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MANAGED RETREAT – Funding Difficult Conversations and Initial Steps at the Local Level

Gabriella Mickel

ABSTRACT

Unnatural disasters, such as floods and wildfires, are making many areas difficult to inhabit. For relocation to unfold in a safer and more equitable way, it must be done in a manner that (1) aligns with community values in each locality, (2) navigates legal barriers to managed retreat, and (3) creates blue-sky funding for adaptation, including managed retreat planning and implementation. This paper argues that developers continuing to build in climate vulnerable areas could and should help cover the risk of their actions. Part I lays out the legal importance of planning for retreat, as well as the need for initial funding for community-level planning and experienced personnel. Few scholars have explored options for municipalities to fund difficult conversations about and initial steps towards managing retreat. Thus, Part II explores how community benefit agreements between communities and developers in climate-vulnerable areas could play a role in bridging the gap between research and implementation. Part II also introduces the idea of a climate resilience development fee, which could provide the needed blue-sky funding to implement managed retreat. Part III analyzes the validity of a climate resilience impact fee in California and Florida, two states in which the consequences of climate change are severe enough for communities to begin to consider managed retreat.

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INTRODUCTION

According to the National Oceanic and Atmospheric Association (NOAA), 2021 was the sixth consecutive year with an above-normal Atlantic hurricane season.¹ In thirty years, chronic flooding caused by rising sea levels could impact 300 million people.² Wildfires and droughts have also become increasingly frequent and severe.³ Researchers associated 7,415 deaths in the U.S. from 1999 to 2010, an average of 618 per year, with exposure to excessive heat.⁴ Unnatural disasters, such as these, are making many areas more difficult to inhabit.⁵ One response has been to voluntarily, or at least with forethought, move from disaster-prone areas, an action commonly referred to as managed retreat.⁶

1. Press Release, NOAA, Record-Breaking Atlantic Hurricane Season Draws to an End (June 10, 2021), <https://www.noaa.gov/media-release/record-breaking-atlantic-hurricane-season-draws-to-end> [<https://perma.cc/3VVK-UZV3>]; Press Release, Florida Press Office: Mark Friedlander, Triple-I: 2021 Atlantic Hurricane Season Generated Above-Average Activity (Nov. 30, 2021), <https://www.iii.org/press-release/triple-i-2021-atlantic-hurricane-season-generated-above-average-activity-113021> [<https://perma.cc/G6XA-5CFJ>].

2. Scott A. Kulp & Benjamin H. Strauss, *New Elevation Data Triple Estimates of Global Vulnerability to Sea-Level Rise and Coastal Flooding*, 10 NATURE COMM'NS 1, 3 (2019).

3. A. L. Westerling et al., *Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity*, 313 SCI. 940 (2006); Benjamin I. Cook et al., *Climate Change and Drought: From Past to Future*, 4 CURRENT CLIMATE CHANGE REPORTS 164, 168 (2018); Muhammad Jehanzaib et al., *Investigating Effect of Climate Change on Drought Propagation from Meteorological to Hydrological Drought Using Multi-Model Ensemble Projections*, 34 STOCHASTIC ENV'T RES. RISK ASSESSMENT 7, 7–8 (2020).

4. CDC, *Morbidity and Mortality Weekly Report*, <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6136a6.htm> [<https://perma.cc/A3U2-SKTQ>].

5. GONZALO LIZARRALDE, UNNATURAL DISASTERS 10 (Columbia Univ. Press, 2021).

6. There is some debate around this vocabulary. Leah A. Dundon & Mark Abkowitz,

Managed retreat takes many forms. Some municipalities have utilized planning, zoning, and environmental impact assessments to subtly manage retreat.⁷ For example, Punta Gorda, Florida limits new development in flood-prone areas and prohibits hard shoreline armoring;⁸ however, Punta Gorda has also utilized another managed retreat tactic—buyouts. Punta Gorda buys out properties to help people move away from the coastline. It then uses the land to build living shorelines that buffer floods and facilitate the inland migration of coastal habitats—increasing the resiliency of the area.⁹ Indeed, many communities pursue federal funds for buyouts from the Federal Emergency Management Agency (FEMA) and the U.S. Department of Housing and Urban Development (HUD).¹⁰ Since the 1980s, FEMA has funded 40,000 buyouts.¹¹ A couple of states, like New Jersey, have, or are exploring, state-run buyout programs.¹² A few municipalities use a combination of federal and local funding for buyouts. For example, Charlotte-Mecklenburg County, North

Climate-Induced Managed Retreat in the U.S.: A Review of Current Research, 33 CLIMATE RISK MGMT. 1, 2 (2021) (“[T]he term managed retreat itself is controversial and can be an impediment to successful retreat policies”); Nathan Rott, ‘Retreat’ Is Not an Option as a California Beach Town Plans for Rising Seas, NPR (Dec. 4, 2018), <https://www.npr.org/2018/12/04/672285546/retreat-is-not-an-option-as-a-california-beach-town-plans-for-rising-seas> [<https://perma.cc/YX6Z-Y7QY>]. Alternative terms include “strategic retreat,” “strategic or managed relocation,” “planned relocation,” “transformative adaptation,” “managed realignment,” “resilient relocation,” or “habitat restoration.”

7. See JOHN NOLON, CHOOSING TO SUCCEED: LAND USE LAW & CLIMATE CONTROL 140–47 (Env’t L. Inst., 2021).

8. KATIE SPIDALIERI ET AL., *Punta Gorda, Florida: Climate Adaptation and Comprehensive Plans and Updates*, in MANAGING THE RETREAT FROM RISING SEAS 2–3 (Georgetown Climate Center, 2020) https://www.georgetownclimate.org/files/MRT/GCC_20_FULL-3web.pdf [<https://perma.cc/DRK5-7UB8>]. Boston, Massachusetts is another municipality utilizing planning and zoning to subtly manage retreat. See BOSTON, MASS., ZONING CODE art. 25A (2021) (creating a coastal flood resilience overlay district); see also Boston Planning and Development Agency, *Coastal Flood Resilience Guidelines & Zoning Overlay District*, <https://www.bostonplans.org/planning/planning-initiatives/flood-resiliency-building-guidelines-zoning-over> [<https://perma.cc/2WA4-SKZE>] (describing the coastal flood resilience overlay district).

9. SPIDALIERI ET AL., *supra* note 8, at 2.

10. E.g., KATIE SPIDALIERI ET AL., *Queens, New York: Resilient Edgemere Community Plan*, in MANAGING THE RETREAT FROM RISING SEAS 2 (Georgetown Climate Center, 2020) https://www.georgetownclimate.org/files/MRT/GCC_20_FULL-3web.pdf [<https://perma.cc/DRK5-7UB8>].

11. Katharine J. Mach et al., *Managed Retreat Through Voluntary Buyouts of Flood-Prone Properties*, 5 SCI. ADVANCES 1, 1 (2019).

12. E.g., KATIE SPIDALIERI ET AL., *State of New Jersey: Blue Acres Buyout Program*, in MANAGING THE RETREAT FROM RISING SEAS 2 (Georgetown Climate Center, 2020) https://www.georgetownclimate.org/files/MRT/GCC_20_FULL-3web.pdf [<https://perma.cc/DRK5-7UB8>]; DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL, DELAWARE’S CLIMATE ACTION PLAN 55 (“Action: Develop a statewide managed retreat plan and update it periodically.”) <https://documents.dnrec.delaware.gov/energy/Documents/Climate/Plan/Delaware-Climate-Action-Plan-2021.pdf> [<https://perma.cc/RA45-AZM8>].

Carolina uses FEMA Hazard Mitigation grants, a local storm water fee, and profits from leasebacks.¹³ As the climate crisis progresses, these experienced communities can provide guidance on these methods and offer insight on how to build managed retreat plans that fit community values.

Indeed, climate change will likely require widespread managed retreat. Managed retreat expert A.R. Siders stated:

Real estate worth \$1.4 trillion is already located within 700 feet of the US coast, and sea-level rise alone is projected to affect 4–13 million Americans. If just one tenth of these people or buildings retreated, it would cost \$140 billion—almost 30 times what FEMA has spent on managed retreat to date—and affect 5–10 times as many people. Even low sea-level rise projections and existing development will require managed retreat to occur at a much larger scale and on a faster timeline than has yet been achieved.¹⁴

The anticipation of widespread relocation has even resulted in naturally climate resilient cities planning to receive those in search of a new home.¹⁵ Cincinnati, Ohio's climate action plan includes an entire section titled "Climate Haven – Leverage climate resilience to attract new business and residents."¹⁶ Managed retreat as an adaptation strategy is gaining popularity, and, in many cases, is likely the most economical and safest choice.

