Montclair State University Digital Commons

Sustainability Seminar Series   Sustainability Seminar Series, 2019

Oct 29th, 4:00 PM - 5:00 PM

The Paradox of Urban Greening: Does it Harm the Very People Who Need it the Most?

Juliana Maantay

Lehman College City University of New York, juliana.maantay@lehman.cuny.edu

The Paradox of Urban Greening: Does it Hurt the Very People Who Need it the Most?

Environmental Justice vs. Environmental Gentrification – NYC Case Studies

Juliana Maantay, Ph.D., M.U.P.,
City University of New York, Lehman College,
Earth, Environmental, and Geospatial Sciences

October 29, 2019
Montclair University

Urban greening and sustainability approaches are well-accepted methods for improving the urban environment and combating the climate crisis. *Cleaning up potentially contaminated lands and bringing them back into constructive public use is one of the benefits of greening. However, greening efforts may have unintended consequences, resulting in adverse social and economic impacts to the existing residents, who are often the most vulnerable urban populations.* Spatial analyses of case study examples show that greening can spur "green gentrification." Measures can be taken to integrate social equity objectives into urban sustainability planning, to mitigate gentrification, and to improve equitable distribution of environmental benefits.

What is the relationship between **urban greening** and **green gentrification**?

What are the implications of green gentrification for **environmental justice**?

Sustainable and Beautiful Green Cities: Who Benefits?

Explanation of the terms used:
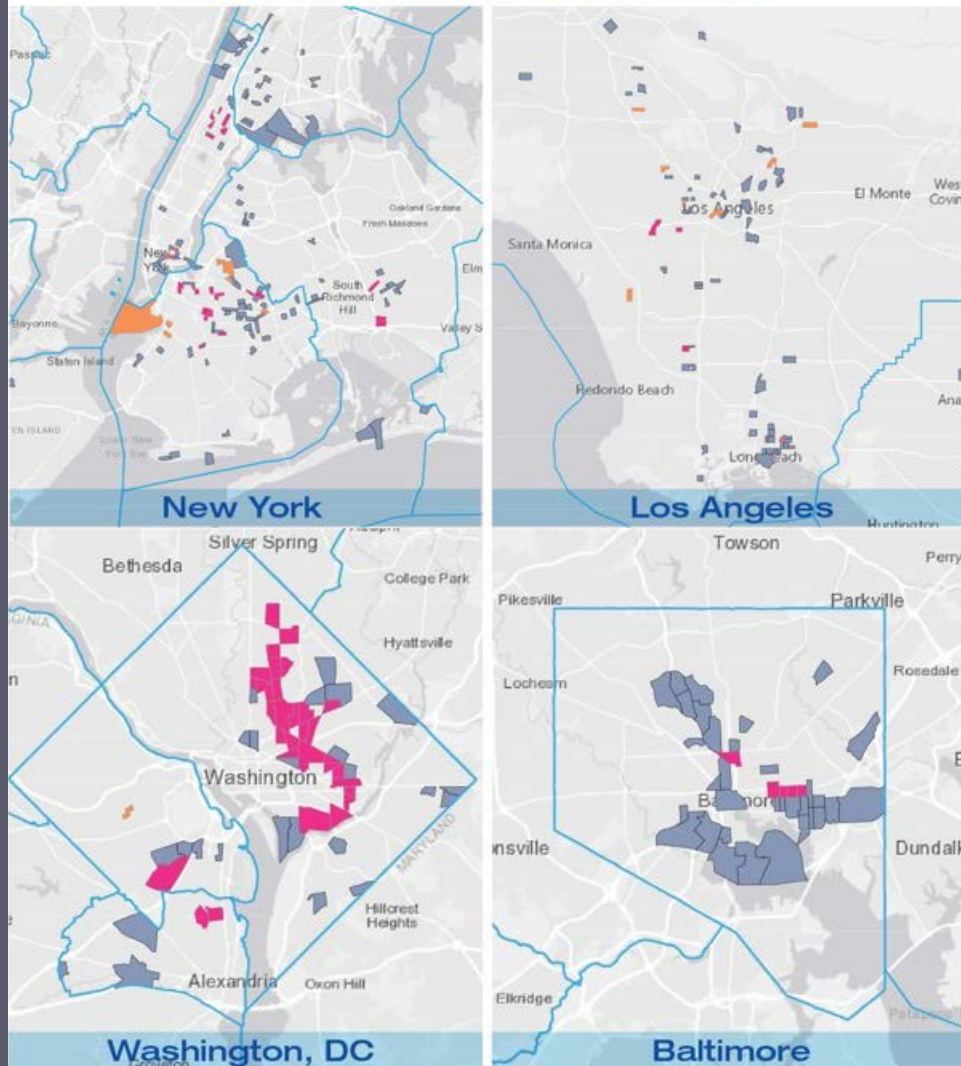
Gentrification

Environmental Justice

Urban Greening

Gentrification = A significant change in an area's:

- Socioeconomic characteristics,
- Physical environment (housing stock, infrastructure, and amenities),
- Overall neighborhood culture and economics,
- Any combination of the above,
- Leading to displacement of the original neighborhood residents and businesses and their replacement by more affluent residents and up-scale businesses.
- In most cases in the United States, the existing/displaced residents are people of color, immigrants, ethnic minorities, or lower-income and working-class Whites; and the residents who replace them are usually more affluent non-Hispanic Whites.

Major Cities with Gentrified Neighborhoods and Displacement 2000-2013

New York

Los Angeles

Washington, DC

Baltimore

Gentrification and Displacement 2000-2013

Gentrification
Not Gentrified
Gentrified

Gentrified with Displacement
Black Displacement
Hispanic Displacement
Asian Displacement

Where Gentrification Is an Emergency, and Where It's Not:

Gentrification is geographically limited in cities, but a new study shows where it has become a crisis, particularly for low-income black households. (City Lab, April, 2019)

https://www.citylab.com/equity/2019/04/where-gentrification-happens-neighborhood-crisis-research/586537/

Census Tract 66		
	2000	**2010**
Status	Eligible and	Gentrified with Black Displacement
Population	2,395	1,449
White Population	9	18
Black Population	2,244	988
Asian Population	0	6
Hispanic Population	126	283
Median Home Value	$13,599	$206,300
	Cut off value in 2000 $248,064	
Bachelor's Degrees	5.60%	24.60%
Median Household Income	$20,526	$36,397
	Cut off value in 2000 $58,001	
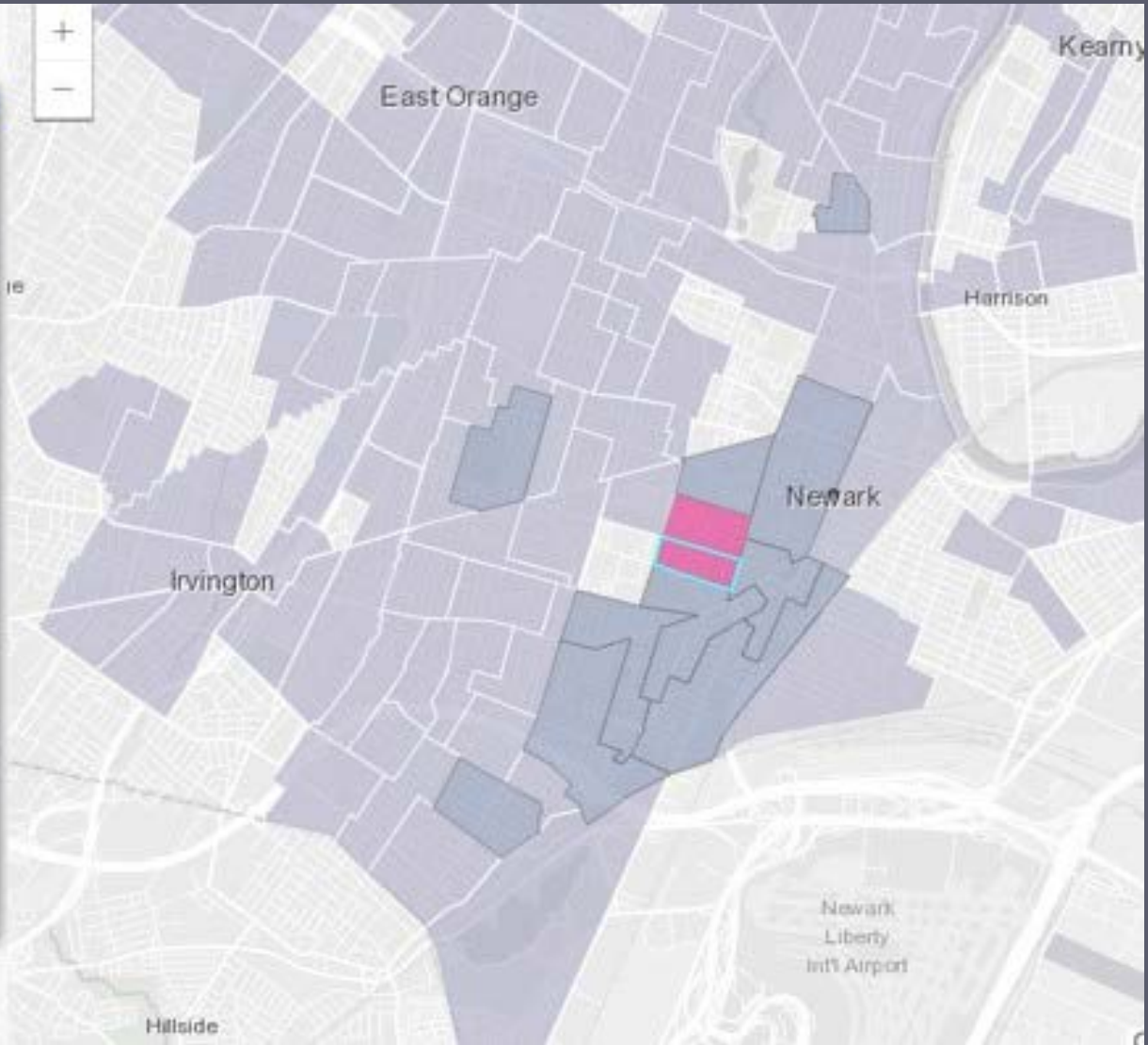
Figures are 2009-2013 estimates. All Values are adjusted for inflation.

