

Climate gentrification in coastal regions: Planning and policy recommendations to mitigate displacement in marginalized Miami communities

by

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A REPORT

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ABSTRACT

Anthropogenic disasters, which arise from human actions or errors over time, are intricately linked to global warming, resulting in alarming phenomena such as sea level rise, wildfires, and extreme temperature events at a global scale. The climate gap describes how the consequences related to climate change dramatically affect socially vulnerable communities greater than others, influencing their inability to effectively cope or recover from climate related disasters. The path of climate recovery involves reinvestment in aging infrastructure and revitalization of existing green space which often influences climate gentrification in historically disadvantaged areas. Climate gentrification is an unequivocal manifestation of climate change, wherein socioeconomic vulnerabilities are amplified, culminating in the displacement of those who lack the means to endure the demands of resiliency.

Today, Miami exhibits clear equity gaps in resilience plans as a result of concentrated efforts to prioritize economic growth with limited strategies in place to safeguard affordable housing for disadvantaged communities facing the pressures of reinvestment. Since the beginning of the 20th century, low-income and minority residents were confined to live in the city's urban core, now as the impacts of climate change are increasing, private developers are seeking to reinvest in the city center due to its elevation from the sea. In this report, I explore the social and economic impacts of resilient initiatives implemented in disadvantaged areas to provide recommendations encouraging the risk reduction of displacement through planning practices. Applying a justice framework assesses the city's ability to achieve climate resilience in a fair and equitable manner. This analytical approach acknowledges the impact of culture, resources, and authority and reflects on Miami's ability to pursue climate justice.

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INTRODUCTION

Over 94 million Americans live along the coastal shoreline and residents are retreating from the low-lying lands due to sea levels rise, property damage, and the high cost of living (Bonjour, 2020). The implications of climate change include the direct and indirect threats to life, health, and housing which impact socially vulnerable populations much greater than others due to historical segregated planning practices that placed marginalized groups in undesirable locations (Gonzalez, 2018).

The mechanisms that have contributed to racial segregation have historically been driven by explicit legal frameworks, one prominent example being the foundation of Jim Crow laws in the late 1800s. Following a period of unsuccessful attempts at racial and ethnic integration in the aftermath of the Civil War, Jim Crow laws became pervasive in official government policies, serving to reinforce racial segregation and the marginalization of Black individuals (Shkembi et al., 2022). Krieger et al. (2015, as cited in Kephart, 2022) defines Jim Crow laws to have discriminatory regulations within several sectors, including education, transportation, and housing, effectively institutionalizing racial segregation in various aspects of American life. As Jim Crow laws were gaining prominence in society, Rothstein (2017, as cited in Shkembi et al., 2022) states that banks began to initiate the discriminatory practice of refusing mortgage applications from Black and/or immigrant individuals seeking to relocate into predominantly white neighborhoods. Consequently, this practice played a role in influencing property values, with the presence of Black and/or immigrant individuals in predominantly white neighborhoods being viewed as detrimental to the overall worth (Shkembi et al., 2022).

Following the creation of Jim Crow laws and the conclusion of the “First Hundred Days” of New Deal legislation, the Home Owners Loan Corporation (HOLC) was established as a component of the Home Owners Loan Act, which was enacted in June 1933 (Michney & Winling, 2020). Under the administration of the Federal Home Loan Bank Board, the HOLC was authorized to provide mortgage refinancing for nonfarm residential properties with a structure involving fifteen-year, fully amortized loans, where both the repayment of the principal and the interest took place simultaneously (Michney & Winling, 2020). According to Michney and Winling (2020), this attractive loan structure gained widespread appeal, leading to the cessation of application acceptance in June

than half of them were approved for loans, totaling over one million successful applications (Michney & Winling, 2020). After the HOLC foreclosed on 20% of all mortgages in 1936, the corporation then redirected its efforts towards overseeing the substantial inventory of properties for which it held (Michney & Winling, 2020). During this period, the Mortgagee Rehabilitation Division began conducting “city surveys” which involved mapping the locations of African American neighborhoods and other areas the division deemed substantial in order to avoid risky future investments (Michney & Winling, 2020). In HOLC’s classification system, these neighborhoods were highlighted in red, giving rise to the term “redlining.” Richard Rothstein (2017, as cited in Flournoy, 2021) defined redlining as an intentional segregation tool used to classify neighborhoods through color-coded maps. Redlining maps served to identify residential neighborhoods based on their perceived mortgage viability: Grade A, labeled as “best” and represented in green; Grade B, described as “still desirable” and marked in blue; Grade C, denoted as “definitely declining” and depicted in yellow; and Grade D, characterized as “hazardous” and indicated in red (Shkempi et al., pg. 1, 2022).

Consequently, redlining became a systematic, widespread practice that officially assessed residential properties based on the criteria of race and ethnicity. Discriminatory planning policies and practices have emphasized the obvious benefits amongst certain communities and the dereliction of others from the deliberate separation of minorities located in geographically unfavorable areas. Typically, these locations are prone to environmental hazards such as the threat of industrialization or flooding, and as time progresses and climate change impacts intensify, the disproportionate outcomes amongst demographic groups are becoming more apparent due to the implications of segregation.

The phenomenon of climate change is defined as the alteration of weather patterns in regions including temperature, humidity, precipitation, and wind strength which can be attributed to human activity over time (Benevolenza & DeRigne, 2019; IPCC, 2012). According to climate change studies, 10% of the U.S. population will experience at least one anthropogenic disaster within a lifetime, with events increasing in intensity (Raker et al., 2019). According to Gould & Lewis (2021) approximately two-thirds of the world’s megacities are situated along coastal areas, emphasizing

the demand to design resilient urban environments.

Since the Intergovernmental Panel on Climate Change (IPCC) released the first climate report in the 1990s, the topic of climate change has expanded from the sole focus of physical impacts to the discussion of risk factors linked to social inequities. Scholars have identified consequences such as economic loss, environmental endangerment, and property damage to have greater consequences in socially vulnerable communities (Islam & Winkel, 2017; Frosch et al., 2018). Cutter and Fitch define social vulnerability as “sensitive populations that are less likely to cope or recover from disasters” (Cutter & Finch, 2018). Factors that contribute to social vulnerability include socio-economic statuses, age, housing conditions, and isolation from political assistance or resources (Cooley et al., 2012). Tompkins, & Adger (2004) state that climate change provides opportunities to some and increases vulnerability to others (Tompkins & Adger, 2004). Disasters caused by climate change can create social and economic devastation, but researchers have noted the unpredicted events provide a “window of opportunity” explaining that these occurrences can allow communities the chance to utilize sustainable strategies that encourage emancipatory design, resulting in environmental justice (Gould & Lewis, 2021; Anguelovski & Connolly, 2021; Anguelovski et al., 2021).

Today, not only is America attempting to recover from years of racially segregated planning practices that influenced the movement of socially vulnerable groups, but the increasing demand to develop resilient cities is influencing climate gentrification. Climate gentrification is a direct consequence of climate change which accentuates existing socioeconomic vulnerabilities through the displacement of disadvantaged communities (Keenan et al., 2018). Ruth Glass, a German born sociologist, first introduced the term “gentrification” in 1964 (Ghaffari et al., 2018) after conducting a study of revitalized properties in London and noting the changes in class composition through displacement. The term was originally used to define the movement of economically underprivileged residents to accommodate the development of upper-middle-class neighborhoods but despite its formal inception in 1964, gentrification has evolved over time to encompass new challenges arising from resilience efforts, leading to the emergence of the term “climate gentrification.”

Resilience initiatives encompass a range of strategies, spanning from engineering enhancements such as stormwater control valves, land elevation projects, and regulations for utilizing lower-level spaces and raising seawalls, to urban greening methods or interventions including park rehabilitation, rain gardens, or sustainable landscape designs improving ecological restoration (Butler et al., 2022, Anguelovski et al., 2019; Shokry et al., 2022). Although these strategies aim to mitigate the harmful effects of climate change, it is important to note the potential impacts these resilience projects have on neighborhoods.

Green infrastructure (GI), one of many examples of resilient strategies, has been a proposed solution to assist with the hazardous impacts of climate change but the unintended social and economic reverberations of sustainable initiatives must be considered. The Water Infrastructure Improvement Act STAT §§ 115–436 (2019) defines GI as “the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters.” Li & Grant (2022) note that urban planning/political ecology research has explored the topic of GI implementation in depth, with a particular focus on whether these initiatives contribute to the displacement of marginalized groups. Similarly, Anguelovski et al. (2018) argue that resilient strategies can intensify social and economic injustices due to the disproportionate capacity to adapt, translating into equity gaps in resilience planning.

Today, Miami exhibits clear equity gaps in the execution of resilience plans. This is a result of concentrated efforts to prioritize regions with substantial economic growth, while there are limited strategies in place to safeguard affordable housing within socially disadvantaged communities (Butler et al., 2022). This results in an equality gap where those with the greatest resources to adapt receive the highest levels of protection, while those who are least equipped to adapt and most susceptible to displacement receive the lowest levels of investment (Butler et al., 2022). Over the past 25 years, Miami has experienced continuous urbanization and population growth which has resulted in the loss of biodiversity, high pollution rates, ecosystem degradation, and the increased risk of urban flooding (Rifat & Liu, 2022). Not only is the city growing, but so are vulnerability levels. Miami holds a significant position in terms of vulnerability to flood damage, both

globally and within the United States. As cited in Rifat and Liu (2019), Ghose (2013) states that Miami is ranked as the 6th most vulnerable city worldwide and 1st in America. Furthermore, the US National Climate Assessment, as cited in Melillo et al. (2014), designates Miami as the most financially vulnerable city in the world when it comes to sea-level rise. According to Neumann et al. (2015, as cited in Molinaroli et al., 2019) resilience costs in Miami rank the highest in the US—totaling \$181 billion to adapt to sea level rise (SLR) and storm surges. These rankings highlight the critical state Miami is in regarding the context of climate change.

As Miami continues to expand, its extreme wealth and income inequality becomes more apparent. Miami is home to a significant number of billionaires, ranking 10th globally in terms of billionaire concentration (Florida et al., 2019). However, alongside this wealth, Miami also faces substantial levels of inequality. Among large metropolitan areas in the United States, Miami ranks 9th in terms of poverty, and this is the most prevalent among black and Hispanic communities within the city (Florida et al., 2019). Not only is Miami greatly affected by poverty, but the city has also experienced a significant decline in its middle-class population over the past five decades. Approximately 65 percent of Miamians were part of the middle class fifty years ago, but today, that figure has decreased to slightly above 40 percent (Florida et al., 2019). The local economy is now largely characterized by a sizable low-paid service class who often hold precarious positions in industries such as tourism, hospitality, retail, and food service (Florida et al., 2019). In fact, almost half of the region's workforce falls into the low-paid service-class category, representing one of the largest shares among major metropolitan areas (Florida et al., 2019). Workers in Greater Miami's service class face economic challenges, earning an average annual income of just \$26,532 (Florida et al., 2019). The disparity in income highlights the significant wage gap between different segments of the population.

The coexistence of immense wealth and high poverty rates underscores the stark contrast within Miami's social and economic landscape. As climate change intensifies, the potential impacts on coastal cities like Miami become even more pronounced, demanding a rigorous exploration of the implications for future urban expansion and development in the face of these challenges. Exploring the potential consequences and developing strategies for sustainable and resilient urban expan-

sion in Miami is crucial for ensuring the long-term viability and well-being of the city and its residents. The emphasis on resilience in real estate development and infrastructure improvements often prioritizes protecting high-value properties and economic interests, leading to the displacement of low-income residents who cannot afford rising housing costs. In Miami, properties located near resilient investment projects such as hard infrastructure measures, green infrastructure, and structural elevation projects witnessed a surge in housing prices. According to Kim (2020), hard infrastructure measures pertain to the building of levees and flood protection berms, whereas green infrastructure projects involve the revitalization of existing features. Among these three improvements, Kim (2020) reports that the impact on housing prices was particularly significant for green infrastructural adaptation projects, with an appreciation of 11.8%. Gentrification of neighborhoods driven by climate resilient investments influences the loss of affordable housing options, displacement of socially vulnerable groups, and the erosion of social and cultural fabric in affected neighborhoods.

This creates an urgency to answer the question of “How can planners reduce the risk of climate gentrification through planning practices in Miami, Florida?” According to the American Planning Association (APA, 2021), urban planners aim to maximize the health, safety, and economic well-being of all people living in communities. Planners work to achieve equity because it is a fundamental principle of social justice and fairness. It is important to recognize that all individuals and communities should have equal access to resources, opportunities, and benefits within cities and regions. Many communities experience significant disparities in access to quality housing, education, healthcare, transportation, and other essential services which emphasize the importance of equity in city development. In climate vulnerable regions, the inadequate access to resilient resources is heightened, putting marginalized groups at risk of impacts.

Planners have a role to reduce these disparities by advocating for policies and strategies that distribute resources more equitably and provide equal opportunities for all residents, regardless of their socioeconomic status, race, ethnicity, or other characteristics. Access to safe, clean environments including basic amenities is fundamental human right and is essential for cities to succeed. By prioritizing equity, planners help create communities where everyone has the opportunity to

thrive and lead fulfilling lives. Planners understand that environmental, economic, and social sustainability are interconnected and work to address these challenges.

LITERATURE REVIEW

Coastal Regions Defined

Coastal regions account for nearly half of the nation's total population percentage leaving millions of individuals particularly vulnerable to climate change creating an urgency to adapt. Coastal regions are defined as lands in relation to water, with a combination of tectonic plates, beaches, barrier islands, wetlands, and other elements defining the physical geography (Felter & Morris, 2016). Beaches are defined as a portion of a coast that is made of sand, shell, or cobbles, which varies in geographic location (Felter & Morris, 2016). Barrier islands and wetlands are essential to coastal communities because they assist in the natural reduction of impact. Barrier islands are linear islands located in shallow continental coasts formulated by sand and sediment whereas wetlands are defined by saturated surface water or ground water that promotes vegetation (EPA, 2017; Felter & Morris, 2016). The increasing intensity of natural forces such as wind and water continuously enhance the probability of destruction to both wetlands and barrier islands creating an environmental concern for densely populated coastal communities. These habitats break off-shore waves and debilitate wave energy and water transfer which assists in risk reduction during intense climatic events (Powell et al., 2019). Without these natural resources, coastal communities will suffer greater impacts. The U.S. coastal shoreline contains nearly 40% of the total population with 15.4% of families living below the poverty line and 35% of people identifying as a race other than white alone (NOAA, 2013; Felter & Morris, 2016). Coastal city growth is not uncommon, for example, the U.S. population along the Gulf of Mexico saw a 25% increase between 2000 and 2016 (Helderop & Grubestic, 2019). Population growth in coastal regions can be influenced not only by attractive geographic features but by economic opportunities as well. In 2011, coastal states accounted for 45% of the U.S. gross domestic product which generated 51 million jobs and \$2.8 trillion in wages (Felter & Morris, 2016). Between 2000 and 2010, 1,355 building permits were issued a day supporting new residential and commercial development along the coastal shoreline (Felter & Morris, 2016). Population and economic growth contribute to an increase in production and consumption which are the primary drivers of climate altering emissions ultimately increasing the risk of disasters caused by global warming (Blanco et al., 2014; Hagon et al., 2020). Figure 1 highlights the coastal shoreline counties in the U.S.

Figure 1: Coastal Shoreline Counties



Note. This figure is comparing coastal shoreline and coastal watershed counties in the U.S. From "Coastal Zone Management" PAS Rep. No. 581, by Felter, E. & Morris, M. (2016). Coastal Zones. American Planning Association. <https://planning-org-uploaded-media.s3.amazonaws.com/publication/online/PAS-Report-581.pdf>

Disasters Defined

The United Nations Office for Disaster Risk Reduction (UNDRR) defines a disaster as a disruption to a community or society involving widespread loss across social and economic sectors which can exceed a populations ability to recover using its own resources (UNDRR, 2009). Sivakumar (2005) has separated disasters into two categories:

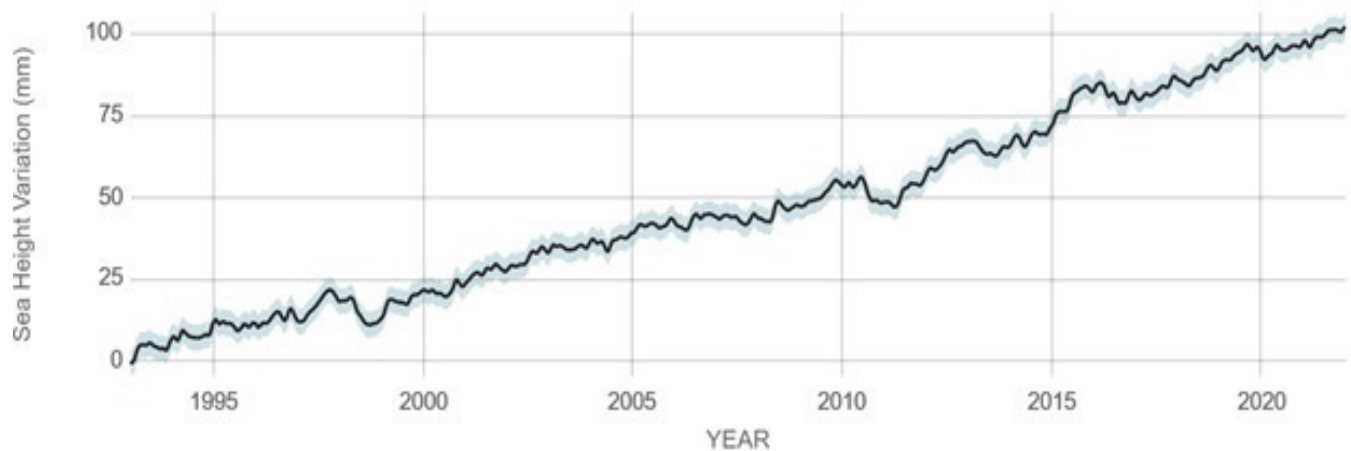
1. Natural (Geophysical, Hydro-Meteorological, and Biological)
2. Anthropogenic (Technical and Sociological)

To summarize the two categories, natural disasters are a result of natural forces or processes, whereas anthropogenic disasters are a result of human actions or error (Sivakumar, 2005). Anthropogenic disasters support Smith's theory that there is "no such thing as a natural disaster" (Smith, 2006). A component of anthropogenic climate change is an increase in global warming rates which is defined as the gradual warming of the earth's atmosphere due to human-induced concentrations such as carbon emissions caused by activity, resulting in wildfires and extreme temperature events (Smith, 2006; Hagon et al., 2020). The changes caused by global warming are being felt both in the oceans and on land, resulting in sea level rise (SLR) due to glacier melts and

the expansion of ocean volume as a result of increasing water temperatures (Hagon et al., 2020; Lindsey, 2020). Human activity plays a major role in the reoccurrence and intensity of anthropogenic disasters and the consequences must be explored.

Oppenheimer et al., (2019, p. 330) describes sea level rise (SLR) as the average height of the sea surface which is a consequence of natural and anthropogenic changes in climate. NASA reports that sea levels have been rising at a rate of approximately 3.3 mm per year from 1993 to 2020 (see Figure 2). This continuous rise creates a force of displacement on individuals living in low-lying coastal communities, exposing socially vulnerable groups to flooding and ecosystem destruction (Prasad & Kumar, 2014; Hagon et al., 2020; Cash et al., 2020). The Environmental Protection Agency (EPA) has noted that residents located in low-lying coastal zones are comprised of low-income groups with fewer financial resources to assist in recovery which contributes to environmental injustice (EPA, 2021). Sea level rise threatens coastal regions but hazards including land submergence created by high tides, flooding, and coastal erosion impact socially vulnerable communities much greater (Oppenheimer et al., 2019; Powell et al., 2019). The relationship between sea level rise and coastal erosion shows that the rise in sea level allows for waves to reach portions of the inner continental shelf resulting in the redistribution of sediment offshore and permanently changing the shape or structure of a beach (Fernandino et al., 2018; Prasad & Kumar, 2014). Prasad and Kumar (2014) define erosion as the encroachment of land by the sea which results in economic and ecological loss by influencing the collapse of properties located on cliffs or dunes (Prasad & Kumar, 2014). Erosion is just one of the many consequences caused by sea level rise. Tidal flooding and storm surges have direct impacts that result in population redistribution in coastal communities. Tidal flooding caused by sea level rise has increased in frequency and intensity causing costly damage to properties over time. Vulnerable groups are more likely to suffer these consequences resulting in “trapped populations,” a term defined as residents who cannot afford to sell their properties for less regardless of hazardous conditions (Ayeb-Karlsson et al., 2018; Cash et al., 2020). Florida alone accounts for nearly 9.9 million people at risk of tidal flooding by the year 2030 with an additional 10 million people at risk in California, South Carolina, and New Jersey combined (Curtis & Schneider, 2011; Cash et al., 2020).