In fact, the difficulties and dangers of rebuilding and hard armoring¹⁷ in place are becoming more apparent. For example, post-disaster communities have built seawalls, only to find that seawalls are not a long-term solution.¹⁸

13. KATIE SPIDALIERI ET AL., *Charlotte-Mecklenburg County, North Carolina: Floodplain Buyout Program*, in *MANAGING THE RETREAT FROM RISING SEAS 1* (Georgetown Climate Center, 2020) https://www.georgetownclimate.org/files/MRT/GCC_20_FULL-3web.pdf [<https://perma.cc/DRK5-7UB8>].

14. A.R. Siders, *Managed Retreat in the United States*, 1 *ONE EARTH* 216, 216 (2019).

15. CITY OF CINCINNATI, *GREEN CINCINNATI PLAN* 188 (2018) [cincinnati-oh.gov/sites/oes/assets/File/2018%20Green%20Cincinnati%20Plan\(1\).pdf](http://cincinnati-oh.gov/sites/oes/assets/File/2018%20Green%20Cincinnati%20Plan(1).pdf) [<https://perma.cc/2RQU-CMP5>]; Anna Marandi & Kelly Leilani Main, *Vulnerable City, Recipient City, or Climate Destination? Towards a Typology of Domestic Climate Migration Impacts in US Cities*, 11 *J. ENV'T STUDIES SCI.* 465, 472 (2021).

16. CITY OF CINCINNATI, *supra* note 15, at 188.

17. *Hard Armoring*, WETLANDS WATCH, <https://wetlandswatch.org/hard-armoring> [<https://perma.cc/PHC6-23SE>] ("Hard armoring has been the traditional approach to shoreline protection. This includes the construction of bulkheads, seawalls, revetments, dikes, tide-gates, & groins, among others. Areas with considerable development & critical infrastructure may require hard armoring.").

18. See, e.g., Justin Gillis & Felicity Barringer, *As Coasts Rebuild and U.S. Pays, Repeatedly, the Critics Ask Why*, *N.Y. TIMES* (Nov. 18, 2012), <http://www.nytimes.com/2012/11/19/science/earth/as-coasts-rebuild-and-us-pays-again-critics-stop-to-ask-why.html> [<https://perma.cc/FW3G-89VH>] ("Since 1979, nearly a dozen hurricanes and large storms have rolled in and knocked down houses, chewed up sewers and water pipes and hurled sand onto the roads. Yet time and again, checks from Washington have allowed the town to put itself back together."); Davide Gessner, *What's Wrong with This Picture?*, *NRDC* (Mar. 2, 2015), <https://www.nrdc.org/onearth/whats-wrong-picture> [<https://perma.cc/H65U-K65Q>] (describing maladaptive development on the west end of Dauphin Island, Alabama).

Maladaptation “refers to actions that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence.”¹⁹ Seawalls are often categorized as maladaptive due to the ‘coastal squeeze’ effect on native vegetation,²⁰ the “colossal” carbon footprint of concrete,²¹ the relatively large expense for construction and maintenance,²² and the risk of inequitable protections.²³ As the sea-level rises and unnatural disasters intensify, more communities may be open to considering managed retreat over maladaptive action; however, managed retreat has not yet fully made its way from academia to mainstream climate action planning.²⁴

This paper offers a possible solution for closing the gap between the relocation that will happen and the research and planning methods that lay out how relocation could unfold in a safer and more equitable way. For relocation to unfold in a safer and more equitable way, it must be done in a manner that (1) aligns with community values in each locality, (2) navigates legal barriers to managed retreat, and (3) creates blue-sky funding for adaptation, including managed retreat planning and implementation. This paper also argues that developers

19. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [IPPC], CLIMATE CHANGE 2022: IMPACTS, ADAPTATION AND VULNERABILITY 7 n.15 (H.-O. Pörtne et al. eds. 2022) [https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf].

20. Valeria Chavez et al., *Coastal Green Infrastructure to Mitigate Coastal Squeeze*, 2 J. OF INFRASTRUCTURE PRESERVATION AND RESILIENCE 7 (2021); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [IPPC], *supra* note 19, at 310 (“Rising sea levels as a result of climate change mean that coasts are eroding at a fast rate and storm surges are more likely to cause damaging coastal flooding. Natural coastal vegetation, such as saltmarsh and mangrove swamps can, in the right places, stabilise the shoreline and act as a buffer, absorbing the force of waves. On a natural coast, the shoreline will move inland and as sea level rises, the coastal vegetation will gradually move inland with it. This contrasts with hard coastal defences such as sea walls and banks, which can be overwhelmed and fail. In many places however, coastal habitats have been cleared and where there are hard sea defences behind the coastal zone, the vegetation disappears as the coast erodes rather than moving inland. This is often referred to as ‘coastal squeeze’ as the vegetation is squeezed between the sea and the sea wall. Restoring coastal habitats and removing hard sea defences, can help reduce the risks of catastrophic flooding.”).

21. See, e.g., Concrete Needs to Lose its Colossal Carbon Footprint, NATURE (Sept. 18, 2021), <https://www.nature.com/articles/d41586-021-02612-5#:~:text=But%20concrete%20has%20a%20colossal,into%20moulds%20before%20it%20dries> [<https://perma.cc/6GVF-2CEG>].

22. MIAMI-DADE COUNTY, MIAMI-DADE COUNTY SEA LEVEL RISE STRATEGY 172–73 (2021) <https://miami-dade-county-sea-level-rise-strategy-draft-mdc.hub.arcgis.com> [<https://perma.cc/2N7C-B6D2>].

23. I. Avery Bick et al., *Rising Seas, Rising Inequity? Communities at Risk in the San Francisco Bay Area and Implications for Adaptation Policy*, 9 EARTH’S FUTURE 1, 18 (2021).

24. Dundon & Abkowitz, *supra* note 6, at 1.

continuing to build in climate vulnerable areas could and should help cover the risk of their actions. Part I lays out the legal importance of planning for retreat, as well as the need for initial funding for community-level planning and experienced personnel. Financing managed retreat is a developing area of study. Few scholars have explored options for municipalities to fund difficult conversations about and initial steps towards managing retreat, especially pre-disaster. Yet, without blue-sky funding, at least some of which is generated at the local level, retreat from climate-vulnerable zones will likely unfold inequitably. Thus, Part II explores how community benefit agreements between communities and developers in climate-vulnerable areas could provide resources to bridge the gap between research and implementation. Part II also introduces the idea of a climate resilience development fee, which could provide the needed blue-sky funding²⁵ to implement managed retreat. Part III analyzes the validity of a climate resilience impact fee in California and Florida, two states in which the consequences of climate change are severe enough for communities to begin to consider managed retreat. By utilizing CBAs and a climate resilient development fee, communities could raise the funding and resources required to begin to consider whether, and in what form, managed retreat is right for them.

I. THE GAP BETWEEN MANAGED RETREAT RESEARCH AND IMPLEMENTATION

Most managed retreat in the U.S. has occurred post-disaster with little to no pre-event planning; however, “[a]pproaching managed retreat in this way . . . is not likely to adequately address the magnitude of the changes that climate change will bring. Current approaches also are not consistent and often lack a comprehensive plan that would maximize benefits to both the displaced and receiving communities.”²⁶ Case studies and other research around managed retreat implementation exist.²⁷ The question thus becomes why aren’t communities exploring the option when there is such a need for managed retreat planning? A.R. Siders categorizes barriers to managed retreat as psychological (fear, optimism bias, status quo bias, place attachment, retreat is defeat), institutional (subsidized risk, disincentived action, authority mismatch), and practical (lack of learning, lack of evaluation, inequity, logistics).²⁸

25. Blue-sky funding is funding given pre-disaster to prevent, rather than respond to, damage.

26. Dundon & Abkowitz, *supra* note 6, at 2.

27. *E.g.*, Managed Retreat Toolkit, GEORGETOWN CLIMATE CENTER [https://www.georgetownclimate.org/adaptation/toolkits/managed-retreat-toolkit/introduction.html?full\[https://perma.cc/LPW6-T2XB\]](https://www.georgetownclimate.org/adaptation/toolkits/managed-retreat-toolkit/introduction.html?full[https://perma.cc/LPW6-T2XB]); Dundon & Abkowitz, *supra* note 6, at 1-2 (a managed retreat literature review).

