Guide to Identify and Mitigate the Negative Effects of Gentrification Caused by Transportation Investment

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1. Executive Summary

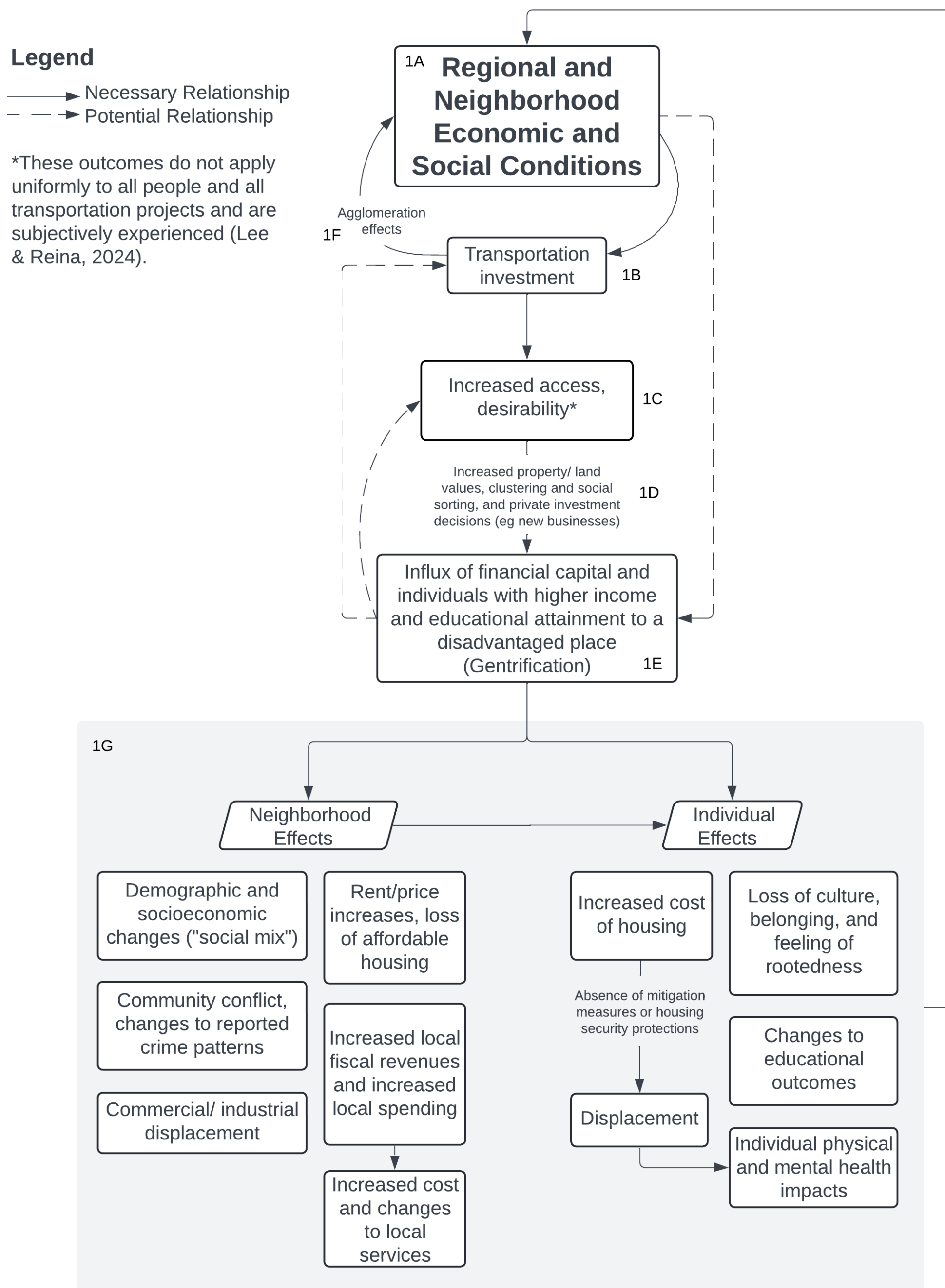
Neighborhoods experience changes in socioeconomic conditions, investments, access, and mobility over time. One type of neighborhood change is gentrification—defined as the influx of new residents with higher incomes and educational attainment into formerly disinvested neighborhoods. In parallel with or following gentrification, displacement can occur; long-time residents can be involuntarily pushed out of the neighborhood or choose to leave due to economic or social pressure. In this research, we investigate the links between transportation investments and gentrification, which we summarize in Figure 1.1.

Displacement is just one of many possible outcomes of gentrification. Other outcomes range from turnover in commercial and industrial activity to dramatic shifts in demographics and socioeconomics. These outcomes can manifest in the built environment in the form of new housing, businesses, and infrastructure, sometimes replacing older activities. Perceptions about these changes may differ depending on whether a person experiences the benefits of these changes. Some may associate gentrification with neighborhood improvement and higher quality of life; others may believe it eliminates a genuine sense of community. Others—particularly community advocates and transportation equity practitioners—have argued that race, at least in the US context, is inseparable from discussions of political power in cities, and thus directly tied to both gentrification and displacement.

The first phase of this research project focuses on reviewing the scholarship and coming to a clear understanding of what practitioners think about the relationships between transportation investment and gentrification—with an emphasis on gentrification's negative impacts. In this interim report, we assemble our findings from our literature review, interviews we conducted with professionals in cities across the United States, and a survey we distributed to more than one hundred transportation practitioners. Each of these lines of inquiry was focused on better understanding what is currently known about this subject area, how people in the transportation sector are currently thinking about it, and what solutions might be out there.

In this executive summary, we review our key findings from the scholarly review, the interviews, and the survey, each of which are described in detail in the chapters that follow. We conclude by providing a summary of key recommendations learned from this research so far. Ultimately, this first phase of the work will inform the second, upcoming phase, designed to conduct a novel national examination of the link between transportation and gentrification and delve into case study projects that may offer best practices to ensure that projects do not result in displacement.

Figure 1.1. Conceptual Framework: What is the Relationship Between Transportation Investments and Gentrification and Displacement?



Source: *The authors, based on a review of the literature.* ***Note:*** *Transportation investment is one factor in the complex feedback loop that causes and responds to gentrification. Transportation planners and policymakers need to understand where their work fits into this system to effectively pre-empt and mitigate the negative effects of gentrification that may be associated with transportation projects.*

What Scholarship Tells Us About Links Between Transportation and Gentrification

The literature on gentrification and displacement is rife with debate and plagued with measurement challenges. For example, although the concept of gentrification is frequently associated with racial demographic change and displacement, the academic literature provides little in the way of quantitative evidence that communities of color are displaced as a direct result of gentrification, though meaningful qualitative evidence suggests the opposite, finding significant evidence of displacement.

There is a perception among many in the public, advocacy, and transportation sectors that transportation investment can induce gentrification, and in turn, displacement. We conducted a comprehensive review of contemporary academic literature from the United States to understand when, how, and why transportation investment might be associated with gentrification, and how the relationship might differ across modes. We argue that regardless of whether there is a causal relationship (or the direction of that relationship), when transportation investments are associated with and occur alongside gentrification and displacement, many long-time residents may be excluded from the mobility, access, health, safety, and quality of life benefits provided by transportation projects.

We also aim to identify known outcomes for vulnerable people who may be most at risk to be impacted negatively by the consequences of gentrification. With this information, transportation agencies and planners will have additional resources to support their continued work to shape equitable transportation systems. We examine existing scholarship on the relationships between transportation investments and gentrification, comparing evidence related to outcomes across six types of transportation projects. Of all the transportation modes studied, public transit (and particularly rail-based transit), is best covered in the literature, which identifies some evidence that there is an association between transit investment and gentrification. Additionally, we find some relationships between gentrification and the following modes: greenways and trails, walkability, and highway removals. Research on the relationship between other modes of transportation and gentrification is limited; the findings are mixed and context dependent. Our key findings, by mode, are:

- **Public transit (rail):** Research shows an association between rail-based transit and gentrification, but evidence of rail-induced displacement is mixed.
- **Public transit (bus):** Some studies show an association between Bus Rapid Transit (BRT) and increased property values, while others find a negative association. There is little research on the association between BRT and displacement, and almost none on the relationship between traditional fixed-route bus service and gentrification.

- **Greenways and trails:** There is some evidence of increased housing prices adjacent to new trails and greenway facilities, but studies show that these facilities are typically constructed in areas that are already gentrifying. Many studies that measure the impact of trails on property values focus on "signature" trails like the Atlanta Beltline and New York City High Line, with limited research into smaller scale trails and greenways.
- **Bicycle lanes:** Research on the association between bicycle lanes and gentrification is limited and suggests that bicycle lanes are typically constructed in already gentrifying areas. There is limited research on the association between bicycle lanes and displacement.
- **Sidewalks and pedestrian infrastructure:** There is very little research on the relationship between pedestrian infrastructure and displacement. Some studies show an association between walkability and increased housing prices.
- **Highway extensions:** While the relationship between highway construction and displacement (due to land takings for the roadway right-of-way) is well-documented, there is a lack of research on the association between highway extension projects and gentrification.
- **Highway removals:** As highway removal projects become more common, there is some evidence that highway removal is associated with increased property values, but there is no known research related to the association between highway removal and demographic change.

Our literature review highlights gaps in existing research. More research is needed to understand the relationship between gentrification and the following modes: multimodal and complete streets projects; active transportation (including pedestrian infrastructure like sidewalks); traditional bus transit; highway removals, capping, expansions, and extensions; micromobility systems; and electric vehicle infrastructure. More research is needed for all modes to understand the relationship between transportation investment and displacement specifically.

How Practitioners Conceptualize the Link Between Transportation and Gentrification

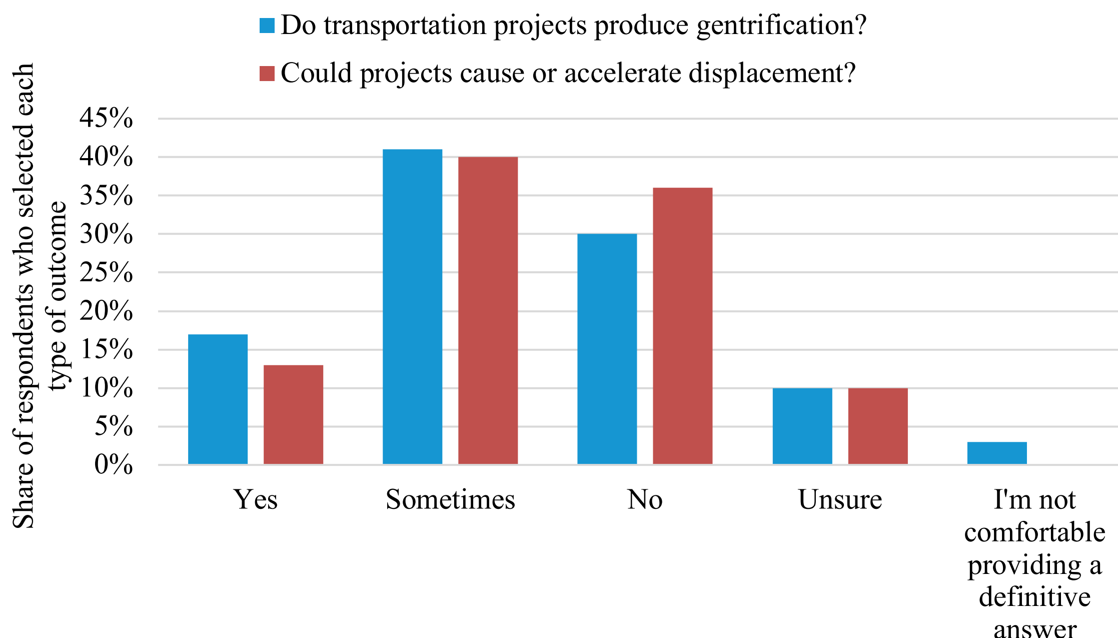
We conducted a series of semi-structured interviews with 17 practitioners in several parts of the country to understand how they think about the relationship between transportation investments and the phenomena of gentrification and displacement. Interviewees worked in several different roles, including working for state departments of transportation, local agencies, and community organizations. These conversations suggested broad agreement about the fact that gentrification is an oft-discussed issue in the context of transportation projects, but that there is little systematic effort to respond to the potentially problematic aspects of gentrification on a project-by-project basis. Multiple respondents emphasized that they felt they did not hold the

appropriate power to engage in issues related to gentrification, even if they felt that doing so would be beneficial in the context of working on their projects.

Next, in order to further explore these topics, we conducted a national survey of transportation practitioners to ensure that the results we acquired through interviews were held more broadly. We surveyed 139 practitioners in late 2024; these survey takers hailed from 25 states and the District of Columbia and most worked for public planning or transportation agencies.

A majority of survey takers emphasized that they believed they should work to minimize the negative impacts of gentrification caused by their transportation projects. As shown in Figure 1.2, a majority of respondents said that the transportation projects they work on sometimes or always are associated with both gentrification and displacement. That said, it is worth emphasizing that a sizable minority of respondents said they did not believe their projects resulted in gentrification, and a large portion of survey takers (though still a minority) said they believed that gentrification has only positive outcomes.

Figure 1.2. Practitioners Believe Transportation Projects Are Sometimes Associated with Gentrification and Displacement

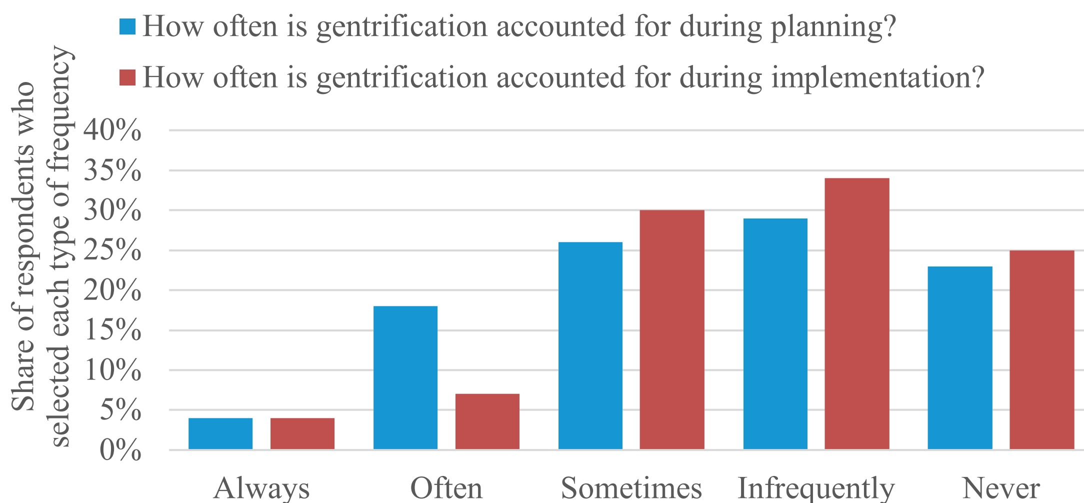


Source: *The authors, based on a review of survey responses.*

Though many respondents agreed that gentrification is often accounted for in transportation project planning, over 90 percent agreed that gentrification is only sometimes—and often never—accounted for in the actual implementation of projects (Figure 1.3). Indeed, only 12 percent of survey takers said their respective agencies were doing enough to minimize the

negative effects of gentrification in their communities—even as a majority agreed that their agencies were responsible for avoiding the negative effects of gentrification. One major problem is apparent from the survey results: a lack of funding. Almost two-thirds of respondents said their agencies never allocated project funding toward displacement prevention.

Figure 1.3. While Gentrification is Often Accounted for in Project Planning, It is Less Likely to be Accounted for In Implementation



Source: *The authors, based on a review of survey responses.*

The interviews and survey responses of transportation practitioners suggest strong agreement throughout the transportation sector that there may be value in addressing the negative impacts of gentrification stemming from transportation projects—but that transportation agencies do not currently have the resources or knowledge to do so.

Recommendations to Mitigate the Negative Impacts of Gentrification

Based on our review of the literature, our interviews with stakeholders, and our national survey, we assembled a set of potential approaches that transportation practitioners can lead—or at least, assist in leading—to address the negative impacts of transportation-induced gentrification. Our recommendations include that practitioners and transportation agencies seek to:

- Expand availability and access to affordable housing, especially in areas where car use is not needed, in association with transportation investments.
- Improve engagement with people most impacted by transportation projects.
- Generalize access to high-quality transportation options.

- Build partnerships to get work done.
- Acknowledge that some forms of gentrification have positive impacts.

We detail these recommendations in Chapter 5, below, informing them based on interview and survey results. We will use this list of recommendations as the baseline for the guide we plan to submit as a final deliverable at the conclusion of this research. We will continually update these recommendations over the coming year as we conduct our planned national research and case-study evaluations, the two components of our second phase of research.

2. Review of the Scholarship on the Links Between Transportation and Gentrification

Neighborhoods' demographic, social, and economic conditions are not static. Processes of change in racial composition, home prices, median incomes, and public investment can result in concentrations of social vulnerability, slow erosion of middle-class stability, concentrations of wealth, or in some cases, gentrification (Landis, 2015). Gentrification is the influx of new investment and new residents—who are disproportionately white—with higher incomes and educational attainment into disinvested areas home to lower income residents (Chapple & Loukaitou-Sideris, 2019). In this context, displacement is the involuntary or voluntary removal or relocation of incumbent residents—who are typically lower income than their replacements—from gentrifying neighborhoods. The term displacement can also include processes that prevent in-movement of low-income residents from elsewhere. These forms of displacement are the product of gentrification's impacts on housing costs, neighborhood culture, and demographics (Marcuse, 1985). Depending on the perspective of individual scholars, displacement is either a requisite and simultaneous part of the process of gentrification, or a potential consequence of it.

Gentrification is a critical issue for planners and policymakers in the United States concerned about ensuring neighborhood stability and peoples' ability to continue to live in the places they call home. While the causes of gentrification and displacement are highly dependent on economic, social, and geographic context (Lees et al., 2008), a growing body of evidence shows that public investment in transportation projects—like other forms of public and private investment—can catalyze gentrification and displacement (Zuk et al., 2018). This review, however, will show that many aspects of this relationship remain understudied.

This literature review is guided by the following research questions:

- How are gentrification and displacement defined in research and practice?
- How does gentrification affect communities, particularly low-income communities and communities of color?
- What are the specific mechanisms via which transportation investment might be associated with gentrification?
- What mitigation strategies are used to reduce the negative effects of gentrification?

The following section introduces our conceptual framework for understanding links between transportation, gentrification, and displacement. Next, we detail definitions of gentrification and displacement, plus discuss causes, effects, and measurement. We then explore what is known about the relationship between transportation and gentrification by analyzing available research

on these subjects, categorized by transportation mode, extending in detail the key findings described above. Before concluding, we review promising mitigation strategies and practices.

What is the relationship between equity, transportation investment, and gentrification?

The practice of transportation equity seeks to understand inequities in the transportation system and create more equitable outcomes. Planners and policymakers who are committed to transportation equity acknowledge that transportation investments have both costs and benefits, and that those costs and benefits are not equally distributed. A marker of transportation inequity is when the benefits—such as improved access, clean air, quality of life, and convenience—are disproportionately concentrated in neighborhoods whose residents are predominantly white or higher income. The reverse is also true. It is a marker of transportation inequity when the burdens of transportation—such as noise, cost, disruption during construction, or displacement—are disproportionately concentrated in neighborhoods with histories of disinvestment, or with populations that are predominantly of color or lower income. These neighborhoods where power is less concentrated, as well as communities that experience strategic underinvestment, are more at risk of experiencing the negative outcomes of gentrification, potentially contributing to the inequitable outcomes of transportation investments.

Overview of Our Conceptual Framework

Changing patterns of investment in land and variation in neighborhood socioeconomics are, as noted, a continuous feature of the American urban landscape. Gentrification is one such pattern. While processes of neighborhood change have largely been studied in older urban cores, in recent decades scholars have expanded the geographic scope of the concept to also include suburban and rural areas. In the United States, the dominant form of neighborhood change is social decline, where incomes fall, and poverty rates rise. Gentrification, while prevalent in many metropolitan areas, is an exception to the rule (Landis, 2015). Nonetheless, it is a major issue of concern in some neighborhoods and thus worthy of both study and policymaking.

Gentrification arguably has both positive and negative effects (Finio, 2001). While these effects are myriad, the primary focus of debate and political action in recent decades has been on one negative effect of—or simultaneous element of—gentrification: displacement. In the context of gentrification, displacement is the involuntary or voluntary removal or relocation of incumbent low-income residents due to increased housing costs or cultural change (Marcuse, 1985). The process of gentrification can also prevent low-income residents from elsewhere from moving into gentrified areas, a phenomenon referred to as exclusionary displacement (Zuk et al. 2018). While displacement was foundational to the original definition of gentrification, there is a broad divide in scholarship on the prevalence of displacement and its causal link to gentrification

(Beck & Martin, 2024). In this work we assume that gentrification can cause displacement, but that gentrification without displacement is also possible, especially with appropriate policy intervention. Displacement is not the only consequence of gentrification, which may have a variety of impacts on neighborhoods and individuals, from cultural change to degradation of mental health.

What is the relationship between transportation investment and gentrification?

Among many transportation practitioners, it is commonly accepted that transportation investment can induce gentrification, and in turn, displacement. This literature review illustrates that there is limited, and sometimes conflicting, quantitative evidence showing a causal relationship between transportation investment and gentrification. The connection between the two is not necessarily causal, linear, or in the direction we might expect. Proving that public investment in transportation causes gentrification is methodologically difficult, especially when trying to measure the demographics of people moving in and out of neighborhoods over time. The literature also shows that it is difficult to separate the impacts of broad economic and social conditions from those caused by transportation specifically.

If transportation planners and policymakers are to mitigate the negative effects of gentrification that could result from their work, it is critical that they understand the mechanisms by which transportation is connected to gentrification. Only by understanding the full process of how gentrification occurs, and where transportation fits within the process, can we take action to disrupt the process, and either pre-empt or mitigate the negative effects of gentrification. Erroneous assumptions about what causes gentrification and displacement can result in ill-conceived decision making that fails to address the problem, or at worst exacerbates inequities and historic disinvestment.

To help planners and policymakers understand the process, we developed a conceptual framework to describe how gentrification (and its first and second order effects, like displacement) could be caused by transportation investments (Figure 1).

In Figure 2.1, we show that the process by which gentrification occurs is a complex set of context-dependent factors that involve the choices and preferences of consumers, the actions of landowners and investors, and the policy sphere. All factors are influenced by regional and neighborhood economic and social conditions that change over time [1A]. Gentrification theory suggests that neighborhoods become eligible to gentrify through processes of disinvestment, exclusion, and decay that eventually yield a gap in value that attracts investment. As regions develop, governments make decisions about transportation investments that may influence those changes [1B].

