Sea Level Rise and Recurrent Flooding:
A Toolbox for Local Governments in Virginia

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About the Virginia Coastal Policy Center

The Virginia Coastal Policy Center (VCPC) at the College of William & Mary Law School provides science-based legal and policy analysis of ecological issues affecting the state's coastal resources, by offering education and advice to a host of Virginia's decision-makers, from government officials and legal scholars to non-profit and business leaders.

With two nationally prominent science partners – the Virginia Institute of Marine Science and Virginia Sea Grant – VCPC works with scientists, local and state political figures, community leaders, the military, and others to integrate the latest science with legal and policy analysis to solve coastal resource management issues. VCPC activities are inherently interdisciplinary, drawing on scientific, economic, public policy, sociological, and other expertise from within the University and across the country. With access to internationally recognized scientists at VIMS, to Sea Grant's national network of legal and science scholars, and to elected and appointed officials across the nation, VCPC engages in a host of information exchanges and collaborative partnerships.

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VCPC grounds its pedagogical goals in the law school's philosophy of the citizen lawyer. VCPC students' highly diverse interactions beyond the borders of the legal community provide the framework for their efforts in solving the complex coastal resource management issues that currently face Virginia and the nation.

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SUMMARY

The Hampton Roads region is one of the most vulnerable areas to recurrent flooding on the United States' eastern coastline due to sea level rise and land subsidence.[1] With an estimated $100 billion worth of buildings, large military installations, and major ports in this area, sea level rise can have severely negative impacts on the region if it is not addressed.[2] This paper addresses what authority and tools localities have to respond to these issues.

Section I will describe the legal relationships among the state government, the local government, and the citizens, and limitations on the powers of local governments. This Section will briefly summarize the Dillon Rule and take a closer look at takings claims.

The General Assembly, however, has granted numerous authorities to local governments that can be used to address recurrent flooding. Section II of this paper will discuss those existing powers and tools available to localities. Each section contains brief examples and possible pathways for localities to harness these existing tools to adapt to sea level rise and recurrent flooding.

The value of a tool lies in its usefulness, or in this case, its use in carrying out good policy. Thus, to provide context for the policy implications of these tools, Section III examines the process and impact of three infrastructure adaptation policies used in areas outside of Virginia: elevation, relocation, and retreat.

Finally, a locality's power is not limited to action alone; local governments are uniquely positioned to lobby the Commonwealth for new powers, abilities, and statutory clarifications to address this growing challenge. Therefore, Section IV examines potential state actions that could support the ability of local governments to address the issues of sea level rise and recurrent flooding.

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[1] *See e.g.,* John D. Boon and Molly Mitchell, *Nonlinear change in sea level observed at North American tide stations*, 31 JOURNAL OF COASTAL RESEARCH 1295 (2015)*;* Tal Ezer and Larry P. Atkinson, *Sea Level Rise in Virginia–Causes, Effects and Response*, 66 VIRGINIA JOURNAL OF SCIENCE 8 (2015)*;* George Van Houtven et al., RTI Int'l, *Costs of Doing Nothing: Economic Consequences of Not Adapting to Sea Level Rise in the Hampton Roads Region*, VA. COASTAL. POLICY CTR., 1-1 (Nov. 2016), http://law.wm.edu/academics/programs/jd/electives/clinics/vacoastal/reports/Costs%20of%20Doing%20Nothing%20Cover%20and%20Final%20Report.pdf.

[2] *See* Van Houtven et al., *supra* note 1 at 1-1.

I. BACKGROUND: LIMITS ON THE AUTHORITY OF LOCAL GOVERNMENTS IN VIRGINIA

Although the substantial discussion of this paper will discuss the legal tools available to localities, the most important tool for addressing sea level rise is knowledge. As such, this section provides background information regarding the legal rules that define the relationships between different levels of government, as well as between Virginia citizens and the government.

A. The Dillon Rule

An important consideration that should be remembered when analyzing local authority is that Virginia is a Dillon Rule state. This means that Virginia follows the Dillon Rule of statutory construction, a "strict construction concerning the powers of local governing bodies."[3] In other words, localities can only act in a way that they are expressly authorized to act by the General Assembly, powers necessarily or fairly implied from the express powers, and powers that are essential and indispensable.[4] While the Dillon Rule is relatively clear for traditional local government responsibilities which are defined in statute, the Rule may hamper localities as they seek to adapt to new and unanticipated circumstances for which the Virginia statutes are silent or vague.[5] The Virginia Constitution speaks to this by addressing powers of local government; the General Assembly may, through law or act, allow a locality to exercise its powers to perform a certain function, or even transfer and/or share services or functions with a regional government.[6]

B. Takings Claims

The Takings Clause in the Fifth Amendment of the United States' Constitution states that "no person shall be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation." Takings can be physical or regulatory.[7] Sea level rise and recurrent flooding may increase the occurrence of both physical and regulatory takings. On one hand, sea level rise may make physical takings more relevant as localities respond to the physical encroachment of water on specific properties. On the other hand, localities may take a broader approach to enact regulations to address sea level rise and recurrent flooding, resulting in potential takings claims.

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[3] Tabler v. Bd. of Sup'rs of Fairfax Cty., 221 Va. 200, 202 (1980); *See*, Jennings v. Bd. of Supervisors of Northumberland Cty., 281 Va. 511, 516 (2011) ("[A] locality's zoning powers are 'fixed by statute and are limited to those conferred expressly or by necessary implication.'") (citations omitted); Logan v. City Council of the City of Roanoke, 275 Va. 483, 492 (2008); Norton v. City of Danville, 268 Va. 402, 407 (2004). Further discussion of Virginia's Dillon Rule jurisprudence is annexed hereto as Appendix A.

[4] *See*, VA. CONST. art. VII, § 3; VA. CODE Ann. § 1-248 (2005); VA. CODE ANN. § 15.2-1401 (1997).

[5] *E.g.,* Fairfax County, Va., *Dillon Rule in Virginia,* https://www.fairfaxcounty.gov/government/about/dillon-rule.htm (last visited Nov. 26, 2017) (stating the Dillon Rule can constrain "innovative government responses").

[6] *See* VA. CONST. art. VII, § 3.

[7] *See,* Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1015 (1992).

1. Federal Case Law

There are several major cases that have guided takings law in the United States and define what constitutes a physical or regulatory taking.[8] Even a minor physical intrusion can be found to be an unconstitutional taking of property.[9] Furthermore, a taking can be found even if it is temporary; in *Arkansas Game & Fish Comm'n v. United States*, the Supreme Court held that recurrent flooding caused by government action, "even if of finite duration, [is] not categorically exempt from Takings Clause liability."[10] The Court noted that various factors are considered including "time[,] . . . the degree to which the invasion is intended or is the foreseeable result of authorized government action[,] . . . the character of the land at issue[,] and the owners reasonable investment-backed expectations[, and] . . . [s]everity of the interference."[11]

In summary, a physical taking can occur when the intrusion is minor, or even when the intrusion is temporary. This is particularly relevant to the issue of sea level rise. Floods are temporary deprivations; when the waters recede, landowners still maintain their control of the flooded property. If one is lucky, a flood may also only cause minor damage. Yet, both minor and temporary intrusions are not excluded from potential takings claims when government action was a causal factor.

Analysis can become more complicated when dealing with regulatory takings. In *Pennsylvania Coal v. Mahon,* the Supreme Court held that "while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking."[12] In *Lucas v. S.C. Coastal Council*, the Supreme Court found a taking occurred when South Carolina enacted a law that in effect barred the landowner from building any habitable structures on his two beachfront lots.[13] The Supreme Court held that a taking occurs when a regulation denies the owner all economically viable use of the land.[14] However, a state may avoid compensation if it shows that the land deprivation was done to prevent a nuisance or another use forbidden by the state's existing law.[15] For situations where the regulatory action does not deny all economically viable use, the Supreme Court, in *Penn Central Transp. Co. v. New York City*, "identified several factors that have particular significance[,]" including "[t]he economic impact of the regulation on the claimant[,] . . . the extent to which the regulation has interfered with investment-backed expectations[, and] . .

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[8] *See*, *e.g.*, *Lucas,* 505 U.S. 1003; Penn Central Transp. Co. v. New York City*,* 438 U.S. 104, 130-31 (1978).
[9] The size of the intrusion necessary to cause an unconstitutional taking was addressed by *Loretto v. Teleprompter Manhattan CATV Corp.*, which involved a cable company acting pursuant to state law to install a cable on the side of an apartment building to provide television services to the tenants. The Supreme Court found that an unconstitutional taking had occurred, noting, "when the 'character of the governmental action' is a permanent physical occupation of property, [the United States Supreme Court] uniformly [has] found a taking to the extent of the occupation, without regard to whether the action achieves an important public benefit or has only minimal economic impact on the owner." (citation omitted). 458 U.S. 419, 434-35 (1982).
[10] 568 U.S. 23, 27 (2012).
[11] *Id.* at 39 (internal quotation marks and citations omitted).
[12] 260 U.S. 393, 415 (1922).
[13] *See Lucas*, 505 U.S. at 1019-20.
[14] *Id.*
[15] *Id.* at 1028-31.

. the character of the governmental action."[16] These factors are considered with respect to the "parcel as a whole[.]"[17]

Another type of takings case deals with exactions. Exactions are conditions or compensation requirements imposed on developers to mitigate the impacts of their development. In *Nollan v. Cal. Coastal Comm'n.*, the Supreme Court found a taking where the California Coastal Commission conditioned its approval for the Nollans to rebuild their house on granting a public easement across their beachfront property.[18] The Court held that a land-use regulation does not effect a taking if it "substantially advances legitimate state interests"[19] and that there must be an "essential nexus" between the state interest and government action.[20] The exactions analysis was expanded in *Dolan v. City of Tigard* where the petitioner challenged the conditioning of approval of her permit to redevelop her business on the dedication of some of her land for a greenway.[21] The Court adopted a "rough proportionality" test,[22] and held that a taking occurred because there was not enough of a reasonable relation between the development of a greenway and the government's interest in reducing traffic from the redeveloped business.[23] Another more recent case dealing with exactions that may be troubling to localities is *Koontz v. St. Johns River Water Mgmt. Dist.*, where the Court found that denial of a land use permit unless the plaintiff agreed to a monetary exaction (not a direct taking of real property) constituted a taking under *Nollan* and *Dolan* analysis.[24] The Court said "the government's demand for property from a land-use permit applicant must satisfy the requirements of *Nollan* and *Dolan* even when the government denies the permit and even when its demand is for money."[25]

Another case of significance to local governments is *Palazzolo v. Rhode Island*, in which a landowner acquired beachfront property with the intention of filling and developing it.[26] The plaintiff's plans were rejected as they violated regulations which predated plaintiff's ownership of the property.[27] The Supreme Court determined that Palazzolo's takings claim was not barred by acquiring the property after the enactment of the restrictive regulation.[28] Ultimately, the Court determined Palazzolo did not experience a taking, as there were still viable economic uses of his property.[29] However, the fact that Palazzolo could successfully bring a taking claim for property acquired after the challenged regulation was enacted is noteworthy for governments to heed.

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[16] 438 U.S. 104, 124 (1978).
[17] *Id.* at 131.
[18] 483 U.S. 825, 831 (1987).
[19] *Id.* at 834.
[20] *Id.* at 836-37.
[21] 512 U.S. 374, 377-78 (1994).
[22] *Id.* at 391.
[23] *Id.* at 391-96.
[24] 133 S. Ct. 2586, 2591 (2013).
[25] *Id.* at 2603.
[26] 533 U.S. 606, 611 (2001).
[27] *Id.*
[28] *Id.* at 627-28.
[29] *Id.* at 616.