Note the differences between 2000 and 2010 regarding Median Household Income, % Bachelor's degrees, and Median Home Value, and then note that Black population declined by more than 50% in that time frame.

Environmental Justice

EJ researchers over the past 3 decades have amassed a solid body of evidence that poor people, people of color, and other vulnerable or 'at-risk' groups are more likely to live near noxious facilities and land uses than more affluent and white populations.

In addition to closer proximity to detrimental environmental burdens, these vulnerable populations also tend to have worse access to health-promoting activities or land uses, such as parks, healthy food options, and restorative open spaces.

What is Urban Greening?

Clean up of contaminated lands – Brownfields to Greenfields – for constructive re-use.

Installation of Green Infrastructure - Bioswales, vegetated roofs, Bluebelt stormwater management systems, rain gardens, green streets.

Transformation of abandoned or underutilized areas to recreational, open space, or residential uses – rails to trails, unused commercial waterfront areas, utility and transportation rights-of-way.

Questions:

Who benefits from these urban greening projects?

How can we make sure that the benefit is equitably distributed?

How can we ensure that existing populations are not penalized when urban greening improves neighborhoods?

Previous research has found that:

- Physical and even visual access to green space is beneficial to nearby populations, both for physical as well as mental health outcomes.
- Access to urban green space is not equally distributed amongst all sub-populations, and this disproportionately impacts minority, immigrant, the less affluent, and other vulnerable populations.
- Even in cases where physical access to green space is available to these groups, the quality of the green space is often inferior.
- In many poor and minority neighborhoods, there is a disproportionate amount of vacant and derelict land (VDL), as a result of deindustrialization, landlord abandonment, and general governmental and private disinvestment in these areas.
- This VDL is often contaminated land or otherwise hazardous to health and quality-of-life.
- Many communities have transformed some of this VDL into environmentally- and socially-beneficial green space.

Glasgow, Scotland

SIMD Score
(quartiles)

- 1.80 - 16.71
- 16.72 - 33.08
- 33.09 - 53.36
- 53.37 - 87.75
- VDL Polygons
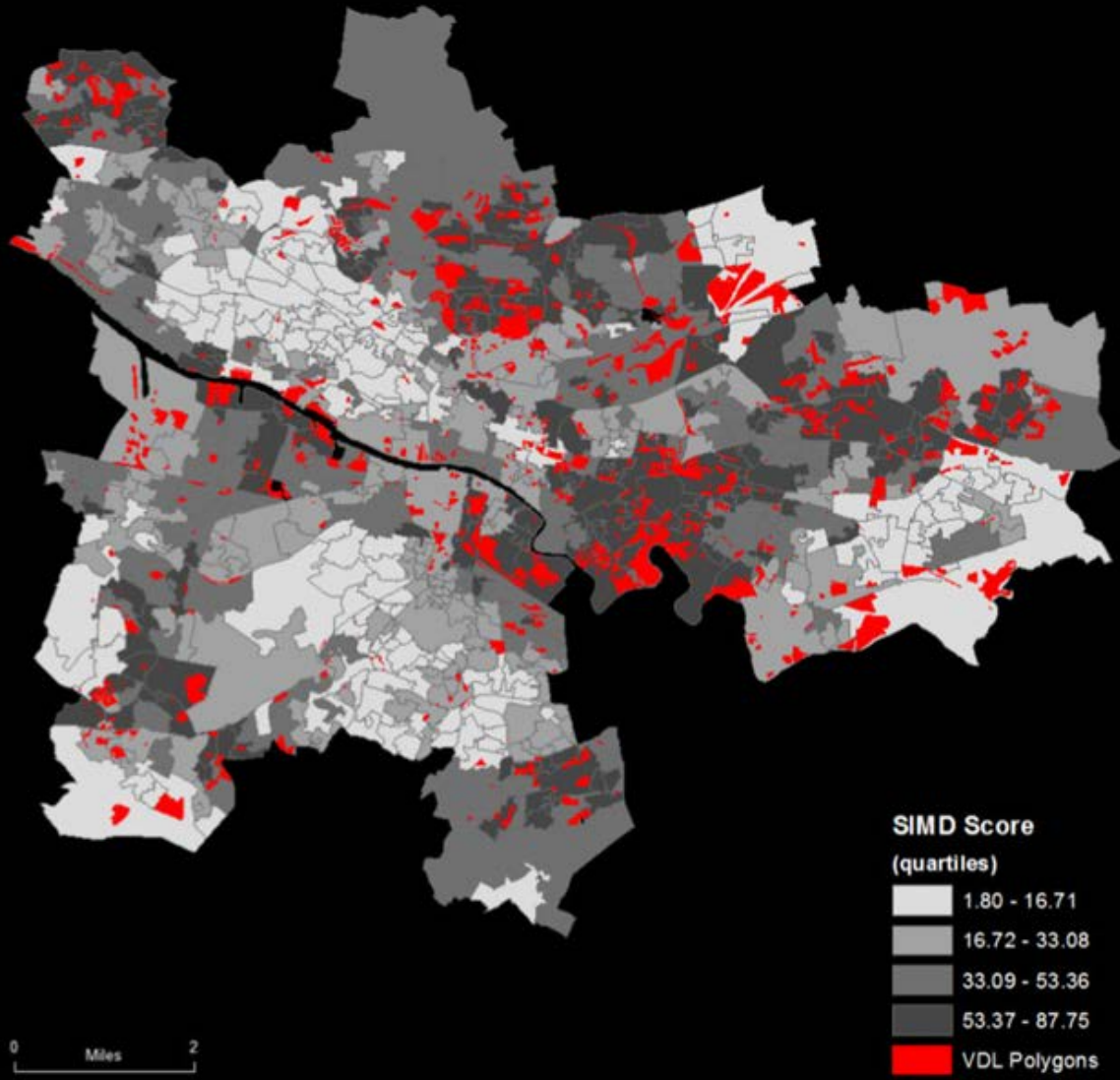
Typically, VDL is located predominantly in poorer neighborhoods, presenting a disproportionate environmental and health risk to more vulnerable populations - risks that could be mitigated/reduced by constructive re-use.

Relationship between VDL locations (in red) and deprivation scores (SIMD). Darker greys = worse scores (higher deprivation).

