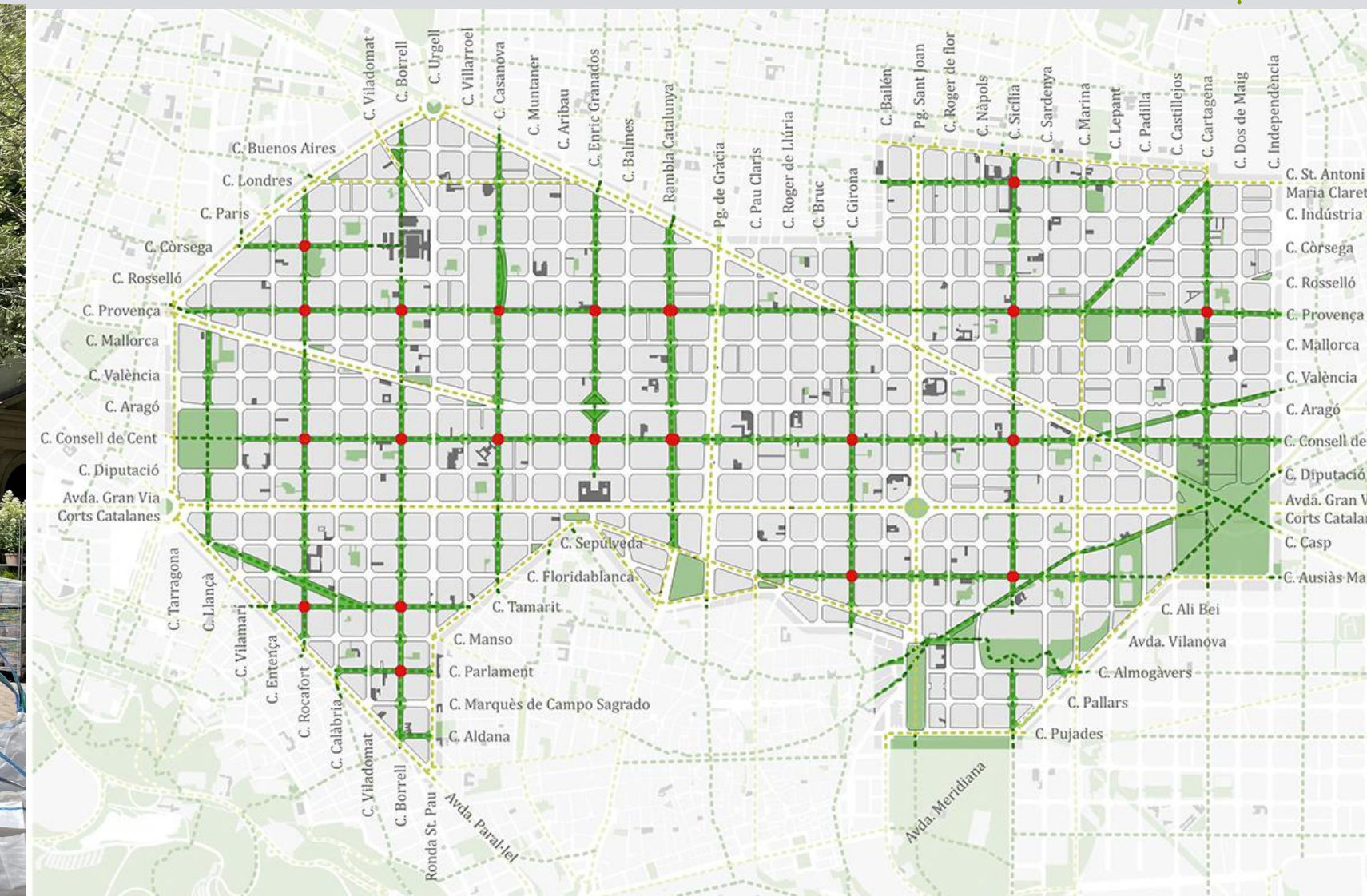


# Tracing, Predicting, and Preventing Green and Climate Gentrification

Isabelle Anguelovski, ICREA Research Professor





To what extent does green resilient infrastructure address climate justice needs rather than reproduce existing inequalities?