Transportation investments can influence the built environment and demographics not only through project spending but also through changes in the distribution of accessibility, meaning

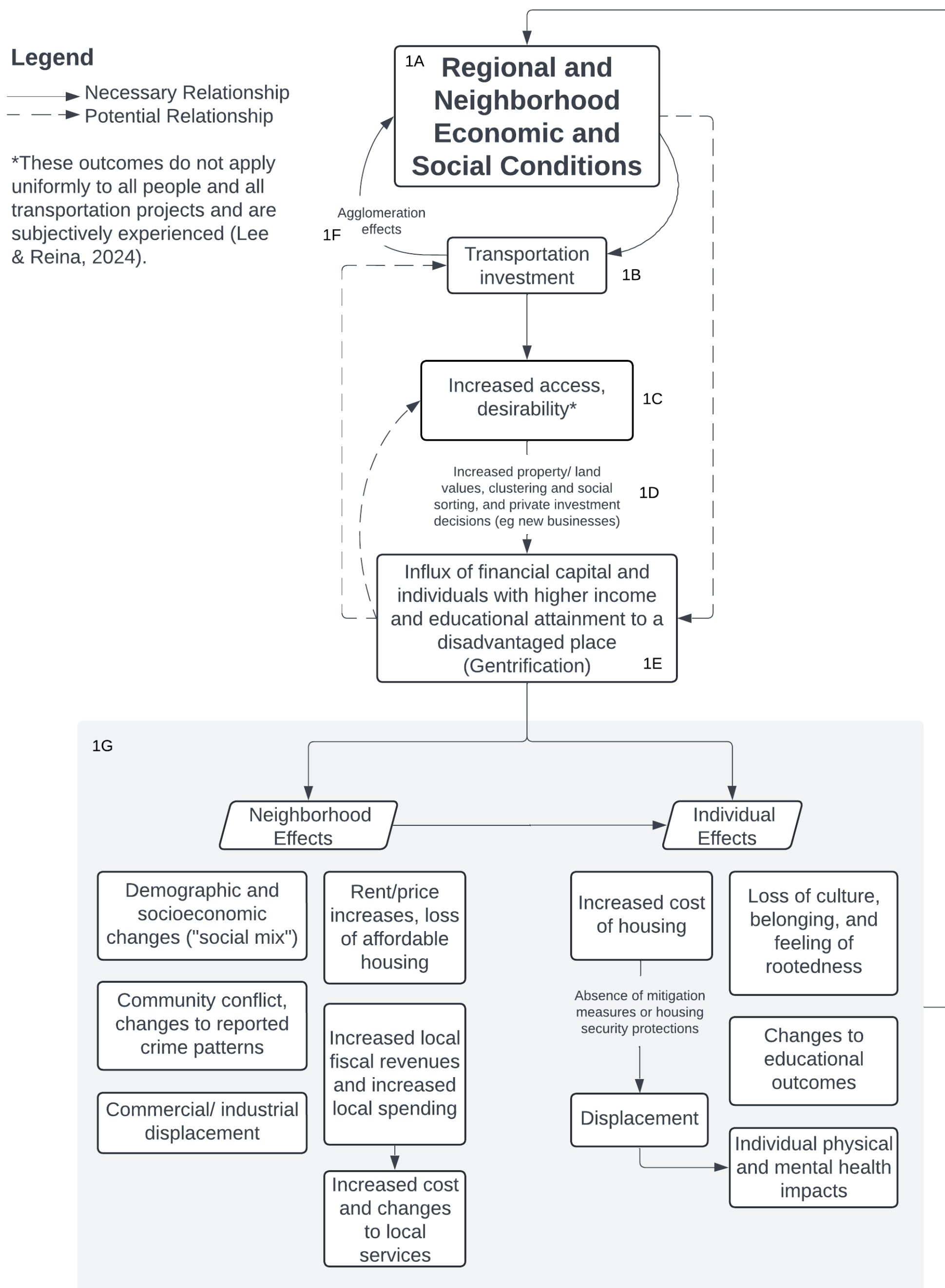
how easy it is to get from one place to another [1C]. In economic terms, investment in transportation can shift the demand for land upward in specific locations by increasing accessibility to other places from that point. Increasing accessibility reduces the time cost (and sometimes the true cost) of moving of goods and labor, in turn increasing system efficiency and allowing people to redirect time to other priorities, such as leisure or work. Given that accessibility is a determinant of land value, increased accessibility can drive the price of land upward, potentially increasing housing rents and sales prices (Delmelle, 2021) [1D].

This accessibility informed pathway, however, is not the only one that can generate a potential increase in land value. Transportation investments can also create what can be summarized as amenity effects: qualitative improvements to environments in and around infrastructure that are unrelated or only superficially related to accessibility increases (Delmelle, 2021; Higgins et al., 2014) [1C]. For example, a new biking trail through a park system (increasing accessibility) may be accompanied by landscaping improvements that make the area more desirable (increasing amenity effects). Improvements to streetscapes through the addition of sidewalks may only marginally increase pedestrian accessibility, even as they markedly increase desirability and pedestrian comfort levels. Removals of highways may reduce vehicle accessibility, but greatly increase land value due to increased pedestrian accessibility, decreased noise, and scenic amenities.

Moreover, transportation projects can yield agglomeration effects, defined as the economic impacts of concentration of people in space (Glaeser & Gottlieb, 2009) [1F]. Proximity to transportation improvements can yield increased concentration of residential or commercial activity through accessibility or amenity effects. Each addition of activity around a transportation node or link can further boost agglomeration effects, increasing land values as businesses and households concentrate for easy access to both each other and various amenities.

The influx of public and private investment, combined with the resulting changes to economic and social conditions, accessibility, and the built environment (in the form of amenities, housing, retail, and commercial activity) attract new residents with higher incomes and educational attainment [1E]. In turn, new residents and new investment spur more social and economic changes and further public and private investment in a self-reinforcing feedback loop. This is the process of gentrification. Investment in transportation is one factor in this complex system–both a cause and an effect, influencing and influenced by the decisions of individuals, investors, and the government [1A – 1F].

Figure 2.1. Conceptual Framework: What is the Relationship Between Transportation Investments and Gentrification and Displacement?



Source: *The authors, based on a review of the literature.* ***Note:*** *Transportation investment is one factor in the complex feedback loop that causes and responds to gentrification. Transportation planners and policymakers need to understand where their work fits into this system to effectively pre-empt and mitigate the negative effects of gentrification that may be associated with transportation projects.*

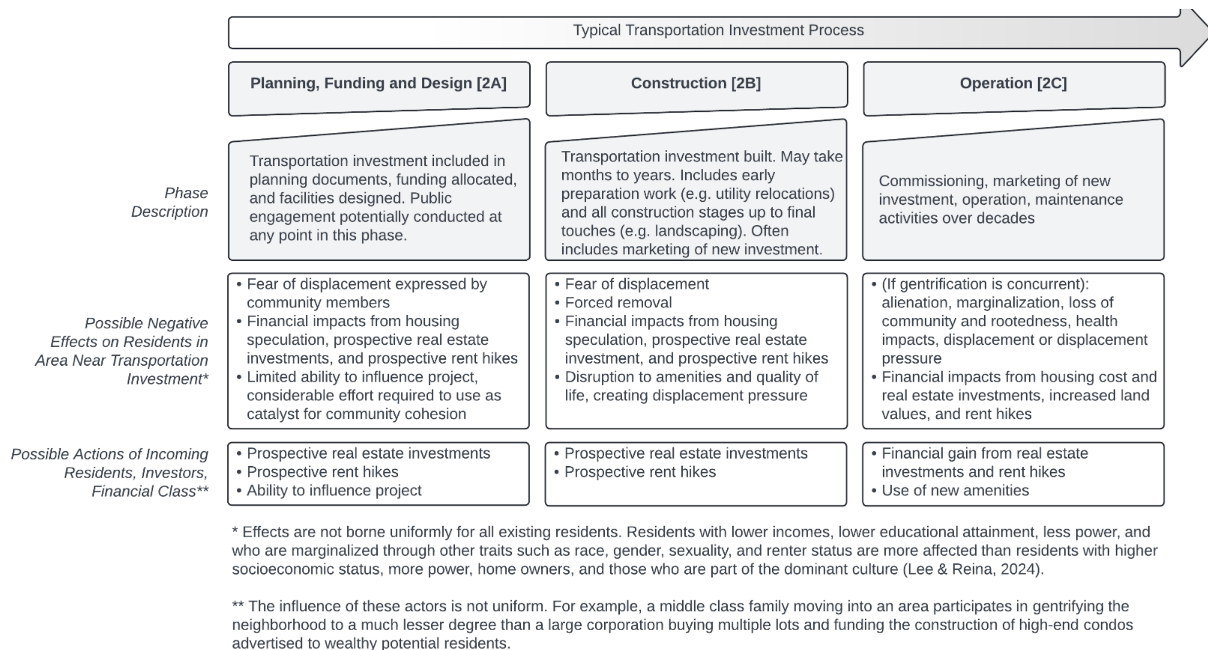
The process of gentrification occurs over time, as do transportation investments. As both evolve, they may interact, overlap, and influence one another. Different phases of transportation

planning and construction generate different responses and actions by individuals, investors, and public agencies in relation to gentrification. To help transportation planners, policymakers, designers, and engineers understand what mechanisms may be at play during their work, we developed a second conceptual framework (Figure 2).

Figure 2.2 illustrates how impacts to land values and neighborhood socioeconomic and demographic change can occur across a project timeline. Empirical evidence, for instance, shows that land values can shift as soon as plans for rail station locations become public (Knaap et al., 2001). Also, during the planning phase, effects on residents are linked to prospective and speculative actions from investors that may result in increased rents [2A]. During construction, quality of life disruptions can create displacement pressure, and in some cases, can involve forced removal if land is acquired to make way for the transportation project [2B]. A significant body of research documents that rail transit can positively impact land values in both the pre-service (planning and construction) and operative phases (Peng & Knaap, 2023; Rennert, 2022) [2A, 2B, 2C].

There is a common conception that construction of transportation projects [2C] has a direct causal link to gentrification, and negative outcomes like displacement and cultural erasure (see the Race and Gentrification section below) (National Academies of Sciences, Engineering, and Medicine, 2022; Robinson et al., 2020). Qualitative work has consistently identified that low-income, vulnerable tenants experience consistent fear of displacement from their homes, especially in gentrifying neighborhoods (Slater, 2009). In the section *Relationship between Different Transportation Investments and Gentrification*, we analyze the existing academic literature to understand whether there is quantitative evidence that construction of transportation projects is associated with gentrification and displacement. That section establishes that the data is complex, mixed, and depends largely on mode.

Figure 2.2 Conceptual Framework: How Might the Process of Gentrification Intersect with Different Phases of the Transportation Infrastructure Lifecycle?



Source: *The authors, based on a review of the literature.* ***Note:*** *When transportation investments are associated with broader processes of gentrification, the relationship between the two evolves over time. Planners, policy makers, community engagement facilitators, economic and data analysts, designers, construction engineers, and transportation operators can use this framework to understand when and how their specific role may influence the gentrification process.*

What Are Gentrification and Displacement?

In this section, we explore how scholars have defined gentrification and review the evidence related to its causes and influences. We also define displacement and its relationship to gentrification. Then, we identify indicators used to measure both gentrification and displacement.

Definitions of Gentrification and Displacement

Ruth Glass, a British sociologist, first introduced the term gentrification to encapsulate the causes and consequences of the in-movement of affluent newcomers into formerly working-class, disinvested neighborhoods in London. These newcomers would buy rental properties and improve them, resulting in increased property prices and displacement of working-class residents (Glass, 1964). Over ensuing decades, scholars identified this process in other major cities, alternatively terming it the “back to the city” movement or “central city revival” (Lipton, 1977). In the 1980s, Zukin (1987, p.129) defined gentrification as “the conversion of socially marginal and working-class areas of the central city to middle-class residential use.”

In the 1990s, Atkinson (2000, p. 149) defined gentrification as “a process of class succession and displacement in areas broadly characterised by working-class and unskilled households.” This focus on class was core to conceptions of gentrification given its origins in sociology. Despite this, there was disagreement about whether the focus for defining gentrification was about property or people: property value increases, for example, or replacement of populations by higher-income individuals (Galster & Peacock, 1986).

In the ensuing decades, many researchers added nuance by investigating stages of gentrification. Van Criekingen & Decroly (2003) broke down these transitions of impoverished areas into wealthy neighborhoods by analyzing improvements in the built environment, population change, and growth in social status through marginal steps. Work such as this investigating stages of gentrification over time typically finds that marginalized communities and artists with higher education levels may be the first gentrifiers, followed by middle-class residents seeking affordable but well-located housing, followed by wealthier individuals (Shaw, 2008). Stated simply, gentrification can be understood as “the process in which neighborhoods with low socioeconomic status experience increased investment and an influx of new residents of higher socioeconomic status” (Hwang & Lin, 2016, p.10).

In the current era, scholars have remained faithful to Glass’s conception of gentrification, generally agreeing that gentrification involves an influx of financial capital and higher-income newcomers into a disadvantaged place (Freeman et al., 2024). But the effort to understand its mechanisms has elicited considerable additional research. Gentrification is dependent on context, and empirical work has found it occurs unevenly across time and space (Lees et al., 2008). Despite this agreement, numerous challenges remain in defining the term.

For example, although the concept of gentrification is frequently associated with racial demographic change and displacement, there is limited published scholarship on the concept of race and gentrification with mixed findings. Fallon (2021) indicates that race is not typically used as a binary or deciding factor in defining gentrification. Others have argued that race is, at least in the US context, inseparable from discussions of political power in cities, and thus directly tied to gentrification (Betancur, 2002; Smith, 2006). This situation poses difficulties to practitioners, since for transportation researchers, planners, and policymakers seeking to apply a transportation equity lens, the connection between gentrification and race is a critical aspect of decision-making. In particular, transportation equity approaches require that policy decisions acknowledge the disproportionate harm of gentrification on people of color.

Critical scholarship emphasizes that definitions of, and research about, gentrification should be inseparable from its origins, which were rooted in describing a neighborhood expression of class inequality (Slater, 2009). This line of thinking points out the fact that the original definitions of gentrification were focused on a multi-stage process that would eventually culminate in the displacement and replacement of lower-class individuals in gentrifying

neighborhoods. Accordingly, some argue that definitions of gentrification should encompass metrics of displacement, but many current scholars leave them out (Brown-Saracino, 2017).

In this review, we define gentrification as the influx of new investment and new residents with higher incomes and educational attainment (who are disproportionately likely to be white) into a formerly disinvested area home to lower income residents (Chapple & Loukaitou-Sideris, 2019). Secondly, we define displacement as the removal, relocation, or hindering of incumbent residents, who are typically lower income, from remaining or moving to gentrifying areas (Marcuse, 1985). Displacement is multifaceted. Displacement can occur outside of gentrifying neighborhoods, in places that are high- or low-income, changing rapidly, or changing slowly. In the context of gentrification, Slater (2009) dissects the foundational work of Marcuse (1985) on displacement into several components:

- Direct displacement, which is when residents are forced to move due to forces outside their control, like rent increases or a building sale (including in the context of right-of-way acquisition for a transportation facility).
- Exclusionary displacement, a critical and underexplored aspect of gentrification. This process describes how former residents, or other low-income households, may be unable to move into gentrified areas due to increased costs.
- The broad concept of displacement pressure, or the combined effect of physical and cultural changes on incumbent residents as neighborhoods change. This could include seeing friends or family being displaced, departure of favorite stores, increased policing, and shifts in culture, even if the incumbent residents are able to stay. Easton et al. (2020, p. 291) note that "acknowledging such factors takes fuller account of the social and psychological aspects of neighbourhood change by encompassing the perceived loss of local support networks through outmigration, as well as the disappearance of familiar local community services."

Race and Gentrification

In the popular consciousness in the United States, gentrification, race, and displacement are deeply interlinked. This, however, has not always been the case. The earliest examples of gentrification in the United States in the 1960s and 1970s were concentrated in a few mostly white, working class central-city neighborhoods that were seen as attractive for investment (Sutton, 2018; Smith, 1979). In parallel at that time, segregation in inner-city neighborhoods was worsening, as primarily Black and Latino neighborhoods suffered from the negative effects of redlining, urban renewal, and discrimination. These neighborhoods did not attract significant investment or in-movement of higher-education, higher-income individuals (Sutton, 2018).

As gentrification of central cities expanded in the ensuing decades, however, these latter neighborhoods, previously off-limits to investment and in-movement of gentrifiers, began to see

rapid change (Lees et al. 2010). Qualitative evidence showed a repeated process of disadvantaged residents of color being excluded from the benefits of redevelopment and ultimately displaced (Hyra, 2015; Betancur, 2002). Gentrification contributed to increases in interpersonal and structural violence, and a cycle of social fragmentation for residents (Fullilove and Wallace, 2011). It is worth nothing, however, that individuals' experience of gentrification varied; the opinions of Black residents depended on residential tenure, with some positive and some negative outcomes (Freeman, 2004).

Rucks-Ahidiana (2022, p.174) recently argued that gentrification can be understood through the lens of racial capitalism: "[gentrification is a] process by which profits accumulate in low-income neighborhoods through development and homeownership that varies in presence and degree by how the broader neighborhood is racialized." Thus, while gentrification can occur in any neighborhood eligible to gentrify, neighborhood design and experiences are influenced by racial structures, and always within a super-structure of institutions that exist under racial capitalism. In the United States, this puts communities of color at a distinct disadvantage in the redevelopment process, leaving them vulnerable to displacement. Lived experiences indicate that transportation-induced gentrification and displacement reproduce racist planning practices and widen disparities for Black communities (National Academies of Sciences, Engineering, and Medicine, 2022).

Scholars have identified mixed outcomes when quantifying the disproportionate effects of gentrification and displacement on communities of color. On the one hand, several quantitative studies find that displacement resulting from gentrification is relatively rare for communities of color (Ellen and O'Regan, 2011; McKinnish et al. 2010), though some critics suggest that race is inadequately defined and understood within the larger social and political context s (Sutton, 2018). On the other hand, Robinson et al. (2020) show that low-income, Black communities are adversely affected by gentrification and displacement in terms of income distribution and affordable housing. Hess (2020) also found that Black residents were displaced after transit-induced gentrification. In communities of color, gentrification and displacement can drive not only the out-movement of people from their homes, but significant changes to culture and neighborhood businesses (Small Business Anti-Displacement Network, 2024). Businesses, often owned and operated by residents in such communities, may lose their customer base and be unappealing to new residents in gentrifying neighborhoods (Lung-Amam, 2021).

Causes and Influences

Scholars have been debating the root causes of gentrification for decades (Zukin, 1987). Some have argued that gentrification was an expected outcome of the function of capital markets for land and property in urban areas (Smith, 1979). Others suggested that gentrification was at least in part attributable to shifting preferences of households for urban land over suburban land, especially in the post-industrial age (Ley, 1986). Most agreed that government, especially local

government, could be highly influential in shaping both the supply and demand for land in gentrifying areas (Grifith, 1996). In the present era, scholars acknowledge the causes of gentrification to be multifaceted, dependent on local context, and based on supply-side, demand-side, and political factors (Finio, 2001).

As noted, for gentrification to occur, neighborhoods need to be disinvested and home to lower-income individuals. In a classic monocentric city model, as the city expands over time, certain areas of the city will age and, in some cases, become less expensive due to declining building infrastructure and a lack of investment. These areas retain their proximity to the urban core, and thus have high accessibility, but a “rent gap” may appear between the potential rent that landlords could charge in the context of new investment (or the arrival of new, wealthier residents) and the current rents for housing and other uses in degraded buildings (Smith, 1979). Eventually, if market conditions align, investors and landowners will upgrade properties with the goal of attracting higher-income individuals to the area. Scholars who describe the gentrification process in this way are focused on the supply side of the debate.

On the demand side, scholars examine this same situation through the perspectives of the middle-class or upper-class individuals who eventually move to gentrifying areas. In the post-industrial city, white-collar employment became relatively concentrated in some accessible urban cores as blue-collar employment hollowed out. Certain households with employment in the core who value leisure time over commuting, and who do not prioritize the ease of acquiring more space in the suburbs, may prefer gentrified housing stock (Laska & Spain, 1979). The educated class of gentrifiers may have preferred urban environments to suburban ones because of their diversity and other unique attributes (Kerstein, 1990).

As these forces of supply and demand interact, government action can tip the scales, influencing the choices of households, landowners, and investors. Governments can influence urban land use, provide new transportation options, create historic districts, and provide financial incentives or tax relief for redevelopment (Zuk et al., 2018). Any of these actions could directly or indirectly encourage gentrification, or even be its root cause. The converse is also true. After World War II, governments created the very conditions that maximized rent gaps in certain neighborhoods. Urban renewal programs explicitly targeted neighborhoods in the urban core for resident removal and redevelopment (D. S. Hyra, 2012). Many argue that post-war urban policy has been intentionally pro-gentrification, and intentionally denied benefits of investment to populations of color and families with low incomes (Hackworth & Smith, 2001). Some suggest, moreover, that changes to federal housing policy beginning after 1980, including the HOPE VI program (which redeveloped many of the nation’s degraded public housing complexes into mixed-income, mixed-use neighborhoods), have bolstered contemporary gentrification (Wyly & Hammel, 1999). This is especially true in American cities marred by decades of racial

segregation and underinvestment, where underserved populations are most vulnerable to the negative impacts of gentrification (Goetz, 2011).

Given that gentrification cannot be attributed to any single cause, a stream of research investigating the conditions by which it emerges at the neighborhood level has grown over the past several decades. Neighborhoods with proximity to downtowns, high-quality housing stock, access to public transportation, adjacency to cultural or educational institutions, proximity to other gentrifying places, and older buildings are all more likely to gentrify (Brown-Saracino, 2017). Racial demographics also influence gentrification; areas of severe racial segregation may be less likely to gentrify than more integrated places (Hwang & Sampson, 2014; Timberlake & Johns-Wolfe, 2017).

Effects of Gentrification

Gentrification has complex effects for individuals, neighborhoods, and populations at large. Figure 1 provides a summary of some of the primary impacts of gentrification for both neighborhoods and individuals [1G]. In this section, we detail what is known about these effects overall, though we delve into relationships between gentrification and transportation investments in a later section.

Population and Neighborhood-level Effects

Gentrification can have both positive and negative effects at the neighborhood or city scale (Atkinson, 2004). Positive impacts can include neighborhood stabilization (e.g., stable housing prices), increased property values, increased government revenue, decreased vacancy rates, momentum for further development, and reduced urban sprawl. Negative impacts may include displacement, community conflict, loss of affordable housing, increased homelessness, industrial and commercial displacement, loss of social diversity, and cultural displacement (Hyra, 2015). Gentrification does not have a clear or consistent impact on crime. Crime levels in gentrifying neighborhoods can change over time and differ for property crime versus violent crime (Barton, 2016; Kirk & Laub, 2010; Kreager et al., 2011).

Effects for People in Gentrifying Neighborhoods

Gentrification can have both positive and negative impacts for incumbent residents of gentrifying neighborhoods, as well. For example, gentrification can result in neighborhoods becoming more economically mixed (Atkinson, 2004). There may be benefits of living in more economically diverse neighborhoods, including better education outcomes for low-income children (Chetty et al., 2016); increased access to goods and services; and increased property values, a potential boon for homeowners (Freeman, 2009). Financial outcomes for people who stay in gentrifying neighborhoods may improve, thanks in part to higher wages (Ellen & O'Regan, 2011) and growing credit scores (Hwang & Lin, 2016).

Conversely, there is evidence of negative psychological effects for incumbent residents of gentrifying neighborhoods, who may experience a sense of alienation (Freeman, 2009). Black residents in particular may experience increased feelings of isolation and stress due to feeling unwelcome in their own neighborhoods (Gibbons et al., 2018). The economic benefits of increased access to goods and services may be diminished for low-income residents if they cannot afford those goods and services (Freeman, 2009). New retail in gentrifying neighborhoods may have cultural and racial significance; some long-time Black residents perceive new retail as "exclusive" and "white," and therefore off limits (Sullivan & Shaw, 2011). This can be part of a broader pattern of what Hyra (2015) calls "cultural displacement."

There is limited scholarship quantifying citizen sentiment regarding gentrification and displacement. In practice, public agencies capture citizen sentiments through surveys and community engagement events. Surveys are often not distributed in a fashion that fairly represents the population, however, and gentrification and displacement may worsen sampling challenges (Owens et al., 2024).

As their neighborhoods change, people may also experience displacement *pressure*: the feeling that they will soon be displaced, that they cannot afford to live in the neighborhood for much longer, or that they no longer belong there (Figure 2). Twigge-Molecey (2014) argues that this, too, has a negative impact on psychological well-being.

