ROAD TO INCLUSIONARY REDEVELOPMENT

Part I: Factors shaping gentrification and displacement processes and indicators of neighborhood change
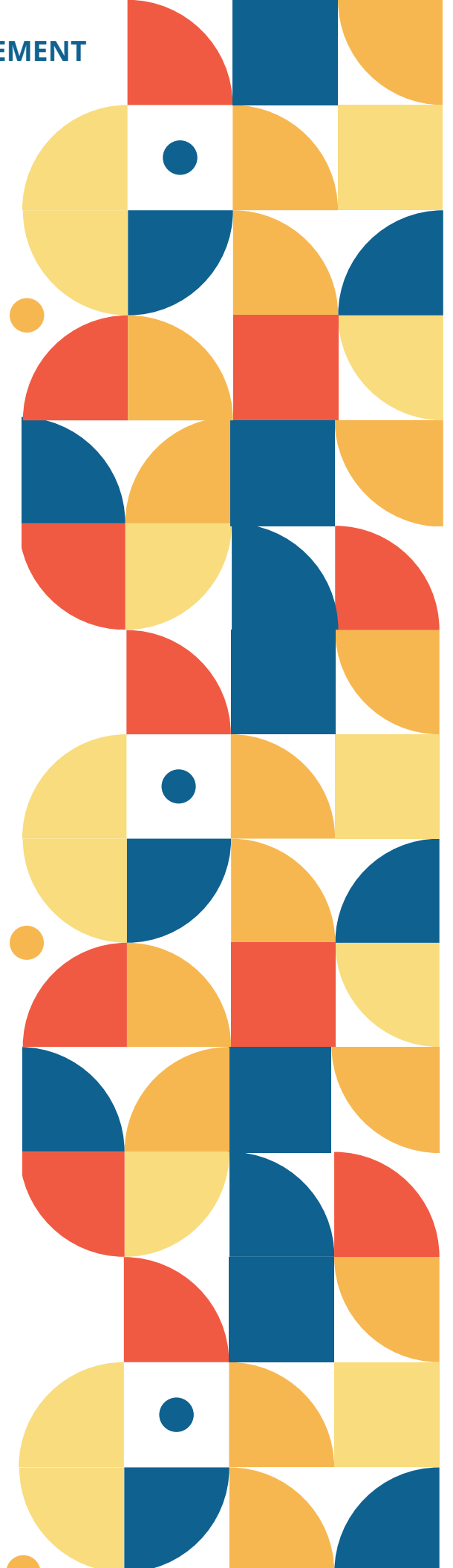
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ABOUT THIS GUIDE

This document was developed by the Brownfields Revitalization Anti-Displacement Strategies (BRADS) program under the U.S. Environmental Protection Agency cooperative agreement for Minimizing Displacement Resulting from Brownfields Assessment, Cleanup and Reuse.

The guide serves as a resource on navigating the topics of gentrification and displacement in the context of brownfields redevelopment. Understanding who ultimately benefits from brownfields redevelopment can result in more equitable development decisions and is a crucial component of mitigating involuntary displacement. Our approach to this guide acknowledges the history of racialized land-use decisions and property ownership in the United States that have had lasting and ongoing disparate impacts for people of color. Our aim is to equip community brownfield practitioners with the knowledge to navigate gentrification and displacement research and practice so they can mitigate unwanted displacement of residents and businesses.

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Electronic Access

The document is electronically available at BRADS website:
https://bradsprogram.sites.umassd.edu/resources/

Funding Acknowledgement

Disclaimer

This document is not intended to serve as legal advice or guidance. Instead, it offers informational insight based on existing literature and practitioner knowledge.

INTRODUCTION

The U.S. Environmental Protection Agency defines a brownfield as "a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."

The process of brownfields revitalization, as incentivized by federal and state programs, aims primarily to foster environmental clean-up that spurs economic development, increases property values, and expands tax revenues, and create social and economic benefits for the community.

While brownfields projects can help improve community health and foster economic growth, these land-based reinvestments could also lead to involuntary displacement of poor people, racially/ethnically marginalized groups, and other historically disadvantaged groups.

Former Collins Axe Company Factory in Collinsville, Connecticut.

Historically and currently, marginalized communities tend to absorb disproportionate negative impacts when neighborhoods undergo gentrification, including involuntary displacement, while the benefits tend to accrue to wealthier, white residents.[1]

In many cases, communities with existing brownfields sites have experienced historical environment injustices and disinvestment. While local residents who endured disinvestment in the area await the benefits of revitalization, they are often displaced due to rising rents and property taxes and do not end up accruing any of the resulting benefits.[1]
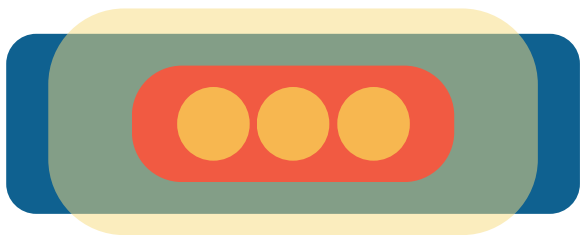
What is gentrification?