Figure 2: Sea Level Change, 1993-2022



Ramsayer, K., Dunbar, B., & NASA. (2020). Global Mean Sea Level from 1993 to 2020. RISING WATERS How NASA Is Monitoring Sea Level Rise. <https://www.nasa.gov/specials/sea-level-rise-2020/>

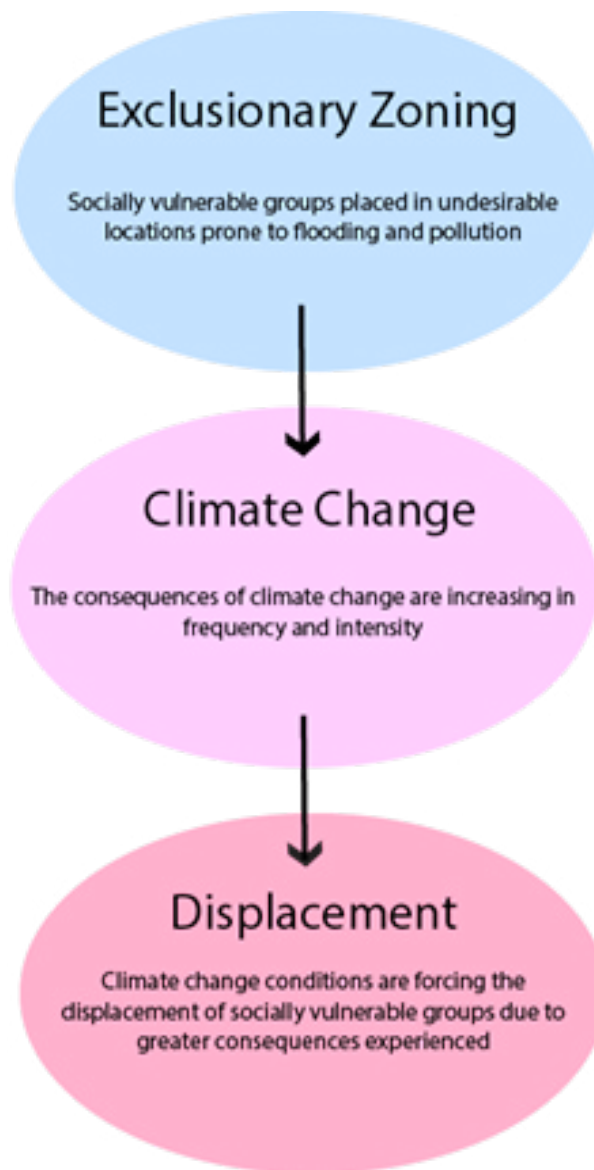
As the Earth's oceans expand from increasing water temperatures, the impacts of global warming extend to life on land, where heatwaves and wildfires cast a suffocating shadow across the horizon. According to the EPA (2021), the frequency of heatwaves has increased significantly, surging from an average of two heatwaves annually in the 1960s to six per year in the 2010s. Low-income communities, with their restricted access to air conditioning and financial constraints in coping with escalating utility costs, are at an increased risk of experiencing heat-related illnesses and fatalities (EPA, 2021; Cash et al., 2020). Within these communities, Black or African American residents are disproportionately affected, with a 40% to 59% higher likelihood of residing in high-impact areas in comparison to their white counterparts (EPA, 2021). Furthermore, heatwaves contribute to an unforgiving climate characterized by dry landscapes and low humidity levels, intensifying the risk of wildfires in affected regions. Correlations between global warming and wildfire frequencies indicate that the increased wildfire activity along the U.S. West Coast reflect responses to climate change (Rossiello & Szema, 2019). According to Cash et al. (2020, p. 20), in 2018, wildfires influenced the displacement of 350,000 people in California due to evacuation orders. Consequently, numerous families found themselves in precarious housing situations, such as temporarily residing in motels, where they face the burden of paying significantly higher costs and struggle to make ends meet (Cash et al., 2020). Victims of wildfires are shown to only recover 10% of their financial losses and are allotted a maximum of 2-2.5 years to close out their claims (Rossiello & Szema, 2019). For those financially secure, the redevelopment of flame-retardant materials can be costly and influence the price of housing. Lack of affordable housing and inconsistent recovery assistance

places a burden on victims which has resulted in homelessness (Cash, et al., 2020). Lack of affordable housing results in a greater percentage of renters within an area. Renters often struggle with wildfire recovery due to the inability to obtain insurance plans that support the relocation in the event of a disaster (Cash et al., 2020). Gabriel and Painter (2020) described term rent burden as households paying more than 30% of monthly income on rental costs; making it difficult for families to afford insurance as rates increase. From 2017 to 2018, California wildfire season amounted to \$26 billion in insurance payouts resulting in insurance companies eliminating high risk properties from their portfolios (Cash et al., 2020, p. 21). Due to escalating insurance rates, lack of affordable housing, the elimination of at-risk properties, and the intensifying effects of climate change, residents face a heightened risk of displacement.

Drivers of Displacement

As the consequences of climate change become apparent in socially vulnerable communities, it encourages scholars to examine the disproportionate distribution of harmful outcomes amongst Americans. Prior to the mid-20th century, exclusionary zoning was a socially segregating tool implemented in land use practices to separate low-to moderate-income households from wealthy counterparts (Whittemore, 2021). Geographically, this placed detached, single-family homes opposite of the elite in undesirable locations that were more susceptible to pollution and flooding (Smith, 2006; Whittemore, 2021). Figure 3 illustrates the relationship between exclusionary zoning and climate change driving displacement. To define displacement, Slater (2009) borrows from Hartman et al.'s 1982 definition to describe the term as "a result of outside forces making living impossible, hazardous, or unaffordable" (Slater, 2009; Hartman, et al., 1982). Socially vulnerable groups were originally displaced due to segregation but as climate conditions worsen, low-income residents will be forced to leave at-risk locations or suffer the consequences created by disasters, introducing the theory of the climate gap.

Figure 3: Drivers of Displacement



Climate Gap Theory

The IPCC, an intergovernmental body that analyzes the overall state of the global climate, has identified impacts such as economic loss, environmental endangerment, and property damage to have greater consequences in minority and low-income communities which supports the theory of the climate gap. The climate gap describes how the consequences related to climate change dramatically affect socially vulnerable communities greater than others (Frosch et al., 2018). The increasing concern of climate change conditions and consequences experienced in underprivileged neighborhoods has influenced policy directions to focus on achieving environmental justice (Fros-

ch et al., 2018; American Planning Association, 2020). The Environmental Protection Agency (EPA) is an independent agency of the United States federal government that focuses on environmental protection policies and regulations to achieve environmental justice. The EPA defines environmental justice as the fair treatment of all individuals regardless of race, color, national origin, or income in respect to the implementation of environmental regulations and policies (EPA, 2015). Although environmental protection policies aim to achieve equity, Frosch, et al., (2018) expressed concerns that policies may widen the climate gap resulting in greater damage to socially vulnerable groups in coastal regions (Frosch et al., 2018).

Social Injustice in Resilience Planning

The environmental justice movement in the United States began in the 1980s with the aim of addressing the unfair treatment of marginalized communities. This movement inspired the concept of climate justice, which recognizes that climate change disproportionately affects the most vulnerable populations. According to Gonzalez (2018), there are four dimensions of environmental injustice:

- 1. Distributive Injustice:** the disproportionate exposure of certain communities to environmental hazards.
- 2. Procedural Unfairness:** underrepresented groups are excluded from political decision-making processes.
- 3. Corrective Injustice:** the inadequate enforcement of environmental laws in disadvantaged communities.
- 4. Social Injustice:** contributes to the vicious cycle of poverty and environmental degradation.

To acknowledge the repercussions of injustice, Meerow et al. (2019) developed a framework of equity that includes distributional, recognition, and procedural dimensions to analyze goals, priorities, and strategies of resilience plans in place. Figure 4 provides a conceptual understanding of each dimension.

Figure 4: Dimensions of Equity

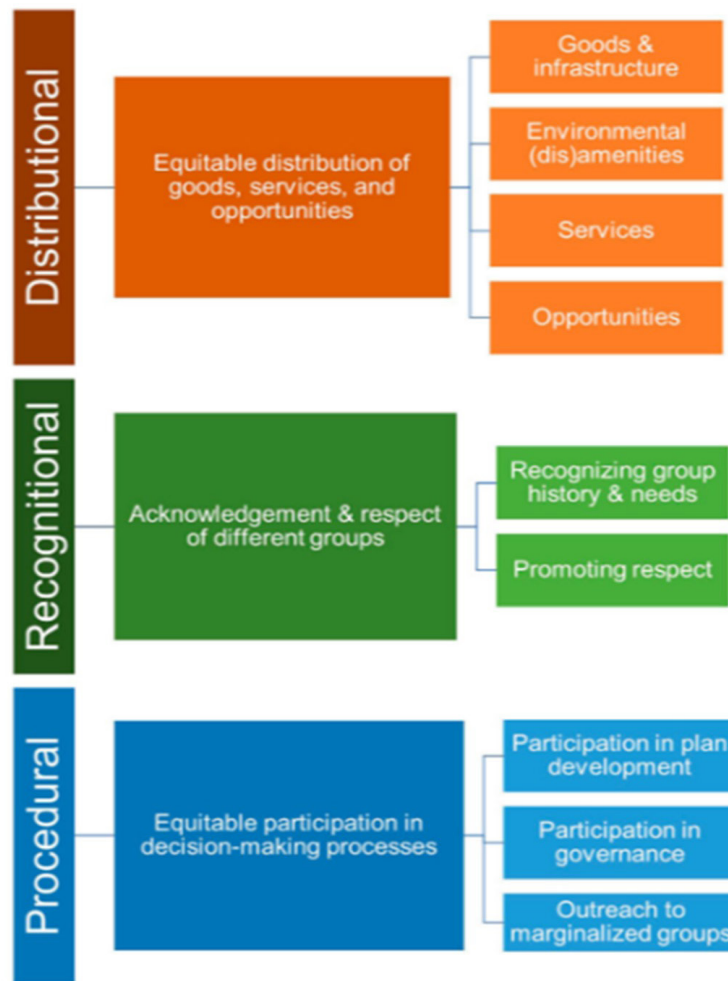


Figure derived from Meerow, S., Pajouhesh, P., & Miller, T. R. (2019). Social equity in urban resilience planning. *Local Environment*, 24(9), 793-808.

Meerow et al. (2019, p. 5) defines distributional justice as “equitable access to goods and infrastructure, environmental amenities, services, and economic opportunities.” Meerow et al. (2019) continues to state that the unequal distribution of efforts to build resilience is evident and has highlighted the inherent trade-offs in the beneficiaries of resilience initiatives, often excluding the most vulnerable populations. Meerow et al. (2019) explains that to achieve distributional justice in urban resilience planning, it is necessary to consider the distribution of benefits and risks associated with resilience-building efforts. This involves ensuring that the benefits and risks of urban resilience are distributed fairly across all segments of the population, particularly those that are historically disadvantaged and marginalized (Meerow et al., 2019). Distributional justice requires recognizing and addressing existing social and economic inequalities that may impact access to resources and opportunities in urban areas.

In the context of resilience planning, recognitional equity entails acknowledging the different intersecting identities of community members. It is important that planners recognize that identities are shaped by historical injustices and can influence vulnerability to shocks/stresses, access to resources, and the overall capacity to participate in decision-making processes (Meerow et al., 2019). Schlosberg (2007, as cited in Meerow et al., 2019) states that planning efforts to enhance recognitional equity should focus on identifying and changing the social and cultural factors that undermine self-respect within a particular group and prevent marginalized individuals from being fully accepted and valued within the community, as well as building a general respect for social differences.

Lastly, procedural equity refers to equitable participation in decision-making processes. This invites urban planners to encourage intense public participation throughout the development of resilience planning with efforts to increase collective activity in city governance and engage in specific outreach opportunities with vulnerable communities that are often underrepresented in traditional public processes (Meerow et al., 2019). Procedural equity recognizes the linkages between recognitional and distributional equity, as it emphasizes the importance of inclusive participation, ensuring that individuals have an influence in shaping decisions that affect them and contribute to the fair distribution of material resources and benefits (Meerow et al., 2019).

Adaptation Framework

To achieve distributional, recognitional, and procedural equity, Gonzalez (2018, p. 24) states that displacement driving climate gentrification must be recognized as a form of “structural violence.” Economic disinvestment and environmental degradation influence high-income populations to reinvest and create environmental redemption resulting in the increase in property values and feeding into the cycle of displacement (Rice et al., 2020). To better help understand issues regarding environmental justice in relation to climate gentrification, Kuiper and Infield (2019) divided the adaptive framework into two sections:

- 1. Pre-adaptation issues**
- 2. Post-adaptation issues**

The pre-adaptation issues model shown in figure 5 addresses the existing concerns that urban development intends solve. It is confirmed that the benefits of resilient redevelopment are disproportionate between demographic groups.

Figure 5: Environmental Justice Concerns Before Urban Redevelopment



Figure derived from Kuiper, J. F., & Hamin Infield, E. (2019). Greenways for Climate Adaptation: Avoiding the 'Green Paradox' while Improving Urban Resiliency. In Proceedings of the Fábos Conference on Landscape and Greenway Planning (Vol. 6, No. 1, p. 39).

The post-adaptation cycle shown in figure 6 introduces the relationship between adaptive design and high property values. Climate gentrification creates a shift in housing affordability and influences displacement in coastal cities due to the evolution of sustainable design in urban areas (Kuiper & Infield, 2019). To successfully overcome this issue, policies and regulations must be implemented to specifically address disparities.

Figure 6: Environmental Justice Concerns Post Urban Redevelopment

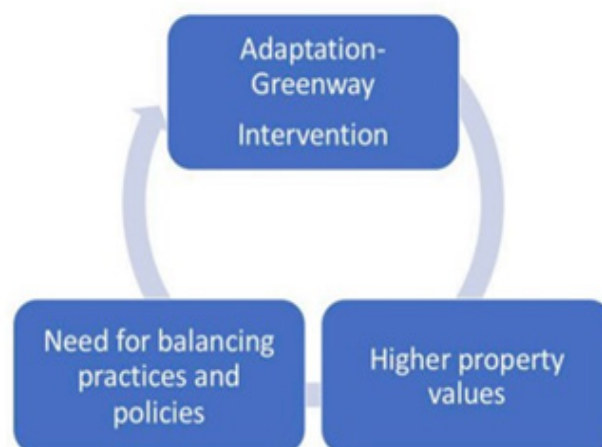


Figure derived from Kuiper, J. F., & Hamin Infield, E. (2019). Greenways for Climate Adaptation: Avoiding the 'Green Paradox' while Improving Urban Resiliency. In Proceedings of the Fábos Conference on Landscape and Greenway Planning (Vol. 6, No. 1, p. 39).

Critiques in Resilience Resolutions

Schnaiberg (1980) introduced a dialectic between economics and ecology through a three-way system. The following syntheses reflect the complex interplay between ecological, social, and economic factors in decision-making and policy formulation.

- 1. Ecological synthesis:** social standards support new environmental limitations due to natural causes.
- 2. Economic synthesis:** economic values succeed environmental ethics ignoring ecological elements.
- 3. Managed scarcity synthesis:** environmental realities are addressed which influence mandatory public policies to be assigned.

According to Gould and Lewis (2021), these three syntheses act in accordance with the three main resilience resolutions that have formulated within the previous 20-year period:

- 1. Managed retreat:** promoting ecological synthesis by socially encouraging the movement of people.
- 2. Climate denial:** supporting economic synthesis by ignoring climate conditions for lucrative purposes.
- 3. Structural mitigation:** advocates for managing scarcity synthesis by implementing public policies to enforce resilience.

Managed retreat refers to the intentional relocation of communities or infrastructure away from areas that are prone to natural hazards or are at risk due to climate change impacts. While the concept of retreating in anticipation of an event has gained attention in public discourse, the actual implementation of managed retreat is often met with resistance (Gould & Lewis, 2021). This is primarily due to factors such as economic interests and opposition from real estate stakeholders (Gould & Lewis, 2021). This resolution typically prioritizes ecosystems rather than capital which can contribute to unfavorable environmental conditions created through progressive approaches to repair the natural wildlife characteristics that generate fossil fuel combustion or deforestation

(Gould & Lewis, 2021). Policy-making bodies and governmental entities often hesitate to propose retreat as a viable solution, as it involves significant economic and social implications. The perceived economic costs and potential impacts on local economies can make retreat a politically challenging option to pursue.

Climate denial, the second scenario, utilizes the uncertainty of scientific studies or renounces evidence entirely to dismiss the discussion of climate change to protect economic resources through investments in manufacturing industries to achieve lucrative results at the cost of ecological and social capital (Gould & Lewis, 2021). In certain vulnerable coastal areas, the phenomenon of climate denial has been adopted as official policy, leading to significant consequences. Korten (2015, as cited in Gould & Lewis, 2021) identified how state of Florida engaged in this effort by instructing the Department of Environmental Protection to avoid using terms such as “climate change” and “global warming” in official communications and reports. This deliberate omission reflects a broader effort to downplay or dismiss the scientific consensus on climate change and its associated risks.

Structural mitigation, the third and final scenario addressed by Gould and Lewis (2021), encourages the rejuvenation of infrastructure from an ecological standpoint through technological development. This is aimed to alleviate the consequences of climate change although the results increase inequity within a societal structure. Implementing ecological engineering techniques typically anticipates success when applied but this effort to achieve urban resilience contributes to a socioeconomic imbalance within coastal communities. Structural mitigation results in the increase of infrastructure costs which intensifies the existing burden against impoverished beings, escalating the ongoing injustice in America. According to Gould and Lewis (2021), this occurs in three stages following a natural disaster. Climate demolition, the first phase of impact, is the failure of infrastructure to withstand the intense climate conditions resulting in available land for new development. Following this loss of life and infrastructure, the second phase is a response to destruction through modernized design approaches and plan policies. These plans anticipate to achieve resilience through proposed strategies but fail to incorporate inclusive design. As a result, the final stage of structural mitigation contributes to climate gentrification through the increase in living

costs. This development of sustainable infrastructure heightens the existing socioecological barriers imprinted in our social class system and demands for an alternative approach to building city resilience.

City Resilience Framework

City resilience, as defined by The Rockefeller Foundation, refers to the capacity of cities to function effectively in the face of various stresses and shocks. The foundation emphasizes the importance of prioritizing the well-being and survival of all residents, particularly those who are marginalized or economically disadvantaged, ensuring their ability to thrive regardless of the challenges they may encounter. In the early 17th Century, the term resilience was introduced into the English language and literature finds that Crawford (Buzz) Holling was the first to apply the concept of resilience to ecology and the environment (McAslan, 2010). McAslan (2010, p. 1) explains how the concept of resilience is attractive to policy makers because “it suggests an ability of something or someone to recover and return to normality after confronting an abnormal, alarming and often unexpected threat.” When applied to cities, resilience recognizes the complex and dynamic nature as communities continually adapt to changing circumstances. The notion of a resilient city becomes particularly relevant when cities are confronted with chronic stresses or sudden shocks that pose a significant risk of widespread disruption or the collapse of physical and social systems. However, it is important to acknowledge that the concept of resilience has its limitations. One of the limitations is its tendency to overlook power dynamics inherent in urban systems and how cities cope with disruptions. While resilience provides a valuable framework, it does not fully account for the ways in which power influences the functioning of cities and their ability to respond to and recover from challenges.

In the context of cities, resilience has played a crucial role in bridging the gap between disaster risk reduction and climate change adaptation. It moves beyond traditional approaches to disaster management that focus solely on specific hazards and risk assessments. Instead, resilience acknowledges that a wide range of disruptive events, both predictable stresses and unforeseen shocks, may occur. It emphasizes enhancing the overall performance of urban systems in the face of multiple hazards rather than simply preventing or mitigating the loss of assets due to specific events.

By embracing a resilience approach, cities can better prepare themselves to navigate the complexities and uncertainties of an ever-changing world. It encourages a proactive and holistic perspective that seeks to strengthen urban systems, promote adaptive capacities, and foster inclusive governance (The Rockefeller Foundation, 2015). This approach recognizes the interconnectedness of social, economic, and environmental factors, ensuring that cities are well-equipped to withstand and recover from a range of challenges. Ultimately, building resilience helps cities create a more sustainable, equitable, and prosperous future for all their residents.

The Rockefeller Foundation and Arup International Development (2015) established 12 goals to develop a resilient city and illustrates how these goals can be classified into four distinct categories focused on people, place, organization, and knowledge (see figure 7). The 12 goals aimed to achieve a resilient city are as follows:

- 1. Minimize human vulnerability.**
- 2. Embrace diverse livelihoods and employment.**
- 3. Establish effective safeguards to human health and life.**
- 4. Protect identity and collective community support.**
- 5. Create comprehensive security and rules of law.**
- 6. Influence a sustainable economy.**
- 7. Reduce exposure and fragility.**
- 8. Supply effective critical services.**
- 9. Implement reliable communications and mobility.**
- 10. Initiate effective leadership and management.**
- 11. Empower stakeholders.**
- 12. Integrate development planning.**

Figure 7: Resilient City Framework

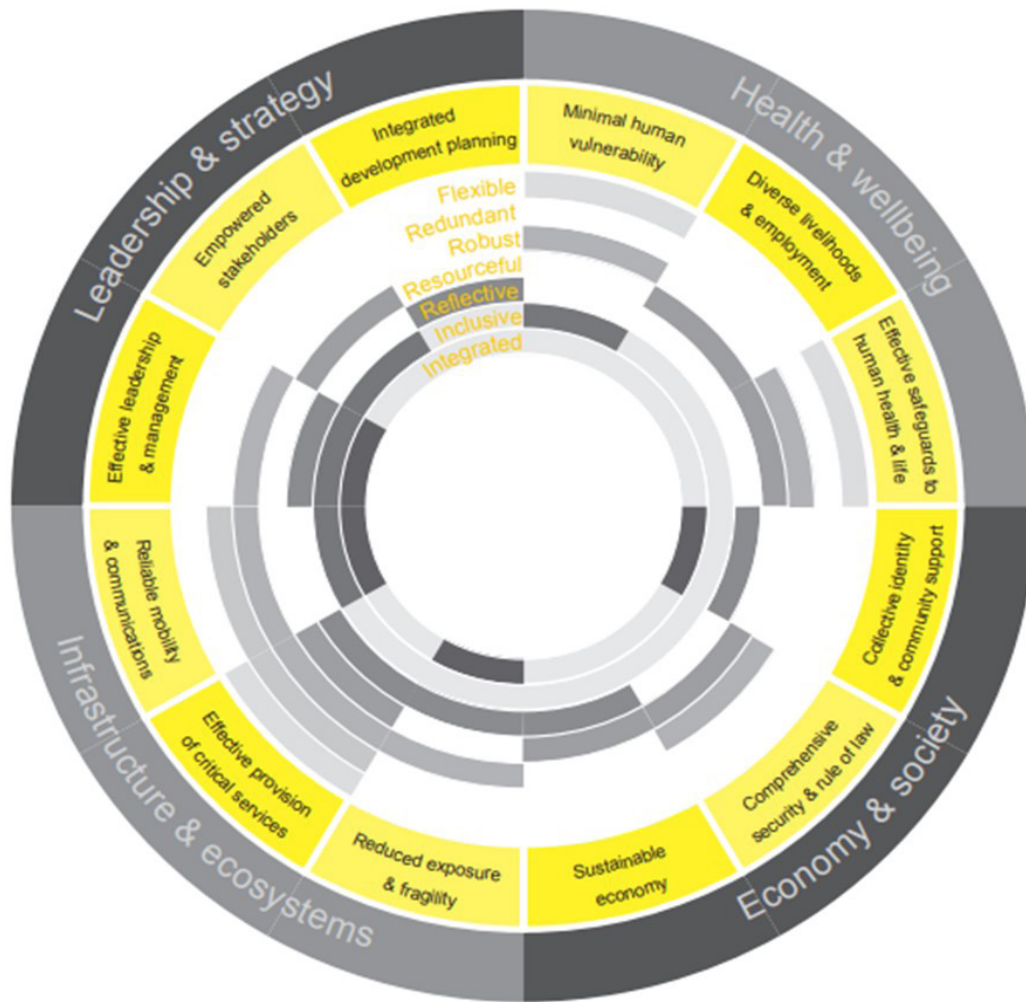


Figure derived from The Rockefeller Foundation & Arup International Development (2015). City Resilience Framework. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.rockefellerfoundation.org/wp-content/uploads/City-Resilience-Framework-2015.pdf](https://www.rockefellerfoundation.org/wp-content/uploads/City-Resilience-Framework-2015.pdf)

Each of these categories represents a crucial aspect of building resilience within a city. In envisioning a best-case scenario, The Rockefeller Foundation (2015) states that a resilient city would excel in all of these areas, ensuring the overall welfare and thriving of its inhabitants. It would prioritize the health and wellbeing of individuals, providing access to quality healthcare, education, and social services. The urban systems and services would be robust, efficient, and sustainable, offering reliable infrastructure, transportation, and utilities. Moreover, The Rockefeller Foundation (2015) notes that a resilient economy and society would be dynamic and inclusive, fostering economic growth, social cohesion, and equitable opportunities for all residents. The city's leadership and strategy would be visionary and proactive, actively engaging stakeholders, and making informed decisions to navigate challenges and promote long-term resilience.

