

Power To Pedal:

A Gendered Analysis of the Barriers and Joys of Cycling
in Oakland

Author Mallika Gupta, University of California, Berkeley

Advisor Daniel Rodriguez, University of California, Berkeley

May 2024

UCB-ITS-PSR-2024-06

doi:10.7922/G2FF3QQ2



TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. UCB-ITS-PSR-2024-06	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A	
4. Title and Subtitle Power to Pedal: A Gendered Analysis of the Barriers and Joys of Cycling in Oakland		5. Report Date May 2024	
		6. Performing Organization Code: ITS Berkeley	
7. Author(s) Mallika Gupta		8. Performing Organization Report No. N/A	
9. Performing Organization Name and Address Institute of Transportation Studies (ITS Berkeley) University of California, Berkeley 109 McLaughlin Hall MC1720 Berkeley CA 94720-1720		10. Work Unit No. N/A	
		11. Contract or Grant No. USDOT Grant 69A3551747109	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Office of the Assistant Secretary for Research and Technology 1200 New Jersey Avenue, SE, Washington, DC 20590		13. Type of Report and Period Whitepaper (August 2023 - May 2024)	
		14. Sponsoring Agency Code USDOT OST-R	
15. Supplementary Notes DOI:10.7922/G2FF3QQ2			
16. Abstract Amidst increasing investments in cycling infrastructure in California, trends continue to demonstrate that women from low-income communities of color are underrepresented as cyclists. I argue that prevailing bicycle justice movements have neglected the intersectional needs of women from Black, Indigenous, and People of Color (BIPOC) communities by centering the 'white, lycra-clad male' and his commute needs within organized bicycling advocacy. Further, contemporary bicycle planning does little to investigate the barriers and joys related to cycling, as they are experienced by these women. This article draws from nine in-depth interviews with women of color in Oakland, California, to identify the racial and gendered barriers that influence the decision to cycle and whether only the construction of cycling infrastructure is enough to overcome these social barriers. Findings suggest that the fear of traffic injuries, coupled with the perceived and actual risk of victimization, sexual harassment, and racial violence discourage women of color from cycling. The concerns are further exacerbated by systemic failures of the city, including housing unaffordability, increasing income inequality, and the politics of gentrification. This suggests that bicycling planning must address more complex social factors besides infrastructural ones, create more opportunities for women of color to be included in bicycle planning and advocacy spaces, and help destigmatize cycling by increasing the visibility of BIPOC women as cyclists. I conclude this article by offering suggestions for practitioners and policymakers that might help reduce social barriers to cycling for women of color.			
17. Key Words Transportation equity, bicycling, gender, people of color, low income groups, bicycle travel, advocacy groups		18. Distribution Statement No restrictions	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 75	22. Price N/A

About the Pacific Southwest Region University Transportation Center

The Pacific Southwest Region University Transportation Center (UTC) is the Region 9 University Transportation Center funded under the US Department of Transportation's University Transportation Centers Program. Established in 2016, the Pacific Southwest Region UTC (PSR) is led by the University of Southern California and includes the following partners: California State University, Long Beach, Northern Arizona University, Pima Community College, University of California, Berkeley, University of California, Davis, University of California, Irvine, University of California, Los Angeles, University of Hawaii, and University of Nevada, Las Vegas.

The Pacific Southwest Region UTC conducts an integrated, multidisciplinary program of research, education and technology transfer aimed at *improving the mobility of people and goods throughout the region*. The program is organized around four themes: 1) technology to address transportation problems and improve mobility; 2) improving mobility for vulnerable populations; 3) Improving resilience and protecting the environment; and 4) managing mobility in high growth areas.

US Department of Transportation Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated in the interest of information exchange. The report is funded, partially or entirely, by a grant from the US Department of Transportation's University Transportation Centers Program. However, the US Government assumes no liability for the contents or use thereof.

Disclosure

This research took place at the University of California, Berkeley from August 2023 to May 2024 and was supported by the Pacific Southwest Region University Transportation Center research program in the amount of \$7,500.

**Power to Pedal:
A Gendered Analysis of the Barriers and Joys of Cycling in Oakland**

By:

Mallika Gupta

PROFESSIONAL REPORT

Submitted in partial satisfaction of the requirements for the degree

of

MASTER OF CITY PLANNING

in the

Department of City and Regional Planning

of the

UNIVERSITY OF CALIFORNIA, BERKELEY

APPROVED

Professor Daniel A. Rodríguez

Professor Teresa Caldeira

Date: Spring 2024

Table of Contents

Abstract	1
Chapter 1: Introduction	2
Chapter 2: Literature Review	5
Transportation Context of Oakland, CA	5
Intersectional Struggles in Contemporary Transportation Planning	8
Introducing Intersectionality within Bicycle Justice Movements	15
Chapter 3: Methodology	22
Participant Profiles	23
Chapter 4: Results and Discussion	25
Hypervigilance and Coping with Harassment	25
Overcoming Culture and Asserting Confidence	34
Biking as a Black Woman: Zulu's Story	41
Planning for Joy and Justice	46
Conclusion	51
Summary of Key Findings	51
Recommendations	54
Bibliography	59
Appendix 1: Semi-Structured Interview Guide	68

Abstract

Amidst increasing investments in cycling infrastructure in California, trends continue to demonstrate that women from low-income communities of color are underrepresented as cyclists. I argue that prevailing bicycle justice movements have neglected the intersectional needs of women from Black, Indigenous, and People of Color (BIPOC) communities by centering the 'white, lycra-clad male' and his commute needs within organized bicycling advocacy. Further, contemporary bicycle planning does little to investigate the barriers and joys related to cycling, as they are experienced by these women.

This article draws from nine in-depth interviews with women of color in Oakland, California, to identify the racial and gendered barriers that influence the decision to cycle and whether only the construction of cycling infrastructure is enough to overcome these social barriers. Findings suggest that the fear of traffic injuries, coupled with the perceived and actual risk of victimization, sexual harassment, and racial violence, discourage women of color from cycling. The concerns are further exacerbated by the city's systemic failures, including housing unaffordability, increasing income inequality, and the politics of gentrification. This suggests that bicycling planning must address more complex social factors besides infrastructural ones, create more opportunities for women of color to be included in bicycle planning and advocacy spaces, and help destigmatize cycling by increasing the visibility of BIPOC women as cyclists. I conclude this study by offering suggestions for practitioners and policymakers that might help reduce social barriers to cycling for women of color.

Keywords:

Bicycle Justice, Gendered Mobility, Racial Violence, Barriers to Bicycling

Chapter 1: Introduction

Critical research from across the globe has shown that men and women have significantly different travel patterns, and amongst women themselves, these variations are exacerbated at the intersection of race, ethnicity, income, geography, and other social vulnerabilities (Uteng, 2009; Steinbach et al., 2011). Women of color from low-income or migrant families tend to work non-traditional hours, which may require one or more off-peak commute trips and are more likely to have multiple part-time jobs in service industries that require traveling to different locations (Rosenbloom, 2006; Ward & Walsh, 2023). Additionally, commuting only makes up a small share of BIPOC women's travel needs since they also frequently 'trip-chain,' i.e., make multiple short trips to various destinations associated with domestic chores and care work (McGuckin and Nakamoto, 2005; Rosenbloom, 2006; Grengs, 2010; Blumenberg, 2020; Loukaitou-Sideris, 2020). Further, women from low-income communities who live in 'high-crime neighborhoods' or commute during off-peak hours when it is dark and isolated are more likely to experience actual or perceived threats of victimization (Stark & Meschik; Ding et al., 2020; Loukaitou-Sideris, 2020).

Despite decades of literature documenting gendered patterns of mobility, planning instruments have failed to acknowledge these variations or take intentional steps to address women's unique needs. Amongst others, a 2023- meta-analysis conducted using 81 comprehensive plans from across the US shows that while plans paid attention to 'economic development,' 'planning and zoning,' and providing services, women's unique needs and issues remained invisible within discussions around "mobility, transit, sidewalk or access." (Zhang et al., 2023). It is evident that despite decades of scholarship highlighting women's travel patterns, specifically within North America, the exclusion of intersectional needs has continued to reinforce gender-related inequities, even within contemporary planning practices that advocate

for equity and justice. Plans continue to rely on commute data and use universalistic language to prioritize mobility over accessibility, which exacerbates gender-related inequities in transportation and leads to fewer job opportunities, curtailed travel, and foregone trips for women of color.

In the current climate of promoting sustainable transportation, scholars have countered the automobile discourse by proposing cycling as a viable mode of sustainable personal mobility while potentially serving as a source of self-empowerment and emancipation for women. However, despite extensive literature on its health, economic, and social benefits (Damiana, 2009; Garrard et al., 2012a; Golub, 2016; Gill & Celis-Morales, 2017), access to the cycle remains plagued with bias and stigmatization. Research shows that women continue to be shamed for cycling, which is seen as 'risk-taking behavior,' 'being on public display,' or 'irresponsible parenting' when cycling with children or allowing them to cycle on their own (Steinbach et al. 2011; Garrard et al., 2012a). These variations are felt even more acutely by women of color, who must overcome the risk of racial violence, sexual harassment, and classist shaming, as well as the risk of displacement from cycle lane-induced gentrification. Unfortunately, contemporary bicycle planning over-emphasizes commute data, which, even when disaggregated by race or income, inherently excludes such non-traditional travel needs of low-income women of color. This directly impacts mode share as studies prove that the proportion of female cyclists is significantly lower than their male counterparts across age groups in the United States (Horten et al., 2007; 2012a; Goel et al., 2021).

While research has been conducted on the needs and fears of women while cycling (Furness, 2010; Horten et al., 2007; Garrard et al., 2012a), and there is an increasing discourse on race and cycling (Furness, 2010; Golub et al. 2016; Lee et al., 2016; Lugo, 2016; 2018), there remains a dearth of qualitative work that focuses on the intersectional concerns of Black,

Indigenous, and People of Color (BIPOC) women, and their barriers to cycling. This paper attempts to examine the different challenges faced by BIPOC women in adopting cycling as a mode of transportation in Oakland. Through its analytical framework, the paper seeks to understand why, despite the provision of high-quality cycling infrastructure in parts of the city, cycling as a travel mode has failed to attract women, especially those from low-income communities of color. In light of these research gaps, the primary purpose of this research is to understand the barriers to cycling among women of color in Oakland. Specific research questions include: **(1) What factors influence BIPOC women's travel choices in Oakland?** **(2) To what extent does the provision of cycling infrastructure govern BIPOC women's choices to cycle or not cycle in Oakland?** I rely on data collected using qualitative methods, specifically semi-structured interviews with BIPOC women from different neighborhoods of Oakland. The interviews focus on their perception of cycling and how it is impacted by their personal fears, in addition to income, race, ethnicity, zip code, and gentrification in the city.

In Chapter 2, I locate the study in Oakland's transportation planning history and consequent racialized geographies. I also look at existing literature on gendered mobility and bicycle justice and how the intersection of BIPOC women's access to cycling has been overlooked. In Chapter 3, I describe the study's qualitative methodology and the value of presenting just nine cases through a 'case study' logic. In Chapter 4, I present my results and discussion, which draw upon the voices of the participants to discuss four broad thematic areas that emerged from their stories. The analysis focuses on themes relevant to understanding the interconnectedness of racial identity, gender performance, and urban mobility, paying special attention to equitably accessing cycling. In Chapter 5, I conclude by offering recommendations for practitioners and policymakers to help address more complex social factors besides infrastructural ones, create more opportunities for women of color to be included in bicycle planning and advocacy spaces, and help destigmatize cycling by increasing the visibility of BIPOC women as cyclists.

Chapter 2: Literature Review

Transportation Context of Oakland, CA

In Oakland, the design and implementation of transportation infrastructure and services have overtly and inherently relied on racial segregation, which has had lasting impacts on the mobility of non-white bodies and their interactions with the physical landscapes. In the mid-1800s, racial segregation took root in the East Bay, particularly in West Oakland, where non-White workers were drawn to the port and warehouse industry (Golub et al., 2013). The era after the Civil War saw overt segregation of black passengers on railcars, and the legacy continued into the 20th Century across expansions of bus, streetcar, and train networks. In addition to segregation in using transit and other amenities, including waiting rooms and bathrooms, the routing of transportation infrastructure, specifically the new highway system, became a systemic tool for reproducing racial oppression (Bullard, 2003; Blumenberg, 2017).

Until the 1970s, racial segregation was entrenched in de jure housing and transportation policies across North America. Policies like the Federal Housing Act of 1934, redlining, blockbusting, federally sanctioned urban 'renewal' projects, subsidized suburbanization through the 1950s and 60s, and the ongoing development of the interstate highway systems led to the deterioration of Black neighborhoods (Lipsitz, 1995; Johnson, 2016). In Oakland, transportation investments and renewal strategies led to "White flight" and suburbanization, further marginalizing Black communities. Major investments in public transit were rerouted from the Key System (electric streetcars that serviced inner city residents) towards the AC Transit bus system and the BART, an expensive, suburban commuting service that was not designed to serve the mobility needs of minority communities, disabling primarily the Black residents forced to live in inner-city neighborhoods (Foster, 1979; Golub et al., 2013).

The Civil Rights Act of 1964 marked a significant shift, prohibiting discrimination in housing and transportation policy and modifying urban renewal strategies (Golub et al., 2013). Multiple evaluations in the following years, including a study by the Metropolitan Transportation Commission (MTC) in 1976 and the Environmental Justice movements of the 1980s, revealed the devastating impacts on vulnerable communities by the transportation decisions of the past decades. This included the fact that highway construction and BART routing had failed to cater to the needs of low-income groups and disproportionately burdened the same communities with the negative impacts of the expanding regional transportation services (Golub et al., 2013; Purifoye, 2020).