Gentrification is a neighborhood change process that is typically characterized by public or private investment in an area that results in an influx of new residents and/or businesses. The newcomers often have higher incomes, greater educational attainment, and may belong to a different racial or ethnic identity group compared to the pre-existing residents. [2]

Chicago Residents Protest 606 Trail Construction. Photo by Tyler Lariviere, adopted from *Scales of Gentrification, American Planning Association*.[3]
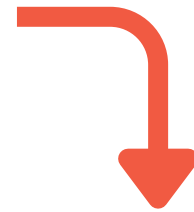
What is displacement?

Displacement occurs when any household is forced to move from its residence by conditions which affect the dwelling or immediate surroundings, and which: "1) are beyond the household's reasonable ability to control or prevent; 2) occur despite the household's having met all previously imposed conditions of occupancy; and 3) make continued occupancy by that household impossible, hazardous or unaffordable". [4]

Displacement can be voluntary or involuntary, and driven by economic, social, political, and cultural factors as a response to neighborhood change. Voluntary displacement occurs when residents choose to leave. Involuntary displacement happens when residents are forced out by factors like rising rents, property taxes, or a loss of community. However, distinguishing between voluntary and involuntary moves can be challenging. Displacement is a common outcome of gentrification processes but can also occur in places that are not gentrifying through the forces of eviction or foreclosure. [5]
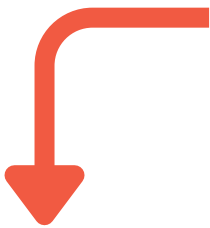
How are gentrification and displacement related to brownfields redevelopment?

Brownfields redevelopment involves the cleanup and revitalization of properties with real or perceived contamination with the goal of transforming them into viable places for new development. Brownfields projects can bring significant environmental and community benefits while improving the local economy by attracting new investments and businesses and creating jobs. [6]

Some of these investments will also attract new residents to the surrounding area and could lead to gentrification and displacement. Existing residents and businesses may face displacement pressures due to rising property values, increased rents, and shifting community dynamics. [7]

Therefore, while brownfield redevelopment aims to improve environmental and economic conditions, it can also contribute to gentrification, and consequently to displacement. Acknowledging the risks of displacement and understanding the needs of the community can ensure that existing residents and businesses will benefit from Brownfields clean-up and redevelopment.

What are the connections between the processes of gentrification, displacement, and environmental justice?

Many of the areas where brownfield sites are located are the remnants of an industrial past and have long experienced disinvestment. Industrial and other locally unwanted land uses are often located in areas with high concentrations of lower income households and residents of color because of lower land costs. In many cases, community members are less likely to have access to the economic, social, and political power needed to prevent these industries from being established in their neighborhoods. [8]

Lower income households, immigrants, and people of color often live in these areas because of lower housing costs and housing policies that explicitly or implicitly supported racial segregation. [9]

Poor environmental air and water quality due to legacy pollution and other sources and weak or non-existent environmental protections, in combination with other socioeconomic challenges, overburden these communities, resulting in environmental injustice. [10]

These phenomena are deeply rooted in historical and present-day racial inequities. The history of racial segregation and discrimination, and structural racism has resulted in exclusion and ongoing displacement that has disproportionately affected marginalized groups and specifically Black communities. For example, redlining and other racially discriminatory housing policies denied Black and other minority groups access to home ownership and wealth accumulation, which has overtime exacerbated the racial wealth gap. [11]

Discriminatory housing policies have also contributed to disproportionately negative outcomes in communities of color, and Black neighborhoods in particular. In the past, the Homeowners' Loan Corporation (HOLC), alongside actors in other agencies and the private sector including real estate agents, property appraisers, and developers, collectively institutionalized a system of housing policies and practices that conveyed disproportionate benefits to White homeowners and developers while disadvantaging and exploiting poor, Black households. [12,13] Maps created by HOLC in the 1930s helped institutionalize lending practices that funneled investments away from "redlined" areas partly based on the racial make-up and immigration status of residents, and into suburban neighborhoods that were often predominantly white. [14]

Some historically redlined areas continue to wrestle with environmental and economic burdens today. [14,15] Yet less explicit forms of discrimination in lending practices remain for communities of color, including higher interest rates, under-appraisal values of properties, and shorter repayment periods. [16]
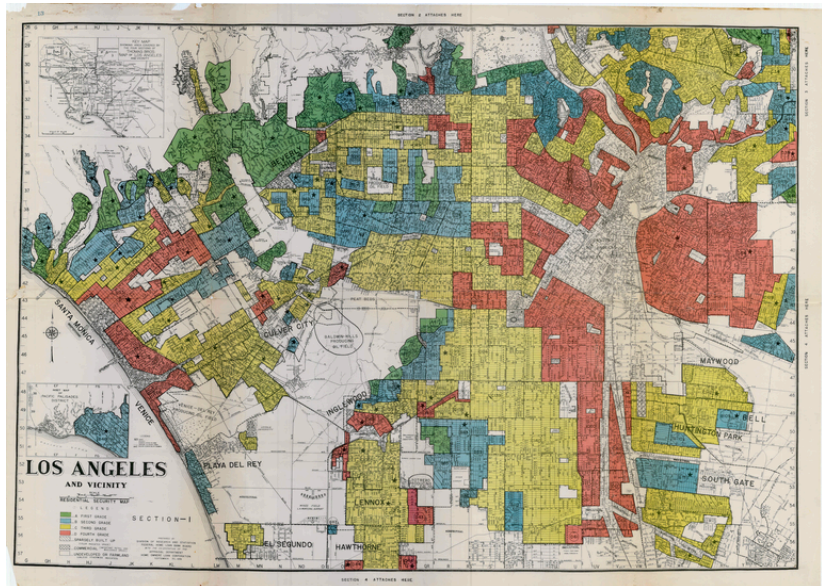
HOLC Map of Los Angeles from The Home Owners Loan Corporation and the Redlining of Boyle Heights". [17]