In envisioning a worst-case scenario, The Rockefeller Foundation (2015) states a city that lacks resilience would experience a breakdown or collapse in these areas. It would suffer from rampant poverty, social conflicts, inadequate infrastructure, and weak governance. In such a city, the health and wellbeing of individuals would be compromised, with limited access to essential services and a lack of social support. Urban systems and services would be strained, resulting in unreliable transportation, crumbling infrastructure, and inadequate provision of basic amenities. The economy and society would be stagnant or unequal, marked by high unemployment rates, limited economic opportunities, and social divisions. Additionally, ineffective leadership and poor strategic planning would hinder the city's ability to respond to challenges and ensure its long-term sustainability.

By considering these categories and their corresponding best and worst-case scenarios, it becomes evident that resilience encompasses various dimensions beyond physical infrastructure. It requires a holistic approach that addresses social, economic, and governance aspects to create a city that can withstand shocks and stresses while promoting the well-being and prosperity of its residents (The Rockefeller Foundation, 2015). The significance of the 12 goals outlined for building resilience may vary depending on the specific urban context and the unique challenges faced by each city. However, extensive research indicates that these factors generally hold utmost importance when cities confront a diverse range of persistent problems or sudden catastrophic events (The Rockefeller Foundation, 2015). They serve as the fundamental pillars of a resilient city, enabling both individuals and businesses to not only endure but also flourish despite adverse circumstances.

Recognizing the context-specific nature of resilience, it is crucial to acknowledge that different cities will prioritize these goals to varying degrees based on their specific challenges and needs. For instance, a city prone to natural disasters may place greater emphasis on goals related to disaster preparedness, infrastructure resilience, and the protection of its residents' health and wellbeing. On the other hand, a city grappling with economic inequality and social divisions may prioritize goals that focus on fostering inclusive economic growth, enhancing social cohesion, and addressing systemic inequities. While the importance of the 12 goals may vary in different urban contexts,

they collectively serve as the foundational elements of resilience. By prioritizing these factors, cities can enhance their capacity to withstand and respond effectively to a wide range of challenges, enabling individuals and businesses to not only survive but also thrive in adverse conditions. The 12 goals presented in the city framework for resilience are not standalone concepts but are accompanied by additional qualities that distinguish a resilient city from one that is merely livable, sustainable, or prosperous. These qualities play a vital role in preventing breakdown or failure within a city and facilitating appropriate and timely actions when faced with challenges. They manifest themselves through various assets, systems, behaviors, and practices that collectively contribute to achieving the desired outcomes outlined by the 12 goals.

City resilience is a multifaceted concept that encompasses various layers within the City Resilience Framework, including categories, goals, and qualities. Each layer contributes to a more comprehensive understanding of resilience, offering a robust framework that can facilitate a shared understanding among diverse stakeholders. By utilizing this framework, cities can identify areas of strength, pinpoint critical gaps, determine strategic actions, and allocate resources effectively to enhance their resilience. The first layer of the framework involves categories, goals, and qualities, which collectively provide a structured approach to defining and operationalizing resilience. These components help cities articulate their resilience objectives and consider the essential qualities necessary to achieve them. By exploring these layers, cities can assess their current state of resilience, identify areas for improvement, and align their efforts accordingly.

Moreover, the City Resilience Framework serves as a valuable tool for fostering collaboration and communication among stakeholders. It facilitates a common language and understanding of resilience, enabling diverse groups, including policymakers, urban planners, community organizations, and residents, to engage in meaningful discussions and work together towards shared goals. The framework assists cities in determining where action and investment are most needed to enhance resilience. By evaluating their strengths and weaknesses across the various layers of the framework, cities can identify priority areas for intervention. This enables them to focus their resources and efforts on initiatives that will have the greatest impact and yield the most significant resilience improvements.

In addition, the City Resilience Index, which forms the final layer of the framework, provides a quantitative assessment of resilience. By establishing variables and metrics, cities can objectively measure their resilience progress over time. This allows for a comprehensive evaluation of resilience performance and the identification of trends and patterns that can guide future decision-making.

Ultimately, the City Resilience Framework empowers cities to undertake a comprehensive and systematic approach to resilience planning and implementation. It supports cities in assessing their current resilience status, identifying areas for improvement, and tracking progress over time. By utilizing this framework, cities can enhance their capacity to withstand shocks and stresses, promote sustainable development, and improve the overall well-being of their residents.

STUDY METHOD

According to Yin (1994, p. 9), case studies are useful when answering a “How?” or “Why?” question regarding a set of events which an investigator has little or no control over. Considering the growing population, economic imbalance, and intensity of anticipated climatic impacts threatening a collapse in vulnerable communities, it is essential to understand the influence urban planners have regarding environmental equity. In this report, I answer one question:

“How can planners reduce the risk of climate gentrification through planning practices in Miami, Florida?”

To provide information regarding on-going issues focused on climate gentrification as a result of climate change, I used official government reports provided by the City of Miami and Miami Dade County to address challenges of inequity within the realm of urban planning and development. Miami was chosen as the focal point due to its geographic location, history of segregated policies, and the potential impacts associated with increasing investments in disadvantaged communities due to resilient strategies enforced to mitigate climate change consequences. To gain a comprehensive understanding of the ongoing risk of displacement, I presented a summarized timeline of segregation, examined existing resilience plans and policies, and addressed criticisms of planning procedures. Additionally, I introduced recommendations aimed at achieving a resilient city and preserving neighborhood identity in Miami.

To collect primary data, I conducted an individual case study focused on Miami, Florida. This qualitative approach involved exploring archival data related to the phenomenon under investigation, rather than employing sampling techniques. In this report, I analyzed the history of racially biased planning practices in Miami, examined the Resilient305 Strategy, investigated the investment themes of the Miami Forever Bond, and analyzed the overreaching goals and objectives of the Sea Level Rise Strategy and Climate Action Plan regarding the city’s future development. These official government reports and plans were selected to demonstrate how sustainable design initiatives may fail to address vulnerable groups due to political motivations.

First, each resilient strategy's goals and objectives were read in full to understand the priorities of adaptation. Second, an examination of each document was conducted by utilizing search functions to pinpoint sections explicitly addressing the coded themes. The three words searched were "vulnerable," "equity," and "investment." The three terms were employed for this search to determine the extent to which vulnerable populations were taken into account, whether equity was a recurring theme, and if investment held a central focus. Finally, I filtered this information to generate a comprehensive summary of the plan's climate resilience policies and actions. This case study was necessary due to the limited literature on successful sustainable practices tailored specifically to vulnerable communities at risk of displacement from resilient planning initiatives to combat the consequences of climate change.

Archival data offered several advantages, including a considerable amount of existing research, large sample sizes with statistical information, access to longitudinal data, and availability of open data. By analyzing archival data, I formulated recommendations by examining the existing conditions of socioeconomic disparities and the lack of diversity in the implementation of official government policies and plans provided within the area of focus. I sourced archival data from academic archives, government archives (e.g., Census Bureau, City of Miami, Miami Dade County, etc.), private/public organizations, and independent researchers specializing in my field of study. Through this analysis, I identified patterns of displacement, frequency of climate impacts and projected rates, consequences of climate-related disasters faced by socially vulnerable groups, and the outcomes of implemented strategies. These findings informed my recommendations.

The case study research approach has certain limitations, such as concerns regarding generalizability and transparency. To address these issues, I provided specific information targeting coastal communities, avoiding the transferability of findings to other contexts. Additionally, I ensured transparency by offering a detailed description of my chosen focus area and the rationale behind collecting archival data. This explicit detailing facilitated the reader's comprehension of my conclusions and the process by which I arrived at them. However, a potential limitation in formulating my final recommendations stemmed from the consequences of the COVID-19 pandemic. Job losses and a slowdown in planning and development activities may have affected the availability of up-

dated risk-reduction strategies. To overcome this, I analyzed the outcomes of previous risk-reduction strategies to offer realistic planning recommendations aimed at mitigating factors that contribute to gentrification in Miami, Florida.



MIAMI CASE STUDY

Introduction

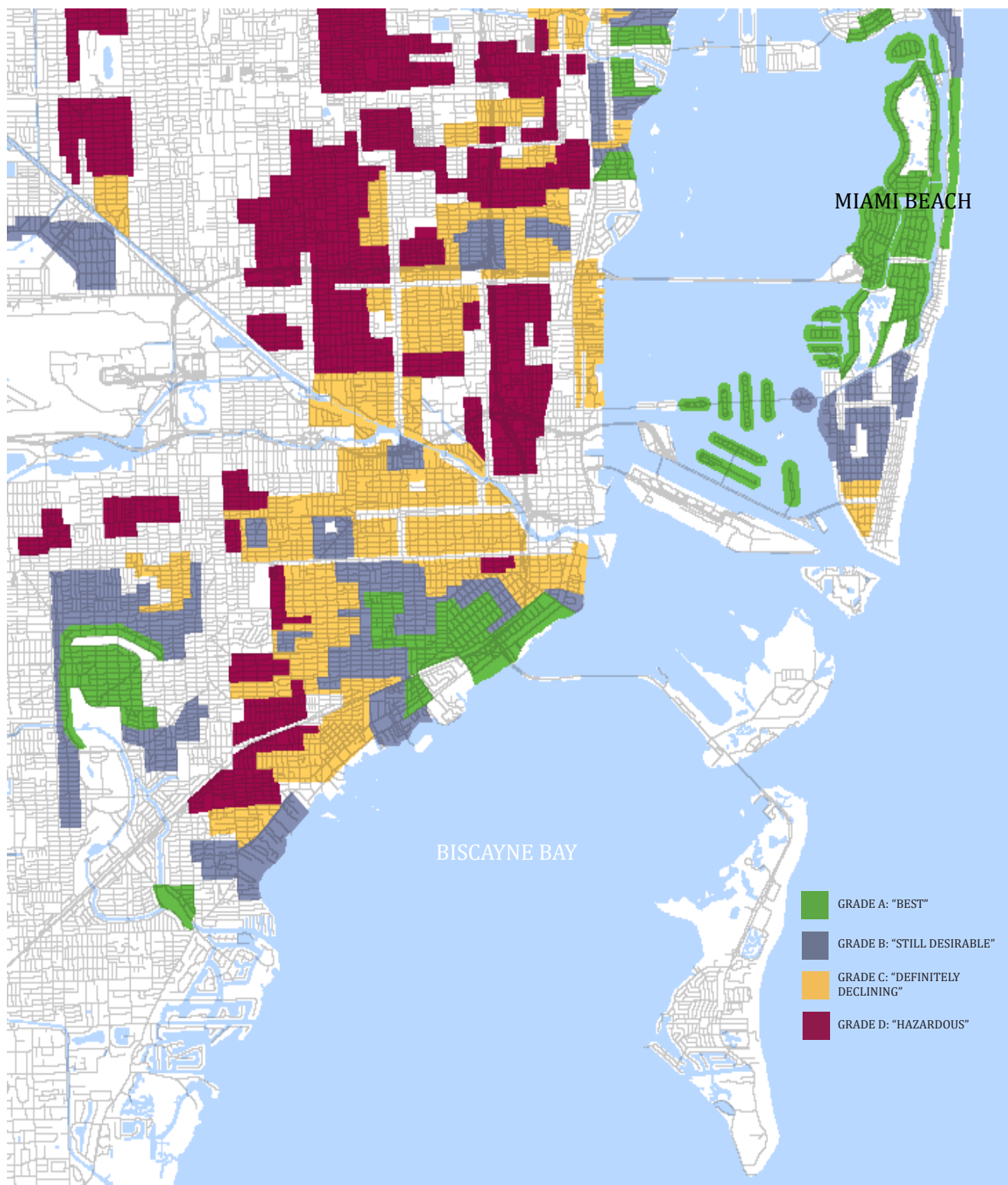
Miami, nestled along coastal shores under sunny and inviting skies, is home to a dense and diverse population residing on its flat terrain predominantly composed of porous limestone. Miami is renowned for its subtropical climate, which is characterized by ample sunshine and a distinct seasonal variation influenced by the nearby waters and the vast expanse of the Everglades. Situated in the southernmost part of Florida, the city encounters hot and rainy summers followed by warm and relatively dry winters. Due to these climate characteristics, Miami has captured the romantic image of tropical paradise.

“MIAMI, the city of adventure and tropical wonderland, where business cares and worries vanish under the spell of glorious sunshine, invites the world to enjoy the magic of fun in myriad forms, in the most popular winter resort in America.”

-Miami by the Sea: The Land of Palms and Sunshine (1927).

According to Tolford (2021), Miami’s location is both a challenge and an opportunity. The city is situated between the Atlantic Ocean to the east and the Everglades wetland network to the west offering emerald, blue waters and trade routes to Latin America, but also poses the yearly challenge of hurricane season (Tolford, 2021). With the increasing temperatures, Miami finds itself threatened by the potential impacts of disastrous storm surges contributing to the movement of residents to higher elevations seeking protection from the consequences associated with the attractive waterfront. Human migration is an inevitable occurrence and captures the social and economic changes of society, but in Miami, the movement of individuals to the urban core now poses a threat to those residing there. Historically, the city of Miami has utilized racial planning policies and practices that limited African Americans the access to equal housing opportunities. These policies enforced individuals of color to reside in the urban core, away from the alluring coast. Now, Miami is starting to see a shift in what is considered “desirable”, as white, affluent groups seek protection from hazardous areas.

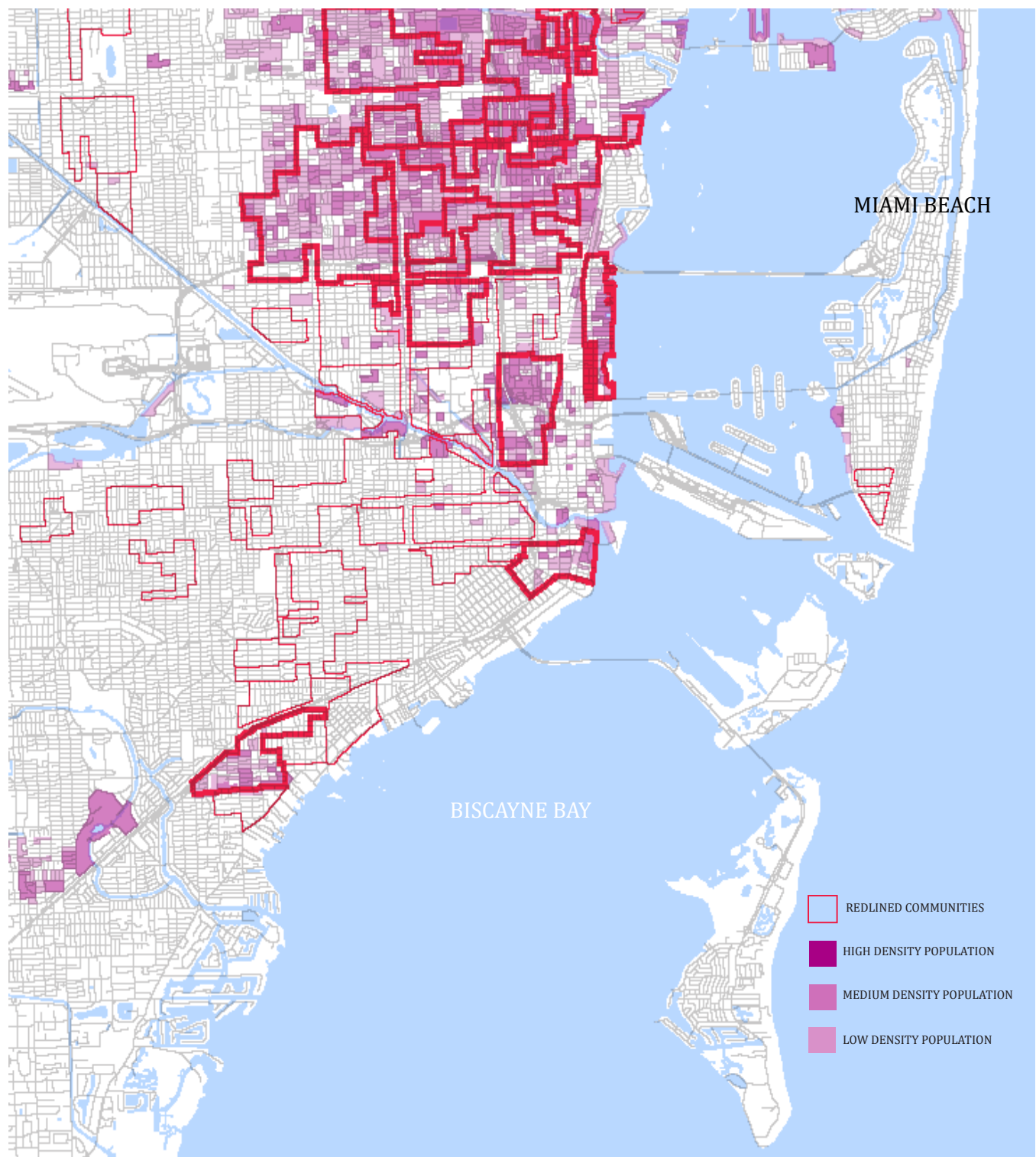
Figure 8: Historical Redlining Map, Miami



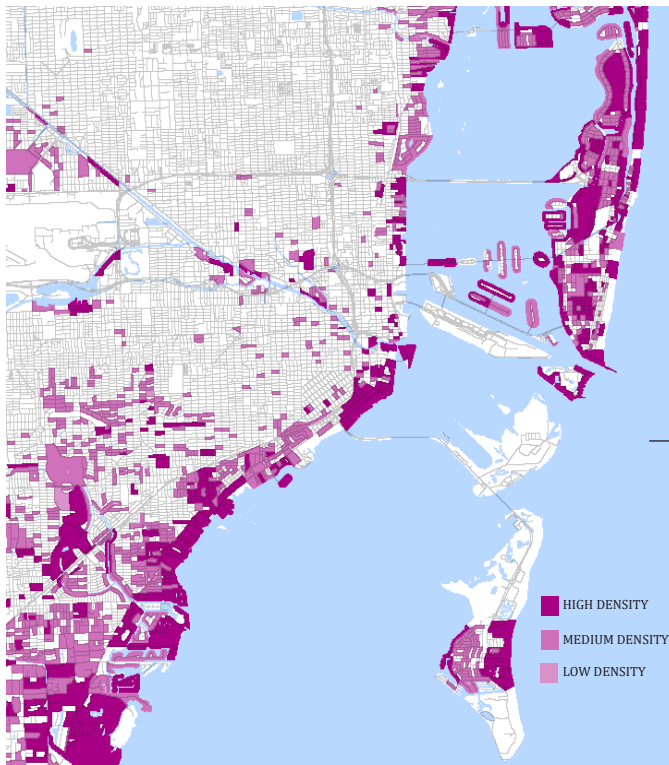
GIS Data sourced from, "Open Data Hub," Miami-Dade County's Open Data Hub, accessed May 29, 2023, <https://gis-mdc.opendata.arcgis.com/>.

Redlining Shapefile from Marciano, R., Nelson, R. K., Winling, L., & Connolly, N. et al. (n.d.). American Panorama, ed. Mapping Inequality. <https://dsl.richmond.edu/panorama/redlining/Miami>

Figure 9: Redlined Communities and Black Population, Miami 2020



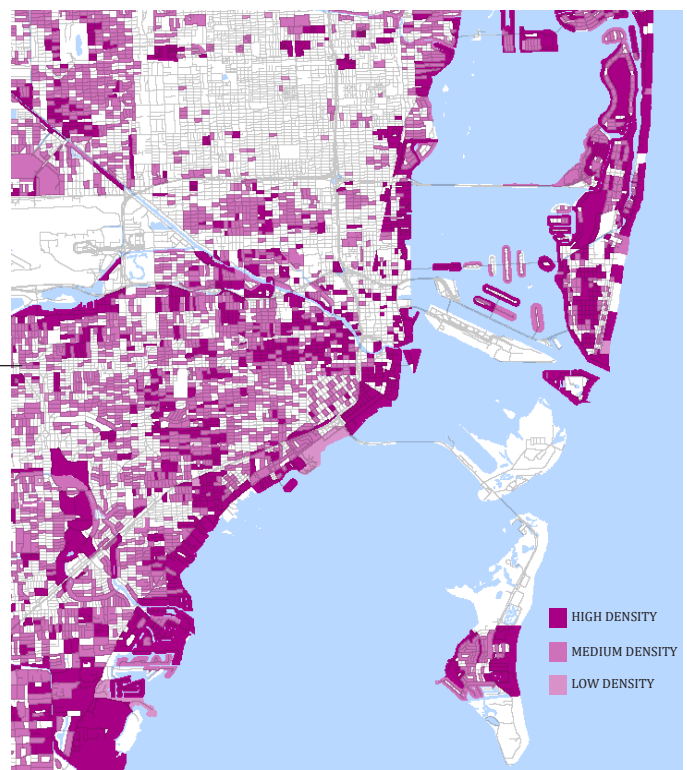
GIS Data sourced from, "Open Data Hub," Miami-Dade County's Open Data Hub, accessed May 29, 2023, <https://gis-mdc.opendata.arcgis.com/>.



GIS Data sourced from, "Open Data Hub," Miami-Dade County's Open Data Hub, accessed May 29, 2023, <https://gis-mdc.opendata.arcgis.com/>.

