grid under the Renewable Energy Growth Program. A copy of the final interconnection service agreement executed between the renewable energy developer and electric distribution company shall be provided to the city/town prior to construction of the renewable energy system.