The social and geographic discrepancy between transportation benefits and burdens and the lack of representation in transportation planning processes formed the foundation of transportation justice movements in the following decades. Through these movements emerged a growing recognition that transportation systems, including the planning process and the outcomes of the investments, were inherently civil rights issues (Golub et al. 2016). However, the new-found recognition was grossly misinterpreted as the belief that in the era after de jure racism, transportation planning processes had become 'color-blind' and initiated a 'post-racial' era (Golub et al., 2013).

Figure 1 shows one such example of how the provision of bicycle infrastructure in Oakland relates closely to the income distribution within the city. The patterns that emerge from these maps, when overlaid with historic redlining maps, reveal that imprinted within the landscape of Oakland is evidence that racial neutrality or 'color-blindness,' i.e., the failure to address systemic segregation of the past, leads to the reproduction of inequity and injustice in already racialized geographies.

Figure 1: Distribution of Income vs. Cycling Infrastructure in Oakland

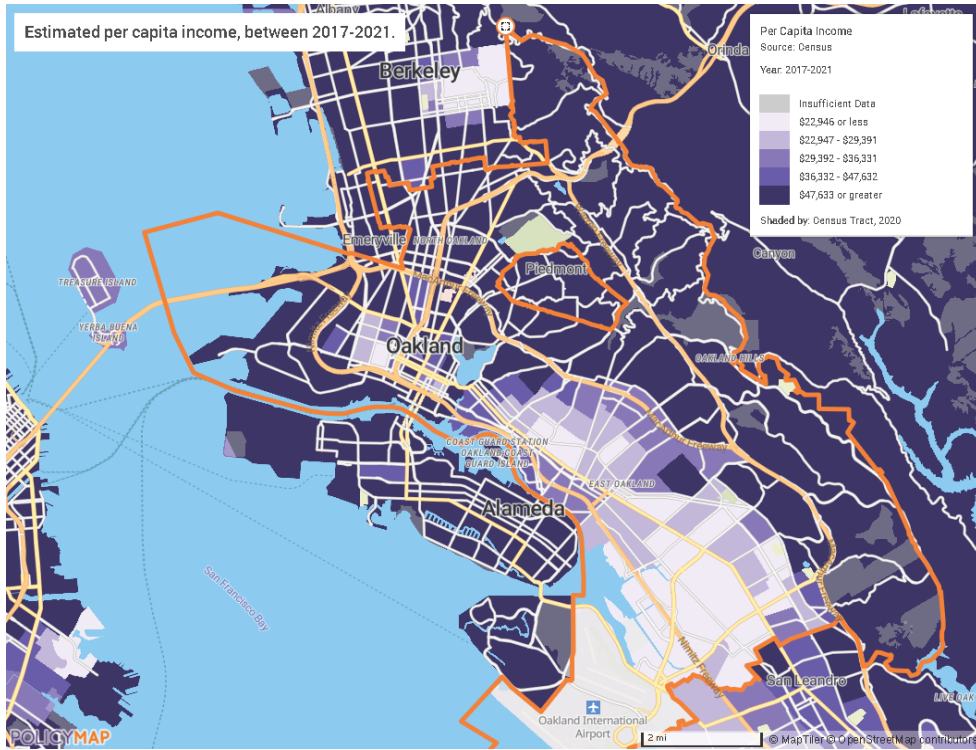


Figure 1(A) Estimated per capita income, Oakland, 2017-2021, Source: Policy Maps

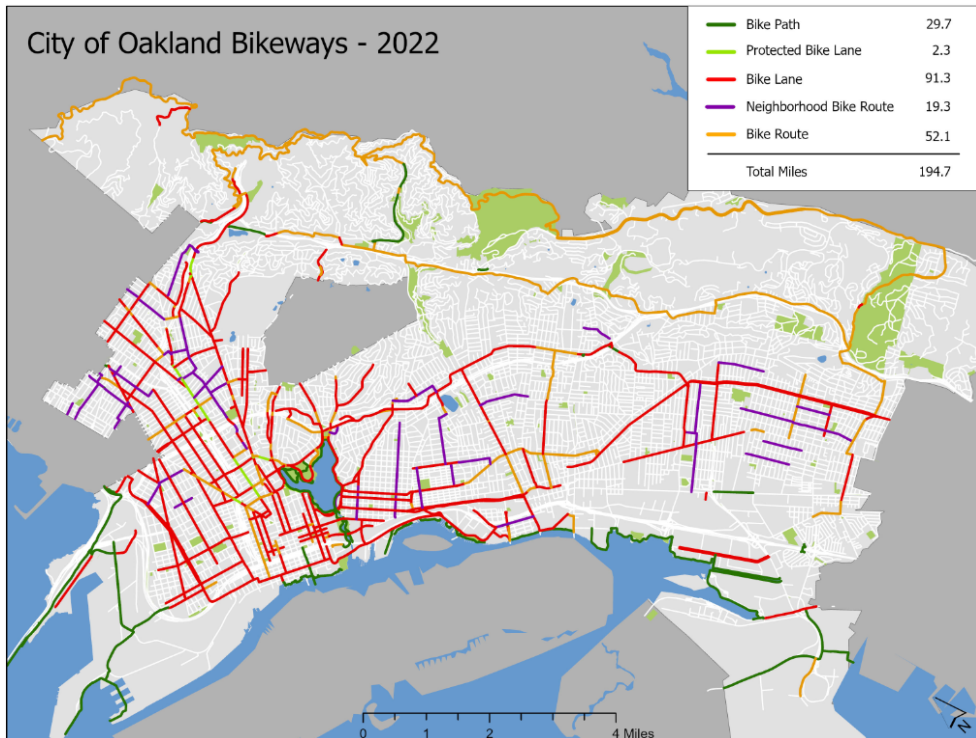


Figure 1(B) Cycling Infrastructure in Oakland, 2022. Source: Oakland DOT

Intersectional Struggles in Contemporary Transportation Planning

Addressing the generational impacts of racism in transportation planning requires a paradigm shift toward approaches that recognize how structural racism persists beyond explicit discriminatory policies. This requires a systematic identification and redressal of the societal frameworks and institutions that sustain racial wealth and access disparities, perpetuating inequalities over time and space (Johnson, 2016). In the United States, racial and economic disparities are deeply embedded in socio-spatial practices and realities which materialize into physical geographies (Inwood et al., 2020). Within this nexus of race, geography, and opportunity lies the pivotal concept of 'spatial mismatch,' initially coined by John F. Kain in 1968. Kain and subsequent proponents contend that the mismatch between where people live and where employment opportunities are available disproportionately affects African American communities, leading to higher levels of unemployment and economic isolation (Kain, 1968).

The spatial mismatch theory has been critical in raising social equity concerns in urban transportation and providing a theoretical framework for many 'welfare-to-work' transportation programs (Blumenberg, 2004; Grengs, 2010). It has helped highlight the detrimental economic repercussions for individuals in North America who lack access to private automobiles ('modal-mismatch') and how these repercussions exacerbate at the intersection of race, gender, and ability to perpetuate socio-economic disparities (Giuliano et al., 2017; Blumenberg, 2020). However, most existing studies on spatial mismatch focus primarily on quantitative analysis of long commutes made by African American men, with little disaggregation regarding its impact on the employment and access of their female counterparts (Thompson, 1997).

Darensburg et al. v. Metropolitan Transportation Commission

In 2005, Sylvia Darensburg- a minority bus rider, and her allies invoked legislation against MTC, asserting that MTC's prioritization of "rail-expansion projects over bus-expansion projects was racially biased and a violation of the 1964 Civil Rights Act." In previous years, MTC and BART's own evaluations had shown that its riders were primarily White and that it was too expensive and inaccessible for low-income workers. In contrast, the majority of bus riders were non-white and struggled with poor connectivity from Oakland to suburban jobs (Lehrer & Hicks, 2011; Golub et al., 2013).

The primary plaintiff in the lawsuit, Sylvia Darensburg, was an African American mother from East Oakland who faced the impacts of transport injustice daily. She took care of her three children, worked through the day to battle poverty, and went to college classes at night. Despite being qualified, Sylvia could not acquire a high-paying job in Downtown Oakland as she could not afford a car, and the disjointed bus service forced her to change lines frequently and commute for more than an hour each way. A distinct observation that Sylvia shared was how bus service and transit connectivity had worsened in recent years, becoming more expensive and less focused on the needs of people like her (Mayer & Marcantonio, 2010; Lehrer & Hicks, 2011). By 2011, both the District Court and the Ninth Circuit Court had ruled in MTC's favor. The grounds for dismissal drew upon MTC's use of technical rubrics like 'congestion management' to show that its planning policies were informed by 'neutral criteria and technical analyses with no racial consequences.' Backed by technocratic prowess, the presiding Judge described the plaintiff's plight as 'desperate litigation' (Golub et al., 2013). Such a stance disregarded the lasting impacts that the history of racial segregation had had on the mobility of non-white bodies like Sylvia's while pushing the belief that the 'damage of past discrimination would naturally disappear if it weren't propped up by ongoing discrimination' (Golub et al., 2013; Giuliano et al.,

2017). Further, such an oversight demonstrated that transportation planning in the city had failed to acknowledge that women have distinctly different travel patterns from their male counterparts, especially in non-white, low-income communities. However, the experience of Oakland is not unique, and the tendency to use universal and neutral language holds nationally.

As demonstrated by the Darensburg case, an overreliance on technocratic analysis of commute data justifies infrastructural development that addresses men's traditional work needs while neglecting women's non-conventional trips, which are more diverse and impacted by personal safety and other physical, psychological, and cultural issues. Blumenberg argues that by excluding women's nuanced susceptibility to spatial mismatch, existing 'social equity' and 'welfare' transportation schemes are unable to cater to the "many gender-related aspects of the labor market," especially pertaining to vulnerable groups like low-income single mothers (2004). More recently, a meta-analysis conducted using 81 comprehensive plans from across the US that claimed to "address women's needs" reveals that while plans paid attention to 'economic development,' 'planning and zoning,' and providing services, women's issues remained invisible within the strategies (Zhang et al., 2023). Across all the plans, women were the least mentioned identity, even falling behind 'children,' 'seniors,' and 'minority.' In the specific field of transportation, only 8.4% of plans mentioned women who continued to remain invisible in discussions around "mobility, transit, sidewalk or access" (ibid). It is evident that even within contemporary planning practices that advocate for equity and justice, the exclusion of intersectional needs has continued to reinforce gender-related inequities despite decades of scholarship highlighting the variations between men's and women's travel patterns, specifically within North America.

Planning instruments have also neglected to acknowledge that amongst women themselves, these variations are exacerbated at the intersection of race, ethnicity, income,

geography, and other social vulnerabilities (Uteng, 2009; Steinbach et al., 2011). Historical patterns of BIPOC women being primary caregivers for children and the elderly persist in modern family structures despite women's growing participation in the workforce (Rosenbloom, 2006; Blumenberg, 2020). Unfortunately, benefits from positive improvements such as increased opportunities to join the labor force, reductions in the 'gender gap' in travel patterns, and increased ownership of automobiles have only benefited women from higher income, well-educated backgrounds, who are disproportionately White women (Loukaitou-Sideris, 2020; Ward & Walsh, 2023).

It is a common oversight to categorize all women under a broad and indistinct umbrella that neither acknowledges the race and income-based differences between them nor the impact of these differences on their travel and mobility patterns. Women of color from low-income or migrant families tend to work non-traditional hours, which may require one or more off-peak commute trips and are more likely to have multiple part-time jobs in service industries that require traveling to different locations (Rosenbloom, 2006; Ward & Walsh, 2023). In comparison to White women, women from Hispanic and African-American ethnicities also tend to have longer commutes than their male counterparts (Loukaitou-Sideris, 2020). Additionally, commuting only makes up a small share of BIPOC women's travel needs since they also frequently 'trip-chain,' i.e., make multiple short trips to various destinations associated with domestic chores and care work (McGuckin and Nakamoto, 2005; Rosenbloom, 2006; Grengs, 2010; Blumenberg, 2020; Loukaitou-Sideris, 2020). This 'mobility of care' (Sánchez de Madariaga, 2013), including the various trips made by women in service of others, mostly children or the elderly, imposes a form of 'hypermobility' upon them, increasing the number and frequency of total trips (Hanson, 2010; Loukaitou-Sideris, 2020). Thus, BIPOC women tend to spend more time and money on traveling and experience 'time poverty' to pursue other experiences such as leisure or sports (Giuliano & Schweitzer, 2010; Garrard et al., 2012a;

Blumenberg, 2020). Equalizing all women under the same category leads to the invisibilization of such variations in mobility patterns, which, in turn, leads to exclusive mobility outcomes for women of color.

Since work only makes up a small share of trips for women from socially vulnerable backgrounds, constrained mobility options can have cumulative effects on their daily routines, such that transportation access becomes intrinsically linked to their quality of life. Historically, BIPOC women from low-income communities were more likely to be concentrated in inner-city neighborhoods with access to public transportation for their work and non-work trips (Thompson, 1997; Giuliano, 2005). However, more recently, Paul & Taylor's (2021) analysis of social and economic trends in transit-friendly neighborhoods of California since the 2000s shows a growing discrepancy between users with a high propensity of using transit (defined as "poor, immigrant, African-American, and without private vehicles") and the actual demographic of residents in high-transit-propensity places. With rising housing costs and reduced affordability in the state's major cities, vulnerable communities are being forced to move away from transit-rich neighborhoods while transit ridership is declining (Kimberlin, 2019; *ibid*). Further, prevalent land use decisions and urban forms in North American cities "dictate an over-reliance on private automobiles for the accomplishment of household chores" (Loukaitou-Sideris, 2020).