Figure 10

Miami White Population 2010



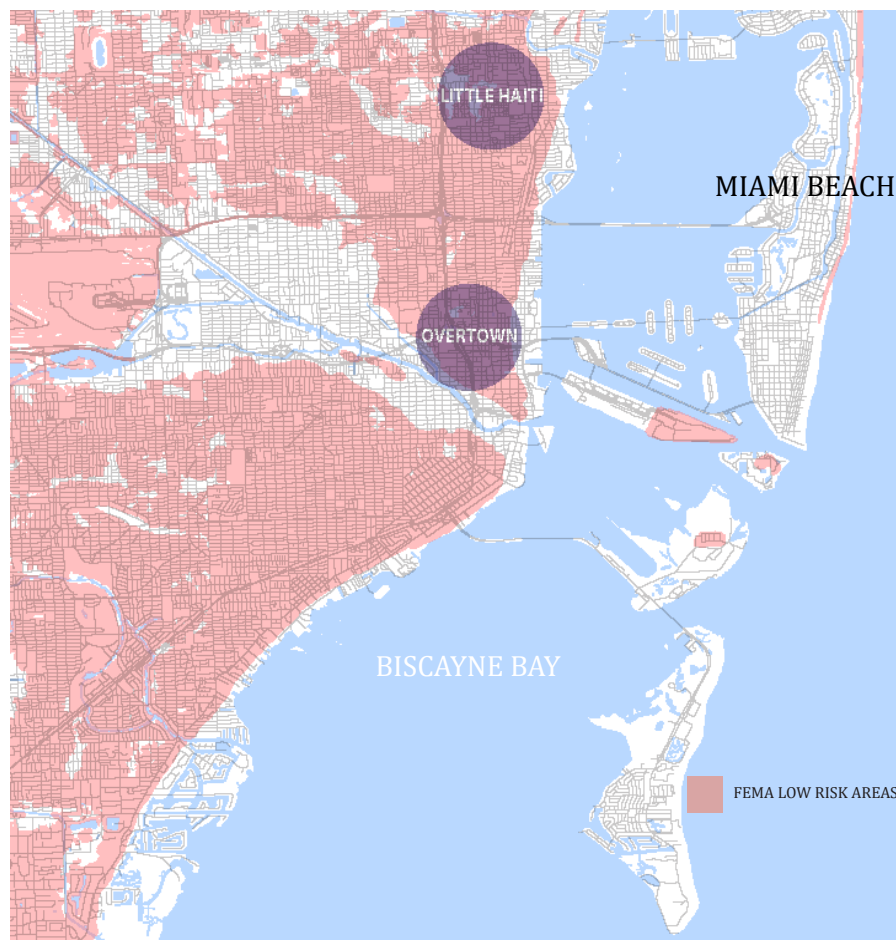
GIS Data sourced from, "Open Data Hub," Miami-Dade County's Open Data Hub, accessed May 29, 2023, <https://gis-mdc.opendata.arcgis.com/>.

Figure 11

Miami White Population 2020

Miami has emerged as a global city with a diverse population, but it also faces significant challenges related to socioeconomic inequality and environmental injustice. Due to the increasing interest to redevelop within the urban core, this movement raises significant concerns of displacement in districts such as Little Haiti and Overtown. Little Haiti and Overtown are cultural communities that historically are home to low-income residents and minorities due to racialized planning policies and development objectives aimed to segregate ethnic groups. These districts were once considered undesirable but private developers are seeking to reinvest in these low-risk locations, contributing to the increase in cost of living and displacement of longtime residents (Cash, et al., 2020). Figure 12 identifies FEMA low risk areas in relation to the location of both Little Haiti and Overtown. As shown on the map below, these districts are considered more desirable due to is low risk of flooding and distance from the coast.

Figure 12: FEMA Low Risk Flood Map and Identified Historically Disadvantaged Communities, Little Haiti & Overtown



GIS Data sourced from, "Open Data Hub," Miami-Dade County's Open Data Hub, accessed May 29, 2023, <https://gis-mdc.opendata.arcgis.com/>.

Miami's historical background includes the implementation of discriminatory planning measures and policies that led to the spatial segregation of low-income and minority populations from predominantly white neighborhoods. This historical pattern is now resurfacing as there is a growing interest in reinvesting in underprivileged districts to safeguard against the heightened impacts of climate-related issues along the coastal areas. This renewed focus on reinvestment in previously redlined areas raises concerns about the potential displacement of communities that were once subjected to segregation.

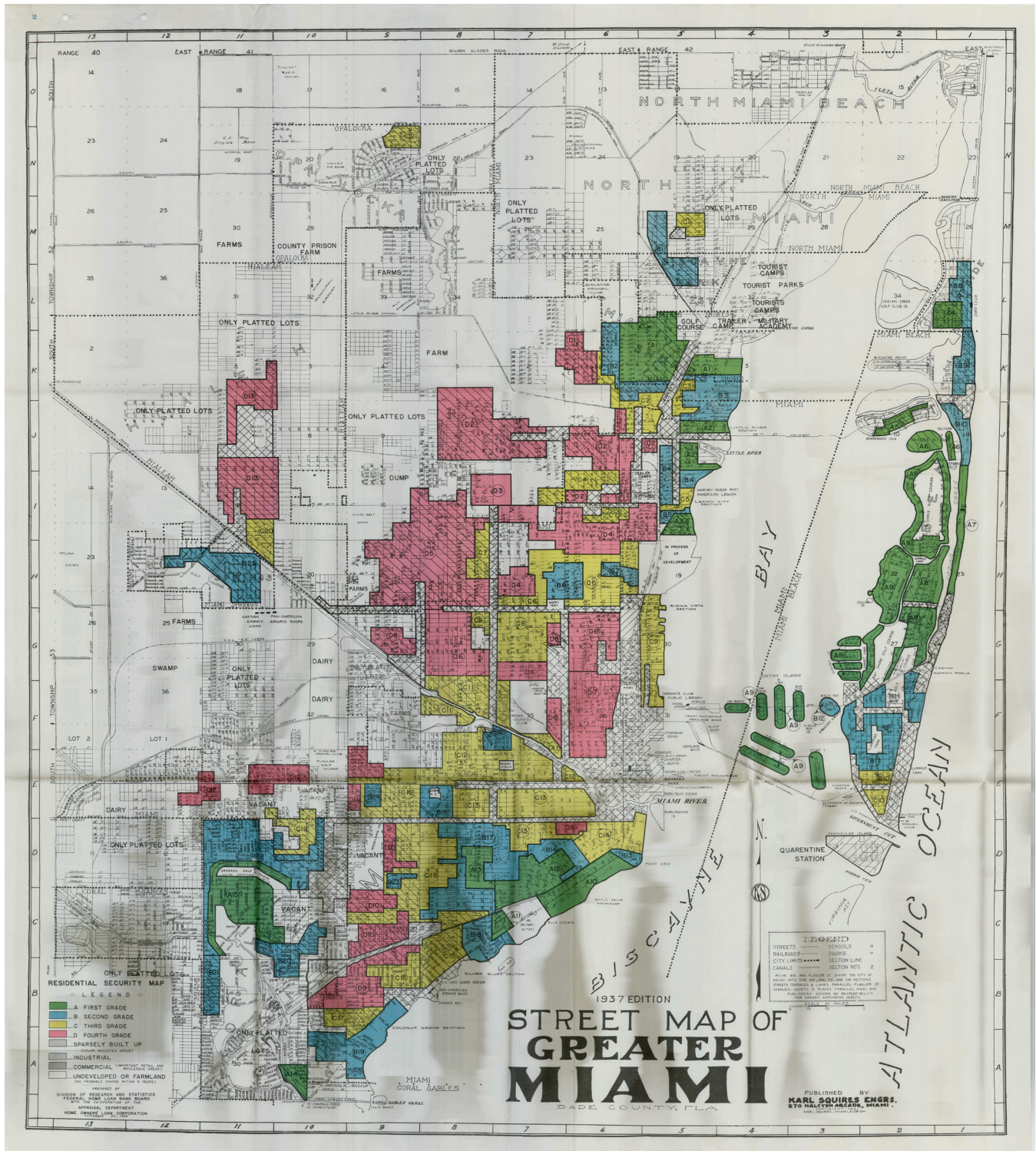
History

On July 28, 1896, Miami officially attained the status of a city with more than one-third of the individuals listed on the original city charter as black (CCE, n.d.). However, this inclusion of black individuals was not driven by a genuine commitment to racial equality but rather a strategic move to meet the required number of voters mandated by state law to establish a new city (CCE, n.d.). Once Miami was officially formed, existing public policies quickly disenfranchised the black population and contributed to the future undoing of colored communities. With the establishment of the city came the consequences of Jim Crow laws. The alleged "Jim Crow" law of 1881 was enacted by Tennessee legislature to mandate segregation in train cars but were formed in the United States primarily in the late 19th and early 20th centuries as a result of deeply ingrained racial prejudice and discrimination (Folmsbee, 1949). The term "Jim Crow" is said to have originated around 1830 from a white, minstrel show performer who portrayed derogatory stereotypes of African Americans (Davis, 2003). These laws were designed to enforce racial segregation in public facilities, schools, and other areas, and establish a system of apartheid, particularly in the Southern states.

During the course of the 20th century, governmental entities wielded significant influence in establishing and perpetuating racial division and segregation within Miami. This segregation in housing began with the implementation of "racial zoning" policies during its early stages. Racial zoning refers to a discriminatory practice implemented by local governments through legal regulations that assign specific areas or zones for residential use based on an individual's ethnic background. The purpose of racial zoning was to enforce racial segregation and limit the mobility and housing choices of minority populations, particularly African Americans. These policies were often

used in conjunction with other discriminatory practices such as redlining to perpetuate racial segregation and inequality.

Figure 14: 1934 Map of Greater Miami



Scan from Marciano, R., Nelson, R. K., Winling, L., & Connolly, N. et al. (n.d.). Street Map of Greater Miami. American Panorama, ed. Mapping Inequality. <https://dsl.richmond.edu/panorama/redlining/Miami>

The 1930s was also a time that influenced segregation in Miami. The majority of Miami's black population, which was estimated to be around thirty thousand individuals, was concentrated within a limited fifty-block area commonly referred to as "Colored Town" at the time, now known as Overtown (Mohl, 2001). However, the influential white civic elite of Miami had ambitions to expand the boundaries of the city's relatively small central business district. Unfortunately, Overtown stood in the way of this expansion, leading local political and business leaders to consider it expendable in their pursuit of growth and development (Mohl, 2001). The housing policies of the New Deal presented an unprecedented chance to fulfill local racial objectives. Under the leadership of former county judge John C. Gramling, Miami's civic leaders capitalized on the evolving New Deal ideology created by Franklin D. Roosevelt to influence the economic and social status of the city, and effectively secured federal funding for a public housing initiative exclusively designated for the African American community known as Liberty Square (Mohl, 2001). Liberty Square was located approximately five miles to the north of downtown Miami to redirect the population from Overtown and facilitate the expansion of downtown businesses (Mohl, 2001).



Romer, G. W. (n.d.). Congested area of Miami's Negro district. [Photograph]. <http://miamiarchives.blogspot.com/2015/04/scenes-from-miamis-overtown-district.html>



Romer, G. W. (n.d.). Congested area of Miami's Negro district. [Photograph]. <http://miamiarchives.blogspot.com/2015/04/scenes-from-miamis-overtown-district.html>

In 1936, during the construction of Liberty City, the Dade Planning Board approved a “Negro Re-settlement Plan,” which aimed to relocate the population of Overtown to three rural settlements outside the city limits (Mohl, 2001). This plan was met with resistance and criticism, as it not only disrupted established communities but also perpetuated racial segregation by physically isolating African Americans from the rest of the city. The racial objectives created by local officials exemplify a dark chapter in the city’s history, marked by the discrimination and unequal treatment of its residents. These actions had long-lasting effects on the socioeconomic conditions, opportunities, and mobility of communities of color in Miami.

During the late 1940s, several residents of the Railroad Shop Colored Addition, a predominantly black neighborhood in central Miami, were forcibly evicted to make way for the construction of new public amenities for nearby white households (Benitez, 2021). Following these actions, in 1948, Father Theodore Gibson, an influential black leader, and Elizabeth Virrick, a middle-class white woman, joined forces to establish the Coconut Grove Committee for Slum Clearance. This grassroots interracial committee aimed to improve the living conditions in the black sections of

the Grove (Benitez, 2021). Their collaboration exemplified the efforts of individuals from different racial backgrounds working together to address social issues. In 1950, the committee initiated a zoning proposal for a public referendum and received a citywide endorsement, granting the City of Miami the authority to reconfigure sections of Coconut Grove's zoning regulations, effectively halting the development of new substandard housing in the neighborhood (University of Miami, N.d).

The Committee Against Socialized Housing (CASH) emerged in 1950 to combat new public housing developments and initiatives for slum clearance in Miami. Supported by influential entities such as the Miami Chamber of Commerce, Board of Realtors, bankers, and prominent politicians including the mayor, CASH aimed to oppose these measures (Benitez, 2021). This lobbying group played a significant role in shaping housing policies and resisting efforts to alleviate housing disparities. The construction of new black rental housing in neighborhoods like Brownsville, Liberty City, and Coconut Grove resulted in poorly planned and inexpensive concrete structures which led Elizabeth Virrick to coin the term "Concrete Monsters" to describe these low-quality housing developments (Benitez, 2021).



Rimkus, J. (n.d.). African-American men march outside the Miami Beach Convention Center. [Photograph]. Miami New Times. <https://www.miaminewtimes.com/arts/black-resistance-in-florida-from-the-underground-railroad-to-quiet-riots-9609754>

This inadequate construction further perpetuated substandard living conditions for black residents. In 1951, a series of bombings occurred at a single apartment complex in Miami known as Carver Village. These attacks took place after the owners of the building had converted their rental units to accommodate black tenants (Benitez, 2021). This violent response underscored the resistance and hostility faced by African Americans seeking equal housing opportunities.



State Archives of Florida (1951). Carver Village bombing [Photograph]. <https://www.floridamemory.com/items/show/4511>

In 1953, James E. Scott Homes became the second black public housing project in Miami-Dade County after Liberty Square. Located in the north-central section of Miami, this housing project eventually comprised 754 units, making it the largest public housing project in the county (Benitez, 2021). The construction of public housing aimed to address the housing needs of the black community, although within a segregated system.

The Federal Aid Highway Act of 1956 authorized funding for an interstate highway network, which included the construction of the north-south expressway in Miami-Dade County. This project, which spanned from 1957 to 1968, had a significant impact on the landscape of the area (Benitez, 2021). However, the construction of highways often resulted in the displacement of communities

and disproportionately affected minority neighborhoods.

In 1957, Frank Legree, a local musician, made history by becoming the first black man to purchase a home in the Orchard Villa subdivision, which was previously exclusively white (Benitez, 2021). His achievement challenged racial segregation and exemplified the gradual progress towards integration.

The Cuban Exodus occurred between 1959 and 1980 when over 800,000 Cubans immigrated to the United States, with the majority settling in Miami. By the 1970s, Miami became home to the second largest concentration of Cubans outside of Havana (Benitez, 2021). This influx of Cuban immigrants had a profound impact on the cultural and demographic landscape of the city.

In 1965, the construction of the I-95 expressway ran through Overtown, a historically black neighborhood in Miami. This development resulted in the demolition of blocks of densely populated commercial and residential areas, displacing numerous Overtown residents. According to Tardanco and Oslender (2021, p. 105), this marked the commencement of Overtown's decline, a neighborhood that gradually became linked with issues such as poverty, neglect, drug-related violence, and joblessness.



Pineda, J. (1968). Overview of I-395 looking east in Miami [Photograph]. Miami Herald.

With the increase in population during the 1970s, stricter environmental regulations were introduced. One of these measures was the establishment of the Urban Development Boundary (UDB), which aimed to control the areas where development could take place and specifically prohibited expansion into the Everglades (Miami-Dade County Office of Resilience, 2021). Although development became more restricted due to environmental regulations, between the late 1970s and early 1980s, approximately 60,000 Haitians migrated to the Miami area to flee political persecution in Haiti and seek economic opportunities in the United States. However, upon arriving in Miami, many Haitians faced prejudice and discrimination (Benitez, 2021).

In 1980, the McDuffie riots erupted, resulting in the destruction of the Liberty City neighborhood. The riots caused damages exceeding \$100 million and brought attention to longstanding racial tensions and socioeconomic disparities in Miami (Benitez, 2021). The Miami-Dade Surtax Program was introduced in 1984. This program aimed to finance the development of affordable housing in the Miami-Dade County area through a documentary surtax (Benitez, 2021). The surtax program represented an effort to address the ongoing need for affordable housing options in the region. In 1987, the Adker Settlement occurred as a result of a civil rights class-action lawsuit filed by Ann-Marie Adker and other black public housing residents against Miami-Dade County and the U.S. Department of Housing and Urban Development. This settlement sought to address racial discrimination and improve living conditions in public housing (Benitez, 2021).



Dozier, S. (1980). Injured man aided by Randle eastern ambulance service crew member and miami fire department paramedic [Photograph]. Miami Herald. <https://flashbackmiami.com/2014/05/07/mcduffie-riots-1980/>



Gilbert, B. (1980). Blood and dirt cover two men arrested at Zayre's department store on Northwest 54th Street Sunday afternoon [Photograph]. Miami Herald. <https://flashbackmiami.com/2014/05/07/mcduffie-riots-1980/>

By 1990, Liberty City continued to experience economic stagnation, further exacerbating the socioeconomic challenges faced by its residents (Benitez, 2021). The persistent economic struggles underscored the need for targeted interventions and support. In 1992, the Florida Legislature passed the William E. Sadowski Affordable Housing Act. This legislation established a dedicated funding source for affordable housing by utilizing a documentary stamp tax on real estate transactions (Benitez, 2021). The Sadowski Act aimed to increase access to affordable housing throughout the state of Florida. Recognizing the urgent issue of homelessness, the Miami-Dade County Homeless Trust Fund was established in the early 1990s. With over 8,000 homeless residents in Miami-Dade County at the time, the Trust Fund was created to advise the Board of County Commissioners on homelessness-related matters and implement a countywide homeless strategy (Benitez, 2021).

In 1993, the HOPE VI program was launched by Congress. This initiative aimed to demolish and redevelop distressed public housing developments, including those in Miami, in an effort to improve living conditions and revitalize communities (Benitez, 2021). In the late 1990s, The Pottinger Settlement was approved by the federal district court in Miami and marked an agreement that protected the civil liberties of homeless residents. The settlement addressed the rights and treatment of homeless individuals in Miami and emphasized the need for compassionate and respectful approaches to homelessness (Benitez, 2021). By 1999, the Scott-Carver public housing developments received a \$35 million HOPE VI grant. This funding was allocated to replace the deteriorating housing units and improve living conditions for residents (Benitez, 2021).

The year 2000 saw an amendment to the Florida Fair Housing Law, which expanded the protected classes under the law to include affordable housing. This amendment prohibited housing discrimination based on race, national origin, sex, disability, familial status, and religion (Benitez, 2021). The amendment aimed to ensure equal housing opportunities for all individuals, regardless of their socioeconomic status, but Miami still faces many challenges in its housing market today.

Today, housing affordability is poor and homeownership levels are low. According to Li and Grant (2022), the housing market in Miami-Dade County is considered the 3rd most unaffordable in the

United States, with almost half of all households considered cost-burdened, meaning they spend 30% or more of their income on housing. Despite these challenges, the real estate market remains vibrant and is a major attraction for international buyers. The real estate in Miami is valued at over \$15-23 billion, making it one of the most valuable real estate markets in the world (Goodell, 2018: 23, as cited by Li & Grant, 2022). Although Miami remains at risk of sea level rise, investors are not interested in relocating to another city but rather interested in relocating to a centralized district that provides opportunities for redevelopment on elevated land. Researchers are beginning to understand the relationship between geographic elevation and investments in infrastructure to promote adaptation (Tolford, 2021). The higher the elevation, the more protection is offered from the shore. Recent studies have shown that sophisticated buyers, who have higher incomes and FICO scores, take rising sea levels and flooding risks into consideration when investing in real estate and influencing the likelihood of displacement amongst vulnerable populations (Bernstein et al., 2019; Chetty et al., 2014; as cited by Li & Grant, 2022). This is essential to note because individuals with higher FICO scores indicate exceptional credit and are considered low risk consumers. As a result, individuals with high FICO scores are more likely to qualify for loans with favorable terms, including lower interest rates and down payment requirements. This can make property investments more affordable and potentially more profitable which attracts buyers to invest in property for redevelopment.

Today, Little Haiti, a low-income neighborhood situated north of Downtown, has become one of the first neighborhoods to experience the pressures of displacement driven by reinvestment. Due to its location on the coastal ridge, which is elevated 7-14 feet above sea level, many private real estate firms are looking to invest (Tolford, 2021). This is an example of the effects of redevelopment influenced by the increasing impacts of climate change i.e., climate gentrification. Notably, extensive investments amounting to over \$10 billion in luxury condominiums, museums, parks, infrastructure, and mixed-use projects are concentrated along Biscayne Bay, extending from Downtown and significantly impacting the neighborhood (Malura Luxury Real Estate, 2013, as cited in Tolford, 2021). Consequently, the construction of new upscale towers in nearby regions such as Wynwood, Midtown, and the Design District has led to considerable displacement of residents (Tolford, 2021). According to Tardanico and Oslender (2021), over the past two decades, the process of

gentrification has been reshaping Little Haiti but has gone unnoticed to non-residents. Land developers and investors have acquired various pieces of property, including vacant lots, individual and multifamily residences, small commercial spaces, warehouses, and institutional structures, scattered throughout the neighborhood (Tardanico & Oslender, 2021). This has left the area in a continued state of decline and disrepair. The Magic City Innovation District stands as a notable illustration of the intensifying high-density development driven by private real estate and investment companies currently taking place within the Little Haiti neighborhood. The endeavor encompasses 18 acres of land, with the intention of accommodating luxury apartments, corporate office headquarters, commercial areas for retail and dining establishments, and an innovative transit-oriented development linking the community to transportation hubs and other destinations (MCID, n.d.). According to Tardanico and Oslender (2021, p. 106), this project represents the “processes of dispossession and displacement.” Saskia Sassen (2015, as cited in Tardanico & Oslender, 2021, pp. 106-107) referred to this district development as “a systemic transformation in the pattern of land ownership altering the historic meaning of cities.” As this impoverished neighborhood, predominantly inhabited by minority communities and characterized by single and two-story structures, undergoes a transformation, it is likely to evolve into an urban environment that will be financially out of reach for the majority of its current residents (Tardanico & Oslender, 2021).

Miami’s primary focus still centers on promoting extensive development in elevated areas, primarily due to the significant economic impact it has on the city and the protection it offers from the coast. According to Butler et al. (2022), the underlying concept of climate gentrification encompasses a range of interconnected factors, but they all revolve around a fundamental principle: the correlation between land values and environmental risk. With the push for high-density development inland, the dynamics stay consistent: as property values appreciate, existing residents will be displaced, either voluntarily or involuntarily (Butler et al., 2022).

While the city has put in place resilience plans to counteract the challenges posed by climate change, these plans often lack specific guidelines and objectives aimed at reducing the displacement of vulnerable groups associated with resilient development. Resilience plans refer to strate-

gic strategies and initiatives developed by governments, communities, or organizations to enhance the capacity to withstand shocks, stresses, and disruptions. Resilience plans are intended to encompass a wide range of challenges, including climate change, but Miami has failed to address the groups most susceptible to being displacement due to reinvestment opportunities in the face of a climate crisis.