Previous research in Glasgow and New York City (NYC) has shown there is a spatial correspondence between concentrations of vacant and derelict land (VDL) and adverse mental and physical health outcomes (e.g., rates of low birth weight infants, respiratory hospitalizations, cancer hospitalizations, male life expectancy, mental health prescriptions).
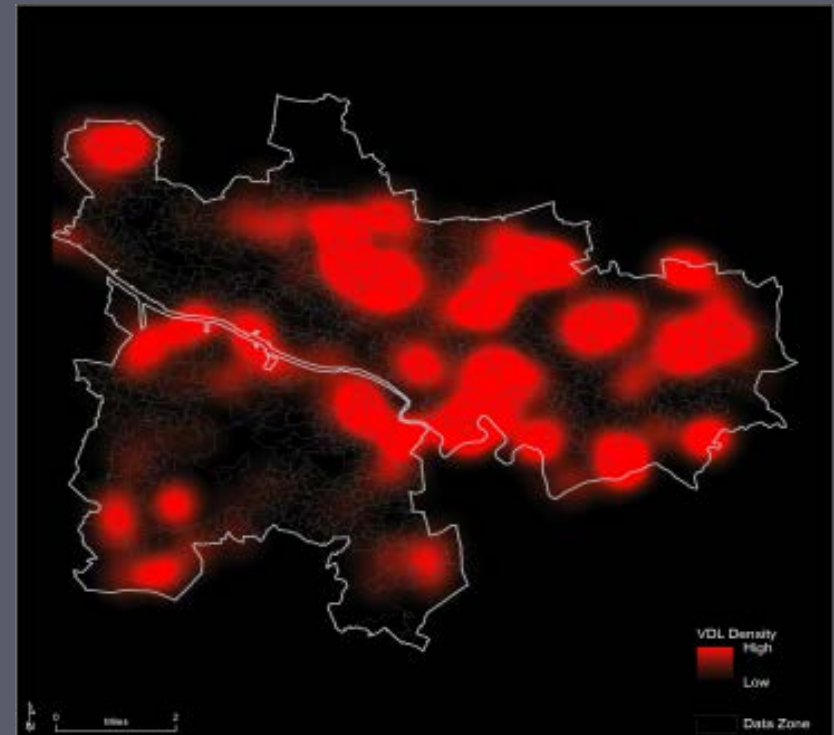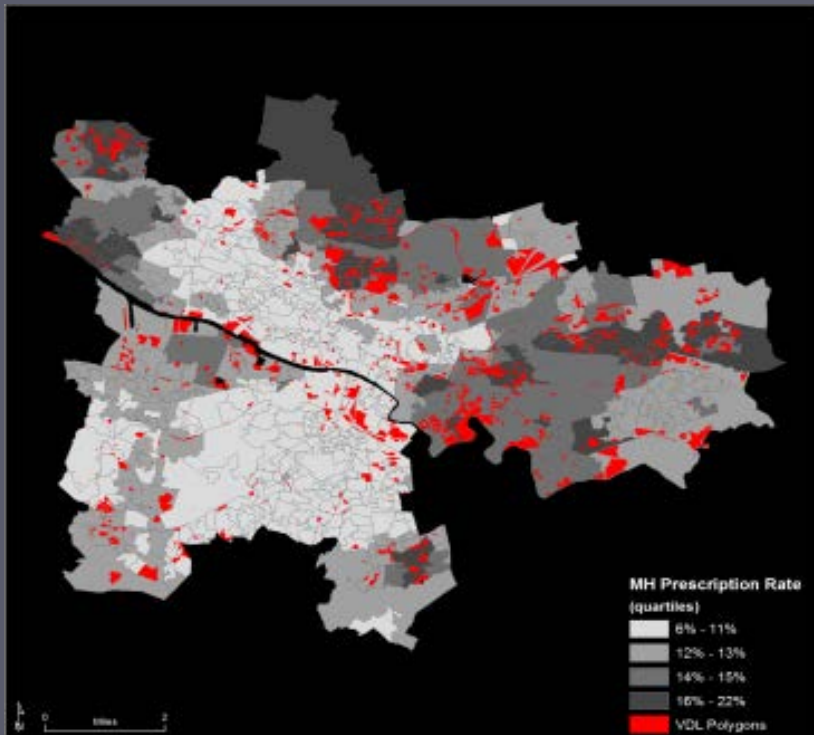
Left: The mental health (MH) prescription rate in Glasgow. Prescriptions are for anxiety, depression, or psychosis. Right: VDL Density surface using Kernel Density Estimation (KDE). From: Maantay and Maroko, 2015.

These findings point to a good reason to transform neighborhoods' VDL from a potential environmental stressor to a positive environmental benefit for the proximate populations, such as community gardens, active and passive recreational space, linkages for ecological networks, urban reforestation, and other green uses.

"Our Land: Why is so much of Glasgow derelict?" Examples of VDL in Glasgow.

Case Study Examples of Urban Greening:

Community Gardens in Brooklyn, NY
(example of community-led greening)

High Line Park, NYC
(example of hybrid non-profit/government-led greening)

Community Gardens in Brooklyn, NY

New York City Community Gardens

Benefits of Community Gardens:

- Urban Agriculture – healthy food production, and for produce not available commercially
- Locus of youth and environmental programs
- Cultural events
- Space for performing arts
- Inter-generational activities
- Inter-racial cooperation
- Knowledge transfer
- Means of political and social empowerment
- Interdisciplinary role in promoting sense of place
- Focus for communities with little access to safe parks or recreational space in close proximity

Background of Environmental Gentrification Problematic:

As in Glasgow, much of NYC's vacant land is located in the poorer neighborhoods. A major issue in NYC with re-use of vacant and derelict land for development is the displacement of poor people through gentrification. Ironically, this has often occurred in areas where community gardens have improved property values sufficiently to interest developers in investing in the neighborhood, whereby the community rightfully feels as though their hard work has sown the seeds of their own destruction. *(From: Maantay, 2013)*

Photos from the Museum of Reclaimed Urban Space (MORUS)

Community Gardens and Gentrification in Brooklyn, NY

Vacant land in lower-income areas is often improved by the existing community through the creation of community gardens, but this contributes to greening efforts and paradoxically may spur gentrification and subsequent displacement of the gardens' stewards and neighbors.


Local residents preparing raised beds for vegetables in Brooklyn, NY community garden site.
Image from
The New York Times, 2012, "Turning Unused Acres Green," by John Leland.

Corner lot community garden in South Williamsburg, Brooklyn, NY

"Is proximity to community gardens in less affluent neighborhoods associated with an increased likelihood of gentrification?"