28. Siders also notes that these barriers can reinforce each other: “For example, low insurance rates (institutional) reduce motivation to retreat (psychological), while public resistance (psychological) can limit the ability of politicians to make institutional reforms. When barriers reinforce one another, they can be particularly difficult to address through

For managed retreat to succeed widely, it must be done in a way that (1) aligns with community values in each locality, (2) navigates legal barriers to managed retreat, and (3) creates blue-sky funding for adaptation, including managed retreat planning and implementation.

A. *The Importance of Planning*

Planning would allow communities to avoid or mitigate the inequities of unmanaged retreat (in the form of traumatic post-disaster retreat or chaotic, market-driven retreat), identify shared community values, understand local climate vulnerabilities,²⁹ and protect their local governments against takings claims. Large-scale retreat is eminent. Retreat can take the form of traumatic post-disaster retreat; chaotic, market-driven retreat; or forward-looking planned retreat.³⁰ Post-disaster retreat in the U.S. has occurred and will continue to occur. For example, in 2017, according to phone tracking data, about 400,000 island residents left Puerto Rico in the five months following Hurricane Maria.³¹ In 2016, over a decade after Hurricane Katrina, New Orleans' population stood at 20 percent below the 2000 census count.³² FEMA notes that 40 percent of small businesses never re-open post-disaster and an additional 25 percent fail within a year.³³ Obtaining federal funding to rebuild can be a complicated and slow process, which may not be worth it when the funds themselves are insufficient. Additionally, homelessness increases,³⁴ and public housing may not be rebuilt.³⁵ Unnatural disasters also have inequitable impacts. For example, racial inequalities in New Orleans made Hurricane Katrina even worse for Black Americans.³⁶

Chaotic, market-driven retreat results from climate risks stressing the financial resilience of real estate and insurance markets. The stress on real estate and insurance markets, in turn, burdens households, businesses, and

incremental change and may instead require system-wide transformation to address numerous barriers simultaneously.” Siders, *supra* note 14, at 218.

29. This knowledge can help avoid losses from the public coffer that result from siting municipal infrastructure in climate vulnerable locations. It can also allow municipalities to prepare for a reduced, or relocated, tax base.

30. PETER PLASTRIK & JOHN CLEVELAND, CAN IT HAPPEN HERE? IMPROVING THE PROSPECT FOR MANAGED RETREAT BY US CITIES 1, 4 (2019) <https://adaptation.ei.columbia.edu/sites/default/files/content/Managed-Retreat-Report-March-2019.pdf> [<https://perma.cc/PQ6E-9MF6>].

31. *Id.* at 11.

32. *Id.*

33. *Id.*

34. *Natural Disasters and Homelessness*, NATIONAL COALITION FOR THE HOMELESS (Sept. 2009) <https://nationalhomeless.org/wp-content/uploads/2017/09/Natural-Disasters-and-Homelessness-Fact-Sheet-2009.pdf> [<https://perma.cc/N8UV-SR7T>].

35. PLASTRIK & CLEVELAND, *supra* note 30, at 11.

36. E.g., Katie Sinclair, *Water, Water Everywhere, Communities on the Brink: Retreat as a Climate Change Adaptation Strategy in the Face of Floods, Hurricanes, and Rising Seas*, 46 *ECOLOGY L. Q.* 259, 266 (2019).

local governments.³⁷ “In a market-driven retreat, individuals and families, especially property owners, must make stressful, deeply emotional decisions about whether and when to move away from at-risk locations without the support of local government and community-based resources, such as facilitated processes, technical information, financial analyses, and partnering.”³⁸ Due to racism, colonialism, and capitalism, market-driven retreat will unfold in an inequitable way.³⁹ In fact, inequity has already manifested in this context. For example, without careful planning, people displaced from climate vulnerable locations can gentrify nearby low-income, climate resilient neighborhoods.

Climate gentrification can occur when a neighborhood lacking climate resiliency is made uninhabitable or less attractive to current and potential residents and developers. Climate gentrification could result from post-disaster retreat or chaotic, market-driven retreat. Miami-Dade County, Florida, for example, is a low-lying coastal county on the Atlantic Coast where many residents live less than four feet above a rising sea level.⁴⁰ In Miami, Florida, as the sea level rises and the risk of floods increases, developers are purchasing property at higher elevation locations, which are often lower-income neighborhoods.⁴¹ Thus, climate change is resulting in increased property values in these neighborhoods, drawing in more affluent residents and the businesses that serve them. Communities like Liberty City and Little Haiti, which are more climate-resistant than current high-income areas, are experiencing, or at risk of, climate gentrification and displacement.⁴²

Climate gentrification is different as compared to other forms of gentrification, as climate gentrifiers are often pushed out of neighborhoods they otherwise liked. Instead of residents being attracted to low-income communities by lower housing costs and recent improvements, like new parks or improved transportation,⁴³ climate change can drive residents out of neighborhoods they would otherwise have stayed in. High-income residents are pushed into nearby low-income neighborhoods that have better natural or planned

37. PLASTRIK & CLEVELAND, *supra* note 30, at 18.

38. *Id.*

39. See A. R. Siders & Idowu Ajibade, *Introduction: Managed Retreat and Environmental Justice in a Changing Climate*, 11 J. ENV'T STUDIES SCI. 287, 288 (2021).

40. *Forbes Tompkins & Christina DeConcini, Sea-Level Rise and Its Impact on Miami-Dade County*, WORLD RES. INST., 1, 3 (2014) https://files.wri.org/d8/s3fs-public/sealevelrise_miami_florida_factsheet_final.pdf [<https://perma.cc/A3MU-HB2M>].

41. See Jesse M Keenan et al., *Climate Gentrification: From Theory to Empiricism in Miami-Dade County, Florida*, 13 ENV'T RSCH. LETTERS 1, 2 (2018).

42. C. Isaiah Smalls II, *Liberty City is Rapidly Transforming. Residents are Split on Who Will Benefit*, MIAMI HERALD (May 24, 2021), <https://www.miamiherald.com/news/local/community/miami-dade/edison-liberty-city/article251063064.html>; Erik Bojnansky, *Miami Board Delays Vote on Revised Little Haiti Mixed-Use Project*, THE REAL DEAL (June 3, 2021), <https://therealdeal.com/miami/2021/06/03/miami-board-delays-vote-on-revised-little-haiti-mixed-use-project> [<https://perma.cc/242A-NTYL>].

43. William West, *Putting the “e” in TOD*, GREEN LAW (Oct. 8, 2021) <https://greenlaw.blogs.pace.edu/2021/10/08/2668> [<https://perma.cc/6RS4-88ZR>].

climate resiliency. Miami is facing serious issues due to sea-level rise and Liberty City is on some of Miami-Dade's highest ground—making it naturally more climate resilient than historically affluent coastal communities.⁴⁴ Recent research has also shown climate gentrification in Miami's rental market.⁴⁵ But climate gentrification is not the only inequity of unmanaged retreat.

Though chaotic market-driven retreat is just beginning, it is already producing inequities. In addition to climate gentrifiers invading low-income communities, low-income residents in climate vulnerable areas may be unable to retreat and unable to afford insurance to protect their homes—in other words, unable to stay without enormous financial risk. A 2021 study noted that almost four million U.S. homes are overvalued by nearly \$44 billion collectively (\$11,526 per house on average).⁴⁶ In 2017, home equity accounted for 28.9 percent of Americans' household wealth. Thus, many Americans may find themselves, unexpectedly, in a financially tough position.⁴⁷ Additionally, in April 2022, FEMA updated its system for calculating flood insurance rates. As a result, homeowners near rivers and coastlines face increased rates.⁴⁸ In Florida, some homeowners' premiums will rise by thousands of dollars over the next five years.⁴⁹ The updated system caps annual rate increases for existing policies at 18 percent.⁵⁰ In Louisiana, some homeowners who elevated their homes using FEMA grant funding are facing a few hundred- to a few thousand-dollar increase in their annual premiums.⁵¹ Many homes will now pay what they would have paid if no improvements had been made.⁵² Although the new program more accurately reflects the risks of living in these climate-vulnerable areas, low-income residents are unable to afford insurance, while wealthier residents may choose to relocate or may have the financial ability to choose to pay the premiums and stay. Additionally, the rising insurance rates will also affect resale value and may even prevent buyers in some particularly vulnerable locations from obtaining 30-year mortgages⁵³—further limiting the capacity of low-income residents to sell and move.