Effects for Displaced People

Due to methodological challenges, like finding and maintaining contact with people who move away, it is difficult to quantify the impact of gentrification on people who are displaced (Padeiro 2019), but *theories* documented in the literature include the following (all require further investigation):

- *Jobs, economic opportunity, and mobility*: Displaced people may have to live further from their jobs and could experience higher transportation costs to reach the same jobs (Chapple & Loukaitou-Sideris, 2019).
- *Transportation impacts*: People may be displaced to the urban fringe or suburbs and become more car-dependent (Cole et al., 2019).
- *Access to goods and services*: In being displaced to the urban fringe or suburbs, people may have diminished access to services and amenities (Cole et al., 2019).
- *Housing conditions*: Displaced people might accept more expensive, precarious, or overcrowded housing (Twigge-Molecey, 2014).
- *Psychological impacts*: People who are displaced, either by forced removal or economic changes, may experience "traumatic psychological stress" (Fullilove, 2016).

Indicators and Measures of Gentrification and Displacement

Measurement of Gentrification

Those seeking to quantify the process and effects of gentrification first need to operationally define what exactly gentrification is and where it is occurring. Galster and Peacock (1986) designed a framework for this process: first, one must identify areas that can later gentrify because they meet initial criteria of disinvestment, lower incomes, or other indicators. Second, changes in that place must be tracked over time, and those places which meet certain criteria are said to gentrify.

In a review of the quantitative gentrification literature, Finio (2021) details this process. Figure 3 lists the variables scholars use to identify or study gentrification, and Figure 4 shows the frequency of outcomes used as indicators of gentrification in extant research. In sum, there is no universally accepted method for determining which areas can gentrify, are gentrifying, or have gentrified. This results from several issues:

1. *Time*: Those operationalizing data to identify gentrification must deal with the passage of time by selecting a period during which to analyze change.
2. *Geography*: Analysts must consider geography: the neighborhood, citywide, or regional reference scale of the study; and the geographic analysis unit, such as the neighborhood, block, or census tract.
3. *Thresholds of gentrification*: Choices must be made with respect to the criteria that determine whether or not a place has gentrified, such as changes to household income, occupational shares, education levels, or home prices. This factor is complicated by the choice of a specific threshold—such as a specific percent change in the share of adults with a college education—that qualifies as gentrification.

Over decades of empirical work, various researchers have chosen different methodologies and justifications across those three areas. Those choices have been idiosyncratic and are sometimes justified by theory but are often made without explanation and instead justified by convenience or data availability.

With respect to time, scholars typically utilize census intervals of 10 years due to data availability issues, though this has changed over the past decade as the American Community Survey has enabled more frequent measurement (Barton, 2016). However, gentrification theory makes no specific reference to the amount of time the process takes, and scholars widely agree that it is context dependent. Meltzer (2016) and others have called for studying gentrification over multiple decades rather than just over 10 years, but this longer-term approach is atypical.

Geography poses numerous additional challenges. The first is scalar. To determine if certain places are gentrifying, some have measured changes in variables like median income in neighborhoods relative to changes in the metropolitan area (or city or region). Gentrification as a process does not typically respect political borders (though it may be influenced by them), but for the sake of convenience, some researchers limit the scope of analysis to certain political boundaries. While many include suburbs in their analyses, these areas are sometimes left out (Ley, 1986).

Once a region or study area is chosen, a measurement choice must be made with respect to the unit of analysis. Census block groups and tracts are commonly utilized as proxies for neighborhoods, but these geographies are large enough to make measuring nuances at the street or property level impossible (Timberlake & Johns-Wolfe, 2017). Further, data at these levels is generally dated. Additionally, boundaries of these units of geography change every 10 years, leaving complex decisions to be made about how to consistently measure change over time.

Last and most complex is the choice of criteria to determine where gentrification has occurred. Typically, scholars first delineate which areas are "eligible" to gentrify by excluding those with higher average incomes and other metrics; these areas cannot gentrify as their residents are not low income or marginalized in some other way (Freeman, 2005). Next, scholars generally pick a threshold which must be crossed with respect to socioeconomic or demographic change, such as a percentage increase in household income, or a major shift in the share of those with a college degree. More involved quantitative work consists of the creation and tracking of socioeconomic indices relative to regional averages (Hwang & Lin, 2016; Yonto & Thill, 2020). Variables used vary widely, but typically can be aligned with supply- or demand-side factors, connecting back to gentrification theory (Figure 2.3; Figure 2.4).

The choice of both how to delineate which areas are eligible, and also how to mark them as gentrified, is inconsistent across empirical work. Broadly described, the typical process is to identify poor neighborhoods that experience rapid increases in income, home prices, and educational attainment or high-paying occupational shares. Notably, researchers only infrequently include direct measures of displacement in these definitions. This is primarily due to challenges with measuring displacement, discussed in the next section.

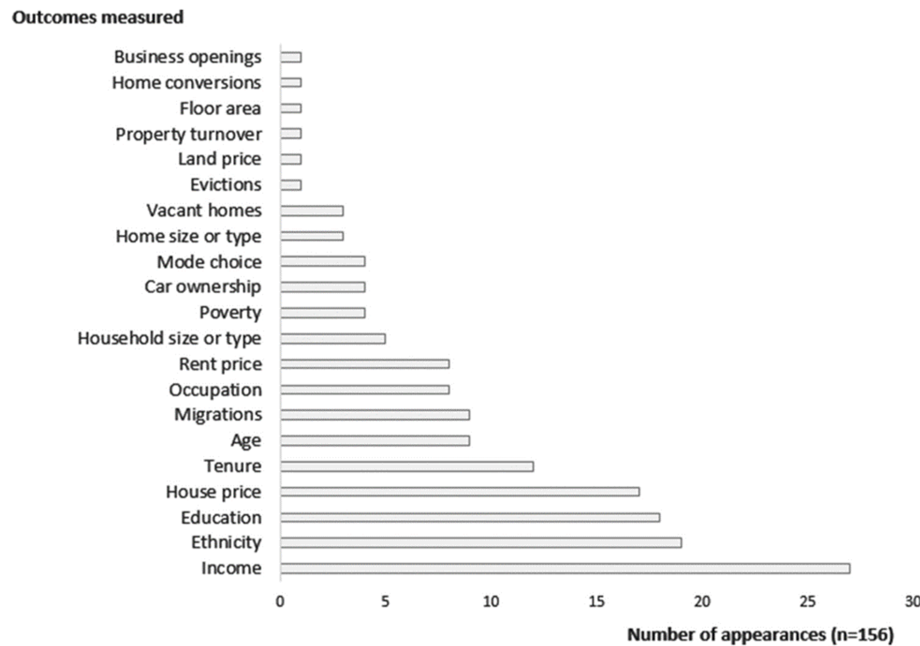
Figure 2.3. Variables Used to Identify Gentrification

Demand	Supply
Age of residents	Airbnb rental share
Number and location of coffee shops	Number of green-roofed structures
Educational attainment of residents	Home prices (average, median, or from sales data)
Employment or unemployment rates of residents	Housing age
Ethnicity of residents	Housing stock change
Family composition (share of couples or childless couples, share of same sex couples)	Loan data
Family or household income (average or median)	Number of bedrooms in housing units
Foreign born share	Property taxes
Gini coefficient	Rent price (median, gross, average)

Demand	Supply
Household size	Sales data
In-movement/mobility rates	Structure type
Occupation	Tax arrears data
Per capita income or median income (individual)	Tenure
Population change	Unit size
Population density	Unit type
Poverty	Vacancy
Race	Visual surveys
Rent burden (share paying over certain income)	
Share of artists	
Share receiving public assistance	

Source: *Finio (2021).*

Figure 2.4. Outcomes Used as Gentrification Indicators in TOD-Gentrification Studies



Source: *Padeiro (2019).*

Measurement of Displacement

Brown-Saracino (2017) reviews the state of the gentrification and displacement debate and finds two opposing camps, informed to a large degree by different research approaches. As noted, in macro-level quantitative research, scholars in recent decades have generally found that

displacement is “far from endemic” in gentrifying places and argue that it must be measured carefully to avoid overstating its occurrence (p. 520). Qualitative scholars, on the other hand, have painted a “dire picture” of gentrification because it is “deeply consequential for longtime residents” due to displacement and neighborhood cultural or economic change (p. 519). Nearly a decade later, these debates are ongoing; qualitative researchers continue to find gentrification a severe social problem for low-income communities, while quantitative researchers articulate a mixed picture. These differences are to some degree attributable to variation in scale and measurement approaches, as quantitative research generally relies on taking averages across areas and does not assess human factors like qualitative work does. Despite this limitation, quantitative research sets bounds on the scale of the problem, which can make dire consequences for certain populations and communities seem more solvable from a policy perspective. However, such quantitative work, which implies a limited scope of displacement, can also be used by policymakers to dismiss the process as irrelevant or inconsequential, with potentially harmful consequences on people experiencing it.

Easton et al. (2020) summarize the state of displacement identification and measurement. They argue that quantifying the extent to which populations are displaced during gentrification is challenging, and empirical progress has been slow, for two reasons. First, as discussed, there is extensive disagreement about how to identify which neighborhoods are gentrifying. Different definitions of gentrification can yield significantly different maps of which places are gentrifying, and thus different information on which populations are displaced. Second, and more importantly, there are difficulties in measuring movement of people over time in and out of gentrifying neighborhoods with currently available data. In short, it is hard to identify displacement at scale with quantitative data (Easton et al., 2020).

Several problems confound attempts to measure displacement and causally link it to gentrification. Households can *choose* to move. Or households can be *forced* to move through eviction, rent increases, or other issues. Without microdata or survey information on household movement decisions, most studies have to rely on simple move-in or move-out counts. Identifying which moves are involuntary (and thus can be defined as displacement), out of a set of total moves of which many may be voluntary, is challenging. With respect to gentrification as a process, the in-migration of higher-income households may or may not directly cause the displacement of incumbent households (Easton et al., 2020). Some refer to this gentrification-without-displacement as population replacement, or succession (Hamnett, 2003).

Those seeking to identify displacement due to gentrification need information about the population in the gentrifying area before the gentrification process starts and must track that population over time to see if and where households have moved. Census data can provide information about neighborhood change in the aggregate between census periods. While this data can be used to show that there are fewer low-income people in a neighborhood, it cannot provide

information about why those people have left. This could identify exclusionary displacement, but proving direct displacement with such aggregates is challenging. While there are longitudinal social surveys that can provide information about households over time, these studies are generally limited in the number of participants and not fine-grained in spatial scale, limiting their usefulness for gentrification analysis within specific geographies.

Large, consumer-reference datasets aggregated by for-profit corporations has shifted research on displacement in recent years (Song & Chapple, 2024). These datasets allow tracking of households on an annual basis with respect to their addresses; they generally also include some socioeconomic and demographic information, enabling displacement analysis at scale, as called for by Easton et al. (2020). However, these data are proprietary and do not include information about *why* households moved (e.g., whether those moves were voluntary or not), only that they have or have not moved. Additionally, these consumer reference datasets rely on registered postal addresses, credit reports, and utility bills, which may leave out vulnerable groups like people experiencing homelessness or those living with family or friends. Thus far, evidence from these new datasets is limited, but it may bridge the divide between qualitative and quantitative research by showing the degree to which displacement of low-income populations occurs in gentrifying places.

Relationship between Transportation Investment and Gentrification

Enhanced accessibility created by transportation investments may be capitalized into land prices. As such, transportation policy can be a catalyst or accelerant for processes of urban change like gentrification and displacement (Padeiro et al., 2019). A wide body of research has linked investment in transportation infrastructure to higher land and property values (Baum-Snow & Kahn, 2000; Mohammad et al., 2013). This is important because increased land value is a core element of gentrification theory, which attributes the phenomenon's root causes to shifts in the supply and demand for land, which can be caused by public policy, consumer preferences, and the actions of investors.

Dawkins and Moeckel (2016) introduce the concept of transit-induced gentrification, the process by which transportation investments could ultimately displace or exclude transit-dependent residents through land value uplift. Nevertheless, evidence of the causal relationships between transportation infrastructure and gentrification is mixed. Moreover, at least some transportation investments occur *after* processes of gentrification take hold, not the other way around. For example, research linking cycling infrastructure and gentrification, though sparse, suggests investments tend to occur after gentrification trends start appearing (Ferenchak & Marshall, 2021). In this section, we synthesize research on the relationships between different transportation investments on gentrification and displacement. For each mode, we define the type of investment, indicate where investments occur, provide a conceptual framework to explain how

gentrification and displacement may occur, and document any evidence of gentrification and displacement noted in the literature. Research on this subject remains contentious and ill-defined, especially for modes other than rail transit. But we present a summary overview of the existing US-based evidence on transportation investment-induced gentrification and displacement in Table 2.1, which summarizes the findings from current academic research in the United States on the relationship between different modes of transportation, and gentrification and displacement. Note that not all transportation modes have a direct or proven relationship to gentrification or displacement. there are also gaps in the literature for many modes—especially active transportation—for which there is simply inadequate research to make a conclusion.

Table 2.1. Summary: What Do We Know About the Relationship Between Different Modes of Transportation Investment, and Gentrification and Displacement?

Investment type	**Research Evidence (including peer-reviewed papers and textbooks by peer-reviewed academics)**	
	Gentrification	**Displacement**
Public Transit: Rail	There is some association between rail-based transit and gentrification.	Limited research. Evidence for an association between rail projects and displacement is mixed, particularly in the quantitative literature.
Public Transit: Bus and Bus Rapid Transit (BRT)	Limited research. Mixed evidence finds both increases and decreases in property values associated with bus or BRT investments.	Research gap.
Greenways and Trails	The literature shows some evidence of increased housing prices associated with trails and greenways, but studies do not document demographic change. Evidence suggests that new greenways and trails are typically constructed in already gentrifying areas.	Research gap.
Bike Lanes	Limited research. Evidence suggests that new bike lanes are typically constructed in already gentrifying areas.	Research gap.
Sidewalks and Pedestrian Infrastructure	The literature shows mixed evidence of the association between increased walkability* and housing prices. Demographic change associated with increased walkability is a research gap. *In the literature, walkability is typically defined by proximity to destinations, independent of the availability or condition of pedestrian infrastructure. This aligns with how the U.S. Department of Transportation's defines walkability: the likelihood of making active trips to key destinations (U.S. DOT, 2024) but means that there is no current research on the association between pedestrian infrastructure and gentrification.	Research gap.
Highway Extensions	Research gap.	There is some limited academic literature showing an association between highway extensions and commercial displacement.

Highway Removals	Literature shows some evidence of increased property values associated with highway removals, but demographic change is a research gap.	Research gap.

Source: *The authors, based on a review of the literature.* ***Note:*** *This table does not include insights about the role of transportation project right-of-way acquisition in spurring displacement.*

Public Transit

There is substantial research studying the impacts of public transit infrastructure—particularly rail modes—on neighborhood change. In urban areas, transit stations are often a focal point for development activity and urban change, and in some places, a locus for gentrification. In the United States, light rail, heavy rail, and commuter rail systems dominate fixed-guideway transit provision, and have been greatly expanded in the post-war era. Bus is the dominant mode of public transit ridership nationally, but, compared to rail transportation, its effects on the surrounding community have received significantly less attention in academic research. This is likely because bus stops are much more evenly dispersed compared to rail stations and typically require lower-cost fixed capital infrastructure. Less widespread modes, such as bus rapid transit (BRT) and streetcars, have received some academic attention as these systems have expanded in size in recent decades.

Light rail, heavy rail, commuter rail, and streetcars

Heavy rail and commuter rail systems are relatively common in major metropolitan areas throughout the United States. Light rail systems typically have significantly lower carrying capacity than heavy or commuter rail systems but share characteristics of frequent service and dedicated stations. Streetcars provide public transit service in some parts of the country as well. The attention rail systems, particularly light and heavy rail, have received in the gentrification and displacement literature is likely because these systems are high-cost investments that involve the development of fixed, permanent infrastructure in and around stations. Costs for rail systems can exceed $100 million per mile, requiring significant public subsidy (Levy, 2018).

Broadly, researchers find that rail systems influence neighborhood change and potentially catalyze gentrification (Padeiro et al., 2019). The evidence, however, is mixed on the degree of change, the amount of displacement that occurs, and the timeline over which these changes occur (Delmelle, 2021).

Numerous papers assess the links between heavy rail systems and nearby property values, mostly finding that that transit increases values. Lin (2002) analyzed property values in Chicago over the course of several decades, finding the strongest property value increases near transit stations. Kahn (2007) found that some cities that expanded rail systems experienced gentrification in station-adjacent neighborhoods, consisting of increases in home values and the share of residents who are college graduates. Kahn found more significant evidence of gentrification in areas with better walkability (what he terms "walk and ride stations"), versus

stations in more automobile-oriented areas ("park and ride stations"), which experienced opposite trends. Grube-Cavers & Patterson (2015) analyzed both heavy and light rail in Canadian metropolitan areas and found that neighborhoods with proximity to transit are more likely to gentrify.

Light rail systems, which have greatly expanded in the United States in recent decades, have also been a focus of research. Dong (2017) focused on Portland, Oregon, finding no consistent evidence of transit-induced gentrification near stations. Similarly, Baker & Lee (2019) studied 14 metropolitan areas with light rail systems, finding no consistent evidence of an association between light rail and gentrification, and instead arguing that the link is limited and context dependent. On the other hand, Bardaka et al. (2018) found evidence of gentrification resulting from the construction of Denver's light rail system, as did Heilmann (2018) in Dallas. Chava & Renne (2022), finally, analyzed light rail stations across the country from 1970 to 2010. While they did find evidence of gentrification in various metropolitan areas, the link was context-dependent, and in some cases, the gentrification *preceded* the completion of rail investments.

Streetcars and commuter rail have received relatively less research attention. Deka (2016) analyzed commuter rail systems in New Jersey, finding property value increases, but little evidence of significant demographic change or displacement. In non-peer reviewed work, Hinners et al. (2018) found evidence of gentrification along several streetcar corridors. Hess (2020) found a relationship between racial composition and transit stations in Seattle. Between 1980 and 2014, the proportion of Black residents in station areas decreased while the white population increased. In suburban areas, however, they found an opposite trend. This suggests a displacement of communities of color from urban areas that receive transportation investments and experience greater accessibility.

Most academic studies measure gentrification via increases in income or property prices, and generally avoid linking gentrification and displacement directly. Those who have studied displacement adjacent to transit find mixed results or little evidence of displacement (Delmelle, 2021). This finding is aligned with similar conclusions by Boarnet et al. (2018). Broadly, this research suggests that low-income people in gentrifying neighborhoods are more likely to leave those neighborhoods than are high-income people. However, this pattern is not unique to gentrifying neighborhoods; low-income people tend to move more often than high income people in all contexts, due to factors like income and housing precarity (Delmelle, 2021).

Bus services and bus rapid transit (BRT)

Regions across the country typically offer public bus service throughout urban and suburban areas. Like rail transit, bus systems can increase accessibility, potentially increasing land value. Bus systems, however, are less likely to have significant amenity impacts, because station infrastructure is either nonexistent or is installed at a much smaller scale. Our literature review

found no systematic analysis or case studies of the link between traditional bus systems and gentrification, even though public transportation is frequently cited as an influential factor in gentrification processes (Zuk et al., 2018). Further research is needed to assess whether the expansion, re-routing, or addition of new traditional bus lines can impact neighborhood change processes.

BRT is a relative newcomer to the public transportation landscape across the United States. Combining the fixed right-of-way of rail systems with the low cost and flexibility of bus vehicles, BRT is a cheaper path towards higher-capacity transit and therefore, in some cases, an alternative to light rail. Compared to traditional bus systems, BRT can require more substantial station infrastructure that could mimic the effects of small rail stations like those for light rail or streetcars. Despite this potential path of influence, BRT systems are generally understudied vis-a-vis their impacts on neighborhoods, gentrification, and displacement. Brown (2016) found that the high-ridership Los Angeles Orange Line BRT led to gentrification in the areas immediately proximate to stations. This gentrification resulted in higher home values, rents, and educational attainment proximate to stations compared to areas further away over the period from 2000to 2013. In Pittsburgh, Perk et. al (2010) did not analyze neighborhood change or gentrification specifically but found that property proximate to BRT stations is worth more than property further away, indicating a potential link to gentrification. A review of 11 BRT systems by Acton et al. (2022), also focusing on property values, found a mix of effects wherein BRT was linked to both appreciation and depreciation in property values. These and a few other studies on BRT, however, are exceptions. Most studies focus on an international context (Acton et al., 2022), and few, if any, attempt to identify a link to gentrification, yielding a research gap.

Greenways and Trails

Greenways and trails are distinct from the other transportation modes considered in this literature review by virtue of their dual function as both mobility infrastructure and green amenities.

New greenways are typically constructed to stimulate private development, encourage sustainable travel, increase local quality of life, and conserve green space in urban areas (Rigolon & Németh, 2018). Greenways can be integrated into bicycle and pedestrian networks, functioning as transportation corridors. They can also function as recreational facilities, ecological conservation resources, and cultural or historic spaces (Fábos & Ryan, 2004). Here, we focus on urban multi-use trails that provide active transportation connections between destinations, as opposed to local circulation within urban parks.

Since the inception of the field of landscape architecture, cities have been investing in urban trails and greenways. The movement to construct large, "signature" greenway projects emerged in the 1990s, often in partnership with investors from the private sector. In the 2000s, this

movement gained momentum after a few high-profile successes in large metropolitan regions. Multiple signature greenway projects have opened over the last decades, including the Atlanta Beltline in 2008 and the High Line in New York in 2009 (Bryant, 2019). Large-scale urban greenways can be an innovative way to repurpose aging infrastructure rights-of-way. The High Line was installed on a former New York Central Railroad spur; the Rose Fitzgerald Kennedy Greenway in Boston sits on land created from the burying of the Central Artery expressway. For these types of projects, cities sometimes reframe building greenways on repurposed rights-of-way as a sustainable planning strategy to contain or shape urban expansion, and reduce land fragmentation by creating corridors of green infrastructure that link other naturalized land (Horte & Eisenman, 2020).

The connection between greenways and gentrification can be characterized as a phenomenon identified by Immergluck & Balan (2018) as "environmental gentrification," the process by which "environmental amenities… such as parks, trails, improved walkability, and higher-density development will tend to result in higher land values and, without ample precautionary policies in place, substantially higher housing costs" (p.559). They also argue that higher land values and higher housing costs result in neighborhoods that are less diverse and more affluent. Bryant (2019) similarly argues that the rising land values and housing costs can result in the displacement of low-income residents and ultimately residential segregation on socioeconomic lines, with wealthier residents accruing most of the benefits from new greenways.

The relationship between greenway investment and rising land values is not necessarily linear. Rigolon & Christensen (2023) describe the "green gentrification cycle," in which gentrification can both precede and follow the installation of sustainability projects. They find evidence that green infrastructure projects tend to be constructed in disadvantaged neighborhoods that are already experiencing gentrification, rather than those experiencing continued disinvestment. In these cases, green infrastructure projects may amplify existing gentrification patterns, rather than initiating a pattern of gentrification.

While there is substantial literature on the relationship between new urban parks and nearby land values, there are relatively few empirical studies on the connection between land values and urban greenways. Those that exist tend to focus on the aforementioned "signature" greenway projects. Land and housing values within a half mile of the Atlanta Beltline increased by approximately 18 to 27 percent between 2011 and 2015 after the greenway was installed (Immergluck & Balan, 2018). A 2016 study of the impacts of the installation of the 606 linear park in Chicago found that housing price changes varied based on social and economic conditions around the trail. In high-income areas where housing prices were already strong and stable, the greenway had limited effect on housing prices. In lower-income areas with more volatile housing markets, housing prices increased substantially after the construction of the trail (Smith et al., 2016).