Resilient305

The Resilient305 Strategy, developed in 2019, was the result of a joint initiative involving the Office of Resilience in Miami-Dade County (MDC), the City of Miami (MIA), and the City of Miami Beach (CoMB). Together, they established the collaborative partnership known as Greater Miami & Beaches (GM&B) to prioritize resilience-related concerns in the Miami area. The Resilient305 Strategy is intended to encourage collaboration to enhance community readiness for a rising frequency of disruptive events, including hurricanes and infrastructure failure associated with climatic impacts (GM&B, 2019). Simultaneously, it is designed to reduce the impact of ongoing challenges like sea-level rise, flooding, traffic congestion, and the significant economic disparities that exist today (GM&B, 2019). The three overarching goals, Places, People, and Pathways, aim to address place-based challenges to improve the lives of residents through resilient actions (GM&B, 2019). According to the partners of GM&B (2019, pp. 40-41), the five objectives that fall under the umbrella of these three goals are listed as follows:

Enhance Natural Systems

Action1: Preserve and Restore Biscayne Bay

Action 2: Build Reef Biodiversity and Defenses

Action 3: Bolster Our Beaches

Action 4: Expand Nature-Based Infrastructure

Action 5: Integrate Resilience into Parks and Open Spaces

Safeguard Urban Systems

Action 6: Reduce “Back Bay” Flooding

Action 7: Implement Sea Level Rise Strategy

Action 8: Develop Sea Level Rise Checklist for Capital Projects

Action 9: Create Development Review Checklist

Action 10: Strengthen Resilience Planning

Action 11: Maximize Opportunity Zones

Create Mobility Options

Action 12: Develop Mobility Hubs in the 305

Action 13: Design a Better Bus Network

Action 15: Drive into the Future

Action 16: It's Electric

Increase Energy Efficiencies

Action 17: Expand Renewable Energy

Action 18: Building Efficiency 305

Enhance Housing Options

Action 19: Stay and Live in the 305

Action 20: Redeveloping Resilient Public Housing

The most prioritized objective, Safeguard Urban Systems, contains six action items aimed to mitigate the effects of sea-level rise and coastal flooding, simplify government procedures, enhance readiness for natural disasters, reduce stormwater and sunny day flooding, improve public spaces, and modernize aging infrastructure. From an ecological perspective, this marks a promising beginning for a resilience plan. Nonetheless, initiatives related to resilience measures can have an impact on the well-being of the communities living in proximity. The partners of GM&B (2019, p. 55) stated that with substantial development demands in the urban core, it is imperative to address affordability and displacement in order to stabilize the economy and quality of life.

The Resilient305 Strategy is used to emphasize the importance of resilience by addressing multifaceted obstacles that transcend sectoral boundaries, including interrelated concerns associated with transit opportunities, access to housing, education, employment, and the existing environment (Murley et al., 2017, as cited in Grove et al., 2020). However, it's worth noting that the strategy does not directly confront the existing equity imbalance through its resilience-focused actions. When conducting a text search for the word "equity" within the strategy, only 5 text suggestions appeared out of 150 pages. This highlights the absence of resilient action priorities designed to achieve equity in present-day Miami.

The concept of the climate gap highlights the unequal capacity of vulnerable communities to cope with and recover from the effects of climate change, underscoring the importance to adequately address the needs of low-income and minority populations to ensure that resilient initiatives and investments have a positive impact. When conducting a text search for the word "vulnerable" within the strategy, 15 text suggestions appeared out of a total of 150 pages. The following quote was one of the first to appear during my search:

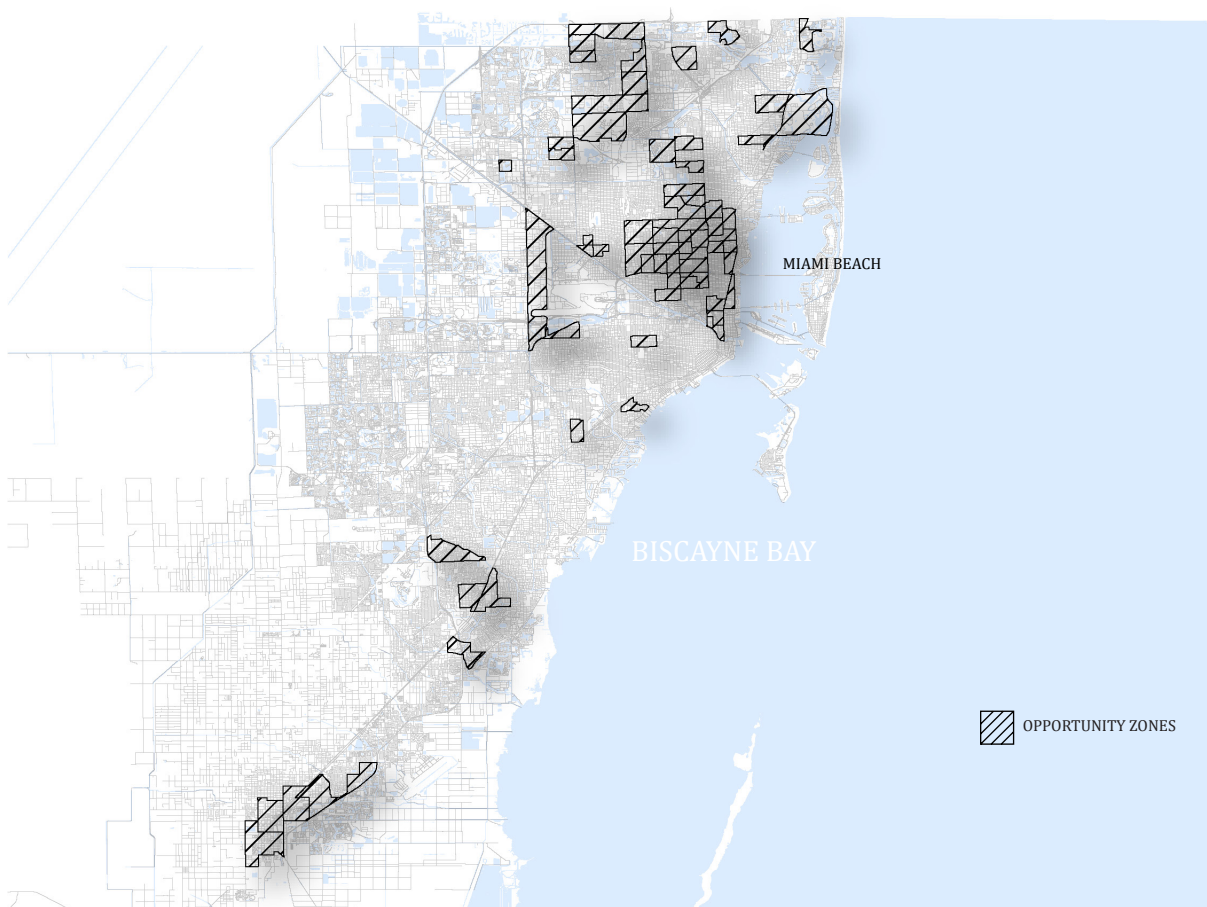
"We recognize that even our passion and dedication doesn't prevent some of our most vulnerable from falling through the cracks. We hope that the Resilient305 Strategy will serve as a foundation in building a strong network focused on addressing equity gaps and elevating our vulnerable populations. We believe that together we have an opportunity to work differently and more effectively by promoting stronger leadership, closer collaboration, and better use of our resources".

-(GM&B, 2019, p. 12).

The essence of that quote is indicating that the strategy is designed to acknowledge the existing equity gaps but not designed to solve equity gaps. This approach to resilience planning will inevitably contribute to the prevalent socio-economic disparities in Miami and influence the displacement of vulnerable populations due to the negative repercussions affiliated with implemented resilient initiatives and investments, such as increasing housing costs.

Miami has gained a reputation for its substantial investments in real estate and its ability to generate revenue. When conducting a text search for the word “investment” within the strategy framework, 31 text suggestions appeared. The first to appear in my search was addressing Action 11, Maximize Opportunity Zones, under the second objective of the plan. Action 11 promotes utilizing opportunity zones to stimulate economic growth in underprivileged communities by using private investments to achieve resilient outcomes. According to the Office of Commission Auditor (2019), as a part of the significant revision of the Internal Revenue Code, which was enacted in December 2017 under the name Tax Cuts and Jobs Act (TCJA), Opportunity Zones (OZs) were introduced as tax incentives designed to direct investor capital toward economically underprivileged communities. The federal initiative assigned OZs across 8,761 census tracts nationwide, with Florida containing 427 total (Office of Commission Auditor, 2019, p. 5). Figure 15 illustrates the 67 OZs located within Miami-Dade County.

Figure 15: Opportunity Zones in Miami Dade County



GIS Data sourced from, “Open Data Hub,” Miami-Dade County’s Open Data Hub, accessed May 29, 2023, <https://gis-mdc.opendata.arcgis.com/>.

The purpose of these Opportunity Zones is to stimulate economic growth in marginalized areas that exhibit low-income rates, high poverty percentages, and unemployment. The way this is accomplished is by providing developers or investors with substantial tax advantages, including temporary tax deferments and permanent exemptions. In correspondence with the Florida Department of Economic Opportunity, the Office of Commission Auditor (2019, p. 6) defined the list of benefits offered:

Tax Deferral: Investors have the option to delay the payment of capital gains taxes for an extended period by reinvesting their gains into an Opportunity Fund.

Tax Reduction: The reduction in deferred capital gains tax liability depends on the duration for which the investor retains the fund, either for five or seven years.

Tax Exemption: Any capital gains generated from investments made through a Qualified Opportunity Fund (QOF) become exempt from taxation if the investor retains ownership of the fund for at least ten years.

According to Hill and Roque (2019, as cited in Figueroa, 2020, p. 32), Opportunity Zones provide incentives for gentrification, in part because they lack sufficient safeguards to guarantee that capital investors won't displace existing residents or businesses. In the case of Miami, this largely contributes to the influence of climate gentrification by allowing private investors to seek security from climate related impacts in the elevated urban core that is historically home to low-income and minority residents due to redlining practices. Although the Resilient305 Strategy aims to provide affordable housing within designated Opportunity Zones, large scale investments implemented to modernize aging infrastructure and enforce resilience efforts to combat climate change are likely to lead to displacement of the current vulnerable population, as it's improbable that they will be able to afford to reside within these areas any longer.

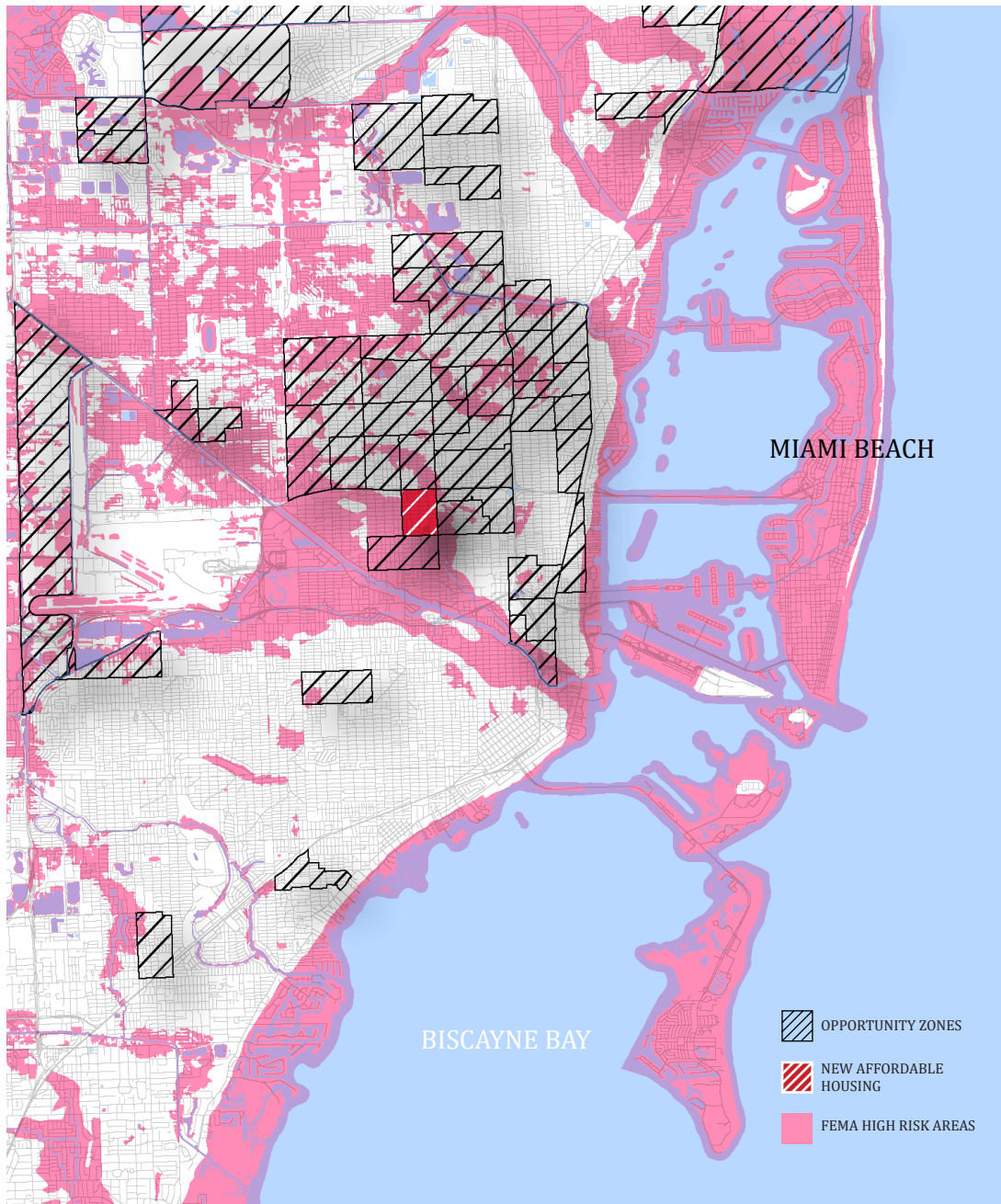
According to Butler et al. (2022), a Miami-Dade County housing authority representative elaborated on the challenges of making subsidized housing viable, even after securing a \$2 million grant from the Florida Department of State. Butler et al. (2022) continue to state that although this grant transformed 9,000 public housing units into Rental Assistance Demonstration Units (RAD), hous-

ing authorities lack a thorough understanding of the resilience-related needs of residents, and there is a shortage of financial resources to do so. This represents a notable deficiency, not only in the assessment but also in the execution of affordable resilient housing initiatives.

Action 18 of the Resilient 305 Strategy is aimed to enhance housing options in collaboration with Miami Homes For All (MHFA). MHFA is a nonprofit organization dedicated to ensuring that all residents have access to safe and affordable housing in order to address existing equity disparities in Miami. A success highlighted for Action 18 in the Resilient305 Annual Report is the development of the Miami-Dade Affordable Housing Framework (2020) published by MHFA. Annie Lord, the executive director for MHFA, states that the framework's primary emphasis lies in strengthening community resilience by means of safeguarding affordable housing, offering support to prevent the displacement of both renters and homeowners, utilizing public land for the common benefit, and allocating funds towards housing development (GM&B, 2021, p. 11). In the framework contains development and criteria to guide policymakers on how and where to invest resources to ensure vulnerable residents experience a positive shift in their quality of life. The criteria for development states that planners and investors must follow the guidance of FEMA Flood Insurance Rate Maps and the Southeast Florida Climate Change Compact's Unified Sea Level Rise Projections to effectively provide affordable housing in low-risk zones to help close the climate gap.

Although the Resilient305 Strategy (2019) intends to improve housing quality and affordability, it has failed to follow the Affordable Housing Framework guidelines, placing new affordable units within hazardous areas. The Resilient305 Annual Report (2021) commenced construction on the Three Round Towers/Brisas del Este affordable housing project located in Allapattah, noting it's the largest project of its kind in the United States to utilize a blend of Opportunity Zone Funds (\$24 million) along with various sources for the creation of cost-effective housing (GM&B, 2021, p. 9). Although the incorporation of affordable housing is acknowledged as a positive achievement, the Brisas del Este project is found situated in an AE flood zone, subtly aligning with biased planning practices that intentionally position vulnerable populations in undesired areas. FEMA defines AE zones as moderate-to-high flood risk areas that exceed depths greater than three feet (FEMA, 2018).

Figure 16: Affordable Housing in FEMA High Risk Flood Zone



GIS Data sourced from, "Open Data Hub," Miami-Dade County's Open Data Hub, accessed May 29, 2023, <https://gis-mdc.opendata.arcgis.com/>.

Opportunity Zones are designed to encompass some of the most economically disadvantaged census tracts in the country. However, it is improbable that residents of these impoverished neighborhoods will reap the advantages of appreciating real estate values, which are more likely to translate into increased rental costs within these communities. In Opportunity Zones, homeownership rates are extremely low because the majority of residents cannot afford to purchase homes, and even many existing homeowners are burdened by housing costs (Trivedi, 2020). The Affordable Housing Framework (2020, p. 11) identified that black, non-Hispanic households experience the burden of housing affordability much greater when compared to White, non-Hispanic counterparts. Households that spend the majority of their income on the cost of housing can be identified as either cost burdened or severely cost burdened. In the Affordable Housing Framework, the directors of MHFA (2020, p. 9) define these terms as the following:

Cost Burdened: Households spending over 30% of income on rent or mortgage.

Severely Cost Burdened: Households spending over 50% of income on rent or mortgage.

Among renters in Miami, a significantly higher percentage of Black, non-Hispanic households are burdened by the cost of living with 64% considered cost burdened and 37% severely cost burdened (MHFA, 2020, p. 11). In comparison, for White, non-Hispanic renters, 49% are cost burdened and 26% are severely cost burdened (MHFA, 2020, p. 11). For homeowners, 31% of Black, non-Hispanic households earn less than 50% of the area median income (AMI), whereas only 18% of White, non-Hispanic households fall into this income bracket (MHFA, 2020, p. 11).

Benitez, (2021, p. 75) states “affordable housing developments, whether standalone, or as a small percentage of a larger Special Area Plan, often target a particular demographic citing, AMI or Area Median Income, as a targeting gauge.” The Special Area Plan enforced by the City of Miami allows for nine acres of land to be developed with the intention of investing in the public realm but rather has been defined as “architecturally out of place, and contextually insensitive” Benitez, (2021, p. 75). Critics contend that the City of Miami’s government system is inherently structured to favor

the political power and sway of large-scale land developers, effectively pushing most participants, especially working-class and impoverished communities, outside of political decisions and discussions (Tardanico & Oslender, 2021). According to Tardanico and Oslender (2021), critics address significant gaps in the SAP requirements, such as: no provision of evaluating the cumulative effects of multiple SAPs proposed within the same area; and an absence of displacement studies and public benefit requirements for affordable housing. Examples of SAP development include transit-oriented development, green infrastructure, and other neighborhood improvement projects usually located within disadvantaged neighborhoods on elevated ground.

The Resilient305 Strategy, released in May 2019, outlined specific interventions identified by resilience officers in the 100 Resilient Cities (100RC) planning process that aim to support local real estate and revenue interests. Although this is the intention, several of the interventions also draw attention to the ongoing concerns regarding public transit, the provision of affordable housing, and the increase in public health initiatives for vulnerable, low-income and minority groups that have been identified by local social and environmental justice activists. These key issues have historically been overlooked in Miami, but a significant shift has been made in attempt to rectify these matters through endeavors funded by the city's \$400 million Miami Forever Bond (MFB) to help create a more resilient city (Grove et al., 2020). The MFB has 5 guiding themes for investment and are summarized as the following:

- 1. Safety:** improve public safety by reducing the occurrence and intensity of hazardous incidents, while also enhancing the city's preparedness and ability to handle emergencies and minimize the adverse effects on residents.
- 2. Wellness and Quality of Life:** protect and elevate Miami's image as an attractive destination for employment, residential living, and recreational activities.
- 3. Equity:** ensure equitable distribution of investment benefits among different areas and income groups within the city, while also preserving the social fabric and diversity that make the community cohesive.

4. Economic Return: employ a cost and benefit analysis approach that takes into account the impact on the economic and financial well-being of the city, local property values, insurance rates, job opportunities, and investments in education.

5. Modernizing the Future City: drive the progress of innovative technologies to revolutionize Miami into a leading smart city at the forefront of smart city advancements.

With the implementation of the MFB, the city introduced a Citizens' Oversight Board (COB) aimed to provide residents the opportunity to use their platform to participate in MFB program but following the ordinance review, members of the Miami Climate Alliance (MCA) raised significant concerns regarding the proposed structure of the COB (Grove et al, 2020). MCA members provided recommendations for diversity in various aspects including race, gender, socioeconomic status, and education which city councilors approved (Grove et al., 2020). The importance of appointing residents who could effectively amplify the voices of vulnerable populations was also emphasized, stressing the demand for local leadership within marginalized communities to accurately obtain climate justice throughout policy and planning processes (Grove et al., 2020). This effort can be viewed as a small yet significant achievement although much more needs to be done.

The COB serves to monitor the expenditure of bond proceeds and provide standard oversight conducted by the City Commission, with the aim of guaranteeing transparency and accountability. The allocated funds are distributed as follows:

1. Roadway Improvements (\$23M): Create a safe, efficient, and versatile transportation network that is well-integrated with future urban development plans, ensuring seamless movement of both individuals and goods.

Objectives: Address the issue of deteriorating streets and establish an efficient transportation network that accommodates various modes of travel while aligning with traffic management strategies, future urban development plans, and resilience measures.

2. Parks and Cultural Facilities (\$78M): Offer the residents of Miami access to modern parks and cultural amenities that are easily accessible.

Objectives: Revitalize aging capital assets that have exceeded their operational lifespan. Upgrade and refurbish parks to incorporate innovative features, contributing to the well-being of the community, boosting local economies, generating employment opportunities, mitigating stormwater runoff, enhancing air quality, and yielding various other benefits.

3. Public Safety (\$7M): Improve the city's capacity to safeguard lives and assets while simultaneously fostering the health and overall welfare of residents.

Objectives: Streamline emergency response times for fire and rescue teams and improve their ability to recover by strengthening responsiveness, enhancing facility resilience, and fostering community involvement.

4. Sea-Level Rise Mitigation and Flood Prevention (\$192M): Alleviate the consequences of ongoing and anticipated SLR, flood threats, and susceptibilities by implementing deliberate infrastructure investments.

Objectives: Reduce the frequency, intensity, duration, and consequences of flooding. Safeguard essential infrastructure and heavily utilized zones, thereby decreasing financial and economic exposure.

5. Affordable Housing (\$100M): Establish and maintain affordable housing options while also expanding job prospects through training and support for both existing and prospective businesses.

Objectives: Enhance the accessibility of affordable housing options for a wide range of income brackets through various funding sources and collaborating with partners.

The MFB effectively addresses the need to achieve equity but the consequences of extensive development raise concerns about the equitable distribution of advantages. When analyzing the projects funded by the MFB, seven of the fourteen affordable housing projects listed were still being determined. In comparison, every other sector of development had an assigned project number and was identified in open data resources provided by the City of Miami. Butler et al. (2022) states that climate gentrification represents a multifaceted process of neighborhood transformation, where developers are proactively adapting for the future, while city planners and housing authorities are struggling to cope with the immense development pressures that ensue. Should the city persist in permitting the rapid pace of resilient development without the implementation of safe affordable housing, it is likely that vulnerable residents will experience a swift rise in economic disparities and displacement as a result.