44. Smalls II, *supra* note 42.

45. Marco Tedesco et al., *Measuring, Mapping, and Anticipating Climate Gentrification in Florida: Miami and Tampa Case Studies*, 131 *CITIES* 1 (2022).

46. Miyuki Hino & Marshall Burke, *The Effect of Information About Climate Risk on Property Values*, *PNAS* Apr. 20, 2021, at 1.

47. U.S. CENSUS BUREAU, P70BR-170, *THE WEALTH OF HOUSEHOLDS: 2017* (2020) [<https://perma.cc/PJ2L-9MAT>].

48. FEMA, *Risk Rating 2.0: Equity in Action*, FEMA <https://www.fema.gov/flood-insurance/risk-rating> [<https://perma.cc/728R-EKQF>] (Apr. 18, 2022).

49. Jake Bittle, *FEMA's New Flood Insurance System is Sinking Waterfront Homeowners. That Might Be the Point.*, *GRIST* (Apr. 20, 2022), <https://grist.org/housing/fema-flood-insurance-risk-rating-rollout> [<https://perma.cc/U2EP-LH64>].

50. *Id.*

51. *Id.*

52. *Id.*

53. See, e.g., Jenny Schuetz, *Home Mortgage and Insurance Systems Encourage Development in Climate-Risky Places, and We All Pay the Price*, *BROOKINGS: THE AVENUE*

Planning for retreat can help prevent the inequities of post-disaster and market-driven retreat, as municipalities, for example, would have the opportunity to develop financial resources for low-income residents interested in buyouts. Additionally, municipalities could use anti-displacement land-use tools in receiving zones to prevent climate gentrification and displacement.⁵⁴ Proper planning could also consider intersectional issues presented by the need to retreat. For example, what happens to the land after people retreat? As people move, where do they go, and will they have access to sufficient resources? When people leave will they have a sense of place in their new communities? How are historically disenfranchised communities, people of color, women, and LGBTQ+ people affected?

After residents relocate, local governments must determine a long-term use and maintenance strategy for purchased sites that are now vacant. The Urban Land Institute suggests using the property for open space to increase community resilience (in the context of flooding) and quality of life.⁵⁵ Sites restored to floodplain, grasslands, forests, wetlands, and other natural habitats can provide many ecosystem services: "[b]eautifying a neighborhood or site, and offering aesthetic value; [r]estoring ecological function to reduce future flooding; [c]reating a natural flood buffer zone; [e]nhancing water quality; and [o]ffering recreation and educational opportunities, which can enhance community health and quality of life."⁵⁶ Former residents of Portsmouth, North Carolina use the vacated land to host a biannual Homecoming celebration to ease the transition required by managed retreat.⁵⁷ Proper planning will ensure the municipality is prepared to handle these parcels and that the use of the parcels aligns with community values.

Residents who choose to relocate may need support, which also requires planning. One study showed that residents displaced from gentrifying neighborhoods had higher rates of emergency department visits and hospitalizations, in comparison with residents remaining in gentrifying neighborhoods.⁵⁸ Several studies showed that social integration of displaced households rarely succeeds when displaced people must move to communities far from their original

(Mar. 9, 2022), <https://www.brookings.edu/blog/the-avenue/2022/03/09/home-mortgage-and-insurance-systems-encourage-development-in-climate-risky-places-and-we-all-pay-the-price> [<https://perma.cc/F38Z-Z29E>] (discussing the impact of climate risk on housing finance system).

54. Gabriella Mickel, *Gentrification and the Cycles of (In)Equity—Using Land Use Authority to Combat Displacement*, 51 URB. LAW. 477 (2022).

55. *On Safer Ground: Floodplain Buyouts and Community Resilience*, URB. LAND INST. 1, 28–29 (2021), https://knowledge.uli.org/-/media/files/research-reports/2021/uli_onsafer-ground-highresolution-final.pdf?rev=42cdc006b1c0454cab9bafc93a15545d&has_h=E25C7E6D44C8D7AD5AF9F9900A89153E [<https://perma.cc/67X7-JVAV>].

56. *Id.* at 29.

57. Siders, *supra* note 14, at 222.

58. Genee S. Smith et al., *Impacts of Gentrification on Health in the US: a Systematic Review of the Literature*, 97(6) J. URB. HEALTH 845, 848 (2020).

neighborhoods.⁵⁹ Further, displaced residents are more likely to experience negative mental health effects, food deserts, less walkable streets, less access to transportation, and more exposure to pollutants.⁶⁰ A sense of place increases health, community participation, civic behavior, and perceptions of safety.⁶¹ Considering the impacts displacement can have on people, placemaking⁶² may be important to people choosing to relocate. Urban planners use placemaking to create human scale in the built environment with the goal of motivating urban dwellers to embrace, invest, and remain in their neighborhoods.⁶³

Neighborhood-level planning would allow communities to identify their shared values and build a managed retreat strategy around those values.⁶⁴ Procedural justice requires fairness and inclusion in decision-making processes.⁶⁵ To facilitate involvement in a substantial way, discussions about managed retreat need to happen at the hyper-local level. Recently, the New York Mayor's Office of Climate Resiliency released a planning guidance report on building neighborhood coastal flood protection projects.⁶⁶ The report discusses contextual equity, which "emphasizes social, economic, and political processes that have denied power and access to resources that contribute to uneven vulnerability and shape adaptive capacity."⁶⁷ The report highlights the importance

59. Adam Elliot-Cooper et al., *Moving Beyond Marcuse: Gentrification, Displacement and the Violence of Un-Housing*, 44 *PROGRESS HUM. GEOGRAPHY* 492, 499 (2020).

60. *Health Effects of Gentrification*, CDC (Oct. 15, 2009), <https://www.cdc.gov/healthypplaces/healthtopics/gentrification.htm> [<https://perma.cc/JGM5-BPJC>].

61. Dominique Hes et al., *Place Evaluation: Measuring What Matters by Prioritising Relationships in PLACEMAKING FUNDAMENTALS FOR THE BUILT ENVIRONMENT* 275 (Dominique Hes & Cristina Hernandez-Santin eds. 2019).

62. Generally, placemaking is the process of creating places that strengthen the connection between people and place. *What is Placemaking?*, PROJECT FOR PUB. SPACES, <https://www.pps.org/article/what-is-placemaking> [<https://perma.cc/Q3FV-58ZJ>].

63. Abigail Dove, *Health Impact Assessments: A New Tool for Analyzing Land Use Plans, Zone Changes, and Development Projects*, GREEN LAW, (Oct. 5, 2021) <https://greenlaw.blogs.pace.edu/2021/10/05/health-impact-assessments-a-new-tool-for-analyzing-land-use-plans-zone-changes-and-development-projects> [<https://perma.cc/8ESY-U7JR>].

64. Most professional planners start the process by identifying shared community values to plan around. This should also be true in the context of managed retreat. For example, some communities may value historic preservation and want to move their historic sites. Martha's Vineyard relocated its historic lighthouse in response to sea level rise and coastal erosion. Mike Wankum, *Rising Sea Levels, Climate Change Putting Beloved New England Lighthouses at Risk*, WCVB (Apr. 24, 2022), <https://www.wcvb.com/article/climate-change-massachusetts-new-england-lighthouses-at-risk/39785312#> [<https://perma.cc/E2DC-CCVN>]; Other communities value moving together, like Valmeyer, Illinois. John Carey, *Managed Retreat Increasingly Seen as Necessary in Response to Climate Change's Fury*, 117 *PNAS* 13182, 13184 (2020), <https://www.pnas.org/doi/epdf/10.1073/pnas.2008198117>.

65. Mark Fondacaro et al., *Justice in Health Care Decision-Making: Patients' Appraisals of Health Care Providers and Health Plan Representatives*, 18 *SOC. JUST. RSCH.* 63, 63 (2005).

66. N.Y.C. MAYOR'S OFFICE OF CLIMATE RESILIENCY, NEIGHBORHOOD COASTAL FLOOD PROTECTION PROJECT PLANNING GUIDANCE (2021) <https://www1.nyc.gov/assets/orr/pdf/publications/Coastal-Protection-Guidance.pdf> [<https://perma.cc/2CRF-YRUD>].

67. *Id.* at 12.

of exploring each community's assets, culture, and history, so residents understand how their neighborhood became climate vulnerable.⁶⁸ Louisiana created Louisiana Strategic Adaptations for Future Environments (LA SAFE).⁶⁹ LA SAFE "is a community-based planning and capital investment process that will help the state fund and implement several projects, including for managed retreat, to make its coasts more resilient."⁷⁰ The program has facilitated projects, through community engagement, that involve receiving populations moving away from high-risk areas, managing risk for populations that want to stay in moderate-risk areas, and planning for the retreat of populations moving from high-risk areas.⁷¹ LA SAFE shows how community-led planning can guide managed retreat.