Environmental cleanup and land revitalization of derelict properties, particularly in urban areas, are often in prime locations in the urban core. This means both the public and private sector actors involved in redevelopment may be seeking to maximize potential tax revenues and profits, igniting the processes of gentrification. However, these economic goals do not always align with the needs of poorer communities and leave them vulnerable to displacement.

Displacement can occur before the neighborhood starts experiencing reinvestment, for example, with landlords evicting current renters and seeking to profit from anticipated public-private reinvestment strategies.

At later stages of redevelopment when property values begin to rise, homeowners, lack of financial resources or access to credit to maintain their property values or cover higher property taxes, could also lead to displacement.

The displacement of existing residents can occur at different stages of property development.

Beyond financial and economic forces shaping displacement, cultural factors can also play a significant role. Even if current residents can afford to remain within a community, cultural changes such as a new mix of retail or commercial businesses or the loss of community organizations could result in existing residents no longer feeling welcome in their community. Underserved and overburdened populations are typically the ones at risk of displacement, which can exacerbate inequality. [18]

FACTORS SHAPING GENTRIFICATION AND DISPLACEMENT PROCESSES

Gentrification encompasses a variety of processes that influence communities. The factors that impact gentrification and displacement and are most relevant in brownfields redevelopment are discussed in this section.

As a complex phenomenon of changing neighborhood dynamics, gentrification is driven by various factors and manifests in different ways. For instance, redevelopment processes to improve green infrastructure, build new commercial development, or increase tourism can trigger gentrification. These forms of gentrification are important to distinguish, as each type has its own unique historical background and complexities. [19]
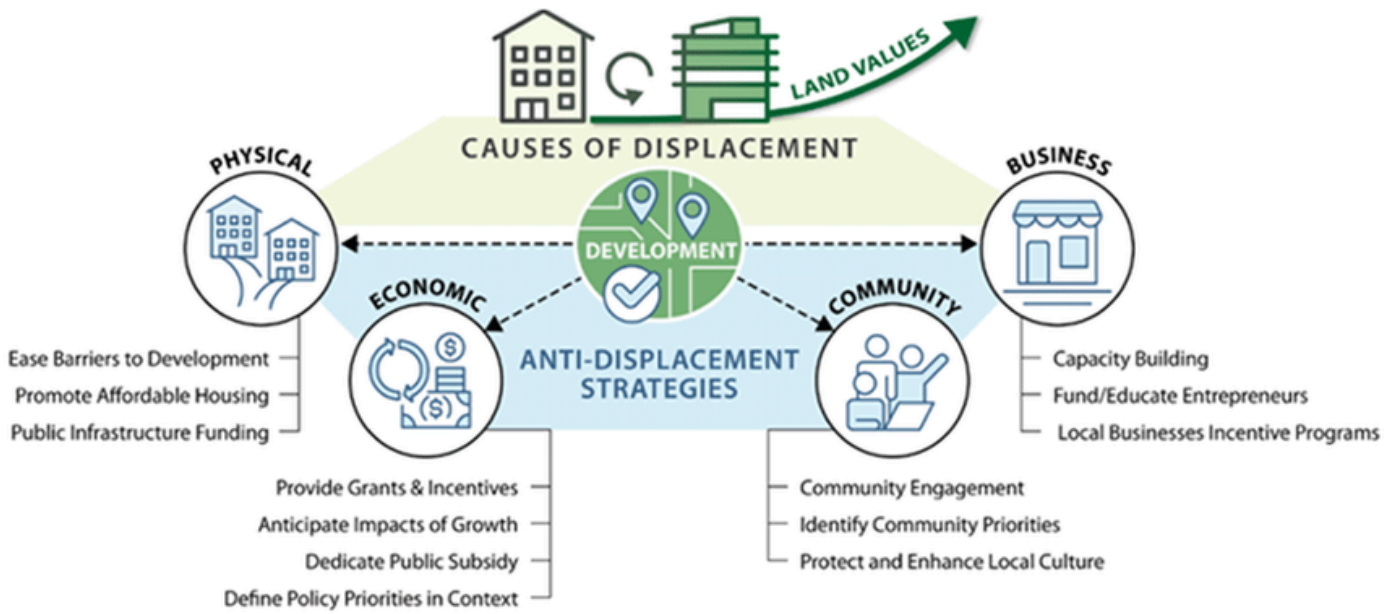
Causes and Strategies for Addressing Displacement. Source: City of Spokane Draft Housing and Anti-Displacement Memo [20]
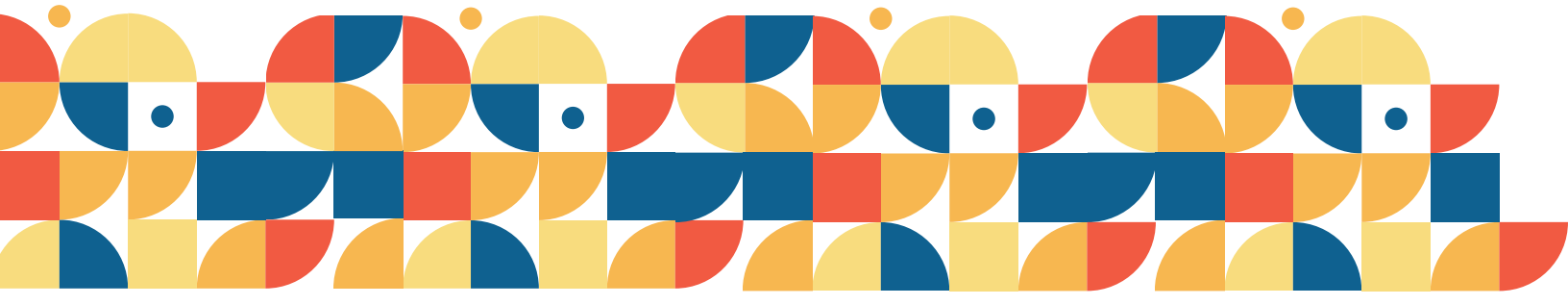
Intersection of Gentrification with Race and Class