More recently, in *Murr v. Wisconsin*, the Supreme Court considered a takings claim regarding properties along the St. Croix River, which is protected under federal, state, and local law. In *Murr*, claimants brought a takings claim regarding state and local regulations associated with their common ownership of two adjacent lots, Lot E and Lot F, respectively.[30] The two lots, when combined, constituted 0.98 buildable acres of land.[31] Under Wisconsin state law, and a parallel local ordinance, the buildable area of a parcel must be greater than one acre in order for it to be sold or developed as separate lots.[32] These regulations contained a grandfather clause to allow development of smaller lots in existence at the time of the regulation, January 1, 1976.[33] However, the grandfather clause included a merger provision that extinguished the clause when adjacent lots were came under common ownership, i.e., the adjacent lots are treated as one lot.[34] Thus, when Lot E and Lot F came under common ownership, the claimants lost the ability to develop them as separate lots.[35] Claimants argued that their inability to sell Lot E as a result of the state and local regulations constituted a government taking because it deprived them of the use of Lot E.[36] Plaintiffs argued that the lot lines defined the property in question under the taking claim. Conversely, Wisconsin argued that the taking analysis should be applied to the contiguous lots as a whole, because that is how the property was defined under state law.[37] The Supreme Court ruled that the "subject property" of any takings claim should be defined by a fact specific inquiry which considers 1) the treatment of the land under state and local law, 2) the physical characteristics of the land, and 3) the potential value of the regulated land, in order to determine what an objective landowner should expect.[38] When applying this test in this situation, the Supreme Court determined that the Murrs' property should be considered as one property.[39] As such, the regulations did not constitute a taking.[40]

Murr may create greater ambiguity for takings claims. Under *Lucas,* denying a landowner all economically viable use of a land constitutes a taking. And, under *Penn Central*, when all economically viable use has not been denied, several factors are considered to determine whether the regulatory impact on the parcel as a whole resulted in a taking. *Murr* introduces uncertainty with respect to how the "parcel as a whole" is determined. As the fact-specific inquiry utilized in *Murr* can only be made by a court, *Murr* may lead to greater uncertainty surrounding certain takings.

[30] 137 S. Ct. 1933, 1940 (2017).
[31] *Id.*
[32] *Id.*
[33] *Id.*
[34] *Id.*
[35] *Id.*
[36] *Id.*
[37] *Id.*
[38] *Id.*
[39] *Id.*
[40] *Id.*

2. Virginia Case Law

While the Supreme Court provides guidance for takings claims under the federal constitution, the laws governing takings are state-specific when local government actions are challenged under state laws or constitutions. The Virginia Constitution provides that the General Assembly shall pass no laws that result in private property being damaged or taken unless 1) it is for public use, 2) there is just compensation, and 3) no more property is taken than is necessary to achieve the public use.[41] There are several Virginia cases that may be helpful when addressing what authority localities have to address sea level rise.

One is *3232 Page Avenue Condo. Unit Owners Ass'n v. City of Virginia Beach* where the Virginia Supreme Court examined "whether a condemnor may, in an eminent domain proceeding, alternatively assert ownership rights in the condemned property," and whether there was an implied dedication of the contested property.[42] To combat severe erosion of Cape Henry Beach, the City of Virginia Beach wanted to replenish the beach with additional sand.[43] Thus, they sought easements from property owners along the beach to allow the City entry for the purpose of pumping sand onto the beach.[44] The Condominium Association rejected the City's offer to purchase a beach easement so the City filed a "Petition for Condemnation to Confirm Public Easements," which was subsequently challenged by the Association.[45] The Court stated that statutes addressing eminent domain power must be strictly construed and localities must fully comply with them.[46] The Court noted that it considers "the language of each statute at issue to determine the General Assembly's intent from the plain and natural meaning of the words used. When the language of a statute is unambiguous, courts are bound by the plain meaning of that language."[47] The Court found in favor of the City on this point because they were not trying to condemn property they already owned, but rather the land for the easements, which were in dispute.[48] The Court also held that there was an implied dedication to the City where "the public has used the entirety of Cape Henry Beach since 1926, the City has patrolled and maintained the property for over thirty years, and the Condo Association never objected to the City's exercise of dominion and control."[49]

Lynnhaven Dunes Condo. Ass'n v. City of Virginia Beach, a companion case to *3232 Page Avenue Condominium*, deals with substantially the same facts, but offers a good discussion about riparian rights.[50] The Association argued that the beach replenishment project had allowed the creation of an artificial strip of land that had severed its connection to the Chesapeake Bay, and that the placement of sand on Cape Henry Beach for the project was not necessary for navigation

[41] *See* VA. CONST. art. I, § 11.
[42] 735 S.E.2d. 672, 672 (Va. 2012).
[43] *Id.* a 672.
[44] *Id.*
[45] *Id.* at 675.
[46] *Id.*.
[47] *Id.*
[48] *Id.*
[49] *Id.* at 677-78.
[50] 733 S.E.2d 911 (Va. 2012).

of the Lynnhaven Inlet.[51] The Court noted that one of the benefits for a riparian landowner is the right to accretions.[52] However, while the landowner automatically takes title to dry land added through accretion, dry land created by avulsion will remain with the owner of the seabed, which is generally the state.[53] The Court also said that a riparian owner's property rights are "subordinate to the improvement of navigation", meaning there is no taking in those situations.[54] In considering whether the loss of riparian rights was related to the improvement of navigation in this case, the Court noted that "the connection between the dredging project and the beach replenishment project [which created the artificial strip of land] was a colorable relationship at best" and remanded the matter to the lower court for a just compensation hearing.[55]

A landmark Virginia takings case dealt with flooding in Fairfax County, Virginia. In *Livingston v. VDOT,* homeowners sued Fairfax County and the Virginia Department of Transportation after their homes were flooded following a severe storm in 2006.[56] The storm caused the depth of a local stream, Cameron Run, to rise from two feet to fourteen feet.[57] The plaintiffs alleged that the flooding was caused by the acts or omissions of the County and VDOT.[58] They argued that the flooding would not have occurred if the path of Cameron Run had not been altered by development in the floodplain and incorporated into the drainage system for the Beltway and that VDOT's failure to dredge and maintain the channel further exacerbated the problem.[59] The Court held in favor of the plaintiffs, saying that just compensation is not limited only to multiple occurrences of flooding, and that "a single occurrence of flooding can support an inverse condemnation claim."[60] The Court further stated that the government's constitutional obligation to pay just compensation is not limited to damages caused by "affirmative and purposeful acts," but also includes the government's failure to act.[61] The Court noted, "When the government constructs a public improvement, it does not thereby become an insurer in perpetuity against flood damage to neighboring property."[62] A locality is responsible when the government's operation of that public improvement causes damage.[63] This outcome is worrisome for localities that are now concerned that they too will be held responsible for the lack of maintenance of stormwater drainage systems, and not just ones that they have constructed on public lands; localities also hold drainage easements for subdivisions that transferred automatically upon dedication of the subdivision plat. Localities may not even be aware of all of the drainage easements they hold. Furthermore, the Virginia Stormwater Management Act requires perpetual maintenance of stormwater BMPs,[64] which imposes further liability on localities.

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[51] *Id.* at 912-13.
[52] *Id.* at 916.
[53] *Id.*
[54] *Id.*
[55] *Id.* at 918.
[56] 726 S.E.2d 264, 267 (Va. 2012).
[57] *Id.*
[58] *Id.* at 268.
[59] *Id.*
[60] *Id.*
[61] *Id.* at 274.
[62] *Id.* at 276.
[63] *Id.*
[64] VA. CODE ANN. § 62.1-44.15:27(E)(2) (2017).

Another Virginia case, *Collett v. City of Norfolk*, addressed potential takings claims for flooding of private property.[65] In *Collett*, the homeowner alleged that the City took her property when it issued a fill permit to the adjoining property owners and was not effectively enforcing the City Code.[66] After the adjoining land owners were awarded the permit they did not install a retaining wall as required by the permit, and Collett's land subsequently flooded.[67] The City sent multiple letters to the adjoining property owners to let them know they were in violation.[68] The adjoining owners did eventually install a berm, but Collett claimed it was inadequate and led to damage to her property.[69] The Court distinguished *Livingston*, which concerned "governmental authorities making choices not to maintain an instrumentality in their control created to adequately deal with excess storm water."[70] The Court held this was not the case in *Collett* because the City did not own the adjoining property, did not complete construction or alteration to that property, and that property was used for completely private purposes.[71] Additionally, the City's stormwater disposal system was not a contributing factor so it is further distinguished from *Livingston*.[72] This case also highlights the difference between the courts' treatment of flooding due to a locality's failure to maintain its infrastructure and due to a locality's failure to enforce its codes.

These cases indicate that Virginia courts will likely frown on government actions 1) dubiously related to the public interest,[73] 2) which encroach unnecessarily on private property rights,[74] and 3) which exacerbate flooding onto private property.[75] In the broadest and most general of terms, the more deliberate, and the more unnecessary a government action is, the greater the chance that localities may face scrutiny under Virginia takings analysis. In the wake of *Livingston*, government actors may face scrutiny when creating infrastructure without a plan to maintain it, or a plan to mitigate and manage any flooding it creates.

C. Outside Jurisdictions

Since takings analyses are based in federal constitutional principles and Virginia law is still evolving concerning government liability in the sea level rise context, Virginia courts may be able to draw parallels, or borrow concepts from other states. The decisions are ambiguously applicative though because these cases are usually state-specific based on a state's constitution or property law.

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[65] 85 Va. Cir. 258 (2012).
[66] *Id.* at 260.
[67] *Id.*
[68] *Id.*
[69] *Id.*
[70] *Id.*
[71] *Id.*
[72] *Id.* at 260-61.
[73] *See* 3232 Page Avenue Condo. Unit Owners Ass'n, 735 S.E.2d 672.
[74] *See Lynnhaven Dunes Condo. Ass'n*, 733 S.E.2d at 915-918.
[75] *See Livingston*, 726 S.E.2d at 267.

In *Litz*, a recent case from Maryland, the landowner lost her campground to foreclosure after her lake ("Lake Bonnie") was allegedly polluted by run-off from a failed septic system serving homes and businesses in that area.[76] The individual septic systems of area residents began to fail over time and overflowed into the two streams feeding the lake, causing contamination.[77] The local Health Department issued safety warnings and the Maryland Department of the Environment ("MDE") issued a consent order outlining remedial measures for the contamination, but failed to enforce it.[78]

Litz alleged that she had a cause of action for inverse condemnation because of MDE's failure to address the pollution and sewage problems, which led to the devaluation and loss of her property.[79] In Maryland, an inverse condemnation claim may arise when the government denies access to property, regulatory actions effectively take away economically viable use of property, physical invasions have occurred, or there is a credible and prolonged threat of condemnation that diminishes values or forces the property owner to sell.[80] However, Litz's claims did not necessarily fit into these categories because they focused on the inaction of MDE, and because Maryland law did not directly address that issue, the Court looked elsewhere for persuasive cases.[81]

One case the Court looked at was *Jordan v. St. John's County* from Florida.[82] In that case, a Florida District Court found a cognizable claim where the County failed in its duty to maintain and repair an old county road, which effectively abandoned it and deprived property owners of access without just compensation.[83] The road, which faced problems with storm damage and erosion, was the only access to a subdivision located on a barrier island.[84] The Court held that "governmental inaction — in the face of an affirmative duty to act — can support a claim for inverse condemnation."[85] Persuaded by *Jordan* and other cases, the Maryland Court held that Litz adequately stated a claim for inverse condemnation.[86] The Court reasoned that even though sewage was flowing from failed septic systems of private citizens, and there were questions as to which agencies had legal duties, "it is not frivolous to hypothesize that state, county, and municipal agencies may have duties to step in to protect the public health."[87]

Fromm, a Wisconsin case, stands in contrast to *Litz*. In *Fromm*, property owners filed an inverse condemnation claim against the Village of Lake Delton for flooding and erosion damage on their land.[88] The Village acquired a dam in 1994 and made no changes to it.[89] After unusually

[76] Litz v. Md. Dep't of the Env't, 131 A.3d 923, 925 (2016).
[77] *Id.*
[78] *Id.* at 926-27.
[79] *Id.* at 929.
[80] *Id.* at 931.
[81] *Id.*
[82] *Id.* at 932.
[83] Jordan v. St. Johns Cty., 63 So. 3d 835, 839 (Fla. Dist. Ct. App. 2011).
[84] *Id.* at 836-37.
[85] *Id.* at 839.
[86] *Litz*, 131 A.3d at 934.
[87] *Id.* at 933-34.
[88] Fromm v. Vill. of Lake Delton, 847 N.W.2d 845, 847 (Wis. Ct. App. 2014).
[89] *Id.*

heavy rain, water overflowed from the dam, causing severe damage to the neighboring properties.[90] The Village moved for summary judgment because it had not engaged in any action that would support a takings claim and the Court agreed, holding that a valid takings claim must "include allegations of affirmative government action."[91] Additionally, the Court stated that under the state constitution government action is a prerequisite for a taking, and the Court is not "free to disregard this plainly stated rule and search for *inaction* that might be considered to be the functional equivalent of action, as might be at issue for example in the negligence context."[92]

In *Borough of Harvey Cedars v. Karan*, New Jersey initiated a series of flooding infrastructure projects following Hurricane Sandy.[93] The Borough exercised its power of eminent domain to construct a system of dunes along the beach and across the Karens' property to protect coastal properties.[94] The question in this case was not whether the Karans were entitled to just compensation, but rather how that just compensation was to be calculated when the project may lessen part of the property value while also raising part of the property value.[95] The Karans were able to introduce evidence that their obstructed view lowered the property value, but the trial court had not allowed the Borough to introduce evidence that it actually raised the value of the home by protecting it from storms.[96] The Court held that the information should have been considered, and that just compensation for a partial taking of property must be based on:

> a consideration of all relevant, reasonably calculable, and non-conjectural factors that either decrease or increase the value of the remaining property. In a partial-takings case, homeowners are entitled to the fair market value of their loss… To calculate that loss, courts must look to the difference between the fair market value of the property before the partial taking and after the taking.[97]

This is a helpful case to keep in mind as localities adapt because the logic is likely applicable to takings claims in Virginia. Property value is a present measurement that already incorporates future conditions of the land inherently. Thus, the measure of damages for any taking is simply the difference between the prior market value, and the subsequent market value after government action. Protecting the land from future flooding is already taken into consideration in that property value change.