# Urban climate injustices

Socially vulnerable groups

Have contributed least to CC

Are most exposed to impacts

Have fewer means to adapt

Are more displaced by climate resilient infrastructure

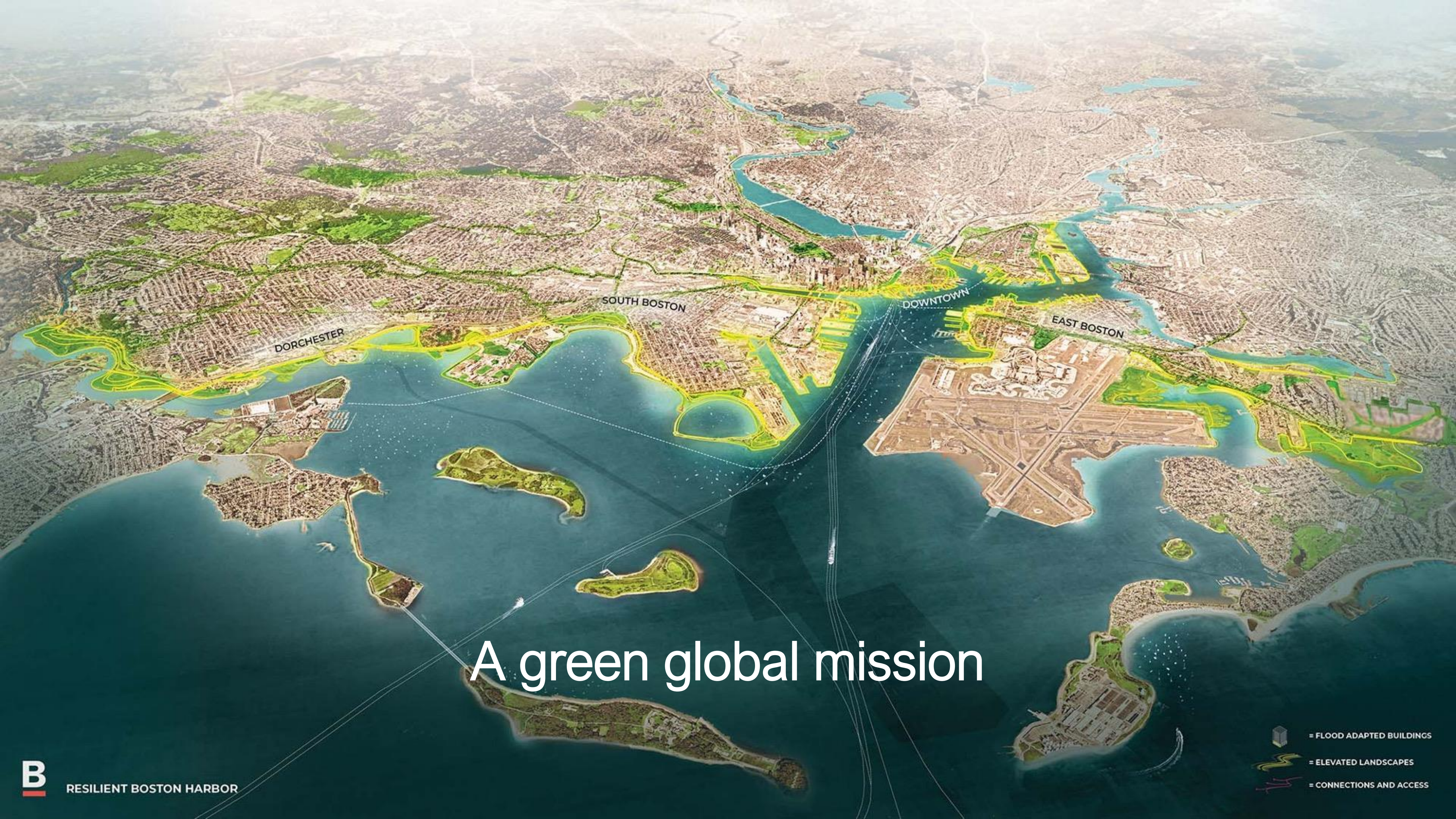




Cities are increasingly adopting green infrastructure for their multifunctionality and their low-cost climate solutions (Meerow 2019; Shokry et al 2020)







# A green global mission





Vancouver, Canada



Amsterdam, Netherlands



Reykjavik, Iceland



Oslo, Norway



Copenhagen, Denmark



Portland, United States



Frankfurt, Germany



Zurich, Switzerland



Curitiba, Brazil



Singapore



But for whom in the mid and long term?

To what extent are intersectional current and mid-term structural health and climate vulnerabilities accounted for?







## A Green Paradox

Dividing access to protective nature  
through displacement and segregation



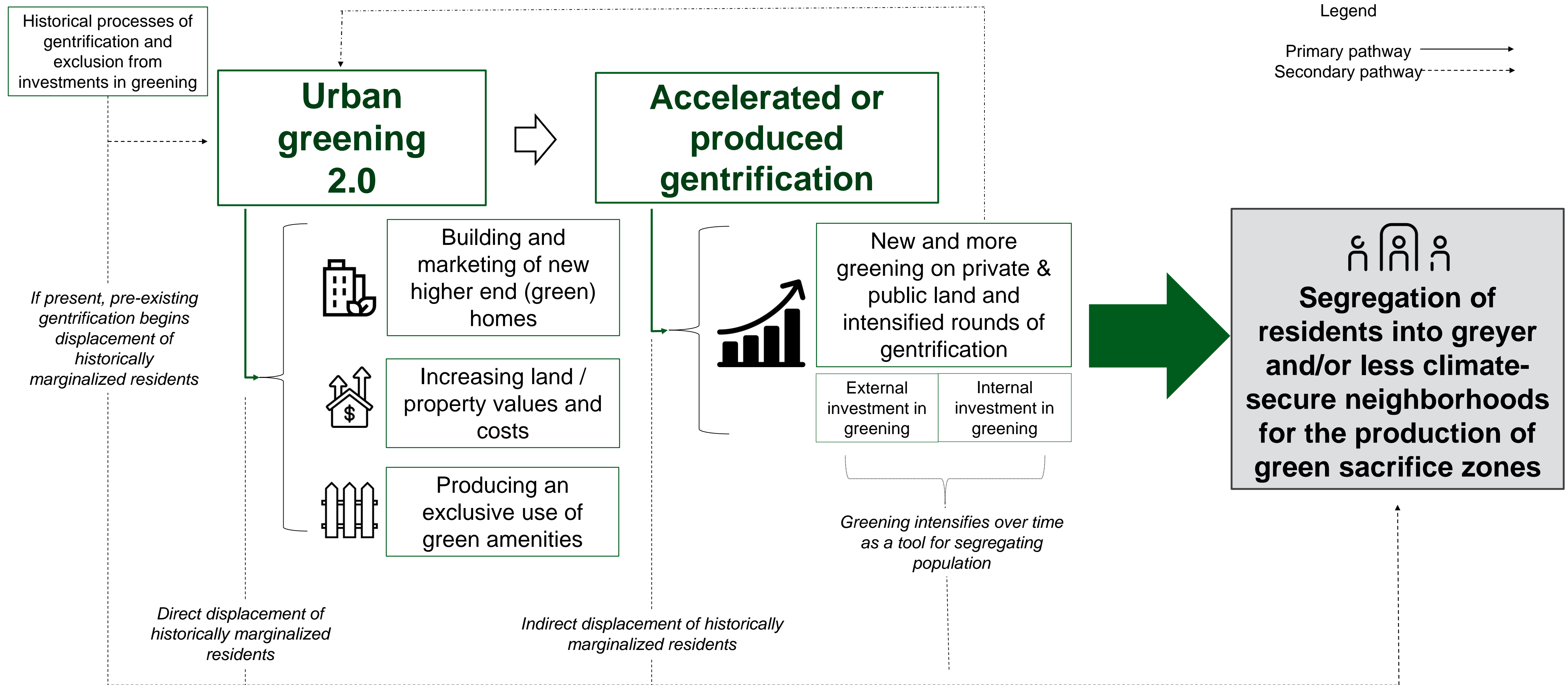
# Tracing green gentrification



**Overall Relationship:** New greenspaces built in a certain time period are statistically significant for predicting gentrification in a later time period