As a racialized, profit-accumulating process, gentrification is tied to the racialization of property valuation, devaluation, and revaluation in U.S. housing markets and policies. Gentrification processes and displacement outcomes are different in neighborhoods with predominantly Black and brown populations compared to neighborhoods with predominantly white populations.

In neighborhoods with primarily white populations, common patterns of gentrification include increases in the number of upper-income and white residents. [22]

Communities of color, and primarily Black neighborhoods, are more likely to experience marginal gentrification, which is driven by changes in educational attainment levels rather than income. [21]

A strategy to mitigate some of the negative outcomes for communities of color associated with gentrification is to ensure representation among those groups in the redevelopment process. However, even when people of the same race/ethnicity participate in the revitalizing of urban areas, lower-income residents have still been displaced. [23]

Intersection of Gentrification with Climate Change Challenges

Plans to mitigate climate risks and create adaptative responses may also drive gentrification processes, and in some cases lead to displacement outcomes.

Climate gentrification refers to the ways neighborhood desirability can change due to climate-driven factors, or even as direct displacement of neighborhood residents from adaptation plans. [24]

Investing in adaptation measures such as floodwalls and other infrastructure upgrades enhances resilience and improves community preparedness in the face of climate change associated risks.

Neighborhoods with **climate adaptation plans** become more attractive to wealthier businesses and residents, which may also trigger gentrification processes.
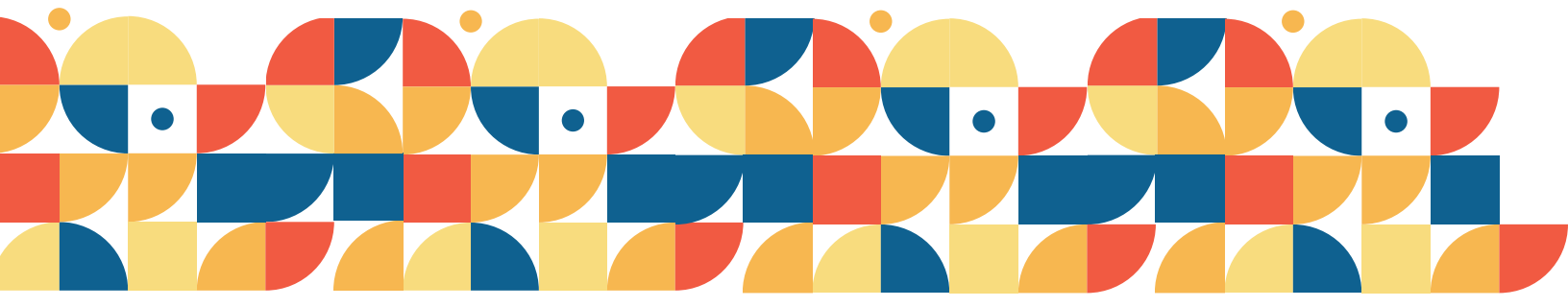
Intersection with Infrastructure Upgrades and Amenities

Community demand for green space and environmental clean-up standards and restrictions often results in the conversion of brownfield sites into parks. However, studies also show that the benefits of green spaces are unequally enjoyed. [25] **Environmental greening** can result in increased community desirability which increases property values and rental costs. [26]

Investment in amenities, such as **expanded healthcare facilities**, can also drive gentrification by making communities more desirable and increasing housing costs.

