

**FLOODING THE CITIES: HOW LAND USE POLICIES
CONTRIBUTE TO CLIMATE GENTRIFICATION**

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I. INTRODUCTION91

II. THE STORM IS BREWING: THE BEGINNINGS OF CLIMATE CHANGE
AND CLIMATE GENTRIFICATION92

 A. An Increase in Climate Change Patterns.....92

 B. The Start of Climate-Caused Gentrification.....94

III: CITIES IN THE EYE OF THE STORM: THE POLICY RESPONSE.....96

 A. How Takings Jurisprudence is Implicated97

 B. Keenan’s Proposal: Inclusionary Zoning97

 C. Protection Policies.....100

 D. Retreat Policies101

 E. Accommodation Policies.....107

 F. How Climate Change Policies Influence Climate
 Gentrification.....108

IV: HOW TO WEATHER THE STORM.....109

 A. Amortization as a Solution.....109

 B. Transferable Development Rights as a Solution111

 C. Land Use Policies Must Coexist to be Successful112

V. CONCLUSION113

I. INTRODUCTION

Over 94 million Americans live in coastal counties.¹ Despite the coast’s scenic views and salty charm, more and more people will flee the coast as sea levels rise, the sea engulfs their property, and the cost of maintaining their ocean-view homes becomes too high.² Those who can

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² Jesse M. Keenan et al., *Climate Gentrification: From Theory to Empiricism in*

afford to escape rising sea levels and the accompanying floods will flock to high ground, forcing out those who can no longer afford to stay.³ This is known as “climate gentrification,” where those escaping the sea gentrify inland areas and displace long-term residents, usually minorities or members of impoverished communities.⁴

This comment discusses three types of policies commonly implemented by municipalities to combat climate change and rising sea levels—protection, accommodation, and retreat policies—and explores how they will contribute to climate gentrification. In reviewing these policies, this comment offers solutions to combat the displacement of residents on the mainland as more coastal residents flee the rising sea levels. At this time, only studies in Miami and its surrounding area have covered the concept of climate gentrification.⁵ This comment, however, focuses on climate gentrification as a national phenomenon, and considers general policy proposals to illustrate how those policies affect this concept.

Part II of this comment provides a brief history of climate change and sea level rise, introduces climate gentrification, and explains how these two concepts are related. Part III explores the three types of climate change mitigation policies, their effectiveness in protecting property owners by the sea, and how those policies could affect gentrification inland. Part IV proposes a pragmatic solution that keeps the interests of both the coastal property owners and mainland dwellers in mind. This comment only targets the legal implications of “climate gentrification,” how to best combat those effects to prevent displacement, and how property owners on both the coasts and dry land can conceptualize its potential effects in the near future as the law adapts to climate change. Gentrification arguments, for or against, are beyond the scope of this comment.

II. THE STORM IS BREWING: THE BEGINNINGS OF CLIMATE CHANGE AND CLIMATE GENTRIFICATION

A. *An Increase in Climate Change Patterns*

Hurricane Michael in 2018, equipped with “unprecedented strength,” took sixteen lives, destroyed hundreds of homes, erased utilities for weeks, and brought with it a toxic algal bloom in the Florida Panhandle.⁶ Michael

Miami-Dade County, Florida, 13 ENVTL. RES. LETTERS 5, at 1 (2008), <https://iopscience.iop.org/article/10.1088/1748-9326/aabb32/meta>.

³ *Id.*

⁴ *Id.*

⁵ *Id.*

⁶ *Michael's Death Toll Jumps as Crews Search for Survivors*, CBS NEWS, Oct. 12, 2018,

<https://www.cbsnews.com/live-news/hurricane-michael-damage-florida-flooding-georgia->

was the first Category 4 hurricane to hit the Panhandle region, one of only four hurricanes to hit the Panhandle in the last fifty years, and the strongest hurricane to hit the continental U.S. in over twenty years.⁷ Hurricane Harvey in 2017 was nearly as destructive, if not more destructive than Michael, accompanied by orders of evacuation and a path of destruction still being repaired to this day.⁸ Hurricanes Sandy in 2012, notorious Katrina in 2005, and Irma in 2017 also hold the title as some of the deadliest and costliest hurricanes to hit the United States.⁹ While shocking and disturbing, these superstorms are becoming a norm as analysts predict this will be an expected pattern each year.¹⁰ Scientists attribute these monster hurricanes to the worsening effects of a rising global temperature.¹¹

Climate change researchers are watching the potential for hurricane numbers, duration, and strength to rise as a result of rising ocean temperatures.¹² Warmer temperatures act as a power source for hurricanes as warmer air can hold more moisture leading to more rainfall, and warmer water allows the storm to draw energy from the ocean water, thereby intensifying winds.¹³ This further suggests that this increase in temperature correlates with rising destructive superstorm activity.¹⁴

Certain negative externalities accompany an increase in hurricanes, such as toxic algal production and flash floods. Hurricane Michael's dump of a toxic algal bloom deposited a dangerous red tide phenomenon which occurs more frequently each year.¹⁵ Toxic algae kill massive amounts of

power-outage-weather-deaths-today-live-updates.

⁷ Brandon Miller & Brandon Griggs, *Michael is the Strongest Hurricane to Hit the Continental US Since Andrew*, CNN, Oct. 11, 2018, <https://www.cnn.com/2018/10/09/weather/hurricane-michael-stats-superlatives-wxc-trnd/index.html>.

⁸ Chris Huber et al., *2017 Hurricane Harvey: Facts, FAQs, and How to Help*, WORLD VISION, Sept. 7, 2018, <https://www.worldvision.org/disaster-relief-news-stories/hurricane-harvey-facts>.

⁹ *Costliest U.S. tropical cyclones tables updated*, NAT'L HURRICANE CTR., Jan. 26, 2018, <https://www.nhc.noaa.gov/news/UpdatedCostliest.pdf>.

¹⁰ Wei Cui & Luca Caracoglia, *Exploring hurricane wind speed along US Atlantic coast in warming climate and effects on predictions of structural damage and intervention costs*, 122 ENG'G STRUCTURES 209, 210 (2016).

¹¹ *Id.* at 210.

¹² *Id.*

¹³ *Hurricanes and Climate Change*, UNIV. CORP. FOR ATMOSPHERIC RESEARCH, <https://scied.ucar.edu/hurricanes-and-climate-change> (last visited Nov. 3, 2019).

¹⁴ Cui, *supra* note 10, at 210.