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[90] *Id.* at 848.
[91] *Id.* at 852.
[92] *Id.* at 853. Takings claims share many principles with negligence liability torts. *See, Hansen v. United States*, 65 Fed. Cl. 76, 80 (2005) (stating "there is no clear cut distinction between torts and takings. The best that can be said is that not all torts are takings, but that all takings by physical invasion have their origin in tort law and are types of governmental nuisances or, at times, trespasses."). However there are some notable differences; while taking claims are based on constitutional authority, *see*, Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 306 (2002), tort liability can be modified by statues such as those defining the bounds of sovereign immunity, *see*, Sandra B. Zellmer, *Takings, Torts, and Background Principles*, 52 Wake Forest L. Rev. 193, 202 (2017).
[93] Borough of Harvey Cedars v. Karan, 70 A.3d 524, 526 (N.J. 2013).
[94] *Id.* at 526.
[95] *Id.*
[96] *Id.*
[97] *Id.* at 526-27.

In *St. Bernard Parish v. United States*, plaintiffs living in the Ninth Ward of New Orleans during Hurricane Katrina alleged that the United States Army Corp of Engineers (USACE) had engaged in a taking by constructing but not maintaining a 76-mile long navigational channel that enhanced and contributed to the severe damage to the Ninth Ward during the hurricane. [98] The court concluded that the USACE, in failing to maintain its construction project, had engaged in a temporary taking because it had 1) caused, 2) foreseeably increased flooding which 3) substantially, 4) deprived property owners of their property interests under state law, 5) in contrast to their reasonable-investment backed expectations.[99] This, notably, presents similar themes to *Livingston v. VDOT*. In both cases, though, it is worth noting that the government has not been made liable for all failing infrastructure; the taking is found in the government actions and subsequent inactions, in this case inadequate maintenance, that caused the temporary flooding.[100]

Although these cases are not explicitly precedential to Virginia courts, the relative homogeneity of takings law creates the possibility that the logic of these cases will be adopted by other jurisdictions. Localities should remain aware of the principles behind these rulings to help guide their actions away from potential takings claims.

II. EXISTING TOOLS

The General Assembly has granted numerous authorities to local governments that can be used to address recurrent flooding. This Section will explain those existing tools, provide examples of their use, and discuss possible pathways for localities to harness these existing tools to adapt to sea level rise and recurrent flooding.

A. Planning and Regulatory Options

1. Comprehensive Plan

The Tool: Every governing body is required to adopt a comprehensive plan, developed by the local planning commission, for the territory under its jurisdiction that guides the development of that territory which "will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, including the elderly and persons with disabilities."[101] The comprehensive plans for localities within Tidewater Virginia[102] shall include coastal resource management guidance as

[98] St. Bernard Parish Gov't v. United States, 121 Fed. Cl. 687 (2015).
[99] *See generally*, *id.*
[100] *See id; Livingston*, 726 S.E.2d 264.
[101] VA. CODE ANN. § 15.2-2223 (2014).
[102] *See* VA. CODE ANN. § 62.1-44.15:68 (2017) (defining "Tidewater Virginia" as "The Counties of Accomack, Arlington, Caroline, Charles City, Chesterfield, Essex, Fairfax, Gloucester, Hanover, Henrico, Isle of Wight, James City, King and Queen, King George, King William, Lancaster, Mathews, Middlesex, New Kent, Northampton, Northumberland, Prince George, Prince William, Richmond, Spotsylvania, Stafford, Surry, Westmoreland, and York, and the Cities of Alexandria, Chesapeake, Colonial Heights, Fairfax, Falls Church, Fredericksburg, Hampton,

developed by the Virginia Institute of Marine Science ("VIMS"), including studies on topics such as shoreline erosion.[103] Additionally, any locality included in the Hampton Roads Planning District Commission must incorporate strategies for combating projected relative sea level rise and recurrent flooding into their comprehensive plans.[104]

How to Use It: Comprehensive planning is a distinct process from lawmaking, because these plans are not enforceable; taking actions counter to the plan are not *per se* barred. However, comprehensive plans may serve several functions in the pursuit of coastal adaptation to sea level rise.

For example, comprehensive plans are a method for localities to receive Community Rating System (CRS) credits under the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP). The CRS Coordinator's Manual (the "Manual") [105] is an excellent resource to review when a locality seeks to earn more CRS credits and lower their constituents' flood insurance rates. The Manual contains a variety of enumerated activities that a locality can undertake to earn CRS credit points by modifying the comprehensive plan. These credits reduce flood insurance costs for those using the NFIP. Under Open Space Preservation (Activity 420), Open Space Incentives (Element 422.f) in the Manual, communities can receive "[u]p to 250 points for local requirements and incentives that keep flood-prone portions of new development open"[106] including 10 points "if the community's land use plan recommends open space use or low-density development of flood-prone areas."[107] Under Floodplain Management Planning (Activity 510), Floodplain Management Planning (Element 512.a), localities may receive up to "382 points for a communitywide floodplain management plan that follows a 10-step planning process[.]"[108] Under the same Activity, Natural Floodplain Functions Plan (Element 512.c), they can receive up to "100 points for adopting plans that protect one or more natural functions within the community's Special Flood Hazard Area."[109]

Comprehensive plans also provide a process to establish and disseminate the long-term plans of a locality in a publicly digestible manner. For example, plaNorfolk 2030, Norfolk's comprehensive plan, states the City's vision for its future and then expands on different elements to broadly outline actions to guide the City toward achievement of that vision.[110] plaNorfolk 2030

Hopewell, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Richmond, Suffolk, Virginia Beach, and Williamsburg.").

[103] VA. CODE ANN. § 15.2-2223.2 (2011); *see also* VA. CODE ANN. § 28.2-1100 (2011) (explaining the duties of VIMS in conducting research).

[104] VA. CODE ANN. § 15.2-2223.3 (2015).

[105] *See, Federal Emergency Management Agency, OMB No. 1660-0022, National Flood Insurance Program Community Rating System Coordinator's Manual,* (2017), [hereinafter CRS Manual], https://www.fema.gov/media-library-data/1493905477815-d794671adeed5beab6a6304d8ba0b207/633300_2017_CRS_Coordinators_Manual_508.pdf.

[106] *Id.* at 420-1.

[107] *Id.* at 420-25.

[108] *Id.* at 510-1, -4 to -29.

[109] *Id.* at 510-1, -35 to -36.

[110] City of Norfolk, *The General Plan of the City of Norfolk: plaNorfolk 2030* (Adopted March 2013, revised August 2017). (The vision statement is on p. 1-3.) https://www.norfolk.gov/DocumentCenter/View/2483.

integrates strategies related to sea level rise and recurrent flooding in multiple portions of the plan. For example, Chapter 6 of the plan, entitled *Promoting Environmental Sustainability,* identifies "prepar[ation] for the consequences of natural hazards"[111] as one of the chapter's key issues, or goals to address. Actions associated with achievement of this goal include, among others, considering potential impacts of sea level rise in development and budget decisions, revising development regulations to address potential sea level rise impacts, continuing the use of projects such as living shorelines to provide resilience to sea level rise, and determining appropriate strategies to mitigate flooding impacts to existing flood-prone structures.[112] Ultimately, the comprehensive plan is an effective communication tool that can establish priorities for a community that extend beyond a single administration.

The City of Norfolk created a longer-term visioning document called Vision 2100,[113] noting that the 20-year timeframe of the comprehensive plan "limits [the plan's] potential for inspiring bold change[.]"[114] In Vision 2100, Norfolk planned its neighborhood priorities well into the future. The plan includes four categories of neighborhoods, their locations, and the zoning priorities for each.

2. Hazard Mitigation Plan

The Tool: The Federal Emergency Management Agency (FEMA) requires that localities, and other entities, develop and adopt hazard mitigation plans (HMPs) to receive certain types of "non-emergency disaster" assistance.[115] HMPs identify risks and vulnerabilities associated with natural disasters, and put forth long-term strategies for protecting people and property from hazard events.[116] In general, the purposes of a HMP are to:

- "protect life and property by reducing the potential for future damages and economic losses that result from natural hazards;
- qualify for additional grant funding, in both the pre-disaster and post-disaster environment;
- speed recovery and redevelopment following future disasters;
- integrate existing flood mitigation documents;
- demonstrate a firm local commitment to hazard mitigation principles; and
- comply with state and federal legislative requirements tied to local hazard mitigation planning."[117]

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[111] *Id.* at 6-3 and -15.
[112] *Id.* at 6-15 to -16.
[113] *See* CITY OF NORFOLK, NORFOLK VISION 2100 (2016), https://www.norfolk.gov/DocumentCenter/View/27768.
[114] *Id.* at 2.
[115] HAZARD MITIGATION PLAN REQUIREMENT, https://www.fema.gov/hazard-mitigation-plan-requirement (last visited Nov. 19, 2017).
[116] HAZARD MITIGATION PLANNING, https://www.fema.gov/hazard-mitigation-planning (last visited Nov. 19, 2017).
[117] *See, e.g.*, Hampton Roads Planning District Commission, *Hampton Roads Hazard Mitigation Plan*, 1:3 (2017), http://www.hrpdcva.gov/uploads/docs/2017%20Hampton%20Roads%20Hazard%20Mitigation%20Plan%20Update%20FINAL.pdf.

How to Use It: Development of a HMP enables a locality to determine a vision, guiding principles, and specific actions to reduce its vulnerabilities to current and future hazards. These specific actions, called mitigation actions, are items identified as "effective measures to reduce hazard risk."[118] The HMP includes certain data for each mitigation action, including its site and location, cost benefit, what hazard it addresses, what goal it addresses, level of priority, estimated cost, potential funding sources, lead agency or department, and implementation schedule.[119] During the development and adoption of its HMP, a locality could identify mitigation actions to address issues of sea level rise and recurrent flooding.

3. Zoning Ordinance

The Tool: A locality can classify, by ordinance, the territory within its jurisdiction into districts of any number, shape, or size it deems to be best suited to carry out its purposes of regulating, restricting, permitting, prohibiting, and determining different land uses; the character and construction of structures within the jurisdiction; the area of land, water, and air to be occupied; and the excavation of natural resources. The purpose of zoning ordinances are of particular interest for sea level rise issues. The general purpose of zoning ordinances is to promote the health, safety, or general welfare of the public, and they shall be designed to, among other things, provide for safety from flood and other dangers; to facilitate proper flood protections; to protect against the loss of life, health, or property from flooding or impounding structure failure; to provide for the preservation of agricultural and forestal lands and other lands of significance for the protection of the natural environment; and to provide reasonable protection against encroachment of development upon military installations. Further, zoning ordinances should take into reasonable consideration:

> the existing use and character of property, the comprehensive plan, the suitability of property for various uses, the trends of growth or change, the current and future requirements of the community as to land for various purposes as determined by population and economic studies and other studies, . . . the conservation of natural resources, the preservation of flood plains, the protection of life and property from impounding structure failures, the preservation of agricultural and forestal land, the conservation of properties and their values and the encouragement of the most appropriate use of land throughout the locality.

Localities are also able to amend regulations, district boundaries, or classifications of property whenever public necessity, convenience, general welfare, or good zoning practice requires it.