Using Brooklyn, New York as a case study, we examined this question using Geographic Information Systems and two spatial methods: a census block group proximity analysis, and a hot spot analysis, to determine the potential impact of proximity to community gardens in lower-income areas. The results of the analyses suggest that proximity to community gardens is associated with significant increases in per capita income over the five year study period, which is indicative of areas undergoing gentrification. This has implications for environmental justice because existing lower-income residents are likely to be displaced after their community is improved environmentally.
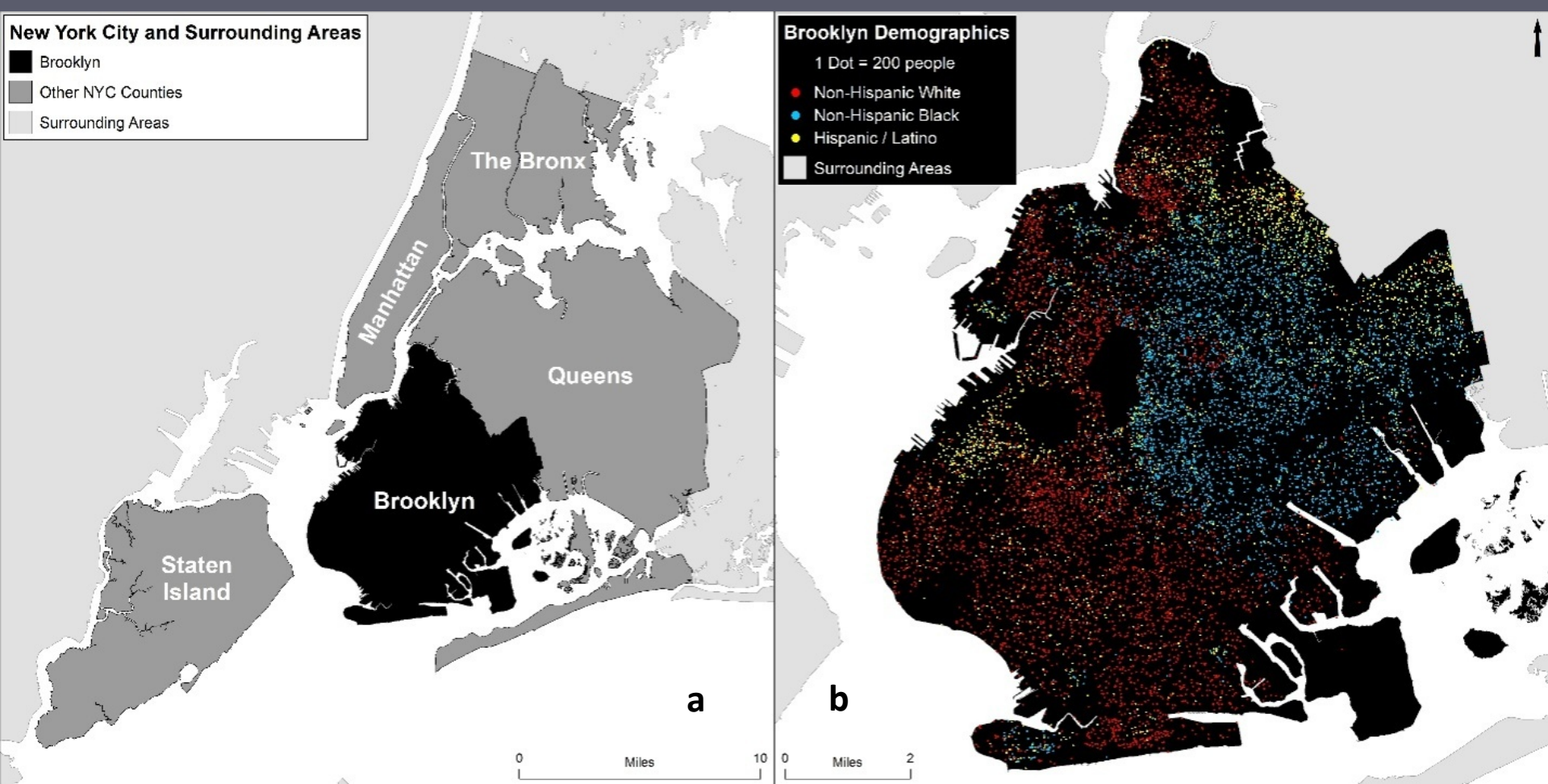
Map (a) Location of Brooklyn, NY within New York City; and **Map (b)** race and ethnicity distribution in Brooklyn (2010).
Brooklyn has 2.6 million residents (36% NHW, 33% NHB, 20% Hisp).
Although New York City, and Brooklyn in particular, is extremely diverse socio-demographically, it is also still quite segregated.
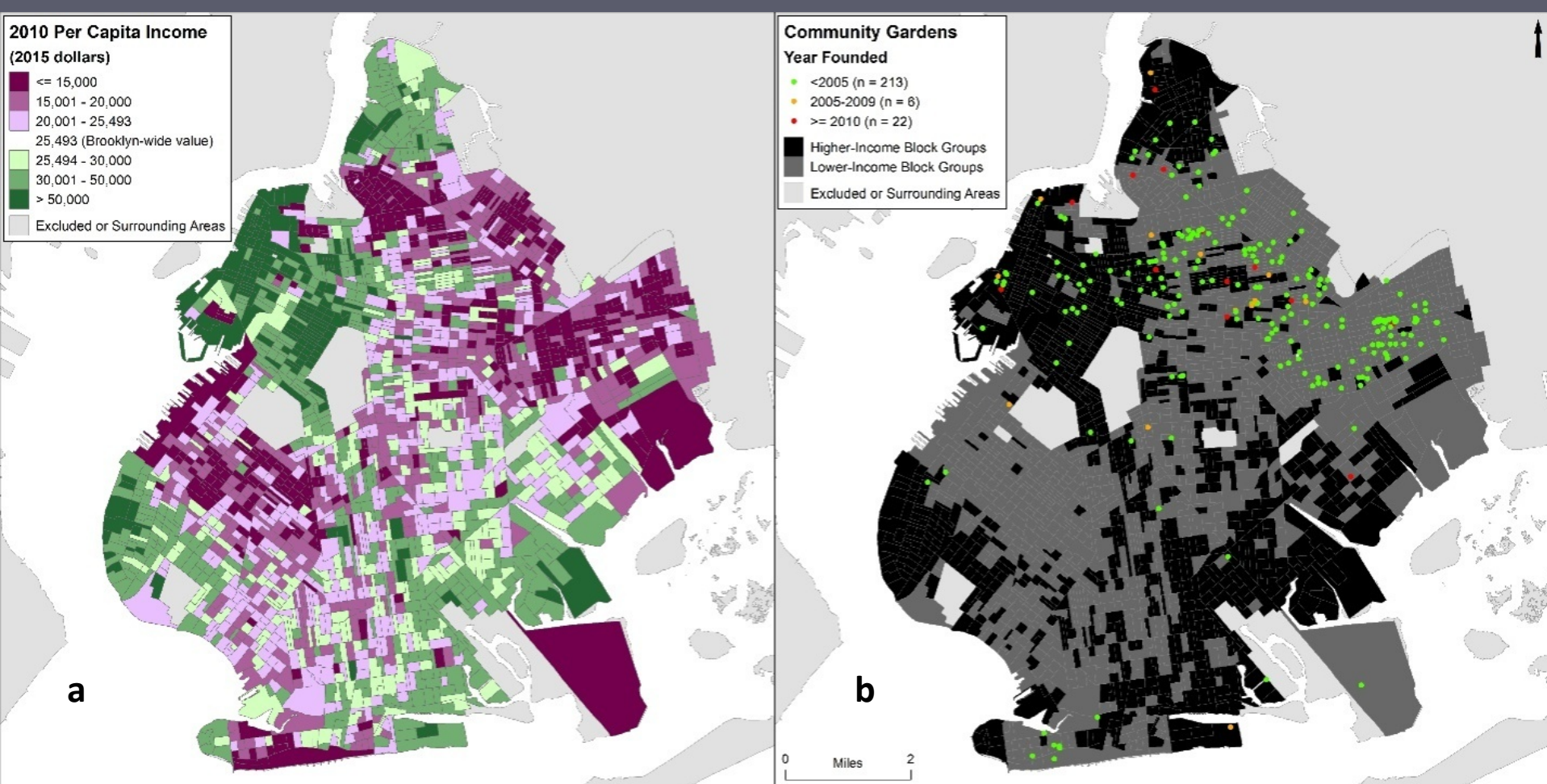
Map (**a**) Per capita income (2010) in Brooklyn, NY, with colors diverging from the Brooklyn-wide per capita income estimate ($25,493 in 2015-adjusted dollars). **Map (b)** Locations of community gardens shown by year founded and lower-income and higher-income census block groups (2010).
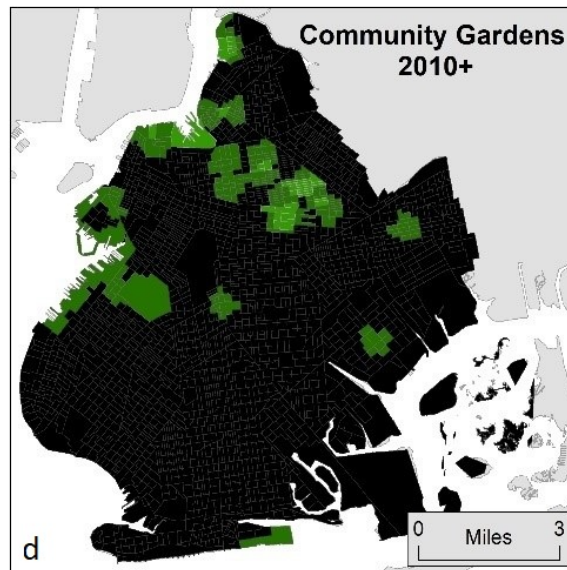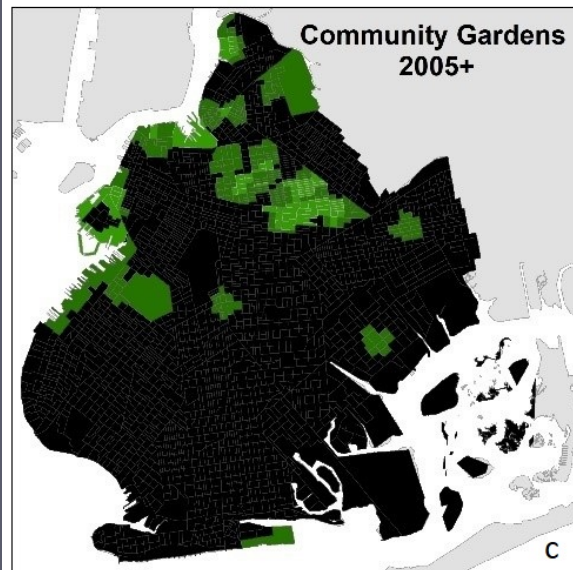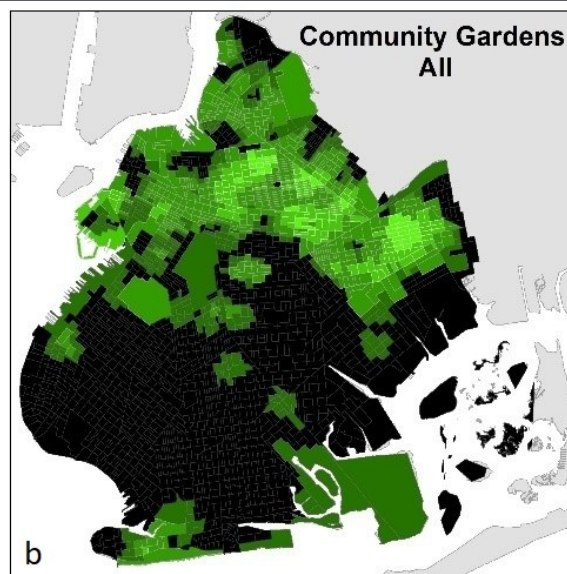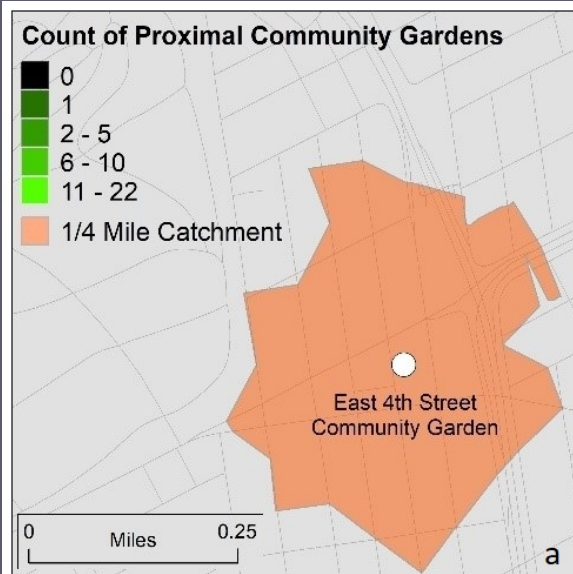
Map (a) The ¼mile pedestrian-accessible catchment area (based on network analysis) around one community garden (East 4th Street Community Garden); **Map (b)** counts of number of community gardens (founded any year) within ¼ mile of each block group; **Map (c)** counts of number of community gardens (founded in 2005 or later) within ¼ mile of each block group; and **Map (d)** counts of number of community gardens (founded in 2010 or later) within ¼ mile of each block group.

