

Greening, Revitalization, and Health in South Wilmington, Delaware

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Abstract

We highlight the potential for paradoxical impacts of green infrastructure integrated with urban redevelopment. Absent directly addressing social inequalities in parallel efforts, green infrastructure may lead to negative health outcomes of disadvantaged residents, including eventual displacement. We present the research literature and reviews on this topic. We next highlight the case of recent in-migration of higher-income Whites and others in South Wilmington, Delaware, spurred on by high-end Riverfront redevelopment at Christina Landing. This migration may obscure how greening efforts—such as a new wetlands park to control area flooding—influence health outcomes in Southbridge, a low-income, African American neighborhood also within South Wilmington. The area’s Census tract boundary, often used in both health and equity assessments, is shared by these distinctive communities. When viewed through the lens of inequality, greening can have multi-faceted impacts that structure health outcomes. We underscore the importance of the mitigation of its potentially harmful effects.

Introduction

Creating green spaces in urban areas that lack them, as well as improving the quality of and access to existing green spaces, can positively impact the social, economic, and health outcomes of nearby residents.¹⁻⁴ Socially disadvantaged communities (i.e., low-income communities of color) have generally had the least access to urban green amenities like community gardens, resilient parks, rain gardens, and flood control mitigation, and are disproportionately vulnerable to climate change hazards, as well as other environmental injustices like toxic waste and water pollution.^{1,2,5} Paradoxically, however, these communities are also more vulnerable to “residential and social displacement” when the introduction of green infrastructure to mitigate environmental hazards does not account for downstream, unintended consequences. These consequences can include potential changes in racial makeup and housing affordability, including an influx of Whites and higher rent and general cost of living, which can accompany revitalization and enhanced resilience to environmental and climate hazards.^{1,2,5-9}

Our goal in this analytic essay is to underscore that any community health benefits that come from enhanced access to green space, efforts to remediate known environmental hazards, and efforts to mitigate climate change impacts must be examined in the context of community revitalization and social change.^{2,5} The newly opened Wilmington Southbridge Wetlands Park is a prime example of a large, urban, green infrastructure project that is aimed at controlling historic flooding in the community of Southbridge. South Wilmington, DE generally encompasses Census tract 19.02 and is made up of 2,113 residents, according to the 2020 Census. The core community of Southbridge, located in Census tract 19.02, has 1,430 residents and is roughly 86% African-American. As one of the largest brownfields in the City of Wilmington, the transformation of the wetland into an attractive and functional environmental amenity is aimed at reducing flooding and introducing ecosystems for native wildlife and plants,

while also serving as a space for walking, biking, and enhancing commercial and residential economic activity via its connection to the Riverfront.¹⁰ Though the wetland park has only recently been opened to the public (June 2022), it is a major, community-generated greening effort happening in tandem with significant Riverfront development in South Wilmington.¹¹

This essay begins with a review of some relevant literature on the relationship between greening and community health. Next, we briefly present findings from our examination of community demographic change using data at both the Census tract and block group level for Census tract 19.02, which contains the community of Southbridge and neighboring Christina Landing. Future Riverfront East development will be located in the same Census tract next to Christina Landing. We show some of the chief demographic characteristics of the area, currently and historically, to illustrate significant recent social changes. Our analysis also explores the same data for the discrete community of Southbridge, which we have determined by matching Census blocks to the common locally perceived neighborhood boundary to explore how any demographic shifts in the area can be isolated as within or outside of the core community of Southbridge (see the 2006 SAMP and 2021 SNAP for some details on these community data). Lastly, we present health data that helps to focus attention on the relationship between greening, revitalization, and health in the area.

Greening and Community Health

Green benefits to health from nature-based interventions, like a wetland park, can include increased self-esteem and lower levels of stress, depression, and anxiety.¹² Moreover, green infrastructure can have positive impacts on the cardiovascular system and pregnancy health, though less is known about the health benefits from green stormwater management systems.¹³ Other benefits can include increased physical activity¹⁴ and lower exposure to air pollution and other toxics,¹⁵ though findings on self-reported health are mixed.^{16,17}