Women's non-traditional commute needs and their 'mobility of care,' when combined with inaccessible public transportation, impose limitations on the mobility of 'carless' women, which can potentially lead to curtailed travel or foregone trips and reduced employment or social opportunities (Uteng, 2009; Ward & Walsh, 2023). For women from immigrant and BIPOC communities in unfamiliar environments, the impacts extend beyond the narrowing of job opportunities, obstructing their family responsibilities, impacting their physical and mental health, and increasing feelings of social exclusion (Giuliano et al., 2017; Loukaitou-Sideris,

2020; Hidayati et al., 2021). If left unaddressed, this social exclusion can also contribute to women feeling excluded from broader political discourse or unheard and invisible to public agencies (Villeneuve & Kaufmann, 2020).

The lack of easy access to safe transportation options can also exacerbate women's psychological concerns about being harassed or victimized while moving through the city. Ding et al.'s meta-analysis of 71 academic and professional publications located in the Global North, including cities like Washington DC, Los Angeles, New York City, and London, indicates that women face the risk of harassment at every stage of taking transit from walking to and from the service, waiting at stops, and while on the vehicle (2020). As a result, women from low-income communities who live in 'high-crime neighborhoods' or commute during off-peak hours when it is dark and isolated are more likely to experience actual or perceived threats of victimization (Stark & Meschik; Ding et al., 2020; Loukaitou-Sideris, 2020). My analysis of data from the 2021 California Health Interview Survey indicates that women from low-income and non-English-speaking backgrounds have lower perceptions of safety in their neighborhoods than their counterparts (Gupta, 2022). This fear can often result in avoidance of particular modes of transportation, the decision to travel only during the daytime, or to travel when accompanied by someone else. In the absence of these mechanisms, women may often be forced to travel longer distances, change their routes or modes frequently, or avoid traveling at all (Hanson, 2010; Stark & Meschik, 2018; Loukaitou-Sideris, 2020).

Arguably, considering the cumulative economic, social, and psychological barriers faced by women when reaching and using public transportation, improving access to automobiles can help reduce their disadvantaged situation. In 1992, Rosenbloom argued that 'working families' could benefit from cars as it would provide them the flexibility to travel to suburban jobs while managing their household responsibilities. In 2010, Grengs showed that it was not the

geographic location but the lack of car ownership that worsened poverty and access to resources for African-American communities in Detroit. As recently as 2020, Blumenberg has argued that increasing low-income women's access to automobiles is essential for achieving better economic outcomes, healthier food, and healthcare facilities for themselves and their families. However, increasing automobile usage has other social and environmental externalities that must be addressed before planning to improve women's access to it.

As California sees an increase in the decentralization of poverty, I argue that while automobiles can help overcome the geographic separation from employment, this may not be enough for women from low-income communities to improve their quality of life. Research has shown that automobile reliance can reinforce the sexual division of labor by increasing the number of responsibilities imposed upon women, such as running domestic errands and driving around children in the absence of public transportation (Walsh, 2008). Regardless of their employment status and number of hours spent working, women in all household types continue to make a higher share of child-serving trips, even when earning more than their partners (Taylor et al., 2015). Further, decentralization of amenities, aided by increased automobile reliance, can increase the amount of time spent driving to fulfill these household responsibilities (Wachs, 1992) and increase women's isolation as they move further away and spend more time traveling (Walsh, 2008). As a result, while improving women's access to automobiles may help reduce their labor costs, it does little to address the time and social costs imposed upon them by cultural norms (Blumenberg, 2020). Further, there is enough to suggest that other negative environmental externalities associated with increased car ridership, including global air pollution, traffic congestion, oil dependency, and the social cost of traffic accidents, disproportionately impact low-income and vulnerable communities, including women of color. (Campbell, 1996; Parry et al., 2007; Grengs, 2010).

In the current climate of promoting sustainable transportation, scholars have countered the automobile discourse by proposing cycling as a viable mode of sustainable personal mobility while potentially serving as a source of self-empowerment and emancipation for women. The following section investigates the potential of bicycling to improve BIPOC women's mobility options while addressing global concerns about climate change. The section further investigates how prevailing bicycle justice movements have neglected the needs of BIPOC women and draws attention to the potential of exclusive bicycle planning to reinforce discriminatory patterns within the transportation system of North America.

Introducing Intersectionality within Bicycle Justice Movements

Bicycling offers an economical and sustainable mode of personal mobility, improving social capital, increasing physical and mental health, and enhancing the quality of life for individuals and communities. A shift from automobiles to cycles has been proven to strengthen local economies, increase healthcare savings, and drive investments toward underfunded communities (Damiana, 2009). Golub argues that cycles offer a low-cost and dependable alternative for catering to 'complex travel patterns,' as exhibited specifically by women (2016). Bicycling has also been linked to 'staggering' health benefits, including reducing the risk of developing and dying from heart diseases and cancer (Gill & Celis-Morales, 2017). In *Women and Cycling*, Garrard et al. argue that these changes are especially beneficial for women, whose time poverty often restricts them from participating in other forms of sports, exercise, or recreation. In addition to a greater impact on their health and happiness, increasing the viability of cycling for children and the elderly can further help reduce women's caregiving and household burdens (2012a).

"I think [the bicycle] has done more to emancipate women than any one thing in the world... It gives her a feeling of self-reliance and independence the moment she takes her seat, and away she goes, the picture of untrammelled womanhood."

- Susan B. Anthony, American women's rights activist

Popular histories of cycles have placed them at the forefront of technological innovation, mass mobility, and, most significantly, revolutionary freedom for women. In *'The Mechanical Horse: How the Bicycle Reshaped American Life,'* author Margaret Guroff quotes a female journalist from the late 19th century, who said, *"the ground could hardly feel a more astonishing sense of exhilaration than a woman experiences when first she becomes a mistress of her wheel"* (Guroff, 2016). At the time, the introduction of the light and comfortable 'safety cycles' became a tool for women to challenge norms around their role as homemakers, limitations on their mobility and recreation, normative restrictions on their clothes, and the overall performance of 'respectability' (ibid). The bicycle's growing popularity sparked many national controversies at the time regarding its implications on women's health and whether the exertion and 'enlargement of muscles' could lead to risky pregnancies or miscarriages (Strange, 2002; Guroff, 2016). A broader concern was the loss of women's 'natural femininity,' which, garbed under the pretense of 'vulgarity' and 'debauchery,' worked to retain the subservient roles and 'separate spheres' that women had been cast into (Wachs, 1992; Strange, 2002).

While the American literature on women cycling in the nineteenth century is limited, broad thematics have suggested a causal relationship between women and cycling, popularly quoting suffragist leaders like Susan B. Anthony and, most famously, Elizabeth Cady Stanton's *"Woman is riding to Suffrage on a bicycle."* While evidence for the same remains limited, analysis of the Suffrage press reveals enough excerpts from when cycling was used as a tool by

women's rights activists to advocate for social reform and the right to control their own bodies (Beck et al., 2003; Furness, 2010; Neejar, 2011). Other feminist movements used a particular focus on women's clothing while cycling to criticize conservative groups like the 'Rational Dress Society,' which further linked bicycles to women's liberation (Beck et al., 2003; Furness, 2010).

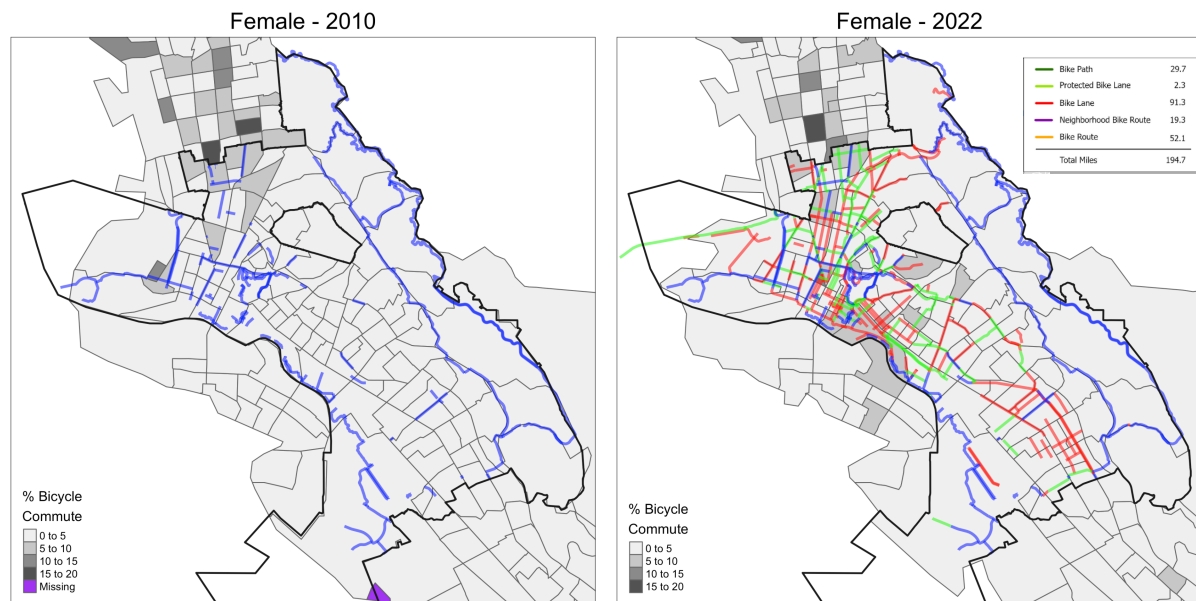
"The bicycle... would cultivate all of the cardinal virtues; it will inspire women with more courage, self-respect, and self-reliance and make the next generation more vigorous of mind and body."

- Elizabeth Cady Stanton, American writer and activist

In the contemporary era of the Global North, cultural attitudes toward 'women's roles' and their education and access to employment may have shifted, but access to the bicycle remains plagued with bias and stigmatization. Research shows that women continue to be shamed for cycling, which is seen as 'risk-taking behavior,' 'being on public display,' or 'irresponsible parenting' when cycling with children or allowing them to cycle on their own (Steinbach et al. 2011; Garrard et al., 2012a). These biases manifest in actual mode share as studies have shown that the proportion of female cyclists tends to be significantly lower than their male counterparts across age groups, especially in car-oriented countries like the United States (Horten et al., 2007; 2012a; Goel et al., 2021).

While quantitative analysis of US-based data shows that women are not more likely to be injured while cycling, they are more likely to be impacted by the fear of collisions, as well as other personal safety concerns, and thus, tend to be more 'cautious' drivers who tend to cycle more for non-commute trips (Garrard et al., 2012a). Figure 2 shows that in Oakland, investments towards improving cycling infrastructure have failed to attract female riders in the last decade.

Figure 2: Percentage of bicycle commute by females vs cycle infrastructure (2010, 2022)



Source: Commute Data: American Community Survey Data, 2010 & 2022; Bicycle Data: Oakland DOT

While the restrictions on women cycling in the late nineteenth century may be attributed to the social norms of the time, contemporary barriers are a product of systemic othering of certain riders from organized bicycling. In their seminal book *'Bicycle Justice and Urban Transformation,'* editors Golub, Hoffman, Lugo, and Sandoval argue that in recent decades, the revival of bicycling has become synonymous with the 'white, middle-class commuter' in the same timeline as investments towards cycling infrastructure have increasingly begun to impact 'neighborhoods transformations' (2016). Narratives from more grassroots-led and direct action campaigns like the Critical Mass cycle rides in San Francisco or Bikes not Bombs repair education models from Boston have been overshadowed by infrastructure-centric, top-down advocacy that draws utopian visions from the likes of Copenhagen while doing little to redress the insecurities that non-white bodies feel in American cities (Furness, 2010; Golub et al. 2016).

Golub, Hoffman, Lugo, and Sandoval (2016) argue that if investments in cycling are to benefit all users equitably, bicycling must be recontextualized in a 'broader social justice

framework' that addresses the formal history of racial exclusion from bicycle advocacy (2016). To elaborate upon this argument, different chapters in the book draw upon case studies to show how contemporary bicycle advocacy has excluded the voices of captive users. These invisibilized 'captive' voices include the excluded needs of groups like Latino and Asian immigrant food delivery cyclists in New York City (Lee et al., 2016), undocumented Guatemalan immigrants in Pittsburgh with no choice but to cycle (Bernstein, 2016), or the Doble Rueda bicycle collective in Matamoros who cycle to demonstrate presence and vitality in a conflict zone between the US and Mexico (Meador, 2016). Authors in the book also argue that this homogeneity and othering of non-white riders has allowed for 'bike equity' to be understood only from a modal standpoint i.e., from "the need to make space for bicycling," while distinguishing between the 'driver' and the 'bicyclist,' instead of disaggregating needs along the lines of race or class (Goddard, 2016; Lugo, 2016). However, it is important to note that despite highlighting the diverse voices excluded from contemporary bicycle justice movements, most authors in the book focus on male-centered narratives and exclude how women face heightened intersectional barriers to cycling.

Other influential and widely cited pieces on cycling, like chapters in Horten et al.'s *Cycling and Society* (2007), Furness's *One Less Car: Bicycling and the Politics of Automobility* (2010), and Pucher & Buehler's *City Cycling* (2012) have addressed the needs and fears of women, children, and even the elderly. However, they speak little about how gender intersects with other complexities like race, ethnicity, income, immigration status, or language. Further, much of the literature that discusses cycling has focused on quantitative methods that rely on commute data or bicycle counts that do not disaggregate by gender or race. Thus, the resulting analysis treats all bicycling bodies as homogenous entities, invisibilizing the intersectional needs of women of color (Golub et al. 2016). Thus, while issues of inequity and injustice are no longer novel to bicycle planning, I argue that bicycle justice can only be achieved when investments

actively work to address the intersectional needs of BIPOC women as well. As discussed in the previous section, this may include planning for their non-traditional travel schedules and hypermobility, addressing fears around victimization or gender-based violence, and more.