While these studies offer evidence of trail-related changes in housing prices, they do not measure socioeconomic or demographic changes. Researchers theorize that rising housing prices associated with gentrification may result in demographic change, but there is currently no evidence that greenways have a causal link to demographic change. In addition, the methodological challenges in measuring the contribution of the transportation component of an infrastructure investment are amplified for greenways: arguably, more than any other transportation investment discussed in this literature review, they provide desirable amenities for potential gentrifiers well beyond the mobility aspect of the investment.

Bicycle Lanes

In the broader planning and transportation advocacy sectors, bicycle lanes have been the focus of much discussion in relation to gentrification. Bicycle lanes are often perceived as harbingers of gentrification and a symbol of neighborhood change. Bicycle infrastructure refers collectively to a variety of linear bicycling facilities, including protected bike lanes, buffered bike lanes, standard bike lanes, sharrows (i.e., shared-lane markings), and off-street trails (Ferenchak & Marshall, 2021). Other types of bicycle infrastructure can include bicycle parking, bike-share stations, bicycle crossing and intersection treatments, and signalization.

Many US cities are investing heavily in bicycle infrastructure to help them reach their goals for environmental sustainability, public health, equity, and urban revitalization. In addition to installing more protected facilities, some cities are attempting to increase equitable access to bike facilities by specifically targeting historically disadvantaged neighborhoods for bicycle infrastructure improvements (Lugo, 2018). However, these attempts can lead to backlash (or "bikelash"), with residents sometimes expressing fear of gentrification resulting from the new infrastructure.

Conceptually, bicycle infrastructure installation in historically disinvested neighborhoods could catalyze gentrification because it increases transportation accessibility (Soria et al., 2021). This increase in accessibility could then result in greater neighborhood desirability for prospective residents, leading to increased housing competition and growing property values in those areas. The increase in accessibility is not the only potential gentrification mechanism: the bicycle and its supporting infrastructure hold symbolism that some argue is used explicitly to attract "talent" or a "creative class" as part of economic and community development efforts (Hoffmann, 2016; Hoffmann & Lugo, 2014).

New residents attracted to areas with expanded bicycle facilities are more likely to have the power and influence to demand more infrastructure, spurring further economic growth and still higher property values (Ferenchak & Marshall, 2021). Higher property values can then result in the displacement of long-term residents who would not benefit from the resulting cycling network improvements. The symbolism associated with bike lanes could also result in a loss of

sense of belonging for existing residents such that those who are not displaced still do not benefit from the new infrastructure (Hoffmann, 2016).

Studies assessing the links between bicycle lanes and gentrification generally show that already gentrifying neighborhoods tend to attract bicycle infrastructure, rather than vice-versa. In their study of bicycling infrastructure across 29 cities in the United States, Ferenchak and Marshall (2021) found a stronger pattern of socioeconomic and demographic change as a *precursor* to facility installation, rather than of demographic changes after installation. Further, this study observed that a neighborhood's distance from downtown was a much stronger predictor of economic and demographic change, suggesting that gentrification is most likely to happen in centrally located areas regardless of the amount of investment in their bicycling infrastructure.

Another study conducted in Los Angeles between 2010 and 2015 found a negligible correlation between the extension of bikeways and neighborhood gentrification during the same period, using demographic changes by census tract as a proxy for gentrification (Soria et al., 2021). The impact of bikeways on property values can also vary for different types of facilities. A study of bikeway expansion in Portland found that between 2000 and 2013, housing sale prices rose with better access to regional shared-use bicycle paths, such as greenways, but proximity to on-street bicycle lanes negatively affected housing prices (Welch et al., 2016).

In some cases, cities improve bicycle facilities in multiple neighborhoods concurrently, such as citywide lane restriping or installing a bicycle facility that stretches across multiple neighborhoods. Comparing potential property value increases resulting from the facility improvements in individual locations is methodologically challenging. Studies have sought to account for this added complexity by comparing temporal changes in economic and demographic characteristics of census tracts that experienced bikeway development against tracts without development (Soria et al. 2021).

Despite limited evidence that bicycle lanes cause gentrification, new bicycle lanes frequently engender backlash in neighborhoods where they are perceived as symbolic of gentrification. In her research linking race, income, and bike infrastructure, Hoffman (2016) suggests people of different economic, racial, and cultural identities have different experiences of bicycle culture and facilities. Residents of low-income neighborhoods or people of color may perceive bicycle facilities to be indicators of the power of white, wealthy interests. These perceptions, coupled with historic disinvestment by and mistrust of government, may mean that low-income communities or neighborhoods of color are less likely to advocate for bicycle infrastructure improvements, and may even organize in active opposition to proposed investments. This can exacerbate disinvestment and result in less investment in bicycle infrastructure in those neighborhoods.

Opposition to bicycle lanes as harbingers of gentrification is often layered with related opposition, most commonly, concerns about loss of parking and vehicle lanes. Some of the backlash stems from the perception that planners have insufficiently considered the actual needs and preferences of disadvantaged populations, such as lack of access to secure bicycle parking and the high costs of biking equipment. Low-income populations may also be dependent on cars to reach their jobs, particularly shift workers or those with long distance commutes, which can lead to opposition to any reduction in vehicle lanes or parking (Agyeman & Doran, 2021). Organized opposition to bicycle lanes can also come from a number of groups beyond those at risk of who fear coming gentrification, including retailers, conservative voters, and disaffected cyclists (Stehlin, 2015; Wild et al., 2018).

Sidewalks and Pedestrian Infrastructure

In the literature that explores the link between transportation investments and gentrification, pedestrian infrastructure receives relatively little attention. Studies that investigate the equity impacts of pedestrian infrastructure tend to focus on the distribution of infrastructure across neighborhoods and socioeconomic groups, and typically show mixed results.

Pedestrian infrastructure includes sidewalks, walkways, bridges, tunnels, and off-street shared-use paths delineated from moving traffic by vertical and/or horizontal separation. More broadly, pedestrian infrastructure includes street frontage, intersection and crossing treatments (marked crosswalks, refuge islands, pedestrian signage and signals), street furniture, and pedestrian-scale lighting. For rural or suburban roads, a walkway, shared-use path, or wide shoulder adjacent to the main roadway can serve as a substitute for a sidewalk (NACTO, 2015).

Existing pedestrian infrastructure tends to be concentrated in older, more central neighborhoods, where the street networks are densest (Knight et al., 2018). However, many neighborhoods across the United States lack adequate sidewalk facilities, with large network gaps or poorly maintained facilities. The quality of the public realm and the car-focused design of intersections, including crossings and signal timing, also impact safety and comfort for people walking. Further, many cities lack the basic data, planning and funding processes for filling gaps and upgrading and maintaining existing sidewalks and other pedestrian infrastructure. As a result, in the United States there are only sidewalks on 25 to 50 percent of urban streets, with higher rates in older city neighborhoods and lower rates in suburbs (Litman, 2024).

In the United States, only about one percent of total transportation infrastructure spending goes to public walkways (Litman, 2023). This includes building or maintaining sidewalks as stand-alone projects, or installing them as part of other transportation projects, such as new roadways (Litman, 2024). Most jurisdictions require owners to build and repair sidewalks adjacent to their properties. Roughly half of jurisdictions share costs with property owners and a small number pay the total costs for repairs (Shoup 2010). This infrastructure investment

mechanism is markedly different from that which fund the other transportation investments explored in this work.

Many cities and towns are now developing active transportation plans which systematically evaluate current facilities and identify and prioritize improvements based on needs like safety, equity, health, environmental sustainability, community and economic development, and Americans with Disabilities Act compliance. Since the early 2000s, as part of the "complete streets" movement, cities have adopted policies and regulations to ensure streets are designed and operated to allow for safe movement of all users, including pedestrians of all ages and abilities. In compliance with this, many cities and states have started explicitly including complete streets design and mobility principles as part of stand-alone or larger transportation infrastructure projects (Zavestoski & Agyeman, 2014). Because these projects include multiple other elements which could impact property values, it would be difficult to separate out the impact of new pedestrian infrastructure alone from the impacts of the larger project.

Installing or repairing sidewalks can increase access to and within neighborhoods. Our conceptual framework (Figure 1) suggests that increased access can generate demand for housing, and in doing so, may be associated with gentrification. However, pedestrian infrastructure provides only modest increased access to destinations compared to other modes of transportation. For this reason, we theorize that the accessibility benefits of pedestrian infrastructure are unlikely to generate gentrification independent of broader economic and social factors.

Researchers theorize that the connection between pedestrian infrastructure and gentrification occurs via patterns of economic development. Sidewalks and other pedestrian infrastructure improvements can increase foot traffic, which can contribute to economic development, particularly near commercial and retail activity. In turn, economic development may generate new upgrades to the pedestrian realm, often via private development. This can result in greater neighborhood desirability for prospective residents, leading to increased housing competition and growing property values in those areas (Zavestoski & Agyeman, 2014).

Boyle et al. (2014) argue that this pattern of economic development can result in the displacement of long-term residents who do not then benefit from the resulting pedestrian facility improvements. In addition, this cycle might be self-reinforcing; new residents attracted to areas with expanded pedestrian facilities may demand more infrastructure, spurring more economic growth and still higher property values. In support of this premise, a recent survey by the National Association of Realtors indicates a growing preference in the United States for living in "walkable" urban neighborhoods (Litman, 2024).

The smaller magnitude of sidewalk investments compared to other transportation projects is less likely to impact the potential for gentrification (see Figure 3), although the influence of the

level of investment has not been studied in the literature. These pedestrian infrastructure improvements could conceptually affect property value increases in multiple areas at the same time, making it challenging to evaluate gentrification impacts on different neighborhoods. The potential gentrification impact might be more apparent with stand-alone "complete streets" improvements focused on making improvements to pedestrian infrastructure on specific corridors, particularly when those projects fill major sidewalk network gaps.

Research on the connection between pedestrian activity and gentrification typically focuses on walkability rather than physical infrastructure. Studies tend to use walkability measures, such as Walk Score, that are based on the number and type of destinations located within a reasonable walking distance, regardless of whether there is adequate pedestrian infrastructure along those routes or if pedestrian travel is legally allowed (Knight et al., 2018).

A few studies have shown positive effects of proximity-based walkability on land prices, housing values, and commercial real estate value (Cortright, 2009; Pivo & Fisher, 2011; Rauterkus & Miller, 2011). However, a study comparing zip codes in Miami found that neighborhood walkability did not impact housing prices when accounting for other neighborhood characteristics, such as lot size and distance to the central business district (Boyle et al., 2014). These studies did not look at changes in neighborhood walkability over time, or how those changes may impact gentrification.

Beyond these walkability studies, little research has specifically examined the impacts of improving sidewalks and other physical pedestrian infrastructure on gentrification and displacement. Multiple studies have compared the extent and quality of sidewalk networks in areas with disadvantaged groups against other areas. These studies have mixed results; some find fewer sidewalks in disadvantaged neighborhoods, and some find that neighborhoods with disadvantaged populations have more sidewalks (Thornton et al., 2016). These studies do not distinguish between preexisting infrastructure and more recently installed or upgraded infrastructure, and thus cannot provide insights into the relationship between pedestrian infrastructure investment and gentrification.

Although there is limited evidence that pedestrian infrastructure results in gentrification, proposed complete streets projects can cause backlash when residents view them as symbolic of gentrification. This backlash is sometimes rooted in the fear that sidewalk improvements will disrupt routes or spaces that have economic and cultural benefits for low-income populations, such as sidewalk space for street vendors. This has led to accusations that planners prioritize moving people and goods through neighborhoods in service of economic development and mobility goals, rather than prioritizing placemaking for streets as social places, shaped by diverse sociocultural factors and market forces (Zavestoski & Agyeman, 2014).

Highway Extensions

Freeway construction during the early and mid-twentieth century caused the widespread displacement of people of color. Karas (2015) discusses “transportation racism,” a term coined by Robert Bullard (2004). The term describes the range of inequities attributed to the expansion of the federal highway system, which includes displacement. This displacement was direct as a result of the acquisition of rights-of-way, and not mediated by gentrification processes. Since then, there has been almost no research documenting any potential links between highway extensions and gentrification.

Karas (2015) highlights that commercial developments around highway exits (gas stations, fast-food restaurants, and motels) can replace existing local businesses. These types of commercial developments cater to the needs of travelers and can contribute to the economic and social transformation of an area. This could conceptually spur rural gentrification, but research is lacking to support this potential pathway to gentrification and displacement.

Additional research illustrates that transportation investments like highways can reproduce structural racism and inequities. The direct displacement of residents in California between 1960-1980 for new highway infrastructure disproportionately affected Black residents, and resulted in health, mobility, and accessibility disparities (Loukaitou-Sideris et al., 2023).

Highway Removals

Removing highways is a type of transportation investment that runs counter to many decades of transportation planning and investment in the United States. For proponents of this type of investment, highway removal is seen as a way to reclaim valuable land in the middle of cities and connect neighborhoods that were previously divided by their construction. The option to tear down freeways is considered appealing for some because it offers a chance to repair some of the harms caused by highway construction. Highway removals involve demolishing freeways and replacing them with parks, housing, or surface boulevards to spur economic development, repair social divisions in urban spaces, or foster more sustainable mobility (Stehlin, 2023). These projects eliminate the highway right-of-way, thereby reducing the vehicle capacity of the road network and creating more buildable land. Highway removals can also refer to less aggressive projects that maintain existing traffic capacity through tunnels or concrete caps over below-grade roadways. Such projects improve surface conditions but are more expensive than when rights-of-way are eliminated.

When originally conceived in the early twentieth century, freeways were purported to have many benefits, like decreasing the number of traffic injuries; increasing access to employment, services, or recreation; facilitating trade and commerce; and reducing car operation costs (Khalaj et al. 2020). By the 1970s, transportation researchers had fully uncovered the principle of “induced demand,” which establishes that freeway construction leads to greater travel demand

instead of alleviating traffic. Empirical research shows that air and noise pollution to be higher in close proximity to freeways (Khalaj et al. 2020). Those who remained in their neighborhoods after a freeway was constructed were exposed to higher levels of pollution. They also experienced loss of community and services because freeways often bisected their neighborhoods, disrupting daily activities (Stehlin, 2023). Now, many freeways built in the mid-twentieth century are in a state of disrepair and need urgent fixes.

Movements to tear down urban freeways arose out of these conditions, coupled with the need for expensive repairs to outdated roadways. Public agencies are considering options to tear down freeways instead of repairing or upgrading aging infrastructure (McCormick 2020). The Congress for New Urbanism has documented freeways especially primed for change in seven successive "Freeways Without Futures" reports spanning from 2008 to 2023 (Congress for the New Urbanism, 2024). To date, highway removal projects have mainly occurred in dense urban areas, including some high-profile examples such as the Embarcadero Freeway in San Francisco and the West Side Highway in New York City (Institute for Transportation and Development Policy, 2012).

Conceptually, the disinvestment and decay that characterizes aging highway infrastructure, particularly in urban cores, creates the very conditions that could enable gentrification by creating a gap in value that can be realized through investment. The many benefits of highway removal work together to increase land value through environmental, social, and aesthetic improvements. Pollution is reduced and more space becomes available for natural landscaping. Active transportation improvements and pedestrian connections are incorporated into the surface streets, which increases social activity and connectivity. Visual barriers are removed which provides more natural light to surrounding areas. Redeveloping the land that deteriorating highways occupy can advance green agendas when buildable central city land is scarce and highway reconstruction costs are high (Stehlin, 2023).

Stehlin (2015) reports that the increase in land value is confined to the immediate surrounding area of the highway removal. The benefits of highway removals, like increased quality of life and more active transportation options, are mostly afforded to higher-income households in the urban core, while lower-income households who may have relied on highways to access jobs further away are negatively affected. Even so, highway removals can influence sense of belonging, inclusion, and community connectedness. And they can reduce exposure to air pollution for those in the surrounding areas.

There is extensive evidence of increasing property values around highway removal projects, as documented by the Institute for Transportation and Development Policy (2012). Notable examples include the removal of Portland's Harbor Drive freeway (10.4 percent increase in land values annually through the 2000s); the conversion of San Francisco's Embarcadero Freeway to a surface boulevard (300 percent increase in property value after the freeway was removed in

1991), and the similar conversion of Milwaukee's Park East Freeway (180 percent increase in land value between 2011 and 2006). However, the link to gentrification and displacement is less clear. The extent to which the increased property values generated displacement in surrounding established neighborhoods outside of the footprint of the former freeway is not well-studied.

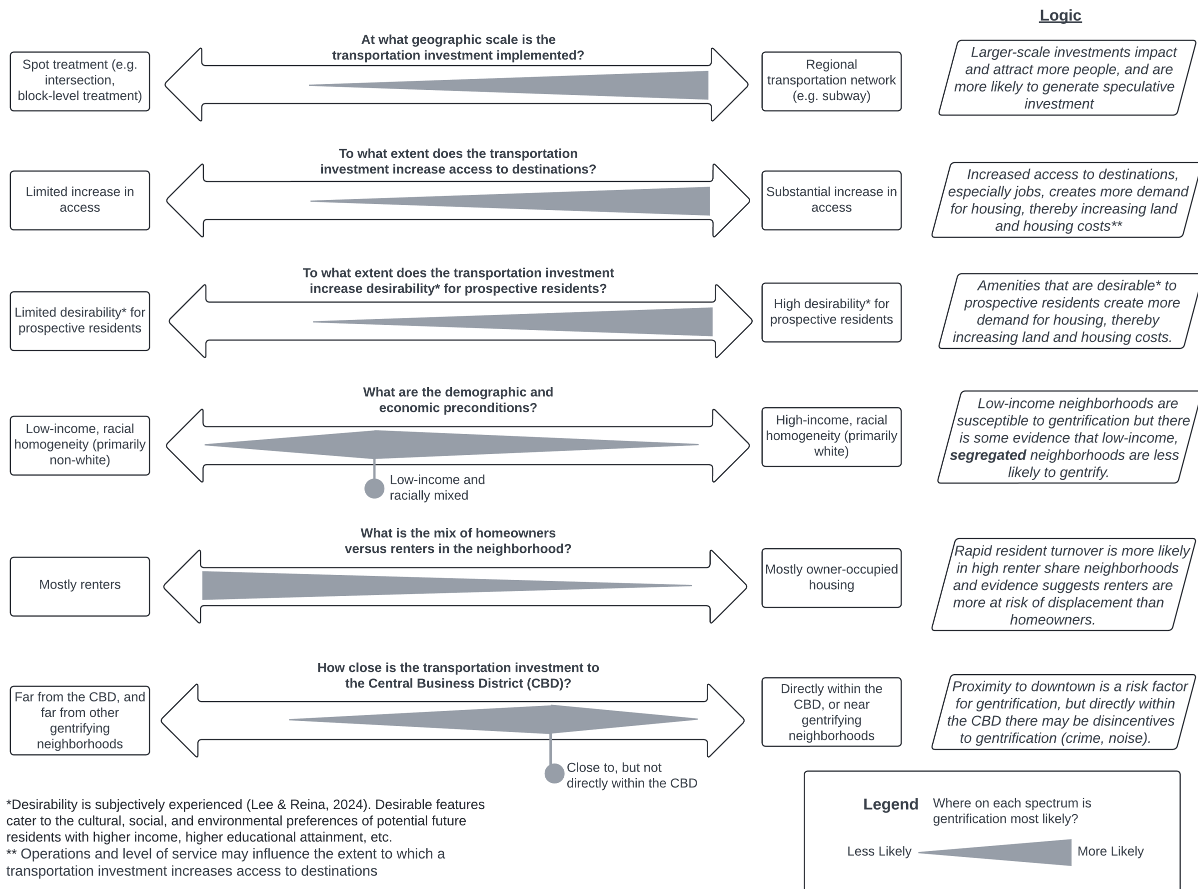
A Theory to Understand the Links between Transportation and Gentrification

Existing scholarship situates transportation investments and their relationship to gentrification within the context of wider economic and social conditions. The feedback loop that exists between transportation and land use is central to the mechanisms at play, as described in the conceptual framework presented in Figure 2.1. The extent to which a particular transportation investment may spur gentrification and any second order effects such as displacement may be influenced by several factors. We summarized our learning from examination of the scholarship and different modes in Figure 2.5. This includes notions of:

- **Geographic Scale:** Larger-scale investments impact and attract more people and are more likely to generate speculative investment.
- **Increased Access:** Increased access to destinations, especially jobs, creates more demand for housing, thereby increasing land and housing costs. Note that operations and level of service may influence the extent to which a transportation investment increases access to destinations.
- **Amenity Effects:** Amenities that are desirable to prospective residents create more demand for housing, thereby increasing land and housing costs. Amenities cater to the cultural, social, and environmental preferences of potential future residents with higher income and higher educational attainment.
- **Demographic and Economic Preconditions:** Low-income neighborhoods are susceptible to gentrification but there is some evidence that low-income, **segregated** neighborhoods are less likely to gentrify. Low-income neighborhoods that are racially mixed are typically more at risk for gentrification.
- **Mix of Renters versus Homeowners:** Rapid resident turnover is more likely in high renter-share neighborhoods and evidence suggests renters are more at risk of displacement than homeowners.
- **Proximity to the Central Business District (CBD):** Gentrification is most likely close to, but not directly within, the CBD. Proximity to downtown is a risk factor for gentrification, but locations directly within the CBD may have disincentives investment (such as crime and noise).

These factors were developed based on our review of the academic literature, but gaps in research mean empirical evidence may not currently exist to confirm the extent of their influence on gentrification. The local context and interaction of these factors will also influence impacts on gentrification.

Figure 2.5. Conceptual Framework: What Factors Might Influence Whether a Transportation Investment Impacts Gentrification?



Source: *The authors, based on a review of the scholarship.* ***Note:*** *By asking the above questions, transportation policymakers, planners, and operators can evaluate the relative risk that a transportation investment might have in relation to gentrification. No individual factor functions in isolation – all factors are interdependent and context dependent. This framework is based on available literature but is conceptual and should not be used as a definitive guide.*

3. Learning from Practitioners: Interviews to Gauge How They Conceptualize Transport's Effects on Gentrification

Gentrification is an often-discussed consequence of new investment in transportation. New rail lines, bike paths, and even highways may be associated with increased accessibility—thus resulting in increased housing costs and the potential for some members of the community to lose the ability to afford to live in an area. Gentrification may also occur through cultural change; if a transportation project is associated with many new residents moving in, they might change the prevailing mores of what life in a neighborhood should be like. To explore how transportation might be associated with gentrification processes—and begin to identify potential approaches to mitigate the negative aspects of those processes—we conducted interviews with stakeholders recently or currently involved with transportation projects in communities across the United States. These conversations provided us unique insight into how transportation agencies are thinking about gentrification and what potential best practices might involve in terms of mitigating negative outcomes.

We identified the following key themes from these interviews:

- Gentrification is a heavily discussed topic, but there is often limited clarity about what it would mean for a transportation agency to respond to it. For some people, perceptions about the effects of investment do not reflect reality on the ground.
- Local housing markets play a major role in impacting whether gentrification serves as an influential factor in a community's reaction to investment in a new transportation project.
- In some cases, it is difficult to disaggregate the impacts of a transportation project on a community from the reality that neighborhoods where transportation projects are being built are already experiencing change.
- Many transportation agencies do not see responding to the potential displacement resulting from their projects as one of their core responsibilities. Even agencies that are interested in engaging in proactive responses to the gentrification and displacement related to their transportation projects may be limited by the division of jurisdictional authority between different governmental units. Others with whom we spoke, including people working in planning, development, and housing departments, were more active in developing anti-displacement strategies.
- There are a wide variety of approaches currently being pursued to mitigate the negative impacts of gentrification, but their effectiveness remains unknown.

We held detailed conversations with 17 interviewees involved with transportation projects from across the country. We identified these interviewees based on a national scan of people involved in transportation projects in which gentrification or displacement have been mentioned. Interviewees represented transportation agencies, local governments, nonprofit associations, and

community organizations. We recruited interviewees via email. The interviews lasted for an average of one hour and were conducted in the form of virtual meetings. Because of our desire to ensure that respondents felt most at ease and to allow them to express themselves as clearly as possible, we guaranteed them confidentiality in describing the statements they provided to us.

