Research article

Greened out: mitigating the impacts of eco-gentrification through community dialogue

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Abstract

Cities are increasingly employing green infrastructure, defined as a network of multi-functional open spaces within cities and between cities – including green corridors, green streets, formal parks and street trees – to promote resilience and provide clean air, flood protection and erosion control. Yet there is a growing link between these efforts and rising property values and – in some cities, including Washington, DC – displacement. This history of greening and subsequent displacement can hinder successful green-infrastructure implementation. The geographical areas with the greatest need for these amenities and other resilience strategies are often those with high concentrations of low-income, racial minorities who have traditionally been disenfranchised from local planning and development processes due to a lack of knowledge and limited access, as well as institutional racism. In these areas, the perception of green infrastructure is that of something planned by others, for others,

with little direct benefit to the community. This exploratory research, which examines lived experiences, builds upon the quantitative documentation of gentrification and demographic shifts in Washington, DC. Through a series of listening sessions, the study explores residents' experiences of green infrastructure, gentrification and civic engagement in their community. The study uncovers ways in which policymakers and planners can increase support for and the success of green-infrastructure implementation by amplifying the voices of stakeholders, including communities with vulnerable populations, in the planning process.

Introduction

Cities are increasingly employing green infrastructure, defined as a network of multi-functional open spaces within cities and between cities – including green corridors, green streets, formal parks and street trees[1] – to promote resilience and provide clean air, flood protection and erosion control. Yet there is a growing link between these efforts and rising property values and – in some cities, including Washington, DC – displacement. This history of greening and subsequent displacement can hinder successful green-infrastructure implementation (for example, green-infrastructure implemented in collaboration with local residents that optimises benefits for a diverse community of users). Successful implementation is vital given that the geographical areas with the greatest need for these amenities and resilience strategies are often those with the highest concentrations of marginalised, low-income residents.[2] Moreover, a focus on community collaboration facilitates the engagement of racial minorities who have traditionally been disenfranchised from local planning and development processes due to a lack of knowledge and limited access, as well as institutional racism.[3] In these areas, the perception of green infrastructure is that of something planned by others, for others, with little direct benefit to the community. This research builds upon quantitative documentation of gentrification and demographic shifts in Washington, DC, and queries residents' lived experiences with green infrastructure, gentrification and civic engagement via a series of listening sessions. The study uncovers key themes in Washington, DC residents' experiences with the tensions of implementing green infrastructure in a gentrifying city. The findings highlight ways in which policymakers and planners can increase support for the successful implementation of green infrastructure by amplifying stakeholder voices, especially in communities with vulnerable populations and experience of exclusion from the planning process.

Benefits of green infrastructure

As the trend of urbanisation is expected to continue, promoting public health and well-being in urban areas has become a goal for urban planners and policymakers. Many cities have developed and implemented urban sustainability plans by installing green-infrastructure projects. Examples include rain gardens, bioswales, green streets, permeable pavers and widescale redevelopment of entire waterfront districts (for example, the Wharf in Washington, DC), the creation of parks on unused rail lines (the High Line in New York City) and bridges (the 11th Street Bridge Project, forthcoming, in Washington, DC). The natural features of these projects provide tremendous physical and mental health benefits to urban residents, and did so particularly during the Covid-19 pandemic.[4] These include improvements in mood, decreased ADD/ADHD symptoms in children and decreased aggression and violence;[5] decreased blood pressure and heart rate;[6] and quieter, relaxed brains.[7] Green infrastructure also reduces pressure on ageing grey infrastructure[8] and provides ecosystem services such as improved air quality, increased erosion control and an ameliorated urban heat island effect.[9] Green infrastructure may also increase property values.[10]