# Why green gentrification makes greening a tool for segregating



**High association between high levels of urban green branding and high levels of unaffordability in cities in North America and Europe**

Limited elite access to the benefits of greening associated with economic growth

Garcia Lamarca et al 2021



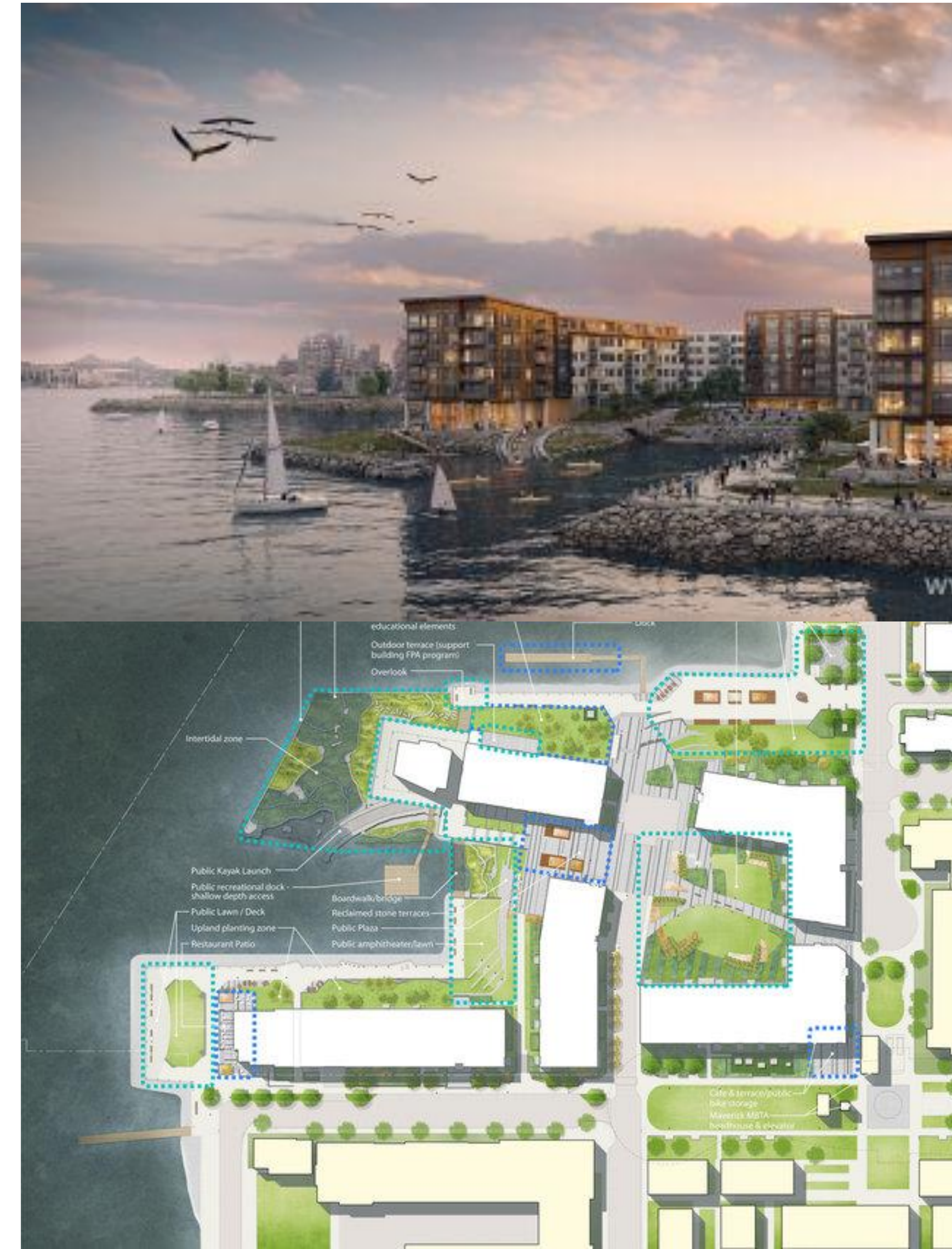


# Investors' green turn and urban green grabbing

“Green” discursive and material value appropriation and rent extraction strategies:

- Extraction of new financial and aesthetic value
- Guarantee of value and credibility to (high-end) investors and consumers
- Appropriation of social, societal, and health benefits

Garcia-Lamarca et al. 2022





<b>Subsidiary Green Gentrification</b>
Detroit Philadelphia Washington D.C.

<b>Integrated Green Gentrification</b>
Barcelona Boston Denver Edinburgh San Francisco Seattle

<b>Lead Green Gentrification</b>
Atlanta Austin Copenhagen Louisville Milwaukee Montreal Nantes Vancouver





# Tracing and Predicting climate gentrification



Exclusive climate protection, maladaptation,  
and unequal green climate security