Further, Martens et al. apply a distributive justice framework to cycling investments, arguing that “cycle interventions are only warranted on justice grounds if they effectively and efficiently improve accessibility for underserved communities” (2016). The authors argue that redirecting funding and road space to cycling interventions may be unwarranted in certain contexts, such as communities with well-developed public transportation systems or suburban areas where destinations are too far to cycle, and would be considered unjust since they fail to address the mobility needs of already neglected communities in the area (Martens et al., 2016). This framework becomes especially relevant when considering that recent investments in improving cycle infrastructure have come to be correlated with gentrification and displacement in neighborhoods.

A critical analysis of Portland, often considered a leader in bicycle ridership in the country, showed that between 2000-2010, neighborhoods that experienced large increases in ridership were the same as neighborhoods that experienced immense gentrification and displacement (Herrington & Dann, 2016). Portland and other cities like New York, Los Angeles, Minneapolis, and Memphis have seen the rise of another trend, namely ‘bicycle gentrification,’ where cycling infrastructure has not only contributed to increased property values and displacement but has strategically been used to “rebrand areas in preparation for real estate investment and redevelopment” (Golub et al., 2016; Lugo, 2018). Researchers argue that in the last few decades, gentrification processes have frequently been combined with sustainability instruments, like cycle lanes or urban parks, to drive development in racialized and classist ways. Inevitably, it is the wealthy (and the White) who benefit from such ‘improvements,’ while

low-income communities of color are uprooted under the false pretense of 'greening' and environmental improvements (Golub, 2016; Lubitow et al., 2019). Thus, it is unsurprising that the advocacy for such initiatives is closely associated with the production of an 'ideal' cyclist, one that is White, male, latex-clad, and affluent, thus displacing and othering riders who may genuinely need to ride for lack of other options (Lee et al., 2016; Lugo, 2016).

While there is evidence that building more cycle lanes could help close the gender gap in cycling (Dill et al., 2014), in light of the dangers of cycling infrastructure inducing gentrification, it is important to investigate their role in encouraging women of color to cycle more or if other methods must be explored. By identifying the specific barriers that prevent women of color from cycling more or at all in Oakland, this research opens the door to transformative change. Drawing from interviews with women of color, I analyze the effectiveness of improved infrastructure in increasing BIPOC women's access to cycling. This could lead to reevaluating how investments are used, potentially addressing other systemic barriers and creating a more equitable cycling environment. Thus, the key research questions for the study are:

1. What factors influence BIPOC women's travel choices in Oakland?

To understand the social, cultural, gender-normative, economic, and infrastructural motivations and fears that govern women's choice of transportation, especially pertaining to cycling

2. To what extent does the provision of cycling infrastructure govern BIPOC women's choices to cycle or not cycle in Oakland?

To examine the extent to which infrastructure determines women's choices since most bicycle plans and policies focus primarily on infrastructure.

Chapter 3: Methodology

The literature review for this paper shows that traditional bicycling planning has relied primarily on quantitative methods that do not capture the diverse characteristics, challenges, and perspectives of different users, especially women of color. To uncover the nuances of women's experiences with mobility, I adopted a qualitative approach, conducting exploratory interviews with women from different neighborhoods in Oakland. I conducted 'sequential interviews,' where each interview helped to develop a new understanding of the issue and influenced consequent interview questions, intending to achieve saturation instead of repetition, representation, or a typical answer (Small, 2009).

I recruited nine interviewees who (1) were 18 years or older; (2) lived in Oakland at the time of the interview; (3) self-identified as Black, Indigenous, or Person of Color; (4) self-identified as women or non-binary. I met the interviewees at community events by reaching out to community organizations based in Oakland and through academic networks at UC Berkeley. I recruited a few participants through snowball sampling, so some participants knew each other. The participants chose the location for their interview, with most opting for coffee shops or public parks in Downtown Oakland. Two participants were interviewed virtually via Google Meet. The interviews were semi-structured and lasted between 45 minutes to two hours. This allowed the participants to spend time elaborating on their daily or weekly travel routines and the factors influencing their travel choices. During the second half of the interview, I specifically focused on cycling, asking participants about the barriers and joys they experienced when attempting to cycle in Oakland.¹ All the interviews were audio recorded after obtaining verbal consent and manually transcribed.

¹ Complete Interview guide in Appendix 1.

I analyzed the interviews through a 'case study logic' without any intent to achieve generalizability, instead treating each narrative as a unique way of challenging and informing existing theories of bicycling planning. A case study logic, as opposed to a sampling logic, calls for a logically sensible hypothesis rather than statistically descriptive inferences, aiming for saturation instead of achieving a representative sample (Small, 2009). By this logic, each interview represented an individual case study, not to be statistically representative of the population but instead providing unique insights into diverse aspects of my hypothesis. Through this process, I was able to capture the richness of individual voices that are often overlooked in the broadness of conventional transportation planning narratives.

Participant Profiles

Of the nine interviewees, six identified as female, and three identified as non-binary but female-presenting. The youngest participant was 25 years old, and the oldest was 53 years old. Four participants identified as Black/African American, two as Filipino, one as Latina, and two as 'two or more races.' The participants were a mix of students and professionals with diverse income profiles, from household earnings amounting to less than \$60,000 (three-person household) to over \$200,000 (two-person household).

Geographically, five participants lived in different parts of East Oakland, while four lived in the Temescal/ Downtown Oakland area. Time spent in Oakland by each participant spanned from less than three months to over fifty years (born and raised). All interviewees had active lives involving making frequent trips through the city regularly and had varying experiences with cycling in the city, outside the city, and not cycling at all. Table 1 provides full demographic data for all participants, using pseudonyms to protect their privacy.

Table 1: Participant Demographic Data

Pseudonym	Age	Gender/Pronouns	Race/Ethnicity	Location	Time (years)
Elsa	39	NB*, They/She	Asian, Latinx, and White	East Oakland	> 20
Aafreen	25	Female, She/Her	Indian and Burmese	Downtown Oakland	4
Lucia	53	Female, She/Her	Latina	Elmhurst, East Oakland	> 50
Dala	38	Female, She/Her	Filipino	Fruitvale	> 35
Zulu	27	NB, They/Them	Black	Downtown Oakland	> 3
Reyz	48	NB, They/She	Filipino	East Oakland / Fruitvale	> 4
Selam	45	Female, She/Her	Black, African-American	Temescal	> 19
Nzinga	41	Female, She/Her	Black	East Oakland	> 15
Amber	31	Female, She/Her	Black, Kenyan-American	Temescal	< 1

* NB: Non-Binary

Chapter 4: Results and Discussion

In this chapter, I analyze the perceptions of fear and discomfort unique to BIPOC women, the motivations behind modal choices, and the intersectional impacts of a gentrifying city expressed in the interviews. The analysis focuses on themes relevant to understanding the interconnectedness of racial identity, gender performance, and urban mobility, paying special attention to equitably accessing cycling.

Hypervigilance and Coping with Harassment

The interviews began with a simple inquiry, “What do you think about before you take a trip?” From the single mother raising four children in East Oakland to the professional bicyclist taking cross-country solo trips, most interviewees responded with strategies to prevent sexual harassment, robberies, and even being trafficked. While two people mentioned checking the route, calculating the duration, and grabbing keys or snacks, most responses also included tactics for self-preservation, concealing belongings, having an ‘exit plan,’ or coping with the ‘inevitable.’ Some overarching themes that emerged were being constantly hypervigilant and negotiating which trips to forgo to protect oneself strategically. Some spoke of escaping this anxiety by driving. In contrast, others, especially ones without access to a private vehicle, shared the long-lasting impacts of this fear on their mobility, quality of life, and mental health.

Aafreen has lived in downtown Oakland for the last four years. In addition to going to university and working as a consultant, she regularly walks to the gym or coffee shops with her friends around 12th Street. She described verbal harassment from men in the area as a “*part of my daily commute*” and is unsurprised when multiple incidents of cat-calling or explicit verbal harassment occur on a single trip. When speaking to me, she also distinguished between harassment that felt ‘*harmless*’ vs. ‘*harmful and upsetting*,’ referring to verbal harassment that

could potentially lead to physical touch and was more likely to occur when it's dark or rainy. Additionally, as a Muslim woman who wears a hijab, she also had conflicting experiences with other Muslim men. In some instances, it created an opportunity for community building, while in others, she felt that men perceived it as granting access to ask her intrusive or uncomfortable questions.

Unfortunately, existing criminal justice systems in California define sexual harassment within narrow brackets involving 'contact behaviors,' overlooking other verbal and non-verbal aggressions that can impede women's experience of traveling in the city. Such crimes, including passing sexual comments, whistling, asking personal questions, unwanted sexual gestures, stalking or witnessing public masturbation, and indecent exposure, are not considered 'serious,' rarely face prosecution, and are neglected when planning 'safe' transportation (Ding et al., 2020). This places the onus of safety on the women themselves, who must find different ways of coping with the harassment, such as by 'arming' themselves, being on a phone call while walking, or relying on chaperones to bring them home safely (Stark & Meschik, 2018).

I always just have my head on a swivel. I'm constantly aware of how much cash I have on me. What do I have on me? What do I have as protection? I'd rather have peace of mind with a car or somebody giving me a ride.

- Dala (38) grew up in East Bay.

A long-term resident of Fruitvale, Dala said that she never uses buses due to personal safety concerns. She does not even walk from her house to her car without ensuring that her location is shared with multiple people, her belongings are tucked away, and she has an exit plan for wherever she is headed. She also has key phone numbers memorized, does not wear

headphones while walking, and only takes the BART when accompanied by her friends. Reyz is a professional long-distance cyclist who has competed in events like the AIDS LifeCycle and multiple month-long cycle camps. When riding through the city at night, they prioritize bright lights and populated streets to feel safe instead of roads with protected cycle lanes. They also shared an incident in the past where they were forced to change course during an ongoing event after a male cyclist made them feel unsafe on an isolated stretch of the road. Both interviewees were of Filipino descent and relied on strong community ties to accompany them when visiting unfamiliar locations.

When I get dressed, I know that I can always use my heel as a weapon if I need to, I carry a lighter... I was almost kidnapped as a little girl. One of my childhood best friends was trafficked, and a lot of colleagues, so I am always kind of aware of that... [In foster care] they would put us in a lot of self-defense classes, they would train us to always walk on the outside of the street or try to go somewhere that has more light... never walk the same way, and I even do that now because I live in East Oakland and things happen.

- Elsa, informally and formally housed in Oakland since 2004

For Elsa, experiences of growing up in foster care ingrained a fear of being trafficked at an early age, and the fear governs their mobility even now as they turn 40. They are trained in self-defense, carry small weapons for self-preservation, and use multiple strategies for walking home safely, including changing their route frequently or zig-zagging on streets to avoid being followed. When traveling at night, they often call someone while walking with the belief that *“if something ever does happen to me, at least there was someone who witnessed it, even if it's just verbally.”* Lucia (53) felt that she could handle being cat-called regularly but was afraid of

Oakland's high rates of trafficking. She forbids her adult daughter (25) from going down the block to buy groceries alone. She describes the isolated location of bus stops in East Oakland as easy targets for snatching women.

The emotional toll that it takes on you as a young woman to have to walk those five blocks that separate the bus stops.....You begin to develop anxiety. Am I safe? Is someone going to harm me? Are they going to snatch me and put me in human trafficking?

- Lucia, a single mother of four, has lived in Elmhurst Area all her life.

In addition to finding coping mechanisms, fear for personal safety can impact women's travel behaviors by forcing them to take precautionary measures, including avoiding certain routes, avoiding modes, or avoiding traveling itself (Loukaitou-Sideris & Fink, 2009; Stark & Meschik, 2018). Amber moved from New York City to Temescal less than three months ago. She shared how, after witnessing multiple incidents on the subway in New York, she became increasingly afraid of sexual assault on public transportation. While she has not seen something similar in Oakland, she believes it is only because she does not allow herself to be out after 9 PM, especially on transit. In her short time in the city, imposing such precautions on her mobility is part of her strategy to ensure her safety.

When I experience delays in transit, the first thing that comes to my mind is how many people are going to be at this station at 7 pm, or 8 pm, or 9 pm? Is there a sufficient amount of lighting for me to see where I'm going? What is the walking path that I have to take to get there? Am I going to be walking through places with not many open businesses in a dimly lit area?

I had to cut my trip short to make sure that I had time to get to the station during the daytime... It's kind of like 'Dip my toe in a little bit,' right? Just go and visit that area, maybe stop by that station, early enough in the day. And then decide from there, if doing leisure activities in that area is worth exposing myself to whatever potential things might happen there.

- Amber about being hypervigilant while using buses in Oakland

For new residents like Amber, unexpected service delays can enhance the perception of fear in unfamiliar spaces, forcing her to prioritize errands and forego leisurely activities like sightseeing or discovering new neighborhoods. However, even for women who are familiar with the city, bus stops located in isolated areas, when compounded with irregular bus service or poor quality vehicles that break down often, can increase their perception and actual vulnerability to crime. Other spatial elements like inadequate street lighting, dark and isolated streets between transit centers, and lack of street activity also contribute to this fear.

The speeding cars, the lighting, the way the buses are made, and the timing of the buses. The buses are 45 minutes apart during high commute times. So I'm just going to walk so that I can hurry up and get home... But there is a lot to encounter on that 30-minute walk.

- Lucia, East Oakland

Here, you really don't have to plan the day because it's just going to be safe... The buses that we have here are not the same as those in East Oakland. Those are more torn down. You never know if you will end up at your destination.