Transportation Do Not Share a Single Perspective On Gentrification

Interviewees largely agreed that gentrification is the process by which lower income residents of a neighborhood either lose the ability to afford living in their neighborhoods or experience a change in culture that makes them feel less at home in those places. Most of the stakeholders with whom we discussed this issue agreed that there is likely a link between transportation projects and gentrification. They also repeatedly emphasized that previous transportation projects – highway and roadway projects in particular – had contributed to the displacement of many lower income residents and communities of color, to ill effect. One interviewee from Portland emphasized that "we need to avoid repeating past harms." Even so, they largely did not have a clear view about how their agencies should be engaged in responding.

Most interviewees agreed that transportation agencies "do not think much about this issue," in the words of one person with whom we spoke. As a result, they rarely undertake systematic examination of the way in which their projects may be negatively impacting the surrounding areas. Related to this problem is the fact that many stakeholders do not feel that their transportation agency is the appropriate one to be responding to gentrification (see more details on this topic below), or that they are not aware of the appropriate ways to respond even if they could.

And others suggested that, ultimately, many of the impacts of transportation projects could be positive. One interviewee emphasized that they agreed that previous transportation investments, such as highways, had likely had negative impacts on the surrounding community due to displacement, but maintained that the investments were still worth it in the end. Another from Madison, Wisconsin emphasized that transportation projects are often associated with landscaping improvements, which could lead to reduced urban heat island effects, improved air quality, and people feeling a better sense of quality of life in their neighborhoods.

Even so, we observed strong interest among many governmental agencies in understanding the key connections between transportation projects and land use. Multiple interviewees acknowledged that they believe there to be a link between increased transportation accessibility and property values. Others pointed out that some residents of relatively low-income communities in cities like Chicago are worried about the potential for transportation projects to make their neighborhoods less affordable places to live due to rising rents. And an interviewee in Seattle noted that previous public investments (such as a skatepark connected to a transit station) had been beneficial to some people, but not to the people who largely inhabited the

neighborhoods where change might occur. (It is worth noting, of course, that such improvements may also provide people of the neighborhood new access to amenities that they otherwise would not experience.)

And some agencies have engaged in efforts to monitor change in communities that may be related to the presence of, or construction of, transportation investments. In the San Francisco Bay, for example, the BART transit agency monitors the affordability of new housing units that are constructed in transit station areas. Another transit agency official noted that they have worked with a local university to develop an anti-displacement strategy that can help them establish priorities for project selection. In Eugene, Oregon, though the city has not specifically measured gentrification in the context of its bus rapid transit (BRT) lines, it has tried to work with communities to explore whether projects are potentially negatively affecting neighborhoods of single-family homes, whose residents typically are resistant to any change.

Indeed, a major problem for many stakeholders involved in transportation investments is that they routinely encounter community members who experience transportation investments as having negative effects—but not in terms of gentrification. Some in Baltimore, for example, expressed concerns that a new transit line could be linked to growing crime. Others suggested that constituents were misinformed, claiming that projects like bike lanes could increase the potential for gentrification, when in reality there is limited evidence that they are likely to do so. Nonetheless, some interviewees pointed out that they had encountered many residents opposed to public investment entirely as a result of fears related to gentrification. Some public officials we interviewed expressed that they felt there was little point in responding to the perceptions of the possibility of future gentrification because of the lack of a clear relationship between that particular transportation investment and negative outcomes.

Finally, some interviewees argued that political interest in responding to gentrification was heavily dependent on the type of residents who might be affected by a transportation project. Two stakeholders told us that homeowners are more invested and engaged in their neighborhoods than renters—and thus homeowners' points of view disproportionately dominate in informing responses to neighborhood change. They translated this belief into a desire to encourage homeownership around transportation improvements, rather than multifamily housing development, which they saw as likely to negatively impact a neighborhood's character.

This approach, however, has the negative effect of systematically undermining the ability of renters to influence the future of their communities. One interviewee from Chicago noted that renters held less of a sway on their local elected officials than did homeowners. This prevented them from arguing for certain types of change or investments in anti-gentrification strategies. And, ultimately, this could mean that public officials might adopt strategies that reinforce homeowners' points of view and allow for the displacement of renters over the long term.

Projects' Effects Are Informed by Local Real Estate Markets

The strength of a housing market, both at the broader city or regional level, and within communities at the neighborhood level, may strongly influence the likelihood that an investment could spur gentrification or displacement, according to several interviewees. As a result, they cautioned that it would be inappropriate to assume that projects should plan for gentrification or displacement in a uniform way.

Cities and neighborhoods with weaker overall markets—defined as having low demand for housing relative to available supply—may not be as susceptible to changes in costs (such as in terms of rents or property values) in response to transportation investment. In other words, residents therein might be less likely to be displaced as a result of a new project. Even so, these neighborhoods can face other potential challenges. One interviewee, for example, noted that if a transportation project resulted in the addition of new retail to a neighborhood, that could make existing businesses less financially viable, further undermining the finances of already struggling merchants.

In cities and neighborhoods with stronger housing markets, the situation might be quite different. One interviewee, a city planner, contrasted the experience in Baltimore, Maryland with that of Washington, DC. They emphasized that high costs of living and growing population in the capital meant that a new transit line could be associated with substantial new investment (in house, commercial offerings, retail space, etc.) and thus gentrification. This, they argued, was less likely to be the case in Baltimore, which has struggled with population decline and which has relatively less costly housing. Another interviewee argued that gentrification was less likely to occur in neighborhoods that have experienced high rates of crime, since those were less likely to bring in investment from the private market.

Some interviewees also suggested that gentrification was more likely with some types of transportation investments than others. They noted that the substantial investment in rail projects, such as light rail lines, were more likely to spur land development around stations than more simple bus routes. According to one stakeholder, the rail lines might be perceived by investors as a higher commitment from the public sector that was more likely to be pay off in the long term.

It is Unclear Whether Transportation Investments Cause Gentrification

Several interviewees emphasized to us that, while gentrification is a possible result of some transportation investments, the reality is that a large share of transportation projects are being built in communities that are already experiencing neighborhood change. This can occur for several reasons. There may be increased political support for certain types of investment in already gentrifying neighborhoods, for example. Or political officials may actually want to spur on increased gentrification if they believe it is in the best interests of their communities.

One advocate in Denver, for example, told us that historically, sidewalk improvements primarily occurred only in the context of neighborhood redevelopment. In this context, they said, “the reality is that you would only get the improved transportation investment because of the gentrification already at work.” In Philadelphia, too, according to another interviewee, transportation projects seem to follow neighborhood change. Investments in bike lanes typically are made in neighborhoods where young people are moving in and are less averse to neighborhood change. This creates the political groundswell in certain neighborhoods to be more amenable to investments such as bike lanes and reduced parking availability—because the residents are less attached to the status quo.

This fact has the consequence of meaning that political officials seeking to invest in certain types of transportation projects may go out of their way to avoid neighborhoods where they perceive there might be some opposition; a reality with significantly negative equity implications. But it also can place the residents of neighborhoods that are already changing in worrisomely problematic conditions. Some residents of gentrifying areas, according to an interviewee, feel that transportation projects “are happening to them, not with them.” This can further their impression of being increasingly disassociated from the (potentially) dominant culture in their neighborhood.

Similarly, but in the other direction, a focus on investment in neighborhoods that are already changing can result in a lack of investment in communities that are not undergoing such processes. Even if the prospect of a new transportation project is likely to spur substantial opposition from residents in some neighborhoods, there are likely other residents of those same areas who *want* the projects. But, being in the vocal- or power-minority, they may find their opinion and interest in getting more support for transportation investment to be discounted by those making investment decisions.

Agencies Tend to Avoid Displacement Mitigation Strategies—Which They See as Outside Their Responsibility

Of those who we interviewed, few transportation agency officials said that they are actively considering or implementing displacement mitigation strategies. This is despite the fact that most of the people with whom we discussed this issue are familiar with the mechanisms of gentrification and expressed desire to avoid its negative potential accompanying factors (such as displacement, dispossession, and a sense/experience of loss). Many emphasized that the right approach to mitigating displacement is unclear, and, moreover, outside the jurisdictional realm of their agency, feeling that they are limited by bureaucracy or the law in their ability to engage in such proactive efforts to avoid the negative impacts of gentrification.

Some transportation staff emphasized that they were unsure of the specific, quantifiable information to be collected to model and measure gentrification. In other words, even if they wanted to do something about the fact that a transportation project might be impacting neighborhoods beyond mobility services, they felt that they would not even be able to know whether gentrification was occurring causally as a result of that project. A planner in the Baltimore region noted that the transit agency was “just starting” to think about key performance indicators related to the impacts of transit—and had not even touched the question of whether transit projects could potentially be related to neighborhood change over the long term.

Relatedly, one transit agency staffer emphasized that existing approaches to monitoring variations in transportation project impacts were inadequate. Pointing to the federal Title VI mandate, they noted that transit agencies have to examine the potential impacts of proposed projects (or even route changes) on the types of neighborhoods served. But this approach, he argued, is too limited. It results in transit agencies only examining, for example, the racial and income group composition of the residents of areas surrounding transit stops, not composition of transit users, or even where people need to go, such as in terms of employment, school, or recreation. As a result, if one goal of studying the potential gentrification impacts of transportation is to understand how transportation *users* might be affected, existing data may not be adequate.

Others said that, while they knew there were many studies in the world related to gentrification, they did not feel that there were clear solutions to the problems they faced. One official from Florida emphasized that he knew that new transportation projects needed to be associated with protections against housing price increases, such as through rent stabilization policies or the construction of dense, new housing. But, he argued, if residents were concerned that this new housing could potentially result in negative community outcomes (e.g., higher housing costs), it might be worth it to simply not build the project at all.

He was not the only interviewee who expressed that they felt their only lever of power to guarantee a transportation investment did not bring about the negative elements of gentrification was to not implement the project. Transportation agency-affiliated interviewees were particularly disheartened in their expression of this feeling, as they noted that to not invest in quality transportation, often particularly in neighborhoods at risk of gentrification (low income and of color neighborhoods) was a disservice to the community and a contributor to mobility injustice.

Furthermore, stakeholders from transportation agencies noted, for example, that the power to determine what sorts of land uses are allowed where through zoning, a potentially impactful factor in shaping neighborhood change and characteristics, is largely determined by city governments—not transportation agencies. Even within city government, such authority typically falls to the departments of planning, housing, or development more so than they do to the department of transportation or, related, public works and infrastructure. A planner for the

state of Maryland, for example, noted that they wanted to include plans for affordable housing development in areas adjacent to new light rail transit stations—but they said that other agencies at the local level would need to engage in this process. An interviewee representing a metropolitan planning organization (MPO) noted that while they knew about issues related to gentrification, they had "never worked with housing agencies… there is some concern that the housing agency would see the MPO getting involved in the issue as stepping on their toes." This is a difficult message to share with community members who want to address affordability in association with projects, because the agency that might be able to do so is often not in the room when discussing a transportation project.

Conversely, interviewees pointed out that some local governments, such as cities and counties, are interested in investing in anti-displacement approaches that might be beneficial to communities around transit lines. Yet, since they are not responsible for investing in the transportation projects directly, they are often unable to coordinate directly with transportation agencies to connect transportation project investments with other engagements, such as in affordable housing.

Relatedly, some stakeholders pointed out that this multi-layer challenge of getting public agencies to be engaged in responding to gentrification's negative effects was worsened by the fact that engaging on these issues takes time. Because of so many overlapping jurisdictions and officials, maintaining connections with the right people to make the right sorts of investment can be a challenge.

4. A National Survey: How do Practitioners View the Link Between Transportation and Gentrification?

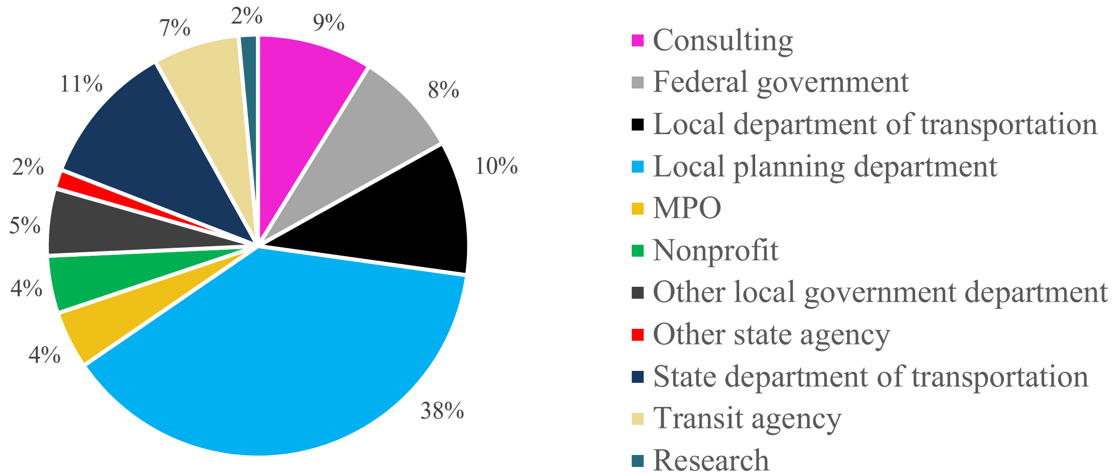
In order to build on the results of the interviews that we described in Section 3 and provide a broader description of how practitioners are thinking about their projects, in Fall 2024, the project team launched a survey that aimed to understand how transportation practitioners view the relationship between themselves (i.e., the roles they fill, the organizations they work for, and the projects they manage) and gentrification. The 24-question survey included seven yes/no/unsure questions, five multiple choice questions, and 12 short-answer questions. Its results provide a national-scale perspective on how people in varied positions of influence over transportation infrastructure projects think about neighborhood change and displacement, both of which are of major concern to residents of many communities throughout the United States. We conducted this survey to further explore the themes that practitioners brought to the table in interviews (see previous section), giving us the opportunity to identify whether the thoughts of individual practitioners are broadly shared. Though the survey responses were not necessarily nationally representative, they paint a useful picture of how practitioners throughout the United States working in fields related to mobility are currently thinking about the links between transportation investment, gentrification, and displacement.

Survey Methods and Respondent Characteristics

We disseminated this survey, first, to a preexisting list of city planning staff throughout the United States previously compiled by the Urban Institute. This list is comprised of 3,482 email addresses. We also received support from the National Association of City Transportation Officials (NACTO), the American Public Transportation Association (APTA), and the American Association of State Highway and Transportation Officials (AASHTO), all of which maintain databases of state and local transportation staff, and which agreed to distribute the survey to their lists via email. Ultimately, 139 practitioners throughout the country completed the survey between September 25 and October 29, 2024.

Respondents hailed from 25 states and the District of Columbia. They represented numerous industry sectors (Figure 4.1). About 38 percent worked for local planning departments, mostly those of cities and towns; about 21 percent worked for state or local departments of transportation; 7 percent worked for transit agencies; and the remainder represented a variety of other organizations involved with transportation planning and policy in their respective communities.

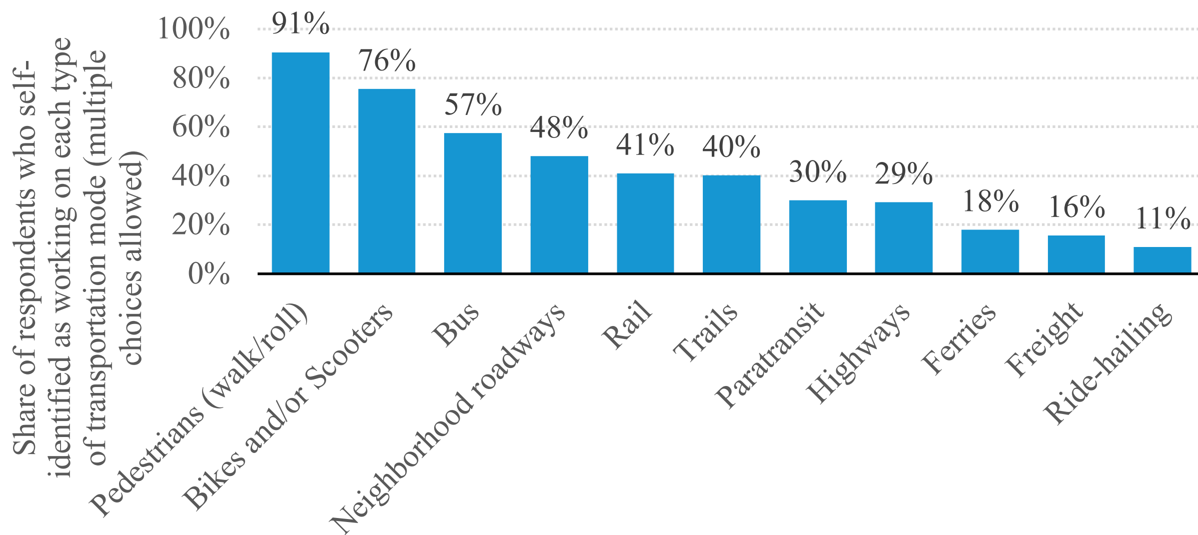
Figure 4.1. Respondents by Type of Organization They Work For



Source: *The authors, based on a review of survey responses.*

We asked respondents to describe what modes of transportation they worked in the context of their jobs (Figure 4.2). A majority said they were involved in projects related to pedestrians, cyclists, and bus riders, with a somewhat smaller number involved in neighborhood streets, rail, trails, paratransit, and highway projects. The relatively small number of respondents involved with highway projects (about 30 percent) likely reflects the comparatively small share of respondents hailing from state and federal departments of transportation.

Figure 4.2. Respondents by the Transportation Modes They Work On

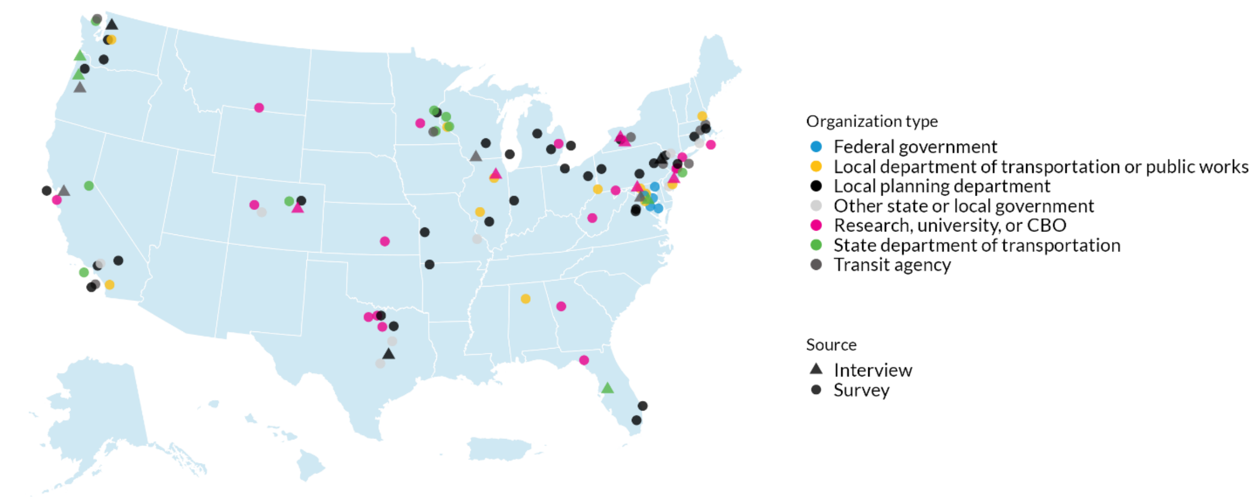


Source: *The authors, based on a review of survey responses.* ***Note:*** *Respondents were asked to select from a list of transportation services all modes that they worked on as a part of the responsibilities of their role. No limit was placed on how many selections could be made by each respondent.*

As noted, respondents hailed from a diversity of geographical locations (Figure 4.3). California, Minnesota, New York, Pennsylvania, and Texas each had between 8 and 11 respondents working within their borders, the largest level of representation among respondents. We did not receive responses from Alaska, Hawaii, Puerto Rico, and some other parts of the United States. This likely resulted, at least in part, from the lower capacity for research participation among agencies in these areas, where the number of staff working on transportation projects is significantly smaller than in places like California, New York, and Texas.

The limitations of the geographic comprehensiveness of respondents means that the findings we report from this survey should not necessarily be interpreted as comprehensive of the feelings and opinions held by staff of the entire transportation industry's public sector. Even so, the survey responses we present here can help paint a picture of how a sample of those working on transportation projects of varied types and from varied vantage points are thinking about their work and role in the intertwined realities of infrastructure investment and evolving patterns of gentrification.

Figure 4.3. Work Locations of Case Study Interviews by Geography and Interviewee Role



Source: *The authors, based on a review of survey responses.*

Key Themes for Survey Takers

At the survey instrument's opening, we provided several definitions to respondents as those which, for the purposes of this survey, they should internalize and assume use of. This was imperative, as key terms used throughout the survey—namely 'gentrification'—do not have a singular definition used across all fields or by all people. These definitions included the following:

Gentrification: The influx of new investment and new residents with higher incomes and educational attainment into formerly disinvested areas home to lower income residents.

Displacement: The removal or unwanted relocation of incumbent residents.

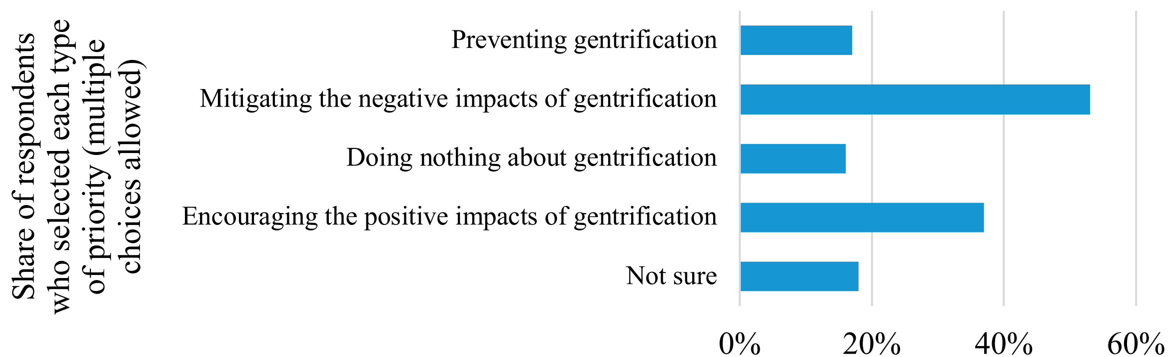
We derived these definitions based on the literature review that we conducted earlier in the study.

Many Practitioners Believe that Transportation Projects Can Encourage Gentrification—But Context Matters

We asked respondents to begin by thinking about what their priorities are in addressing gentrification in the context of transportation projects that they have been involved in professionally, allowing them to select more than one response. Our goal with this question was to understand, first, what practitioners think about responding to gentrification in the context of transportation projects. In Figure 4.4, we show that 16 percent of respondents said their desire was to prevent gentrification, while 53 percent noted that they wanted to mitigate the negative impacts of gentrification. Both of these responses reflect the broadly held view among many transportation practitioners that gentrification is a problem to be addressed in the context of transportation projects. At the same time, 37 percent of respondents agreed that they wanted to encourage the positive impacts of gentrification. Note that this may not be a contradictory response; indeed, some respondents agreed that they wanted to both mitigate the negative impacts of gentrification *and* encourage the positive impacts of gentrification.

These responses, which accounted for most of those we recorded, suggest broad agreement among transportation practitioners that there is an impactful relationship between transportation investments and gentrification. They also broadly agree that there are actions that can be taken to influence the outcomes associated with that impact.

Figure 4.4. What Should a Practitioner's Priorities Be Related to Addressing Gentrification in the Context of Transportation Projects?