Infrastructure upgrades and amenities can drive gentrification through **tourism**, transforming neighborhoods into tourist hotspots at the expense of long-time locals. [27]

The expansion of **academic institutions** to accomodate student populations can displace nearby residents. [19]

IDENTIFYING RISKS OF DISPLACEMENT

Neighborhood changes are often reflected in various indicators that provide valuable insight into community transformations.

These indicators relate to **real estate, economic, socio-demographic, and built environment changes** observed at different units of analysis, ranging from individuals to neighborhoods.

By acknowledging, identifying, and tracking these factors, we can better understand the risks of displacement, which is the first step towards raising awareness and developing strategies to mitigate them.

Who is the most vulnerable to displacement?

Persons of Color	People 25 and older without a Bachelor's Degree	Renters	People making at or below 80% Median Family Income	Households with children in poverty

Key Demographics at Risk of Displacement. Adapted from Understanding Gentrification and Displacement, Uprooted Project. [28]

Indicators of Neighborhood Change

For practitioners who are not familiar with using data to identify neighborhood and area change relevant to involuntary displacement, the following tables summarize key indicators of change. While there are other indicators that could be used to identify risks and area changes, this list consists of parameters most used by recent peer reviewed studies. The table organizes the variables into three groups:

🏠 Real Estate

👪 Sociodemographic

🏢 Built Environment

Each variable is briefly described along with its source. Many variables can be found using resources such as Princeton's Eviction Lab, United States Census Bureau & American Community Survey website, Environmental Justice screening and mapping tool (EJScreen), and the Climate and Economic Justice Screening Tool (CJEST). More information on these tools and steps to easily access the data is located in the **BRADS Data Resource Guide**.

Real estate indicators are most useful for developing early warning tracking systems for areas that may be most vulnerable to displacement. For instance, a recent study finds that "investor purchases of multifamily real estate predict both displacement through evictions in the short term and a loss of Black residents in Atlanta's neighborhood in the longer term." [29] These data are primarily sourced from local offices like tax assessors or court systems, which have the disadvantage of being more difficult to collect, but the data also reflect the most current on-the-ground trends.

Sociodemographic indicators expand on the information available through the screening tools noted above. While the screening tools are helpful for capturing a snapshot of current condition, understanding change over time for individual variables can support practitioners understanding of patterns and trends and can serve as an important context for developing anti-displacement policies. These data are primarily sourced from the decennial census and American Community Survey (ACS) along with other publicly available datasets. The lag time of both census and ACS data publication make these sources less useful for pinpointing places vulnerable to displacement, but they are particularly useful for describing longer term social, economic, and demographic shifts.

Built environment characteristics recognize the intersection of displacement pressures with physical infrastructure and amenities and serve as examples of how practitioners might track and measure these concepts. These indicators would primarily be sourced from local datasets. Furthermore, some of this data could be collected collaboratively with local residents as part of a community or asset mapping engagement strategy.
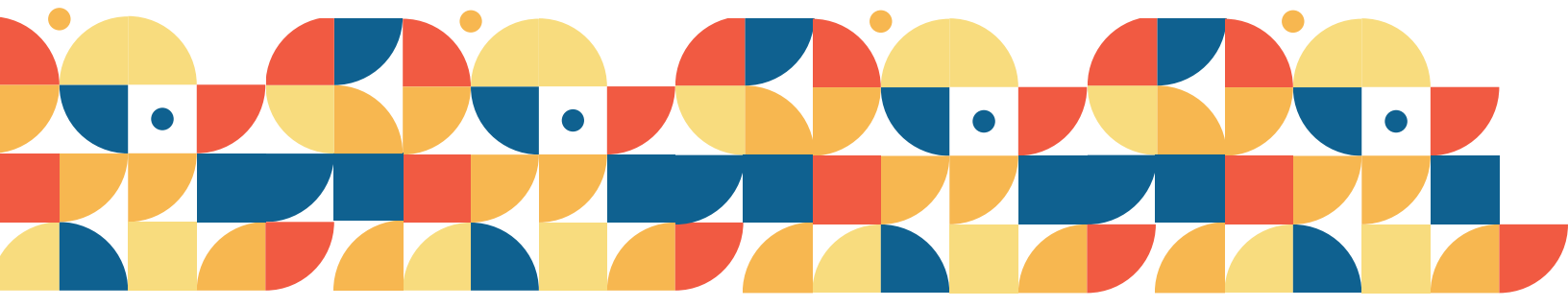
Real Estate Indicators

This section highlights key real estate indicators that provide insight into housing turnover which provides insight into housing stability.