# Quantitative Approach

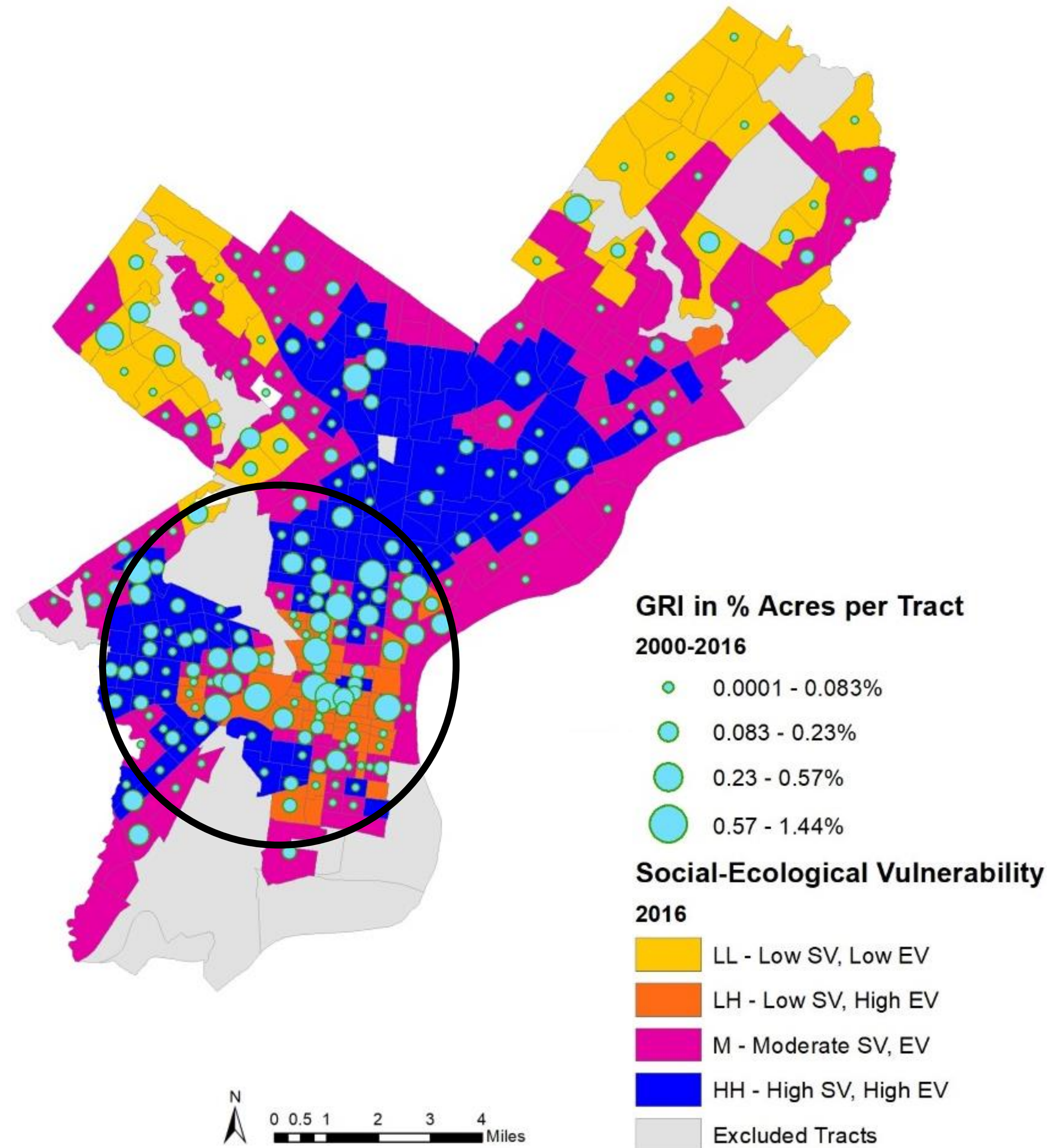


# ”Green” climate gentrification

Working class and racialized minorities are among the social groups most likely to experience residential and social displacement—in the short and mid-term—from green climate infrastructure and its associated gentrification risks (Anguelovski et al, 2019)

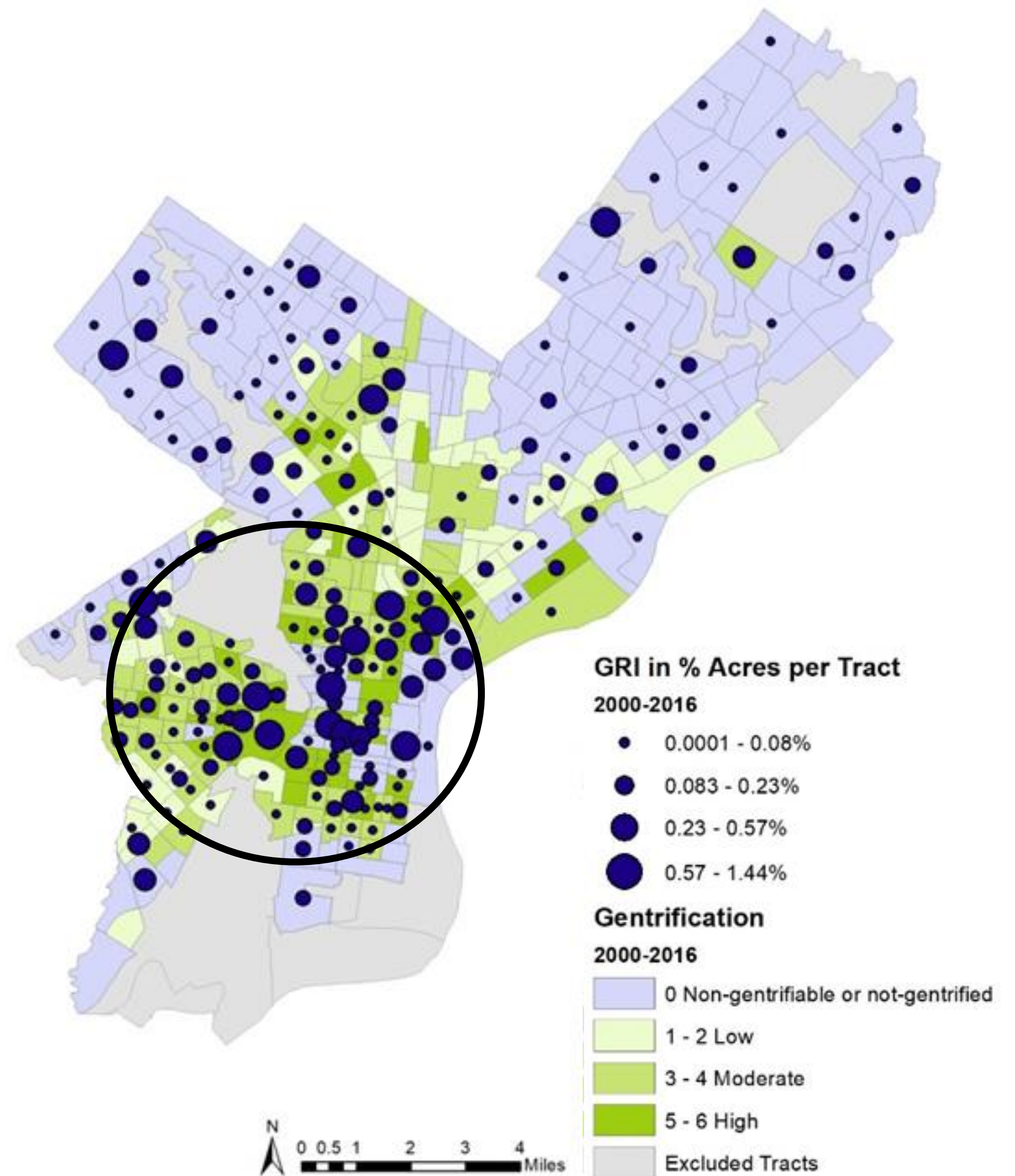


Most GRI is concentrated in areas with higher **ecological vulnerability** but not in areas with higher social vulnerability, nor with high social and ecological vulnerability