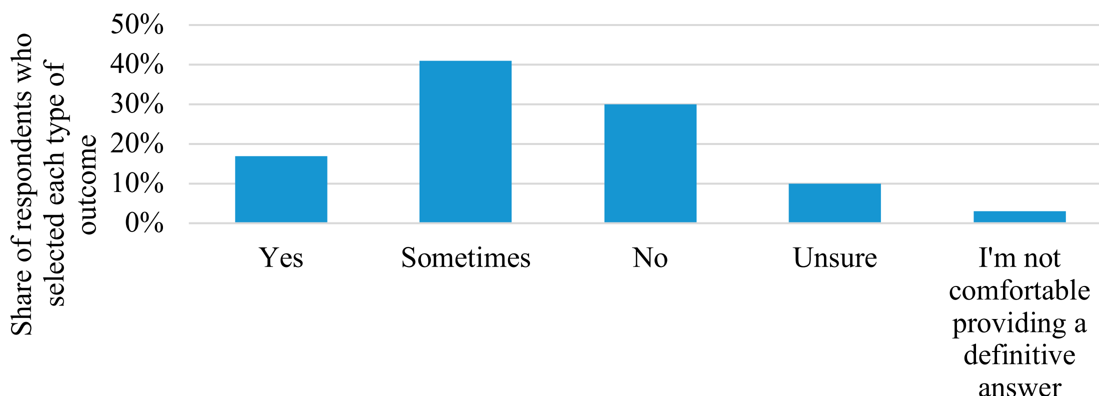


Source: *The authors, based on a review of survey responses.*

Even so, it is worth emphasizing that 16 percent of respondents agreed that they would do nothing about gentrification, and 18 percent said they were not sure. Both of these responses suggest a less definitive conceptualization of the relationship between transportation investment and gentrification. For example, respondents could have indicated a desire for lack of action—the option to do nothing—because they see no need to intervene, or because they do not see a way for someone in their role to do so. These respondents may not think there is a direct relationship between transportation investment and gentrification or may think that the way transportation investment now impacts gentrification patterns is appropriate or even ideal.

To gain greater clarity on these responses, we next asked survey respondents whether the transportation projects they are currently involved in could cause or accelerate gentrification in the project-affected neighborhoods (allowing only one response this time). We detail participant responses in Figure 4.5. 17 percent of respondents indicated that they felt their projects could cause or accelerate gentrification, while 34 percent definitively did not feel that their projects could do so. The largest share of respondents (41 percent) noted that they *sometimes* feel their projects could cause or accelerate gentrification, suggesting that that feeling was contextually dependent in some way. These results suggest that many practitioners believe that gentrification is an issue to be addressed, at least in some cases.

Figure 4.5. Do Transportation Projects Produce Gentrification?



Source: *The authors, based on a review of survey responses.*

Understanding When and Where Transportation Projects Might Cause Gentrification

Next, we asked survey takers who said that transportation projects they were involved with could potentially cause or accelerate gentrification to provide short-answer follow-up responses to help understand their responses. We asked these participants to elaborate on why they felt such potential existed. In table 4.1, we summarize our conclusions from their answers, before detailing responses among four themes: Neighborhood conditions, transportation conditions, planning and development processes, and perceptions about the transportation–gentrification relationship.

Table 4.1. In What Contexts do Practitioners See Transportation and Gentrification As Related?

Response Themes: How Are Transportation and Gentrification Related?		
	Neighborhood conditions	**Project locations shape practitioner feelings about whether or not (and if so, how) a project could cause or accelerate gentrification. Areas close to activity hubs, historically underserved areas, and low owner-occupancy areas are particularly vulnerable to transportation-impacted gentrification.**
		A lack of increased housing supply positioned against growing demand creates market conditions in which transportation investment has a higher likelihood of contributing to gentrification.
		Rezoning may impact naturally occurring housing affordability, and in so doing, may contribute to the likelihood that transportation investment fuels gentrification.
	Transportation conditions	Affordable, multi-modal, and convenient transportation amenities are rare. As a result, in cases where transportation amenities are of high quality, the degree to which their value gets absorbed into the housing market is pronounced. These transport-amenity rich areas face higher vulnerability to gentrification.
		Areas seeing an uptick in developer investment may be more vulnerable to transportation project-accelerated gentrification.
	Planning and development processes	The process of planning and development exclude many voices, particularly those with the least societal privilege. This contributes to the role of transportation projects in spurring gentrification.
		Transportation investment could cause or accelerate gentrification because of disconnection of intention and personnel across project phases: equity expressed in a plan does not necessarily translate to equity in implementation.
		Issues of timing: Compared to (most) transportation planning and project implementation, gentrification-associated patterns of neighborhood and market changes could be considered quite fast-acting. As a result, transportation projects may be acted upon based on no-longer-accurate, or gentrification-attuned, plans.
	Public perceptions	Perception of transportation investment-induced gentrification may be just as important as observed and measured gentrification.
		In today's unregulated markets, the risk that transportation projects fuel gentrification feels ever-present, inevitable even.

Source: *The authors, based on a review of survey responses.*

Where Does Transportation Influence Gentrification? Neighborhood Conditions

The 'where' matters. Several respondents—including staff from local planning departments, transportation consulting firms, MPOs, and state-level transportation departments—stressed that a project's location is a key factor shaping their feelings related to whether or not a project could influence patterns of gentrification. Some respondents celebrated that many municipalities are

finally concentrating long-overdue transportation investment in historically underserved areas. On the flip side of this coin, they shared concern that these areas are places where the risks of gentrification are particularly high.

This duality is reflected in the following statement made by a respondent employed at a state department of transportation: "Significant investment in historically underinvested communities could accelerate gentrification. That is largely where we are working to improve transportation, too." Similarly, a transportation consultant respondent said, "I'm deploying public EV [electric vehicle] charging infrastructure in mostly Justice40 neighborhoods, which is intended to signal to those communities that you don't need to be wealthy to drive electric. However, convenient EV charging may make the neighborhood more desirable to people who previously wouldn't have considered moving there, but who generally have more options for where to move due to their income." Responses like these suggest that practitioners feel underlying neighborhood characteristics shape the degree to which transportation investments and gentrification intertwine.

Relatedly, other respondents noted that neighborhoods that were developed many decades ago, by virtue of them typically being situated closer to civic centers and activity hubs, are areas in which transportation projects are more likely to cause or accelerate gentrification. One local planning department practitioner stated, "Many older neighborhoods are located along or near new road projects or multi-modal projects. Those neighborhoods are attractive due to access to job centers, services and amenities. The access (quicker/convenient) provided through improved transportation options promotes attraction and value to these older neighborhoods."

Neighborhood composition with respect to share of owner-occupied, as compared to renter-occupied, units was also discussed by some respondents as an influential factor. High rental share may enable a fast increase in housing costs through rising rents. The role of this market dynamic in shaping practitioners' feelings was expressed in this way by a local planning department employee respondent: "Areas with improved transportation systems are often high rental [share] areas, and property owners want to capitalize on the new transportation so they raise rents or upgrade properties beyond what can be afforded by current residents."

Limited increase in housing supply positioned against growing demand creates market conditions in which transportation investment is more likely to contribute to gentrification. Many respondents, in particular those who work for transit agencies, the federal government, or local departments of transportation, discussed how housing supply can influence in the transportation–gentrification relationship. Many made clear that, in their experiences, increased access(ibility) afforded by transportation projects increases the desirability of better-connected housing. Without concomitant increase in housing supply, that may translate into upward market pressure where certain people get priced or pushed out. A federal government employee noted that, "Transportation investments, like highway removals, can make certain neighborhoods more

desirable through improved safety and access, therefore potentially increasing property costs. Especially when housing supply is strained or limited." Though not explicitly stated, this type of observation could reasonably be interpreted as suggesting that some practitioners feel that a more intentional wedding of housing supply management with project implementation would decrease the market-driven displacement element of the transportation-gentrification puzzle.

Rezoning may impact naturally occurring affordability. A handful of respondents discussed how they felt zoning contributes to the relationship between transportation investment and gentrification. One local planning department employee said, "Rezonings that accompany transportation projects are displacing residents and reducing the amount of naturally occurring affordable housing." Another planner stated, "When new subdivisions and multifamily development occur with transportation investment in neighborhoods, they have the potential to remove older housing that is more affordable." Both illustrate the potential concern related to the loss of naturally occurring affordability proximate to transportation investment.

Where Does Transportation Influence Gentrification? Transportation Conditions

Others focused on the role of transportation infrastructure specifically in influencing gentrification. Several respondents argued that scarcity may be accelerating gentrification. Many US metropolitan areas lack widespread, high quality transportation facilities; affordable, multi-modal, and convenient transportation amenities are rare. As a result, in cases where transportation amenities are of high quality, the degree to which their value gets absorbed into the housing market is pronounced. One respondent from a local department of transportation depicted noted, "Lack of transit/economical transportation modes contribute to gentrification in areas where the quality of connection/accessibility is improved."

This scarcity may signal to developers that profit margins associated with areas undergoing improvements in connectivity are comparatively high. A number of transit agency and local planning department respondents wrote about regularly observing an uptick in developer interest and investment concentrated around existing rail stations receiving upgrades as well as sites slated to receive new rail stations. A local planner respondent suggested, "Developers are intensely investing in the areas around our light rail stations." Several respondents also expressed that, in their experience, this pattern hold true in low- and high-income communities alike.

Where Does Transportation Influence Gentrification? Planning and Development Processes

The process of planning and development remain exclusionary of many voices, in particular those with the least societal privilege and lowest level of housing security. A number of respondents articulated that they felt this exclusion contributes to the catalytic role that transportation projects may serve in spurring gentrification. A respondent employed at an MPO stated, "Without federal support for transit operations, transit provision reflects the needs/will of politically empowered constituents more so than those who are not politically empowered. These

needs/wills could be gentrification-favoring." Statements like this stress the importance of community engagement in the planning of transportation projects. Failure to conduct quality comprehensive engagement, this respondent notes, renders a project likely to be disproportionately tailored to the desires of the socially privileged, who are less vulnerable to the negative consequences associated with gentrification (e.g., displacement, loss of sense of community, increased cost of living, and housing cost burden).

Respondents also noted the disconnect between intention and reality at different phases of projects. Equity in a project's plan does not necessarily translate to equity in implementation. One transit agency respondent described how this disconnection manifests: "My work is focused on funding programs within the county, rather than implementing programs. The programs that I fund are competitive, so they must score well against a rubric, which does include an equity portion. However, I carry concerns that in implementation the equity portions get overlooked, or that the way the implementation related equity analysis takes place isn't always the most robust. This concern is exacerbated by the fact that local government does not have the most refined tools to analyze these factors."

This quote reveals several things. First, it suggests that the respondent thinks that considerations of equity can successfully disrupt the potentially contributary relationship between transportation projects and gentrification. Second, it suggests a lack of enforcement of agreed upon, or (seemingly) finalized elements of a project over a project's lifespan. Under this condition, any amount of gentrification prevention planning done as a part of a project could be rendered obsolete as the project moves through the stages of development.

Issues of timing also motivated some practitioners to declare that they felt transportation investments could influence gentrification. Respondents articulated that transportation projects are acted upon using no-longer-accurate, or gentrification-attuned, plans. A respondent from a state department of transportation said, "Transportation improvements are based on plans that don't always anticipate the possibility of gentrification. Like 10-yr or longer range plans." Another, from a transit agency said, "Timelines for parcel development, policy changes, and other interventions are often different from the timeline for a transit project. And the timeline for a transit project is different from the timeline on which an area gentrifies. That makes it hard for public entities to provide an efficacious response." Mismatches of schedule are emphasized as a possible causal parts of a transportation investment-to-gentrification outcome flow.

Where Does Transportation Influence Gentrification? Public Perceptions

A few respondents—mostly from non-public sector roles—noted that perceptions of transportation investment-induced gentrification may be just as important as observed and measured realities of that relationship. One respondent in transportation planning consulting said, "Transportation projects have a history of gentrification and segregation and unfortunately, that

is going to stigmatize projects no matter what. That stigmatization will continue even as DOTs on all levels work to correct the actions that have been done. Something that does not help this stigmatization and will continue to harm the culture of transportation planning and engineering is the face of it. You look around at who is making the decisions, and it's old, white men. That does not favor beating the odds of making communities feel as if there is no need to fear gentrification or that the project has their best interest at heart." The respondent is emphasizing that both the actual and perceived relationship between investment and gentrification need to be tended to in the execution of a project for it to be successful—and to be viewed in a positive light. Without changes to the history-informed stigmatization related to transportation projects, even investment not observed to induce gentrification may be perceived to have done so.

Even in cases in which respondents explained that they do not think the projects they have worked on have caused or accelerated gentrification, some stressed that they felt the risk of such a process unfolding was ever-present. For example, one respondent employed at a local department of transportation said, "Any time significant investment is made in a community, there is the possibility that it will catalyze new interest in other investments. I don't think our projects specifically spur gentrification *per se*, but it's always a risk when you make communities more accessible." Another responded echoed this sentiment, noting: "Improvements and expansion of important infrastructure (corridor improvements, bus lanes, bike lanes) will undoubtedly increase property values." This quote explicitly connotes an inevitable relationship between transportation and property values and implicitly suggests a further inevitability between property values and gentrification. Though our review of the research shows that these connections are not necessarily casually linked, this perception speaks volumes about how practitioners may be internalizing the conditions in which their work unfolds. It begins to speak to how much power they do or do not think they have to foster outcomes other than those seemingly certain to result.

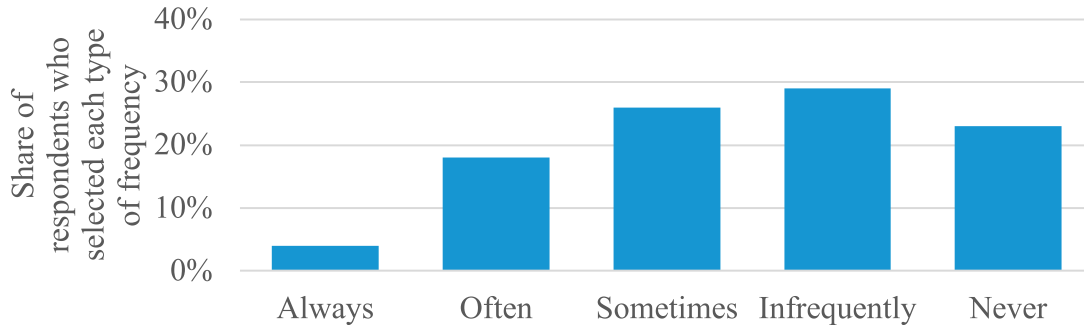
Gentrification is Only Sometimes Accounted for in Transportation Project Planning—and Rarely During Implementation

While the first section of the survey centered respondents' observations related how transportation projects and gentrification might relate, the second section encouraged respondents to think about this relationship in their professional capacity: how, if at all, gentrification is handled within their transportation work.

We asked participants how frequently gentrification is accounted for in the planning of transportation projects that they are involved with (Figure 4.6). Most survey takers responded 'infrequently' (29 percent) or 'sometimes' (26 percent). Only 4 percent indicated that gentrification is 'always' accounted for in project planning, while 23 percent indicated that such is 'never' the case. As such, more than twice as many respondents noted that accounting for

gentrification was rare (selecting 'infrequently' or 'never') as it is a common practice ('always' or 'often').

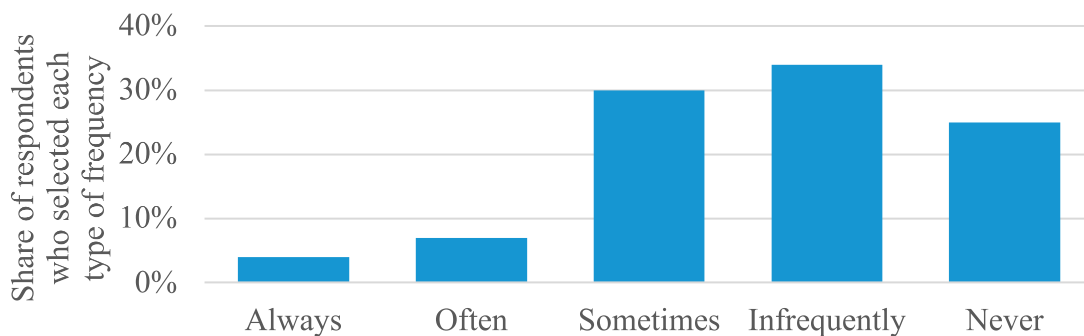
Figure 4.6. Perception of How Often Gentrification Is Accounted for During Planning



Source: *The authors, based on a review of survey responses.*

We then asked survey takers how frequently gentrification is accounted for in project implementation (Figure 4.7). As compared to the planning phase of transportation projects, more respondents noted that accounting for gentrification in implementation was uncommon. Answers of either 'never' or 'infrequently' accounted for a combined 59 percent of all responses. This increase between planning and implementation project phases aligns with respondents' statements described in the previous section that the efforts to prevent the negative outcomes of gentrification get lost across stages of a project's lifespan.

Figure 4.7. Perception of How Often Gentrification Is Accounted for During Project Implementation



Source: *The authors, based on a review of survey responses.*

Needing to better understand what accounting for gentrification entailed in more tangible terms, we asked all survey respondents other than those who selected 'never' for both of the previous two questions to explain how projects they are involved with account for gentrification. From responses to that short-answer inquiry, we developed a series of themes. These are summarized in Table 4.2, and then described in more detail in the section that follows.

Table 4.2 How do Practitioners Take Gentrification into Account During Project Phases?

Response Themes: Accounting for Gentrification in Projects		
	Planning phase	**Projects attempt to 'account' for gentrification by running some sort of analysis.**
		Analyses rarely have teeth. They lack mandate, enforcement, and consequence for their absence or violation.
		There is vague support for the maintenance and increase of housing affordability as means of 'accounting' for gentrification.
		Cross-agency coordination is a common effort made in attempt to 'account' for gentrification and avoid its potential negative outcomes.
	Implementation phase	"Accounting' for gentrification entails direct financial support to impacted residents.
		'Accounting' for gentrification entails enacting anti-displacement programming and policies.
	Contrasting viewpoints	Gentrification is being encouraged and prioritized.
		Gentrification is not seen as a relevant issue; it goes unaccounted for in any way across all project phases.

Source: *The authors, based on a review of survey responses.*

The majority of respondents stated that their projects attempt to account for gentrification by running some sort of preliminary analysis. Those employed in local planning and transportation departments listed housing gap analyses and impact evaluations as examples of this work. One planner explained that, "the Planning Department highlights City-owned parcels in the vicinity of major transportation projects as places where the City can prioritize development by locally based, small scale developers, and gives development priority to projects that have a higher than required percentage of affordable units." Respondents from state departments of transportation frequently noted that environmental review and environmental justice assessments were commonly wielded tools for accounting for gentrification. Respondents from transit agencies and from consulting groups mentioned that on their projects, such accounting often takes the form of risk assessments. For example, one transportation consultant stated that, "planning is conducted to identify areas prone to gentrification and to recommend area-specific policies to mitigate that impact." Though not explicitly stated by all respondents, the nature of these analyses suggest that this type of work is done within the planning phase of a project.

In addition to listing analytic approaches to accounting for gentrification, many respondents expressed dissatisfaction with the fact that these analyses—though demonstrative of those involved having paid some thought to the notion of gentrification and its association with transportation projects—rarely have any teeth. An MPO respondent illustrated this point in saying, "We have a gentrification policy that we reference on tools/strategies that is often referenced in the planning phase. Often that is it, though. Just referenced." Seconding this sentiment, a local planning department respondent expressed that gentrification is "something

sometimes talked about in planning circles, sometimes even modelled and measured, but there is little in the way of formal accounting for it. Like, there are not enforceable mandates for dealing with gentrification or consequences if you don't." Similarly, a transportation consultant expressed that, "our directive through NEPA is to examine impacts that are related to but do not directly include gentrification. Our role is to give a hard look to impacts and instruct where avoidance, minimization, or mitigation of impacts is required by law or statute, but not make subjective judgments on those impacts. It feels pretty soft in terms of influence."

Some respondents explicitly delineated what accounting for gentrification meant for their projects at different stages of the work. For example, a two-part theme surfaced from discussion specific to the planning phase: 1) Gentrification may be mentioned as a project-associated concern during public engagement events/activities; and 2) In cases where this discussion continues beyond mere mentioning, it tends to center around vague support for the maintenance and increase of housing affordability. Speaking to part one, a local planning department respondent explained, "We produce planning documents that include current and potential funding strategies to combat displacement and current programs are brought up during public engagement to inform attendees of what relevant programs already exist."

Speaking to part two, one transportation consultant stated that accounting for gentrification in planning meant "talking and thinking about how to ensure the inclusion of transportation equity, aligning with Justice40, and empowering communities." A local planner stressed that in planning, their team focuses on "encouraging affordable housing efforts with transportation improvements." But whether these approaches are effective is unclear.

The planning phase of a transportation project, respondents noted, also often includes attempts to avoid the negatives of gentrification through cross-agency coordination. Respondents explained that this coordination extends beyond transportation agencies. One transit agency staffer detailed that as a part of their projects, "We do outreach to housing leadership at municipalities and advocacy organizations." "We connect residents to housing resources and support programs in the event of increased home values that correspond with transportation infrastructure improvements," wrote a respondent employed at a state department of transportation. A final example of cross-agency coordination serving as a key mechanism to "account" for gentrification came by way of a local department of transportation employee. This respondent stated, "The programs pertaining to gentrification and displacement are housed within other city departments rather than the transportation department. Because of that, coordination of these entities can be difficult, sometimes even politically problematic." It is made clear here that this coordination can, at times, be a sizable challenge.

Other respondents noted that they have tried to account for gentrification in the implementation phase of their projects by providing direct financial support to impacted residents. Illustrating this approach, one respondent, a local city official, stated, "Zero Fare is a

direct investment in individuals and communities who have historically been disinvested from in order to address inequity. The program supports economic mobility and other quality of life needs, and provides cost savings, allowing residents who are lower income to put more money toward housing and other critical needs, re-directing investment to sustaining and supporting communities to create stability rather than spurring rapid economic growth that can lead to gentrification and many of the negative outcomes (displacement, unaffordable housing, etc.) associated with it." Several other respondents echoed this method of accounting for gentrification by partnering transportation improvements with direct increases in economic capacity and/or autonomy for those most vulnerable to potentially project-resultant changes.

Many respondents noted that their implementation-phase-specific efforts focus on operationalizing anti-displacement programming and policies. "Some projects set aside funding for affordable housing; other projects evaluate zoning along a corridor and make changes designed to encourage retention of low-income units and residents; and there are other approaches being used to mitigate gentrification such as land banking, collaboration with public and private developers, and more," described one consultant. Commercial support was also noted as being a priority: "I have seen companion efforts to projects that seek to stabilize and promote incumbent businesses in project areas," one transit agency respondent noted. Incorporation of "cultural community elements" and requirement of "above minimum inclusion of affordable housing" were commonly listed examples of the programmatic and policy actions deployed by respondents in areas surrounding transportation projects.

A handful of respondents, in contrast, argued that gentrification is actually being encouraged and prioritized in their communities. These few emphasized that this support often comes from political leadership. A respondent from a local planning department stressed, "We ENCOURAGE gentrification. We have generally been a lower middle class town, and our political leaders are looking to socially engineer our City to only have places for more upper middle class." Relatedly, one transit agency respondent spoke to the revenue generating piece of the transportation-gentrification puzzle: "In my experience, some projects lean into gentrification because it leads to more tax revenue." The juxtaposition of this gentrification-seeking behavior against the gentrification-avoiding behavior described by the majority of respondents in their detailing of what accounting for gentrification looks like in their projects reiterates a takeaway found in the previous section: context matters in how the relationship between transportation investment and gentrification is understood.

