



Photo by Lacey Friedly

Marginalized Populations' Access to Transit: Journeys from Home and Work to Transit

Miriam Abelson, Ph.D.

Ivis García, Ph.D., AICP

Sadika Khan

Amy Lubitow, Ph.D.

Nicholas Puczkowskyj

Marisa Zapata, Ph.D.



Marginalized Populations' Access to Transit: Journeys from Home and Work to Transit

Final Report

NITC-RR-1419

by

Miriam Abelson
Ivis García
Sadika Khan
Amy Lubitow
Nicholas Puczkowskyj
Marisa Zapata

for

National Institute for Transportation and Communities (NITC)
P.O. Box 751
Portland, OR 97207



August 2023

Technical Report Documentation Page			
1. Report No. NITC-RR-1419	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Marginalized Populations' Access to Transit: Journeys from Home and Work to Transit		5. Report Date August 2023	6. Performing Organization Code
		8. Performing Organization Report No. NITC-1419	
7. Author(s) Marisa Zapata 0000-0002-7135-7459 Ivis Garcia 0000-0003-4184-2514 Amy Lubitow 0000-0002-9019-9871 Miriam Abelson 0000-0002-4625-3308		10. Work Unit No. (TRAIS)	
9. Performing Organization Name and Address Portland State University P.O. Box 751 Portland, OR 97207		11. Contract or Grant No. 69A3551747112	
		13. Type of Report and Period Covered Final report 9/2019 – 11/2021	
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		14. Sponsoring Agency Code	
		15. Supplementary Notes	
16. Abstract Previous scholarship has shown that low-income individuals who also might identify as racial, ethnic, and gender minorities (such as transgender and gender nonconforming) are more likely to be dependent on public transportation. What remains understudied is how these marginalized groups, given their intersectional identities of oppression, might experience transit. The primary research question guiding this project is how do people with intersecting marginal identities experience social exclusion as they travel via mass transit? To answer the above research question, we employed a photovoice methodology and video-call interviewing, in Portland, OR, and Salt Lake City, UT. Across these two sites we interviewed 35 BIPOC (Black, Indigenous and other People of Color) with an income level less than \$35,000 per person per year or \$70,000 per family per year who use transit regularly, who were ethnically diverse, and included immigrants and people with other marginalized identities. In the interviews we found that people from these historically marginalized communities experience economic barriers, discrimination, harassment, and violence on transit and in public areas such as sidewalks, bus stops, and transit platforms when accessing transit related to their intersecting identities (e.g., being a woman of color). We examined how to make transit more accessible; for example, transit passes for low-income individuals, higher frequency of buses, lighting in dark areas, Spanish messaging in stations and on buses, to mention a few. We found that transit workers were key to feelings of safety by marginalized riders, where they could create a sense of welcome and community and fairly and consistently support policies that facilitated access for all. In addition, technology could be a mechanism for safety and ease of travel, but also widen socioeconomic gaps. Our findings are a starting point about what not only Salt Lake City and Portland planners, policymakers, social service providers, and case managers can do, but also what other municipalities could expect in terms of improving transportation and services for these vulnerable populations.			
17. Key Words Transit, Equity		18. Distribution Statement No restrictions. Copies available from NITC: www.nitc-utc.net	
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. No. of Pages 28	22. Price

ACKNOWLEDGEMENTS

The authors would like to acknowledge support from the National Institute for Transportation and Communities (NITC grant number 1419).

The findings and recommendations of this final report were led by graduate research assistants Nicholas Puczkowskyj and Sadika Maheruma Khan with support from the research team. Kevin Fagundo Ojeda helped with the creation of the tables included here. The research team greatly appreciates the skill and commitment these scholars brought to this project.

DISCLAIMER

The contents of this report reflect the views of the authors, who are solely responsible for the facts and the accuracy of the material and information presented herein. This document is disseminated under the sponsorship of the U.S. Department of Transportation University Transportation Centers Program in the interest of information exchange. The U.S. Government assumes no liability for the contents or use thereof. The contents do not necessarily reflect the official views of the U.S. Government. This report does not constitute a standard, specification, or regulation.

RECOMMENDED CITATION

Abelson, M., García, I., S. Khan, Lubitow, A., Puczkowskyj, N., and Zapata, M.. 2023. "Transit Photovoice Portland, Oregon & Salt Lake City, Utah" NITC-RR-1419. Portland, OR: Transportation Research and Education Center (TREC).

TABLE OF CONTENTS

Executive Summary	4
Introduction and Background	5
Research Context	6
Current Study	7
Research Methods	8
Population	9
Recruitment and Sample	9
Table 1. Summary Selected Participant Demographics	9
Data Analysis	10
Table 2: Summary of Codes	11
Findings	13
1. Covid-19 and Personal Safety	13
2. Technology: Paying for Transit and Safety	15
3. Transit Workers: Passenger Safety and Inclusive Environments	16
4. Policing and Passenger Safety	18
Discussion	24
Conclusion	25
References	26

EXECUTIVE SUMMARY

Previous scholarship has shown that low-income individuals who also might identify as racial, ethnic, and gender minorities (such as transgender and gender nonconforming) are more likely to be dependent on public transportation. What remains understudied is how these marginalized groups, given their intersectional identities of oppression, might experience transit. The primary research question guiding this project is how do people with intersecting marginal identities experience social exclusion as they travel via mass transit?