Virginia Code recognizes that there are times when these traditional zoning methods may be inadequate, and provides localities with conditional zoning authority[120] to implement "a more

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[118] *Id.* at 7:10.
[119] *Id.* at 7:11.
[120] *See, e.g.*, VA. CODE ANN. § 15.2-2297 (2006); VA. CODE ANN. § 15.2-2298 (2007); VA. CODE ANN. § 15.2-2303 (2008).

flexible and adaptable zoning method."[121] Additionally, the Code provides for the imposition of overlay districts to address specific situations and characteristics. For example, localities may establish airport safety overlay districts[122] and mountain ridge construction overlay districts.[123]

How to Use It: *Downzoning:* The most direct use of the zoning power to address the effects of sea level rise and recurrent flooding is to restrict coastal areas to more resilient uses, and/or gradually reduce the intensity of development in flood-prone areas. This limitation on development is known as "downzoning."[124] As mentioned above in the description of zoning authority, the Virginia Code requires localities to consider when drafting zoning ordinances "the current and future requirements of the community as to land for various purposes as determined by population and economic studies and other studies, . . . the conservation of natural resources, [and] the preservation of flood plains",[125] which could potentially include future flooding. A review of case law found no case that questioned whether future sea level rise and flooding were legitimate bases for zoning decisions under this statute. Ultimately, any decision to zone for anticipated flooding must be based on some concrete evidence, or the zoning decision may run the risk of "arbitrarily or capriciously depriv[ing] a person of the legitimate use of his or her property," which is forbidden in Virginia.[126] To circumvent this ambiguity, localities may enter into a voluntary downzoning agreement with landowners in exchange for tax credits under Virginia Code § 15.2-2286(11).[127]

Downzoning, however, limits the future uses and development of land, and thus can lower property values and give rise to legal challenges if the ordinance is too specific to certain properties.[128] Though restricting property uses and development is generally undesirable, there are situations in which downzoning may actually improve some property values. For example, if a locality were to create a requirement for a larger vegetative buffer on coastal lands, the properties nearby might experience reduced flooding and remain usable for a longer period. Localities can perform specific evaluations of flood-prone properties to determine if downzoning may be useful. It is worth noting that this initial assessment can be tackled through comprehensive planning.

Upzoning: Conversely, "upzoning" is the process of increasing potential development in an area. Coastal localities could revitalize their waterfront areas by upzoning, with specific guidelines for developers to mitigate flooding. For example, New York City has begun such a

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[121] VA. CODE ANN. § 15.2-2296 (1997).
[122] VA. CODE ANN. § 15.2-2294 (1997).
[123] VA. CODE ANN. § 15.2-2295.1 (2013).
[124] *See* BARB MARMET, VA. COASTAL POLICY CTR., USING ZONING TOOLS TO ADAPT TO SEA LEVEL RISE 2 (2013), https://law.wm.edu/academics/programs/jd/electives/clinics/vacoastal/documents/march2014reports/zoningtools.pdf.
[125] VA. CODE ANN. § 15.2-2284, (2008).
[126] The Virginia Constitution states that "no person shall be deprived of his life, liberty, or property without due process of law." Va. Const. art. 1, § 11; *see* GREG KAMPTNER, ALBEMARLE COUNTY LAND USE LAW HANDBOOK 6-1, 6-4 (2017).
[127] VA. CODE ANN. §15.2-2286(11) (2017).
[128] The more targeted a zoning ordinance, the more susceptible it could be to legal challenges. *See* Bd. of Supervisors of Fairfax Cty., 202 S.E.2d 889, 893-94 (Va. 1974) (ruling against "piecemeal" zoning: ordinances which target specific properties far more than areas of properties); *see also* MARMET, *supra* note 124.

process with hundreds of stakeholders to protect Brooklyn from flooding.[129] Depending on the conditions of an area, localities could upzone coastal areas for commercial development, but require the construction of flood walls and raised boardwalks to protect the developed land from further flood damage.[130] Developers may be willing to pay this initial cost in order to densely develop and protect their valuable coastal property.[131] However, for such a policy to be effective, localities would need to make upzoning sufficiently desirable and profitable to developers to build this infrastructure while improving the property. This could also create new challenges, such as changing the characteristics of existing neighborhoods, increasing the need for resilient transportation and wastewater infrastructure in these areas, or even curbing public access to the waterfront, which could lead to backlash from residents. Each locality must weigh the specific costs and benefits before pulling development to their coasts.

Conditional Zoning and Overlay Districts: Localities also can utilize their authority to implement more flexible and adaptable zoning methods. For example, during the rezoning process for a property subject to recurrent flooding or sea level rise, localities could work with the property owner to develop additional zoning conditions specific to that property. On a larger scale, localities may create a floodplain overlay district as a means of imposing supplemental regulations or standards in areas prone to flooding.[132]

CRS Credits: Zoning is also useful for earning CRS credits. For example, under Open Space Preservation (Activity 420), Low-density zoning (Element 422.g) "[u]p to 600 points [are available] for zoning districts that require lot sizes of 5 acres or larger."[133]

Due to the law surrounding takings claims,[134] it is important that localities enact zoning ordinances carefully to avoid substantially depriving landowners of the expected economic benefit of their property. Generally, the less restrictive the regulation,[135] and the broader the public need for the regulation,[136] the less likely a locality will face a successful taking claim. Localities should also pursue broad public needs when imposing zoning ordinances, to avoid "spot-zoning" in which "the purpose of a zoning ordinance or rezoning amendment is solely to serve the private interests

[129] *See The Commercial Corridor Resiliency Project*, REBUILD BY DESIGN, http://www.rebuildbydesign.org/our-work/all-proposals/finalist/the-commercial-corridor-resiliency-project.
[130] *E.g.*, *id.*
[131] *But see* Virginia Code § 15.2-2303.4(C) (2016) (deeming proffers "unreasonable unless it addresses an impact that is specifically attributable to a proposed new residential development or other new residential use applied for" and noting additional requirements related to offsite proffers).
[132] *See, e.g.,* Norfolk City Code § 11-3 (2009).
[133] CRS Manual, *supra* note 105, at 420-1.
[134] *Supra* Section I.
[135] Penn Cent. Transp. Co. v. New York City, 438 U.S. 104 (1978) (ruling that a taking occurs when a landowner is deprived of all reasonably anticipated economic use of the land, not just a portion of it).
[136] Nollan v. Cal. Coastal Comm'n., 483 U.S. 825 (1987) (ruling there is no regulatory taking when a locality's action "substantially advances a legitimate state interest").

of one or more landowners, rather than to further a locality's welfare as part of an overall zoning plan that may include a concurrent benefit to private interests."[137]

4. Subdivision Ordinance

The Tool: "The governing body of every locality shall adopt an ordinance to assure the orderly subdivision of land and its development."[138] Virginia Code §§ 15.2-2241 and -2242 spell out mandatory and optional provisions to be included within a local subdivision ordinance. Sea level rise and recurrent flooding issues may be addressed in the mandatory provisions of a subdivision ordinance. For example, an ordinance must apply to or provide "[f]or adequate provisions for drainage and flood control, for adequate provisions related to the failure of impounding structures and impacts within dam break inundation zones, and other public purposes,"[139] and "[f]or the extent to which and the manner in which streets shall be graded, graveled or otherwise improved and water and storm and sanitary sewer and other public utilities or other community facilities are to be installed."[140] Additionally, sea level rise may be addressed in the optional provisions of a subdivision ordinance. For example, an ordinance may include "[p]rovisions for clustering of single-family dwellings and preservation of open space developments[.]"[141]

How to Use It: These provisions authorize localities to adopt subdivision ordinances to provide for adequate drainage and flood control, street grading and improvement, public utility installation, and open space preservation - which may enable them to use subdivision ordinances to adapt to the anticipated impacts of climate change. Although there are no Virginia cases that interpret a locality's subdivision authority with respect to addressing future conditions due to sea level rise, localities are constrained by the Dillon Rule. For example, in 1999 the Virginia Supreme Court found that Augusta County's subdivision included two provisions beyond the County's authority. The Court found that because these provisions could not be found within the locality's authority given by Virginia Code §§ 15.2-2241 and -2242, that the provisions were not valid subdivision regulations.[142]

Further, subdivision ordinances are also reviewed as a part of the NFIP. The minimum standards that a community must meet depends upon the what data the Federal Insurance Administrator furnishes to the community.[143] For example, if "the Federal Insurance Administrator has designated areas of special flood hazards (A zones) by the publication of a community's FHBM or FIRM, but has neither produced water surface elevation data nor identified a floodway or coastal high hazard area," among other standards, the locality shall "[r]equire that all new subdivision proposals and other proposed developments . . . greater than 50 lots or 5 acres,

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[137] Riverview Farm Assocs. Virginia Gen. P'ship v. Bd. of Sup'rs of Charles City Cty., 259 Va. 419, 429, 528 S.E.2d 99, 105 (2000).
[138] VA. CODE § 15.2-2240 (1997).
[139] VA. CODE § 15.2-2241(3) (2012).
[140] *Id.* at § -2241(4).
[141] VA. CODE § 15.2-2242(8) (2014).
[142] Board of Supervisors of Augusta County v. Countryside Investment Co., 258 Va. 497, 504-05 (1999).
[143] 44 C.F.R. § 60.3(a)-(f).

whichever is lesser, include . . . base flood elevation data."[144] Therefore, subdivision ordinance modification may prove helpful as more and more communities pursue flood insurance from the NFIP for their residents in flood zones.

5. Stormwater Management

The Tool: Virginia's regulatory stormwater management program addresses both water quality and water quantity.[145] Minimizing the flow of stormwater can help reduce the impacts of recurrent flooding, and it is important that stormwater runoff be contained adequately to prevent flooding and that it flow into a conveyance system that can contain a sufficient volume of stormwater.[146] A locality may fund its stormwater management program through its general fund[147] or by offering small neighborhood grants to encourage grassroots solutions.[148] Additionally, "[a]ny locality, by ordinance, may establish a utility or enact a system of service charges to support a local stormwater management program consistent with Article 2.3 (§ 62.1-44.15:24 et seq.)."[149] Authorized uses of such stormwater fees include, among other uses, the acquisition of property necessary to construct, operate and maintain stormwater control facilities; the planning, design, engineering, construction, and debt retirement for new facilities; and the enlargement or improvement and operation and maintenance of existing facilities, including publicly or privately owned dams, levees, floodwalls, and pump stations used to control stormwater.[150]

How to Use It: The imposition of a stormwater charge or fee for the uses specified in the authorizing statute could assist a locality in funding recurrent flooding due to sea level rise. Grants are also available from the state for interested localities under the Stormwater Local Assistance Fund (SLAF).[151] Additionally, a locality has the ability to build stormwater management infrastructure, such as dams and levees.[152] However, building infrastructure comes with installation and maintenance costs. Furthermore, the court's ruling in *Livingston v. VDOT* indicates that a government agent can be held liable for flooding caused by its lack of maintenance of its infrastructure.[153] A locality should perform careful hydrological analyses to ensure its stormwater infrastructure does not have negative externalities for nearby residents.

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[144] 44 C.F.R. § 60.3(b)(3).

[145] *See* 9 VA. ADMIN. CODE § 25-870-63 (2013) (discussing water quality design criteria); 9 VA. ADMIN. CODE § 25-870-66 (2013) (discussing channel protection and flood protection).

[146] *See* 9 VA. ADMIN. CODE § 25-870-66 (2013).

[147] *See, e.g.*, *Drainage Systems*, James City Cty. Va. , http://www.jamescitycountyva.gov/996/Drainage-Systems (last visited Nov. 27, 2017).

[148] *See, e.g.*, http://www.jamescitycountyva.gov/853/Neighborhood-Rebates-Mini-Grants

[149] VA. CODE ANN. § 15.2-2114 (2016).

[150] *Id.*

[151] *See* Virginia Department of Environmental Quality, http://www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance/StormwaterFundingPrograms/StormwaterLocalAssistanceFund%28SLAF%29.aspx.

[152] VA. CODE ANN. § 15.2-970 (1997).

[153] 726 S.E.2d 264, 277 (2012).