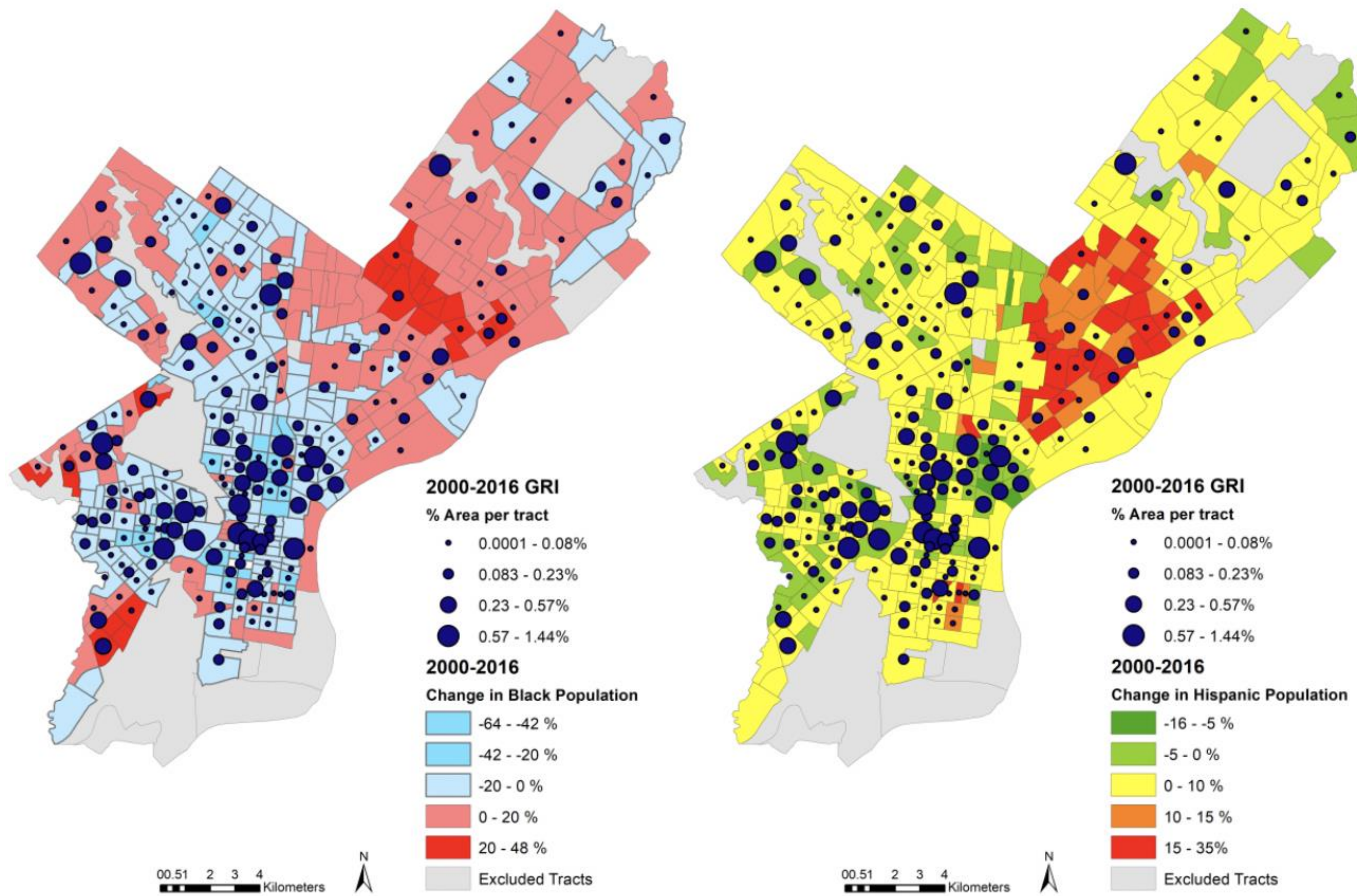


Tracts with higher gentrification scores are also those with a greater amount of GRI