¹⁵ Gustaff Hallegraeff, *Ocean Climate Change, Phytoplankton Community Responses, and Harmful Algal Blooms: A Formidable Predictive Challenge*, 46 J. OF PHYCOLOGY 220, 228–29 (2010).

marine life and cause respiratory illnesses in humans.¹⁶ Flooding is also a cause for concern because storm-surges often threaten life and property as additional water volume engulfs the mainland.¹⁷ These flooding events are becoming more catastrophic; by 2080, 100-year flood events are expected to change to thirty-year flood events.¹⁸ Flooding from Hurricane Sandy reached levels that occur roughly every 1,000 years, but by the end of this century such a storm could occur every twenty years.¹⁹

Perhaps the most concerning effect, at least for purposes of this comment, is the rising sea level. The sea level has risen about seven inches over the past century due to oceanic expansion from warmer temperatures, glacier melt, and ice sheet melt.²⁰ Three of the nine highest recorded water levels in the New York Harbor region have occurred since 2010, and eight of the largest twenty have occurred since 1990.²¹ As the sea level rises, coastal storms will push the sea to levels and areas never before seen in human history, creating record high flood levels more and more frequently along the coast.²² The rising sea level will not only flood its surroundings, but also erode shorelines and will likely displace entire coastal communities.²³ This leaves vulnerable the ninety-four million people who reside in coastal properties in the U.S.²⁴

B. The Start of Climate-Caused Gentrification

Jesse Keenan, a Harvard scholar who studies residential patterns in Miami and other coastal regions, predicts that climate change will greatly influence the residential market in areas of high elevation.²⁵ He has coined the term “climate gentrification” to denote middle-to-upper income residents leaving in Miami Beach and other similar places prone to nuisance flooding in favor of higher elevation, which in turn raises the price of property in those areas.²⁶

¹⁶ *Michael's death toll jumps*, *supra* note 6.

¹⁷ Claire Weisz et al., *Design Meets Science in a Changing Climate: A Case for Regional Thinking to Address Urban Coastal Resilience*, 82 SOC. RES. 839, 839 (Fall 2015).

¹⁸ *Id.*

¹⁹ Michael Oppenheimer, *Adapting to Climate Change: Rising Sea Levels, Limiting Risks*, 82 SOC. RES. 673, 677 (Fall 2015).

²⁰ *Id.* at 675.

²¹ Weisz, *supra* note 17, at 839.

²² Oppenheimer, *supra* note 19, at 677.

²³ Robin Kundis Craig, *A Public Health Perspective on Sea-Level Rise: Starting Points for Climate Change Adaptation*, 15 WIDENER L. REV. 521, 535 (2010).

²⁴ Cohen, *supra* note 1.

²⁵ Keenan, *supra* note 2, at 2.

²⁶ Keenan, *supra* note 2, at 1.

Based on Keenan's study, there are two "pertinent pathways" by which people can be displaced around the coastal regions.²⁷ First, as population moves from coastal areas to inland urban areas, those without means can be displaced from the urban areas because the inland property becomes unaffordable by virtue of its resiliency, that is, its inability to flood and risk-adverse development potential.²⁸ Keenan found the rate of appreciation for a single-family property in Miami Dade County was positively correlated with incremental measures of higher elevation. He therefore hypothesized that the cost of living in the inland areas will drastically rise as households gradually move from the coastal barrier islands to the mainland to avoid flooding.²⁹

The second pathway hypothesizes that it will become increasingly expensive to maintain coastal property, forcing those coastal dwellers to higher elevation.³⁰ Keenan posits that coastal dwellers will pay an increased cost in property taxes, insurance, repairs, and time from sitting in traffic in water-logged streets.³¹ Those who can no longer bear these costs will move inland, thereby displacing some of the existing urban population.³² Based on these population displacements, Keenan concludes that "[l]and use regulators will be tasked with evaluating the consequences of relocation and densification, particularly in higher-elevations."³³ He theorizes that to mitigate the influx in population and the accompanying chance of gentrification, inland municipalities should begin an inquiry into inclusionary zoning—the creation of affordable housing by governmental mandate.³⁴

Keenan is not the first to provide a framework for mitigating the negative effects of climate change. Since the 1960s, policymakers at the state and federal levels began to seriously consider an appropriate response to climate change—implementing plans focusing on safety, neighborhoods, buildings, structures, and most importantly, residents.³⁵ In 2008, federal

²⁷ Keenan, *supra* note 2, at 2–3.

²⁸ Keenan, *supra* note 2, at 2 (The inland urban areas (e.g. Little Haiti in Miami) are "less vulnerable to flooding, in part, because of a known reliance on gravitational flows to manage water in [Miami-Dade County.] More fundamental to the theory, it describes a behavior of moving financial capital to a geography that offers superior risk-adjusted returns for accommodating real estate and infrastructure.").

²⁹ Keenan, *supra* note 2, at 2.

³⁰ Keenan, *supra* note 2, at 3.

³¹ Keenan, *supra* note 2, at 3.

³² Keenan, *supra* note 2, at 3.

³³ Keenan, *supra* note 2, at 9.

³⁴ Keenan, *supra* note 2, at 7.

³⁵ See, e.g., Clean Air Act, 42 U.S.C. § 7401 (first enacted in 1955 and continuously revised since); California Global Warming Act, Cal Health & Saf Code § 38501 (enacted in 2006).

and state officials warned Congress that the threat of climate change was irreversible, and states should receive assistance from the federal government to facilitate proper solutions to cope with rising sea levels.³⁶

III: CITIES IN THE EYE OF THE STORM: THE POLICY RESPONSE

Three government-sponsored policies commonly used to minimize the hazards of climate change are: (1) accommodation policies; (2) protection policies; and (3) retreat policies.³⁷ Accommodation policies attempt to minimize the damage to buildings from flooding, storm surges, and hurricanes.³⁸ These policies aim to minimize the damage to structures caused by flooding and storms through costly insurance policies, minimum floor elevations on newly constructed buildings, structural bracing, or building codes that comport with flood insurance policies.³⁹ These policies do exactly as their name suggests, allowing for continuous climate change impact without trying to prevent the damage or mitigate the future risk. Protection policies take a different approach, defending property against the threat of rising sea levels, storm surges, and floods usually through sturdy structures like levees or barriers, such as dunes.⁴⁰ Both accommodation and protection policies work to keep property in place and usable by residents. In contrast, retreat policies aim to decrease the hazards of sea level rise by prohibiting or removing development from areas vulnerable to flooding.⁴¹ These policies are analyzed, along with Keenan's proposed solution of inclusionary zoning, to understand the implication they may pose on the law and future displacement issues. Any government action against private property will implicate the Takings Clause of the Fifth Amendment, which could impede the success of these policies.⁴² Furthermore, because of the complexity of these policies and the legal challenges they convey, lawmakers may end up wasting time on the hurdles they present rather than finding solutions for those on the mainland who are at risk of displacement.⁴³

³⁶ Devon Applegate, *The Intersection of the Takings Clause and Rising Sea Levels: Justice O'Connor's Concurrence in Palazzolo Could Prevent Climate Change Chaos*, 43 B.C. ENVTL. AFF. L. REV. 511, 512 (2016).

³⁷ *Id.* at 515.

³⁸ John R. Nolan, *Symposium: Post-Zoning: Alternative Forms of Public Land Use Controls: Land Use and Climate Change: Lawyers Negotiating Above Regulation*, 78 BROOK. L. REV. 521, 549 (2013).

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² Applegate, *supra* note 36, at 512.

⁴³ *Infra* notes 64–66.