Environmental gentrification

The documented benefits of green infrastructure create desirable urban locations. Households and businesses proactively seek proximity to parks, tree-lined streets and other accessible green amenities. The accompanying raised property values associated with the installation of green infrastructure may result in displaced local culture, businesses and residents – a well-documented process known as eco-gentrification or environmental gentrification.[11] Enhancement of urban areas with green spaces and parks has been linked to the displacement of lower-income households and businesses in cities across the globe. Environmental gentrification has far-reaching implications for a neighbourhood's social and cultural character as it economically forces out those residents who have developed and maintained the community's collective culture.[12] This may be especially vital in historically marginalised neighbourhoods where demographics play a critical role in local civic engagement and political success. Traditionally, Black neighbourhoods in Washington, DC have long provided their residents and candidates with a political base that acted as a catalyst for civic engagement.[13] As environmental gentrification increases the share of new residents within communities, long-term residents may become resentful and civically withdrawn as they encounter newcomers better versed in operationalising their own different priorities into tangible amenities such as dog parks.[14] (See Figure 1, which illustrates the high premiums paid for residences adjacent to New York City's elevated High Line park.)

Local-level policy creation can either facilitate and encourage green gentrification[15] or mitigate against it. Cities around the world implement approaches to lessen environmental gentrification, like Brooklyn, New York's 'just green enough' approach;[16] the Polish cities of Lodz and Warsaw's utilisation of informal green space;[17] and Atlanta, Georgia's repurposing and redevelopment of abandoned infrastructure into green space.[18] Washington, DC has a history of established programmes designed to reduce the displacement associated with development, including the Tenant Opportunity to Purchase Act (1980) and the Home Purchase Assistance Program (1978).[19] More recently, the city established the Sustainable DC Plan (2012) and has been investing in sustainable resource management and leveraging green infrastructure such as rain gardens, bioswales, green roofs and permeable pavements to meet its resiliency goals.[20] These improvements unsurprisingly increase neighbourhood desirability and expedite change.[21] Wealthier households move into neighbourhoods updated with new or redeveloped green spaces. This gentrification further increases public and private investments in low/middle-income neighbourhoods, raises property values and taxes, and displaces long-term residents and businesses. The result is dramatically changed economic and racial profiles of residents and small business owners.[22] Between 2000 and 2013, Washington, DC has seen 40 per cent of its communities gentrified and 20,000 Black residents displaced.[23] See Figure 2.

Strategies to address environmental gentrification are not dissimilar to those used to address development-induced gentrification. Successful approaches disrupt the process of displacement and preserve the extant social, cultural and political identity. Mitigative strategies are broad (market-based, cooperative ownership, regulatory, public subsidy) and highlight engaging the community in the process of controlling gentrification and reducing displacement.[24] Effective community partnerships, which require both capacity-building and community-identified leadership,[25] support community-directed green infrastructure and community-empowered decision-making around strategies for permanent and sustainable improvements that benefit existing lower-income neighbourhood residents.[26] In short, engaging the community in an inclusive, understandable process early in the design-and-development timeline benefits everybody and warrants greater attention.

Community engagement strategies to mitigate gentrification

Engagement as a mitigative strategy towards gentrification is salient since the more communities are engaged in a participatory process of urban planning (development, green infrastructure and so on), the more efficacious the project.[27] Community engagement establishes working relationships between different stakeholders (communities, community-based organisations, government and private entities) to address the community's wants and needs.[28] Unfortunately, some decision-makers are reluctant to engage with the community and see participation as a means rather than the end; thus, they inadvertently shift from organic to induced participation.[29] To facilitate productive participatory urban