Neighborhood-level planning could also incorporate a climate risk assessment to help residents understand which adaptive actions to take, including managed retreat. Developing a vulnerability assessment involves identifying and analyzing the effects of climate risks, such as flooding, heat stress or short-term drought.⁷² One example of a psychological barrier to managed retreat is people's underestimation of risk and overestimation of protective actions.⁷³ For example, many people do not realize that a home in a 100-year floodplain has a one percent chance of flooding in any given year, so that means there is a 26 percent chance the home will flood over the life of a 30-year mortgage (underestimation of risk).⁷⁴ Relatedly, researchers identified the 'safe development paradox' or 'levee effect'—governmental flood protection can reduce the incentive for local households to take protective measures, such as moving away from climate-vulnerable zones, which can paradoxically lead to more severe consequences if an extreme flood event occurs (overestimation of protective actions).⁷⁵ Incorporating a neighborhood-level climate risk assessment in the planning process, which involves community engagement, could help people understand the true risk of staying in climate-vulnerable zones they call home. Additionally, this information can be incorporated into comprehensive plans, which can help set investment-backed expectations, protecting

68. *Id.*

69. KATIE SPIDALIERI ET AL., *State of Louisiana: Louisiana Strategic Adaptations for Future Environments (LA SAFE)* in *MANAGING THE RETREAT FROM RISING SEAS* 1 (Georgetown Climate Center, 2020), https://www.georgetownclimate.org/files/MRT/GCC_20_FULL-3web.pdf [<https://perma.cc/5ZXQ-4RP2>].

70. *Id.*

71. *Id.*

72. *CTR. FOR SCI. IN THE EARTH SYS., PREPARING FOR CLIMATE CHANGE* ch. 8 (2007).

73. Siders, *supra* note 14, at 218.

74. FEMA, *UNIT 3: NFIP FLOOD STUDIES AND MAPS 3-4-3-5* (2002).

75. See, e.g., Toon Haer et al., *The Safe Development Paradox: An Agent-Based Model for Flood Risk Under Climate Change in the European Union*, 60 *GLOB. ENV'T CHANGE* 102009 (2020).

local governments from takings liability, a legal barrier to land-use driven managed retreat.⁷⁶

Therefore, planning would allow communities to avoid or mitigate the inequities of unmanaged retreat, identify shared community values, and understand local climate vulnerabilities.

B. *The Legal Barriers*

In Pointe Gatineau, Canada, relocation via a buyout is required for some households if more than 50 percent of the home value is destroyed.⁷⁷ In contrast, the U.S. Takings Clause creates an atmosphere for managed retreat strategies that is not as inclined towards mandating property sales.⁷⁸ Many scholars have thoroughly covered takings jurisprudence. A concise description of key cases will be included here to illustrate the importance of planning retreat in the context of takings. In *Lucas*, the Court held that regulations preventing all economic use of a person's land constitutes a taking without just compensation, unless the landowner's use of the land would amount to a nuisance or violate other background principles of state law.⁷⁹ In the context of managed retreat from wildfire-vulnerable areas, it is interesting to consider whether development in wildfire-vulnerable areas, given how home-to-home transmission amplifies the hazard zone for wildfires, could be considered a nuisance.⁸⁰ Similarly, could flooded homes be considered a nuisance due to the debris and contamination from leaking gas, etc.? Often, local governments want to restrict development in climate-vulnerable areas to protect health, safety, and welfare, but fear regulation would constitute a taking.

One workaround could be to permit the minimal use of a parcel to avoid a *Lucas*-style takings challenge. When at least some economic use remains,

76. John R. Nolon, *Land Use and Climate Change: Lawyers Negotiating Above Regulation*, 78 BROOKLYN L. REV. 521, 554–58 (2013).

77. Shaierree Cottar et al., *Evaluating Property Buyouts and Disaster Recovery Assistance (Rebuild) Options in Canada: A Comparative Analysis of Constance Bay, Ontario and Pointe Gatineau, Quebec*, 109 NAT. HAZARDS 201, 207 (2021).

78. U.S. CONST. AMEND. V. (“No person shall be . . . be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.”).

79. *Lucas v. S.C. Coastal Council*, 505 U.S. 1003 (1992).

80. See *Perkin v. San Diego Gas & Elec. Co.*, 170 Cal. Rptr. 3d 335 (2014) (Owners of home damaged by wildfire brought action against electrical utility, which, through its power lines, allegedly had a role in the fire, alleging inverse condemnation, trespass, nuisance, and statutory violations); see *Colo. Dep’t of Health v. Mill*, 887 P.2d 993, 996 (Colo. 1995) (holding that the mill should have known using radioactive materials would create a hazard to public health. Relying on the exception to *Lucas*, the court cited common-law and state nuisance). Professor John Nolon has proposed this case could be analogized to a case involving endangering life and property by building in a coastal zone. See NOLON, *supra* note 7, at 140. I propose this may also be analogized in other climate-vulnerable contexts, like the wildfire transmission scenario.

the court will apply *Penn Central*.⁸¹ One of the *Penn Central* factors is the “extent to which the regulation has interfered with distinct investment-backed expectations.”⁸² By planning to restrict use, while noting the specific climate-vulnerability and future risks of the area in an official document,⁸³ like a comprehensive plan, local governments could set investment-backed expectations to align with climate risk.⁸⁴ This would likely limit a landowner’s ability to argue a taking under *Penn Central*.⁸⁵ In other words, by formalizing climate risk in planning documents, local governments could likely protect themselves from takings suits when restricting uses in climate-vulnerable areas because landowners would not be able to reasonably support high investment-backed expectations with such risk publicly and formally available. Local governments are beginning to apply this plan-restrict to retreat method.

For example, Boston, Massachusetts has applied this plan-restrict to retreat method.⁸⁶ In 2016, Boston, Massachusetts released its 2016 Climate Ready Boston plan, which includes a climate vulnerability assessment.⁸⁷ The plan incorporated information from the Boston Research Advisory Group (BRAG) Report, which outlines, scientifically, the climate risks specific to Boston in detail (sea level rise, coastal storms, extreme precipitation, extreme temperatures).⁸⁸ The plan even includes flood projections.⁸⁹ The plan subtly considers post-disaster and market-driven retreat. For example, the plan emphasizes supporting the city’s “vitality and livability” and states “[c]oastal and riverine flooding can impact the local and regional economy through physical damages, stress factors (mental stress and anxiety and lost productivity),

81. *Penn Cent. Transp. Co. v. City of N.Y.*, 438 U.S. 104 (1978).

82. *Id.* at 124.

83. I will refer to this as the plan-restrict to retreat method.

84. *See* Nolon, *supra* note 76, at 557–62.

85. *Id.* (“Where sea-level rise projection maps are contained in an official document like the comprehensive plan or issued by responsible agencies or organizations, investors and lenders will likely be on notice of them and will only be willing to invest if they believe the project is economically viable”).

86. The Wisconsin Department of Natural Resources also recently released a model floodplain ordinance that restricts development in this way. WIS. DEP’T. NAT. RES., WDNR, MODEL FLOODPLAIN ORDINANCE FOR WISCONSIN COMMUNITIES 2 (2021) https://dnr.wisconsin.gov/sites/default/files/topic/Floodplains/public_comment/WisconsinDraftORDINANCEact175Sept2021-forPN.pdf [<https://perma.cc/3SSR-6C3A>] (“Uncontrolled development and use of the floodplains and rivers of this municipality would impair the public health, safety, convenience, general welfare and tax base.”).

87. CITY OF BOS., CLIMATE READY BOSTON: EXEC. SUMMARY (2016) https://www.boston.gov/sites/default/files/file/2019/12/02_20161206_executivesummary_digital.pdf [<https://perma.cc/V5MH-QZSA>].

88. BOS. RSCH. ADVISORY GRP., CITY OF BOS., CLIMATE READY BOSTON: CLIMATE CHANGE AND SEA LEVEL RISE PROJECTIONS FOR BOSTON § C (2016) https://www.boston.gov/sites/default/files/document-file-12-2016/brag_report_-_final.pdf [<https://perma.cc/63CD-BBRM>].