A. How Takings Jurisprudence is Implicated

The Takings Clause of the Fifth Amendment protects private property from government seizure without just compensation.⁴⁴ The U.S. government may take private property under the power of eminent domain, so long as the government can prove a “public use” for the land.⁴⁵ Local governments can regulate private property through regulatory schemes like building codes and city zones that promote public health, safety, welfare, or morals.⁴⁶ While most regulation requires no government compensation to those affected by it, sometimes a regulation destroys the value of private property in a way deemed to be a taking.⁴⁷ In taking private property, the government must satisfy the just compensation requirement, ensuring the property owner is paid fairly for doing so.⁴⁸ The Supreme Court has frequently held that the market value of property at the time of the taking is the best measure for compensation.⁴⁹

Land use regulations enacted to protect landowners from climate change will inevitably restrict private property development and will be subject to takings challenges.⁵⁰ Takings Clause jurisprudence, however, “lacks both uniformity and clarity,” and judges will have to answer to landowners’ takings challenges as a result of climate change policies, ultimately becoming “chaotic.”⁵¹

B. Keenan’s Proposal: Inclusionary Zoning

Keenan’s solution to climate gentrification is inclusionary zoning.⁵² That term refers to a scheme that “requires developers to mitigate the adverse effects of non-residential development upon the shortage of housing either indirectly, by contributing to an affordable-housing trust fund, or directly, by constructing affordable housing.”⁵³ For example, the ordinance at issue in *Holmdel Builders Association v. Holmdel* allowed the developer to either build below density requirements or to contribute to a trust fund for a percentage of the purchase price of the new units.⁵⁴ The

⁴⁴ U.S. CONST. amend. V.

⁴⁵ Applegate, *supra* note 36, at 517.

⁴⁶ See *Euclid v. Ambler Realty Co.*, 272 U.S. 365, 387 (1926); *infra* note 90.

⁴⁷ See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1015-16 (1992); see also *infra* notes 108–143.

⁴⁸ See *infra* notes 77–87.

⁴⁹ See *U.S. v. Commodities Trading Corp.*, 339 U.S. 121, 123 (1950).

⁵⁰ See Applegate, *supra* note 36, at 512; see *infra* notes 87–118 (explaining a “regulatory taking”).

⁵¹ Applegate, *supra* note 36, at 512.

⁵² Keenan, *supra* note 2, at 9.

⁵³ *Holmdel Builders Ass’n v. Holmdel*, 583 A.2d 277, 284 (N.J. 1990).

⁵⁴ *Id.* at 281–83.

trust fund was used for the direct benefit to the production of lower income units in any given project.⁵⁵ Other examples of ordinances typically allow the developer to allot a percentage of new units for lower income families or to contribute to a similar trust fund.⁵⁶

The developers in *Holmdel* challenged the inclusionary ordinance, claiming the ordinance was an unconstitutional grant of statutory power, which constituted a taking of property.⁵⁷ The *Holmdel* court in previous years decided *S. Burlington County NAACP v. Mt. Laurel (Mt. Laurel II)*,⁵⁸ which imposed an affirmative obligation on every municipality in New Jersey to provide affordable housing. In *Holmdel*, the court held that the inclusionary ordinance at issue served the purpose of providing affordable housing within a region and bore a real and substantial relationship to the regulation of land use, thereby adhering to the *Mt. Laurel* doctrine.⁵⁹ The court held there was no unconstitutional grant of statutory power because through the *Mt. Laurel II* decision and New Jersey's Fair Housing Act, each municipality had the power to enact ordinances to further affordable housing goals.⁶⁰ "The fact that defendants sought to accomplish the general-welfare goal of affordable housing by development fees rather than by mandatory set-asides did not negate a 'real and substantial relationship' of such development fees to the regulation of land."⁶¹ As for the takings claim, the court held that as long as the ordinances were "not confiscatory and [did] not result in an inadequate return of investment," there was no injury.⁶²

In theory, inclusionary zoning considers the finite supply of land and ensures the opportunity and means to provide affordable housing.⁶³ In practice, however, inclusionary zoning has not proven to be as effective. For example, the Florida Legislature enacted the Growth Management Act

⁵⁵ *Id.* at 282–83.

⁵⁶ *Id.*

⁵⁷ *Id.* at 280.

⁵⁸ *S. Burlington Cty. NAACP v. Mt. Laurel*, 456 A.2d 390 (N.J. 1983) (The Mount Laurel zoning ordinance at issue allowed for only the kinds of housing affordable to people of a higher income. ("[I]n most places—relatively high-priced, single-family detached dwellings on sizeable lots and, in some municipalities, expensive apartments.") Plaintiffs were low income residents alleging that the zoning ordinances excluded low and moderate-income families from the town. The court held that a municipality was required to use land use regulations to provide a realistic opportunity for low and moderate income housing.)

⁵⁹ *Holmdel*, 583 A.2d at 288.

⁶⁰ *Id.*

⁶¹ *Id.* at 286.

⁶² *Id.* at 293.

⁶³ *See id.* at 285.; *see also Hills Dev. Co. v. Bernards Twp.*, 510 A.2d 621, 653 (N.J. 1986); *Tocco v. N.J. Council on Affordable Housing*, 576 A.2d 328, 329 (N.J. Super. Ct. App. Div. 1990).

(GMA), which required municipalities to take housing supply and affordability into account when adopting comprehensive plans for future city growth.⁶⁴ Despite its intentions, the authors of the GMA admit it resulted in more “aspirational goal-setting as opposed to realistic planning.”⁶⁵ These goals, policies, and objectives were unrealized and were not fully implemented because the municipalities have promulgated development regulations that cap permissible development at a density far less than the density required to achieve the plan’s goal.⁶⁶

Furthermore, inclusionary zoning has been criticized for imposing “significant burdens on those who wish to develop their property.”⁶⁷ Governments seeking to build new housing for low-income families do so assuming that housing needs must primarily be met with new construction.⁶⁸ However, most low-to-moderate-income housing has always been provided through “filtering,” a process by which the wealthy move into brand new homes, the moderate-income population move into older homes, and the low-income population occupy outdated housing.⁶⁹ Revenues raised from taxing new construction could instead be spent by an inclusionary government program to assist low-income families in purchasing already-existing housing units.⁷⁰

To summarize, it is perhaps the case that Keenan’s suggestion of implementing more inclusionary zoning policies is not the best solution to limit displacement caused by climate gentrification. As discussed below, each policy proposed to assist in climate change mitigation also presents its own set of legal challenges.⁷¹ The best solution is to tie inclusionary zoning into the climate change policies to introduce a new idea of transferable development rights (TDRs), discussed in Part IV.⁷²

⁶⁴ J. Michael Marshall & Mark A. Rothenberg, *An Analysis of Affordable/Work Force Housing Initiatives and Their Legality in the State of Florida* Part I, 82 FLA. B.J. 79, 80 (2008).

⁶⁵ *Id.*

⁶⁶ *Id.* (No Florida statutes could be found nor case law discussing the success or failure or legality of inclusionary ordinances in Florida).

⁶⁷ Home Builders Ass’n of N. California v. City of Napa, 108 Cal. Rptr.2d 60, 64 (Cal. Ct. App. 2001).

⁶⁸ Robert C. Ellickson, *The Irony of “Inclusionary” Zoning*, 54 S. CAL. L. REV. 1167, 1185 (1981).

⁶⁹ *Id.* at 1184–85.

⁷⁰ *Id.* at 1202.

⁷¹ *Infra*, notes 73–148.

⁷² *Infra*, notes 156–176.