6. Eminent Domain

The Tool: As waters begin to rise, simply restricting development may not be enough. Localities can buy frequently flooding properties as they become available on the market, or may try to condemn them, which can be an expensive and politically disfavored approach. Virginia localities are presently empowered to acquire private properties for a variety of public purposes: "[W]henever a locality is authorized to acquire real or personal property or property interests for a public use, it may do so by exercise of the power of eminent domain".[154] If the terms of purchase cannot be agreed upon, or for some reason negotiations are not possible, the governing body of any locality may use condemnation to acquire title to "(i) land, buildings and structures, (ii) any easement thereover or (iii) any sand, earth, gravel, water or other necessary material for the purpose of opening, constructing, repairing or maintaining a road or for any other authorized public undertaking".[155] In 2012, Virginia voters approved an eminent domain amendment to the state constitution that imposed limitations on the ability of the General Assembly to define "public use," expanded the scope of "just compensation" to include both "lost access" and "lost profits," prohibited takings beyond what is necessary, and imposed the burden of proof that the use is public on the condemnor.[156]

Localities are "authorized" to acquire property for a public use pursuant to the procedures laid out in Title 25.1 of the Virginia Code.[157] The phrases "is authorized" and "for a public use" in the condemnation statute set critical boundaries for the use of this tool.[158] Localities should exercise caution when using this tool to ensure full compliance with their explicit statutory authority. Furthermore, Virginia courts rely heavily on the particular facts of each case to determine "public use."[159] Courts often will assume a use is public when the Assembly defines it as "public" in statute, but that language is not conclusive.[160]

Some examples of when Virginia courts have allowed condemnation include: 1) when a city seized land for stormwater utility installation;[161] 2) when land was seized for a public service corporation to build a petroleum pipeline;[162] and 3) when land was seized to build an electric line that will primarily supply one private entity, but is available for public transmission generally.[163] Conversely, some examples of when Virginia courts have not allowed condemnation include: 1)

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[154] VA. CODE ANN. § 15.2-1901(A) (2013).
[155] VA. CODE ANN. § 15.2-1901.1 (2003).
[156] VA. CONST. art. I, § 11; Francis A. Cherry, Jr., *Aftermath of the "Property Rights" Amendment–Many Questions, Few Answer*, Journal of Local Government Law 3 (Spring 2013), http://www.vsb.org/docs/sections/localgovernment/lg-2013-spring.pdf.
[157] *See* VA. CODE ANN. § 25.1 (2014).
[158] *See* VA. CONST. art. I, § 11; *see, e.g.,* Kelo v. City of New London, 545 U.S. 469, 490 (2005) (defining a public use as "rationally related to a conceivable public purpose").
[159] *See* Hoffman Family, L.L.C. v. City of Alexandria, 634 S.E.2d 722, 729 (Va. 2006).
[160] *See, e.g., id.;* Infants v. Virginia Hous. Dev. Auth., 272 S.E.2d 649, 655 (Va. 1980); City of Richmond v. Dervishian, 57 S.E.2d 120, 123 (Va. 1950).
[161] *See, e.g.,* Hoffman Family, L.L.C., 634 S.E.2d at 722.
[162] *See, e.g.,* Peck Iron & Metal Co. v. Colonial Pipeline Co., 146 S.E.2d 169 (Va. Ct. App. 1966).
[163] *See, e.g.,* Nichols v. Cent. Va. Power Co., 130 S.E. 764 (Va. 1925).

seizing a drainage easement to drain private land with ancillary public benefits;[164] 2) seizing land to develop a public harbor that can later be sold to a private entity without restriction;[165] and 3) seizing a "slum" to provide the land to a developer.[166] Once again, these cases are very fact-specific, and should not be viewed as explicit authorizations for the actions of a locality.

How to Use It: As a general policy consideration, condemnation should not be employed before other measures. Unlike other legal tools, such as zoning, condemnation requires compensation of the property owner, so localities can pursue less drastic actions to address flooding that avoid these costs. Furthermore, the fact-specific nature of condemnation analysis in Virginia courts means there is inherent ambiguity to any condemnation. Additionally, the amendments approved in 2012 – specifically the inclusion of lost profits and lost access under just compensation, and the imposition of the burden of proof on the condemnor – will likely increase trial length and cost, as well as just compensation awards and settlements.[167] The Virginia Supreme Court has clarified that these amendments do not expand existing property rights, but rather modify the takings power to 1) exclude benefits to "private gain, private benefit, private enterprise, increasing jobs, increasing tax revenue, or economic development, except for the elimination of a public nuisance existing on the property" as public purposes and 2) add lost profits, and lost access to what losses require "just compensation."[168]

B. Voluntary Options

1. Development Rights

The Tool: In a method related to zoning, a locality may establish, by ordinance, procedures for the transfer of development rights (TDR) within its jurisdiction "to conserve and promote the public health, safety, and general welfare".[169] These programs can even cross county lines,[170] trading the development rights to the benefit of both localities. TDRs serve as a market-based approach to address sea level rise and recurrent flooding by incentivizing property owners to sell in a vulnerable location in exchange for the right to develop somewhere else.[171] In principle, a TDR program downzones one area and, in parallel, upzones another area.[172] Localities provide developers the option to purchase the increased development rights in the upzone area, and uses these funds to offset the loss of property values in the downzone area.[173]

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[164] *See, e.g.,* Phillips v. Foster, 211 S.E.2d 93 (Va. 1975).
[165] *See, e.g.,* Rudee Inlet Auth. v. Bastian, 147 S.E.2d 131 (Va. 1966).
[166] *See, e.g.,* Hunter v. Norfolk Redevelopment & Hous. Auth., 78 S.E.2d 893 (Va. 1953).
[167] *See,* Cherry, *supra* note 156.
[168] Palmer v. Atl. Coast Pipeline, LLC, 293 Va. 573, 584 (2017).
[169] VA. CODE ANN. § 15.2-2316.2(A) (2014).
[170] *See* JESSICA LUNG & MICHAEL KILLIUS, VA. COASTAL POLICY CTR., TOOLS FOR A RESILIENT VIRGINIA COAST: DESIGNING A SUCCESSFUL TDR PROGRAM FOR VIRGINIA'S MIDDLE PENINSULA (2016), http://law.wm.edu/academics/programs/jd/electives/clinics/vacoastal/reports/TDR_paper_LungKillius_p10.pdf.
[171] See, *id.*
[172] *See, id.*
[173] *See, id.*

Additionally, localities may purchase and receive property rights for the preservation of open space.[174] Localities have many options for these property rights including "(i) unrestricted fee simple title to tracts; (ii) fee simple title to such land subject to reservation of rights to use such lands for farming or to reservation of timber rights thereon; or (iii) easements in gross or such other interests in real estate of not less than five years' duration".[175] Under the Virginia Code, localities are empowered to "[p]urchase development rights that will be dedicated as easements for conservation, open space or other purposes pursuant to the Open-Space Land Act."[176] These development rights are defined by the level and quantity of development permitted by the zoning ordinance "expressed in terms of housing units per acre, floor area ratio or equivalent local measure."[177] The use of these lands must conform to the comprehensive plan of the area.[178]

How to Use It: A TDR program can be designed in conjunction with coastal zoning changes to adapt to sea level rise. For example, a locality could begin to create a commercial district in an area projected to avoid most recurrent flooding. Property owners in areas subject to recurrent flooding could sell development rights to developers in the commercial district, and those funds can be used to compensate coastal residents for various flood mitigation measures, such as leaving land undeveloped or maintaining a vegetative buffer zone. TDR programs are new to Virginia for sea level rise adaptation, but they have been employed in Virginia for other purposes before. Frederick County, for example, enacted a TDR ordinance in 2010 "to transfer residential density from eligible sending areas to eligible receiving areas and/or transferee through a voluntary process for permanently conserving agricultural and forestry uses of lands and preserving rural open spaces, and natural and scenic resources."[179]

The Office of Farmland Preservation (the "Office"), within the Virginia Department of Agriculture and Consumer Services, was created to help localities develop and operate purchase of development rights programs.[180] In addition to developing model programs, the Office also can secure grant funding for these conservation programs.[181] Generally, localities can use these funds to purchase the available development rights of a landowner, effectively paying them to keep the land undisturbed. Frederick County created a Conservation Easement Authority in 2005 to aid landowners in "protecting and preserving farm and forest land, open space, scenic vistas, historic sites, water resources and environmentally sensitive lands."[182]

The primary advantage of these development rights programs are that they skirt the costs of regulatory takings; these are voluntary options that economically compensate "downzoned"

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[174] VA. CODE ANN. § 10.1-1701 (1988).
[175] VA. CODE ANN. § 10.1-1703 (1988).
[176] VA. CODE ANN. § 15.2-5158 (2015).
[177] *Id.* at § 15.2-5158(7).
[178] *Id.*
[179] See Frederick County, Va., *Transfer of Dev. Rts. Ordinance* 1 (rev. Nov. 2013), http://www.co.frederick.va.us/home/showdocument?id=1028.
[180] Va. Code Ann. § 3.2-201(A)(4) (2014).
[181] Va. Code Ann. § 3.2-201(A-B).
[182] FREDERICK COUNTY, VA., *Conservation Easement Authority: Protecting Your Land With Conservation Easements,* (2015), http://www.fcva.us/departments/planning-development/boards-committees/conservation-easement-authority.

landowners, making it less likely that courts will consider such policies a taking. Furthermore, by using development rights programs to "upzone" areas outside of flood zones, a locality can improve its resilience, and create commercial districts that will survive the coming influx of water. This tool, however, is limited by a community's willingness to be "upzoned." If there is substantial resistance to denser zoning throughout a locality, it will be difficult to enact these types of programs.

2. Tax Incentives

The Tool: Title 58.1, Subtitle III of the Code of Virginia defines the taxation powers of localities to issue, maintain, assess and/or modify property taxes, excise taxes, license fees, sales taxes, etc.[183] For example, localities may, by ordinance, partially or fully exempt certified stormwater management developments and property,[184] partially exempt real estate that has erosion control improvements,[185] partially or fully exempt wetlands and riparian buffers subject to a perpetual easement permitting inundation by water,[186] and fully exempt any living shoreline project approved by VMRC or the locality's wetlands board.[187]

How to Use It: A locality could utilize its authority to exempt real property from taxation as a means of encouraging private sector participation in actions that encourage adaptation to sea level rise and recurrent flooding. For example, localities could encourage the installation of living shoreline projects by enacting an ordinance to exempt such projects from local taxation. When considering any such tax exemptions, localities should conduct a cost benefit analysis to weigh lost tax revenue versus the increased resilience to sea level rise.

C. Funding Options

1. Service Districts, and Taxes and Assessment for Local Improvements

The Tool: Localities may create service districts by ordinance "to provide additional, more complete or more timely services of government than are desired in the locality or localities as a whole."[188] Additionally, citizens can petition to create a service district,[189] although citizens moving into the community over time may not understand the original purpose for establishing the district, which may cause resistance to the tax. The language relevant to sea level rise issues says that after an ordinance creating a service district has been adopted, governing bodies have the power to "construct, maintain, and operate such facilities and equipment as may be necessary or desirable to provide additional, more complete, or more timely governmental services within a service district, including but not limited to…dams, … beach and shoreline management and

[183] *See*, Va. Code Ann. § 58.1, Subt. III.
[184] VA. CODE ANN. § 58.1-3660.1 (2013).
[185] VA. CODE ANN. § 58.1-3665 (1998).
[186] VA. CODE ANN. § 58.1-3666 (2016).
[187] *Id.*
[188] VA. CODE ANN. § 15.2-2400 (2000).
[189] VA. CODE ANN. § 15.2-2401 (1997).

restoration,… dredging creeks and rivers to maintain existing uses," and "other services, events, or activities that will enhance the public use and enjoyment of and the public safety, public convenience, and public well-being within a service district."[190] Localities have the authority "[t]o levy and collect an annual tax upon any property in such service district subject to local taxation to pay . . . expenses and charges for providing the government services authorized [elsewhere in the statute]."[191]

Additionally, Virginia Code § 15.2-2404 authorizes localities to impose taxes or assessments on specific property for local improvements – for example, sidewalks, waterlines, street improvements, flood control barriers, and underground utilities. Some of these authorizations, such as the one associated with flood control barriers, are limited to certain jurisdictions, including Hampton.[192] Proceeding in this manner does not require the establishment of a district.