By focusing on South Wilmington (broadly) and Southbridge (specifically) as a case study where equitable health outcomes can flow both up and downstream, we highlight the need to mitigate potential for displacement of longtime residents because the health benefits of greening for them may only be temporary; by contrast, greening can enhance and elevate the generally better levels of health that in-migrants may have.⁵ Efforts to revitalize and enhance the environmental resilience of vulnerable communities through green-integrated development may widen the gap of inequality via wealthier in-migrants and may not have the intended effects, health and otherwise. In light of this, health measures that assess the beneficial impact of greening must parse out the overall better health that may accompany new residents moving into the area, especially if the area encompasses a single geographic unit (i.e., Census tract) but contains significant levels of socioeconomic disparities across it and may be gentrifying. These health differences reflect broader patterns of the profound impacts of social determinants of health and are well-documented.¹⁸

Cole and colleagues note that “gentrification itself may have no effect or even a positive effect on the health of the population as a whole while its effect on the health of underprivileged residents may be detrimental” (p. 159).⁵ This underscores the importance of knowing what the intended and unintended health consequences are for areas experiencing greening coupled with significant economic revitalization and development, like South Wilmington. Gentrification need not involve the swift, outright displacement of underprivileged residents, but could involve processes of “intimate segregation” from more privileged residents moving into the same area,

with different groups utilizing different parts of the green space and not directly interacting.¹⁰ The variety of negative outcomes of displacement notwithstanding, without attention to community change in this context, health improvements may be attributed to greening when, in fact, they may be due to processes of in- and out-migration of different residents over time and when measured using Census Tract boundaries.

Greening and Community Change in the Context of Redevelopment and Revitalization

Research literature that examines the relationship between gentrification and health helps to understand community redevelopment and economic revitalization (as well as any negative impacts of gentrification on health) as a multi-stage process.¹⁹ With intensive Riverfront redevelopment having occurred and set to expand in South Wilmington and comparatively little redevelopment within Southbridge,²⁰ we suggest that racial disparities will continue to be a key driver of change in wealth, and possibly health, evident in South Wilmington's Census tract data. Several of these changes are apparent in demographic, wealth, and health data already.

Greening initiatives, by themselves, are often beneficial for all residents, existing and new, wealthy and not. Too often, however, green and climate resilience initiatives in urban areas with environmental disamenities and socially disadvantaged residents cater to the interests of residential and commercial real estate development that attracts new residents that can afford to live in the local area.²¹ With this, the potential for significant social and economic shifts heightens disadvantaged residents' vulnerability to displacement and other social disruptions.^{16,17} Investment in affordable, mixed-income housing and encouraging homeownership by longtime residents, as well as ensuring that any investments in the area related to housing benefit longtime residents, is crucial to ensuring equitable outcomes and community sustainability.²² However, revitalization and development can be seen as a paradox by local residents of color, as it may create fears of gentrification, racial exclusion, and a loss of social ties, but is also necessary as an external source of "top down" revitalization and urban economic development.^{7,23 (p.294),24}

Indeed, data suggest a growing trend of socio-economic and racial disparities across the City of Wilmington as a whole. For example, median household income disparities across White and Black Wilmington residents show that, in 1980, White Wilmingtonians earned \$46,380 and Black Wilmingtonians earned \$35,380; in 2015-2019 (2017 inflation-adjusted dollars), White Wilmingtonians earned \$65,087 and Black Wilmingtonians earned \$31,629. In South Wilmington, where a single Census tract 19.02 houses a relatively wide range of economic disparities and dimensions of racial exclusion and segregation, this is even more pronounced. White median household income in Census tract 19.02 was \$62,723 in 2000, while the Black median household income for the tract was \$38,207 (both inflation-adjusted). In 2020, the Census reported median household incomes for the tract as \$143,333 and \$31,875, respectively, reflecting a substantial increase for White households and a decrease for Black households.

Figures 1 and 2 below illustrate the geographic boundary for Census tract 19.02 and the blocks used in our estimation of the core community of Southbridge, using 2020 Census data, respectively.

Figure 1. Geographic Boundary of Census Tract 19.02

Southbridge	NA	43	49
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These newer White residents also reflect a significant increase in White wealth in the tract, with more than a doubling of the median White household income between 2000 and 2020 (in inflation-adjusted dollars). This influx will likely increase dramatically over the next 10 years with the buildout of the Riverfront East. The number of Black residents in Southbridge today ($n = 1236$) is largely the same as in 2010 ($n = 1212$), but the *tract* has seen a 12% decrease in total Black residents since the year 2000, totaling 1426 today.