C. Protection Policies

Protection policies are those which focus on defending individual buildings and sites from flooding and shore erosion to combat climate change effects.⁷³ This includes building dunes, levees, floodwalls, tidal barriers, or barrier islands.⁷⁴ To build protectionist measures, local governments, and the federal government can take an easement from private property through eminent domain.⁷⁵ In addition, the government may also take the entirety of a private property through eminent domain, discussed below as a form of retreat.⁷⁶

Determining “just compensation” under eminent domain jurisprudence is confusing and presents an obstacle to effectively implementing protection policies. Consider a protective dune or wall on someone’s private property built by the government to save the property; how much economic value and practical use did the government usurp by stripping a family of thirty feet of beach access or twenty-two feet of beach visibility? Is it possible the government added value to the home by doing so, considering this protective dune will add at least fifty years of life to the property? This issue of just compensation under similar facts arose in *Borough of Harvey Cedars v. Karan*.⁷⁷

In *Harvey Cedars*, the Borough condemned a portion of the Karan family’s property to replace an existing smaller dune with a larger dune.⁷⁸ The new dune was part of a larger shore-protection project designed to protect all residents of the Borough from “the destructive fury of the ocean,” but it resulted in the Karans losing part of their view of the beach.⁷⁹ The court determined that the Karans were entitled to just compensation under the New Jersey and United States Constitutions, but the question remained on how to properly calculate just compensation, given that the Karans’ property value was both lessened and enhanced by the dune.⁸⁰

Just compensation should be based on benefits that are “capable of reasonable calculation at the time of the taking.”⁸¹ Benefits which are speculative should not be considered in a just compensation analysis.⁸²

⁷³ Applegate, *supra* note 36, at 515.

⁷⁴ Applegate, *supra* note 36, at 515.

⁷⁵ See Joshua Ulan Galperin, *Raisins and Resilience: Elaborating Horne’s Compensation Analysis with an Eye to Coastal Climate Change Adaptation*, 35 STAN. ENVTL. L.J. 3, 6–8 (2016).

⁷⁶ See *infra*, notes 89–130.

⁷⁷ *Borough of Harvey Cedars v. Karan*, 70 A.3d 524 (N.J. 2013).

⁷⁸ *Id.* at 527.

⁷⁹ *Id.* at 527–28.

⁸⁰ *Id.* at 526–27.

⁸¹ *Id.* at 540.

⁸² *Id.*

Benefits that both sellers and buyers agree enhance the value of the property, however, should be considered in the determination, whether they are “special or general.”⁸³ The court failed to define either “special” or “general,” saying those labels have outlived their usefulness.⁸⁴ The court agreed with the Borough’s argument that the Karans’ newfound ability to stay on their property greatly increased the value of the home, thus the court remanded the case for the jury to determine what the value of the protection was.⁸⁵ The court declared the fair market value of the property to be the standard required in just compensation cases, but the determination of fair market value was ultimately a question for the jury.⁸⁶ Subsequently, the Karans and the Borough settled for one dollar.⁸⁷

This uncertainty of value determinations could disadvantage littoral property owners because their expectations for the price of their property would be left to jury members—lay persons who lack expertise in such calculations. The before and after market approach likely results in little compensation, just like in *Harvey Cedars*, as the government would likely argue the thirty years of protection from the dune, albeit a taking, adds value. It is likely there will be an influx of compensation challenges in the near future, if governments turn to protectionist measures and take from private property to protect them.⁸⁸ These protectionist policies are only delaying the inevitable, because eventually the water will become impossible to hold back. Littoral property owners will eventually have to move from their coastal homes, leaving the problem of displacement to repeat itself.

D. Retreat Policies

Retreat policies attempt to reduce the hazards of sea levels rising by restricting, prohibiting, or removing development altogether from areas at risk of being destroyed by flooding.⁸⁹ These policies force populations out of their homes either through the acquisition of the entire property by eminent domain, or by prohibiting land development via land use

⁸³ Borough of Harvey Cedars v. Karan, 70 A.3d 524, 540 (N.J. 2013).

⁸⁴ *Id.* at 540.

⁸⁵ *Id.* at 529, 541–44.

⁸⁶ *Id.* at 543 (“We can only ensure that every person will receive just compensation, as promised by our State and Federal Constitutions. Using fair market value as the benchmark is the best method to achieve that result.”).

⁸⁷ Brittany Harrison, *The Compensation Conundrum in Partial Takings Cases and the Consequences of Borough of Harvey Cedars*, 2015 CARDOZO L. REV. DE NOVO 31, 36–37 n.37 (2015) (citation omitted).

⁸⁸ *See infra*, pp. 18–19.

⁸⁹ Applegate, *supra* note 36, at 515.

regulations.⁹⁰ Retreating is generally deemed impossible by local governments because it is “politically unpopular and expensive,” especially when it is done through an eminent domain taking of already-developed properties.⁹¹ Although unpopular, retreating has slowly crept into city planning in urban and rural areas through zoning ordinances; these ordinances are considered to be a more proactive approach of climate change policies that prevent flood disasters.⁹²

While some coastal dwellers choose to retreat without government intervention due to high costs of maintaining their coastal property, or because they become disillusioned by competing with the sea, more often retreat occurs from direct land use regulations enacted to encourage retreat.⁹³ Typical regulations to ward off the rising sea level include prohibitions against residential use, setting parcel bulk restrictions, and prohibitions of any further development on the property.⁹⁴ By declining further development or residential use, the city exercises its police powers to protect public health, safety, and welfare, which changes with the needs of time.⁹⁵ Zoning regulations are generally held valid in recognition of those police powers.⁹⁶

In a regulatory taking, the government regulates land use, but it does so to the point at which the owner loses all beneficial use of the property.⁹⁷ Regulatory takings should not be confused with eminent domain—the difference being that the government explicitly takes property by eminent domain for a specific public purpose.⁹⁸ A regulation is not a taking if it destroys the utility of one portion of the land as long as the entire land as a

⁹⁰ Land use regulation is controlled primarily through zoning ordinances to control and direct the development of property. Zoning controls the height, use, bulk, and density of buildings. Use zones typically control if the building will be used for industry, residence, or other purposes. Height zones control limits and maximums for airspace and stories of a building. Bulk controls the lot’s size, normally the lot’s percentage of occupation. Density establishes population limits on the lot, by controlling how many people can occupy the space based on square feet. Cities should deny zoning ordinances which request “upzoning,” or increasing allowable uses or developments on land near water, because these areas are at risk for flooding. “Downzoning,” or reducing the number of allowable uses, is more appropriate for at-risk areas in recognition of the city’s police power. *See* JULIAN CONRAD JUERGENSMEYER, ET AL., *LAND USE PLANNING AND DEV. REGULATION LAW* 65, 4th ed. (2018).

⁹¹ Debbie M. Chizewer and A. Dan Tarlock, *New Challenges for Urban Areas Facing Flood Risks*, 40 *FORDHAM URB. L.J.* 1739, 1756 (2013).

⁹² *Id.*

⁹³ Alice Kaswan, *Climate Change Adaptation and Land Use: Exploring the Federal Role*, 47 *J. MARSHALL L. REV.* 509, 515 (2013)

⁹⁴ JUERGENSMEYER, *supra* note 90, at 65.

⁹⁵ *Murphy, Inc. v. Westport*, 40 A.2d 177, 180 (Conn. 1944) (citation omitted).

⁹⁶ *Id.*

⁹⁷ *See Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1015-19 (1992) (citation omitted).