Type of Indicator	Indicator	Description	Geographic Unit
Foreclosures	Sales	Foreclosed properties sold at auction	Parcel/Address
	Filings	Initiation of foreclosure process by lender	Parcel/Address
Evictions	Filings	All eviction cases filed in an area, including multiple cases filed against the same address in the same year	Block Groups, Census Tracts, Cities, Counties States*
	Judgements	Number of eviction judgments in which renters were ordered to leave in a given area and year. Only counts a single address that received an eviction judgment per year.	Block Groups, Census Tracts, Cities, Counties, States*
*Modeled Data collected from state court systems are not available for all geographic units. The "Geographic Unit" column in the table refers to the spatial scale at which data are likely to be available for each variable.			

Data for these indicators can be accessed through Princeton's Eviction Lab and County Circuit Court. Information is also available on CoreLogic and ATTOM Data Solutions, although access to these platforms require a purchase or subscription.

Socio-Demographic Indicators: Housing

This section summarized housing-specific socio-demographic indicators, focusing on affordability and rental trends.

Indicator	Description	Geographic Unit
Median Housing Values	Median value of owner-occupied housing units for a geographic unit as self-reported to Census/American Community Survey.	Block Groups, Census Tracts, Cities, Counties, States
Median Rent	Median value of gross rent, which includes utilities, of renter-occupied housing units for a geographic unit as self-reported to Census/American Community Survey.	
Housing Cost Burden	Owners or renters paying more than 30% of their income towards housing costs.	
Renter-occupied Households	The proportion of the population residing in renter-occupied housing units for a geographic unit.	
Affordable Housing	Characteristics of assisted housing units and households. Location of federally assisted rental housing units.	Project, Tract, County, Public Housing Agency, City, Core-Based Statistical Area, State, National Address

Data for these indicators can be accessed through the Census Bureau Decennial Census, American Community Survey, EJScreen, and the Climate and Economic Justice Screening Tool (CJEST), Department of Housing and Urban Development (HUD), and National Housing Preservation Database.

Socio-Demographic Indicators: Demographics

These indicators track population changes, including shifts in income, age, and racial composition, as a way to identify evolving community dynamics.

Indicator	Description	Geographic Unit
Non-Hispanic White Population	The proportion of the population that identifies as non-white and non-Hispanic for a geographic unit.	Block Groups, Census Tracts, Cities, Counties, States
Educational Attainment	The proportion of residents without a high school diploma.	
	The proportion of residents who have obtained a bachelor's degree or higher.	
Median Household Income	Middle value of households for a geographic unit as self-reported to Census/American Community Survey for income over "the last 12 months" prior to the survey response.	
Income Inequality	The Gini Index measures income inequality among values in a frequency distribution. Values closer to 1 are indicative of greater inequality.	Census Tracts, Cities, Counties, States
Poverty Rate	The proportion of residents living at or below the federal poverty guidelines for a given geographic unit.	

Data for these indicators can be accessed through the Census Bureau Decennial Census: American Community Survey, EJScreen, and CJEST.

Built Environment Characteristics: Infrastructure

This section explores infrastructure-related characteristics, emphasizing the built environment's role in shaping accessibility, mobility, and neighborhood stability.

Indicator	Description
Quality of Infrastructure	The condition of local infrastructure, including roads, bridges, public transportation, and utilities.
Proximity to Public Transit	A measure of a community's accessibility to multi-modal transportation networks.
Proximity to Ammenities	A measure of a community's assets (e.g., parks, libraries, commercial corridors).
Developable Properties	Availability of properties that can be developed or redeveloped for new uses including brownfields inventories.
Transportation Barriers	The average relative cost and time spent on transportation compared to all other tracts.

Data for these indicators can be accessed through local data such as public works records and property records, asset and community-based mapping as well as CEJST.

EXAMPLE METHODOLOGY: GENTRIFICATION AND DISPLACEMENT ANALYSIS BASED ON SELECTED INDICATORS

This example methodology has previously used in Portland, Oregon by Lisa K. Bates to identify risks of gentrification and displacement by examining census tracts across three dimensions: *vulnerability to housing displacement*, *demographic changes*, and *housing market appreciation*. [30] One of the main benefits of this method is the use of a manageable set of robust, widely available indicators to represent changes relevant to involuntary displacement. However, because census tract boundaries can change over time (typically every 10 years with the new decennial census), practitioners need to ensure the use of a consistent spatial unit of analysis. The indicators analyzed in the study included the following, with all indicators benchmarked to changes at a larger geographic scale (e.g. city or county):

Indicators associated with Vulnerability:
- Percentage of renters
- Percentage of non-white residents
- Percentage of residents without a bachelor's degree
- Percentage of households living in poverty

Demographic Changes:
- Percentage of homeowners
- Percentage of white residents
- Percentage of residents with a college degree
- Median household income

Housing Market Appreciation:
- Median home value change
- Rate of change in home value appreciation
- Adjacency to tracts with large changes in home values or rapid home value appreciation

The methodology categorizes tracts based on vulnerability, demographic changes, and appreciation of housing market conditions based on comparison with city averages.

Vulnerability to Housing Displacement

Census tracts are identified as vulnerable if they are above the city or countywide average in at least three of the four indicators.