Community Garden Hot Spots (All, 2005+, 2010+)

Hot Spot (>= 95% Confidence)
Brooklyn
Surrounding Areas
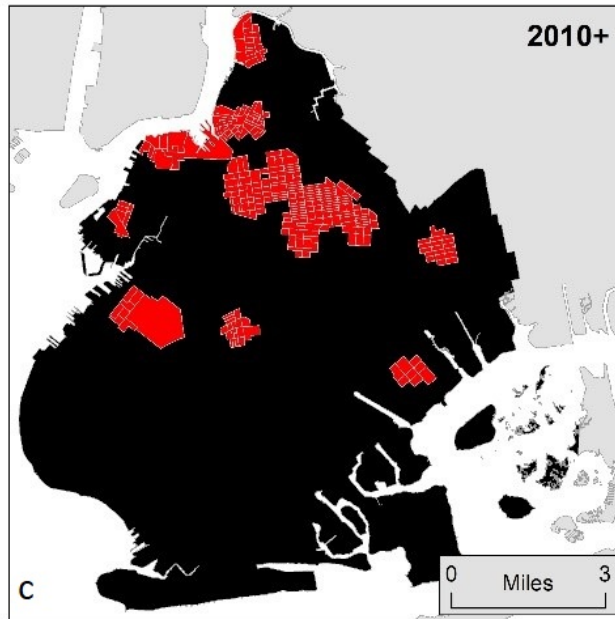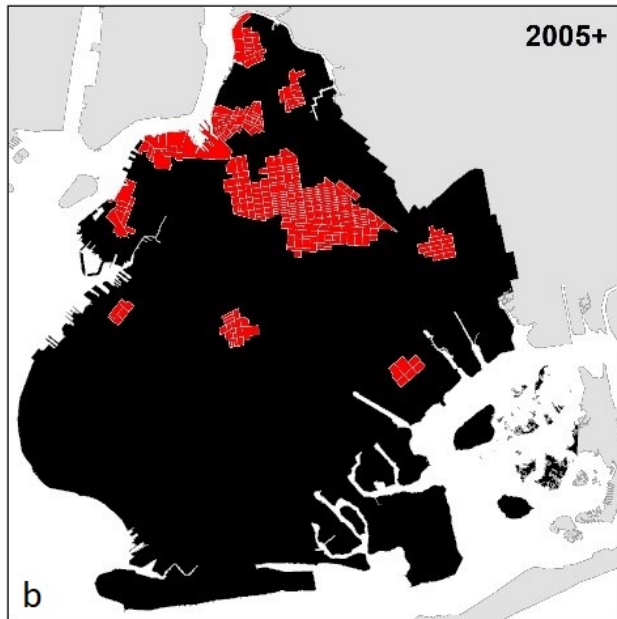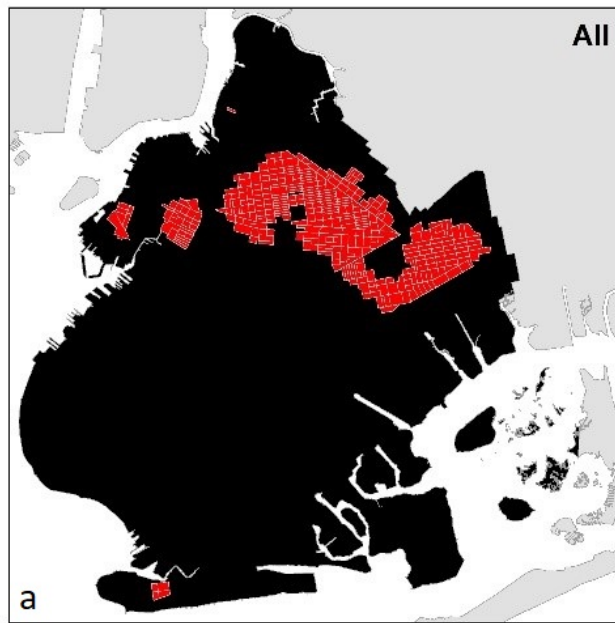
Map (a) Hot spots based on number of proximal community gardens founded any year; **Map (b)** hot spots based on counts of number of proximal community gardens founded in 2005 or later; and **Map (c)** hot spots based on counts of number of proximal community gardens founded in 2010 or later.

Founding Year	Proximal Community Gardens	Number of Block Groups	Change in per Capita Income	Difference in Per Capita Income Change
All	None	659	$1,214	$1,136
	One or more	525	$2,350	
2005+	None	1018	$1,613	$622
	One or more	166	$2,236	
2010+	None	1039	$1,611	$727
	One or more	145	$2,338	

Population-weighted average change in per capita income (2010–2015) based on ¼ mile proximity to community gardens (CG) for all gardens (all), those founded in 2005 or later (2005+), and those founded in 2010 or later (2010+).
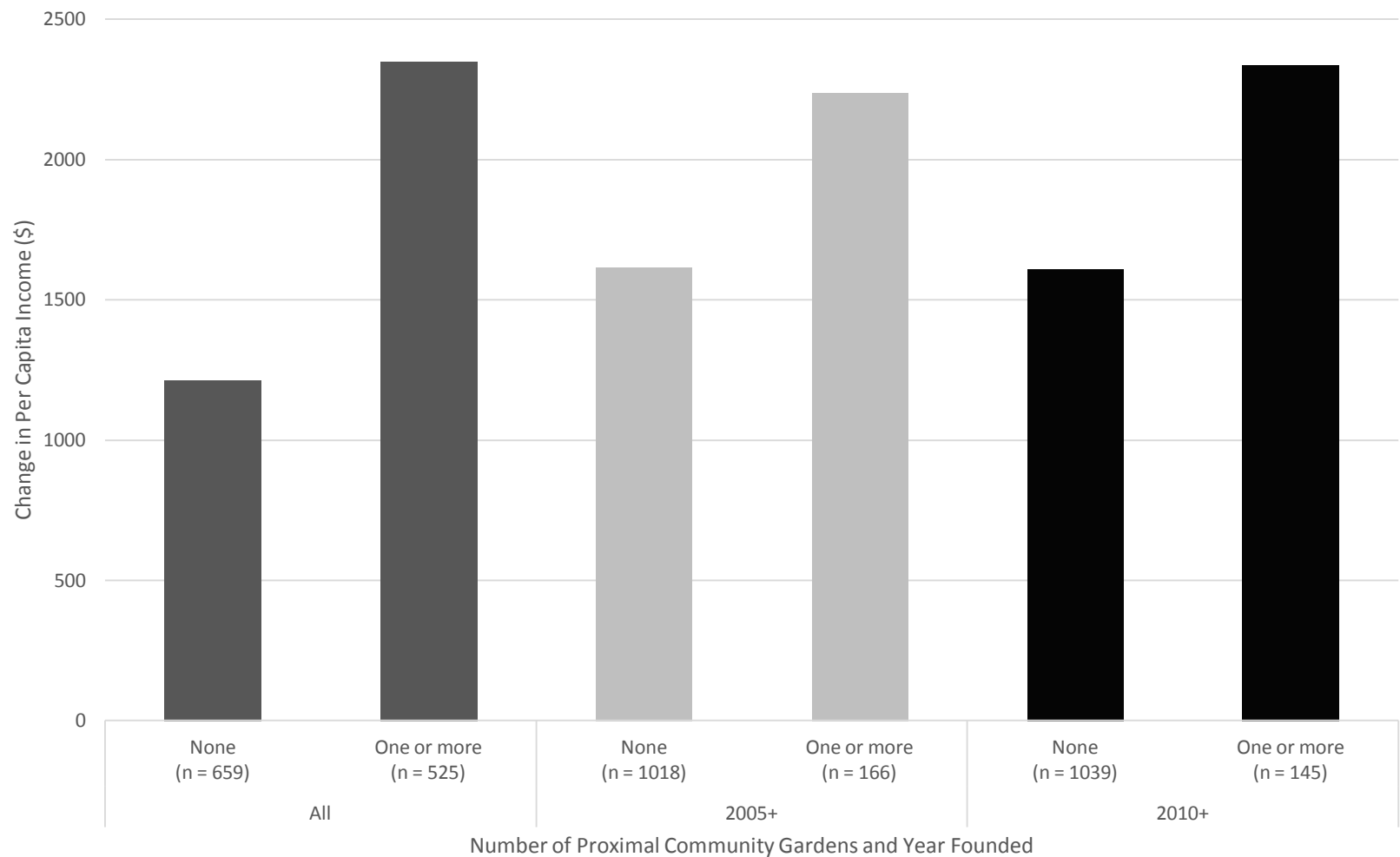
Population-weighted average change in per capita income (2010 –2015) vs. proximity to one or more community gardens. Community gardens were categorized as founded in any year (all), those founded in 2005 or later (2005+), and those founded in 2010 or later (2010+).
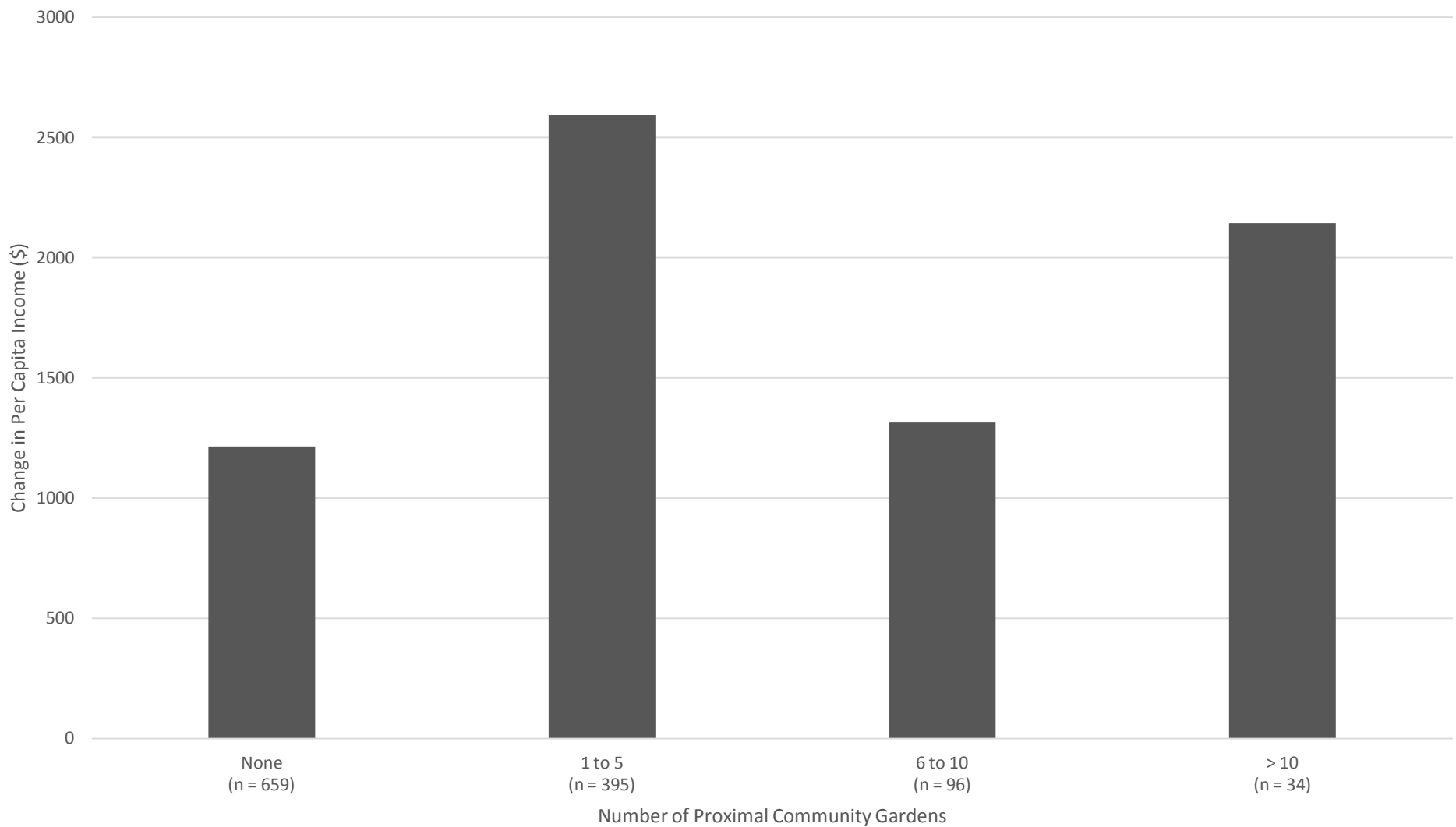
Population-weighted average change in per capita income (2010–2015) vs. number of community gardens proximal to lower-income block groups.