⁹⁸ *See Kelo v. City of New London*, 545 U.S. 469 (2005).

whole remains valuable.⁹⁹ Retreat policies may be challenged as regulatory takings if the ordinance deprives the land of all economically beneficial use.¹⁰⁰ In such a case, the government will have to answer to a regulatory takings challenge and might have to pay just compensation if the action is found to be a taking.¹⁰¹

In a seminal regulatory takings challenge, *Lucas v. South Carolina Coastal Council*, a landowner paid nearly one million dollars for two residential lots on an island that was subsequently regulated by the municipality to ban any permanent habitability structures from being built.¹⁰² Lucas contended that the ban was an unconstitutional regulatory taking, even though the government did not take the land for its own use, because it had prevented Lucas from using the land in its entirety.¹⁰³ South Carolina insisted that the regulation was enacted to protect the land from harmful and noxious uses, which the Court had seemingly always allowed a government to do within its police powers.¹⁰⁴ South Carolina argued that Lucas's development would be a nuisance because the construction would contribute to the erosion of the island, furthering the public harm.¹⁰⁵ The Supreme Court held that, notwithstanding the regulation, if an ordinance deprives land of all economically beneficial use, the government may resist compensation only if the inquiry into the nature of the owner's estate shows that the proscribed uses were not part of the title to begin with.¹⁰⁶ Particularly, if the state can prove that its nuisance law would have enjoined the development, then a regulation that prevents the development does not constitute a regulatory taking—even if it leaves the property valueless.¹⁰⁷

The Court used examples to describe regulatory takings that would not entitle a landowner to just compensation: a lakebed owner who was denied a permit to participate in a landfill operation would not be entitled to compensation if the effect would flood others' land;¹⁰⁸ a nuclear generating plant owner would not be entitled to compensation for removing all of the land improvements if the plant sat on an earthquake fault.¹⁰⁹ Both of these regulations eliminate all economic productive use for the landowners.

⁹⁹ See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1015-19 (1992)

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.* at 1006-07.

¹⁰³ *Id.* at 1009.

¹⁰⁴ *Id.* at 1022.

¹⁰⁵ *Lucas*, 505 U.S. at 1027.

¹⁰⁶ *Id.* at 1022.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

However, the use of these properties for the now-prohibited purposes was already unlawful, the regulations did not prohibit a productive use that was previously permissible under existing nuisance principles.¹¹⁰

The inquiry into nuisances entails an analysis of the degree of harm to public lands and resources, degree of harm to adjacent private properties, the social value of the claimant's activities and their suitability to the locality in question, and the relative ease with which the alleged harm can be avoided through measures taken by the claimant and government alike.¹¹¹ The Court remanded *Lucas*, and stated that, in order for South Carolina to succeed, it "must identify background principles of nuisance and property law that prohibit the uses" Lucas intended in the circumstances in which the property was presently found.¹¹² "Only on this showing can the State fairly claim that, in proscribing such beneficial uses, the [land use regulation] is taking nothing."¹¹³

Lucas may be one of few land-owner-friendly regulation cases.¹¹⁴ This presents a seemingly new question, that is, if regulations were enacted to protect the *landowner* against harmful or dangerous property, would they too be struck down?¹¹⁵ If a regulation prevented a landowner from building not to protect the land as a historical site or open space, but to prevent the landowner from any physical or financial harm due to impending floods or storms, would that regulation be upheld to protect against an existing

¹¹⁰ *Id.* at 1029–30.

¹¹¹ *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1030–32 (1992).

¹¹² *Id.* at 1031.

¹¹³ *Id.* at 1032.

¹¹⁴ *Infra* notes 117–121.

¹¹⁵ Additionally, if these regulations did protect the landowner from the dangers of flooding, but did not strip the land of all economic value, how would the courts rule? It is likely the courts would reject these claims brought by a landowner. For example, in Maine, a regulation restricted permits for a limited time to harvest timber on certain woodlands for the purpose of protecting wildlife. A harvesting company brought suit, claiming the regulation constituted a taking as it rendered the land "useless" and was an unreasonable exercise of Maine's police power in violation of due process. The court rejected these claims. The harvesting company asserted that the value of the land as timberland has been destroyed, hence the value of the land for any purposes was zero; however, the court in rejecting that assertion stated there were other purposes for the land besides harvesting timber. The court held there is no place for expectations of future profits except to the extent those expectations are reflected in present market value, and because the harvesting restriction was only temporary, the land wasn't technically useless. As for the due process claim, the court stated the requirements of due process in the exercise of police powers separated into three elements: (1) the object of the exercise must be to provide for the public welfare; (2) the legislative means employed must be appropriate to the achievement of the ends sought; and (3) the manner of exercising the power must not be unduly arbitrary or capricious. The court held the first two requirements were equally satisfied in that protecting wildlife was a valid object and controlled cutting clearly furthered a legitimate and significant public purpose. *Seven Islands Land Co. v. Maine Land Use Regulation Com.*, 450 A.2d 475, 482–483 (Me. 1982).

nuisance? Or would it be struck down as in *Lucas* as stripping the landowner of the value of his property?

Land use law and flood ordinance jurisprudence suggest “that the prevention of risky flood plain development, even if partially done for parental reasons, is a valid police power objective” and would withstand a landowner’s takings challenge.¹¹⁶ Under *Lucas*, if a new development causes flooding on surrounding parcels, that constitutes a nuisance. A regulation that prevents such construction, then, would not be a regulatory taking even if it led to a total loss in value because the development was a nuisance to begin with.

“Courts have rejected many Fifth Amendment challenges to flood plain ordinances.”¹¹⁷ Courts have only held regulations pertaining to flood plain zoning invalid “in a few of the more than 125 appellate state and federal cases addressing floodplain regulations over the last decade,” including those that challenge the regulation as a taking of private property.¹¹⁸ In *Beverly Bank v. Illinois Department of Transportation*, the court held that the Illinois legislature had the authority to prohibit the construction of new residences in the 100-year floodway and that a taking claim was premature.¹¹⁹ In *State of Wisconsin v. Outagamie County Board of Adjustment*, the court held that a variance for a replacement of fishing cottage in the floodway of a river was barred by a valid zoning ordinance.¹²⁰ In yet another case, a court rejected a claim that the rezoning of a 150-acre golf course from residential to strictly recreational use was a taking because the property was important for floodwater storage.¹²¹

As sea levels rise, regulatory takings challenges will likely increase as local governments strive to find the best solution to protect their citizens.¹²² Because the courts have routinely held that restricted zoning to protect citizens, wildlife, or for preservation purposes all fall within a city’s police powers, it is likely that restricting coastal living will be deemed lawful and appropriate to further a city’s safety scheme.¹²³ Retreat policies, which

¹¹⁶ Chizewer, *supra* note 91, at 1760–61.

¹¹⁷ Chizewer, *supra* note 91, at 1761.

¹¹⁸ Chizewer, *supra* note 91, at n. 122.

¹¹⁹ *Beverly Bank v. Ill. DOT*, 579 N.E.2d 815, 822–23 (Ill. 1991).

¹²⁰ *Wisconsin v. Outagamie Cty. Bd. of Adjustment*, 532 N.W.2d 147, 147 (Wis. Ct. App. 1995).

¹²¹ *Bonnie Briar Syndicate, Inc. v. Town of Mamaroneck*, 721 N.E.2d 971, 976 (N.Y. 1999).