Finally, some respondents noted that they felt gentrification does not get accounted for in either the planning or implementation phases of their work because it is not a relevant issue to the communities served by their projects or to the (employment) role they fill. As an example of the former, one local planning department respondent said, "Gentrification has not really been an issue in our community. We are focused on providing projects that our residents are asking for."

Illustrative of the latter, a respondent stated, “As a State Department of Transportation, gentrification is not normally a factor in our projects.” Nonetheless, responses in alignment with these senses of non-issue and non-responsibility were few and far between.

Practitioners Are Unconvinced Their Agencies Are Doing Enough to Address Gentrification

Next, we asked survey takers to describe what they would like to see. In other words, if they could undertake projects as they desired, how would they undertake projects? In this section, we show that practitioners broadly believe that their agencies are not doing enough to address the negative impacts of gentrification potentially stemming from projects. In Table 4.3, we summarize what respondents described as key actions their agencies could take to help make up the gap.

Table 4.3 What Actions Would Practitioners Like Their Agencies to Take to Combat the Negative Impacts of Gentrification?

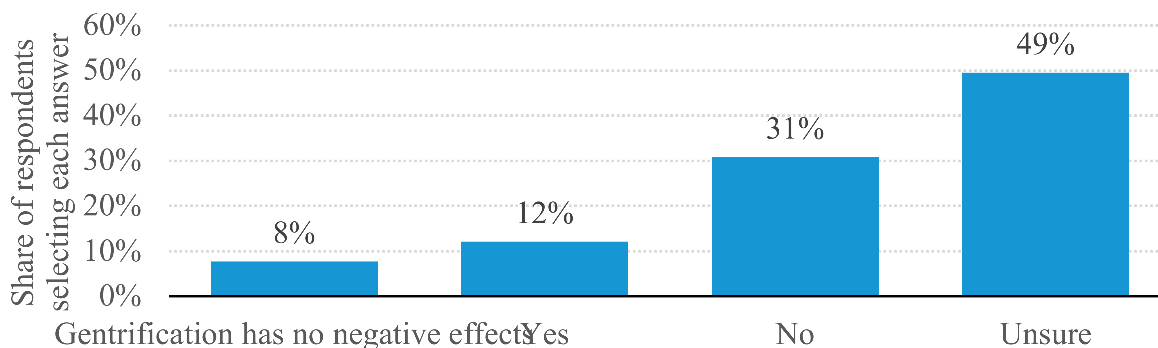
Response Themes: Actions to Address Negative Effects		
	Actions respondents would like to see taken to combat the negative effects of gentrification relevant to transportation projects	Increasing housing affordability.
		More cross-department, cross-agency, or cross-sector coordination.
		Greater acknowledgement of the potential link between gentrification and transportation among stakeholders.
		Greater accountability among public sector agencies for the roles that they play in that link.
		Greater institutional entrenchment of effective strategies.
		More could be done to engage with findings from research, and more research needs to be done.
		Increased funding for the planning process, so as to be able to avoid the negative effects of gentrification before they set in.
		More intentional focus on neighborhood-specific and culture-specific commercial offerings within transportation projects that involve changes to land-use, programming, and development.
	Actors seen as responsible for working to avoid gentrification’s negative effects relevant to transportation projects	The responsibility is shared by many.
		Different parts of the responsibility fall to different actors: funding as the responsibility of federal and state actors, planning the responsibility of local actors.
		Government should shoulder some of the responsibility, but not to the extent that quality transportation options stop being implemented.
		It is no one’s responsibility, as gentrification is not something that needs to be worked against.

Source: *The authors, based on a review of survey responses.*

We began by asking responded whether respondents believed that their organizations were doing enough to minimize the negative effects of gentrification (Figure 4.8). Among

respondents, 8 percent answered that they feel there are no negative effects of gentrification, and 12 percent feel that their organization is presently doing enough to minimize what negative effects gentrification has relevant to their transportation projects. But 31 percent of respondents replied that they do not think their organizations are doing enough, while almost half indicated that they are not sure (49 percent).

Figure 4.8. Respondents' Perceptions of Whether Their Agency is Doing Enough to Minimize Negative Effects of Gentrification



Source: *The authors, based on a review of survey responses.*

We prompted respondents who said that their organizations were not doing enough, or that they were unsure, with a follow-up question: What actions do you think your organization should be taking? The most frequent response we collected emphasized a call for increasing housing affordability, including both naturally occurring and subsidized affordability types. Many holding a wide array of employment argued for more investment in affordable housing, especially in transit-accessible areas. One local planning department respondent recommended specifically "Adopting a construction excise tax to be used for affordable housing development and try to preserve a few of the manufactured home parks in city limits through zoning regulations." Another recommended "Less restrictive zoning for housing development to support small scale developers. Nonprofit affordable housing developers can join with community land trusts for successful projects with support for greater capacity." An important takeaway from this selection of responses is that many transportation practitioners see the world of housing as the sector most needing to change in order to effectively minimize the negative effects of gentrification related to transportation projects.

Another theme from responses is the desire for more effective cross-department, cross-agency, or cross-sector coordination. One respondent from a local department of transportation noted that they would like their organization/department to "work closely with housing and the mayor's office to place protections for people who may be affected by transportation projects." Similarly, a federal government respondent recommended "more integration between departments and education for non-planners about how gentrification occurs."

Interestingly, these desires echo themes found in Table 4.1, where we describe what survey takers explain about what their organizations are currently doing to account for gentrification. This suggests alignment between what is happening in practice and what practitioners want to see, but that perhaps the quantity of effort and action are what these practitioners see as lacking. In other words, for many, the issue appears not to be what to do to address gentrification, but rather the extent to which this should be done.

Several respondents concentrated on shortcomings that they feel exist as a part of the systems and structures in which they work. They highlighted a need for greater acknowledgement of the potential link between gentrification and transportation, greater accountability among public sector agencies for the roles that they play in that link, and greater entrenchment of effective strategies for minimizing the negative effects of gentrification relevant to transportation projects. The first of these needs was well-highlighted by a state department of transportation employee in the following passage: "Greater acknowledgement of gentrification as a potential effect of a transportation project is a first step. Identifying how the state DOT will act if there is concern about gentrification (will it lead, coordinate with other agencies, etc.) and identifying roles for various staff would allow for tangible paths forward on projects if gentrification is a concern." The second need a transportation consultant described in the following way: "We are doing what we can to lead other organizations to the sources and information but there is a lack of systemic change on the level of state and federal DOTs." The third was succinctly put by another state respondent: "We really need to institutionalize best practice."

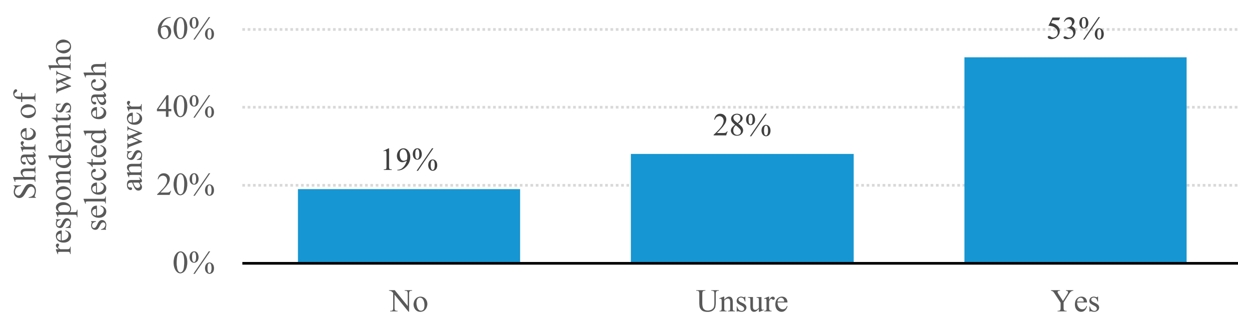
A handful of respondents emphasized the role that scholarship and learning can play in minimizing the negative effects of gentrification, noting that they feel much remains unknown. This group stressed that more could be done to engage with findings from research, and that more research needs to be done. "The fixed guideway system in my organization is not undergoing any expansion or improvement beyond typical maintenance. Where an improvement in service on the existing system (ex: improved reliability, better headways) results from maintenance work, is there a resulting gentrification effect along the transit rail line? I just don't know," responded one transit agency employee. Another transit agency staff member spoke specifically to potential gaps in understanding related to investment in bus services: "In general I have found that bus projects do not account for gentrification effects because there is a perception that higher education and higher income residents aren't going to move to a previously disinvested area in response to any bus project. I think that's generally incorrect, but that the planning practice has not adequately accounted for that in the literature, and that it has certainly not made it to practitioners." Finally, one transportation consultant stated explicitly that what is needed to minimize the negative effects of gentrification relevant to transportation projects is "more research on impacts and better understanding of best practices that can be utilized. Pilot projects would be useful."

Another collection of respondents focused on capacity needs, such as the need for increased funding for the planning process. "My organization does not have enough funding to consider gentrification in planning," stated one local planning department employee. Others recommended more intentional focus on neighborhood-specific and culture-specific commercial offerings as an effective way to minimize negative gentrification effects. We need to "figure out how to keep neighborhood-serving retail and not have them priced out," proposed one local planning department respondent.

We next asked respondents the following two-part question: Do you think it is your organization's responsibility to actively work toward avoiding the negative effects of gentrification? If not yours, or in addition to yours, which agencies, organizations, or other stakeholders should be responsible?

A sizable share (19 percent) of respondents indicated that they do not feel that it is their organizations' responsibility to actively work toward avoiding the negative effects of gentrification. A far larger share, however, (53 percent) noted the opposite; that their organization does indeed have such a responsibility. As with the previous set of questions regarding whether or not respondent organizations are doing enough to combat the negative outcomes of the potential transportation-gentrification relationship, many respondents (28 percent) answered that they feel uncertain as to the responsibility their organization has in the matter.

Figure 9. Perception of Whether Their Agency is Responsible for Avoiding the Negative Effects of Gentrification



Source: *The authors, based on a review of survey responses.*

The second of this two-part inquiry revealed widespread sentiment that many different stakeholders should hold the responsibility collectively. For example, one transit agency respondent listed "cities, counties, and non-profits" as all responsible. Another listed "municipalities, neighborhood groups, and community organizations." Local planning department respondents listed county and regional planning agencies, transit agencies, MPOs, and community engagement organizations as sharing responsibility over the issue, while respondents from state departments of transportation listed local municipal departments (e.g.,

housing, planning, economic development) and "local community groups." One consultant stated that this responsibility fell to "any entity that controls land use policies, and also state housing agencies."

Beyond providing a list, several respondents went into greater detail, emphasizing that different responsibilities fall to different actors in combatting the negative aspects of gentrification. A local department of transportation respondent illustrated this theme: "Federal agencies and state agencies should provide funding to tackle gentrification to local governments so they can plan." Relatedly, other respondents answered that they feel government should shoulder some of the responsibility, but not to the extent that we stop providing quality transportation options: "Municipalities and state government should play a bigger role; but overall, we should strive to make every neighborhood transit accessible so they're on an even playing field. People should have great access to transit no matter where they live," said one transit agency employee.

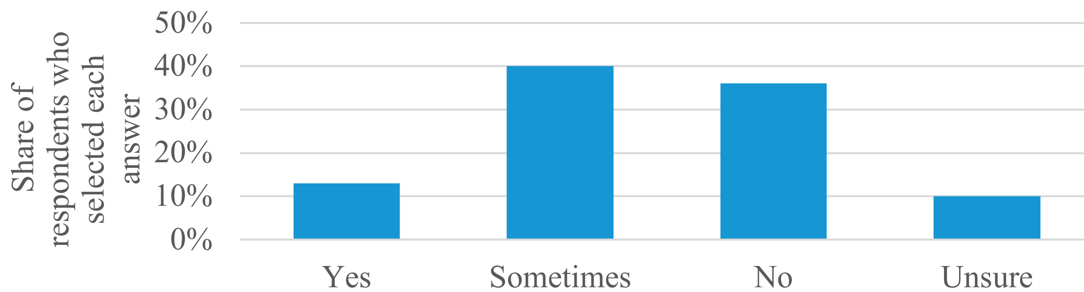
A small number of respondents felt that gentrification is not something that needs to be worked against. For some of these respondents, that feeling was shaped by their jurisdictional context. Answering the question of just who should be responsible, one local planning department respondent replied, "No one. Gentrification is a problem for big liberal cities, not small conservative cities." Interestingly, this respondent clearly feels that gentrification is a subject that manifests differently by city scale, but also in accordance with lines of political division. Others who replied that they feel actively working to avoid the negative effects of gentrification it no one's responsibility attributed this sentiment to support for the free market. For example, in response to which entities' responsibility it was, one local planning department employee said "None - it is a pattern of disinvestment and reinvestment in a free market economy." A few other responses in support of not working against the free market were expressed, all by respondents from city departments.

Respondents Suggest There Are Limited Tools Available for Displacement Prevention

In this final section of survey analysis, we examine how respondents described how they and transportation projects in general responded to the threats of displacement. We began by asking whether survey takers believe the transportation projects they are currently involved with could cause or accelerate displacement in project-affected neighborhoods (Figure 4.10). The largest share of respondents agreed that this sometimes occurs (40 percent). A similar share noted that they were confident their projects could not cause or accelerate displacement (36 percent). Response share for these answers were in close alignment with those answers related to gentrification that we illustrated in Figure 4.5. A much smaller share—17 percent of respondents—said that they believe their work could contribute to gentrification (Figure 4.5)

while 13 percent said they believe their work could contribute to displacement (Figure 4.10). Ultimately, when compared, respondents exhibited a stronger belief that their work may play a part in fueling gentrification than in spurring displacement.

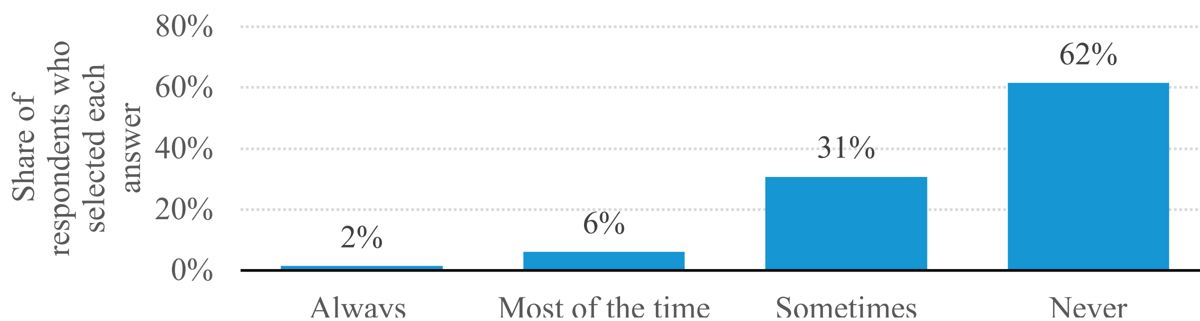
Figure 4.10. Perception of Whether Current Projects Could Cause or Accelerate Displacement in Affected Neighborhoods



Source: *The authors, based on a review of survey responses.*

We then turned to matters of financial support. We asked survey takers whether funding is allocated toward investment-related displacement prevention as part of the transportation projects they are involved with (Figure 4.11). The majority noted that such funding is never allocated (62 percent). Another 31 percent noted that funding is sometimes made available for displacement prevention. Across the entire survey, this question resulted in the highest level of unanimity among respondents, with only 8 percent of respondents agreeing that funding for displacement prevention was provided (2 percent said always and 6 percent said most of the time). Note that each of these figures is substantially lower than the 53 percent who said that transportation projects could at least sometimes cause or accelerate displacement (Figure 4.10).

Figure 4.11. Frequency of Funding Allocation Towards Investment-Related Displacement Prevention

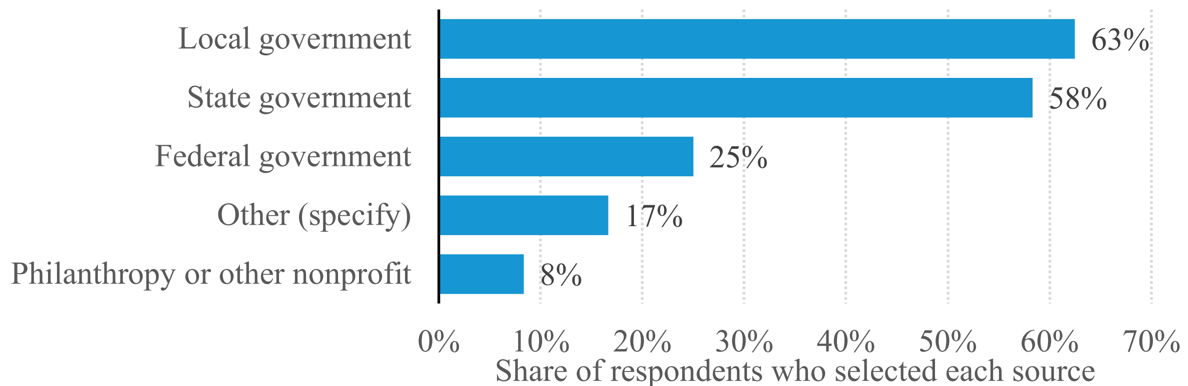


Source: *The authors, based on a review of survey responses.*

Other than those who responded that funding is never allocated toward investment-related displacement prevention, we promoted survey takers to identify the source(s) of whatever funding is provided; we allowed multiple selections (Figure 4.12). A majority of respondents

agreed that such funds came from local and state governments, with a quarter agreeing that the federal government could chip in. Those who listed a funder other than government, philanthropy, or nonprofits added developers to the list.

Figure 4.12. Frequency of Funding Source for Displacement Prevention



Source: *The authors, based on a review of survey responses.*

Practitioners Consistently Suggest that *Others* Should Address the Negative Impacts of Transportation-Induced Gentrification

In the final section of the survey, we asked respondents to elaborate on where they felt power was positioned in the transportation-gentrification relationship. We specifically asked which individuals or entities have the power and/or resources to address gentrification-related changes, and how are these powers and/or resources used? Consistently, respondents pointed to sectors or organizations with whom they themselves were not affiliated as sources of power to address gentrification-related changes. They pointed both to other types of government and other levels of government.

For example, local planning and transportation department employees said such power was concentrated in the hands of "the County," "town boards," "city council," "the State," "elected representatives," "the Mayor's Office," and "the planning commission." Respondents from state departments of transportation expressed feeling that those with the power to address gentrification were "MPOs and local government," "local elected officials and regional representatives," "non-profits," and "civil rights lawyers." Transportation consultants pointed to "politicians and city planners." Federal government respondents pointed to "city planning and State DOT officials." Respondents from MPOs called out "community land trust" as sources of power to respond to gentrification, and university researchers called out transit agencies. This citing of power by respondents as being held externally to their own organizations suggests that practitioners at all levels themselves feel quite powerless to effectively address gentrification relevant to their projects.

Going a step further—from suggested feelings of powerlessness to perhaps those of hopelessness—some respondents noted that they feel those who have the power are not likely to use it. Reflecting on their experience, one local planning department employee said, "City Council and the City Administrator, i.e. the municipal CEO have the powers… Powers not used to my knowledge." Another said, "City Council, the County, and developers [have resources and power]. They are used sparingly." Respondents from transit agencies expressed similar sentiments of observed dormancy of the power to thwart gentrification's negative effects: "In my experience it is typically municipalities who have the power to address gentrification-related changes, but they either don't do it or are not closely coordinated enough with transit projects to make the required policy changes."

Speaking to how existing powers, when exercised, are typically operationalized, respondents presented several ideas. Many centered zoning mandates and affordability advancement. "Affordable housing investment and enforcement of zoning codes are the most common methods I've observed," noted one transit agency respondent. Another said, "Cities have the ability to reallocate impact fees to help encourage increased affordable housing percentages within their footprints." With comparatively high frequency, inclusionary zoning, zoning used to preserve naturally occurring affordable housing stock, and equitable transit-oriented development (eTOD) were offered as examples of ways that authorities are addressing gentrification-related neighborhood changes.

Barriers to Mitigating the Negative Impacts of Gentrification

We asked survey respondents to think about the forces standing in the way of mitigating gentrification's negative impacts. Some respondents highlighted the barrier that public sentiment can pose. Local planning department respondents explained that NIMBYism stands in the way of a pro-build and, most stringently, a pro-affordable housing construction mitigation solution. They also explained that a "strong desire for elimination of blight" can make some favor pro-gentrification strategies and can silence interest in mitigation entirely.

One transportation consultant suggested that a barrier is posed by disconnection between those involved in the puzzle and those living in affected areas: "Homes and businesses may be owned by investors who live outside of the city who are not invested in keeping current tenants and are solely interested in maximizing profits." This potential disinterest in neighborhood vitality and in the wellbeing of neighborhood community residents was put even more succinctly, and painfully, by one local planner who answered, "It hurts to say, but I think many people just don't care." In sum, the idea that public sentiments—held by some—stand in the way of consideration or mitigation of the negative impacts of gentrification emerged as a theme in response to the question of barrier identification.

Some respondents also called out zoning and historical preservation polices as a matter of concern. “Policies that ‘protect’ existing and historical neighborhoods in the comprehensive plan and zoning ordinance,” were highlighted by one local planner as an impediment to gentrification mitigation. Similar claims were made of “local prohibitions against requiring affordable housing” and “State and federal policies that prevent reserving units in affordable housing projects for local residents.” Responses claiming that zoning codes were outdated, highly fragmented between jurisdictions, and unresponsive to the changing housing needs of municipalities, and that such unresponsiveness made existing codes a barrier to mitigation of gentrification’s negative effects, were stated frequently.

Some noted that there were no concrete, formal policies standing in the way; “There are no policy factors that I have come in contact with that would prevent any consideration or mitigation of any negative impacts,” said one local official respondent. Rather, these respondents posed, the true inhibitor was a lack of political will. Descriptions of gentrification mitigation as “politically infeasible” and “politically unfavorable” were made by many respondents. One local planner said, “The City lacks the political will and technical competence to address the issues of the day, and most staff don't even realize it. In any case, the city shambles along and couldn't handle additional workload like a gentrification mitigation program.”

Some identified existing processes of planning and construction approval as additional barriers. “Top-down planning process,” “needing approval by City Council,” and “election cycles” were all listed as factors of said processes that prevent the uptake of mitigation strategies. Offering perspective from the construction side of things, one transit agency respondent said, “We've made it damn near impossible to build transit in this country. It's too expensive and too slow. The environmental review process is a big part of that problem.”

Some also shared the sense that current funding mechanisms are ill-suited to the task of mitigation. “There are too many limitations on how, where, and when mobility funding can be used. This can lead to ‘solutions in need of a problem’ or projects that are too narrow in scope. Mobility and gentrification are complex issues that demand holistic, systemic solutions,” noted one transportation consultant. Co-signing this frustration with rigidity, another answered, “Policy and funding should be flexible enough to support holistic strategies, not piecemeal tactics. There should also be more funding for strategic, multi-jurisdictional planning of mobility networks, that takes socio-economic impacts into account.” Other respondents highlighted that funding sources rarely, if ever, consider the cost of preventing displacement, and that there exists a “lack of alternatives to market-based interventions (i.e. capital) for non-market-based mitigation.”

Harkening back to the need for extended education, more than a handful of respondents expressed feeling that the interconnection between transportation investment and gentrification is not well enough understood, and that that lack of understanding serves as the greatest barrier to enaction of mitigation. For example, an MPO respondent stated that, “Elected officials rarely

connect transportation investment to gentrification directly. They typically think of it being more related to residential and commercial development, schools and taxation." A transportation consultant noted that this lack of understanding is not just limited to elected officials: "Public education about the impacts and tradeoffs of rising land values that can result from mobility projects needs to be more prevalent and presented clearly so the community and other stakeholders can make informed decisions." Finally, one state department of transportation employee made a plea to those in the world of research, "We need more evidence of what works. Evaluation and evidence. That is what we need to be more effective" at mitigating the negative effects of gentrification relevant to transportation investment.