Results:

Block group level *t*-tests suggest that **proximity to one or more community garden is associated with significant increases in per capita income in lower-income census block groups between 2010 and 2015.** However, that association is considerably weaker and loses significance when only including more recently founded gardens (2005+ and 2010+).

Hot spot analyses (Gi*with confidence ≥ 95%) based on the number of community gardens founded in any year within ¼ mile network distance to census block group did not result in statistically significant *t*-tests with respect to the lower-income block group being located within hot spots and change in per capita income between 2010 and 2015. However, the magnitude of the associations increased, and significance was achieved, when only more recently established community gardens were considered ($p<0.1$ and $p<0.05$ for 2005+ and 2010+, respectively).

Possible Explanations:

▪ Lower-income block groups that are grouped together spatially may be protective against gentrification and as such not show a significant difference in increases in per capita income when compared to lower-income block groups outside of the hot spots.

▪ Gentrification tends to expand from the outer edges inward, or starting adjacent to higher-status areas and diffusing away. Therefore, these larger contiguous areas of lower-income in Brooklyn, even those having proximity to many community gardens, may not be as vulnerable to gentrification, because they are "protected" by the outer extent of lower-income areas.

▪ The gentrification frontier can vary significantly from locale to locale, depending, for instance, upon whether there is a specific revitalization amenity (e.g., a waterfront revitalization project) that may be jump-starting the gentrification process, which then emanates from that location, uni-or multi-directionally.

▪ There may be a "block-by-block micro-geography" in play, resulting in a more fragmented or discontinuous frontier.

▪ Highly segregated neighborhoods versus very ethnically diverse areas also influence the paths that gentrification takes.

▪ The existence of many community gardens within lower-income neighborhoods may reflect (or produce) the relative higher social cohesion in these areas, and as such may be able to help a community resist gentrification. This may also help to explain the non-linear relationship between number of community gardens proximal to a block group and increases in per capita income found in the block group analysis.

# High Line Park, New York City

The High Line was an elevated freight train on Manhattan's lower west side, opened in 1934. It serviced the area's many industrial buildings, warehouses, meat packing district, shipping-related concerns, large-scale bakeries and other food-producing factories, and laboratories, such as Bell Labs. The tracks were not above the streets, but went right through the buildings.

Eventually, as industry and shipping starting leaving the city in the 1950s – 1970s, the freight line became underutilized, and large sections of the elevated structure were demolished. By 1980, the remaining sections were basically abandoned, and the entire line was slated for demolition. Activists/visionaries in the Far West Village proposed preserving the line as a linear park, since the area was deficient in open space.
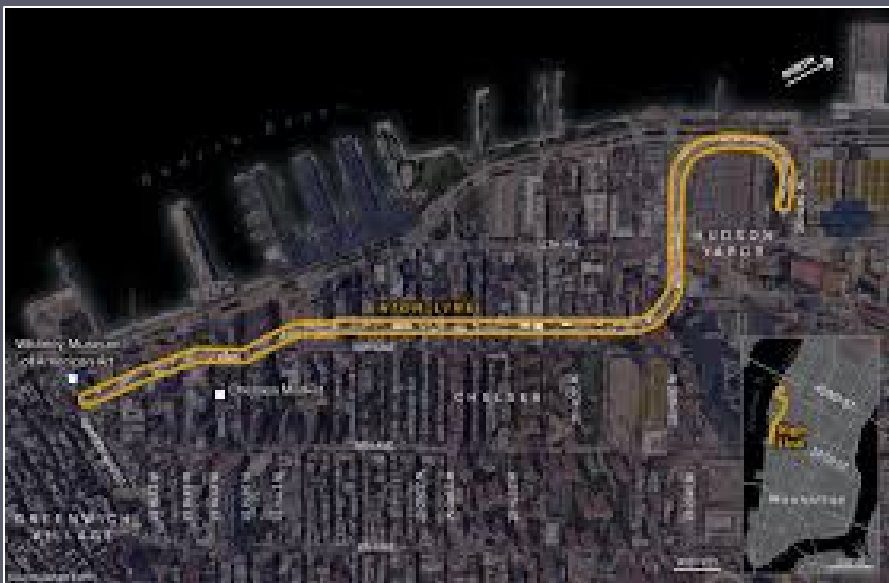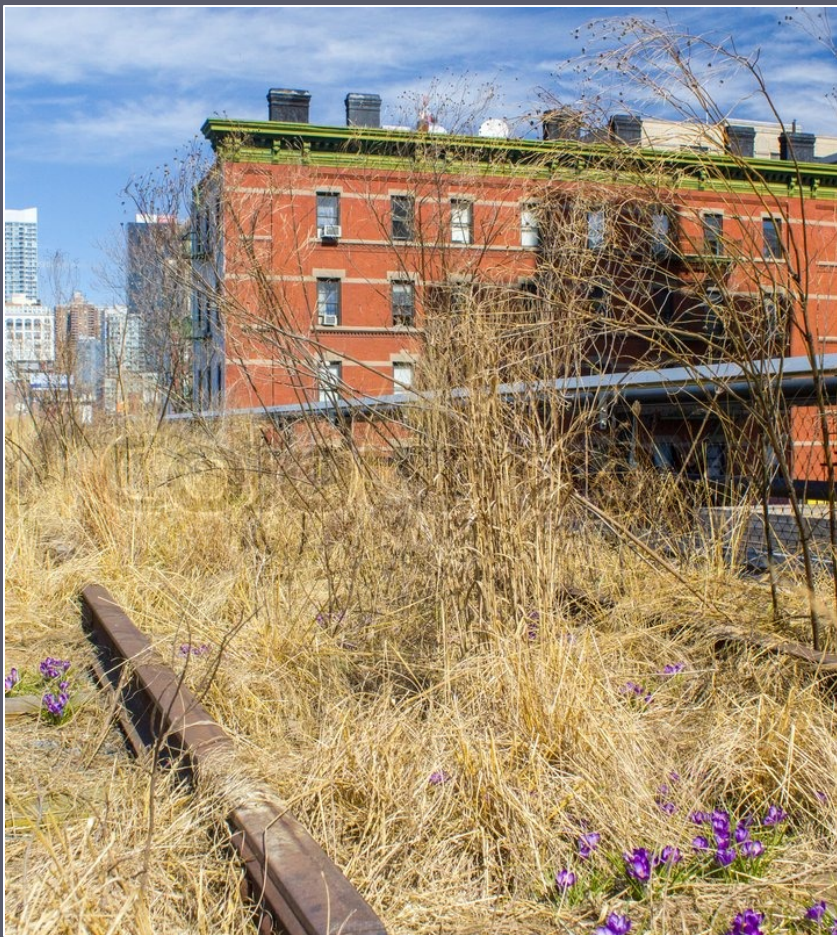
During the 1970s when the line was essentially dormant, through when the first phase of the park was open, access to the High Line was restricted, dangerous, and illegal, but many people got up there anyway to enjoy the rarely seen vistas above the streets of NYC, the breezes off the river, the sense of privacy, and the incredible natural plantings that had taken hold.