planning, officials must purposefully leverage one of the many different frameworks and methods of community engagement.
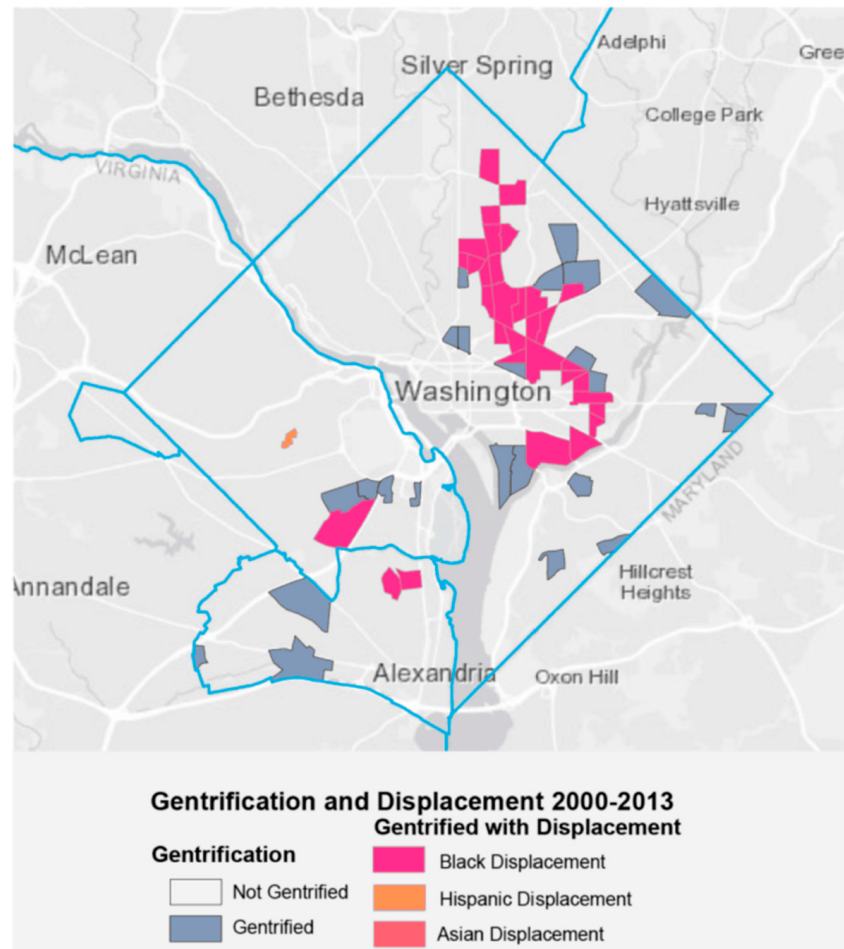

Figure 1. Eco-gentrification: high premiums along the High Line (Source: StreetEasy, a New York City real-estate search engine, https://streeteasy.com/blog/changing-grid-high-line)

Two of these approaches are the 'Ladder of Citizen Participation'[30] and community listening sessions. The former focuses on the concept of power diffusion between the public sector and residents.[31] This ladder consists of eight rungs within three distinct levels of citizen participation: (a) the bottom two rungs (manipulation and therapy) represent non-participation or no power; (b) the middle three rungs (informing, consultation and placation) represent tokenism; and (c) the top three rungs (partnership, delegated power and citizen control) represent power.

Community listening sessions can be a powerful tool for community engagement because they create a space for people to share their perspectives and experiences, and for decision-makers to listen and understand the needs and concerns of the community. Listening sessions can take various forms, such as focus groups, and can be conducted in person or virtually.[32] They can be an effective way to engage the community and gather valuable insights and feedback. If done misguidedly, a listening session can lock citizen participation into tokenism (informing, consultation and placation).[33] By actively listening to the community and incorporating their input into decision-making processes, organisations and governments can work towards building stronger, more inclusive communities.[34]

Figure 2. Gentrification and displacement between 2000 and 2013, Washington, DC (Source: National Community Reinvestment Coalition, https://ncrc.org/study-gentrification-and-cultural-displacement-most-intense-in-americas-largest-cities-and-absent-from-many-others/)