Overall, these survey results provide useful insight into how practitioners understand the relationships between transportation and gentrification—and the limitations of current approaches to mitigating the negative impacts of gentrification. In the next section, we turn to potential options for transportation practitioners to consider implementing as they adjust their approaches to encourage more equity-focused outcomes.

5. Approaches to Mitigating the Negative Impacts of Gentrification

Each stage of our research approach—including our review of the literature, our interviews, and our national survey—brought new insight into approaches practitioners are considering, and even sometimes implementing, to mitigate the negative impacts of gentrification. In this section, we summarize such approaches, using evidence acquired from each of these research sources. Mitigation strategies should aim to relieve displacement pressure and allow current residents and commercial activities to remain in place. These strategies should also emphasize preservation of cultural practices and feelings of belonging. We summarize key approaches that we identified in Table 5.1, before describing them in detail in the section that follows. It is important to emphasize that because of the limited availability of data and lack of standard tracking processes, we do not comparatively assess the degree to which any of these specific approaches is effective. The order in which these approaches is listed is not meant to reflect prioritization.

Table 5.1 Potential Approaches to Mitigate the Negative Impacts of Gentrification

Approaches
Expand availability and access to affordable housing, especially in areas where car use is not needed, in association with transportation investments. - Invest in subsidized affordable housing, rental assistance, and ownership support in association with transportation projects. - Protect those who are most vulnerable, including through legal support and limitations on corporate investors. - Reform land-use and zoning policies to enable a variety of housing options, including denser development. - Leverage land leftover or adjacent to projects to support anti-gentrification strategies and encourage redevelopment.
Improve engagement with people most impacted by transportation projects. - Engage with community members through a cultural lens. - Integrate community members into project construction opportunities. - Support commercial ventures, such as small businesses near projects.
Generalize access to high-quality transportation options. - Reduce the scarcity of quality and affordable transportation options.
Build partnerships to get work done. - Think more broadly than just transportation when planning. - Co-plan for land use and transportation, including tying funding for transportation projects to goals related to neighborhood change. - Close existing knowledge gaps to address uncertainty.
Acknowledge that some forms of gentrification have positive impacts. - Learn from the past to address the negative impacts of projects in the present and future.

Source: *The authors, based on a review of scholarship, interviews with practitioners, and a national survey.*

Expand Availability of and Access to Affordable Housing

Invest in Affordable Housing Near Transportation Projects

Preserving or producing affordable housing is a commonly suggested strategy in the scholarship across transportation projects, regardless of transportation mode (Bryant, 2019; Knight et al., 2018; Lachapelle & Boisjoly, 2022). Evidence supports the value of various types of housing policies in mitigating residential displacement (Chapple et al., 2023). One option is to systematically choose to invest in new subsidized affordable housing projects, such as those supported by Low Income Housing Tax Credits, in neighborhoods where there is a high level of mobility, such as areas near new public transit stations. Another option is to encourage the use of Housing Choice Vouchers in those areas.

Several interviewees emphasized that one option to reduce the potential impacts of gentrification was to invest in affordable housing or create new housing affordability protections adjacent to transportation projects. In Seattle, for example, the city worked with a local nonprofit to support the construction of an affordable housing complex designed specifically for families, thanks to a large number of units with 2 or 3 bedrooms. This represented a departure from the standard approach of private-market developers, who are more likely to focus on more financially lucrative 1-bedroom or studio units.

In Austin, there has been a clear effort to integrate planning for affordable housing around planned light rail and BRT projects. One interviewee from the area noted that residents of East Austin were worried about the possibility of gentrification changing the community as a result of a major transit expansion program that is now underway. As a result, as part of a citywide transit tax referendum passed by voters in 2020, the city included a substantial amount of funding for anti-displacement strategies, with a particular focus on investing in affordable housing.

Protect Those Who Are Most Vulnerable

In association with its new public transit investment program, Seattle is examining the possibility of creating a rent stabilization overlay district in one neighborhood that may be particularly exposed to gentrification: Chinatown. This approach could help ensure that renters continue to have access to homes in the areas along a new light rail line. Another approach is to make up for past mistakes in transportation planning. In Berkeley, near a BART station, the city has provided a specific priority in an affordable housing lottery for people whose families were historically displaced by transportation projects.

Indeed, some respondents to our survey called for an increase in policies and practices that can be implemented at the neighborhood level and focus on supporting incumbent residents, especially those most vulnerable to market forces. A state department of transportation respondent suggested that “neighborhood stabilization strategies, like legal defense, rental

assistance, and housing preservation strategies" could be effective mitigation approaches. Tax credits, rent control and/or stabilization, and financial management counseling for incumbent residents were also proposed by some respondents as ways to counteract upward market pressures and decrease the likelihood of unwanted moves among project-area residents.

Some also expressed support for shared equity homeownership models. A local planning department respondent pointed to "community land trusts as a long term solution for affordable housing." Some recommended ownership support as a mitigation strategy to combat the negative effects of gentrification relevant to transportation projects not only in relation to residential property, but also in relation to businesses: "Funds from the project could provide business ownership priority for those negatively impacted by previous and current projects. Specifically, among minority communities," noted one federal government respondent.

Several survey takers recommended greater government regulation of the housing market, with a focus on reducing levels of institutional investment. Some nonprofit and MPO respondents suggested that government limit—or further limit in cases where restrictions already apply—corporate land ownership. They implied that such institutional owners have monopolized homeownership in some areas, and that this problem could become worse in the context of new transportation investments. In alignment with this sentiment, others recommended that effective mitigation should include "manufactured home park preservation," rather than enabling such areas to become redeveloped through speculation.

Reform Land-use and Zoning Policies to Enable a Variety of Housing Options

Many respondents concentrated on advancing land-use choices and zoning policies that do not center automobile use, with the goal of promoting dense neighborhoods in areas well served by new transportation investments, particularly public transit. One local transportation department employee illustrated this combination of sentiments well: "Policies to support more affordable housing, including changes in zoning to allow for higher density and zero parking requirements can help increase the affordable housing supply." The backdrop of statements like this is that housing unaffordability is a consequence of gentrification relevant to transportation, and that effort ought to be made to avoid or even counteract that outcome.

Similarly, many survey takers favored the goal of making it easier to build more housing of different types. "The negative impact of gentrification is displacement. These neighborhoods [unspecified] deserve transportation investment. Preventing displacement requires building housing (market-rate housing and affordable housing) to meet increased demand. When we focus to heavily on affordable housing we make the problem worse," expressed one transit agency respondent. As such, one respondent argued for the "easing of development regulations that make it hard and slow to build." Here, respondents added depth to the conversation and a fuller picture of the complexity present in the transportation-gentrification relationship by identifying

that displacement, a negative potential impact of transportation investment, is likely not only a concern for residents eligible for government-subsidized, affordable housing, but at a range of incomes and housing costs.

Leverage Land to Support Anti-gentrification Strategies and Encourage Redevelopment

Public entities can play a key role in supporting these efforts. In the San Francisco region, the BART transit agency owns a large amount of land near its stations, much of it currently used for surface parking lots. BART has specifically focused development planning on sites for housing investment in jurisdictions where anti-displacement measures have already been implemented by localities, as tracked by the local MPO, the Metropolitan Transportation Commission. BART's policy is that at least 20 percent of units on site, and at least 30 percent of units across BART land holdings, be affordable for households with low or very low incomes to help respond to local housing needs.

In Portland, the Oregon Department of Transportation has worked with a neighborhood organization, the Albina Vision Trust (a community economic development organization), to take advantage of "new" land created as part of a project funded by the federal Reconnecting Communities program. This land is in the form of a cap placed on top of a segment of highway whose original construction tore through communities. Similarly, in Madison, Wisconsin, the local transit agency is planning to leverage land that was used during the construction period of a BRT project for new housing development. This land has the advantage of being publicly owned (therefore making it less expansive to use) and being located directly along a new transit line, meaning it can effectively assist people who live in affordable housing to have access to useful public transportation services.

Some local planners and other government officials responding to our survey argued for "government purchase or eminent domain seizure of low-income housing properties within each neighborhood to keep it around as a 'natural' supply of affordable housing before it can undergo demolition or predation by hedge funds." Those favoring this type of approaches further stressed that then maintenance, upgrading, and management of these properties also needed to be carried out by government, and that that responsibility needed to not be an afterthought. Others recommended that government "seize and redevelop marginal commercial properties, namely the lesser strip malls and "gray field" malls into mixed-use developments," presumably in areas proximate to transportation projects, while several other respondents simply made pleas for "more and direct federal and state government action."

Improve Engagement with People Impacted by Transportation Projects

Provide a Cultural Lens by Engaging Directly with Affected Communities

Interviewees emphasized that transportation projects need to be designed to reflect the needs and desires of existing residents. This means, as one interviewee from Philadelphia put it, "letting actual residents and business owners be the leading voice and tell us what needs to happen, to also shape what that looks like." In some cases, this can require modifying project plans to address ideas raised by local residents. In Austin, the city has hired a series of community ambassadors to undertake community engagement. These ambassadors have been intentional in engaging residents at times that work for them—such as not at night, but rather on weekend events, when people are more likely to show up.

In Chicago, an interviewee similarly emphasized that residents needed to be directly involved in project planning. The stakeholder mentioned the concept of a "co-governance" model that involves residents, not just traditional advocacy groups, which they argued are typically run by employees who are mostly white and often do not live in the neighborhoods slated for transportation investment. An interviewee from Portland noted that the state department of transportation has attempted to integrate community members from the Albina Vision Trust directly into the project team and advisory board related to project planning; this enables to community to help define what should go on top of the cap, with the goal of ensuring that it benefits the community at large.

Independent of the type of transportation investment, numerous scholars suggest broader, more diverse, and better engagement with people who may be impacted by transportation projects is critical to mitigating the negative effects of gentrification (Flanagan et al., 2016; Krings & Schusler, 2020; Lee et al., 2017; Lubitow et al., 2016; Sener et al., 2024). But it is worth noting that transportation mode may define the most appropriate mitigation strategies. To prevent "bikelash," meaning public anger caused by investment in cycling infrastructure, Wild (2018: 516) suggests we need to "plan for, acknowledge, and actively negotiate conflicts in ways that prioritize urban justice and more inclusive urban planning processes, as well as creative, responsive, and participatory cycling infrastructure projects." Addressing underlying issues such as police violence, harassment, and crime can help alleviate barriers to cycling that act as exclusionary mechanisms (Golub et al., 2016) and contribute to the perception of bike lanes as "white lanes of gentrification" (Lubitow et al., 2016).

Integrate Community Members into Project Construction Opportunities

Major transportation projects can be employment generators, adding hundreds and sometimes thousands of jobs in construction. In Portland, the state department of transportation has been intentional in focusing on disadvantaged business procurement for elements of the

project. The agency has also worked to specifically employ Black men from the surrounding neighborhoods—people who might be most likely to otherwise experience the negative effects of gentrification.

Interviewees argued that transportation agencies should be particularly concerned about the negative impacts stemming from the project construction phase. In Maryland, the construction of a new light rail line has involved intentional outreach by the transportation agency with non-English speakers. One result of this outreach has been an effort to carefully coordinate construction timing to ensure that construction does not result in negative outcomes for local businesses (that said, local businesses remain skeptical that this coordination has produced the desired effects). Similarly, in Philadelphia, the city department of transportation worked with the city department of commerce to financially support small businesses during the construction phase of bike lanes and sidewalk improvements.

Support Commercial Ventures Associated with Projects

A sizable share of survey respondents—roughly one-sixth—mentioned the potential for strategies that focus on supporting certain commercial ventures. One federal respondent offered detailed recommendations for how those who they believe hold power could use that power to mitigate the negative effects of gentrification: "Local leaders and non-profit grantees can implement sustainable developments that account for already established local businesses. Further, local, state, and federal governments can increase incentives for small business and penalize monopolized corporations for excess placements within at-risk communities (e.g., Dollar General, Walgreens)." Notably, these recommendations pertained to 'development' which could include, but is by no means exclusive to, transportation projects. Similar recommendations included, "limits on investment in commercial real estate by non-owner occupants," "incentivize new business developments in areas prone to seasonal or impoverished wages," "support cooperative modes of business," and "mandate local hiring preferences." These ideas were presented by respondents from MPOs, state and local DOTs, local planners, transportation consulting, and transit agencies.

Generalize Access to High-Quality Transportation Options

Reduce the Scarcity of Quality and Affordable Transportation Options

Respondents employed by transit agencies and local departments of transportation focused less on housing-specific mitigation solutions to avoiding the negative effects of gentrification, and more on solutions related to transportation service and infrastructure. Responses of this nature recommended efforts to level-out some of the upward market pressures that threaten the housing security of communities at risk (of gentrification) by reducing the scarcity of quality and affordable, transportation options.

Take, for example, the following comment from a transit agency employee: “One way to mitigate these negative impacts is to build transit faster and in more places. In short we need to make it easier to meet demand for transit-served neighborhoods so everyone that wants to live in one can do so. When we have a scarcity, low-income households will get outbid by high-income households.” This issue was echoed in a response from a local transportation department employee: “The issue is a lack of transit and other economical transportation modes. Mitigation must include making more of these widely available.” Clearly, this cohort of respondents share the belief that while there are haves and have-nots with respect to quality transportation options, the possibilities of wealth-driven neighborhood change and community disruption or removal remain present.

Consider trails and greenways. Because these typically double as greening projects, one approach is expanding or improving existing green spaces throughout the region, rather than simply creating new ones. Another is applying the “just green enough” theory, where enhancements to green spaces are designed by the local population with the explicit goal to maintain that population intact (Jo Black & Richards, 2020). Bryant (2019) suggests a framework of socioeconomic status-sensitive greenway planning, which includes addressing the level of access to amenities across a given jurisdiction.

Similarly, for smaller scale and geographically distributed investments, such as sidewalks, ensuring investment policies center social and economic justice as a clear objective can help alleviate inequities and potential contributors to gentrification (Knight et al., 2018). Equitable redevelopment patterns mandated by such policies can ensure a baseline of walkability, reducing the differential in desirability that is a driver of gentrification.

Build Partnerships to Get Work Done

Think More Broadly than Just Transportation

Planners in Eugene, Oregon, told us that they have focused on considering investment in transit as something that requires broader thinking than just planning for the transportation project itself. This has required something of a shift in mentality. Transit planners have sought to think about what access to affordable housing new transit is likely to provide, for example. And this has meant thinking creatively about how to leverage new investments. For example, the city has been providing transit passes to residents of new housing units located in areas near BRT stations. This helps build ridership and creates a dedicated customer base, while reducing transportation costs for residents.

Interviewees from Denver explained that the anti-gentrification efforts they viewed as most successful have focused on the commercial elements of gentrification. The City and the Regional Transportation District (RTD) have established ongoing partnerships with local business

improvement districts (BIDs) with the explicit intention of supporting local, culture-specific businesses during all phases (planning, construction, operation) of a transportation project. Through this partnership, BIDs have also managed to contribute to project design and pacing. One interviewee emphasized that, to her knowledge, not a single business has gone under or had to relocate since the establishment of this public-private relationship.

Co-Plan for Land Use and Transportation

Several interviewees noted that the best way for transportation agencies to undertake proactive anti-gentrification approaches is to build inclusive partnerships with other public agencies. This is necessary because different governments have jurisdiction over various policy areas. Unfortunately, interviewees emphasized that the development of these types of partnerships has historically not been the norm; there is a lack of coordination between agencies that has made integrating housing and transportation planning, for example, quite difficult. But there are cases where this has been successful. In Baltimore, for example, the county has worked with the state department of transportation to acquire land for development that will include affordable housing.

Several survey respondents pointed to the need for stakeholder agencies to more impactfully co-plan land-use and transportation was touched on by many respondents. One transportation consultant noted that, “In many areas the transportation agencies, local governments, housing authorities and other stakeholders operate in silos and do not collaborate effectively.” This ineffectiveness, many agreed, contributes to the negative effects of gentrification being able to manifest even in areas where much care for and effort against that manifestation exist.

Others spoke to the value of collaborative partnership not across different fields or sectors, but at different levels of government. For example, several transit agency respondents called for the creation of a federal funding source dedicated to the planning and construction of high-affordability TOD near fixed-guideway local and regional transit. An MPO respondent stressed that gentrification is often discussed at the hyper-local geographical scale (e.g., the neighborhood), but that when it comes to how transportation relates to gentrification, that interaction may be more dependent on regional conditions. As a result, this respondent recommended that regulations that dictate built environment conditions, such as “elimination of exclusionary zoning and pursuit of property tax equity across communities” be done at the state level.

Several local and state level departments of transportation and planning respondents suggested that the best way to address the negative impacts of transportation-related gentrification was to tie funding for transportation projects to goals related to neighborhood change. Illustrating this, a state department of transportation respondent said, “Federal grants could require anti-displacement strategies in certain areas (Justice40, etc.) for a grant to be

awarded." Similar recommendations made by transit agency and local planning department employees included calls for "something like 'neighborhood equity' funds," "assess fees of some sort for landlords who keep property vacant as they wait for higher rents," and "penalties for failing to account for and enforce neighborhood equity or anti-gentrification goals as a part of transportation projects." Speaking to how best to achieve things like a 'neighborhood equity fund,' one local planner recommended that funding not filter down to municipalities in the ways that it currently does. Rather, "Direct funding to local governments. Not through State agencies and MPOs" is, according to this respondent, what is needed.

In Santa Clara County, on the south side of the Bay Area, the county provides incentive funds to the Valley Transportation Authority (VTA) based on the number of affordable housing units that are produced in the areas near VTA's light rail lines and the BART extension it is building. This allows the agency to reduce the tension of balancing the goals of revenue production for transit and housing affordability, according to one interviewee.

One interviewee from Seattle emphasized anti-gentrification strategies require thinking beyond affordable housing. The city and local nonprofits have sought to associate housing investments with other types of public initiatives, such as childcare centers and health services. In this approach, the city has been careful to ensure that these services are designed for the local residents. For example, there has been an effort to ensure that physicians on site are able to speak the languages of the residents of the community.

Close Knowledge Gaps to Address Uncertainty

A few survey respondents highlighted education as a possible mitigation approach. Among this group, closing existing knowledge gaps was a key priority in avoiding the negative effects of gentrification relevant to transportation projects. Transportation consultants stressed the need for "education on clean cars (impacts on air quality, state of the market, incentives, etc.) and local workforce development," and offered that a form of mitigation could be to "increase advocacy education, and mandate sensitivity training at DOTs." Similarly stressing the value of education, one state department of transportation respondent recommended, "Educate on the importance of TODs to reach to zero greenhouse gas emissions vision." These types of responses reaffirm that more understanding of how transportation and gentrification relate is needed.

As if in direct response to the call to shrink knowledge gaps, several respondents self-identified as not having a clear idea for what mitigation methods should be used to combat the negative impacts of gentrification, despite the fact that they work in this space and expressed care about the subject. This theme of uncertainty was exemplified by the following answer from a transit agency respondent: "In general as a practitioner I'm not fully aware of the methods available to me, or the methods for which I should advocate as part of a project." Another transit agency respondent noted that they didn't feel the subject was enough in their wheelhouse to offer

opinion and advice on it: “I don't feel like I'm enough of an expert in gentrification mitigation to answer.” Another felt that no one approach was widely applicable enough to serve as an answer to the question. Responses like, “I do not know of a mitigating method to recommend that would be appropriate for all situations,” given by a state department of transportation employee, suggest that some practitioners view gentrification effects as unique on a project-by-project level, and that, accordingly, so need be methods for mitigating negative effects.

Acknowledge that Some Forms of Gentrification Have Positive Impacts

In survey responses, we identified notable points of dissention between some respondents and the general survey participant body. For example, a few respondents stressed that they feel there is no need to mitigate the impacts of gentrification. One local planning department respondent who aligned with this sentiment said, “For my town, this is a false assumption. Instead transportation improvements are being made to address equity issues and so far have not led to gentrification.” Echoing this, another local planner answered, “In my community, any influx of new families, workers, etc. especially of higher income is appreciated. We have seen no negative impacts, so there is nothing to mitigate.” Consistent with earlier questions regarding actions that should be taken, or interventions made, two or three respondents recommended a laissez-faire, handoff approach, calling for the powers that be to “allow the free market to handle it.” However, even among this group of respondents, there were suggestions that at certain times, some intervention may be reasonable. For example, the same local planning department respondent who answered via the previously stated quote added, “… though housing rental controls may be appropriate in some cases.”

A small collection of survey responses centered the need to look backwards, learn from and acknowledge the past in order to appropriately address the negative impacts of transportation-related gentrification in the present and future. One federal government respondent said, “We need policies to repair damage done by previous projects as well as to prevent additional negative impacts.” Others who expressed similar feelings went on to offer ideas about what is needed to be able to work towards that repair: “We need a policy tool tracking the (neighborhood) change associated with each project,” said one local planning department respondent; “We need resources for post-implementation project evaluation,” specified another. Both tracking and evaluation resources, frameworks, and further supports would begin to allow stakeholders to better understand the progression of gentrification related to transportation projects, enact redress for past harms, and to establish more effective ways of avoiding the onset of negative effects.

Finally, several respondents were uncertain for how to tackle the negative impacts of gentrification but were certain of their bottom line: fear of gentrification must not prevent sustainable mobility projects from happening. This response from a transit agency respondent

most clearly depicted this sentiment: “I struggle with the issues of displacement for incumbent tenants versus the influx of money into neighborhoods that comes with gentrification. I feel like there has to be a balance between new investment in an area and honoring the tenants who have been in the area prior to gentrification. And preventing gentrification should not be a reason to stop improvements to the transportation network, because that becomes an equity issue.”

6. Conclusion

Our findings highlight a need for complementary policies and actions that are participatory and equitable. To mitigate the negative effects of gentrification, including displacement, we listed in Section 5 a series of potential approaches that could help address community needs. These include considering the safety, security, and inclusion of historically and currently marginalized communities near transportation infrastructure investments to ensure that original residents reap the benefits of new projects. There are already practices in action that attempt to respond to gentrification, though we show here that those practices are rarely put into play by transportation agencies and even more rarely funded.

Overall, however, scholarly research on the impact of transportation investments on gentrification and displacement is still relatively nascent, particularly for modes of transportation other than major transit projects or signature projects that have a transportation component (e.g., New York City's High Line). The lens of evaluation we took in our review of the literature—investments by mode—also fails to account for projects that impact multiple modes at the same time (e.g., complete streets transformations) or are integrated with a suite of land use developments. Distinguishing the effects of transportation investments from other regional economic and policy conditions poses important methodological challenges. Our interviews with and survey of practitioners clearly suggests that there is a desire among people working in transportation to respond to the potential negative effects of gentrification resulting from transportation projects, but not always a clear sense of how to move forward.

There remain significant knowledge gaps regarding the relationship between transportation investments, gentrification, and displacement. While correlation between investments and gentrification has been documented in limited cases, the causal links are not well established. More research is needed to understand how bus transit, bike lanes, and highway extensions affect gentrification. The displacement effects of rail and bus transit, greenways and trails, bike lanes, pedestrian infrastructure, and highway removals are also understudied. In addition, the effects of the source of investment (private or public capital), magnitude of investments, and geographical distribution all require better documentation. The effect of infrastructure and neighborhood change on citizen sentiment and attitudes towards change are also missing in existing research. Lastly, gentrification is often thought of as an urban issue, but suburban and rural gentrification can occur and are understudied, particularly in the context of transportation investments.

Given the interest in understanding how transportation and gentrification are linked, but also the broad gaps in knowledge about how the two issues are linked, we plan to now pursue our research with the second phase of this research. In this upcoming work, we will conduct a national examination of how new investments are linked to demographic change, as well as a series of project case studies to understand what anti-displacement measures are possible.

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