The purpose of the Resilient305 Strategy was to minimize ongoing challenges associated with environmental and economic concerns, yet it falls short in effectively reducing socio-economic disparities. The imperative to respond to the impacts of climate change compels city officials and urban planners to adopt resilient measures, but there is a conspicuous absence of a drive to attain environmental equity. Without adequately attending to the requirements of groups that were historically displaced due to segregated planning practices, these demographics will continue to face displacement as a consequence of substantial investments and initiatives in their communities.

Sea Level Rise Strategy

According to Butler et al. (2022), Florida policymakers over the past two decades have been strategizing how to successfully adapt to sea level rise. In 2021, the Miami-Dade County Office of Resilience established the County's Sea Level Rise Strategy, one of the many goal objectives of the implemented Resilient305 Strategy. The Sea Level Rise Strategy outlines Miami's history of living with water, the city's adaptation vision, and proposed next steps. The Miami-Dade County Office of Resilience (2021) stated in the introduction that the guiding principles of the Sea Level Rise Strategy were shaped through dialogues with both community members and government organizations. These principles are designed to serve as an informative framework for all decisions and local investments as the city adjusts to the challenges associated with climate change. According to the

Miami-Dade County Office of Resilience (2021, p. 11), every adaptation measure must prioritize safety, minimize environmental harm, uphold equity, employ natural methods, demonstrate flexibility, and harmonize with other ongoing initiatives. The strategy briefly addresses the history of discriminatory planning practices, identifying that it has played a role in the prevailing equity gaps, encouraging inclusive engagement and targeted investments to mitigate these disparities (Miami-Dade County Office of Resilience, 2021, p. 11).

In the second chapter of the strategy, the Miami-Dade County Office of Resilience (2021, pp. 24-49) expands on the selected best techniques to adapt to sea level rise. The five design approaches to combat the negative impacts associated with the changing climate are: building on fill, building like the keys, building on high ground around transit, expanding greenways and blueways, and creating green and blue neighborhoods (Miami-Dade County Office of Resilience, 2021, p. 25)

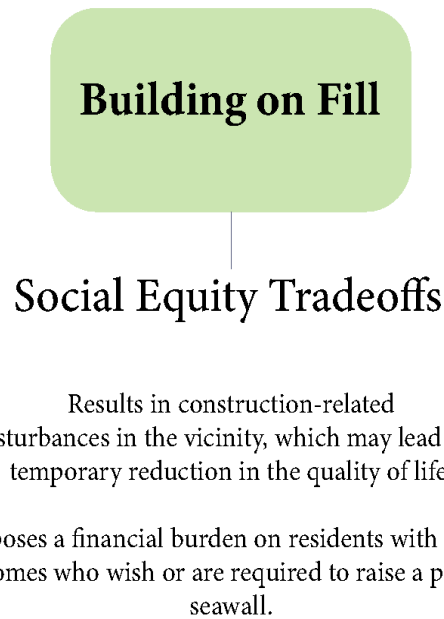
Although equity is notably absent from these approaches, when conducting a text search for the word “equity” in the Sea Level Rise Strategy, it highlighted the social equity benefits and tradeoffs associated with each proposal. Unfortunately, more tradeoffs are correlated with the recommended solutions and are illustrated in the following discussions.

Building on Fill

Summary of approach: the excavation of soil or rock (known as “fill”) from different locations and using it as material to elevate low-lying areas (Miami-Dade County Office of Resilience, 2021, p. 30).

Sea levels are continuously rising, and the construction of filled land will result in the clearance of existing communities to secure elevation from the coast and place a financial burden amongst vulnerable groups. This approach exemplifies how resilience initiatives reinforce socioeconomic disparities through investments aimed to mitigate environmental hazards influencing the threat of displacement, i.e., climate gentrification. This approach did not have any social benefits listed.

Figure 17: Building on Fill Social Equity Tradeoffs



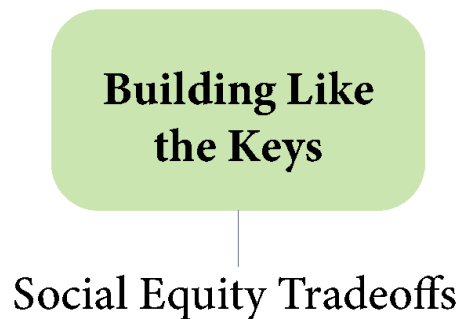
Note. Figure Information from Miami-Dade County Office of Resilience. (2021). Building on Fill Social Equity Tradeoffs. Sea Level Rise Strategy. <https://mdc.maps.arcgis.com/sharing/rest/content/items/b1a93c86abb548f9f712df2dac6d670/data>

Building Like the Keys

Summary of approach: designing the built and natural landscape to endure flooding and storm surge events with constructed evaluation techniques, similar to the ongoing infrastructure projects in the Florida Keys (Miami-Dade County Office of Resilience, 2021, p. 34). These projects refer to the incorporation of stilts beneath structures.

This approach is conceived to embrace the increasing presence of water and accept the impacts associated with climate change by relying on infrastructure to reduce the threats of the expanding sea depths. Similar to the first approach, this design technique does not provide any social equity benefits by reinforcing unequal opportunities experienced amongst vulnerable populations due to the cost of reconstruction. The implications of this proposed solution indirectly influence the displacement of low-income and minorities residents suffering from a lack of resources provided to assist with affordable resilience efforts. This subtly contributes to the consequences of displacement reinforced through investments in resilient initiatives implemented to combat climate change, i.e., climate gentrification.

Figure 18: Building Like the Keys Social Equity Tradeoffs



Results in construction-related disturbances in the vicinity, which may lead to a temporary reduction in the quality of life.

Imposes a financial burden on residents with lower incomes who wish or are required to elevate their homes.

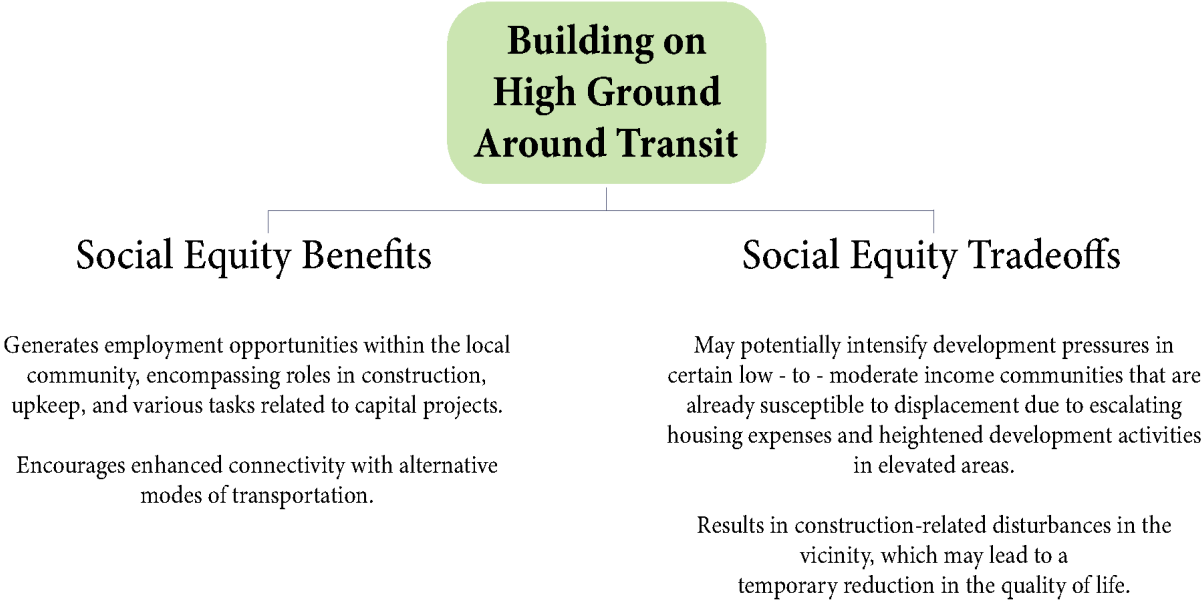
Note. Figure Information from Miami-Dade County Office of Resilience. (2021). Building Like the Keys Social Equity Tradeoffs. Sea Level Rise Strategy. <https://mdc.maps.arcgis.com/sharing/rest/content/items/b1a93c86abb548f99f712df2dac6d670/data>

Building on High Ground Around Transit

Summary of approach: encourages investment in mixed-income and affordable housing along elevated transit corridors to accommodate new growth and enhance resilient economic opportunities (Miami-Dade County Office of Resilience, 2021, p. 38).

This approach offers advantages in terms of social equity by intentionally allocating resources to the development of secure and affordable housing located in areas less susceptible to risk. However, the potential repercussions of this strategy are linked to the rise in housing expenses resulting from reinvestment in elevated communities. This can lead to increased property values and rental costs, which may pose challenges for existing residents, particularly those with limited financial means.

Figure 19: Building on High Ground Around Transit Social Equity Benefits & Tradeoffs



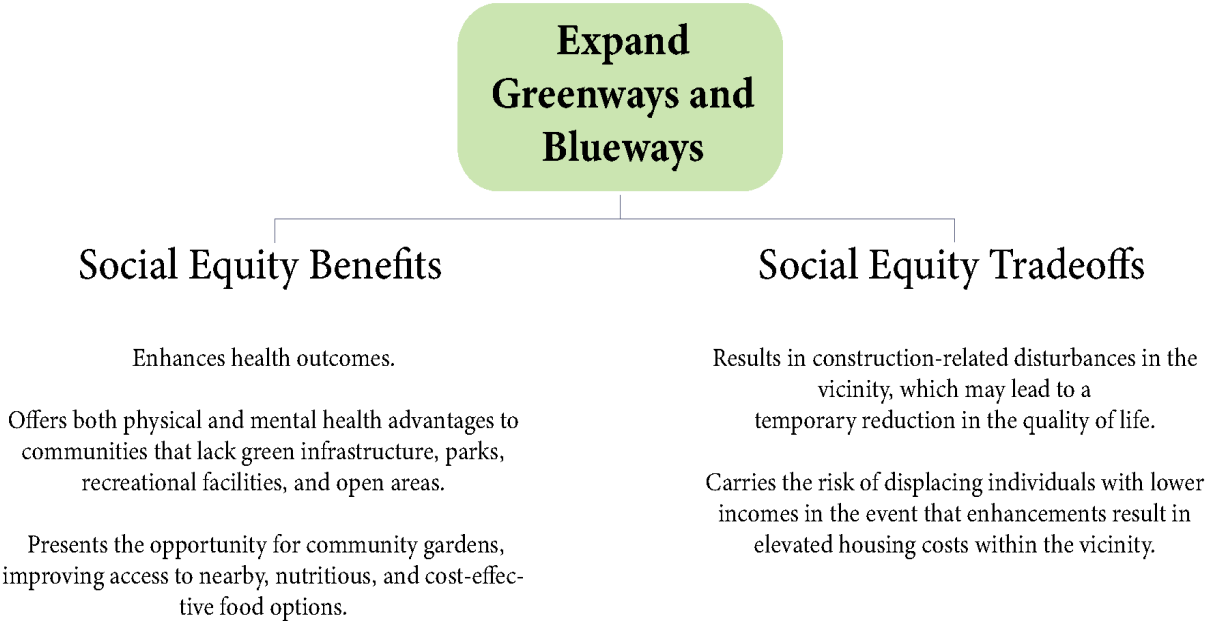
Note. Figure Information from Miami-Dade County Office of Resilience. (2021). Building on High Ground Around Transit Social Equity Benefits and Tradeoffs. Sea Level Rise Strategy. <https://mdc.maps.arcgis.com/sharing/rest/content/items/b1a93c86abb548f99f712df2dac6d670/data>

Expand Greenways and Blueways

Summary of approach: greenways and blueways represent a network of pathways near urbanized regions for either recreational purposes or environmental conservation, serving as linear parks that offer unique opportunities to connect various destinations along waterfronts and regions prone to flooding (Miami-Dade County Office of Resilience, 2021, p. 42).

This ecological strategy successfully repurposes underutilized green spaces to provide waterfront accessibility and the support of natural habitats. However, it may inadvertently lead to the displacement of vulnerable communities due to the expected increase in housing expenses in proximity to these pathways. To mitigate the consequences associated with this approach, it is imperative to establish safe affordable housing solutions to reduce the risk of displacement influenced by resilient initiatives.

Figure 20: Expand Greenways & Blueways Social Equity Benefits & Tradeoffs



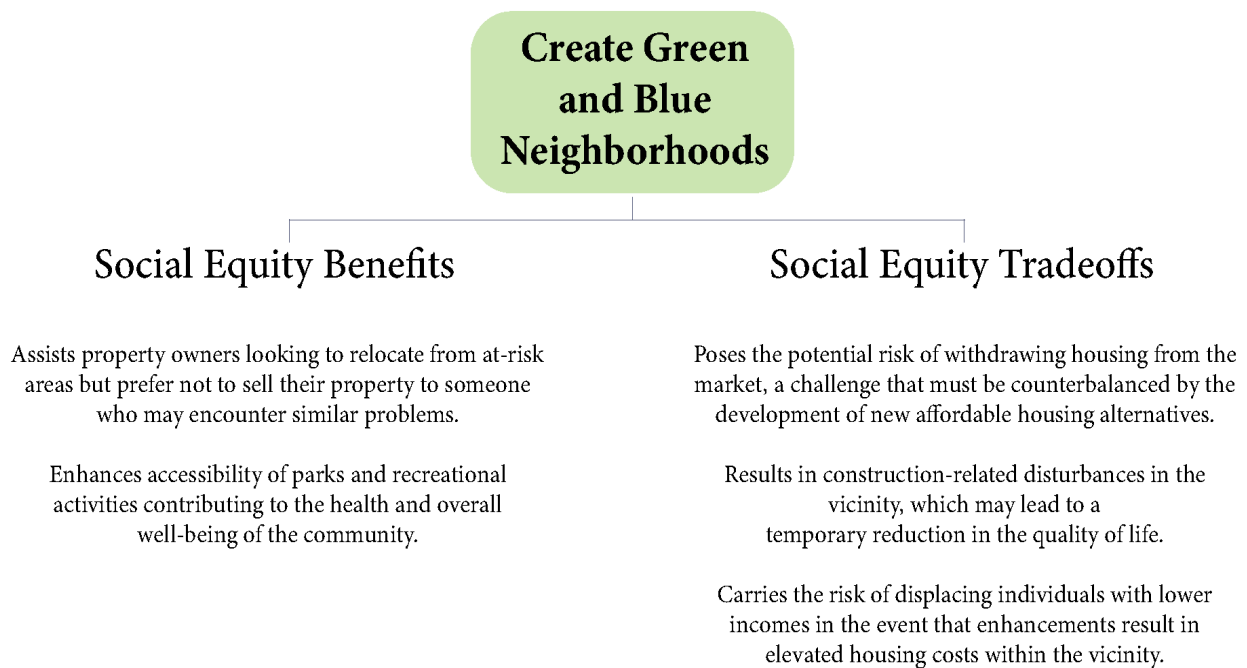
Note. Figure Information from Miami-Dade County Office of Resilience. (2021). Expand Greenways and Blueways Social Equity Benefits and Tradeoffs. Sea Level Rise Strategy. <https://mdc.maps.arcgis.com/sharing/rest/content/items/b1a93c86abb548f99f712df2dac6d670/data>

Create Green and Blue Neighborhoods

Summarized approach: aimed to increase community resilience by implementing water management techniques designed to capture and minimize runoff. This entails integrating natural features like rain gardens, trees, and permeable materials such as gravel, shells, pavers, or porous pavement to mitigate the potential for flooding and pollution (Miami-Dade County Office of Resilience, 2021, p. 46).

Although this approach is designed to provide environmental and health benefits, the risk of displacement is still evident amongst low-income and minorities groups. To reduce the risk of displacement, attempt to implement subtle resilience efforts through community-lead projects. This reduces the original cost of construction and ensures that community members support this resilience initiative.

Figure 21: Create Green & Blue Neighborhoods Social Equity Benefits & Tradeoffs



Note. Figure Information from Miami-Dade County Office of Resilience. (2021). Create Green and Blue Neighborhoods Social Equity Benefits and Tradeoffs. Sea Level Rise Strategy. <https://mdc.maps.arcgis.com/sharing/rest/content/items/b1a93c86abb548f9f712df2dac6d670/data>

After addressing the proposed adaptation approaches, The Miami-Dade County Office of Resilience (2021, p. 54) provided the ten most prioritized actions for recovery in Chapter 3: Our Next Steps:

1. Accelerate Adaptation Action Areas (AAAs) across the County
2. Require County projects be designed for future sea level rise
3. Establish safer building and seawall elevation standards
4. Ensure development avoids flooding neighboring properties
5. Enhance flood protection by expanding greenways and blueways
6. Flood-proof the County's most vulnerable critical facilities
7. Integrate green infrastructure into County projects
8. Prepare for disaster recovery to accelerate inclusive adaptation
9. Address vulnerable septic systems
10. Increase affordable, resilient housing on high ground within SMART Plan transit corridors

Among these ten prioritized actions, only Adaptation Action Areas (AAAs), inclusive recovery, and the execution of affordable housing initiatives actively incorporate equity considerations into resilience planning. The first listed priority, AAAs, are considered to be a helpful tool among planners in the adoption process. According to the Community Planning Act, Fla. Stat. § 163.3164 (2021), Adaptation Action Areas (AAAs) are defined as “a designation in the coastal management element of a local government’s comprehensive plan which identifies one or more areas that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning.” To summarize, AAAs are defined as categories or domains that guide the implementation and adoption of specific policies, programs, or initiatives to provide a framework for organizations or communities to address specific aspects of the adoption process. The Miami-Dade County Office of Resilience (2021, p. 56) elaborates that AAA planning will prioritize affordable housing opportunities, the preservation of historical assets, land use regulations, transportation and accessibility, the quality of natural resources, and overcoming economic inequities. This local level planning tool will utilize community engagement and discussion across jurisdictions to better determine preferred adaptation actions for a wide range of neighborhoods.

The second listed priority that incorporates equity considerations is inclusive recovery from disasters. The Miami-Dade County Office of Resilience (2021, p. 64) recognizes that the impacts of SLR are not equally felt amongst groups and to assist in strengthening adaptation capacities in vulnerable communities, the Sea Level Rise Strategy recommends utilizing programs and resources aimed at fortifying existing structures against flooding, developing equitable recovery strategies, pursuing financial support from federal, state, and private sources for rehabilitation, and incorporating sea-level rise considerations into the Post-Disaster Redevelopment Plan.

The third and final equity driven priority is the implementation of affordable housing.

In partnership with the Department of Public Housing and Community Development, the Department of Regulatory and Economic Resources (Resilience, Planning, Development Services), and the Department of Transportation and Public Works (DTPW), The Miami-Dade County Office of Resilience (2021, p. 66) intends to reduce the stressors associated with SLR amongst vulnerable groups

by evaluating existing and anticipated transit-oriented development projects to ensure resilience measures are being met, proceeding with the construction of cost-effective workforce and mixed-income multi-family housing adjacent to transit corridors, and collaborating with program affiliates, field professionals, and relevant organizations to preserve, protect, and reinvest in fair housing opportunities in existing communities.

In conclusion, this strategy did a successful job at addressing social equity consequences related to adaptation approaches. Although the majority of resilient design recommendations had greater tradeoffs, it is important to understand the repercussions associated with redevelopment in order to avoid contributing to socio-economic disparities in the future.

Climate Action Strategy

Miami's Climate Action Strategy builds on goals established by the Board of County Commissioners (BCC) through the County's Comprehensive Development Master Plan (CDMP) to combat carbon pollution in attempt to build a resilient city (Miami Dade County, 2021). Miami Dade County (2021, p. 4) developed seven climate action approaches based on the regions greenhouse gas (GHG) emissions associated with energy and infrastructure, land use and mobility, and water and sanitation:

Energy and Buildings

1. Benchmark, retune, and retrofit existing buildings
2. Expand renewable energy generation
3. Build ultra-low energy buildings

Land Use and Transportation

4. Reduce transportation-related fuel consumption
5. Expand and protect green and blue spaces

Water and Waste

6. Convert waste to energy
7. Reduce waste and water use

The United States Environmental Protection Agency (EPA, 2023) identifies carbon dioxide, methane, nitrous oxide, and other specific synthetic chemicals as greenhouse gases (GHGs) that capture outgoing energy within the Earth's atmosphere, leading to increased temperatures. Human activities related to transit mobility, energy generation, and industrial processes are primary sources that release carbon dioxide (CO₂) with rates increasing substantially (EPA, 2023). It is essential to address these issues to improve the overall quality of life and mitigate the potential consequences of anthropogenic disasters. When reviewing the approaches recommended in the Climate Action Strategy, equity is absent. When conducting a text search for the word "equity" in the Climate Action Strategy, 13 text suggestions appeared out of 68 pages total. This exemplifies the pattern of insufficient approaches to adequately address existing environmental inequalities in Miami.

While the seven developed approaches do not specifically target the resolution of equity gaps through resilient-based solutions, Miami-Dade County (2021, p. 8) has outlined efforts aimed at establishing a fair and efficient government:

- Engage in critical self-reflection and recognize power dynamics within ourselves and political systems, actively taking steps to address them.
- Promote a culture of continuous learning and foster transparency within our government, making information accessible to the public.
- Ensure equitable access to resources and information for all members of our community.
- Amplify the voices of historically marginalized groups, including Black, Hispanic, and Indigenous communities, to prioritize their perspectives in decision-making processes.