Methodology

This exploratory research builds upon the documented value of including the community in mitigating environmental gentrification and queries individual lived experiences to understand local residents' perceptions of green infrastructure. The researchers hosted an initial Washington, DC-wide virtual listening session in order to gauge community interest and assess understanding of the topic. Then, the researchers held four 90-minute virtual listening sessions, organised by ward over a three-week period: Ward 7, Wards 6 & 8, Wards 4 & 5 and Wards 1 & 2. Ward 3 was excluded given its limited potential for development and gentrification. Participants (a total of 26 across all four sessions) ranged in age from their 20s to their 80s and represented a mix of racial ethnicities and tenure in Washington, DC – from a couple of years to more than four decades. Each session began with introductions followed by sharing the purpose of the research to learn about residents' lived experiences. Visuals of green-infrastructure projects in each neighbourhood were shared and residents were questioned on their knowledge, experience and understanding of the purposes, use and maintenance of such projects. In the second phase, the definition of gentrification and its documented association with displacement in Washington, DC was shared. In the third phase, residents were examined on their engagement in local public processes. (See Figure 3 for a map of Washington, DC wards.)

The researchers recorded, transcribed and coded the data – the narratives of each listening session. Fourteen themes emerged and, within each theme, the researchers examined the meaning of the

lived experiences.[35] They examined the data for co-occurrence, the intersection of two themes, in order to explore the association between thematic concepts and the meaning of the phenomena.[36] With high co-occurrence, intersecting theme pairs with the highest number of co-occurrences across all four listening sessions, the study identified dominant themes and significant shared experiences. With the lowest co-occurrence, intersecting theme pairs with the lowest number of co-occurrences, the researchers examined the data for significant outlier experiences. Finally, the study examined the data for contrasting and similar experiences across the four listening sessions.

The data themes were (1) asks + requests/advocacy, (2) community engagement, (3) community building, (4) development, (5) dialogue, (6) emotional tenor, (7) displacement, (8) lack of trust, (9) need + desire, (10) demographics, (11) gentrification, (12) green infrastructure, (13) lack of knowledge/awareness and (14) utilisation.

The study treated each participant's experience as a phenomenon that reveals an experience but is not necessarily indicative of a given ward or demographic. The researchers sought to understand how individual voices can provide insight into a larger community narrative. The findings aim to identify new knowledge to mitigate the unintended consequences of green-infrastructure development and bridge the gap from urban planning to human impact.

Figure 3. Washington, DC wards (Source: Washington, DC Office of Planning, https://planning.dc.gov/whatsmyward)
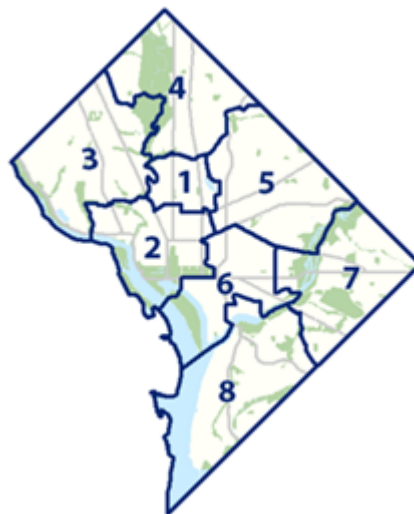
Understanding lived experience

Several participants noted that the process of the listening session itself was valuable. A participant from Ward 5 shared, 'I feel like we should have more spaces where we can talk this honestly . . . I want our neighborhood to get better'.

As the structured, facilitated listening session allowed community members to listen, speak and constructively engage with challenging issues, the practice of exploratory listening as a means of community engagement deserves further examination. This mode of engagement provides a meaningful contrast to 'tokenistic' public forums and engagements, where citizens believe that they do not influence issues because officials have already made decisions or are uninterested in public input.[37] As the listening session allowed residents to be fully heard without challenge or evaluation, the study offered an understanding of their lived experience of green infrastructure in a gentrifying city. Four key themes resulted from the analysis: (1) high levels of interest in understanding green infrastructure, its purposes and benefits; (2) lack of trust and impact in civic-engagement processes; (3) emotionally charged dialogue around perceptions of green infrastructure; and (4) experience of disconnect from information by city officials on green-infrastructure projects. The findings illuminate opportunities to

develop planning and outreach strategies to engage communities across lines of difference, especially where resident participation is essential and can create better outcomes.