The park's designers tried to maintain that feeling of the dis-used High Line, by using extensive native plantings and keeping some of the historic railroad elements, almost as sculptures. New artwork, street furniture and water features were added.

photo of the High Line in 2000 by Joel Sternfeld

High Line Park, weekday afternoon views

From: Maantay. J.A., Maroko, A.R., Anguelovski, I., and Connolly, J., 2019. The Paradox of Urban Greening. *International Journal of the Constructed Environment*.   Photos by Authors.
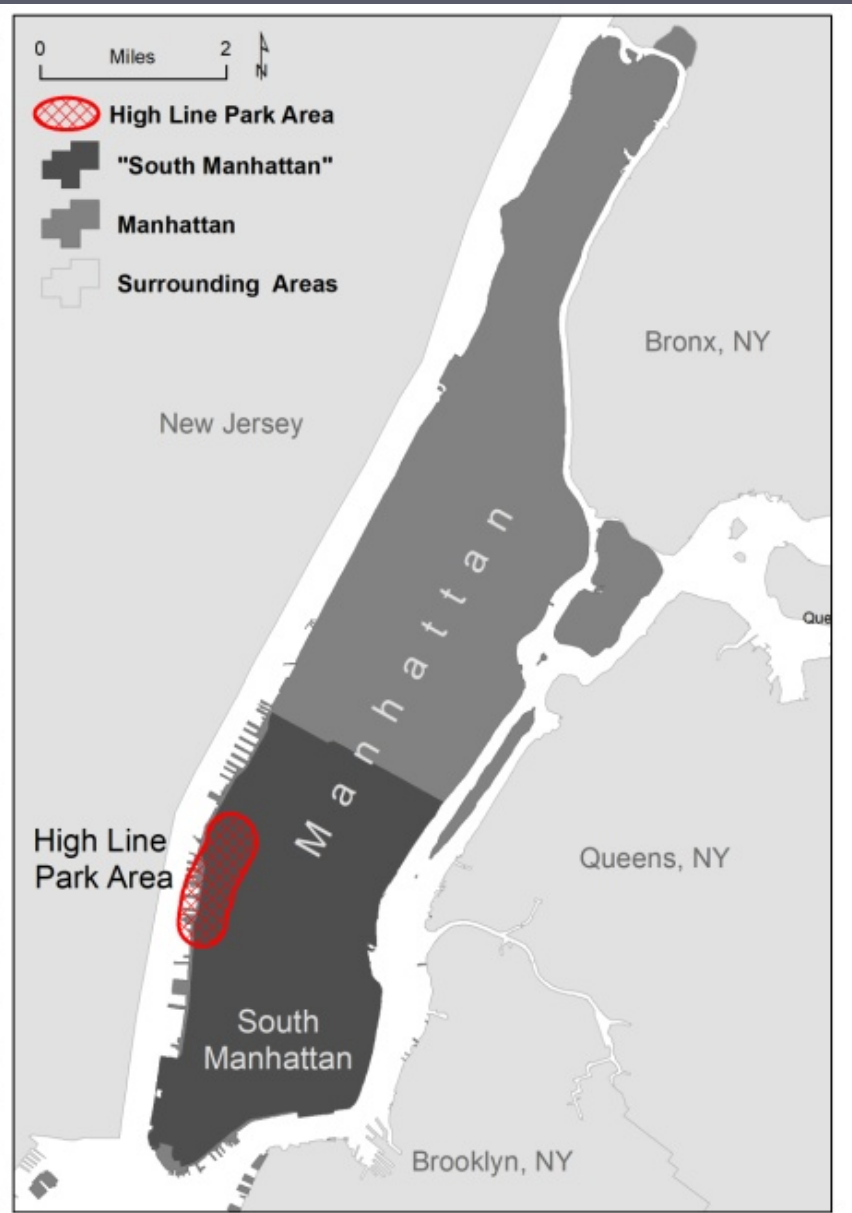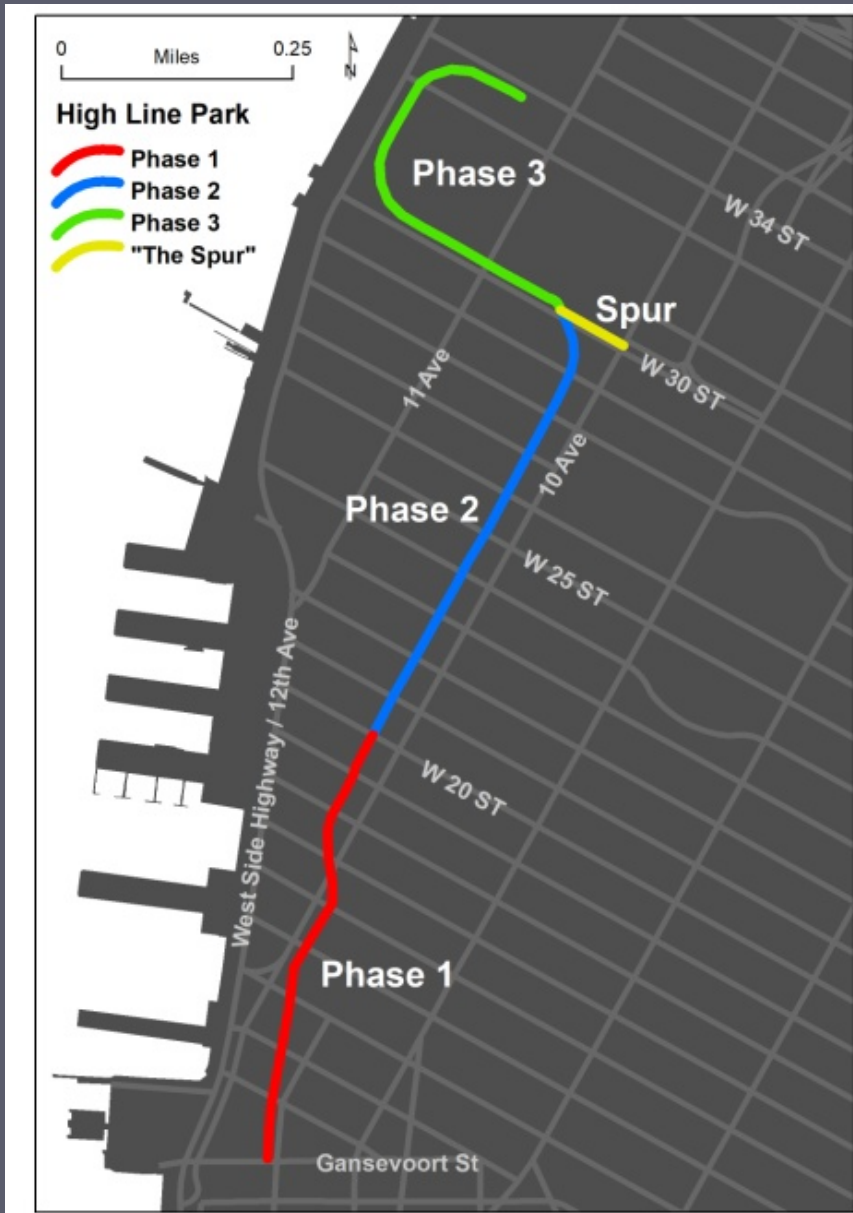
Phase 1 opened in 2009; Phase 2 in 2011; Phase 3 in 2014; and The Spur in 2019. The High Line study area was compared to the rest of South Manhattan, and to Manhattan as a whole.