Significant at  $p < 0.01$  for GRI to Gentrification score



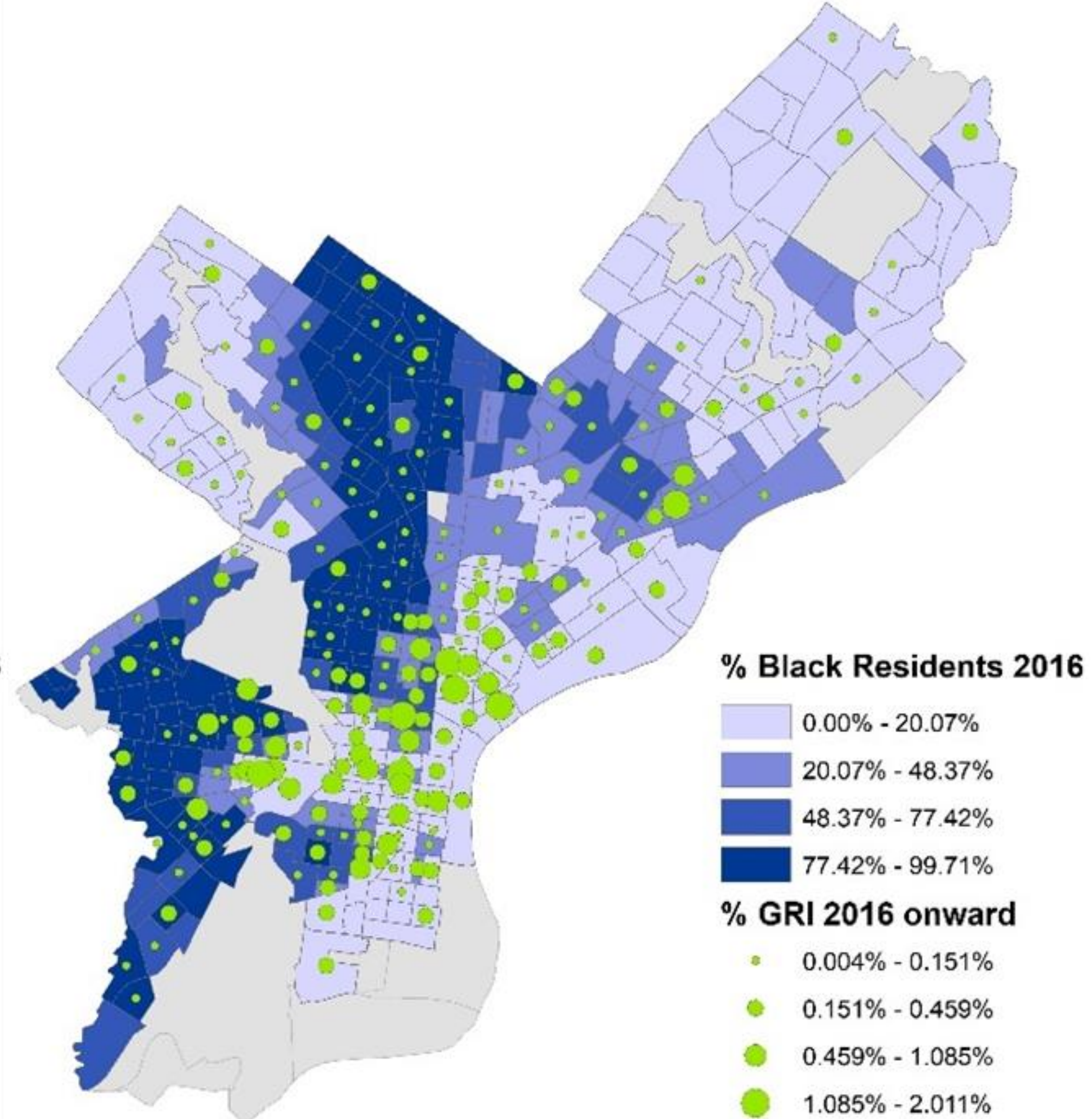
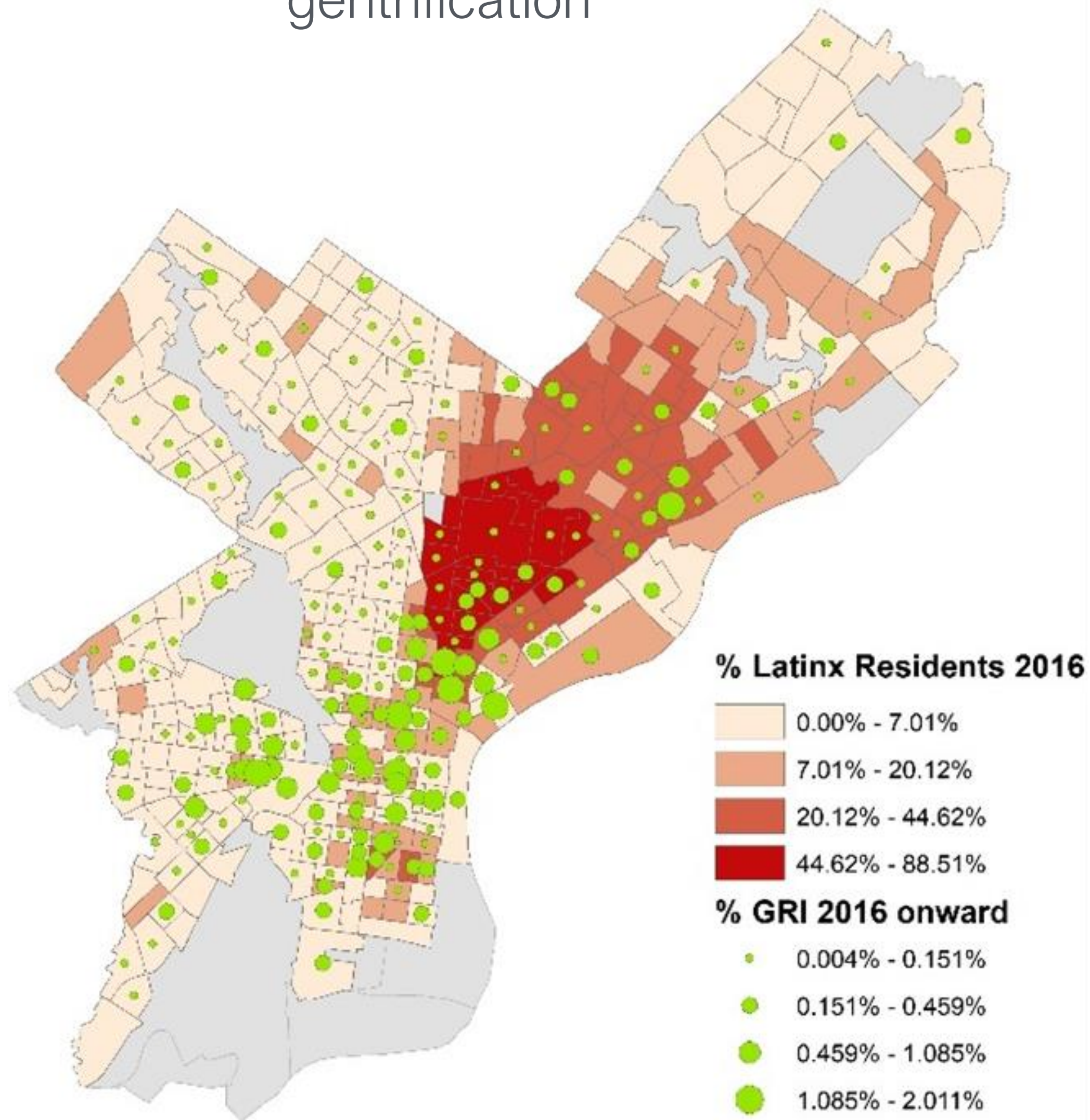