¹²² See Michael Allan Wolf, *Article and Essay: The Brooding Omnipresence of Regulatory Takings: Urban Origins and Effects*, 40 *FORDHAM URB. L.J.* 1835, 1843 (2013).

¹²³ See *Murphy, Inc. v. Westport*, 40 A.2d 177, 180–81 (Conn. 1944); *Lauridsen Family, L.P. v. Zoning Bd. of Appeals of Greenwich*, 2018 Conn. Super. LEXIS 1452, at *14 (Conn. Super. Ct. Jul. 12, 2018); *Lee Cty. v. Morales*, 557 So. 2d 652, 655 (Fla. Dist. Ct. App. 1990). Also consider how the Court expanded the public use definition so easily

focus on keeping the population safe and are constitutional, only exacerbate the effects of climate gentrification. As a result of retreat policies, people may be increasingly forced out of their homes and obligated to find homes on the mainland, rushing displacement and not allowing time for any solutions to form.

As for retreat policies that would take an entire property through eminent domain, the Supreme Court has expanded eminent domain powers by interpreting “public use” broadly; thus it is likely these would be constitutional takings.¹²⁴ The Supreme Court ruled in *Kelo v. City of New London*¹²⁵ that a city could take private property and redistribute it to private developers without violating the public use requirement of the Constitution’s Fifth Amendment.¹²⁶ The Court reasoned that “public use” also meant anything could fall under the purview of “public purpose,” meaning economic revitalization promoted the government’s interest in economic development.¹²⁷ Using *Kelo*, local governments have justified flipping the urban demographic. For example, New York City revitalized Harlem and Brooklyn using *Kelo*’s very principle.¹²⁸ *Kelo* led to displacement in these instances where the original residents lost their housing to those who could pay more money for the new-and-improved housing in the same location.¹²⁹

Retreating may seem, to coastal residents, as the most unjust form of policy.¹³⁰ Many littoral residents may not want to leave their homes due to strong ties to their communities, children, schools, and personal attachments. Moving may no longer be a choice as rising sea levels requires moving as the only option for safety,¹³¹ but forcing residents out without planning for an adjustment on the mainland only worsens the effects of climate gentrification.

within *Kelo*. The court could very well expand the state’s police powers in the name of safety.

¹²⁴ *Kelo v. City of New London*, 545 U.S. 469, 481–82 (2005).

¹²⁵ *Id.* at 486.

¹²⁶ *Id.* at 489.

¹²⁷ *Id.* at 486.

¹²⁸ David Linhart, *Eminent Domain Conversion of Vacant Luxury Condominiums into Low-Income Housing*, 21 B.U. PUB. INT. L.J. 129, 138 (2011).

¹²⁹ *Id.*

¹³⁰ Kaswan, *supra* note 93, at 514–15. (“Retreat is the most controversial response to climate impacts. Residents and local governments are loathe to relinquish settled neighborhoods.”).

¹³¹ *Id.* (“Increasing risk exposure and the cost and fallibility of protection and accommodation measures suggest that, ultimately for some areas, retreat is the only feasible and financially affordable option.”).

E. Accommodation Policies

Americans believe that people and businesses most at risk from rising sea levels should foot the bill for recovery efforts and not the general public or government.¹³² Despite this sentiment, accommodation policies continue to aid those along the coasts. One of the most problematic accommodation policies is the National Flood Insurance Program (NFIP).¹³³ Enacted in 1968 as a response to the private insurance market refusing to offer flood insurance, the NFIP aimed to insure residents in the zones found on the program's flood maps, showing which areas were high risk or low risk.¹³⁴ The NFIP is managed through the Federal Emergency Management Agency (FEMA), and participation in NFIP is not required in communities.¹³⁵ The insurance is only available to owners in communities that participate in the program by agreeing to enact certain measures to help mitigate flood risk; however, the program does not require communities to restrict or forbid building in flood-prone areas.¹³⁶ Flood-prone areas are found on maps drawn by FEMA.¹³⁷ The maps are not updated regularly, and as sea level rises and floods occur more frequently, the maps cannot keep up with the modern change in flood areas or predicted changes in flood-prone zones.¹³⁸

NFIP is heavily subsidized by taxpayers and \$25 billion in debt; it has been operating at a loss for over a decade.¹³⁹ Some homeowners take advantage of the program by rebuilding the same \$100,000 home over nearly two decades of recurring flood damage and super-storm beatings, using over a million dollars of insurance resources.¹⁴⁰ This ability to repeatedly rebuild storm-destroyed homes in the same storm-threatened location is not only "uneconomical and inefficient but also could significantly interfere with a local government's [climate change strategy.]"¹⁴¹ Despite the interference, some local governments favor accommodation policies because compensating victims and promising for a

¹³² Chizewer, *supra* note 91, at 1758.

¹³³ Alexander Lemann, *Trolling Back the Tide: Toward An Individual Mandate For Flood Insurance*, 26 FORDHAM ENVTL. L. REV. 166, 182-83.

¹³⁴ H. Joseph Coughlin Jr., *With National Flood Insurance Program 'Under Water,' It's Time to Move to an All Natural-Hazard Plan*, ENVTL. DUE DILIGENCE GUIDE (Jun. 12, 2017).

¹³⁵ Lemann, *supra* note 133, at 179.

¹³⁶ Lemann, *supra* note 133, at 179.

¹³⁷ Lemann, *supra* note 133, at 179.

¹³⁸ Lemann, *supra* note 133, at 179.

¹³⁹ See Lemann, *supra* note 133, at 176 and 207.

¹⁴⁰ Lemann, *supra* note 133, at 176 and 207.

¹⁴¹ Megan M. Herzog & Sean B. Hecht, *Combatting Sea Level Rise in Southern California: How Local Governments Can Seize Adaptation Opportunities While Minimizing Legal Risk*, 19 HASTINGS W.-N.W. J. ENV. L. & POL'Y 463, 507 (2013).

future change is easier than encouraging people to leave.¹⁴²

Furthermore, insurance rates will continue to rise in order to insure the properties repeatedly affected by climate change; the higher the rates rise, the less likely homeowners will choose to stay.¹⁴³ Mortgages on properties not protected by insurance on the coast are deemed “unsellable” on the secondary mortgage market, causing higher mortgage rates for the same property in the future.¹⁴⁴ This reduces the liquidity of the homes.¹⁴⁵ The cost of homeownership on the coast becomes nearly impossible to afford due to the flood insurance requirement and some policies requiring mitigation, which cause the homeowner to bear the cost of flood proofing.¹⁴⁶

The wildfires that occurred in California in November of 2018 are topical to this discussion.¹⁴⁷ These fires destroyed homes and took lives; however, homes and lives were saved among those of the richest population within Malibu and Paradise through private firefighters and access to quick getaways.¹⁴⁸ While these fires are outside the scope of this article, it is important to note that in all aspects of climate change, those who can afford to avoid the risks and protect what is theirs, do, and those who cannot afford to, lose.

F. How Climate Change Policies Influence Climate Gentrification

Each of the climate change policies discussed above are short-term solutions for a long-term problem. Protection policies, while a robust solution for landowners along the coast, are costly measures borne by the taxpayers. These policies could aggravate homeowners who do not want to see changes made to their property against their will, like the Karans, and force them to flee the area for higher elevation.¹⁴⁹ Furthermore, homeowners may have an extra twenty years added to the life of their

¹⁴² Chizewer, *supra* note 91, at 1758.