- Salem, Temescal

[At night] There are definitely a few blocks where I'm glad I'm running. I think it's just too quiet. Unfortunately, there isn't another street that would be less quiet. I don't trust the quiet. I feel like if it's quiet and something happens between me and another person, there isn't anybody else to help, interfere, or intervene.

- Reyzy, East Oakland

Having to carry my laundry, that stuff becomes heavy... you have to prepare what you need to do, whether it's your children or, bringing your groceries back or, running your errands or, trying to get to work on time. Because public transportation isn't on time.

- Elsa, East Oakland

Unreliable transit services especially impact women traveling outside of daylight hours or those chaperoning children and carrying heavy bags while running household errands. In such situations, these women are forced to drive, rely on others to drive them, or hire taxi services instead of using public or active transportation. This may place additional cost burdens on them or force them to give up on trips, especially trips that are 'non-essential' to their paid or unpaid labor roles (Blumerberg, 2017; Stark & Meschik, 2018). When faced with additional cost burdens, these women must find ways to 'adapt' to issues in the transportation system by moderating their travel expenses and frequently changing travel modes to accommodate costs (Ward & Walsh, 2023). Such 'carless' women with non-traditional travel patterns tend to disproportionately be from low-income, migrant, and marginalized communities of color with other intersectional concerns (Loukaitou-Sideris, 2020). For example, my interviews with Black women from such backgrounds reveal that their travels not only include coping with sexual harassment and inadequate transit services but also navigating the intersectional impacts of systemic and behavioral racism in the city.

Recent events in East Oakland have taught Amber that her experiences in this city are distinctly influenced by her presenting as a visibly Black person, especially the way she dresses and carries herself in different neighborhoods. Similarly, Zulu (27, they/ them) felt that irrespective of their attire, they have learned to expect hostility and even animosity from strangers on the street for being Black. At other times, when they present more feminine and are perceived as being 'more inviting,' they are forced into uncomfortable situations where White men have forcefully engaged in uncomfortable conversations about racial experiences from their past.

I am very conscious about being in certain spaces as a black woman. If I was dressed very casually, I almost feel like there's a strong chance of me potentially being perceived as somebody who may be a sex worker.... But if I dress up a little bit more, do I stick out even more? I may now be pursued as somebody who may have some valuables on them.

So, in a lot of ways, I felt like I was sticking out just because I was the only black woman on that street, the only person walking on that street... I felt like I had to be more hyper-vigilant, wondering if people would be questioning why I am there.

- Amber, walking near the Coliseum BART station

Even on the BART, people will choose to not sit next to me. That's exhausting because it doesn't matter how I'm presenting, people are getting up and moving away from me on the BART... When you're in this body that is non-male presenting and that is black, the hostility, it goes... it wears me down and I think it's supposed to bring you down.

- Zulu, a Black, non-binary resident of Temescal

Both Amber and Zulu's concerns find resonance in previous studies, which have shown that gender and racial norms govern women's behavior in public spaces, and behaving "improperly" can often lead to 'intimidation, stigmatization, and assault' (Loukaitou-Sideris, 2020). Long-term resident Selam (45) also feels pressured to perform the role of a 'proper Black woman.' Selam and her friend Nzenga (41) have lived in Oakland for over fifteen years and believe that this feeling of being othered for being Black is new and a product of the city's changing demographics. What was once an accepting "adoptive motherhood" has become a city where they must assert their right to exist to the younger, richer, and whiter 'gentry,' that have only just begun to move in.

The changing racial makeup of the city has also raised concerns about access to resources and protections. For example, the participants felt that other women with more access to wealth did not have to make similar negotiations with safety or public harassment since they could always drive and be detached from activities on the street. Further, many of the interviewees also felt that as women of color, they had less access to resources in specific comparison to White women, who are granted much more agency to express their fears and are much more likely to receive institutional support and protection for them.

Latinas or African-American women in this country are viewed as sexual objects, as if we're promiscuous as if we call this upon ourselves. "Yeah, come take advantage of me. Violate my body."... "Did she call it upon herself? She asked for it; she's misreading his cue, she's exaggerating, it's not true."

- Lucia, East Oakland

It is evident from the findings that BIPOC women's travel mode choices are impacted by a multitude of intersectional factors, including the fear of victimization, racial violence, sexual

harassment, and trafficking, the intensity of which exacerbates with religion, attire, and the performance of certain gender roles. While these fears exist above and beyond broader concerns of safety from traffic accidents or robberies, which other residents also experience in the city, the identity politics of BIPOC women make their experiences especially difficult. In the Bay Area region, programs like ‘Not One More Girl’ represent one of the few initiatives that have been undertaken to acknowledge and address gender-based violence against women on transit. However, despite being officially endorsed by BART, the data from this BIPOC women-led initiative² is yet to be included in regional transportation planning (BART, 2023).

Women of color in Oakland are forced to carry the burden of their protection due to a gender-blind criminal justice system, an exclusive transportation system, and an overarching lack of access to respect, resources, and rights. In the following section, I investigate how this systemic exclusion of women from transportation extends into the field of active transport planning by analyzing how the socio-spatial barriers brought out through the interviews impact women’s specific choice to cycle and their quality of experience while doing so.

² The Not One More Girl initiative launched in April 2021 and was a partnership between BART, the Alliance for Girls, Betti Ono, Black Girls Brilliance, and The Unity Council’s Latinx Mentorship and Achievement (LMA) Program (BART, 2023).

Overcoming Culture and Asserting Confidence

When asked their reasons for not cycling, most respondents briefly mentioned the fear of speeding cars, traffic collisions, or injuries. Dala and Aafreen spoke about how “red lights are like suggestions in Oakland,” while seasoned cyclists like Ryez, Zulu, and Nzenga shared personal stories of collisions and injuries they suffered. They also described the struggles of competing for space with buses, gaps in bicycling networks, navigating around potholes or broken glass, and a lack of depth perception in drivers to assess the speed of a cyclist. Further, there was an overarching concern about the affordability of cycles, especially considering the high rates of cycle robberies in the city. Lastly, Selam spoke about the lack of training among drivers and the lack of a culture of respect and coexistence.

There was a distinct difference between the nature of barriers experienced by women who had never cycled and those who already cycled in the city. This divergence aligned with a previous assessment of the National Household Travel Survey, 2017 that I conducted (Gupta, unpublished)- where I found that women who already cycle were more likely to be impeded by infrastructural concerns; however, women who didn't cycle at all were more likely to be concerned about personal safety and other socio-cultural factors before considering cycling. Since the broader goal of this study is to assess why more women of color don't cycle, I dive deeper into some of the cultural considerations that impact women's choices, especially those that do not get addressed by improving cycling infrastructure.

Considering how tense and often traumatic using transit or walking can be for women in the city, a natural next question to ask is, “Have you considered cycling instead?” Unfortunately, cycling does not always mean being safe from sexual harassment. First and foremost, cycles do not afford any protection from the male gaze (Horton, 2007) and can actually increase women's

visibility, i.e., susceptibility to verbal harassment (Lubitow, 2019). For Aafreen, who believes that harassment will occur no matter what mode of transportation she uses, being on a cycle feels even more vulnerable than walking on a sidewalk, as the physical distance from cars is reduced. Similarly, Nzenga felt she could 'fight back' better when she was on stable ground. Amber also pointed out that following cycle lanes can lead one through dimly-lit underpasses or isolated streets, which she could otherwise avoid while walking.

Furthermore, cycling as a 'natural' alternative is not a common perception amongst women of color, especially those from low-income migrant communities. Steinbach et al. (2011) argue that the 'bourgeois' sensibility of bicycling being a 'way of life' does not apply to non-White people and is more closely associated with poverty and even 'deviance' in Black and Brown communities. For example, despite walking thirty minutes from the BART station to her house in Elmhurst daily, Lucia never thought about cycling. While it was "*something fun to do as a kid,*" she shared that she and her Latinx community were never exposed to it as a form of transportation, nor were they taught about its benefits on their health, the environment, or the climate. In the few instances that classes or awareness camps were conducted in the area, they were mostly taught in English and felt inaccessible to the Spanish-speaking community. Thus, even within the youth of her community, cycling remains a sport for the "*white folks*" living in Downtown Oakland, where the quality of life is "*10 times what it is in deep East Oakland.*" Further, in her community that still struggles to make ends meet, cycling comes with class-affiliated stereotypes depicting the lack of upward social mobility.

In my circle, that's a shared experience. No one talks about those benefits, and in fact, there's a stigma around it. "Oh, you don't have a car. Look at you, you're cycling, you don't have enough money to purchase a car." As opposed to "Oh, good for them. They're doing something good for the environment. They're doing

something good for their health.” The minute you can afford something, you move out of the cycle.

- Lucia, East Oakland

Zulu described their love of cycling as a joyous lifestyle and economic and environmental choice. However, they recognize that as a Black person on a cycle, their choice is often associated with poverty and a lack of success, even by their own family. While their family recognizes that they have a job and their “needs are met” by a cycle, there is discontentment, as owning a car is the only established indicator of success.

A bike is not a cute thing, especially where I'm from. It's like, “Oh! You don't have anyone to pick you up, you don't have money to get an Uber.”

- Zulu, Temescal

Long-range cyclist Reyz describes their passion for long-range cycling as being as unique as their friend who makes “intricate floral designs out of Jello.” They believe that, much like the rest of their community, they would never consider cycling in Oakland if they hadn't developed an ‘insane obsession’ with it early in life. Now a cycling trainer for a well-established organization in the area, they often experience similar cultural biases against cycling and note how distinctly gendered norms inform these perceptions. They have found that women ask them for ‘permission’ to cycle or seek reassurance that there is no shame in cycling, even if they cannot cycle ‘as well, as fast or as long’ as the men they see.

They [men] look at the things I do and say, “I just don't want to do that.” But the women will look at me and say, “I could never do that” ... My experience as a ‘Woman in Tech’ is very similar to my experience as a woman cyclist. I almost

feel like most women I know who ride bikes don't do the long distances, don't climb hills, and are afraid of commuting. A part of it is a confidence or a permission issue. They feel like they have to be hardcore to do those things.... I can tell when they're talking to me like, "I'm never going to be somebody like you." And it takes personal one-on-one conversations to give somebody that level of confidence and permission. I almost feel like I'm permitting them to own whatever comfort they can have in whatever interest they have in bike riding.

- Reyz, Licensed Instructor

Another women-specific behavior pointed out by Reyz is the fear of harming others in traffic collisions. While collisions, speeding cars, and traffic noise are a deterrent for most people, Reyz points out that women are more likely to be afraid of becoming the cause of the accident, hurting others, or even slowing others down.

"I'm afraid of the faster riders. I'm afraid of having collisions with them. I'm afraid I'm moving too slowly for them. I am afraid of hitting somebody else on my bicycle. I'm afraid I won't be able to avoid obstacles or I won't be able to see them." I think this is more common for women. They're afraid of being the cause of the accident.

- Reyz, Licensed Instructor

It is evident from these comments that the confidence to cycle is informed by the gendered roles that women are expected to perform. These norms extend beyond caregiving responsibilities towards deeply ingrained ideas of what women can and should do to fulfill classist and racist performances of womanhood. Garrard et al. have rooted the origin of

women's concerns about cycling in a history of being shamed for being 'on display' for performing 'risk-taking behavior' and being accused of being 'bad mothers' for cycling or allowing their children to cycle (2012). Such ideas continue to permeate contemporary society, such that the failure to perform gendered roles can often impact women's personal and professional lives.

Another 'emotional' barrier to cycling is what Horton (2007) describes as "issues of identity," including "the fear of ridicule or lost status." For example, Aafreen revealed that she would not be taken as seriously in professional settings if she were to show up sweaty and disheveled from a cycle ride. Steinbach et al. (2011) argue that while protecting oneself from the weather is required for both men and women, women are exclusively and publicly held accountable for demonstrating "compatibility with hegemonic femininity," irrespective of their travel mode. Thus, for the Black and Brown women who already struggle daily with discrimination, hostility, and disrespect, especially in professional spaces, being perceived as 'unpresentable' (sweaty), 'unsuccessful' (without a car), or 'risky and insane' (passionate) for cycling can serve as an additional burden. Further, the act of cycling itself is plagued with gender and racial inequities, forcing additional discomfort upon BIPOC women. Selam talked about an unspoken competition between male and female cyclists, where riding style and demeanor can influence perceptions of skill and confidence. Thus, in addition to protecting themselves from traffic violence and sexual harassment, women must also adequately demonstrate their 'assertiveness' to gain respect, i.e., space, from their fellow male cyclists.

"If you ride it very feminine, they will outride you, and be in front of you... If you dress sporty and aggressive, they [males] will give you props and ride behind you."

- Selam, Temescal

Demonstrating assertiveness includes balancing between 'taking up space on the road' and cultivating the right body language to show 'belongingness' such that other drivers acknowledge and respect you (Steinbach et al., 2011). However, for women, assertiveness can be interpreted as aggression, i.e., the lack of femininity, which leads to hostility from male drivers. Reyzy has faced multiple incidents of drivers rolling down their windows and shouting at them to get off the street. Zulu also shared that they often face animosity from male riders and drivers while cycling. Despite being a careful and attentive driver, they were honked at or swerved in front of on multiple occasions. Such incidents not only "suck the joy out of it" but cast doubt on their own ability to cycle, especially because they are self-taught rather than going in a cycle-friendly environment or community. Further, they feel compelled to rationalize the driver's violence and hostility towards them to avoid losing the joy of cycling.

It puts a lot of doubt into the style of your riding. Why am I getting beeped at when I'm in the right lane, is there something wrong about my style? Is there something that I just didn't get taught because I didn't go to a school with resources or that was properly funded with taxes?

It's something that I bite the bullet for out of enjoyment in all of my daily things. I have to make up a story that is not racist, or I have to choose to say, oh, this person wasn't being deliberately hostile to me out of this reason every day.