High levels of interest in green infrastructure

> People deserve to have something pleasant to have their eyes rest on. It doesn't have to be elaborate, fancy or anything. But . . . I think people do care . . . everybody wants to come and present us with programs. But who asks us what we would like? (Ward 7 resident)

The breadth of interest in green infrastructure and the appreciation of green spaces across all wards and all demographics presents a significant outreach opportunity for city officials to engage residents in a dialogue that matters to them. Across all listening sessions, participants expressed high levels of interest and wanted to know more about the benefits and impacts of green infrastructure in their communities, including planting for stormwater control. Participants expressed a high appreciation and desire for green spaces and their social benefits, including community recreation. This desire to know more included practical suggestions, such as city-created signage around green-infrastructure installations and street plantings to explain their role in controlling stormwater.

Lack of trust and civic engagement

> We've got to somehow try to reestablish a sense of hope . . . In my community, there's not that feeling that the system is going to work for us. (Ward 8 resident)

A key finding emerged regarding varying levels of residents' engagement in public processes, depending on their levels of trust in the process. While some participants expressed feelings of disempowerment, others expressed feelings of high agency, that their voices could have an impact on a process. Several participants from Ward 8, an area with the highest occurrence of poverty and Black residents, expressed pronounced feelings of distrust towards the public engagement processes led by city officials. While these participants were vocal community members and included a former elected community representative, they spoke of personal frustration and broader experiences within their communities of residents feeling that their voices did not matter.

> The community is not being informed . . . how can we avoid this? Because the offense is already there when the information is not passed along beforehand ... I'm very active in those calls . . . I've seen this a lot . . . informing people at the last minute . . . after decisions have been made and the deals have been done. (Ward 8 resident)

This sense that their participation in city processes does not matter was based on historical, collective experiences, and participants expressed this sentiment as grievances and unmet needs. This Ward 8 experience stood in strong contrast to participants in the Wards 1 & 2 and Wards 4 & 5 listening sessions, who did not express deeply felt frustrations and community experiences of marginalisation.

> I will unabashedly say I am all about enhancing my neighborhood. It's why I bought a home here. It's why I served as President of the Civic Association. And it's why I started my neighborhood blog to inform people about what's happening in the neighborhood. (Ward 5 resident)

We found that differences in civic participation transcended race. While factors of race, income, tenure in the community and education level are often correlated with engagement in civic processes, the lived, personal experience revealed that agency, a belief that one's voice mattered and could affect change, also drives participation, which transcended race or minority status. In the Wards 1 & 2 and 4 & 5 listening sessions, while a few of the Black participants expressed some frustration with shortcomings in public participation processes, they also expressed a high level of trust in the process, evidenced by their engagement and expressed advocacy that they could effect change in their communities.

This finding points to the necessity of examining the human experience within demographic patterns of participation and considering the context of historical racial and economic inequity. A communally rooted phenomenon of lived personal and community experiences matters in understanding how residents engage differently in public processes. The lack of trust in public processes

expressed by Ward 8 participants corresponded with underlying, long-standing realities of the disparate impact of development, gentrification and opportunities in lower-income and Black communities in Washington, DC.[38] City officials, equipped with a contextual understanding of lived experience, can more constructively engage with stakeholders who may bring experiences of distrust to the discussion.

Emotional tenor of dialogue regarding green infrastructure

While we found that the participants were uniformly interested in understanding green infrastructure, we also found that some participants had strong perceptions of new green-infrastructure developments as being a precursor to gentrification. This sentiment was more pronounced in the Wards 7 and 6 & 8 listening sessions and was expressed with strong emotional tenor, intensity and feelings:

> Here they come with another one of their gardens . . . I did not know that this was something that we, as a community, could access. I didn't know who gardening was, but I just saw it as just a further sign of just gentrification . . . as a community person, I had no idea where it came from or what it was. (Ward 7 resident)