How to Use It: In general, service districts are an effective means of creating community level solutions. Since service districts allow a locality to levy a more localized tax to provide a particularized service in an area, localities may potentially harness this tool to customize solutions for coastal and flood-prone communities. For example, Virginia Beach established the Sandbridge Special Service District in 1994. The purpose of the district is to "provid[e] financing for the local share of any beach and shoreline management and restoration project for the construction, maintenance, replenishment and restoration of the beach and shoreline on the Atlantic Ocean within the service district."[193] The American Shore and Beach Preservation Association (ASBPA) named the Sandbridge Beach Restoration Project as one of the best restored beaches for 2017.[194]

To a lesser scale, if a locality were looking to construct or improve a specific type of local improvement it may wish to pursue funding through a special tax or assessment. The locality would need to determine if the type of local improvement fell within the language of the locality's authority in state code. For example, a locality listed in Virginia Code § 15.2-2404(D) could construct a flood control barrier and impose a tax or assessment upon abutting property owners that received a direct benefit from the improvement.[195]

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[190] *See* VA. CODE ANN. § 15.2-2403 (2010).
[191] VA. CODE ANN. § 15.2-2403(6).
[192] VA. CODE ANN. § 15.2-2404(D) states, "The governing bodies of the Cities of Buena Vista, Hampton, and Waynesboro and the County of Augusta may, by duly adopted ordinance, improve taxes or assessments upon abutting property owners subjected to frequent flooding for special benefits conferred upon that property by the installation or construction of flood control barriers, equipment or other improvements for the prevention of flooding in such area[.]"
[193] Virginia Beach City Code § 35.1-4 (2017).
[194] American Shore and Beach Preservation Association, Celebrate America's beaches: ASBPA names its Best Restored Beaches for 2017 (May 22, 2017), http://asbpa.org/2017/05/22/celebrate-americas-beaches-asbpa-names-its-best-restored-beaches-for-2017/.
[195] VA. CODE ANN. § 15.2-2404 (allowing for taxes or assessments for stormwater management facilities).

2. Public-Private Partnerships

The Tool: Public Private Partnerships (PPPs) shift the risk and initial capital costs of infrastructure construction to the private sector.[196] Typically in a PPP, private developers, designers, and capital firms coordinate with a government to construct a public good, such as a highway, and maintain it for an agreed period of time. The private stakeholders balance this initial cost and future maintenance responsibility with some predictable revenue stream to justify the investment. For example, a firm may pay to build a bridge in exchange for future tolls.[197]

PPPs in Virginia are governed by two statutes. The first, the Public Private Transportation Act of 1995,[198] enables the formation of PPPs for the purpose of building transportation infrastructure. The second, the Public-Private Education Facilities and Infrastructure Act of 2002,[199]covers, effectively, any other project in the public interest. Both statutes allow governments and agencies, including local governments, to form these partnerships.

How to Use It: When public revenue is unavailable or insufficient for necessary facility and infrastructure resilience projects, PPPs may provide an avenue for local governments to build what is needed without negatively impacting their bond ratings by incurring excessive amounts of debt.[200]

3. Shoreline Resiliency Fund

The Tool: In 2016, the General Assembly established the Virginia Shoreline Resiliency Fund (the "Fund")[201] to enable local governments to create low-interest loan programs that "help residents and businesses that are subject to recurrent flooding as confirmed by a locality-certified floodplain manager."[202] Other states have developed similar programs, but Virginia's Fund is unique in that it provides loans to mitigate future predicted flood damage.[203]

How to Use It: At this time, the General Assembly has not appropriated moneys toward the Fund. Therefore, a first step to utilizing this tool would be to ensure that such moneys are appropriated and available.

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[196] *See* Va. Prac. Construction Law § 7:1, Public-private partnerships generally.
[197] *E.g.*, COMMONWEALTH OF VIRGINIA, VIRGINIA PUBLIC-PRIVATE PARTNERSHIPS, IMPLEMENTATION MANUAL AND GUIDELINES FOR THE PUBLIC-PRIVATE TRANSPORTATION ACT OF 1995 61 (2016), http://www.p3virginia.org/wp-content/uploads/2016/01/PPTA-Implementation-Manual-01-04-2016-final-posted-to-website-before-Jan-CTB.pdf.
[198] Public-Private Transportation Act of 1995, VA. CODE ANN. § 33.2-1800, *et seq*. (2014).
[199] Public-Private Education Facilities and Infrastructure Act of 2002, VA. CODE ANN. § 56-575.1, *et seq.* (2009).
[200] Highway development is perhaps one of the most salient examples of PPPs in Virginia. *See Projects,* OFFICE OF PUBLIC-PRIVATE PARTNERSHIPS, http://www.p3virginia.org/p3-projects/ (last visited Aug. 9, 2017).
[201] VA. CODE ANN. § 10.1-603.25 (2016).
[202] *Id.*
[203] E.g., Adaptation Clearinghouse, *Virginia SB 282: Shoreline Resiliency Fund*, (2016), http://www.adaptationclearinghouse.org/resources/virginia-sb-282-shoreline-resiliency-fund.html

III. ELEVATE, RELOCATE, OR RETREAT?

Ultimately, legal tools are a means to enact an array of policy options. For example, zoning can be used to retreat from the coast, to prevent further development in vulnerable areas, or to reinforce the coasts, by generously upzoning an area while simultaneously requiring the construction of flood mitigation infrastructure. Like all tools, the value of a legal tool is in its use.

In order to provide context to the legal mechanisms and powers discussed above, this section explores three different general policy initiatives for tackling coastal flooding at the local level: elevation, relocation, and retreat. Elevating infrastructure raises a number of potential legal and political issues, such as tort liability during and after the project, as well as the burden such a project places on the public coffers.[204] It can be a very costly undertaking to raise roads and other public infrastructure, and as noted above, a locality may be susceptible to a takings claim if it fails to properly maintain infrastructure of which it has taken control.[205] Relocating infrastructure may present fewer legal issues if all the work is being done on public lands, but as was seen in Cape Cod and discussed below, localities still have to deal with the backlash from local residents.[206]

Abandoning public infrastructure that is repeatedly flooding may come with the most political and legal consequences. At a certain point it may become too costly for a locality to maintain infrastructure, but this does not mean the locality is no longer responsible legally and financially because, as the example of Seagull Drive below shows, residents will challenge the decision.[207] A locality at that point could benefit from new statutory authority for resilience planning in order to reduce the number of complications that arise from their actions as sea level rise and recurrent flooding grow worse over time.

To assess each of these policy options, VCPC researched three jurisdictions outside of Virginia that have also dealt with these issues. Miami Beach, Florida; Cape Cod, Massachusetts; and Nags Head, North Carolina provide the backdrop for three methods of handling public infrastructure in light of sea level rise. These methods include raising infrastructure, relocating infrastructure, or, at the most extreme end of the spectrum, abandoning infrastructure.

A. Miami Beach, Florida – Elevating Infrastructure

Miami's situation is unique because it is the most economically vulnerable city to sea level rise in the world.[208] Miami Beach is built on a barrier island off the coast of southeast Florida and

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[204] *See* THOMAS RUPPERT, FLA. SEA GRANT, *Rising Above Sea-Level Rise: The Promise and Problems of Elevation*, https://www.flseagrant.org/wp-content/uploads/2012/01/Elevation_presentation_Ruppert.pdf.
[205] *See Livingston*, 726 S.E.2d 264 (2012).
[206] K.C. Myers, *Brewster residents fight parking lot plans*, CAPE COD TIMES (Jul. 18, 2015), [hereinafter Myers July 2015], http://www.capecodtimes.com/article/20150718/NEWS/150719446.
[207] Jeff Hampton, *Ocean wins battle for Seagull Drive in Nags Head*, THE VIRGINIAN-PILOT (Apr. 16, 2016), http://pilotonline.com/news/government/ocean-wins-battle-for-seagull-drive-in-nags-head/article_89c503fd-8130-539c-9e08-776d7b06a7c8.html.
[208] Shimon Wdowinski et al., *Increasing flooding hazard in coastal communities due to rising sea level: Case study of Miami Beach, Florida*, 126 OCEAN & COASTAL MGMT. 1, 2 (2016).

heavy rain or storm surges have caused flooding throughout its history.[209] Recently, however, rain-induced flooding has increased as well as sunny day, or tide-induced flooding, which has led to severe property damage.[210] Exacerbating this problem is the fact that Miami is built on top of porous limestone rock.[211] As the sea level rises, it pushes water into the underground holes of the limestone, which raises the water table.[212] This prevents more rain from being absorbed into the ground, leaving it to sit on the surface, adding to the flooding issues.[213] This also lessens the feasibility of a sea wall because it would have to be drilled past the limestone to be effective.[214] With the increase in flood events, the acceleration of sea level rise in this area,[215] and salt-water intrusion[216], city officials are starting to take action to combat the flooding moving forward. Miami Beach is investing up to $500 million in a project to elevate roads, install pumps, and raise sea walls around the city.[217]

Aside from the huge costs of undertaking a project to raise infrastructure, there are several legal issues that may pose some difficulties with sea level rise adaptations.[218] One problem is that it can be hard to find a legal basis for requiring private property owners to elevate their land, and it would most likely have to be done on a parcel-by-parcel basis.[219] Further complicating the issue is the possibility, depending on state law, that elevated parcels may be legally liable under nuisance law for the flooding of neighboring lands.[220] Projects to elevate infrastructure can be very expensive[221] to fund construction or to compensate landowners.[222] Elevating infrastructure can also create environmental externalities such as deepening estuaries.[223]

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[209] *Id.*
[210] *Id.*
[211] *Sea Level Rise FAQs*, HIGHWATERLINE MIAMI, http://highwaterline.org/sea-level-rise-faqs/ (last visited Aug. 9, 2017).
[212] *Id.*
[213] *Id.*
[214] Robert Ferris, *Why Miami is mostly unprotected from hurricanes*, CNBC (Aug. 27, 2015), http://www.cnbc.com/2015/08/27/why-miami-is-largely-unprotected-from-hurricanes.html.
[215] Shimon Wdowinski, *New Study Shows Increased Flooding, Accelerated Sea-Level Rise in Miami Over Last Decade*, U. MIAMI ROSENSTIEL SCH. OF MARINE & ATMOSPHERIC SCI. (Apr. 4, 2016), http://www.rsmas.miami.edu/news-events/press-releases/2016/new-study-shows-increased-flooding-accelerated-sea-level-rise-in-miami-over/.
[216] HIGHWATERLINE MIAMI, *supra* note 211.
[217] Joey Flechas & Jenny Staletovich, *Miami Beach's battle to stem rising tides*, MIAMI HERALD (Oct. 23, 2015), http://www.miamiherald.com/news/local/community/miami-dade/miami-beach/article41141856.html; *see also* Greg Allen, *As Waters Rise, Miami Beach Builds Higher Streets And Political Willpower*, NPR (May 10, 2016), http://www.npr.org/2016/05/10/476071206/as-waters-rise-miami-beach-builds-higher-streets-and-political-willpower.
[218] RUPPERT, *supra* note 204.
[219] *Id.*
[220] *See id.*
[221] *Id.*
[222] *Id.*
[223] James G. Titus, *Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region*, U.S. CLIMATE CHANGE SCI. PROGRAM, 99 (2009), https://nepis.epa.gov/Exe/ZyPDF.cgi/P100483V.PDF?Dockey=P100483V.PDF.