Tracts are considered to have experienced demographic changes if at least three of the indicators have decreased more than the city or countywide average. A tract also qualifies if just the race and higher education indicators decreased more than the city-wide average.
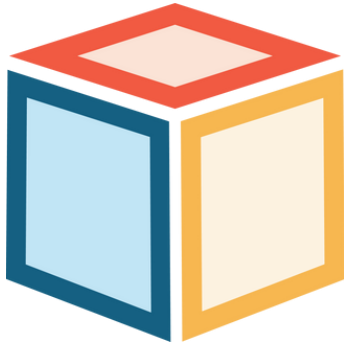
Demographic Changes

Housing Market Appreciation

Tracts are assessed based on their housing values, the rate of appreciation, and their proximity to high-value areas.

Following the identification of vulnerable tracts, these areas are further categorized into different stages of gentrification. This typology includes classifications such as "early" and "dynamic" stages, capturing a spectrum from initial signs of demographic and market shifts to active gentrification marked by rapid property value increases and demographic turnover.

SUSCEPTIBLE OR EARLY (TYPE 1)

Tracts with vulnerable populations that have not yet experienced demographic shifts but are adjacent to or have accelerating housing markets.

EARLY (TYPE 2), DYNAMIC, OR LATE

Tracts with demographic changes and vulnerable populations, further classified based on whether their market conditions are adjacent, accelerating, or appreciated.

CONTINUED LOSS

Tracts that do not qualify as vulnerable but experience an increase in white, college-educated residents and an appreciated housing market.

GREEN GROWTH OR DISPLACEMENT? THE IMPACT OF GREENING INFRASTRUCTURE INVESTMENTS

Green Water Infrastructure in Philidelphia, PA

The Philadelphia Water District's Green City, Clean Water program pledged over $1.6 billion in investments over a 20-year period to replace impervious surfaces with greenery and wetland plants to allow more water to infiltrate into the ground instead of runoff into storm sewers and the river. [31] To date, over 1,200 green stormwater interventions have been recorded. [32]

Greenspaces, or open areas where the natural environment has been reintroduced (or preserved), are a common reuse for former brownfields, and their appeal is multifaceted for urban and regional planners. [18] Recreational greenspaces, such as parks, trails, and community gardens, provide communities with usable natural areas that increase nearby property values, [33] improve public health, [34] and provide space for neighborhood events to build social capital and neighborhood cohesion. [35]
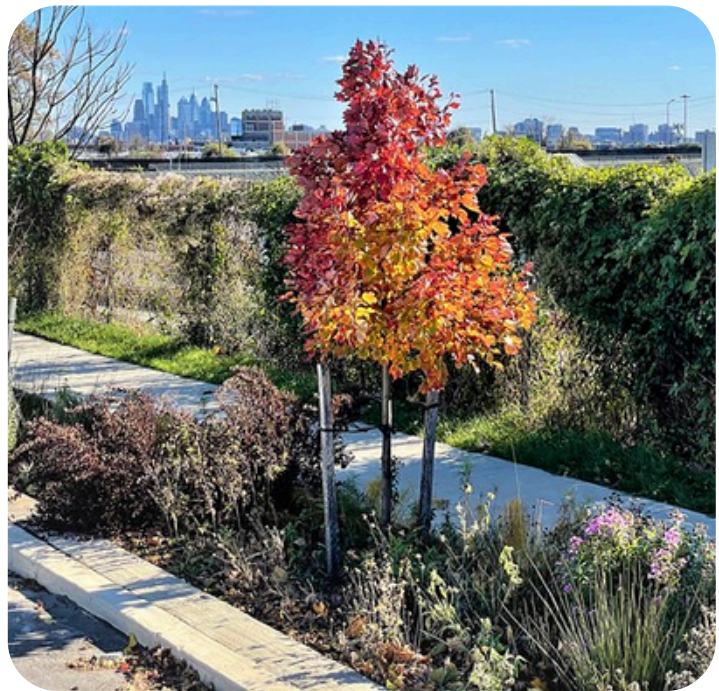
Green infrastructure in Philadelphia, PA. Image adopted from Philadelphia Water Department, Green City Clean Waters.[31]

Improvements were concentrated in areas with higher median incomes and lower concentrations of vulnerable minorities. However, a significant cluster of interventions between 2000 and 2010 occurred in downtown areas with high concentrations of low-income and vulnerable minority populations. [32]

While these infrastructure improvements have measurably reduced runoff in the city, there is evidence linking them to gentrification.

These areas saw noticeable **demographic shifts** in **income** and **race** from 2011 to 2016, indicating that gentrification had occurred or was in process. **Interviews with local activists** and organizers after this period revealed that many current and former residents attribute this shift to the **infrastructure improvements** made by Green City, Clean Waters along with other greening initiatives from the city. [36]

Green infrastructure in Philadelphia, PA. mage adopted from Philadelphia Water Department, Green City Clean Waters[31]

Using credit score data, it was found that gentrifying census tracts measured by increases in median income, were associated with subsequent migration to lower income census tracts by previous residents. Furthermore, Black individuals in the sample with very low credit scores (<580) were significantly more likely to move out of gentrifying tracts than their white counterparts. [37]

OTHER CONSIDERATIONS WHEN IDENTIFYING RISKS OF DISPLACEMENT

Unit of analysis and geographies: The indicators are limited based on the unit of analysis of the data used. The geographic scales of the data may not match the areas that are of concern to community residents. Most of the examples use census tracts as a proxy for neighborhoods. However, these boundaries may not align with locally defined neighborhoods. Furthermore, census tracts often bisect other relevant geographies like school zones, transportation networks, or natural and man-made intellectual and physical boundaries. When the analysis is focused around one or more brownfield sites within the communities, the study areas may vary depending on the scope of the analysis. An approach could be to define the area of the study as the radius-based geographic area around the site or to select a corridor with multiple sites. Small municipalities may also benefit from studying their entire community.