Notably, the Ward 7 and Wards 6 & 8 listening sessions contained a higher proportion of longer-term Washington, DC residents who spoke to their lived experience of witnessing changes within their communities and experiences of exclusion. As with the theme of lack of trust and civic engagement, this larger narrative of anger and frustration influenced their perceptions of green infrastructure. Participants expressed sentiments that these developments were not intended for their benefit or for the existing Black community. This finding can be contextualised within the greater dynamics of Washington, DC, where Wards 7 and 8 have the highest concentration of long-term Black residents and lower incomes, as well as major new land-use developments.[39] The emotionally charged dialogue can be understood as unearthing a myriad of experiences, including a connection to green infrastructure as symbolic of gentrification.

In contrast, participants in the Wards 1 & 2 and 4 & 5 listening sessions did not express personal lived experiences of exclusion. The composition of these listening sessions was diverse yet included slightly more White and shorter-tenure residents. Even in these discussions, however, the perception of new community development being associated with gentrification as an issue in the community arose:

> I think we have a larger lightning rod . . . which is the dog park. I feel like I hear far more outcry against dog parks than community gardens, largely because depending on what the alternative use would be. Food . . . whereas dogs running in circles. A lot of times, it doesn't register with people who feel like they're being displaced. (Ward 1 resident)

Understanding the tenor of the dialogue, including its symbolic associations, warrants examination. As with the lack of trust in public-engagement processes expressed by study participants, the emotional tenor of dialogue is often anchored in the lived experience of historical change – in one's own connected sense of place, amid the influx of new changes and new residents. For city officials, understanding this dynamic of the dialogue can provide valuable preparation for approaching challenging community discourses.

Community disconnect from urban-planning information

Across all the listening sessions, participants expressed a distinct desire to be more informed about the implementation of green infrastructure and public projects, including the installation of bike lanes and the development of public areas that include green spaces. However, even as the listening sessions included former and current community leaders who were knowledgeable about the city-led processes, they still noted the disconnect – a lack of information and notice about green-infrastructure projects from city officials:

> A lot of people discover they're getting bike lanes the day that they strip the street. The same is true of green-infrastructure projects for pretty much everything that happens to change a community . . . I think there's good value for posters, yard signs, doorknockers, things like that are vastly underutilized. (Ward 5 resident)

Participants in the Wards 6 & 8 and Ward 7 listening sessions noted the need for the city to make greater attempts to engage residents and shared the suggestion to contact existing, connected community groups and organisations to generate greater awareness and secure more extensive participation. Participants in the Wards 4 & 5 and 1 & 2 listening sessions spoke of the need for all voices to be present, to 'have a seat at the table' and for 'inclusivity'. One participant, a current community-wide elected representative, shared experiences of actively engaging residents by intentionally reaching out to elderly populations for their perspective on, and input into, a public process. The participants emphasised equity, the need to proactively seek participation from diverse community members, rather than the city relying only on the existing community engagements and strategies that fail to gather meaningful, diverse participation. They suggested that inclusive strategies could be a path to closing this information disconnect.

Analysis

The community dialogue highlighted residents' broad desire to understand and benefit from green infrastructure, and to receive more official information and participate in inclusive processes. Importantly, residents echoed a clear call to 'hear the points of pain' that cannot be overlooked in a diverse, gentrifying city so that benefits can be inclusively enjoyed by all residents in all parts of the city. With a skilful, attentive and nuanced approach to equity in engagement around green infrastructure, public processes can better mitigate unintended consequences.

This research also uncovered varying experiences with the same city engagement processes among people from ethnic minorities. Some residents were highly engaged in public processes and believed that they could affect outcomes. Others shared their experiences of living in communities where they felt powerless to affect change, had less trust in the civic process and therefore less desire to participate. Lack of trust corresponded with past exclusion and a sense of change imposed upon a community. To move towards equity, public-engagement process must be based on understanding the community and creating a process to ensure equitable participation in the light of historical patterns that have had a disparate impact on communities.[40] What community experience or 'local knowledge' has not been heard?[41] This is a call for officials to consider how the same public-engagement processes might yield different dialogues and outcomes in different areas of a city.