Unfortunately, health data for specific racial groups within any given Census tract are not readily available. These data are, instead, aggregated to all populations within a Census tract, and they are difficult to assess historically. This makes tracking health improvements within a given tract for a given group impossible without a local survey. Examining the correlations between regional Census tracts with increasing concentrations of demographic groups and increasing concentrations of health conditions is, however, possible. These correlations may offer some insight into health improvements a tract experiencing heavy racial and income change, like South Wilmington (19.02), has and may continue to experience.

The data in Table 2 are coefficients of determination, or R-squared, that measure the association between racial and income concentration with health behaviors and outcomes. Higher values have greater association, with 1 being a complete correlation and 0 none. These data are for Census tracts across the Wilmington region – New Castle County, DE and Cecil County, MD and are based on a deeper analysis of Behavioral Risk Factor Surveillance System (BRFSS) health data recently analyzed by WILMAPCO.²⁵ Demographic and socio-economic data cited are from the American Community Survey, 2015-19.

Census tracts with stronger concentrations of Whites or Blacks show fairly strong—and disparate—correlations to various health behaviors and outcomes. Table 2 below shows the Pearson's r and R-squared correlations between higher median household income, higher percentages of non-Hispanic Blacks, and higher percentages of non-Hispanic Whites and various health data. Higher percentages of Blacks are, for example, correlated with increasing physical inactivity (the estimated percentage of adults reporting to be physically inactive over the past 30 days). Stronger White presence, meanwhile, and to a lesser extent, higher median incomes, are linked to declining levels of physical inactivity, estimated obesity, asthma and poor reported mental health. While it is an obvious measure to include, we found poor reported health to be weakly correlated to racial or income conditions; it is more strongly correlated (0.18) with advancing median age in a tract.

Table 2. Pearson's r and R-Squared Values Between Population Groups and Health Behaviors and Outcomes in the Wilmington, DE Region

	Higher Median Household Income	Higher % Non-Hispanic Black	Higher % Non-Hispanic White
Physical inactivity	(-.28) 0.08	(.75) 0.56	(-.71) 0.50
Obesity	(-.32) 0.10	(.82) 0.67	(-.75) 0.57
Asthma	(-.57) 0.33	(.86) 0.74	(-.73) 0.53

Poor reported mental health	(-.59) 0.35	(.58) 0.34	(-.53) 0.28
Poor reported health	(.22) 0.05	(.22) 0.05	(-.10) 0.01

*Pearson's r in parentheses (with direction sign), followed by R-squared.

Localized greening and other improvements ought to benefit both existing and new residents across South Wilmington. But, as the data above suggest, caution is needed. Aggregate health improvements across the tract may be largely due to the recent and the likely, future, in-migration of wealthier Whites, and not positive greening efforts, such as the development and revitalization of parks and trails alone. As noted earlier, these patterns are indicative of the complex relationship between race and the social determinants of health, and play out in greening and other community development policies.

Conclusion and Public Health Implications

Post-industrial urban spaces provide ample opportunity for the remediation of brownfields and other “vacant and derelict land,” often disproportionately located nearby or within socially disadvantaged and marginalized communities, and recreate them into green spaces such as urban agriculture and recreation spaces (p. 2233).⁷ Often, though, this movement towards cleanup and re-use is driven by economic and profit-based incentives, due in part to the costliness of brownfield redevelopment, but also because of the need for external sources of investment.⁷ When deeply intermixed with higher cost residential and commercial development that takes into account climate-change impacts like sea level rise and increased storm surges, these efforts can also be seen as ways to enhance resilience to climate change, or what Anguelovski and colleagues (2019) call “a new type of climate planning: green climate resilience” (p. 26139).¹

The “green and resilient orthodoxy” that “integrates nature-driven solutions into urban sustainability policy” (p. 26140)¹ underlies much of the integrated residential and commercial development and green infrastructure enhancement being implemented in South Wilmington. This integration might downplay the potential negative impacts on the most vulnerable residents in the area, while, as Anguelovski and colleagues remark, “selling a new urban brand of greening and environmentally resilient 21st-century city to investors, real estate developers, and new sustainability class residents” (p. 26140).²⁶ It is important, further, to better understand the sequencing of green infrastructure and revitalization through development, in order to determine if it leads revitalization and redevelopment efforts or if it is integrated within it.²⁶