The other option, relevant to what is being done in Miami Beach, is to avoid private property and elevate public roads and infrastructure.[224] Again, there may be legal challenges to this undertaking depending on state law.[225] The liability for flooding may lie with a locality if the elevated road creates a new drainage pattern, which leads to the denial of beneficial use of land or increased flooding.[226] For example, localities in Louisiana are joining in a class action lawsuit against the state claiming that a newly-built 19-mile-long concrete barrier between lanes on a highway worsened the serious flooding in 2016 by acting like a dam.[227] Another potential issue with raised roads is flood insurance, and the inability of business owners to make claims because they are below grade level once a road is raised.[228] In one example, FEMA denied a claim for flood damages to a restaurant called Sardinia in Miami Beach after a pump failed because FEMA's current policy classifies anything below street level as a basement, which is what many businesses now fall under with raised roads.[229] This will remain a problem until FEMA's policy changes, and Miami Beach is working with the agency to reassess that classification.[230]

B. Cape Cod, Massachusetts – Relocating Infrastructure

Cape Cod is facing problems from the erosion of their shorelines, and is resorting to a form of retreat to address their issues.[231] At Herring Cove Beach, Cape Cod's most popular life-guarded beach, the northern parking lot is falling apart as the beach washes away in front of it.[232] The parking lot was built on top of the beach in the 1950s, and over the years an artificial dune was maintained in front of the parking lot by pushing windblown sand from the parking lot to the dune.[233] Erosion problems, and damage from a storm in December of 2011, led to responsive actions being taken to address the beach's issues.[234] These started with public meetings about stakeholder interests and possible options for beach redesign projects.[235] The solution decided upon was to demolish the current parking lot and build a new one 125 feet behind it to allow for

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[224] *Id.*
[225] *Id.*
[226] *Id.*
[227] *See* Heidi Kinchen, *Livingston Parish to join lawsuit over I-12 median wall, believed to have worsened flooding*, THE ADVOCATE (Jan. 26, 2017), http://www.theadvocate.com/baton_rouge/news/communities/livingston_tangipahoa/article_d3360200-e42c-11e6-972c-f3263bdc9482.html**;** *see also* Kevin Fambrough, *DOTD, 21 contractors sued for Great Flood of 2016; I-12 barrier called a 'dam'*, THE LIVINGSTON PARISH NEWS (Jan. 6, 2017), http://m.livingstonparishnews.com/news/dotd-contractors-sued-for-great-flood-of-i--barrier/article_154ad886-d3b2-11e6-9a5c-578a95aafaa1.html.
[228] *See* Amanda Ruggeri, *Miami's fight against rising seas*, BBC (April 4, 2017), http://www.bbc.com/future/story/20170403-miamis-fight-against-sea-level-rise.
[229] *Id.*
[230] *Id.*
[231] Jess Bidgood, *At a Cape Cod Landmark, a Strategic Retreat From the Ocean*, NEW YORK TIMES (July 6, 2016), https://www.nytimes.com/2016/07/07/us/at-a-cape-cod-landmark-a-strategic-retreat-from-the-ocean.html?emc=eta1&_r=2.
[232] Nat'l Park Service, *Coastal Adaptation Strategies: Case Studies*, 41-42 (Courtney A. Schupp et al. eds., 2015), https://www.nps.gov/subjects/climatechange/upload/2015-11-25-FINAL-CAS-Case-Studies-LoRes.pdf.
[233] *Id.*
[234] *Id.*
[235] *Id.*

shoreline restoration.[236] The new parking lot location accounts for fifty years of projected sea level rise, and the artificial dune will be reshaped to match the natural topography of the beach while allowing tourists to continue enjoying watching the sun set or seeing the North Atlantic right whales that come to Cape Cod Bay.[237]

While the changes should increase the longevity of the popular tourist spot, they did not come without dissent. For example, similar change have caused some of the beachgoers to worry that moving the parking lot will negatively impact their experience at Herring Cove Beach.[238] This is not dissimilar from other beaches around the Cape Cod National Seashore. In 2015, residents of Brewster opposed parking lot renovations at Breakwater Beach.[239] Residents put together a petition opposing a plan to move the parking area back 120 feet and build an artificial sand dune.[240] Even though there was enough support garnered to implement a moratorium and hold a town meeting to discuss the relocation plans, the residents ultimately failed in stopping the project.[241] One of the main arguments against moving the parking lot is that it would be relocated to a park that was gifted to the town.[242] However, town officials said that using the land as a parking lot falls within the public purpose intent of the gift because it provides access to the beach.[243]

Other forms of managed retreat exist as well. There could be a buyback program that features government entities purchasing at-risk properties from private owners.[244] It could also come in the form of government regulation through bans on new construction in vulnerable areas or on hard armoring of the coastline.[245] However, actions like these are very difficult when private property is involved.[246] The relocation projects around the Cape Cod National Seashore would surely face many more roadblocks than they already do if they were not occurring on public land.[247]

C. Nags Head, North Carolina – Abandoning Infrastructure

At the most extreme end of the sea level rise adaptation spectrum, the Town of Nags Head has resorted to the abandonment of infrastructure.[248] On September 7, 2016, the Nags Head Board

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[236] Bidgood, *supra* note 231.
[237] Nat'l Park Service, *supra* note 232.
[238] Bidgood, *supra* note 231.
[239] Myers July 2015, *supra* note 206.
[240] *Id.*
[241] K.C. Myers, *Brewster beach projects OK'd after moratorium article withdrawn*, CAPE COD TIMES (Sept. 3, 2015), http://www.capecodtimes.com/article/20150902/NEWS/150909813.
[242] *Id.*
[243] *Id.*
[244] Bidgood, *supra* note 231.
[245] *Id.*
[246] *Id.*
[247] *Id.*
[248] Hampton, *supra* note 207.

of Commissioners voted to close a portion of Seagull Drive.[249] The road has been a headache for town residents and officials as rising sea levels and storms have repeatedly battered it.[250] Now all that remains after thousands of dollars spent, a beach nourishment project, and other ineffectual adaptation techniques, is one solitary home on the beachfront road.[251]

In the end, it was too much of a burden for the town to maintain the road. All of the high-end houses on the street were condemned and the town eventually had to settle with property owners for over a million dollars.[252] Any work the town did to maintain a drivable road only lasted until the next storm hit.[253] Abandoning the road does not mean that people can no longer use the right-of-way, but the town no longer has the responsibility and financial burden of maintaining Seagull Drive.[254]

Although the town may no longer have the expense of road repairs, issues with Seagull Drive have not completely disappeared. Some of the reasoning behind closing the road was to incentivize residents to work out easement deals with neighbors for access to their property.[255] While some residents have worked out easements, the town may have to become more involved in the process if the residents cannot all come to agreements.[256] There are also public safety concerns. Residents are worried that closing the road will become a public safety issue because it will become more difficult for emergency vehicles to access the area.[257] Another issue is that the last condemned house remaining may pose a danger with debris and its exposed septic tank.[258] That property was not part of the previous settlement with homeowners, and the town claims that the house falls under the jurisdiction of North Carolina because it now is on public trust land and in *Town of Nags Head v. Cherry, Inc.*, the North Carolina Court of Appeals held that "[a]ny party, public or private, can assert title to land on the strength of a deed, but only the State, acting in its sovereign capacity, may assert rights in land by means of the public trust doctrine."[259] This may end up leading to more legal battles as property owners, Nags Head, and North Carolina decide who has to pay to remove the last vacant house on Seagull Drive.[260]

IV. SEEKING A BIGGER TOOLBOX

This section examines potential state actions that could support the ability of local governments to address the issues of sea level rise and recurrent flooding. The VCPC does not

[249] Neel Keller, *Nags Head closes portion of Seagull Drive*, OUTER BANKS SENTINEL (Oct. 21, 2016), http://www.obsentinel.com/news/nags-head-closes-portion-of-seagull-drive/article_00559c8a-79b8-11e6-b712-df451b398ed2.html.
[250] *Id.*
[251] Hampton, *supra* note 207.
[252] Keller, *supra* note 249.
[253] Hampton, *supra* note 207.
[254] Keller, *supra* note 249.
[255] *Id.*
[256] *Id.*
[257] *Id.*
[258] Hampton, *supra* note 207.
[259] Town of Nags Head v. Cherry, Inc., 219 N.C. App. 66, 723 S.E.2d 156, 159 (2012).
[260] Hampton, *supra* note 207.

expressly advocate for any one of these initiatives; rather, each option is merely a concept that can be modified as necessary, or used to inspire new ideas.

A. Statutory Clarifications

One of the simplest actions the Commonwealth could take to pave the way for local action is to add new language to already existing statutes and policies in order to dispel any concerns about localities' authority to act to address a future risk. These small changes are important due to the limitations of the Dillon Rule. If the Commonwealth is willing to allow a locality to use a certain power to address future flooding due to sea level rise, the legislature may simply add a phrase such as: "for the purpose of managing, mitigating, and preventing probable future flooding."

This type of clarifying language could be useful in relation to local authorities related to land use planning and development. For example, expanding the language of Virginia Code § 15.2-2223.3 beyond Hampton Roads to include all coastal localities, and providing parameters on how localities should consider VIMS' coastal resource management guidance in their comprehensive plans as required by Virginia Code §§ 15.2-2223.2 and 28.2-1100(9), would be helpful. And, the language of Virginia Code §§15.2-2283 and -2284 could be expanded to incorporate specific authority for localities to incorporate future sea level rise and recurrent flooding as an explicit purpose and factor for zoning consideration. The incorporation of such language may reduce locality concern as to whether enacting zoning for future projected flooding is "arbitrarily or capriciously depriv[ing] a person of the legitimate use of his or her property."[261]

Furthermore, clarification could be provided with respect to stormwater utility fees. Localities can currently establish a service charge as part of their stormwater management programs to fund the construction of infrastructure such as dams and levees;[262] the Commonwealth could add "future predicted flooding" language to this statute to explicitly grant localities the authority to impose a utility fee or service charge to be used for the planning, design, construction, operation, and maintenance of infrastructure related to future sea level rise and recurrent flooding.

B. Funding Options

In addition to clear authority to act, localities also need funding options to assist with the implementation of adaptation measures. Some ways in which the Commonwealth could provide funding options to localities would be to: (1) appropriate moneys to the Virginia Shoreline Resiliency Fund,[263] (2) establish express statutory language for localities to create a service district[264] encompassing coastal properties subject to recurrent flooding which would provide a locality with funding for adaptation measures for that community, and (3) expand the language of

[261] The Virginia Constitution states that "no person shall be deprived of his life, liberty, or property without due process of law." VA. CONST. art. 1, § 11; *see* Kamptner, *supra* note 126, at 6-1, 6-4 (2017).
[262] VA. CODE ANN. § 15.2-2114.
[263] VA. CODE ANN. § 10.1-603.25.
[264] VA. CODE ANN. § 15.2-2400.

the Public-Private Education Facilities and Infrastructure Act[265] and Public Private Transportation Act[266] to specifically authorize the establishment of public-private partnerships to fund the construction of public buildings and infrastructure that are resilient to future flooding risks. Additionally, existing funding tools such as those administered by the Virginia Resources Authority and Virginia Department of Environmental Quality could be evaluated for their applicability to adaptation measures.

V. CONCLUSION

Although there are potential limitations on a locality's ability to plan for and address sea level rise and recurrent flooding, there are solutions for moving forward. Localities are not powerless to act in preparation for sea level rise. In general, localities should emphasize voluntary incentive programs, such as a transfer of development rights program, which lessen the likelihood of an unconstitutional takings claim. Land use and development regulations, such as comprehensive planning, zoning, and subdivision ordinances, can each be harnessed, within respective limits, to establish a regulatory environment that guides the future of local land use. Localities may also lobby the General Assembly for explicit authorization to use some tools they arguably may already possess and to encourage state support for funding options. By thus encouraging action at the local level, the Commonwealth could improve the flexibility of its adaptation to sea level rise and recurrent flooding.

[265] VA. CODE ANN. §§ 33.2-1800 to -1824.
[266] VA. CODE ANN. §§ 56-575.1 to -575.18.

Appendix A: Virginia Court Treatment of the Dillon Rule

- ***National Realty Corp. v. City of Virginia Beach*, 209 Va. 172 (1968)**
  - A realty corporation challenged the validity of examination fees for subdivision applications. The Supreme Court of Appeals of Virginia held that the fees were invalid because the Code of Virginia included no express grant of authority to localities to charge them.[267]
- ***Commonwealth v. County Board of Arlington*, 217 Va. 558 (1977)**
  - The Virginia Supreme Court held that where a local government bases its authority on an implied power, the court should look to legislative intent and prior actions of the General Assembly to determine the scope of the locality's authority.
  - Under the "reasonable selection of method" rule, once a court determines that an express or implied grant of authority exists, it defers to a locality's reasonable selection of its method of executing that grant.
  - The Virginia Supreme Court held that the County exceeded its delegated power to supervise schools by entering into collective bargaining agreements with labor organizations.[268]
- ***Wright v. Norfolk Electoral Board*, 223 Va. 149 (1982)**
  - The Supreme Court of Virginia prevented an election in Norfolk that would have determined property taxes in the locality by popular referendum.
  - The Court noted that local governments are limited by grants of power from the General Assembly, and those grants of power are in turn limited by the Virginia Constitution. Less specific language in the Constitution vesting power in the people must yield to more specific language limiting the authority of localities.
- ***Cupp v. Board of Supervisors of Fairfax County*, 227 Va. 580 (1984)**
  - Implied grants of power must be necessary to the execution of some explicit power. Implied powers must be narrowly construed.
  - Here, the defendant Board of Supervisors required a dedication of land through a conditional use permit issued by the government, based upon the right to grant special exemptions "under suitable regulations and safeguards."[269] The Supreme

[267] National Realty Corp. v. City of Virginia Beach, 209 Va. 172, 175 (1968).
[268] Commonwealth v. County Board of Arlington County, 217 Va. 558, 576-81 (1977).
[269] Cupp v. Board. of Supervisors of Fairfax County., 227 Va. 580, 594, 318 S.E.2d 407, 410 (1984).