GRI and Change in minority residents, Black (left) and Hispanic (right), 2000-2016 -



Predominantly **LatinX neighborhoods** positively correlated with AC factors but also with low to moderate gentrification

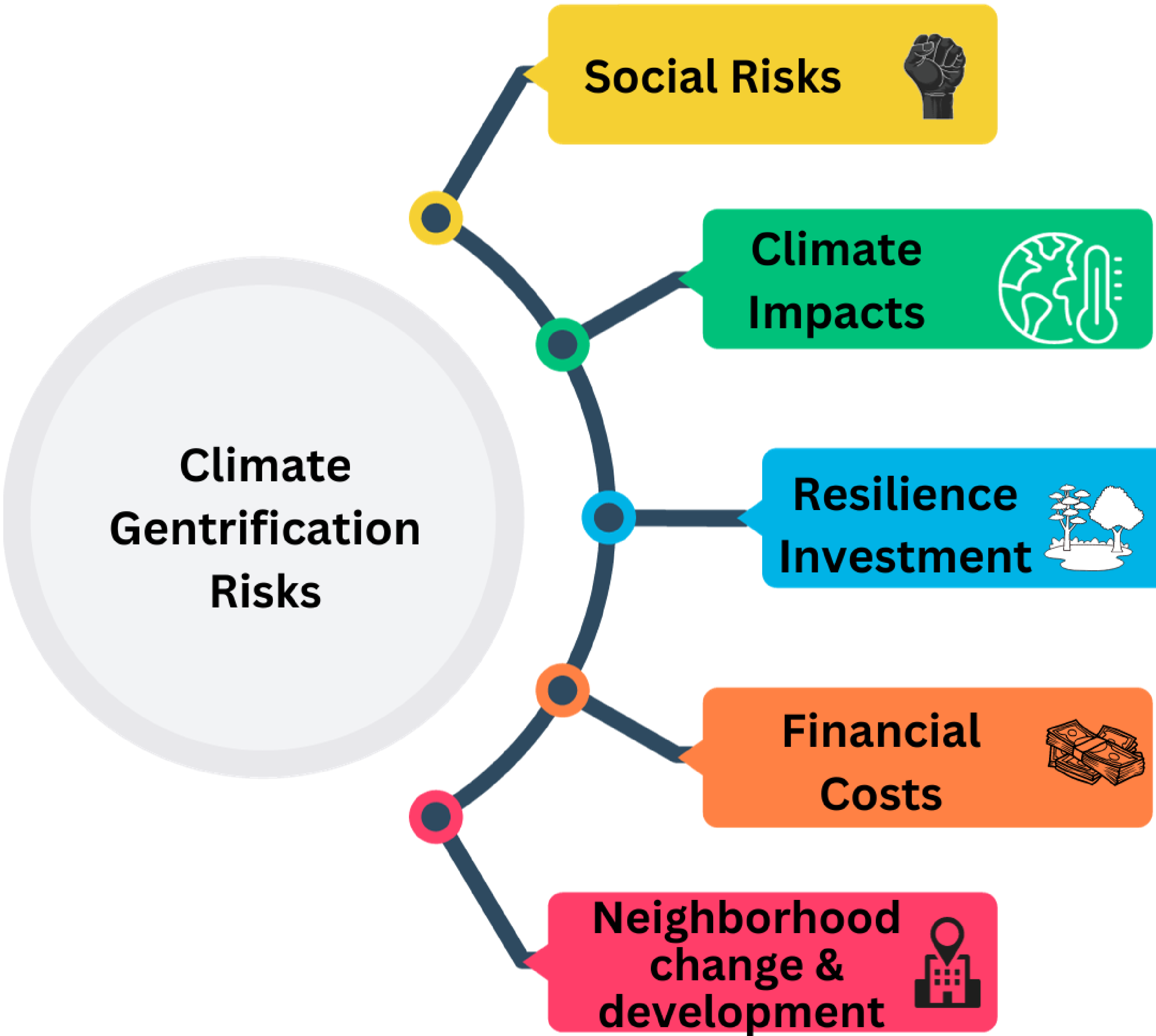
**Black neighborhoods** more strongly associated disinvestment or needs and infrastructure mismatch