- Zulu

American society is so fraught with racism that cyclists of color, especially Black women, believe that the behavior exhibited by White drivers and riders towards them is undeniably racially motivated. Lubitow et al. have argued that Black bodies experience 'racial microaggressions every day, and thus, even "routine interactions" can be tense and

challenging, irrespective of the drivers' intentions (2019). However, Tara Goddard presents a counterargument, arguing that the experience of BIPOC cyclists is inevitably impacted by drivers' 'implicit and explicit racial biases' against their visible features. Further, drivers' vehicles offer them anonymity and a relatively higher ability to cause physical or verbal harm (Goddard, 2016).

The following section addresses Zulu's personal stories and discusses how, for Black women, racial violence is a daily reality that extends into the space of cycling, from being on the street to a lack of representation in community groups, casual racism in cycle repair spaces, and systemic failures within the bicycle industry to cater to their unique bodies. Their story highlights how current planning strategies do not take into account the impact of interpersonal biases or the conscious decisions made by drivers in response to a cyclist's visible features and thus fail to instill confidence in Black women to cycle more often or more confidently.

Biking as a Black Woman: Zulu's Story

In February 2023, during ongoing celebrations for Black History Month, Oakland Councilmember Carroll Fife's office organized a screening of Yolanda Davis- Overstreet's "Biking While Black." The documentary highlighted the joys and challenges of cycling while Black in Los Angeles, calling for a "transit future rooted in justice and equity" to ensure that Black communities can continue to ride "through decriminalization, disenfranchisement, and gentrification." (Biking While Black, 2023). The event included an interactive session where attendees shared their vivid lived experiences of cycling through Oakland as Black riders and the challenges they faced, including racial profiling, police violence, and public hostility. It was here that I found Zulu sitting next to me, who, as one of the few non-binary/female presenting speakers, had distinct experiences even from most of the other (male) riders in the room.

"Things are not built with how black bodies are in mind."

I met with Zulu a few days later and spoke to them for over two hours. One of the first things they shared was how unsafe it was to ride in Oakland because of speeding cars and disjointed infrastructure. However, what made their experience unique was their struggle to find a helmet that fit their textured hairstyle. While helmet advocacy is a common strategy in bicycle planning, little has been done to address the fact that Black individuals have thicker textured hair and voluminous hairstyles that do not flatten into conventional helmets. As a result, they ride without helmets, with ill-fitting helmets, or are forced to buy 'specialty' helmets, which increases the entry price point significantly.

"I don't think I have an abnormally big head, but I have thicker hair on my head... For the longest time, I just didn't have a helmet because I didn't know that I had to go into a specialty store. Even then, my helmet cost more than a hundred

dollars; for minimum wage earners, that is breaking the bank. Do folks even know that there is a helmet out there that will fit their head? Or are they riding around with a helmet that's too small for them? When I did have helmets, they were too small for me and sat on the top of my head. That's not protecting me! If I were to get into an accident, I would have a problem."

The inability to protect oneself from traffic violence due to an oversight in helmet design on racial lines is only one example of the nuanced concerns that act as actual barriers to Black women's choice to cycle. Zulu attributed this to the lack of representation in the cycling and advocacy space. They have participated in many bicycling groups in the region, many specifically for female riders, but felt unwelcome since they "*did not have the right gear*" nor the knowledge to acquire it. Further, they believe that not having the right equipment or 'looking the part' also determines how '*professional*' you look and, consequently, the '*lack of grace*' you receive from other riders and drivers. 'Looking the part' further extends to the type of cycle one rides. However, there exists a lack of awareness, information, and resources for customizing cycles, especially in Black and low-income communities that did not grow up in cycle-friendly environments.

Also, getting a bike that's really comfortable for you- we all come in different shapes and sizes. Still, we don't know that this bike is too heavy for me, or actually, because of the way I ride, it's better for me to go for an aluminum-style bike. For them, it's a lot of trial and error. But we don't have room for that. You go pick up any bike, and if it kind of fits, it fits.

Comfort in itself is an idea that they believe only White people have the confidence, privilege, and finances to strive for since Black women have normalized discomfort so much in

their lives already. Further, the lack of confidence in striving for and spending on personal comfort raises much more systemic concerns about Black bodies that Zulu felt too under-resourced and emotionally incapable of addressing daily.

They're [White riders] always like it's got to feel right, it's got to feel right. And I think for the black women, a lot of things are always kind of hurting. And we're always trying to push through it and just get with it because that's what they tell us that we have to do.

And if you take that privilege of just riding with what feels right to you, and if you extend that to your life, it really starts to open up a lot of other questions that I feel like I can't always answer or that we're not resourced enough to answer. And it hurts to be powerless. So, instead of being powerless, I'll tolerate it because people who are not black ride in the street comfortably...

The 'absentminded audacity' of White men, as described by Zulu, further extends into spaces of cycle repair and customization as well. They are hesitant to go into cycle repair shops which are primarily operated by "*White undergraduate boys whose fathers taught them everything, and who can afford to work at a shop like this,*" as they have previously been forced into uncomfortable conversations about race by such people. Zulu pointed out that while, ideally, cycling should be a space with nothing to do with race since it is about moving the body with an object. However, the underlying race issue in the country inevitably comes up, such that their existence becomes about "*choosing what all I am going to stand up for today.*"

When I'm showing up in this bike culture, there's not a lot of me there, and there is a lot of discomfort. I have one memory of this bike place, where this White guy

decided to tell me about an incident that he had growing up when a bunch of black dudes bothered him when he was on a bike. Just being approached by people telling me their experiences with race when I'm in this space, It's very uncomfortable. And unnecessary. And now, what can I do? There are only a couple of places to go...

I've had white male friends who can come and service my bike, but I also have to tolerate things from them that I'm sure other people don't have to.

Zulu's narrative speaks to the overwhelming impact on identity that the decision to cycle in Oakland can have on Black bodies. They also believe that while this is an everyday experience for them, their non-black friends can often forget or become uncomfortable when witnessing it and eventually distance themselves from Zulu to avoid such encounters. The overall lack of representation in cycling spaces exacerbates these feelings of discomfort and isolation. Other Black participants, including Selam, Nzenga, and Amber, had similar descriptions of cycling communities that lacked adequate Black representation in the area. Amber also pointed out that this was unique to Oakland since she had experienced much more racial diversity within bicycling groups in New York City, which encouraged her to cycle there. Across the other participants as well, responses to the question "Why do you see cycling?" were overwhelmingly heterogeneous, including "White men," "High-Income Caucasian men," "tech workers," or "White people."

Despite multi-dollar investments into "community outreach" (OakDOT, 2019), transportation plans do not address such nuanced concerns that act as barriers to Black women's mode choice and focus only on infrastructure improvements and the built environment. Goddard (2016) attributes this to the overrepresentation of White men in bicycle planning,

engineering, and advocacy, who, while understanding the vulnerability (from traffic) of cyclists, do not understand the impact of structural racism and sexism. As a result, bicycle advocates rarely question the assumption that bicycling is “fun, free, and liberating for everyone” (Bernstein, 2016). Based on the interviews, I argue that, despite the barriers discussed here, cycling can also be made fun and liberating for women of color. The interviewees may have shared their concerns but also their hopes, especially in light of the immense joy they feel when given the opportunity to safely and comfortably cycle. The following section investigates women's joyous experiences while cycling in Oakland and what needs to change to access those more freely.

Planning for Joy and Justice

While women's access to mobility options, including cycling, is governed by multiple social, cultural, and economic constraints, the interviewees expressed sincere hope to cycle more freely in the future. Some of them believe that being able to cycle will improve their life, health, and relationship with the city and natural environment.

For me, it really brings me joy to be outside and get some fresh air, and it makes a difference in my mood and my mental health.

- Aafreen, Downtown Oakland

[Being able to cycle] It would increase my confidence and trust in the city of Oakland to prioritize community, to prioritize alternative modes of transport, to want to see people not get injured.

- Amber, Temescal

I'd be able to get home faster. So, the chances of me being a victim to something, time-wise, the window would be smaller, right? Because I'm able to get home to my safe place faster... It would transform my health, and I would contribute to a much healthier environment... We live in a place that is plagued by asthma, and God knows what these factories are doing around us. So it would help the environment and air quality for me.

- Lucia, East Oakland

For Reyza, the ability to cycle has allowed for intimate relationships to be developed with the city in ways that cars simply cannot allow. To the interviewees who ride, it has brought joy, opportunities for self-expression, and the feeling of empowerment on various occasions, and

they are excited to have their experience elevated with changes in the city. They are also excited to help extend the opportunity to more women like them.

On a lighter note, biking does bring me some of the most joy. I love the window on me. I love it when I can catch the sun. I love it when the winter gets my heart rate more from the iciness in the air. Some people want to be in the car. I just want to be on my bike.

- Zulu, Temescal

I feel very embedded in this community because I have such an intimate relationship with all the roads through cycling... That is a part of my becoming a Link-Certified instructor because I want to formally give back to the community by teaching other people how to ride bikes.

I'm not always the fastest or the strongest rider, but I really try to be the cutest rider! And sometimes, that's what you bring. You don't necessarily bring speed or strength, but you bring humor, joy, or fashion, and that's my brand of biking, which brings me joy in bike riding. So, if there's any opportunity to showcase my purple and pink sparkle glitter bike, I'll do it!

- Reyz, Cycling instructor in East Bay

When asked, "What needs to change?" the interviewees provided various solutions that they felt could help women freely access cycles. Aafreen and Dala emphasized the importance of increasing public awareness and using public service campaigns to trigger a shift in culture towards one that does not tolerate crimes against women and holds men and systems accountable for making them feel unsafe. Others also mentioned that it was not the Police or

surveillance equipment that made them feel safer but a respectful community and a proactive judicial system.

A few participants spoke of building more 'intuitive' or 'creative' cycle lanes, fixing potholes, introducing cycling-specific signals, and building the "*strongest barriers known to man, between cars and bikes.*" Others spoke of increasing access to information, such as maps with cycling routes, data on which routes to avoid, and pamphlets for community rides. However, residents from East Oakland strongly felt an urgent need to address broader systemic issues in the area before introducing more infrastructure. Lucia compared building cycle lanes in East Oakland to having "*grocery stores without healthy food.*" A few residents also questioned the validity of building cycling lanes in a community where people cannot afford a cycle, are unaware of the benefits of cycling, and don't have an existing interest in cycling either.

How are we promoting these bicycle lanes in my community? Have we said these are the benefits of cycling? We're donating 50 bikes to the community to encourage cycling. If someone gives me a free bike, and I start cycling, then some of my family members are going to be like, what's that like?

- Lucia, East Oakland

But okay, yeah. Let's say we have the bicycle roads now in East Oakland, but we didn't think how are we gonna provide free bicycles for them? Are they gonna just walk or skate on the bicycle lane?... for some people, it's their necessity. So during the winter, how are you gonna help that person?"

- Selam, East Oakland

"I don't know if there is a value; maybe there is. I just don't know it based on what I see. And then it's like, how do you build up interest in using it?"

- Nzenga, East Oakland

Dala described the cycle lanes as *'ridiculous'* and the *'last thing on people's minds,'* criticizing them for taking space away from low-income drivers and unhoused people living in their cars, campers, or tents, especially since *"nobody wants to bike out here."* Her claim stemmed from the belief that low-income residents of East Oakland must travel long distances to find jobs, opportunities, and even food due to the disinvestment in the area. Thus, it is the system that has forced them to rely on automobiles, and expecting them to cycle just because lanes were built is irrational. She, Elsa, Selam, and Nzenga also pointed out how cycling in East Oakland is especially unsafe due to the presence of criminal activity, gang violence, and a high likelihood of robberies. Further, they described the area as having the lowest survival rate, highest homicide rate, and the worst air quality in the city. But, they believe that the city's past as a redlined and blighted area and the continued neglect from the city agencies have forced people to find desperate and dangerous ways to survive.

Selam shared how she often cycles to Rockridge near North Oakland for leisure, describing it as a *"very safe"* and *"upper class"* neighborhood, but would never do the same in East Oakland. *"If I go over there [East Oakland], I take my car. I can't take public transportation either. No way... being on the bus means being attacked or robbed... I can't show what kind of phone I have."* However, Selam strongly believes that this disparity results from the area being systemically *"set up for failure."* She recounted an incident of burglaries in Rockridge where immediate action was taken, stating, *"Within a week, we had a town hall meeting... the chief came, one of the representatives for our district came."* However, such meetings or attention are

rare in East Oakland, and the Chief would never visit. *"Everybody struggles in their own life... It's almost like a third world within the same city."* This disparity has translated into the provision of transportation infrastructure and the level of trust between the community members and the city. Residents of the area have also noticed a distinct shift in demography and affordability since the early 2010s, which in turn exacerbated concerns around inequitable distribution of resources and distrust of authorities. They felt that the decision-making process behind building cycle lanes disregarded community input and needs, and such infrastructural improvements are made in service of attracting a younger, more affluent class of residents to the city.

My question will be, who are you building it for? If we're talking about human rights, can I go into a community and say, hey, this is what we're gonna do, this is what I like, and this is where I'm gonna put it? What is the value in that for the community?

- Nzenga, East Oakland

My findings suggest that the fear of traffic injuries, coupled with the perceived and actual risk of robberies or personal victimization, sexual harassment, and racial violence, may discourage women of color from cycling more. However, the ability to cycle also has the potential to bring joy and emancipation to women. Thus, bicycling planning must address more complex social factors besides infrastructural ones, create more opportunities for women of color to be included in bicycle planning and advocacy spaces, and help destigmatize cycling by increasing the visibility of BIPOC women as cyclists. Further, bicycle planning must occur simultaneously with the redressal of more systemic concerns in the city, including housing unaffordability, increasing income inequality, and the politics of gentrification.