Court of Virginia found for the plaintiffs, decrying such an overbroad reading of the statute.

- ***County Bd. of Arlington County v. Brown*, 229 Va. 341 (1985)**
  - The Virginia Supreme Court discussed "whether a county has the power to lease to a private developer publicly owned land currently used for public purposes." The Court here reiterates that the powers of localities are limited by statute.
  - The County claimed to exercise a right to lease unused land, as provided by the Virginia Code, but the Court held that the land in question, while underdeveloped, did conform with the plain meaning of the term "unused".[270]
- ***Resource Conservation Mgmt., Inc. v. Board of Supervisors of Prince William*, 238 Va. 15 (1989)**
  - The court ruled the Virginia Waste Management Act did not preempt the locality's authority to regulate landfills implied by the land use regulatory power.[271]
  - Similarly, localities are likely to maintain their authority to enact certain zoning and land use restrictions even if there are other state level provisions that would appear to preempt that authority.
- ***City of Richmond v. Confrere Club of Richmond*, 239 Va. 77 (1990)**
  - The Court determined that a city ordinance that delegated authority to suspend bingo and raffle permits overstepped the authority granted by the Virginia Code, which requires that a local governing body, not an appointed official, conduct compliance hearings.
  - In this case, the court reinforced the principle of using legislative intent to evaluate a locality's interpretation of a statute. If the General Assembly communicated a plain and unambiguous meaning in the legislation, localities should follow this plain meaning rather than looking to "extrinsic evidence or to the rules of construction" for an interpretation.[272]
- ***Tidewater Ass'n of Homebuilders, Inc. v. City of Virginia Beach*, 241 Va. 114 (1991)**
  - The Virginia Supreme Court upheld a fee implemented to pay for a water project in Virginia Beach that allowed the City to take water from Lake Gaston.
  - The Court emphasized a locality's interest in preserving the health and welfare of its constituents, and made clear that the operation of a water system is a necessary means to promote that interest.
  - The Court argued that if a locality is authorized to take on a project, using financial levers to fund the project is an implied extension of that authority. Requiring the General Assembly to preemptively approve of every potential fund-raising tool would be impractical.
- ***Trible v. Bland*, 250 Va. 20 (1995)**
  - In this case, the locality approved a less restrictive residential zone that allowed for a group home. Plaintiff homeowner argued that a statute proscribing the

[270] County Bd. of Arlington County v. Brown, 229 Va. 341, 344-45 (1985).
[271] Res. Conservation Mgmt., Inc. v. Bd. of Sup'rs of Prince William Cnty., 238 Va. 15, 22, 380 S.E.2d 879, 883 (1989).
[272] City of Richmond v. Confrere Club of Richmond, Virginia, Inc., 239 Va. 77, 80, 387 S.E.2d 471, 473 (1990).

locality's authority to "zone out" group homes also proscribed that locality from downzoning to permit group homes in a residential zone. The Court determined that the locality did not exceed its authority because the statute did not limit more permissive zoning, only more restrictive zoning.[273]

- ***City of Virginia Beach v. Hay*, 258 Va. 217 (1999)**
    - The Court decided whether a city attorney could take advantage of a personnel grievance procedure available only to "merit employees." The attorney argued that the City had exceeded its authority in hiring him by appointment. The City's Charter described how the City's law department should be organized, but gave no express hiring authority.
    - In this case, the Court determined that the locality's method of exercising an implied authority would be upheld as long as it is reasonable.[274] Where a power exists, any doubt of reasonableness is resolved in favor of the locality.[275] This reverses the usual presumption against the locality when the existence of the implied authority is uncertain.[276]
- ***Board of Supervisors of Augusta County v. Countryside Investment Co.*, 258 Va. 497 (1999)**
    - When a locality adds specificity to a zoning ordinance, it can be invalidated if the new ordinance is more expansive than what is clearly granted in the enabling statute.
    - In this case, the Court invalidated a subdivision ordinance that established the lot size and floor space of parcels of land. The ordinance was not based on the enabling authority in Virginia Code section 15.2-2241 or 15.2-2242 and therefore was beyond the scope of the locality's authority.[277]
- ***Arlington County v. White*, 259 Va. 708 (2000)**
    - If a term is not clearly defined in the enabling statute, the locality must define that term "reasonably."[278]
    - Here, the locality extended self-funded health insurance coverage to unmarried "domestic partners." The Court determined this definition was an unreasonable expansion of the locality's granted authority because it required only financial interdependence in place of dependence.[279]
- ***Logie v. Town of Front Royal*, 58 Va. Cir. 527 (2002)**
    - In this case, the locality inspected residential rental properties, which was within its authority, and shut off power to properties that were in violation of the Uniform Statewide Property Maintenance Code.[280]

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[273] Trible v. Bland, 250 Va. 20, 25, 458 S.E.2d 297, 299 (1995).
[274] City of Virginia Beach v. Hay, 258 Va. 217, 223, 518 S.E.2d 314, 317 (1999).
[275] Com. v. Cnty. Bd. of Arlington Cnty., 217 Va. 558, 576, 232 S.E.2d 30, 41 (1977).
[276] Board of Sup'rs of Powhatan Cty. v. Reed's Landing Corp., 250 Va. 397, 400 (1995).
[277] Board of Supervisors of Augusta County v. Countryside Investment Co., 258 Va. 497 (1999).
[278] Arlington Cnty. v. White, 259 Va. 708, 712, 528 S.E.2d 706, 708 (2000).
[279] *Id*. at 721-22.
[280] Logie v. Town of Front Royal, 58 Va. Cir. 527 (2002).

- The court determined that the locality exceeded its enabling authority because it went beyond its authority to inspect properties by shutting off power, which was outside of the legislative intent.[281]

- ***Board of Supervisors of Fairfax County v. Robertson*, 266 Va. 525 (2003)**
  - In this case, the Court upheld a county zoning regulation that required a 200-foot setback based on projected noise and traffic impacts.[282] The residential home builder seeking an exemption from this setback requirement argued that the county's denial of his application was "arbitrary, capricious, and unreasonable."[283]
  - The Court disagreed, holding that the county presented sufficient evidence, including projected noise and traffic levels, making the denial of the application reasonable and within its authority.[284]
- ***Eberth v. County of Prince William*, 49 Va.App. 105 (2006)**
  - This case invalidated an ordinance penalizing car owners who parked uninspected vehicles on public highways. The ordinance extended past the scope of authority granted by the General Assembly in the way it defined highways and because it attempted to regulate parking as opposed to operation of a vehicle.
  - This provides an example of a locality stepping beyond the capacity of its statutory authority. Prince William County defined a public highway by the number of lots or living units when the enabling statute allowed definition of public highways only by number of lots.
  - The court also found that "park" and "operate" in the context of vehicles had distinguishable meanings. The relevant section of the Virginia Code regulated operation of vehicles, and Prince William extended its reach beyond that to include parking as well.
- ***Logan v. City Council of City of Roanoke*, 275 Va. 483 (2008)**
  - Plaintiff Logan challenged the validity of a subdivision by claiming that the locality had exceeded its powers under the Dillon Rule by delegating its application and enforcement authority over subdivisions.
  - The Virginia Supreme Court upheld the delegation. The Court affirms its commitment to strictly reading the text of express grants of authority, and its "[presumption] that every part of a statute has some effect. . . ."[285]
- ***Board of Zoning Appeals of Fairfax County v. Board of Sup'rs of Fairfax County*, 276 Va. 550 (2008)**
  - The Court found that the Board of Zoning Appeals (BZA) could not litigate on its own behalf because no state law expressly granted it that power.
  - This case discusses the "corollary" of the Dillon Rule, which applies the Dillon Rule to other public bodies, such as boards of supervisors and school boards.[286]

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[281] *Id*.
[282] Board of Supervisors of Fairfax County v. Robertson, 266 Va. 525, 528 (2003).
[283] *Id*. at 538.
[284] *Id*.
[285] Logan v. City Council of City of Roanoke, 275 Va. 483, 492-93 (2008).
[286] *See, e.g.*, Payne v. Fairfax County School Bd., 288 Va. 432, 437-38 (2014).

The Court clarifies that "[t]he corollary to Dillon's Rule does not refer to sources from which a municipal corporation derives its power…." Regardless, the corollary to the Dillon Rule does apply the rule to Boards of Zoning Appeals.[287]

- ***Marble Technologies v. City of Hampton*, 279 Va. 409 (2010)**
  - In this case, the city's zoning ordinance used federal criteria to establish the parameters of the local areas protected under the Chesapeake Bay Preservation Act.[288] The issue was whether the city was authorized to use this federal criterion under the state enabling authority when Sections 10.1-2200(A)(ii) and 10.1-2109 of the Code of Virginia required that localities use criteria established by the state.[289]
  - The Court concluded that the city "lacked express or implied authority to consider" federal criteria and therefore exceeded its authority under the act.[290]
  - Just as in *City of Richmond v. Confrere Club of Richmond,* the Court here held that when there is ambiguity over the limits of the local government's authority, the Dillon Rule requires that the question be construed against the local government.[291] This differs from the rule seen in *Commonwealth v. County Board of Arlington*, where any ambiguity in the method of implementation is construed in favor of the local government.
- ***Schefer v. City Council of Falls Church*, 279 Va. 588 (2010)**
  - In this case the court upheld a city ordinance that regulated the height of one-family dwellings.
  - In matters of zoning, localities have broad discretion under the Dillon Rule. Contrast this deference to the more skeptical review by courts of ambiguities in specific definitions and criteria in a statute.[292]
  - The party challenging the exercise of authority bears the burden of demonstrating that it is unreasonable, arbitrary, or capricious.[293]
- ***Sinclair v. New Cingular Wireless PCS, LLC*, 283 Va. 567 (2012)**
  - In this case, the Virginia Supreme Court held that the broad zoning authority granted by §15.2-2280 of the Code of Virginia did not allow the Albemarle County Board of Supervisors to delegate its legislative function, the approval of critical slope waivers, to the planning commission.[294]
  - In reaching this decision, the Court noted that the General Assembly does sometimes grant localities the power to delegate legislative functions, but only in those instances where doing so is expressly provided by statute.[295]

[287] Board of Zoning Appeals of Fairfax County v. Board of Sup'rs of Fairfax County, 276 Va. 550, 554.
[288] Marble Technologies v. City of Hampton, 279 Va. 409, 421 (2010).
[289] ALBERMARLE COUNTY HANDBOOK, *Supra* note xvii, at 5-5.
[290] *Id*.
[291] Marble Technologies, Inc. v. City of Hampton, 279 Va. 409, 417 (2010).
[292] *Supra* note 17.
[293] Schefer v. City Council of City of Falls Church, 279 Va. 588, 596 (2010).
[294] Sinclair v. new Cingular Wireless PCS, LLC, 283 Va. 567 (2012).
[295] *Id*.

- The Court also noted that in the case of a conflict between a local ordinance and a state statute, the statute will always prevail.[296]

- ***Town of Occoquan v. Elm Street Development, Inc.*, 82 Va. Cir. 53 (2010)**
  - The Virginia Supreme Court held that the town of Occoquan exceeded its authority under the Dillon Rule when adopting a zoning ordinance that required a special use permit (SUP) for construction on critical slopes in residential areas.[297]
  - While the Town did have some authority under the Chesapeake Bay Preservation Act to exercise its police and zoning powers to protect water quality, the General Assembly had specifically withheld that the authority to require SUPs in by-right residential development areas.[298]
  - A locality cannot implement more restrictive requirements than a previously enacted state statute.
- ***Johnson v. Arlington County*, 794 S.E.2d 389 (2016)**
  - Two taxpayers challenged the locality's decision regarding the consideration of Transfer of Development Rights (TDRs) in their real estate assessments. The County had certified their properties as sending zones, but in the years before it approved a receiving zone for the TDRs, it assessed the taxpayers' properties at a much higher value because of them.
  - The Virginia Supreme Court, interpreting section 15.2–2316.2 of the Virginia Code, ruled that the County could not tax the TDRs until it passed a set of twelve TDR-related ordinances. The Court acknowledged that the word "shall" in some circumstances can be construed as permissive, not mandatory. The plain language of the statute in this case, however, indicated that the "shall" in § 15.2–2316.2 was intended to be mandatory.

[296] *Id*.
[297] Town of Occoquan v. Elm Street Development, Inc., 2012 82 Va. Cir. 53.
[298] *Id*.