89. *Id.* at 17–23.

displacement costs, and losses due to business interruption.”⁹⁰ The plan listed “[u]pdate zoning and building regulations to support climate readiness” as a strategy.⁹¹ After finalizing its plan, Boston began to execute it by actually updating its zoning and building regulations.

In 2019, the Boston Planning & Development Agency developed and adopted Coastal Flood Resilience Design Guidelines for new construction and building retrofits, as well as recommendations for a Flood Resiliency Zoning Overlay District.⁹² Ultimately, in 2021, Boston adopted the Coastal Flood Resilience Overlay District (CFROD), which restricts coastal development—a form of managed retreat.⁹³ Any qualifying development is even subject to a “resilience review” to obtain its building permit.⁹⁴ Boston has executed the plan-restrict to retreat method with, likely, hundreds of thousands of dollars invested in its planning regime.

Therefore, planning for retreat can help overcome psychological, practical, and institutional (including legal) barriers; however, interested communities and local governments may not be taking advantage of this opportunity due to a lack of blue-sky funding for climate adaptation.

C. *The Issue of Funding*

Planning, especially equitable planning,⁹⁵ comes with a huge price tag. For example, many planning firms charge hundreds of thousands of dollars for comprehensive plans.⁹⁶ While planning may limit the litigation and hazard mitigation costs associated with unmanaged retreat, for small municipalities, this is likely not enough of a financial motivator. Not only is planning extremely expensive, but there is also a personnel gap when it comes to securing buyout

90. CITY OF BOS., *supra* note 87, at 25, 40.

91. *Id.* at 32 (“WHY The current regulations that govern development in Boston do not have specific requirements for preparing for future climate conditions. In some cases, they may even pose obstacles to doing so.”).

92. BOS. PLAN. & DEV. AGENCY, CITY OF BOS., COASTAL FLOOD RESILIENCE GUIDELINES & ZONING OVERLAY DISTRICT (ARTICLE 25A), <https://www.bostonplans.org/planning/planning-initiatives/flood-resiliency-building-guidelines-zoning-over> [<https://perma.cc/D46L-LDZE>].

93. *Id.*; BOS., MASS., ZONING CODE art. 25A (2021).

94. BOS., MASS., ZONING CODE art. 25A, *supra* note 93.

95. Carolyn G. Loh & Rose Kin, *Are We Planning for Equity?: Equity Goals and Recommendations in Local Comprehensive Plans*, 87 J. AM. PLAN. ASS’N 11 (2020) (“We find that plans in communities with more planners on staff had more equity-focused recommendations. Additional capacity has been associated with many positive planning outcomes; it is not surprising that it also influences equity. If most planners care about equity, as we suspect they do, having more planners around allows them to nudge plans toward an equity focus”).

96. Highland Village, TX just paid \$465,017 for the update of its comprehensive plan. Erick Pirayesh, *Highland Village Hires Consulting Firm to Update City’s Comprehensive Plan*, CMTY. IMPACT NEWSPAPER (Sept. 28, 2021), <https://communityimpact.com/dallas-fort-worth/lewisville-flower-mound-highland-village/city-county/2021/09/28/highland-village-hires-consulting-firm-to-update-citys-comprehensive-plan> [<https://perma.cc/QM47-PQ93>].

funding. Some communities, such as Austin, Texas, even have personnel to help residents navigate the buyout process.⁹⁷ “Wealthy jurisdictions may hire consultants, often former government employees, to supplement local capacity. This introduces equity concerns, as not all jurisdictions who lack personnel or technical assistance are able to hire outside expertise.”⁹⁸

Unfortunately, there are not many funding sources for blue-sky climate mitigation or adaptation action that could fund planning, personnel, or buyouts. This results in numerous inequities.⁹⁹ FEMA awards most federal mitigation funding post-disaster.¹⁰⁰ Thus, the only time many climate-vulnerable communities have the money to consider managed retreat is when they’re in the chaotic process of recovering from the immediate disaster. Additionally, FEMA requires a 25 percent local match for mitigation projects, meaning recipients must provide 25 percent of the total project cost to receive FEMA funds for the remaining 75 percent.¹⁰¹ Most federal buyout programs also require local match. Local match requirements put less-resourced communities at a disadvantage. HUD’s approach to mitigation funding may lay out a more equitable alternative. HUD mitigation funding, although post-disaster, does not require local match and prioritizes projects in low- and moderate-income areas.¹⁰² Not to mention, FEMA’s disaster assistance programs “often favor white people.”¹⁰³ Knowing that unnatural disasters are inevitable in certain

97. KATIE SPIDALIERI ET AL., *City of Austin, Texas: Flood Risk Reduction Buyout Projects, in Managing the Retreat from Rising Seas: Lessons and Tools from 17 Case Studies* 1 (Georgetown Climate Center, 2020), https://www.georgetownclimate.org/files/MRT/GCC_20_FULL-3web.pdf [<https://perma.cc/5ZXQ-4RP2>] (describing how the Watershed Protection Department in Austin assists local homeowners with relocation).

98. Siders & Ajibade, *supra* note 39, at 290. An interesting study of buyouts after Sandy on Staten Island suggested that being white and politically connected was the biggest predictor of who received and accepted good buyout offers. Privilege helps residents to obtain the additional privilege of a planned, non-market driven, non-event driven chaotic exit. See Liz Koslov, *Avoiding Climate Change: “Agnostic Adaptation” and the Politics of Public Silence* 109 ANNALS AM. ASS’N GEOGRAPHERS 568 (2019).

99. Tomi Vest, *How Federal Disaster-based Climate Adaptation Funding and Planning Exacerbates Inequities in New York City* (forthcoming) (on file with author).

100. Caroline M. Kraan et al., *Promoting Equity in Retreat through Voluntary Property Buyout Programs*, 11 J. ENV’T STUD. SCI. 481, 482 (2021).

101. Vest, *supra* note 99, at 3. “US Army Corps of Engineers (USACE) projects, which are another source of federal climate adaptation efforts, have a similar thirty-five percent (35%) non-federal sponsor contribution requirement under the Water Resources and Development Act (WRDA).” *Id.*

102. *Id.* at 4.

103. See Christopher Flavelle, *Why Does Disaster Aid Often Favor White People?*, N.Y. TIMES (June 7, 2021), <https://www.nytimes.com/2021/06/07/climate/FEMA-race-climate.html> [<https://perma.cc/R6KU-UZ36>]; U.S. COMM’N ON C.R., CIVIL RIGHTS AND PROTECTIONS DURING THE FEDERAL RESPONSE TO HURRICANES HARVEY AND MARÍA 2022 STATUTORY ENFORCEMENT REPORT (2022) (discussing how the shortcomings of FEMA’s efforts were compounded for the less affluent, people with disabilities, and Black and Latino residents, who were more likely to live in lower-lying areas with greater flooding damage and had

communities, it is no longer logical to allocate federal funds for post-disaster recovery that could be used to build the resilience and safety of a community pre-disaster. It is certainly less equitable to require communities to endure unnatural disasters prior to fund allocation. Where could blue-sky funding come from for communities considering managed retreat? Charging developers choosing to build in climate vulnerable areas could help communities cover the cost of the planning, personnel, and local match dollars required to pursue managed retreat.

II. DEVELOPERS IN CLIMATE VULNERABLE AREAS SHOULD COVER EXTERNALITIES

Developers choosing to build in climate vulnerable areas should be required to cover the risks they create. “The wildland-urban interface (WUI) is the area where houses and wildland vegetation meet or intermingle, and where wildfire problems are most pronounced.”¹⁰⁴ From 1990 to 2015, homes in the WUI increased by 145 percent, making it the fastest growing land use type in the U.S.¹⁰⁵ Thus, climate risk and safety are not motivating many developers to build elsewhere. By profiting from development in climate vulnerable areas, while not paying for the hazards they create, developers are benefiting from an unfair allocation of the costs and benefits in those communities. Distributive justice relates to fairness about how costs and benefits are allocated in a community or society.¹⁰⁶ Assuming communities desire a just distribution of costs, communities can consider pursuing funding sources that burden developers, such as funding from community benefit agreements or impact fees.¹⁰⁷ Additionally, impact fees may act as a small deterrent to developers, or a punishment aligned with retributive justice,¹⁰⁸ considering climate vulnerable areas. Impact fees could also be part of a managed retreat strategy that involves restricting development, thus preventing risky development in climate-vulnerable areas.