Defining Index Thresholds: The selection of indicators and associated thresholds is directly connected to how vulnerability to displacement will be understood within your local context. The way in which any phenomena are defined and measured affects how the results are interpreted and subsequent policy formation.

Time frames: Models can be further limited by the time period of the data analyzed. For example, displacement may have occurred prior to the period of analysis, or the time lag of ACS estimates may not capture current pressures.

Level of Detail: Indicators-based approaches highlighted here also cannot help us understand exactly who is being displaced, or the neighborhoods in which they move to after displacement, both of which are important policy questions.

Missing Lived Experiences: The indicators described above may not be fully comprehensive and could be missing indicators and dimensions of change relevant to the context of your community. Pure quantitative methods also cannot capture the lived experiences of residents. For instance, if a typology does not classify a neighborhood as "susceptible" to involuntary displacement, this may not align with what individual people are experiencing on a daily basis. Ground-truthing and other community-engaged strategies can help to overcome these types of limitations. The approaches described within the guide serve as a valid starting point for understanding processes of change and displacement and can be implemented as a first step within a larger policy conversation.

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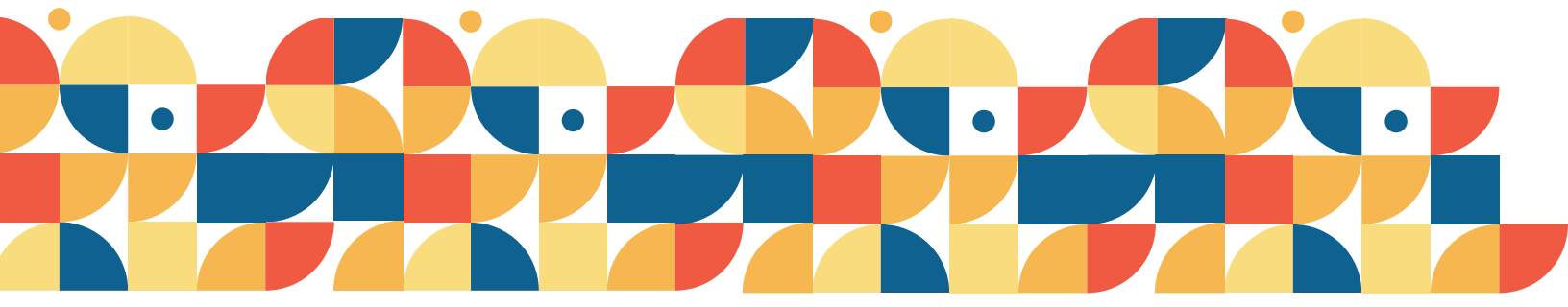
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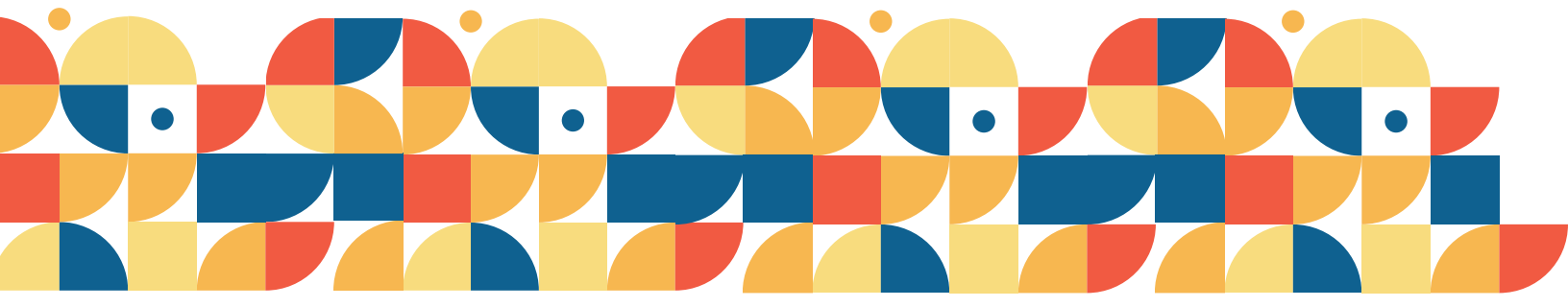
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*Some figures were generated using AI and Presentationgo.com.

The accompanying **Data Resource Guide** offers a step-by-step approach to collecting data from the tools outlined in this guide.

You may find more resources and information on BRADS Website:

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