Conclusion

Summary of Key Findings

This research aimed to illuminate how racial and gendered oppression may influence individual cycling decisions in Oakland and whether the construction of cycling infrastructure is enough to overcome these social barriers. The paper examined and summarized the expanding body of research on how the design and implementation of transportation infrastructure and services in the Bay Area have overtly and inherently relied on racial segregation, which has had lasting impacts on the mobility of non-white bodies and their interactions with the physical landscapes.

While the literature is quite definitive about the variation in men's and women's mobility patterns, planning in the area has relied exclusively on the technocratic analysis of commute data and failed to acknowledge the unique needs of women, especially women from low-income migrant communities of color. This neglect justifies infrastructural development that addresses men's traditional work needs while neglecting women's non-conventional trips, which are more diverse and impacted by personal safety and other physical, psychological, and cultural issues such as the sexual division of household labor. While the literature shows how cycling has emerged as an emancipatory and sustainable tool for women's complex travel patterns, there are gaps in existing scholarship and advocacy that address BIPOC women's unique barriers to the mode. The few studies that have examined injustice within bicycle access continue to overlook the impact of sexual harassment, intersectional victimization, and racial biases against women of color on cycling. A small set of studies also examined the correlations between gentrification and cycling infrastructure, which raised questions about the validity of building more bike lanes to promote cycling in geographies without addressing more systemic community needs first.

Findings from nine semi-structured interviews with women of color reveal that perceptions of fear and discomfort, fueled by sexual and racial biases, impact women's modal choices and mobility patterns in Oakland. When traveling through the city, BIPOC women remain hypervigilant at all times to avoid sexual or racial violence as they believe that the onus of their protection is on themselves. They use 'coping' strategies to survive, such as carrying weapons for self-defense, frequently changing their mode or route, or relying on their community to chaperone them. When these adaptations fail, such as in the case of unexpected service delays of transit, they are forced to forego trips (usually leisure trips) or undertake an additional cost burden by relying on taxi services. The increasing income inequality in the city also exacerbates BIPOC women's concerns, where, on one hand, the frequency of crime is increasing, but on the other hand, their sense of belonging is being challenged by the incoming, affluent 'gentry.'

Among the interviewees, cultural perceptions of bicycling appear to play a significant role in determining whether a person cycles. For Black and Brown bodies, cars are perceived as symbols of upward mobility, while cycles may be associated with poverty and a lack of success by both outsiders and the community itself. Women from these communities already struggle daily with discrimination, hostility, disrespect, and the pressure to perform certain classist, racist, and gendered roles associated with 'femininity' and 'womanhood.' Thus, cycling can become an additional burden if it leads to further ridicule for being 'unpresentable' (sweaty), 'unsuccessful' (without a car), 'risky and insane' (passionate), or 'a bad mother' (for cycling with children). Cycling also demands a certain level of 'assertiveness' to negotiate with drivers and other riders, which challenges hegemonic femininity and may lead to hostility from men. Further, the increased visibility of women by cycling can increase opportunities for verbal or sexual harassment or racially-fueled, intentional traffic violence from biased drivers. Overall, such

factors contribute to women's lack of confidence in cycling, where they feel it is something 'they cannot do' or seek permission to do it even if they cannot do it 'as well.'

The interviews also suggest that none of the elements of a cycling system (cycle lanes, riding communities, repair shops, and equipment like helmets) are immune to racial exclusion, if not violence. In addition to the other concerns faced by BIPOC women, Black women especially may be forced into uncomfortable conversations about race in different spaces of cycling, which privileged White males predominantly occupy. Wearing specialized helmets (that fit textured hair) or acquiring gear to appear 'professional' and receive 'grace' from other riders can further increase the entry price point into cycling for these women. However, such nuanced barriers are often overlooked due to the lack of representation and visibility of Black women in bicycle planning, advocacy, and communities.

Despite such scales of barriers, BIPOC women are enthusiastic about cycling more in the city. They recognize its ability to be a joyous and liberating experience and hope for cultural paradigm shifts that can create a safe and more accessible environment for them to do so. While concerns for traffic safety exist, the women would first like to see a systemic shift toward addressing sexual violence more thoroughly through community initiatives instead of increased policing. Reducing the culture of othering and stigmatizing in bicycling and increasing the visibility of BIPOC women in spaces for bicycle planning and advocacy could encourage more women to take up cycling. Concerning infrastructure, residents of Oakland, especially from vulnerable and historically disinvested neighborhoods like East Oakland, would like to see more 'intuitive' cycle lanes built in response to community needs. They must also be accompanied by efforts to increase the affordability of cycles and build awareness about their health and environmental benefits in the community. Further, bicycle planning in the area must occur simultaneously with the redressal of more systemic concerns in the city, including housing unaffordability, increasing income inequality, and the politics of gentrification.

Recommendations

In order to respond to the multiple and intersectional barriers faced by women, practitioners must acknowledge the different experiences, needs, and fears of women, especially women of color, and respond by gender-mainstreaming the design, implementation, monitoring, and evaluation of transportation policy-making and planning procedures.

Responding to Gender-Based Violence

Data Collection: When planning for women, policymakers and planners must first develop a detailed understanding of the harassment faced by women at different stages of their journey. This data must be collected quantitatively and qualitatively in light of the high tendency of such crimes and daily microaggressions to go unreported. Further, this data should be disaggregated by demographics, including age, race/ethnicity, sexual orientation, and disability status, as well as the condition of the built environment, including location, provision of amenities, lighting, street activity, etc. New digital technologies, such as the crowdsourcing app Safetipin, can be used to enhance data collection methods. A deeper investigation is required on the effectiveness of various anti-harassment strategies and how they are contextualized to specific socio-spatial settings.

Building Safer Infrastructure: Infrastructural improvements around transportation services must draw upon Crime Prevention through Environmental Design (CPTED) techniques, which have been proven to help prevent crime against women to some extent (Ding et al., 2020). In the particular case of accessing cycling, this would include assessing the degree of isolation, lighting, and visibility along cycle routes, as well as the location of cycle racks, bike-share facilities, and other associated amenities like showers and changing rooms. Increasing the visibility and reducing fear around isolation may require a broader review of land-use

principles in the area, such as the provision of mixed-use development to promote diverse activity at different parts of the day and night.

Building a Responsive Criminal Justice System: The findings reveal that the perceived or actual risk of harassment is a significant deterrent for women while accessing public and active transportation. However, California's definition of what type of harassment constitutes 'punishable' is quite narrow and usually excludes most non-physical forms of harassment. For women of color, such laws can be especially exclusive as they are often treated with contempt and mistrust by authorities as well. Policymakers must recognize and adopt a much more clear and consistent definition of sexual harassment that encompasses verbal, nonverbal, and physical aggressions. It is also crucial to establish a sophisticated and approachable system for reporting and documenting sexual harassment. Such a system will produce more accurate and representative data to inform law and policy-making and help instill the belief in BIPOC women that their needs are being heard and acknowledged by the city.

Public Awareness Campaigns: Interviews suggest that, at present, there is limited understanding and sensitization towards gender inclusion and gender-based violence in the transportation sector. Gender sensitization training must be conducted at all levels of transport organizations, and refresher training must be mandated periodically. Public awareness campaigns to encourage bystander intervention should also be organized to train individuals to recognize harassment, offer solidarity, and intervene as required. Bystanders may be discouraged from providing support if their own lives feel at risk. Thus, providing training, addressing concerns, and sharing information about available resources can help overcome these inhibitions and encourage more active action. The gender-based violence prevention page on BART's website also lists different California Penal Codes that may be used for legislation in the absence of actual laws around harassment (2023). While efforts must be made to amend existing laws, widely sharing such knowledge can help women feel more prepared.

Responding to Racial Exclusion

Decentering Whiteness in Cycling Spaces: Researchers have argued that encouraging more Black bodies to cycle requires a systemic decentering of whiteness in organized bicycling and bicycle advocacy (Golub, 2016; Lugo, 2016; 2018). As Lugo argues, decentering whiteness would require welcoming diverse perspectives that formally acknowledge the various barriers experienced by racialized bodies, as opposed to the infrastructural concerns of White and male riders (2016). This must occur simultaneously with efforts to reduce institutional racism in transportation planning, recognizing and reforming policies that are rooted in racial histories, and active advocacy to reduce racial biases amongst both street users (drivers and other riders) and policymakers.

Redefining the ‘Cyclist’/ Increasing Black Visibility in Cycling: There is an urgent need for a redefinition of who cycles by increasing the visibility of black and female riders in cycling spaces. The dominance of the White, lycra-clad man as ‘the’ cyclist not only discourages ethnic communities from cycling but can also reduce confidence and self-esteem amongst other riders who may not perform with the same style or ‘efficiency.’ This calls for more systematic and intentional investments in promoting grassroots activism that recognizes the diverse ways different racial and ethnic groups participate in cycling. More attention must be given to the needs brought out by diverse movements like Critical Mass, or Bikes not Bombs, and organizations like Red Bike and Green, or the Scraper Bike in Oakland that have developed unique ways of including vulnerable Black riders into cycling spaces. Furness also draws attention to the role of media and representation in building popular narratives about who does and does not cycle (2010). In order to encourage more diverse representations of cyclists, it is essential to feature black and brown women more prominently in cycling-related media and marketing campaigns. This could help challenge existing cultural and classist norms within BIPOC women as well.

Increasing BIPOC Women’s Participation in Organized Bicycling: Increasing the representation of BIPOC women in leadership roles within the cycling community can help foster a more inclusive environment. As demonstrated through this study, BIPOC women bring unique perspectives and experiences to the table, and their inclusion in decision-making processes is essential for creating more equitable and inclusive cycling environments. Thus, more intentional efforts must be made to include these women’s voices and create spaces for them to be heard in cycling advocacy organizations, government agencies, and community groups. It is also important to provide training and support to BIPOC women through mentorship programs, leadership training workshops, and networking opportunities, which help empower them to take on leadership roles and make cycling communities more inclusive, equitable, and responsive.

Cycling Access beyond the Cycle Lane

Overcoming Cultural Barriers: In addition to racial and sexual violence, BIPOC women cyclists face emotional hurdles to cycling, which stem from the normative roles of femininity and motherhood that are imposed upon them by society. While increasing the visibility and awareness of women as cyclists can address these issues at a systemic scale, immediate actions like increasing the availability of amenities like showers and changing rooms can encourage women to cycle to different locations and escape the shame of being ‘sweaty.’ Awareness campaigns about the benefits of cycling for all bodies and community-led events like Complete Streets and Bike to Work or School days geared towards communities of color can further help elevate some of the classist biases around cycling within different age groups and genders. It is essential that such campaigns are designed with sensitivity to variations in ethnic culture and languages, such that they are effective in destigmatizing the associations of cycling with either spandex-clad athletes or poverty-induced compulsion.

Overcoming Cost and Knowledge Barriers: One of the most significant barriers to entry into cycling for many BIPOC women is the cost associated with cycling. Cycles, cycling gear, and maintenance can be expensive, especially for Black women, whose more systemic exclusion from the design of such amenities requires them to spend extra on customizations. Further, a lot of cycle modifications and customizations that could support women's household responsibilities and complex travel patterns are currently expensive and inaccessible. Local government agencies can invest in and collaborate with community organizations like Bad Business Model Bikes, which provides free cycles for AIDS Life Cycle, to improve access to affordable or free cycle rental programs in low-income communities.

Free or low-cost cycling classes and safety workshops can help BIPOC women gain the knowledge and confidence they need to ride safely. These workshops can cover topics such as basic cycle maintenance and road safety and address specific barriers for Black women and girls, such as tricks to fit their natural hair into helmets or the clothes to wear while cycling. Pamphlets like the “Black Girl Magic: Cycling Guide” demystify such barriers and could be collaborated with to reduce knowledge barriers (Black Girls Do Bike, n.d.).

Cycling as a Tool for Community Development: It is imperative to acknowledge that promoting bicycling among women of color requires a comprehensive and intersectional approach that extends beyond improving transportation infrastructure. This approach must encompass broader community issues, such as housing affordability, homelessness, poverty, income inequality, and community health concerns, including substance abuse. Inclusive planning mechanisms that are responsive to community needs can strategically utilize cycling to address these concerns, such as supporting community-led economic development and empowering women through enhanced personal mobility.

Bibliography

- Bay Area Rapid Transit (BART). (2023). *Addressing Gender-Based Violence*.
<https://www.bart.gov/guide/safety/gbv> (accessed 24 April 2024).
- Beck, E. L., Dorsey, E., & Stutters, A. (2003). The women's suffrage movement: Lessons for social action. *Journal of Community Practice*, 11(3), 13-33.
- Bernstein, J. (2016). No choice but to bike: undocumented and bike-dependent in rust belt America. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 143-155.
- Biking While Black (2023). *Biking While Black*. <https://www.bikingwhileblack.com/>
- Black Girls Do Bike. (n.d.). "BIKE GIRL MAGIC" Cycling Guide Ebook.
<https://bgdbshop.squarespace.com/shop/p/bikegirlmagicguide> (accessed 6 May 2024).
- Blumenberg, E. (2004). En-gendering effective planning: Spatial mismatch, low-income women, and transportation policy. *Journal of the American Planning Association*, 70(3), 269–281. <https://doi.org/10.1080/01944360408976378>
- Blumenberg, E. (2017). Social Equity and Urban Transportation. In G. Giuliano & S. Hanson (Eds.), *The Geography of Urban Transportation*. The Guilford Press, 332–358.
- Blumenberg, E. (2020). Why Low-income women in the US still need automobiles. In I. Sánchez de Madariaga & M. Neuman (eds) *Engendering Cities: Designing Sustainable Urban Spaces for All*. Routledge, 110–129.
- Bullard, R. D. (2003). Addressing Urban Transportation Equity in the United States. *Fordham Urban Law Journal*, 31(5).