Community benefit agreements (CBAs) are contracts between community groups, who (in an ideal world) accurately represent resident interests and

greater difficulty accessing electricity and the internet). FEMA intends to start collecting demographic information to analyze equity issues in post-disaster aid. Thomas Frank, *FEMA to Start Tracking Race of Disaster-Aid Applicants*, Sci. Am. (Jan. 26, 2022), <https://www.scientificamerican.com/article/fema-to-start-tracking-race-of-disaster-aid-applicants> [<https://perma.cc/BP79-SCJM>].

104. Volker C. Radeloff et al., *Rapid Growth of the US Wildland-Urban Interface Raises Wildfire Risk*, 115 PNAS. 3314, 3314 (2018).

105. *Id.*

106. JOHN RAWLS, *A THEORY OF JUSTICE* 244–251 (1999).

107. Permit fees could be analyzed in a similar manner as potential sources of blue-sky funding.

108. See generally Albert W. Alschuler, *The Changing Purposes of Criminal Punishment: A Retrospective on the Past Century and Some Thoughts about the Next*, 70 U. CHI. L. REV. 1 (2003) (discussing retributive justice).

values, and developers that require the developer to provide money, actions, or amenities to the community in exchange for their support.¹⁰⁹ CBAs benefit communities and developers, while resulting in a more equitable distribution of the costs and benefits of a project.¹¹⁰ CBAs can help developers seeking government support or expedited project approvals.¹¹¹ CBAs can also help developers avoid litigation fees from claims against their development.¹¹² For example, construction in Los Angeles of the Staples Center, which needed municipal funding and land use variances, faced broad community opposition.¹¹³ This gave the community the leverage required to negotiate a sizable CBA.¹¹⁴ As a result, based on community meetings and workshops, over a million dollars has been spent on parks and around 300 units of affordable housing have been financed, in addition to other benefits.¹¹⁵ With enough community support, CBAs can be a powerful tool for acquiring funds from developers.

With endless development occurring in climate vulnerable areas, communities could pursue a CBA with a benefit that funds climate action planning, including a climate vulnerability assessment and a managed retreat plan. The community engagement and organization required for a CBA could also prove to be fertile ground for initial community consideration of managed retreat. This theoretical climate-oriented CBA could also provide funds for personnel who specialize in grant writing. Local governments could even create an ordinance, similar to Detroit, Michigan's Community Benefits Ordinance, that requires developers with projects that meet certain criteria to engage with the community to identify and address negative impacts of their projects.¹¹⁶ This would help communities acquire the initial blue-sky funding they need to start discussions about and planning for retreat.

From there, communities could look at local financing options for funding buyouts completely with locally raised funds and for local match requirements for federal mitigation and buyout funds. A few local governments utilize stormwater fees to finance buyouts;¹¹⁷ however, ideally more of the financial burden

109. PATRICIA SALKIN & JENNIE NOLON, *LAND USE LAW IN A NUTSHELL* 139 (W. Acad. Publ'g, 3rd ed. 2021).

110. Patricia E. Salkin & Amy Lavine, *Negotiating for Social Justice and the Promise of Community Benefits Agreements: Case Studies of Current and Developing Agreements*, 17 J. AFFORDABLE HOUS. & CMTY. DEV. 113, 114 (2008).

111. See JULIAN GROSS ET AL., *COMMUNITY BENEFIT AGREEMENTS: MAKING DEVELOPMENT PROJECTS ACCOUNTABLE* 9–10 (2005), <http://goodjobsfirst.org/pdf/cba2005final.pdf> [<https://perma.cc/2PQK-6955>].

112. *Id.*

113. Salkin & Lavine, *supra* note 110, at 117.

114. *Id.*

115. *Id.*

116. *Community Benefits Ordinance*, CITY OF DETROIT, <https://detroitmi.gov/departments/planning-and-development-department/design-and-development-innovation/community-benefits-ordinance> [<https://perma.cc/5ZC9-B3AD>].

117. *E.g.*, KATIE SPIDALIERI ET AL., *Charlotte-Mecklenburg County, North Carolina: Floodplain Buyout Program*, in *Managing the Retreat from Rising Seas: Lessons and*

would fall on developers continuing to build in climate vulnerable areas. One way to disperse the financial burden more equitably could be impact fees. Impact fees, also referred to as linkage fees, are payments local governments require new developments to make to fund new or expanded public facilities.¹¹⁸ Notably, impact fees are more efficient than taxes in raising revenue for infrastructure.¹¹⁹ Due to the urgency of the need for managed retreat planning, municipalities could consider an additional step when financing buyouts and other managed retreat actions.

Raising the necessary funds for buyouts and other managed retreat actions solely through impact fees could take some time. Additionally, federal funding can be extremely slow. For example, after Hurricane Sandy, it took four months for New York State to announce its federally funded home buyout program.¹²⁰ By then, many homeowners had either pursued federal emergency assistance, making them ineligible for federal buyout funding, or started to repair their homes, after making the decision to rebuild rather than to retreat.¹²¹ Similarly, in Cedar Rapids, Iowa it took five years to buy out all 1,300 flooded properties.¹²² Thus, municipalities may consider issuing “special sources of revenue” bonds.¹²³ These bonds can be secured by impact fees and provide faster funding for buyouts in times of need.¹²⁴ To secure a bond, the municipality would first have to establish a legally viable impact fee. CBAs and impact fees could rebalance the unfair allocation of the costs and benefits of development in climate-vulnerable communities.

Tools from 17 Case Studies, pt. VII, at 1 (Georgetown Climate Center, 2020) https://www.georgetownclimate.org/files/MRT/GCC_20_FULL-3web.pdf [https://perma.cc/WP9J-K32X].

118. Am. Plan. Ass’n, *APA Policy Guide on Impact Fees*, (Apr. 1997), <https://www.planning.org/policy/guides/adopted/impactfees.htm> [https://perma.cc/VLS4-E43T]. “Impact fees should not be confused with subdivision exactions that require developers either to “dedicate” land for public use or contribute cash in lieu of land for the purchase of land or facilities perceived to be necessary by local governments.” DPGF, *IMPACT FEE HANDBOOK 6* (National Association of Home Builders, 2016). J. Peter Byrne & Kathryn A. Zyla, *Climate Exactions*, 75 MD. L. REV. 758, 758 (2016) (discussing the possibility of climate exactions).

119. ARTHUR NELSON & MITCH MOODY, *PAYING FOR PROSPERITY: IMPACT FEES AND JOB GROWTH* 5 (2003).

120. PETER PLASTRIK & JOHN CLEVELAND, *Can It Happen Here? Improving the Prospect for Managed Retreat by US Cities* 12 (2019), <https://adaptation.ei.columbia.edu/sites/default/files/content/Managed-Retreat-Report-March-2019.pdf> [https://perma.cc/K69U-USZ6].

121. *Id.*

122. *Id.* at 24.

123. With the rise of values-based investing, perhaps these would benefit from being branded as “climate resilience bonds.” See MORGAN STANLEY CAPITAL INTERNATIONAL, *SWIPE TO INVEST: THE STORY BEHIND MILLENNIALS AND ESG INVESTING* 7 (2020), <https://www.msci.com/documents/10199/07e7a7d3-59c3-4d0b-b0b5-029e8fd3974b> [https://perma.cc/U8B4-6GQ4] (noting 95 percent of millennials were interested in sustainable investing).

124. Eric Shytle, *Legal Issues in Municipal Finance*, Practical Law Practice Note w-001-5064.

III. THE LEGALITY OF A CLIMATE RESILIENCE IMPACT FEE

Over half of U.S. states have impact fee enabling acts, and in most other states, local governments enact impact fees pursuant to home rule power or pursuant to their charters.¹²⁵ In states with enabling acts, legal challenges tend to focus on whether the impact fee is *ultra vires*.¹²⁶ In states that do not have an impact fee enabling act, claims have focused on whether the impact fee is a permitted regulatory fee (under police power authority) or whether it constitutes an unauthorized tax.¹²⁷ Impact fees should be segregated into funds corresponding to the impact the developer paid to offset, and must not be included in the general fund.¹²⁸ Developers, and other fee payers, also frequently challenge impact fees as preempted,¹²⁹ however, *ultra vires* challenges are more common than preemption challenges because state enabling statutes often limit the use of impact fees.¹³⁰ Typically, the need for the fee must be related to the type and impact of developments charged.¹³¹

A. *Would the Climate Resilience Impact Fee Survive in California—the Most Wildfire-Prone State?*

California is the most wildfire-prone state in the U.S. Thus, many California municipalities would greatly benefit from a climate resilience impact fee. “In 2021, over 9,000 individual wildfires burned in the Southwestern state [ravaging] nearly 2.23 million acres. California accounted for roughly 31 percent of all acres burned due to wildland fires in the U.S.”¹³² In acres burned, California doubled that of the second highest state—Oregon.¹³³ California has an impact fee enabling statute.¹³⁴ Under the Mitigation Fee Act (“the Act”), “special districts” (local governments) may collect impact fees to offset the costs of providing infrastructure and facility improvements needed to serve new development.¹³⁵ The Act states:

125. ARTHUR C. NELSON ET AL., *IMPACT FEES: PRINCIPLES AND PRACTICE OF PROPORTIONATE-SHARE DEVELOPMENT FEES* 93 (Routledge, 2009).