Unfortunately, these efforts were unsuccessful. City officials noted in the Climate Action Strategy that their endeavor to achieve inclusive outreach had failed, stating:

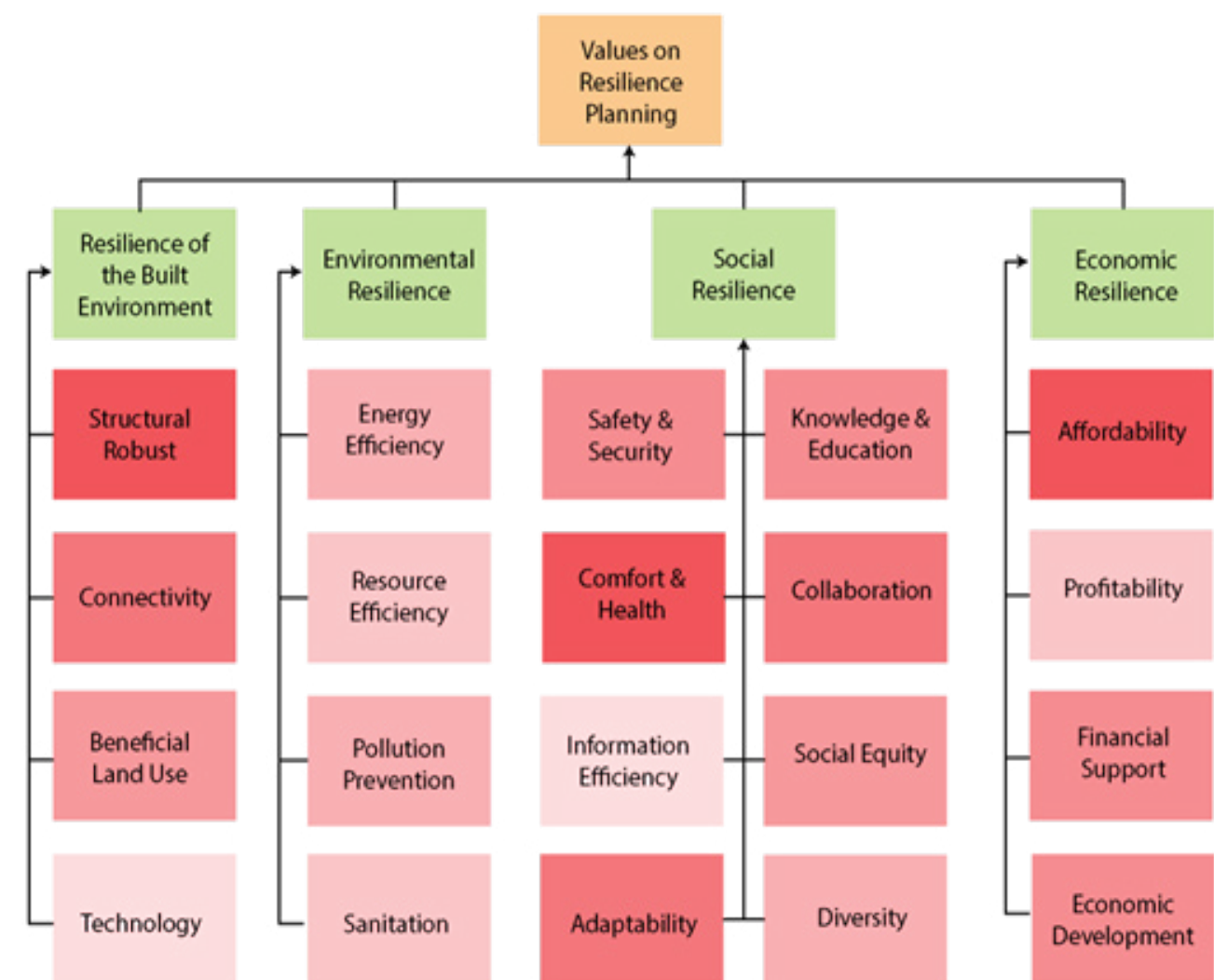
“Although both the survey and the meetings were available and advertised in multiple languages through newsletters, social media posts and ads, and email invitations, the attendees and respondents to the survey did not fully reflect the diversity of Miami-Dade County. Overall, those who participated in the survey tended to be wealthier and older, with Black and Hispanic minorities under-represented in the poll results, compared to the average for Miami-Dade County”
-(Miami Dade County, 2021, p. 9).

With Miami’s demand to become resilient against the increasing intensity of climate related impacts, it is extremely important to involve vulnerable groups in the planning process to accurately represent the diverse demographic that defines the cultural characteristics of the city. Acknowledging that community outreach and engagement did not meet desired inclusivity levels, the Office of Resilience intends to broaden its outreach efforts through continued engagement with existing partners and the establishment of new connections within the community. Additionally, the Office will collaborate with the County’s newly established Office of Equity and Inclusion to collaborate with community stakeholders to normalize and ensure maximum participation in future endeavors (Miami Dade County, 2021).

Moving Forward

For success in resilient planning, collaboration with stakeholders is essential. Gosain (2022) conducted a qualitative research approach to gather information from stakeholders within the City of Miami to better understand the knowledge, feelings, and beliefs regarding resilience values and priorities among public, private, nonprofit, and academic sectors. Gosain (2022) noted that among nonprofit and academia sectors, greater priority was emphasized on values of socioeconomic resilience and land use policies. Unfortunately, these values were not highly prioritized across all sectors. Figure 22 illustrates the four categories of resilience values and the hierarchy of stakeholder importance in Miami. Of these values, structural robustness, affordability, and health were of the main importance.

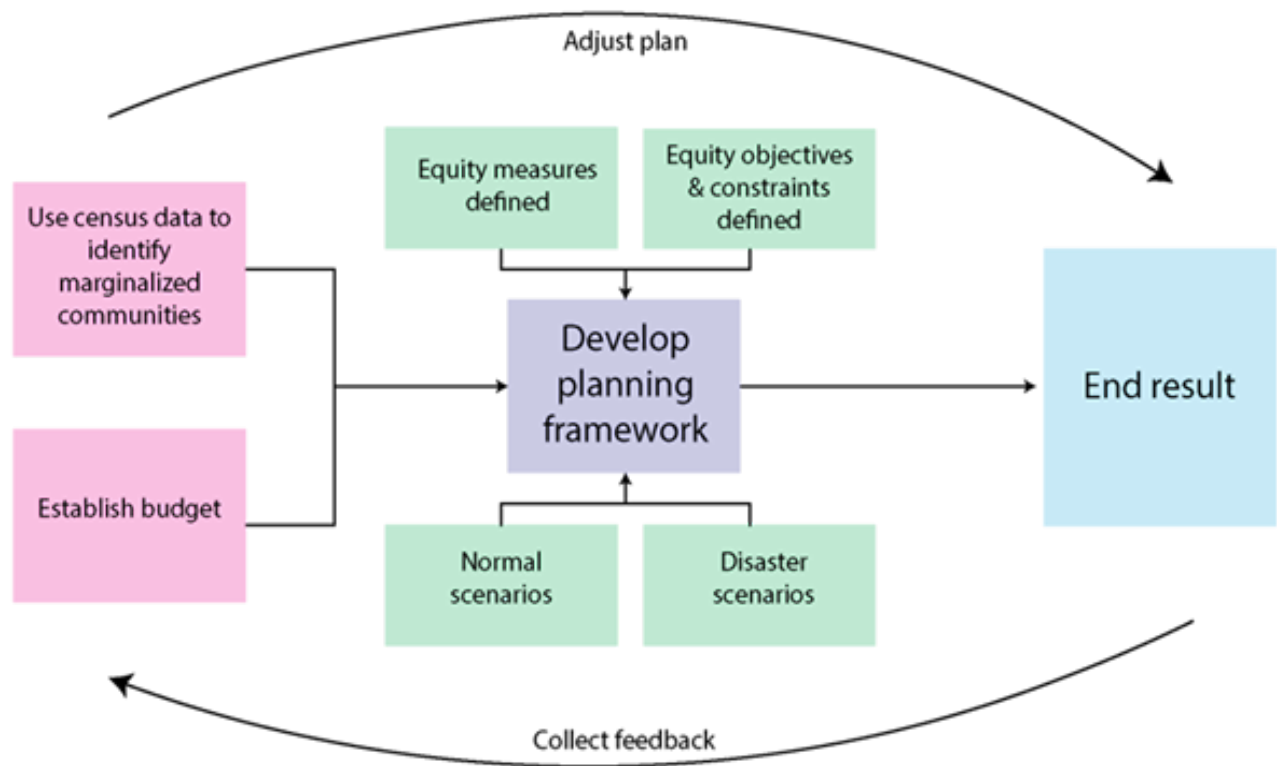
Figure 22: Stakeholder Priorities



Stakeholder information derived from Gosain, P., Zhang, L., & Ganapati, N. E. (2022). Understanding multisector stakeholder value systems on housing resilience in the City of Miami. *International Journal of Disaster Risk Reduction*, 77, 103061. <https://doi.org/10.1016/j.ijdrr.2022.103061>

An approach to more inclusive resilience involves a holistic perspective to plan development. Lin et al. (2022) established a framework to achieve equity by minimizing the value of cost and maximizing the value of inclusion within the decision-making process (see figure 23). This allows for distributional, recognitional, and procedural equity to be achieved.

Figure 23: Equity Centered Planning Framework



Holistic Planning Approach. Figure 23 information derived from Lin, Y., Wang, J., & Yue, M. (2022). Equity-based grid resilience: How do we get there?. *The Electricity Journal*, 35(5), 107135.

According to Trone et al. (2019), the Miami Planning Department has made a slight effort to acknowledge the issue of displacement that homeowners face through the implementation of Resolution R-18-0501. The Legislation Resolution file took action in 2018 and states that the city manager must research climate gentrification in areas that exhibit “low area median income rates and high topographic elevations” to conduct methods of neighborhood stabilization for residents who intend to remain (Trone et al., 2019, p. 4). Although this effort was a positive first step, this resolution has not contributed to any equitable development strategies and remains absent in official planning policies and initiatives. To prevent displacement effectively, the Planning Department has suggested that utilizing provisions within the Florida Constitution could be beneficial and specifically highlighted the Homestead Exemption, Save Our Homes Act (SOH), and its Portability provisions (Trone et al., 2019).

Trone et al. (2019, p. 10) define the following provisions:

1. **Homestead Exemption:** The State of Florida permits permanent residents who reside in their homes to claim a homestead exemption of up to \$50,000. This exemption serves as a reduction in the assessed value of the property for the purpose of calculating property taxes.
2. **Save Our Homes Act:** In 1995, an amendment was made to the State Constitution, known as the Save Our Homes Act (SOH), which places limitations on annual increases in the assessed value of properties with Homestead Exemptions. The increase is capped at either three percent or the change in the Consumer Price Index, whichever is lower. This provision ensures that property assessments do not exceed the current fair market value.
3. **Save Our Homes Act Portability:** In 2008, another amendment was made to the State Constitution under the Save Our Homes Act. This amendment introduced the concept of portability, enabling homestead property owners to transfer the accumulated difference between the assessed value and the just/market value of their current homestead property to a newly purchased property that they intend to homestead. However, there is a limit of \$500,000 on the amount that can be transferred. This provision allows homeowners to maintain their property tax benefits when they relocate to a new homestead.

CONCLUSION

This research paper contributes to the advanced body of literature focused on climate change and resilience planning by highlighting gaps in the adaptive strategies employed in implemented plans. The prioritization of values varies across different stakeholder sectors, emphasizing the need for urban planners to identify socioeconomic resilient actions that can foster an equity-centered framework for future policies and plans. In line with this objective, I provide three recommendations specifically tailored for urban planners in Miami.

The first recommendation is for policymakers to conduct systematic reviews of resilient-related plans and policies, (e.g., Resilient305, Sea Level Rise Strategy, Climate Action Strategy). This comprehensive analysis aims to understand the inclusivity and exclusions within the current official documents, allowing for a thorough assessment of the existing state of planning efforts. This process involves examining various factors, including land use, zoning regulations, socio-demographic characteristics, hydrological considerations, and other relevant factors to identify areas that require attention and careful consideration. Given the potential risks of lease terminations due to redevelopment, it is imperative for planners to demonstrate their commitment to establishing a comprehensive policy framework that mitigates involuntary displacement through public policy measures. To achieve this goal, the city must recognize the importance of conducting a comprehensive review and assessment of previous plans to identify both successes and shortcomings. Prioritizing updates to land development regulations, exploring Adaptation Action Areas and overlays, and reviewing the SAP application process are crucial steps toward addressing the challenges of environmental equity and resilience amidst rapid urban growth and climate change impacts. Additionally, reviewing provisions within the Florida Constitution can be beneficial in guiding future planning efforts.

The second recommendation underscores the importance of urban planners forming a strategic partnership with the South Florida Community Land Trust to concurrently prioritize affordable housing and the pursuit of resilience-related objectives. This recommendation is particularly crucial because the South Florida Community Land Trust represents the only organization in Miami-Dade County with a steadfast dedication to ensuring the long-term affordability of housing, guided by a mission to uphold quality and attain sustainability for underserved communities in

South Florida. While city planners have indeed collaborated with non-profit organizations to develop resilient strategies, there is currently no organization that exclusively focuses on addressing affordability concerns and combatting the threat of displacement.

The third and final recommendation emphasizes the adoption of an implementation-driven and holistic approach to resilient planning, prioritizing inclusion and minimizing the sole focus on costs. This approach entails integrating distributional, recognitional, and procedural dimensions of social equity into resilience planning. A comprehensive framework should encompass the redistribution of resources, recognition of diverse social identities and experiences, and the establishment of inclusive decision-making processes. While the integration of these dimensions may present challenges and complexities, it is essential to create cities where all residents can thrive.

By embracing this approach and re-politicizing resilience, Miami can strive towards a future where resilience planning is truly equitable, leaving no community or individual behind. This journey requires sustained commitment, collaboration, and a willingness to learn. It is a necessary endeavor to construct a more just and resilient city. As planners move forward with resilient efforts in Miami, it is crucial to explicitly consider who resilience strategies are intended to benefit. This entails promoting the equitable distribution of social and material resources, fostering meaningful participation in decision-making processes, and recognizing and respecting social, cultural, and political differences.

SOURCES

Agency for Toxic Substances and Disease Registry (2022). CDC/ATSDR Social Vulnerability Index <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>

Al Rifat, S. A., & Liu, W. (2022). Predicting future urban growth scenarios and potential urban flood exposure using Artificial Neural Network-Markov Chain model in Miami Metropolitan Area. *Land Use Policy*, 114, 105994. <https://doi.org/10.1016/j.landusepol.2022.105994>

American Planning Association (2020). Climate Change Policy Guide https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/Climate-Change-Policy-Guide.pdf

Angelovski, I. (2016). From toxic sites to parks as (green) LULUs? New challenges of inequity, privilege, gentrification, and exclusion for urban environmental justice. *Journal of planning literature*, 31(1), 23-36. <https://ksu-illiad-oclc-org.er.lib.k-state.edu/illiad/illiad.dll?Action=10&Form=75&Value=1059683>

Angelovski, I., & Connolly, J. J. (Eds.). (2021). *The green city and social injustice: 21 tales from North America and Europe*. Routledge. *Unknown - 2022 - The Green City and Social Injustice 21 Tales from North America and Europe.pdf

Angelovski, I., Brand, A. L., Ranganathan, M., & Hyra, D. (2021). Decolonizing the Green City: From Environmental Privilege to Emancipatory Green Justice. *Environmental Justice*. <https://www.liebertpub.com/doi/pdf-plus/10.1089/env.2021.0014>

Angelovski, I., Chu, E., & Carmin, J. (2016). Variations in approaches to urban climate adaptation: Experiences and experimentation from the global South. *Global Environmental Change*, 27, 156-167.

Angelovski, I., Connolly, J. J., Garcia-Lamarca, M., Cole, H., & Pearsall, H. (2019). New scholarly pathways on green gentrification: What does the urban 'green turn' mean and where is it going?. *Progress in human geography*, 43(6), 1064-1086. <https://core.ac.uk/download/pdf/189882163.pdf>

Ayeb-Karlsson, S., Smith, C. D., & Kniveton, D. (2018). A discursive review of the textual use of 'trapped' in environmental migration studies: The conceptual birth and troubled teenage years of trapped populations. *Ambio*, 47(5), 557-573. <https://doi.org/10.1007/s13280-017-1007-6>

Baker, D., Hamshaw, S. D., & Hamshaw, K. A. (2014). Rapid flood exposure assessment of Vermont mobile home parks following Tropical Storm Irene. *Natural Hazards Review*, 15(1), 27-37.

Benevolenza, M., & DeRigne, L. (2019) The impact of climate change and natural disasters on vulnerable populations: A systematic review of literature, *Journal of Human Behavior in the Social Environment*, 29(2), 266-281, DOI: 10.1080/10911359.2018.1527739

Benitez, A. A. (2021). Priced out of paradise: reconsidering cooperatives, in response to climate gentrification in Miami's communities of color (Doctoral dissertation, Massachusetts Institute of Technology). <http://dspace.mit.edu/handle/1721.1/7582>

Best, K., & Jouzi, Z. (2022). Climate Gentrification: Methods, Gaps, and Framework for Future Research. *Frontiers in Climate*, 23. https://www.frontiersin.org/articles/10.3389/fclim.2022.828067/full?utm_source=Email-to_authors_kutm_medium=Email&kutm_content=TI_11.5e1_author&kutm_campaign=Email_publication&field=&journalName=Frontiers_in_Climate&id=828067

Best, K., & Jouzi, Z. (2022). Climate Gentrification: Methods, Gaps, and Framework for Future Research. *Frontiers in Climate*, 23. *Frontiers | Climate Gentrification: Methods, Gaps, and Framework for Future Research | Climate (frontiersin.org)*

Blanco G., R. Gerlagh, S. Suh, J. Barrett, H.C. de Coninck, C.F. Diaz Morejon, R. Mathur, N. Nakicenovic, A. Ofosu Ahenkora, J. Pan, H. Pathak, J. Rice, R. Richels, S.J. Smith, D.I. Stern, F.L. Toth, and P. Zhou (2014). Drivers, Trends and Mitigation. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter5.pdf

Bonjour, R. (2020). Flooding the cities: how land use policies contribute to climate gentrification. *Seton Hall Legis. J.*, 44, 91. <https://scholarship.shu.edu/cgi/viewcontent.cgi?article=1155&context=shlj>

Brady, S. P., Bolnick, D. I., Angert, A. L., Gonzalez, A., Barrett, R. D., Crispo, E., ... & Hendry, A. P. (2019). Causes of maladaptation. *Evolutionary Applications*, 12(7), 1229-1242. <https://onlinelibrary.wiley.com/doi/full/10.1111/eva.12844>

Butler, W., Holmes, T., Jackson, A., Lange, Z., Melix, B., & Milordis, A. (2022). Addressing climate driven displacement: Planning for sea level rise in Florida's coastal communities and affordable housing in inland communities in the face of climate gentrification. *Florida State University*.

Cash, A., Chapple, K., Depsky, N., Elias, R. R., Krnjacic, M., Manji, S., & Montano, H. (2020). Climate change and displacement in the US—a review of the literature. https://www.urbandisplacement.org/wp-content/uploads/2021/08/climate_and_displacement_-_lit_review_6.19.2020.pdf

City of Miami. (2021). Miami Forever Bond: Fund Allocations.

City of Miami. (2021). Miami Forever Bond: Vision and Guiding Themes.

City of North Miami (2021). Climate Change Vulnerability Assessment and Adaptation Planning. Task 3. <https://www.northmiamifl.gov/DocumentCenter/View/13752/CCVA-Adaptation-Planning-PDF>

Community Planning Act, Fla. Stat. § 163.3164 (2021). <https://www.flsenate.gov/Laws/Statutes/2021/Chapter163/All>

Cooley, H., Moore, E., Heberger, M., & Allen, L. (2012). Social vulnerability to climate change in California. *CRED Crunch (2022)*. *Disasters Year in Review 2021* <https://cred.be/sites/default/files/CredCrunch66.pdf>

Curran, W., & Hamilton, T. (Eds.). (2017). *Just green enough: Urban development and environmental gentrification*. Routledge. <https://books.google.com/books?hl=en&lr=&id=ltZCDwAAQBAJ&oi=fnd&pg=PT24&q=green+gentrification+urban+sustainability&ots=RG3bJ0wqKF&sig=xZw10ikG7eD9yjfAaJSSfsqV7c#v=onepage&q=green%20gentrification%20urban%20sustainability&f=false>

Curtis, K. J., & Schneider, A. (2011). Understanding the demographic implications of climate change: estimates of localized population predictions under future scenarios of sea-level rise. *Population and Environment*, 33(1), 28-54. <http://www.jstor.org/stable/41487562>

Cutter, S. L., & Finch, C. (2018). Temporal and spatial changes in social vulnerability to natural hazards. In *Planning for Climate Change* (pp. 129-137). Routledge.

Dolšák, N., & Prakash, A. (2018). The politics of climate change adaptation. *Annual Review of Environment and Resources*, 43, 317-341. <https://www.annualreviews.org/doi/pdf/10.1146/annurev-environ-102017-025739>

EPA (2021). Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts. U.S. Environmental Protection Agency, EPA 430-R-21-003. www.epa.gov/cira/social-vulnerability-report

Federal Emergency Management Agency (FEMA). (2018). FEMA Flood Maps and Zones Explained. <https://www.fema.gov/blog/fema-flood-maps-and-zones-explained>

Felter, E., & Morris, M. (2016) Coastal Zone Management PAS Rep. No. 581 American Planning Association <https://planning-org-uploaded-media.s3.amazonaws.com/publication/online/PAS-report-581.pdf>

Fernandino, G., Elliff, C. I., & Silva, I. R. (2018). Ecosystem-based management of coastal zones in face of climate change impacts: Challenges and inequalities. *Journal of environmental management*, 215, 32-39. https://www.sciencedirect.com/science/article/pii/S0301479718302615?casa_token=QohGTuUX1QEAAAAA:7EWF4n_MsBgZHLnpMjH-QCn0S0lWhVrkaJl3fM9hyw-jG7M2ruqSd4v34RnFwqSTP4q5hWE0

Figueroa, D. (2020). Economic Opportunity & Resilience: Opportunity Zones & Equity. Available at SSRN 3753669.

Figueroa, M., Bonilla, L., & Speare, A. (2020). Advancing Equity in New Orleans: Building on the City's Equity Principles. Urban Institute.

Figueroa, M., Price, J., & Fuentes, C. (2018). The Impact of Transportation Investments on Miami-Dade County's Economic and Social Equity. Urban Institute.

Florida, R., Pedigo, S., & Miami Urban Future Initiative. (2019). Miami's Housing Affordability Crisis. <https://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=1003&context=mufi-reports>

Florida, R., Pedigo, S., & Miami Urban Future Initiative. (2019). Toward a more inclusive region: Inequality and poverty in greater Miami. <https://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=1002&context=mufi-reports>

Folmsbee, S. J. (1949). The Origin of the First "Jim Crow" Law. *The Journal of Southern History*, 15(2), 235-247. <https://doi.org/10.2307/1297999>

Freebairn, A., Turmine, V., & Singh, R. (2020). Chapter 3: Climate as a Risk Multiplier – Trends in Vulnerability and Exposure. *World Disasters Report 2020* https://www.ifrc.org/sites/default/files/2021-05/20201116_WorldDisasters_Full.pdf

Freeman, L., & Schuetz, J. (2017). Producing Affordable Housing in Rising Markets: What Works? *Cityscape*, 19(1), 217-236. <http://www.jstor.org/stable/26328307>

Friedman, E., Solecki, W., Trolder, T. G., & Paganini, Z. (2023). Linking quality of life and climate change adaptation through the use of the macro-adaptation resilience toolkit. *Climate Risk Management*, 39, 100485.

Frosch, R. M., Pastor, M., Sadd, J., & Shonkoff, S. (2018). The climate gap: Inequalities in how climate change hurts Americans and how to close the gap. In *Planning for Climate Change* (pp. 138-150). Routledge.