Campbell, S. (1996). Green cities, growing cities, just cities?: Urban planning and the contradictions of sustainable development. *American Planning Association. Journal of the American Planning Association*, 62(3), 296. Retrieved from <https://www.proquest.com/scholarly-journals/green-cities-growing-just-urban-planning/docview/229723592/se-2>

Damiana, C. (2009). *Bicycling Benefits Business -The Economic Benefits of Bicycle Industry and Infrastructure. League of American Bicyclists*, Washington DC.

Dill, J., Goddard, T., Monsere, C., & McNeil, N. (2014) Can Protected Bike Lanes Help Close the Gender Gap in Cycling? Lessons from Five Cities. *Urban Studies and Planning Faculty Publications and Presentations*.

Ding, H., Loukaitou-Sideris, A., & Agrawal, A. W. (2020). Sexual Harassment and Assault in Transit Environments: A Review of the English-language Literature. *Journal of Planning Literature*, 35(3), 267-280.

Furness, Z. (2010). 2. Becoming Auto-Mobile. *One Less Car: Bicycling and the Politics of Automobility*. (1 ed.). Philadelphia: Temple University Press, 14-46.

Foster, M. (1979). City Planners and Urban Transportation. *Journal of Urban History*, 5(3), 365–396. <https://doi.org/10.1177/009614427900500305>

Garrard, J., Handy, S., Dill, J. (2012a). Women and Cycling. In J. Pucher & R. Buehler (eds) *City Cycling*. Cambridge, The MIT Press, 211–234.

Garrard, J., Rissel, C., Bauman, A. (2012b). Health Benefits of Cycling. In J. Pucher & R. Buehler (eds) *City Cycling*. Cambridge, The MIT Press, 31–56.

Gill and Celis-Morales, (2017). Cycling to work major new study suggests health benefits are staggering. Blogpost in *The Conversation*.

Goel, R., Oyebode, O., Foley, L. *et al.* (2023). Gender differences in active travel in major cities across the world. *Transportation* 50, 733–749. <https://doi.org/10.1007/s11116-021-10259-4>

Goddard, T. (2016). Theorizing bicycle justice using social psychology: examining the intersection of mode and race with the conceptual model of roadway interactions. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 100-113.

Golub, A., Hoffmann. (2016). Is the right to bicycle a civil right? Synergies and tensions between the transportation justice movement and planning for bicycling. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 20-31.

Golub, A., Hoffmann, M L., Lugo, A. & Sandoval, G. F. (2016). Introduction: creating an inclusionary bicycle justice movement. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 1-19.

Golub, A., Marcantonio, R. A., & Sanchez, T. W. (2013). Race, space, and struggles for mobility: Transportation impacts on African Americans in Oakland and the East Bay. *Urban Geography*, 34(5), 699–728. <https://doi.org/10.1080/02723638.2013.778598>

Grengs, J. (2010). Job accessibility and the modal mismatch in Detroit. *Journal of Transport Geography*, 18(1), 42-54. <https://doi.org/10.1016/j.jtrangeo.2009.01.012>

Giuliano, G. (2005). Low Income, Public Transit, and Mobility. *Transportation Research Record*, 1927(1), 63-70. <https://doi.org/10.1177/0361198105192700108>

Giuliano, G. & Schweitzer, L (2010). Her Money or Her Time? A Gendered View of Contemporary Transportation Policy. In *Women's Issues in Transportation*, Conference Proceedings 46, Volume 1, Washington, Transportation Research Board, 78-93.

Gupta, M. (2022). *A Vicious Cycle: A case study on the gendered and racial patterns of cycling in California* [Unpublished manuscript]. UC Berkeley.

Guroff, M. (2016). The Wheel, the Woman, and the Human Body. *The Mechanical Horse: How the bicycle reshaped American life*. University of Texas Press.

Hanson, S. (2010). Gender and Mobility: new approaches for informing sustainability. *Gender, Place and Culture*, 17(1), 5-23.

Herrington, C., & Dann, R.J. (2016). Is Portland's bicycle success story a celebration of gentrification? A theoretical and statistical analysis of bicycle use and demographic change. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 32-52.

Hidayati, I., Tan, W., & Yamu, C. (2021). Conceptualizing Mobility Inequality: Mobility and Accessibility for the Marginalized. *Journal of Planning Literature*, 36(4), 492-507.

<https://doi.org/10.1177/08854122211012898>

Horton, D. (2007). Fear of Cycling. In Horton, D., Rosen, P., & Cox, P. (eds) *Cycling and Society*. Taylor & Francis Group, 133-152.

Horton, D., Rosen, P., & Cox, P. (2007). Introduction: Cycling and Society. In Horton, D., Rosen, P., & Cox, P. (eds) *Cycling and Society*. Taylor & Francis Group, 1-23.

Inwood, J. F. J., Livia Brand, A., & Quinn, E. A. (2020). Racial Capital, abolition, and a geographic argument for reparations. *Antipode*, 53(4), 1083–1103.

<https://doi.org/10.1111/anti.12704>

Johnson, W. (2016). What do we mean when we say, “structural racism”? A walk down west florissant avenue, Ferguson, Missouri. *Kalfou*, 3(1).

<https://doi.org/10.15367/kf.v3i1.86>

Kain, J. F. (1968). Housing Segregation, negro employment, and Metropolitan Decentralization. *The Quarterly Journal of Economics*, 82(2). <https://doi.org/10.2307/1885893>

Kimberlin, S. (2019). California’s Housing Affordability Crisis Hits Renters and Households with the Lowest Incomes the Hardest. *Sacramento: California Budget and Policy Center*.

Lee, D.J., Ho, H., Banks, M., Giampieri, M., Chen, X., Le, D. (2016). Delivering (in)justice: food delivery cyclists in New York City. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 114-129.

Lehrer, D. A., & Hicks, J. R. (2011, April 1). *The bus has left the station*. City Journal.

<https://www.city-journal.org/article/the-bus-has-left-the-station>

Lipsitz, G. (1995). The possessive investment in Whiteness: Racialized Social Democracy and the “White” problem in american studies. *American Quarterly*, 47(3).

<https://doi.org/10.2307/2713291>

Loukaitou-Sideris, A. (2020). A Gendered View of Mobility and Transportation. In I. Sánchez de Madariaga & M. Neuman (eds) *Engendering Cities: Designing Sustainable Urban Spaces for All*. Routledge, 19-37.

Loukaitou-Sideris, A., & Fink, C. (2009). Addressing women's fear of victimization in transportation settings. *Urban Affairs Review*, 44(4), 554–587.

<https://doi.org/10.1177/1078087408322874>

Lubitow, A., Tompkins, K., & Feldman, M. (2019). Sustainable Cycling for all? Race and Gender-Based Bicycling Inequalities in Portland, Oregon. *City & Community*, 18(4), 1181-1202.

<https://doi-org.libproxy.berkeley.edu/10.1111/cico.12470>

Lugo, A. (2016). Decentering whiteness in organized bicycle: notes from inside. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 180-188.

Lugo, A. (2018). Chapter 9: Bicycle Gentrification. *Bicycle/Race: Transportation, Culture, & Resistance*, Microcosm Publishes: Portland, Oregon, 137-150.

Martens, K., Piatkowski, D., Krizek, K.J. & Luckey, K. (2016). Advancing discussions of cycling interventions based on social justice. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 86-99.

Mayer, G., & Marcantonio, R. A. (2010). Bay Area Transit-Separate and Unequal. *Race, Poverty & the Environment*. <https://www.reimaginerpe.org/book/export/html/5386>

Meador, D. (2016). Aburrido! Cycling on the U.S./Mexican border with Doble Rueda bicycle collective in Matamoros, Tamaulipas. In A. Golub, M.L. Hoffmann, A. Lugo & G.F. Sandoval (eds) *Bicycle Justice and Urban Transformation*. New York, Routledge, 156-171.

Neejer, C. (2011). *Cycling and women's rights in the suffrage press*. University of Louisville.

Parry, Ian W.H., Walls, M & Harrington, W. (2007). Automobile Externalities and Policies. *Journal of Economic Literature*, 45(2), 373-399.

Paul, J. & Taylor, B.D. (2021). Who lives in transit-friendly neighborhoods? An analysis of California neighborhoods over time. *Transportation Research Interdisciplinary Perspectives* 10. <https://doi.org/10.1016/j.trip.2021.100341>

Purifoye, G. Y. (2020). Transit boundaries: Race and the paradox of immobility within mobile systems. *Mobilities*, 15(4), 480–499. <https://doi.org/10.1080/17450101.2020.1738684>

OakDOT. (2019, July). *Let's Bike Oakland, The Oakland Bicycle Plan 2019*. Oakland, City of Oakland, Department of Transportation.

Rosenbloom, S. (1992) Why working families need a car. In M. Wachs & M. Crawford (eds), *The Car and the City: The Automobile, the Build Environment, and Daily Urban Life*. Ann Arbor, University of Michigan Press, 39-56.

Rosenbloom, S. (2006). Understanding Women's and Men's Travel Patterns: The Research Challenge. In *Women's Issues in Transportation, Conference Proceedings* 35, Volume 1, Washington, Transportation Research Board, 7-28.

Sánchez de Madariaga, I. (2013). From women in transport to gender in transport. Challenging conceptual frameworks for improved policy making. *Journal of International Affairs*, 67 (1), New York, Colombia University, 43-66.

Small, M.L. (2009). 'How many cases do I need?': On science and the logic of case selection in field-based research. *Ethnography*, 10(1), 5–38. <https://doi.org/10.1177/1466138108099586>

Stark J., & Meschik M. (2018). Women's Everyday Mobility: Frightening Situations and Their Impacts on Travel Behavior. *Transportation Research Part F*, 54(3), 11–23. <https://doi.org/10.1016/j.trf.2018.02.017>

Strange, L. S. (2002). The bicycle, women s rights, and Elizabeth Cady Stanton. *Women's Studies*, 31(5), 609-626.

Steinbach, R., Green, J., Datta, J., & Edwards, P. (2011). Cycling and the city: A case study of how gendered, ethnic and class identities can shape healthy transport choices. *Social Science & Medicine*, 72(7), 1123–1130. <https://doi.org/10.1016/j.socscimed.2011.01.033>

Taylor, B. D., Ralph, K., & Smart, M. (2015). What Explains the Gender Gap in Schlepping? Testing Various Explanations for Gender Differences in Household-Serving Travel. *Social Science Quarterly*, 96(5), 1493–1510. <https://www.jstor.org/stable/26612289>

Thompson, M. A. (1997). The impact of spatial mismatch on female labor force participation. *Economic Development Quarterly*, 11(2), 138–145. <https://doi.org/10.1177/089124249701100203>

UCLA Institute of Transportation Studies (UCLA ITS). (2018). Who, Exactly, Is Our Transportation System Designed to Serve? Los Angeles, *UCLA Luskin School of Public Affairs*, <https://luskin.ucla.edu/who-exactly-is-our-transportation-system-designed> (accessed 13 April 2024).

Uteng, T. P. (2009). Gender, Ethnicity, and Constrained Mobility: Insights into the Resultant Social Exclusion. *Environment and Planning A: Economy and Space*, 41(5), 1055-1071. <https://doi.org/10.1068/a40254>

Villeneuve, D., & Kaufmann, V. (2020). Exploring the Causes of Social Exclusion Related to Mobility for Non-motorized Households. *Transportation Research Record*, 2674(8), 911-920. <https://doi.org/10.1177/0361198120926167>

Wachs, M. (1992). Men, women and urban travel: the persistence of separate spheres. *In* M. Wachs & M. Crawford (eds), *The Car and the City: The Automobile, the Build Environment, and Daily Urban Life*. Ann Arbor, University of Michigan Press, 86-100.

Walsh, M. (2008). Gendering Mobility: Women, Work and Automobility in the United States. *History*, 93(3 (311)), 376–395. <http://www.jstor.org/stable/24428395>

Ward, C. & Walsh, D. (2023). “I just don't go nowhere:” How transportation disadvantage reinforces social exclusion. *Journal of Transport Geography*, 110. <https://doi.org/10.1016/j.jtrangeo.2023.103627>

Zhang, X., Warner, M. E., Xu, C., & Wang, Y. (2023). Invisible women in comprehensive plans. *Journal of Urban Affairs*, 1–19. <https://doi.org/10.1080/07352166.2023.2282561>

Appendix 1: Semi-Structured Interview Guide

Goal: To understand the factors influencing women's mobility choices in Oakland, especially about cycle ridership.

Notes before interviewing: Location of meeting the respondent

Travel Diary:

- How long have you been living in Oakland?
- Which neighborhood do you live in?
- What are the different types of trips you make and when? (Type: Work/ Non-work/ Care Work; Frequency: Daily, Weekly, on Weekends etc.)
- How far do you go for each of them?
- How do you take these trips (mode of transport)?
- If public transport: How do you get to the bus stop/BART station?

Modal Choices:

- What factors do you consider before choosing how to travel daily?
- What factors do you consider when you make a new kind of trip?
- Do you think that your choices are different from other people? Why and how? From whom?

Cycling:

- Do you/ would you ever ride a cycle? Why or why not?
- What factors would you consider before deciding to start cycling/ cycling more?
- Do you feel safe/comfortable while cycling? Why or why not?
- Who do you see cycling in your neighborhood?

- How does that impact your perception of cycling?
- Would being able to cycle change your life in any way? How so?

Demographic (if comfortable):

- What gender do you identify as?
- What is your age?
- What is your race/ethnicity?
- What is your household income?
- What is your educational background?
- What languages do you speak?

Do you have any questions for me?