¹⁴³ Shelby D. Green, *Building Resilient Communities in the Wake of Climate Change While Keeping Affordable Housing Safe From Sea Changes in Nature and Policy*, 54 WASHBURN L.J. 527, 537-38 (2015).

¹⁴⁴ *Id.* at 536–62. The secondary mortgage market is a market in which loan originators pool and sell mortgages to purchasers, who in turn sell interests in those mortgages to investors as mortgage-backed securities. Both the markets and homeowners suffer from rising insurance premiums.

¹⁴⁵ *Id.* at 562.

¹⁴⁶ *Id.* at 538.

¹⁴⁷ Robert Raymond, *As California's Wildfires Raged, The Ultra-Rich Hired Private Firefighters*, HUFFINGTON POST, Nov. 15, 2018, https://www.huffingtonpost.com/entry/california-wildfires-neoliberalism-climate-change_us_5bec0d2ce4b0caec2c012a0.

¹⁴⁸ *Id.*

¹⁴⁹ *See e.g.* Borough of Harvey Cedars v. Karan, 70 A.3d 524 (N.J. 2013).

property, but eventually the sea will engulf their property and they will be forced out.¹⁵⁰ Protection policies, unaccompanied by a land use regulation or other solutions for those already living in the higher elevated areas, will only delay the inevitable.

Retreat policies exacerbate gentrification and displacement.¹⁵¹ Overregulating municipalities will either drive their property owners out due to frustration or force them out as soon as possible with a prohibition of use ordinance.¹⁵² These policies will create an influx of property owners fleeing to the mainland, possibly inundating a community with a population for which it was not intended to provide.¹⁵³ As insurance rates rise and living near water becomes impossible to afford, accommodation policies will push those who can no longer afford coastal property to the mainland, which in turn may displace mainland residents.¹⁵⁴

IV: HOW TO WEATHER THE STORM

The rising sea is inevitable, and, as Keenan suggests, climate gentrification is bound to happen in more cities than just Miami.¹⁵⁵ The policy responses enacted by municipalities to combat climate change will fail to protect residents inland from coastal residents scooping up their property. Municipalities, then, need a solution that will protect coastal landowners' property interests and protect inland residents. As discussed above, protection, retreat, and accommodation policies will likely exacerbate the effects of climate gentrification if enacted individually; however, these policies coexist with other land use principles to ensure property interests are intact and displacement occurs seldomly.

A. Amortization as a Solution

A nonconforming use occurs where a part of a city was zoned for one use, and the city later changes that part to allow for a different use.¹⁵⁶ The use of the property as previously used, thus, no longer conforms to the new zone.¹⁵⁷ Nonconforming lots or uses are generally allowed to continue until

¹⁵⁰ Kaswan, *supra* note 93, at 514–15. (Discussing the increase in risk exposure and the cost and fallibility of protection and accommodation measures).

¹⁵¹ Linhart, *supra* note 128, at 138.

¹⁵² See Chizewer, *supra* note 91.

¹⁵³ See Chizewer, *supra* note 91.

¹⁵⁴ Green, *supra* note 143, at 537-38.

¹⁵⁵ Keenan, *supra* note 2, at 2.

¹⁵⁶ Cleveland MHC, LLC v. City of Richland, 163 So.3d 284, 285 (Miss. 2015) (where a mobile home park in the City of Richland found itself to be in a “Light Industrial” zone).

¹⁵⁷ *Id.* (“Thus, a use of the mobile-home park was a nonconforming use.”).

they are eventually removed, but the “survival of the nonconformity is not encouraged.”¹⁵⁸ A nonconforming use may be eliminated “by ‘amortization,’ that is, requiring its termination over a reasonable period of time.”¹⁵⁹ Amortization of a nonconforming use allows a prior existing development—in this case, residential properties along the coasts—with a legal use a set number of years to phase into a non-use.¹⁶⁰ Amortization provisions are presumed valid and the land owner “must ordinarily show that the period is too short” to be able to recover the money invested in the property were they to challenge the ordinance.¹⁶¹ Amortization accompanied by a fair amount of time is accepted as “obviating the need for just compensation.”¹⁶² To justify amortization periods, courts weigh the benefit to the public against the loss to the landowner.¹⁶³ Half of all states have held amortization provisions as constitutional.¹⁶⁴

Cities should enact amortization periods for coastal properties, determinant on a reasonable amount of time, to give the property owners enjoyment of their property with notice of why they will be retreating within that reasonable amount of time. A reasonable time period is best determined by the court, but to satisfy the just compensation principle, a reasonable amount of time could be proposed to be fifty years, or about the length of a generation.¹⁶⁵ By rezoning a residential zone along the coast to

¹⁵⁸ *Id.*

¹⁵⁹ *Trip Associates, Inc. v. Mayor and City Council of Baltimore*, 898 A.2d 449, 456 (Md. 2006).

¹⁶⁰ Jay M. Zitter, *Validity of provisions for amortization of nonconforming uses*, 8 A.L.R. 5th 391, §2[a]; *See supra* n. 90 for a definition of land use regulatory terms. *See also* *Modjeska Sign Studios, Inc. v. Berle*, 43 N.Y.2d 468, 479 (N.Y. 1977) (Describing amortization periods as a “middle ground” for landowners. “By limiting the period during which an existing nonconforming use may be continued, a balance is struck between an individual’s interest in maintaining the present use of his property and the general welfare of the community sought to be advanced by the zoning ordinance.”).

¹⁶¹ Jay M. Zitter, *Validity of provisions for amortization of nonconforming uses*, 8 A.L.R. 5th 391, §2[b].

¹⁶² David A. Super, *From The Greenhouse To The Poorhouse: Carbon-Emissions Control And The Rules Of Legislative Joinder*, 158 U. PA. L. REV. 1093, 1117 (2010) (citing *City of Fayetteville v. S & H, Inc.*, 547 S.W.2d 94, 98 (Ark. 1977) (accepting an amortization provision as an acceptable method of eliminating nonconforming use when a city is acting pursuant to its police power)).

¹⁶³ Zitter, *supra* note 160.

¹⁶⁴ *Board of Zoning Appeals v. Leisz*, 702 N.E.2d 1026, 1032 (Ind. 1998) (citing Jay M. Zitter, *Validity of Provisions for Amortization of Nonconforming Uses*, 8 A.L.R. 5th 391, 412-22 (1992) (listing three federal circuits and twenty-four states as supporting the “view that amortization provisions are valid if they are reasonable,” and no federal circuits and only four states adhering to the “view that all amortization provisions are invalid in general”)).

¹⁶⁵ *See* 10 Zoning and Land Use Controls § 53C.08 [E] (2019); *see also* *Harris v. Mayor and City Council of Baltimore*, 371 A.2d 706, 709-12 (Md. Ct. Spec. App. 1977) (holding that a court is not restricted in determining constitutional reasonableness of amortization

a non-developmental zone, the municipalities would restrict the use of property for any reasonable purpose, and these could be challenged through the Takings Clause.¹⁶⁶ However, the Court concluded that the elimination of use within a reasonable amount of time does not amount to the taking of property, and, in addition, municipalities would likely succeed based on nuisance principles and public safety concerns.¹⁶⁷ For consideration, the property may very well be taken by the sea within a half-century.