Gabriel, S., & Painter, G. (2020). Why affordability matters. *Regional science and urban economics*, 80, 103378. <https://doi.org/10.1016/j.regsciurbeco.2018.07.001>

Garcia, I., Garfinkel-Castro, A., Pfeiffer, D., & American Planning Association. (2019). Planning with diverse communities. https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-593.pdf

Geophysical Fluid Dynamics Laboratory. (2021). "Global Warming and Hurricanes <https://www.gfdl.noaa.gov/global-warming-and-hurricanes/>

Ghaffari, L., Klein, J. L., & Angulo Baudin, W. (2018). Toward a socially acceptable gentrification: A review of strategies and practices against displacement. *Geography Compass*, 12(2), e12355. <https://ksu-illiad-oclc-org.er.lib.k-state.edu/illiad/illiad.dll?Action=10&Form=75&Value=1059679>

Gonzalez, C. G. (2018). Climate Justice and Climate Displacement: Evaluating the Emerging Legal and Policy Responses. *Wis. Int'l LJ*, 36, 366.

Gosain, P., Zhang, L., & Ganapati, N. E. (2022). Understanding multisector stakeholder value systems on housing resilience in the City of Miami. *International Journal of Disaster Risk Reduction*, 77, 103061. <https://doi.org/10.1016/j.ijdrr.2022.103061>

Gould, K. A., & Lewis, T. L. (2021). Resilience Gentrification: Environmental Privilege in an Age of Coastal Climate Disasters. *Frontiers in Sustainable Cities*, 85. <http://dx.doi.org/10.3389/fsc.2021.687670>

Gould, K. A., & Lewis, T. L. (2021). Resilience Gentrification: Environmental Privilege in an Age of Coastal Climate Disasters. *Frontiers in Sustainable Cities*, 85. <http://dx.doi.org/10.3389/fsc.2021.687670>

Greater Miami and the Beaches. (2019). Resilient305 Strategy. Miami-Dade County, the City of Miami, and the City of Miami Beach.

Grove, K., Cox, S., & Barnett, A. (2020). Racializing resilience: Assemblage, critique, and contested futures in greater Miami resilience planning. *Annals of the American Association of Geographers*, 110(5), 1613-1630. <https://doi.org/10.1080/24694452.2020.1715778>

Hafiz, K. (2008). Case study emple. The qualitative report, 13(4), 544-559. https://www.academia.edu/download/40131683/case_study_ecmple.pdf

Hagon, K., Turmine, V., Guido Pizzini, G., Alison Freebairn, A., & Singh, R. (2020). Chapter 2: Hazards Everywhere – Climate and Disaster Trends and Impacts. *World Disasters Report 2020* https://www.ifrc.org/sites/default/files/2021-05/20201116_WorldDisasters_Full.pdf

Hammel, D.J. (2009). Gentrification. *International Encyclopedia of Human Geography*, pages 360-367. <https://reader.elsevier.com/reader/sd/pii/B9780080489140104010518?token=69F0D649A623C72D40F57363F4A42F-44C20698BD11E88A1304072C44C6589FD7C0D573F69279351C2D5194FB7CFAFC&originRegion=us-east-1&originCreation=20220419022340>

Harris, L. M., Chu, E., & Ziervogel, G. (2017). Negotiating Resilience in the City: A Framework

Hartman, C., Keating, D. and LeGates, R. (with Turner, S.) (1982) *Displacement: How to Fight It*. Berkeley, CA: National Housing Law Project.

Helderop, E., & Grubestic, T. H. (2019). Social, geomorphic, and climatic factors driving US coastal city vulnerability to storm surge flooding. *Ocean & Coastal Management*, 181, 104902. <https://ksu-illiad-oclc-org.er.lib.k-state.edu/illiad/illiad.dll?Action=10&Form=75&Value=1059330>

Hepburn, P., Rutan, D. Q., & Desmond, M. (2023). Beyond urban displacement: Suburban poverty and eviction. *Urban Affairs Review*, 59(3), 759-792. <https://doi.org/10.1177/10780874221085676>

Hughes, T. P., Baird, A. H., Bellwood, D. R., Card, M., Connolly, S. R., Folke, C., ... & Roughgarden, J. (2003). Climate change, human impacts, and the resilience of coral reefs. *science*, 301(5635), 929-933.

Hwang, J. (2016). Pioneers of gentrification: Transformation in global neighborhoods in urban America in the late twentieth century. *Demography*, 53(1), 189-213. <https://doi.org/10.1007/s13524-015-0448-4>

Index, C. R. (2014). City resilience framework. The Rockefeller Foundation and ARUP, 928.

IPCC, 2012: Glossary of terms. In: *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 555-564. https://archive.ipcc.ch/pdf/special-reports/srex/SREX-Annex_Glossary.pdf

Islam, M., & Winkel, J. (2017). Climate change and social inequality. *Department of Economic & Social Affairs* https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf

Jha, M. K. (2010). Natural and anthropogenic disasters: An overview. *Natural and anthropogenic disasters*, 1-16. <https://link.springer.com/content/pdf/10.1007/978-90-481-2498-5.pdf>

Jorgenson, A. K., Fiske, S., Hubacek, K., Li, J., McGovern, T., Rick, T., ... & Zycherman, A. (2019). Social science perspectives on drivers of and responses to global climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 10(1), e554. <https://doi.org/10.1002/wcc.554>

Keenan, J. M. (2005). Affordable Housing Policy in Miami: Inclusionary Zoning and the Median-Income Demographic. *Journal of Affordable Housing & Community Development Law*, 14(2), 110-121. <http://www.jstor.org/stable/25782733>

Keenan, J. M., Hill, K., Gumber, A., & Zou, Y. (2018). Miami's retreat from the coast: Rising seas and migrating residents. *Urban Affairs Review*, 54(5), 858-887. doi: 10.1177/1078087417694358

Keenan, J. M., Hill, T., & Gumber, A. (2018). Climate gentrification: from theory to empiricism in Miami-Dade County, Florida. *Environmental Research Letters*, 13(5), 054001. <https://iopscience.iop.org/article/10.1088/1748-9326/aabb32/pdf>

Kephart, L. (2022). How racial residential segregation structures access and exposure to greenness and green space: A review. *Environmental Justice*, 15(4), 204-213. <https://doi.org/10.1089/env.2021.0039>

Kim, S. K. (2020). The economic effects of climate change adaptation measures: Evidence from Miami-Dade County and New York City. *Sustainability*, 12(3), 1097. <https://doi.org/10.3390/su12031097>

Kobetz, E., Menard, J., Diem, J., Barton, B., Blanco, J., Pierre, L., ... & Brewster, C. (2009). Community-based participatory research in Little Haiti: challenges and lessons learned. *Progress in Community Health Partnerships: Research, Education, and Action*, 3(2), 133-137. <http://dx.doi.org/10.1353/cpr.0.0072>

Krings, A. (2020). Environmental justice organizing in a gentrifying community: Navigating Dilemmas of Representation, Issue Select... https://www.academia.edu/download/66741226/2020_Krings_Copic_Environmental_justice_organizing_in_a_gentrifying_community.pdf

Kuiper, J. F., & Hamin Infield, E. (2019). Greenways for Climate Adaptation: Avoiding the 'Green Paradox' while Improving Urban Resiliency. In *Proceedings of the Fabos Conference on Landscape and Greenway Planning* (Vol. 6, No. 1, p. 39). <https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1031&context=fabos>

Kumari, A., & Frazier, T. G. (2021). Evaluating social capital in emergency and disaster management and hazards plans. *Natural Hazards*, 109, 949-973. <https://link.springer.com/article/10.1007/s11069-021-04863-x>

Landauer, M., Juhola, S., & Klein, J. (2019). The role of scale in integrating climate change adaptation and mitigation in cities. *Journal of Environmental Planning and Management*, 62(5), 741-765. <https://doi.org/10.1080/09640568.2018.1430022>

Li, H., & Grant, R. J. (2022). Climate gentrification in Miami: A real climate change-minded investment practice?. *Cities*, 131, 104025. <https://doi.org/10.1016/j.cities.2022.104025>

Lin, Y., Wang, J., & Yue, M. (2022). Equity-based grid resilience: How do we get there?. *The Electricity Journal*, 35(5), 107135. <https://doi.org/10.1016/j.tej.2022.107135>

Lindsey, R. (2020). Climate Change: Global Sea Level. NOAA <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level#:~:text=Global%20warming%20is%20causing%20global,expanding%20as%20the%20water%20warms>

Liotta, C., Kervinio, Y., Levrel, H., & Tardieu, L. (2020). Planning for environmental justice-reducing well-being inequalities through urban greening. *Environmental Science & Policy*, 112, 47-60. <https://reader.elsevier.com/reader/sd/pii/S146290111931086X?token=45F9938CD01522CF01C83A65D85A079824B8070A9D1383192B0C04AC120ACE333973B207F70F6E4D9CF736E60420AB5&originRegion=us-east-1&originCreation=20220418235612>

Maia, A. T. A., Calcagni, F., Connolly, J. J. T., Anguelovski, I., & Langemeyer, J. (2020). Hidden drivers of social injustice: uncovering unequal cultural ecosystem services behind green gentrification. *Environmental Science & Policy*, 112, 254-263. <https://www.sciencedirect.com/science/article/pii/S1462901119310706>

March, H., & Swyngedouw, E. (2022). Resilience for All or for Some? Reflections Through the Lens of Urban Political Ecology. In *Urban Resilience to the Climate Emergency* (pp. 3-19). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-031-07301-4_1

Matteucci, M., (2023). Climate Gentrification in Little Haiti, Miami. <https://storymaps.arcgis.com/stories/33d28b4ae86840b5b27ea8ba4b4bcc4d>

Maxim, A., & Grubert, E. (2022). Anticipating climate-related changes to residential energy burden in the United States: advance planning for equity and resilience. *Environmental Justice*, 15(3), 139-148. <https://doi.org/10.1089/env.2021.0056>

McAlpine, S. A., & Porter, J. R. (2018). Estimating recent local impacts of sea-level rise on current real-estate losses: a housing market case study in Miami-Dade, Florida. *Population Research and Policy Review*, 37(6), 871-895. <https://link.springer.com/article/10.1007/s11113-018-9473-5>

McAslan, A. (2010). The concept of resilience: Understanding its origins, meaning and utility. Adelaide: Torrens Resilience Institute, 1. <https://www.flinders.edu.au/content/dam/documents/research/torrens-resilience-institute/resilience-origins-and-utility.pdf>

McConville, D. (2009, December). Visualizing Worldviews: Shifting perspectives on global change. In *State of Climate Visualization* (No. 045, pp. 9-18). Linköping University Electronic Press.

MCID (Magic City Innovation District) (n.d.). "Masterplan." <https://magiccitydistrict.com/masterplan/>

Meerow, S., Pajouhesh, P., & Miller, T. R. (2019). Social equity in urban resilience planning. *Local Environment*, 24(9), 793-808. <https://doi.org/10.1080/13549839.2019.1645103>

Melillo, J. M., Richmond, T. T., & Yohe, G. (2014). Climate change impacts in the United States. *Third national climate assessment*, 52.

Miami Dade County. (2021). Miami Dade Climate Action Strategy.

Miami Homes For All (MHFA). (2020). Miami-Dade Affordable Housing Framework.

Miami Matters (2022). Disparities Dashboard. <https://www.miamidadematters.org/demographicdata/index/view?id=1478>

Miami-Dade County Office of Resilience (2021). Sea Level Rise Strategy.

Michney, T. M., & Winling, L. (2020). New perspectives on new deal housing policy: explicating and mapping HOLC loans to African Americans. *Journal of Urban History*, 46(1), 150-180.

Moftakhari, H.R., AghaKouchak, A., Sanders, B.F. & Matthew, R.A., 2017. Cumulative hazard: The case of nuisance flooding. *Earth's Future*, 5(2), pp.214-223. <https://doi.org/10.1002/2016EF000494>

Mohl, R. A. (2001). Whiteness Miami: Race, Housing, and Government Policy in Twentieth-Century Dade County. *The Florida Historical Quarterly*, 79(3), 319-345. <https://www.jstor.org/stable/30150856>

Molinari, E., Guerzoni, S., & Suman, D. (2019). Do the adaptations of Venice and Miami to sea level rise offer lessons for other vulnerable coastal cities?. *Environmental management*, 64(4), 391-415. <https://doi.org/10.1007/s00267-019-01198-z>

National Aeronautics and Space Administration (2020). Rising Waters: How NASA is Monitoring Sea Level Rise <https://www.nasa.gov/specials/sea-level-rise-2020/>

Nelson, R. K., Winling, L., Marciano, R., & Connolly, N. (2016). Mapping Inequality. *American Panorama*. <https://dsl.richmond.edu/panorama/redlining/#loc=11/29.963/-90.246&city=new-orleans-la>

Nicholson, V. (2019). BANK OF AMERICA CORPORATION V. CITY OF MIAMI. *Ohio Northern University Law Review*, 44(1), 8. https://digitalcommons.onu.edu/cgi/viewcontent.cgi?article=1007&context=onu_law_review

NOAA (2013). (National Oceanic and Atmospheric Administration) National Coastal Population Report: Population Trends from 1970 to 2020. <https://aambpublicoceanservice.blob.core.windows.net/oceanserviceprod/facts/coastal-population-report.pdf>

NY Times Features Social Explorer map data. Social Explorer. (2015, August 27). Retrieved April 30, 2023, from <https://www.socialexplorer.com/blog/post/ny-times-features-social-explorer-map-data-4985>

Office of Commission Auditor (2019). Benefits and Challenges of Opportunity Zones. <https://www.miamidade.gov/auditor/library/opportunity-zone-report.pdf>

Oppenheimer, M., Glavovic, B., Hinkel, J., van de Wal, R., Magnan, A. K., Abd-Elgawad, A., ... & Sebesvari, Z. (2019). Sea level rise and implications for low lying islands, coasts, and communities. https://www.ipcc.ch/site/assets/uploads/sites/3/2022/03/06_SROCC_Ch04_FINAL.pdf

Osinubi, A. O. (2020). The Invisible Threat: A Study of Up-Zoning, Neighborhood Change, and Gentrification (Doctoral dissertation, University of Georgia). <https://search.proquest.com/openview/42b8bdcf720cfabbf-440d6e34ae56b1?pq-origsite=gscholar&cbl=18750&dis=y>

Phillips, M. (2009). Gentrification, Rural. *University of Leicester*. <https://reader.elsevier.com/reader/sd/pii/B9780080449140008993?token=F2D6A470CB1F5573DD46F24A735EA2735CB7CF8E4862EC-9FA18038271E709541C56A87D49CD1FADCCBBF604D2824D72&originRegion=us-east-1&originCreation=20220419012813>

Prasad, D. H., & Kumar, N. D. (2014). Coastal erosion studies—a review. *International Journal of Geosciences*, 2014. <http://www.scrip.org/journal/PaperInformation.aspx?PaperID=44235>

Resilient Greater Miami & the Beaches (GM&B). (2021). Resilient 305 First Annual Progress Report.

Reyes, C. X., Gonzalez, A., & Li, H. (2019). Zoning and Its Discontents: The Impact of Zoning on Housing Access and Affordability in Miami-Dade County. *University of Miami Law Review*, 73(4), 1035-1068.

Rice, J. L., Cohen, D. A., Long, J., & Jurjevich, J. R. (2020). Contradictions of the climate-friendly city: new perspectives on eco-gentrification and housing justice. *International Journal of Urban and Regional Research*, 44(1), 145-165. https://onlinelibrary.wiley.com/doi/pdf/10.1111/1468-2427.12740?casa_token=FXx5vYf0hs0AAAAA:NxWTF_Is1-tLFF2STwFbIsh9aa073rMKY3MKzxK_3DkthzeOpUYytMx_LyeY3iOORSZQ4id-SAQ

Rosas, S. R., & Kane, M. (2012). Quality and rigor of the concept mapping methodology: a pooled study analysis. *Evaluation and program planning*, 35(2), 236-245. https://www.sciencedirect.com/science/article/pii/S0149718911000784?casa_token=FXx5vYf0hs0AAAAA:NxWTF_Is1-tLFF2STwFbIsh9aa073rMKY3MKzxK_3DkthzeOpUYytMx_LyeY3iOORSZQ4id-SAQ

Rossiello, M. R., & Szema, A. (2019). Health effects of climate change-induced wildfires and heatwaves. *Cureus*, 11(5). <https://www.cureus.com/articles/18351-health-effects-of-climate-change-induced-wildfires-and-heatwaves>

Rowley, J. (2002). Using case studies in research. *Management research news*, 25(1), 16-27. http://d30037385.purehost.com/HTMLobj-3843/using_case_study_in_research.pdf

Satorras, M., Ruiz-Mallen, I., Monterde, A., & March, H. (2020). Co-production of urban climate planning: Insights from the Barcelona Climate Plan. *Cities*, 106, 102887. <https://doi.org/10.1016/j.cities.2020.102887>

Schmelzer, M. (2015). The growth paradigm: History, hegemony, and the contested making of economic growthmanship. *Ecological Economics*, 118, 262-271. <https://doi.org/10.1016/j.ecolecon.2015.07.029>

Shkembri, A., Smith, L. M., & Neitzel, R. L. (2022). Linking environmental injustices in Detroit, MI to institutional racial segregation through historical federal redlining. *Journal of Exposure Science & Environmental Epidemiology*, 1-10.

Shokry, G., Anguelovski, I., Connolly, J. J., Maroko, A., & Pearsall, H. (2022). "They Didn't See It Coming": Green Resilience Planning and Vulnerability to Future Climate Gentrification. *Housing Policy Debate*, 32(1), 211-245. <https://ksu-illiad-oclc-org.er.lib.k-state.edu/illiad/illiad.dll?Action=10&Form=75&Value=1059660>

Shultz, K. S., Hoffman, C. C., & Reiter-Palmon, R. (2005). Using archival data for IO research: Advantages, pitfalls, sources, and examples. *The Industrial-Organizational Psychologist*, 42(3), 31. <https://digitalcommons.unoma-ha.edu/cgi/viewcontent.cgi?article=1005&context=psychfacpub>

Sivakumar, M. V. (2005). Impacts of natural disasters in agriculture, rangeland and forestry: an overview. *Natural disasters and extreme events in Agriculture*, 1-22. <https://link.springer.com/content/pdf/10.1007/3-540-28307-2.pdf>

Slater, T. (2009). Missing Marcuse: On gentrification and displacement. *City*, 13(2-3), 292-311. <https://www.tandfonline.com/doi/pdf/10.1080/13604810902982250>

Smith, N. (2006). There's no such thing as a natural disaster. *Understanding Katrina: perspectives from the social sciences*, 11. <http://blogs.ubc.ca/naturalhazards/files/2016/03/Smith-There%E2%80%99s-No-Such-Thing-as-a-Natural-Disaster.pdf>

Smith, Neil. "Gentrification and the Rent Gap." *Annals of the Association of American Geographers* 77, no. 3 (1987): 462-65. <http://www.jstor.org/stable/2563279>

Snyder, J. (2018). How Patent Law Keeps the Hope of Fair Housing Alive for All, Even after Bank of America Corporation v. City of Miami. *City of Miami* (April 25, 2018). *Harvard Latinx Law Review*, 21(107). <https://ssrn.com/abstract=3168754>

Stern, S. (2021). "Separate, Therefore Equal": American Spatial Segregation from Jim Crow to Kiryas Joel. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 7(1), 67-90. <https://doi.org/10.7758/RSF.2021.7.1.05>

Tardanico, R., & Osler, U. (2021). Dividing a City: Real Estate Mega-Speculation and Contention in Miami, Florida. *Astrágalo: Cultura de la Arquitectura y la Ciudad*, 29, 103-120.

Taylor, Z. J., & Aalbers, M. B. (2021). Climate gentrification: risk, rent, and restructuring in Greater Miami. *Annals of the American Association of Geographers*, 1-17. <https://www.tandfonline.com/doi/pdf/10.1080/24694452.021.2000358>

Tellis, W. (1997). Application of a case study methodology. *The qualitative report*, 3(3), 1-19. https://www.academia.edu/download/38465655/Application_of_a_Case_Study_Methodology.pdf

The Haitian American Community Development Corporation (HACDC) (2015). Little Haiti Community Needs Assessment: Housing Market Analysis https://metropolitan.fiu.edu/research/services/economic-and-housing-market-analysis/2015-haccdc_finalreport.pdf

The New York Times. (2005, October 2). Katrina's diaspora. *The New York Times*. Retrieved April 30, 2023, from https://archive.nytimes.com/www.nytimes.com/imagepages/2005/10/02/national/nationalspecial/20051002diaspora_graphic.html

The Rockefeller Foundation & Arup International Development (2015). *City Resilience Framework*.

The United Nations Office for Disaster Risk Reduction (2009). *Terminology* <https://www.undrr.org/terminology>

The United States Environmental Protection Agency. (2023). Overview of Greenhouse Gases. <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>

Tolford, T. (2021). New Orleans: When bouncing back is not enough. In *Adaptation Urbanism and Resilient Communities* (pp. 131-152). Routledge. <https://ksu-illiad-oclc-org.er.lib.k-state.edu/illiad/illiad.dll?Action=10&Form=75&Value=1080424>

Tompkins, E. L., & Adger, W. N. (2004). Does Adaptive Management of Natural Resources Enhance Resilience to Climate Change? *Ecology and Society*, 9(2). <http://www.jstor.org/stable/2626777>

Trivedi, R. R. (2020). Opportunity Zones Providing Opportunity for Whom?: How the Current Regulations Are Failing and a Solution to Uplift Communities. *Wash. & Lee J. Civ. Rts. & Soc. Just.*, 27, 745.

Trone, S., Shedd, R., & Neitzel, R. (2019). The City of Miami in the Context of Climate Change, Population Growth, and Development Pressure: Policy and Strategy Recommendations.

Turan, Z. (2018). Finding the "local green voice"? Waterfront development, environmental justice, and participatory planning in Gowanus, NY. *Urbani Izziv*, 29, 19. Finding the "local green voice"? Waterfront development, environmental justice, and participatory planning in Gowanus, NY ([jstor.org](https://www.jstor.org/stable/2645000))

U.S. Department of Housing and Urban Development (HUD) (2022). Sustainable Communities Regional Planning Grants https://www.hud.gov/program_offices/economic_development/sustainable_communities_regional_planning_grants

U.S. Environmental Protection Agency. 2016. Climate change indicators in the United States, 2016. Fourth edition. EPA 430-R-16-004. www.epa.gov/climate-indicators.

Verma, A. K. (2019). Sustainable development and environmental ethics. *International Journal on Environmental Sciences*, 10(1), 1-5. <https://ssrn.com/abstract=3689046>

Wang, R., & Fu, X. (2022). Examining the Effects of Policy Design on Affordable Unit Production Under Inclusionary Zoning Policies. *Journal of the American Planning Association*, 1-15. <https://doi.org/10.1080/01944363.2022.2027263>

Whittemore, A. H. (2021). Exclusionary zoning: Origins, open suburbs, and contemporary debates. *Journal of the American Planning Association*, 87(2), 167-180. <http://dx.doi.org/10.1080/01944363.2020.1828146>

Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. *Landscape and urban planning*, 125, 234-244. <https://escholarship.org/content/qt8pf8s47q/qt8pf8s47q.pdf>

Yin, R.K. (1994) *Case study research: design and methods*. 2nd edition. Thousand Oaks, CA: Sage.