126. “Unauthorized; beyond the scope of power allowed or granted by a corporate charter or by law.” *Ultra Vires*, BLACK’S LAW DICTIONARY (11th ed. 2019).

127. SALKIN & NOLON, *supra* note 109, at 128.

128. *Id.* at 329–330; Shytle, *supra* note 124.

129. *See, e.g.*, Albany Area Builders Ass’n. v. Guilderland, 74 N.Y.2d 372, 546 N.E.2d 920 (1989).

130. JOHN NOLON ET AL., *LAND USE AND SUSTAINABLE DEVELOPMENT LAW CASES AND MATERIALS* 328–329 (West Academic, 9th ed. 2017).

131. *Id.*

132. Niels. Sönnichsen, *Acres Burned By Wildfires in the United States in 2021, By State*, STATISTA (June 21, 2022), <https://www.statista.com/statistics/217072/number-of-fires-and-acres-burned-due-to-us-wildfires/#:~:text=California%20is%20the%20most%20wildfire,wildland%20fires%20in%20the%20U.S> [<https://perma.cc/8WGG-WDQY>].

133. *Id.* (Oregon 828,777 acres).

134. Cal. Gov’t Code § 66000–66025 (West 2007).

135. *Id.*

(a) In any action establishing, increasing, or imposing a fee as a condition of approval of a development project by a local agency, the local agency shall do all of the following:

(1) Identify the purpose of the fee.

(2) Identify the use to which the fee is to be put. If the use is financing public facilities, the facilities shall be identified.

...

(3) Determine how there is a reasonable relationship between the fee's use and the type of development project on which the fee is imposed.

(4) Determine how there is a reasonable relationship between the need for the public facility and the type of development project on which the fee is imposed.¹³⁶

This information is typically included in the recently (Jan. 1, 2022) required “impact nexus fee study.”¹³⁷ Additionally, “public facilities” under the Act include “public improvements, public services, and community amenities.”¹³⁸ Finally, developers should only be charged their proportionate share.¹³⁹

Assuming the municipality follows the requirements outlined above, a legal challenge would likely question whether the fee's use—perhaps funding buyouts or other resilience projects like living shorelines—and the need for that use are reasonably related to the type of development project on which the fee is imposed. Post-buyout, if the property is transformed into a park or green infrastructure project (as many are post-buyout), this reasonably related analysis would be almost identical to that done in numerous nexus fee studies for parks development.¹⁴⁰ Developers do not typically challenge nexus fee studies for parks, as the requirements laid out by the Act seem to be easily satisfied in this context. Thus, the climate resilience impact fee would likely survive in California, especially if communities allocated some CBA funds towards their nexus fee study.

B. *Would the Climate Resilience Impact Fee Survive in Florida – the Second Most Flood-Prone State?*

Over 40 percent of Florida is within a Special Flood Hazard Area.¹⁴¹ A Special Flood Hazard Area is a flood hazard area identified on the Flood

136. *Id.* § 66001.

137. *Id.* § 65940.1.

138. *Id.* § 66000(d).

139. *Id.* § 66001(a).

140. *See, e.g.,* Community Attributes Inc., CITY OF HAYWARD PARKS DEVELOPMENT IMPACT FEE NEXUS STUDY (2019) <https://www.hayward-ca.gov/sites/default/files/Attachment%20V%20Nexus%20Study.pdf> [<https://perma.cc/8C8A-R4C9>].

141. *These Are the 10 States Most at Risk for Flooding.*

Are They Red or Blue?, NATIONAL FLOOD SERVICES, <https://nationalfloodservices.com/blog/these-are-the-10-states-most-at-risk-for-flooding-are-they-red-or-blue> [<https://perma.cc/8DG2-4MSJ>]; *Flood Zones*, FEMA, <https://www.fema.gov/glossary/flood-zones> [<https://perma.cc/SM9M-PV89>].

Insurance Rate Map.¹⁴² Florida has a state impact fee enabling act. The enabling act states:

(4) At a minimum, each local government that adopts and collects an impact fee by ordinance and each special district that adopts, collects, and administers an impact fee by resolution must:

(a) Ensure that the calculation of the impact fee is based on the most recent and localized data.

(b) Provide for accounting and reporting of impact fee collections and expenditures and account for the revenues and expenditures of such impact fee in a separate accounting fund.

...

(f) Ensure that the impact fee is proportional and reasonably connected to, or has a rational nexus with, the need for additional capital facilities and the increased impact generated by the new residential or commercial construction.

(g) Ensure that the impact fee is proportional and reasonably connected to, or has a rational nexus with, the expenditures of the funds collected and the benefits accruing to the new residential or nonresidential construction.¹⁴³

Thus, a legal challenge would likely question whether the climate resilience impact fee is proportional and reasonably connected to or has a rational nexus with (1) the need for additional capital facilities and the increased impact generated by the new construction, and (2) the expenditures of the funds collected and the benefits accruing to the new construction. Florida statutes include parks in the definition of public facilities.¹⁴⁴ Here, with a climate vulnerability assessment and some additional local information, municipalities can make aggressive arguments about the hazardous living conditions created by the development, the impact generated by the new construction, and the benefits of green infrastructure to the new construction. Developers may not see the lot next to them going from, for example, a single-family home to a park as a benefit; however, if the green infrastructure that replaces the home is providing flood mitigation services that allow the development to stay in place longer, they may change their mind. One concern relevant especially to Florida is preemption. The Florida state government has a history of preempting local climate action.¹⁴⁵ Thus, advocates should proceed with caution and consider climate agnostic language in their pursuits, focusing instead on the economic benefits and benefits to developers of resilience efforts.

142. FEMA, *supra* note 141.

143. Fla. Stat. § 163.31801(4) (2021).

144. *Id.* § 163.3164 (“‘Public facilities’ means major capital improvements, including transportation, sanitary sewer, solid waste, drainage, potable water, educational, parks and recreational facilities”).

145. *E.g.*, Michelle Lewis, *Florida’s Governor Just Locked ‘Florida into a Dirty Fossil Fuel Future’*, N.Y. TIMES (June 23, 2021), <https://electrek.co/2021/06/23/florida-governor-bill-thfossil-fuels> [<https://perma.cc/36TV-RE7C>]. See Sarah J. Fox, *Why Localizing Climate Federalism Matters (Even) During a Biden Administration*, 99 TEX. L. REV. 122, 128 (2021).

CONCLUSION

One critique of these approaches could be that CBAs and impact fees, if lucrative, would create a perverse incentive for local governments to *not* use their zoning authority and other local powers to discourage or prohibit new development in these areas.¹⁴⁶ While possible, the goal of these approaches may not be to stop development in climate vulnerable areas altogether. With the rise of climate-resilient architecture and engineering,¹⁴⁷ new, thoughtful development in climate vulnerable zones may not be maladaptive. Further, with other disincentives, such as insurance cost and funding availability, development in these areas may not continue—even if the municipality did not actively work to prevent development. Finally, communities with the political will to apply these ideas would hopefully follow through with the same values that brought them to address retreat.

Managed retreat is no easy task. It will require careful research and bold implementation. To succeed on the necessary scale, managed retreat strategies should: (1) align with community values in each locality, (2) navigate legal barriers to managed retreat, and (3) create blue-sky funding for adaptation, including managed retreat planning and implementation. Equitable retreat should involve shifting some of the financial burden to developers building in climate-vulnerable zones. Thus far, most buyout literature is reactionary, looking at what has happened. This paper looks to the future, assessing the feasibility of new managed retreat tools. CBAs and climate resilient development fees could help make managed retreat research accessible to more communities for equitable discussion and implementation.

146. Thank you to Professor Katrina Kuh for this point.

147. See, e.g., UNITED NATIONS ENVIRONMENT PROGRAMME, A PRACTICAL GUIDE TO CLIMATE-RESILIENT BUILDINGS AND COMMUNITIES (2021).