With the support of Healthy Communities Delaware, the South Wilmington Planning Network (SWPN) and Southbridge Civic Association (SBCA) produced the Southbridge Neighborhood Action Plan (SNAP) late last year. An update to a 2006 Neighborhood Plan, the SNAP offers a comprehensive approach to community revitalization grounded in the needs of existing residents. While greening and climate adaptation efforts feature prominently in the plan, so too—*equally*—do the need for mixed-income housing development, hammering out community benefit agreements with private developers, and addressing other community needs such as the betterment of health and improved mobility. Pursuing multi-pronged, community-driven revitalization alongside greening and resilience efforts should help inhibit unintended green gentrification, which can come about through siloed greening efforts.⁹

Moreover, greening and redevelopment processes should feature not just initial, but iterative community engagement. In their review of literature surrounding green gentrification and health, Jelks and colleagues observed:

. . . parks and greenways in gentrifying communities are most often designed to meet the needs and aesthetic preferences of affluent White newcomers, as opposed to longtime low income BIPOC residents. To this extent, early, meaningful, and consistent engagement of residents of communities targeted for urban greening projects is critical to ensure that long-time residents have a voice in designing green spaces that they would like to use...¹⁴

Existing community planning and organizing efforts in Southbridge – like the SWPN and the SBCA – can support wider community engagement of residents and ensure new efforts are in line with the SNAP. The key is for redevelopment efforts to engage with these groups and to stay engaged. The concept for Southbridge’s wetland park originated in the 2006 Plan and early development and implementation efforts sought resident support and direction through workshops and meetings. However, a pair of offshoot implementation efforts—the placement of a large sports field adjacent to the community and the decision to connect Southbridge to the new Christina River Bridge via trail and not road—sped forward without stopping for community direction and support. These can be contrasted against other area efforts that have, such as the development of a neighborhood park revitalization plan at Hicks Park grounded in door-to-door surveying and iterative engagement with community leaders surrounding streetscape and bridge replacement plans.

We must be cognizant of the possibility that demographic and health data, when organized by geographic boundaries that contain a wide variety of social and economic disparities and are experiencing significant revitalization to attract new residents, may be illusionary; that is, the positive health impacts of any greening may be obscured by the influx of wealthier residents who tend to have better health, overall, and the up- and downstream benefits to health unequal. These geographic boundaries, moreover, present critical implications for policy. The common overreliance on Census tracts to represent *place* is especially problematic in areas like South Wilmington (Census tract 19.02) with sharp racial and class divisions within its boundary.^{27,28} Today, South Wilmington often rightfully surfaces as a socio-economically disadvantaged tract in any number of indices incorporating measures such as poverty and non-White racial concentrations. But, in South Wilmington, this designation is made on the strength of data emanating from Southbridge, an historically Black, lower-income neighborhood *within* the tract, and not Christina Landing, a racially mixed but predominantly White, upper middle-income community.

Policy interventions, however, are often not nuanced enough to target distinct places within a tract, such as Southbridge. Thus, under the banner of addressing historic social inequities, market-rate luxury high-rise development outside of Southbridge qualifies for *Opportunity Zone* tax credits. In a similar vein, a project to construct a street grid at Riverfront East, a planned high-end development more than a half mile from Southbridge, has received millions of dollars in funding through a Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant where equity benefits were highlighted based on tract data. Paradoxically, by themselves and without incorporating direct benefits to neighboring disadvantaged places, such projects

simply do not just fail to address but may widen Wilmington's growing socio-economic and health divisions.

Conclusion

In urban areas with significant greening and redevelopment growth intertwined, there may be a need to adjust the geographic boundaries that obfuscate explanations for improvements in community health and allow for more precise and intentional policies to prevent social displacement and the loss of those benefits. The SNAP recommends doing just that in South Wilmington. In the meantime, it is imperative to study communities *within* these formal geographic boundaries with more precision in order to best understand the impact green infrastructure has had on the health and well-being of any socially disadvantaged residents that tend to reside outside of Christina Landing and other areas to the west of Southbridge. Further, the formal geographic boundaries should be assessed as to their utility, strengths, and weaknesses for data-driven policymaking in a rapidly-changing urban area experiencing significant development and growth. This type of assessment will provide the acumen necessary to equitably distribute any benefits of development, revitalization, and greening, and help to mitigate the potential for displacement of socially and economically disadvantaged residents in the area.

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