# Mixed Approach







# Neighborhood vulnerability to climate gentrification through quantitative and community-engaged research

Predicting area vulnerability to green climate gentrification

Quantitative analysis

Expert Resident Input/Citizen Science

= Exposure + Sensitivity - Adaptive capacity

Climate Impacts GRI



Census tracts recently gentrified

Sensitive social groups  
Financial costs/risks

Neighborhood change and development

Community & public resources

Affordable & public housing



# Qualitative Approach



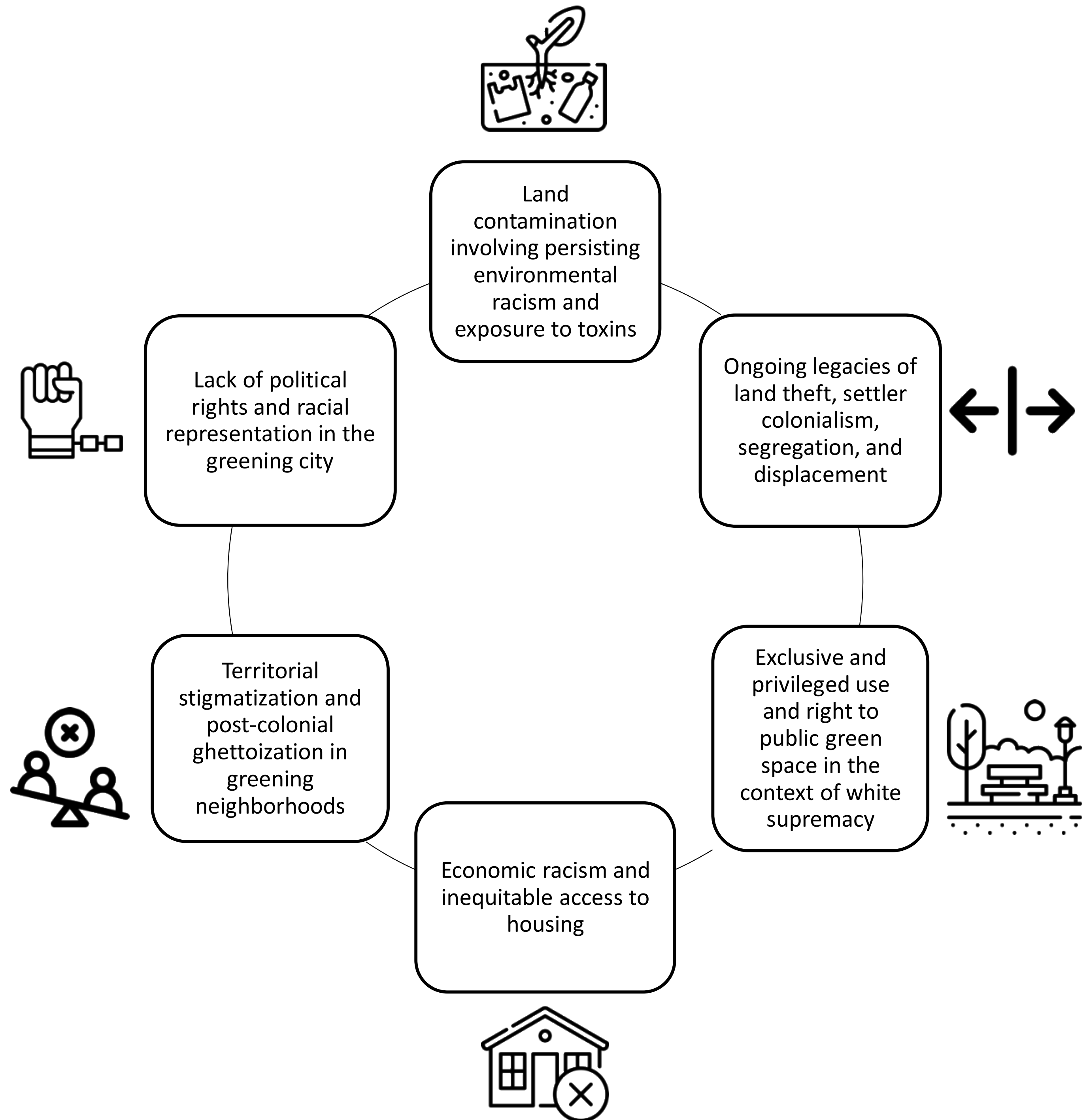
- Residents perceive the benefits of green infrastructure
- Report real estate pressures and displacement, with few options to stay due to high real estate prices
- Fear more and continued displacement
- Perceive that green projects are not for them and that they will not benefit in the medium term
- Regret loss of informal green spaces

Planas-Carbonell et al. 2022





# Compounded Environmental Racisms





**Policy, Planning, and Community  
Tools towards Climate Justice  
and/or Anti-Green Gentrification**



## ANTI-DISPLACEMENT

- ▶ Mandatory, effective, and ambitious inclusionary zoning
- ▶ Land Bank
- ▶ Community Land Trust
- ▶ Density bonuses
- ▶ Limitations or freezes to property taxes
- ▶ Transfer or development tax on luxury housing
- ▶ Concerted Territorial Zone (e.g. ZAC)
- ▶ Tax on empty units
- ▶ Rent control, decrease, and/or rent vouchers
- ▶ Right to stay or Right to return policies
- ▶ State construction of social/public housing
- ▶ Commercial land use plans

## IMPROVED AND OPEN GREEN RESILIENT INFRASTRUCTURE

- ▶ Interim green space on vacant land
- ▶ Developer's fee and legal obligations towards green space
- ▶ Improved green space maintenance and funding
- ▶ Zoning for urban agriculture
- ▶ Green bonds for green space
- ▶ Green amenity planning in large scale developments
- ▶ Universal access to green space



How can urban greening enact a more emancipatory climate justice?





# Just climate resilience -- Portland

- Cully Ecodistrict with sustainability as anti-poverty strategy + community control over housing
- Green workforce for green infrastructure Las Adelitas: 141 units of affordable housing + community center with green features through *Verde*
- Living Cully weatherization + home repair project 2.0







Thomas Cully  
Park, 2018,  
includes native  
prairie habitat  
restoration, and  
a Native  
American inter-  
tribal gathering  
area



*Verde* advocacy  
and PPP  
building



# Civic partnerships around CLT and climate justice supported by university action research grants



## Combating Green Gentrification in Chelsea Combatiendo la "gentrificación verde" en Chelsea

GreenRoots | Comunidades Enraizadas Community Land Trust

### CHELSEA TODAY / CHELSEA HOY

**Impervious Surface and Green Space**  
Superficie impermeable y espacio verde

**Heat Island (Land Surface Temperature)**  
Isla de calor (temperatura de la superficie terrestre)

**Flooding Risk (1-100 year)**  
Riesgo de inundación (1-100 años)

### STRATEGIES / ESTRATEGIAS

**More Green Space**  
Más espacio verde

**Lower Roof Temperature**  
Temperatura de la superficie del techo  
Image Source: MSU Extension

**Better Rainwater Management**  
Mejor manejo del agua de lluvia  
Image Source: LawnStarter / EBY Exteriors

### GREEN ROOF TYPES / TIPOS DE TECHOS VERDES

**EXTENSIVE extensivo**

**INTENSIVE intensivo**

**EXTENSIVE GREEN ROOF**  
techo verde extensivo

**INTENSIVE GREEN ROOF**  
techo verde intensivo

**RAIN WATER COLLECTION**  
recopilación de agua de lluvia

Labels: NOISE (ruido), HEAT (calor)

### CONSIDERATIONS / CONSIDERACIONES

- Energy savings** (Ahorro de energía)
- Noise insulation** (Aislamiento de ruido)
- Rain management** (Manejo de agua de lluvia)
- Mental health** (Salud mental)

**+ PROS**

- Installation costs** (Costos de instalación)
- Maintenance** (Mantenimiento)
- Extra weight on roof** (Peso extra en el techo)

**- CONS**

Sasaki Foundation **SASAKI**