	Population, 2009	Population, 2015	Per Capita Income, 2009 (adjusted)	Per Capita Income, 2015	Change in Per Capita Income	Percent Change in Per Capita Income
High Line Park Study Area (Phases 1 & 2)	42,690	43,391	85,308	96,330	11,022	12.92
South Manhattan Excluding Study Area	562,245	568,623	77,379	80,184	2,805	3.62
South Manhattan	604,935	612,014	77,939	81,329	3,390	4.35
Manhattan Excluding Study Area	1,578,272	1,586,116	65,950	64,136	-1,814	-2.75
Manhattan	1,620,962	1,629,507	66,460	64,993	-1,467	-2.21

Per Capita Income

- □ <= 15,000
- □ 15,001 - 25,000
- □ 25,001 - 50,000
- □ 50,001 - 75,000
- □ 75,001 - 100,000
- □ 100,001 - 125,000
- □ > 125,000
- □ No Data

○ High Line Park Area

■ High Line Park (phases 1 & 2)

0   Miles   0.25

2005-2009

2011-2015
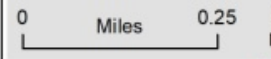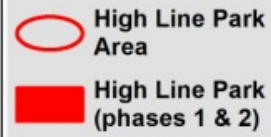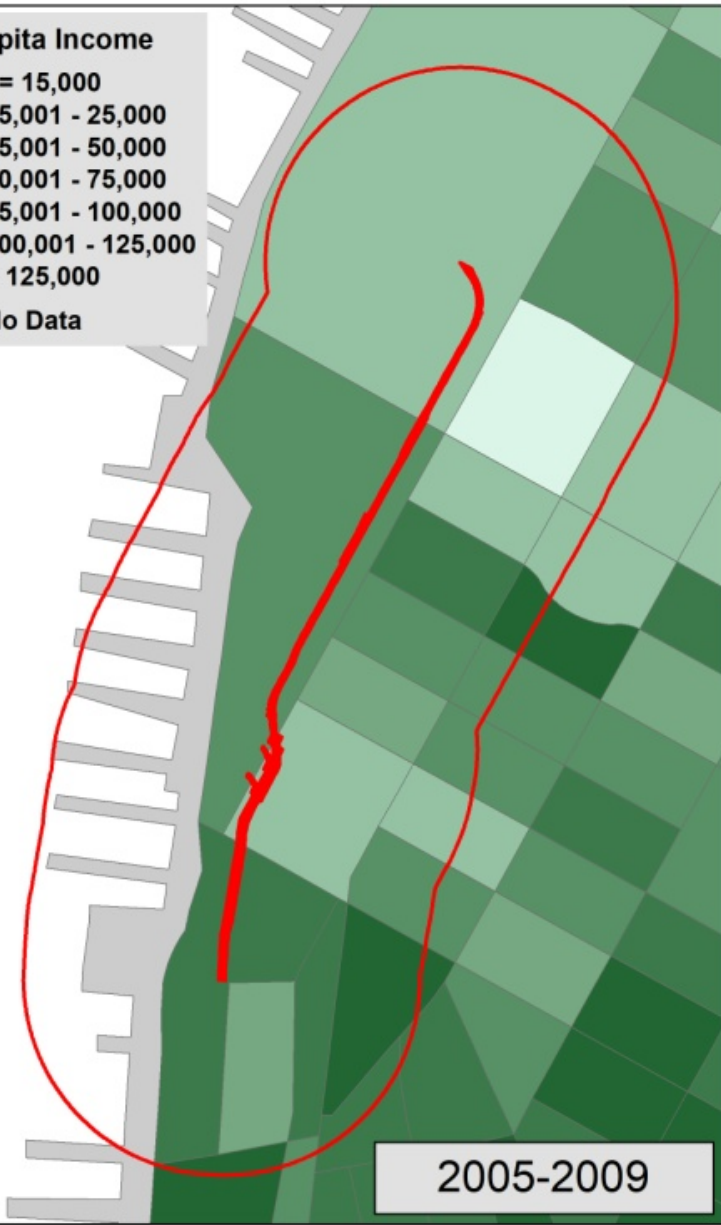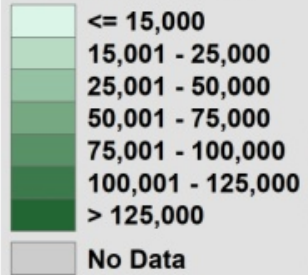
High Line Architecture - NYCSTUDIOARCH

http://cargocollective.com/Uofanycstudioarch/HIGH-LINE-ARCHITECTURE

High Line Park: From triumph of urban design for the city to local community dis-amenity?

When it was originally conceived and built, the park was hailed as a great example of innovative design and considered a welcome addition to the neighborhood. Planners, landscape architects, horticulturalists, urbanists, and others from all around the world, visited the park and reviewed it favorably, which inspired ordinary tourists to visit as well, wanting to experience NYC's newest wonder.

However, the park was becoming a victim of its own success, and many locals found it unpleasantly crowded and unwelcoming to the nearby community residents, many of whom felt they had not be included in the park's needs assessment and design. Criticism, questioning, and a growing sense of disaffection and dissatisfaction with the High Line Park began to seep into the discussion of the previous accolades from urban designers and planners. Even before the park was open, it started to impact the surrounding area and instigated significant real estate development interest, creating new up-scale hotels and luxury residential towers by celebrity architects.

Questions to be considered for future research:

Are community gardens part of the "just green enough" approach to hindering gentrification, or do community gardens in fact help instigate gentrification?

Can we have environmental justice with regards to adequate community green space in less affluent areas without the adverse impacts of gentrification on these communities?

Do "greener" cities become more unjust? Who benefits from the "green"? Who is potentially harmed by it?

If some amount of gentrification is unavoidable, how can we best cope with it to assure an acceptable environmental justice outcome?

Some recommendations:

• Greening efforts and urban sustainability initiatives need to incorporate social equity goals as a major component of any project.

• Government needs to significantly contribute to the effort towards social equity by instituting and implementing policies that stabilize communities and prevent rapid gentrification, by means of:

• Affordability protections for residents and businesses;

• Anti-gentrification rental controls;

• Accommodations within zoning ordinances to prevent new development inappropriate to the existing context of the neighborhood;

• Encourage conscious restorations and rehabilitating of existing older housing stock;

• Financial incentives for homeowners and landlords to do so, with built-in protections for existing residents;

• Mixed use zoning and human-scaled buildings;

• Smaller development projects at scattered sites rather than large mega-projects;

• New housing types geared toward existing populations of families (larger dwelling units, fewer studios and one bedrooms);

• Limited equity "co-operative" housing;

• Incorporating "nature" more seriously into all urban planning, in all parts of the city and not just as an afterthought or as part of a profit-making scheme.

Final Thoughts:

"A sustainable development paradigm that addresses the social imperative of sustainable community development in the form of equity and livability should not be building sustainable neighbourhoods for only the higher-income subsection of the population either passively or actively through the displacement of lower-income families. **Sustainable development, if it is actually to be sustainable, should not be for some, but for all.**" From: Dale, A. and Newman, L.L. 2009. Sustainable development for some: Green urban development and affordability. *Local Environment 14*, (p. 679).

"The goal should be for the regeneration of neighborhoods through revitalization, rehabilitation, and/or replacement of aspects of the physical environment that are not working well, including housing stock and environmental amenities, but without the replacement of the people who live there."

From: Maantay, J.A.; and Maroko, A.R. 2018. Brownfields to Greenfields: Environmental Justice versus Environmental Gentrification. *International Journal of Environmental Research and Public Health 15,* 2233 (p. 13).

Case Study Publications:

Maantay, J.A., and Maroko, A.R., 2018. Brownfields to Greenfields: Environmental Justice Versus Environmental Gentrification. *International Journal of Environmental Research and Public Health,* 15, 2233; 17 pages.

Maantay. J.A., Maroko, A.R., Anguelovski, I., and Connolly, J., 2019. The Paradox of Urban Greening. Under Review, *International Journal of the Constructed Environment*.

Selected References:

Anguelovski, 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, 23–36.

Curran, W.; Hamilton, T., 2012. Just green enough: Contesting environmental gentrification in Greenpoint, Brooklyn. *Local Environment,* 17, 1027–1042.

Gould, K.; Lewis, T*., 2017. Green Gentrification: Urban Sustainability and the Struggle for Environmental Justice*. Routledge: Oxon, UK.

Maantay, J.A., 2013. The collapse of place: Derelict land, deprivation, and health inequality in Glasgow, Scotland. *Cities and the Environment*, 6, 54 pages.

Maantay, J.A.; Maroko, A.R., 2015. 'At-risk' places: Inequities in the distribution of environmental stressors and prescription rates of mental health medications in Glasgow, Scotland. *Environmental Research Letters,* 10, 17 pages.

Maantay, J.A.; Maroko, A.R., 2018. Brownfields to Greenfields: Environmental justice vs. environmental gentrification. *International Journal of Environmental Research and Public Health*, 15, 2233, 17 pages;

Pearsall, H., 2010. From brown to green? Assessing social vulnerability to environmental gentrification in New York City. *Environment Planning C,* 28, 872–888.

Contact information:

Email:
Juliana.maantay@lehman.cuny.edu

Faculty Web page:
http://www.lehman.edu/academics/eggs/fac-maantay.php

GISc Program:
http://www.lehman.edu/academics/eggs/MS_GISc.php

Earth, Environmental, and Geospatial Sciences Dept. – GISc Program