These recommendations bridge the gap between city planning and the unintended, negative consequences of green-infrastructure implementation experienced by some residents.[42] While planning and policymaking officials emphasise resilience and equity in terms of sustainability and outcomes that benefit all demographics in a community, attaining this goal in a diverse community requires a deliberate approach.[43] Although green infrastructure is critical to environmental resilience, its technical aspects are not broadly understood by residents. This limited understanding, paired with high interest, represents an opportunity for increased education and engagement. Communities may benefit when city officials and residents jointly name issues and create solutions at the neighbourhood level, forging outcomes that incorporate the perspectives and interests of residents.[44] An emphasis on equity and greater participation through more extensive and inclusive community engagement represents a crucial step in this partnership approach.[45]

Our findings reveal strategies for mitigating the unintended impacts of eco-gentrification by using inclusive stakeholder engagement. This engagement, in turn, realises more fully the potential of high levels of interest in green-infrastructure projects, and recognises and addresses the social tensions in gentrifying communities. By paying attention to demographic factors, including tenure and residents' historical connection to spaces and varying levels of trust in civic-engagement processes, officials can better address the tensions in community dialogues. They can design inclusive processes to elevate residents' voices in shaping local spaces. Moreover, they can capitalise on high levels of interest in green infrastructure and use this engagement as a vehicle for greater education around green infrastructure, expanding the direct benefits of green infrastructure to the widest possible number of residents.

Conclusion

The exploratory research, using community listening sessions to learn about residents' perceptions and experiences of green infrastructure, provided a nuanced perspective on local experiences that goes

beyond demographic characteristics of race, gender, age, income and education level. While the conflict in urban areas around green infrastructure and gentrification is well documented, this research uncovered opportunities for improved stakeholder engagement as a tool to improve outcomes. Virtually all participants were interested in green infrastructure and were aware of at least some of its benefits. At the same time, the sense of agency regarding publicly engaging in shaping and implementing green-infrastructure projects varied with prior civic experience and tenure or longevity of residence, rather than any other demographic characteristic.

The keen interest of listening-session participants across all demographics suggests engagement around green infrastructure is a broad pathway for community education and outreach. The aspects of the dialogue that indicate conflict, anger and frustration around negative impacts, including gentrification, underscore the importance of examining these perspectives rather than shying away from them.   It is essential to adequately include citizen voices – even conflicting ones – in land use and development in order to further meaningful dialogue, increase understanding and improve planning and policymaking processes. This study, which used a process to hear a range of strongly and emotionally expressed viewpoints, found that tension around issues and the tenor of frustration were rooted in historical community experiences. The growing demand for green infrastructure will continue to play a significant role in shaping neighbourhoods, possibly gentrifying them and displacing residents.   Mitigating the unintended impacts of green-infrastructure implementation requires an effective community partnership and synergistic protocol that welcomes local knowledge in order to minimise resident displacement.

The next steps for this research included sharing the practical findings from the research with colleagues and other practitioners engaged in green infrastructure, including at local agencies such as the Department of Energy and Environment and Advisory Neighborhood Commissions.   Initial discussions with these partners have yielded interest in learning how to create more inclusive participation and in differentiating and understanding local attitudes towards various aspects of green infrastructure. Future research examining how dialogue practices that bring residents and city officials together on an equal footing can bring forth new understanding and improve engagement in order to optimise outcomes for all residents.

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Declarations and conflicts of interest

Research ethics statement

The authors declare that research ethics approval for this article was provided by the university's Institutional Review Board (IRB).

Consent for publication statement

The authors declare that research participants' informed consent to publication of findings – including photos, videos and any personal or identifiable information – was secured prior to publication.

Conflicts of interest statement

The authors declare no conflicts of interest with this work. All efforts to sufficiently blind the authors during peer review of this article have been made. The authors declare no further conflicts with this article.

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