B. Transferable Development Rights as a Solution

A transferable development rights (TDRs) program would assist municipalities in preparing for the eventual population influx due to climate gentrification. TDR programs are typically implemented in historic locations or farm lands, to protect national parks, or in environmentally sensitive areas, where building and developing property would be problematic to the surrounding land.¹⁶⁸ TDRs function by restricting development on a parcel of land that would otherwise have development potential, known as the sending parcel, and allows properties in the receiving area to exceed their zoning density through purchasing the development rights of the sending parcel.¹⁶⁹ TDRs are also used where “adverse impacts [. . .] require particularly severe restrictions in a localized area,” the adverse impact here being the rising sea levels.¹⁷⁰ TDRs allow the transfer of density from sites that would be identified as having a preservation status, and giving those undeveloped rights to allow for density beyond what is already built in the receiving area.¹⁷¹

In 2004 New Jersey enacted its own TDR program, the Highlands Water Protection and Planning Act (“Highlands Act”) after the State’s legislature determined the Highlands area, which provided drinking water and farmlands to New Jersey, was being lost to development and suburban sprawl.¹⁷² The Highlands Act serves to protect nearly 800,000 acres from harm by creating two areas within the region: a preservation area (sending

provisions and may also consider the original amortization provision set by the city.)

¹⁶⁶ *Id.* (“Amortization has long been a controversial land use regulation technique, as owners of nonconforming uses can claim that the removal of a nonconforming use at the end of an amortization period, without compensation, is unconstitutional”).

¹⁶⁷ Nicholas R. Williams, *Coastal TDRs and Takings in a Changing Climate*, 46 URB. LAW. 139 (2014); *see also Trip Associates*, 898 A.2d at 575 (“So long as [the amortization period] provides for a reasonable relationship between the amortization and the nature of the nonconforming use, an ordinance prescribing such amortization is not unconstitutional.”).

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ STEWART E. STERK, ET. AL., *LAND USE REGULATION* 65 (Robert C. Clark, et. al. eds., 2d ed. 2016).

¹⁷¹ Williams, *supra* note 167.

¹⁷² N.J. Stat. § 13:20-2 (2004) (findings and declarations relative to the Highlands Act).

zone) where development is strictly regulated and the development potential can be transferred, and a planning area (receiving zone), in which development is encouraged through the purchase of the sent parcels to build at a greater density than permitted.¹⁷³ A landowner who owned ninety-three acres within the preservation area challenged the Highlands Act.¹⁷⁴ He claimed the legislation resulted in a taking of his property.¹⁷⁵ The court disagreed, stating that municipalities within the Highlands area had no obligation to accept the designation as receiving zones, and property owners who obtained TDR credits had no assurance of being offered a particular price for them.¹⁷⁶ Therefore, the program was not an unconstitutional taking because the Act was a voluntary, market-driven scheme that resulted in payment from property developers.¹⁷⁷

The Pinelands Development Credit (PDC) Program is another New Jersey TDR program which serves to preserve agriculturally and ecologically sensitive land.¹⁷⁸ TDR credits are sent from specified agricultural zones, and then property owners and developers who are interested in developing land in growth areas, the receiving parcels, are able to purchase them.¹⁷⁹ The Pinelands program typically increases residential densities in the designated growth areas, most prominently in urban areas, like Camden, New Jersey.¹⁸⁰ Once sending credits are established in the sending parcel, the property is permanently protected by a conservation or agricultural deed restriction, and cannot be developed further.¹⁸¹

C. Land Use Policies Must Coexist to be Successful

Accommodation, protection, and retreat policies each present a unique challenge; no one of these policies is the perfect solution. Standing alone, the policies will exacerbate displacement; but intertwined with different regulatory programs, these solutions allow the property owner to continue living along the coast without being pushed out by retreat policies, recoup their investment in their property, and allow for development and inclusive

¹⁷³ *Id.*

¹⁷⁴ *OFF, L.L.C. v. State*, 930 A.2d 442, 445 (N.J. 2007).

¹⁷⁵ *Id.* at 450.

¹⁷⁶ *Id.* at 452.

¹⁷⁷ *Id.*

¹⁷⁸ Pinelands Development Credit Program, STATE OF NEW JERSEY, <https://www.nj.gov/pinelands/landuse/perm/pdc/index.shtml> (last visited Nov. 15, 2019).

¹⁷⁹ *Id.*

¹⁸⁰ Density Transfer: The Pinelands Experience, STATE OF NEW JERSEY PINELANDS COMMISSION, <https://www.nj.gov/pinelands/infor/online/density.shtml> (last visited Nov. 15, 2019).

¹⁸¹ Pinelands Development Credit Program, *supra* note 178.

2020]

FLOODING THE CITIES

113

programs within the mainland and urban areas to prevent displacement of underrepresented populations.

The best solution to combat displacement on the mainland and to avoid government takings is to gradually introduce these policies and allow them to coexist as one unique solution. A TDR program could be enacted in a coastal context, where the land is as environmentally sensitive as the Highlands and Pinelands are to New Jersey: a beachfront owner would live in a designated sending parcel and would be able to sell their development rights. The beachfront owner would still maintain their property under the requirement that the use would not involve any construction of new or permanent structures.

While an inclusionary zoning policy would not be successful on its own,¹⁸² if enacted in connection with a TDR program, the receiving parcels could be identified and managed in a way to minimize displacement of inland residents. If the receiving parcels are in the crowded urban areas, movement from the coast to the mainland would raise costs of existing housing and displace existing inland populations. The inland receiving parcels could be designated intentionally to avoid displacement of inland populations through inclusionary zoning.

Along with a TDR program, municipalities could require a tax on or percentage of an accommodation policy, like flood insurance, to be placed in a trust to assist lower income families who will be inevitably affected by the influx of people moving to the mainland. The same proposition would stand for every protection policy—a new dune or seawall—a percentage of the cost to construct could be placed in the trust. Protection policies and retreat policies could be paired with amortization periods, where the government could protect the landowner from the rising sea levels, but the landowner would have time to recoup the investment and not be forced immediately from their homes on the coast.

V. CONCLUSION

This comment put forth the challenges of rising sea levels and the shortcomings of municipal legislation, which will potentially place both coastal property owners and the urban population in a difficult situation. These shortcomings have led to the concept of climate gentrification, the process by which those who escape coastal living gentrify areas inland and cause displacement of long-term residents. This gentrification happens as a result of greater demand for inland properties, which drives up costs and makes inland properties less affordable. Any of the common climate change policies that protect the coastal property owners, force them to

¹⁸² *Infra*, notes 63–70.

retreat from the coast, or accommodate future living along the coast all only exacerbate climate gentrification.

This comment argued that to protect the people most at risk of displacement, while not harming the beachfront property owners in the process, municipalities should gradually introduce land use policies together. A Transferable Development Rights program could be instated to incentivize development in the urban areas in ways that mitigate displacement and not take property from the beachfront owners. An amortization period may be a proper form of retreat for those on the coasts as flooding and sea level rise will eventually overtake their property. These solutions, paired with the accommodation, retreat, and protection policies, may be the best way to protect property owners without subjecting municipalities to takings challenges.