To answer the above research question, we employed a photovoice methodology and video-call interviewing, in Portland, OR, and Salt Lake City, UT. Across these two sites we interviewed 35 BIPOC (Black, Indigenous and other People of Color) with an income level less than \$35,000 per person per year or \$70,000 per family per year who use transit regularly, who were ethnically diverse, and included immigrants and people with other marginalized identities. In the interviews we found that people from these historically marginalized communities experience economic barriers, discrimination, harassment, and violence on transit and in public areas such as sidewalks, bus stops, and transit platforms when accessing transit related to their intersecting identities (e.g., being a woman of color).

We examined how to make transit more accessible; for example, transit passes for low-income individuals, higher frequency of buses, lighting in dark areas, Spanish messaging in stations and on buses, to mention a few. We found that transit workers were key to feelings of safety by marginalized riders, where they could create a sense of welcome and community and fairly and consistently support policies that facilitated access for all. In addition, technology could be a mechanism for safety and ease of travel, but also widen socioeconomic gaps. Our findings are a starting point about what not only Salt Lake City and Portland planners, policymakers, social service providers, and case managers can do, but also what other municipalities could expect in terms of improving transportation and services for these vulnerable populations.

INTRODUCTION AND BACKGROUND

A range of scholars in the field of transportation studies have noted that disparate outcomes in terms of both the benefits and burdens of transportation systems persist. People with disabilities, low-income populations, Black, Indigenous, and other People of Color (BIPOC) communities, and gender minorities often experience less access to transportation and experience more of the negative externalities of transit systems, such as air and noise pollution (Bills and Walker, 2017; Karner et al., 2016, 2020; Litman, 2020; Lubitow et al., 2020; Marcantonio et al., 2017; Pereira and Karner, 2021; Karner et al., 2020; Rowangould et al., 2016). This previous research has demonstrated that historically marginalized communities¹ experience significant barriers in accessing transit. To date, much research about these communities focuses on access to and utilization of transit. Less scholarship has examined how people from oppressed communities experience public transit in terms of harassment, discrimination, or violence, and how those experiences, in turn, impact their decision-making regarding transit usage.

In this study we build on findings from the burgeoning research literature on public transit use in those oppressed communities (e.g., Lubitow et al., 2017; Ding et al., 2022; Klein and Smart, 2016; and Purifoye and Brooms, 2020) and seek to understand how people from intersecting historically marginalized backgrounds experience discrimination, harassment, and violence on transit and in public areas related to transportation such as sidewalks, bus stops, and transit platforms. This study fits into the NITC theme of “improving the mobility of people and goods to build strong communities” in several ways. This study focuses on questions of access to transit for marginalized community members, and examines barriers across transit use while also attending to the effects of neighborhood characteristics and housing choice.

The study was conducted in two sites: Portland, OR, and Salt Lake City, UT. Participants in the study are racially, ethnically diverse people, some of whom were immigrants or gender nonconforming people, who use transit regularly. This study employs a qualitative method less common in transportation studies: photovoice. Using this method, researchers asked participants to describe the factors that shape their travel behavior and provide photographic data of their experiences. Then, researchers conducted in-depth interviews to gain further depth and clarity regarding the visual data. The findings from this study can help transit system designers better understand how experiences of harassment and discrimination across the entire users’ journey affects the riders’ decisions about whether and when to take transit, and the extent to which transit-related infrastructure is related to decisions about where to live or their access to long-term housing.

¹ Historically marginalized communities include BIPOC, people who are disabled, LGBTQ+, immigrants, women, and economically disadvantaged people. These communities experience different forms of oppression over time and are overlapping, in that people may hold multiple marginalized identities.

RESEARCH CONTEXT

Transportation planning has conventionally examined mobility from the standpoint of the efficiency of the transportation system, based on trips as a unit of analysis. Within this research, much of the focus on marginalized populations has examined transportation access and mobility with a particular emphasis on equity and distributional fairness (Pereira and Karner, 2021; Karner et al., 2020; Golub and Martens, 2018). More recent interdisciplinary definitions of “mobility” expand its scope in order to include the characteristics and social conditions of individuals and groups that affect the capacity to move, and the implications for social inclusion or exclusion (Sheller and Urry, 2016). This approach to mobility suggests the importance of taking a deeper look into the conditions of groups that have been historically marginalized to achieve mobility justice. The foundation of this argument is that low-income households (Lubitow et al., 2017); those experiencing homelessness (Ding et al., 2022); people with disabilities (Koch, 2008); queer individuals (Smart and Klein, 2013; Klein and Smart, 2016); transgender and gender nonconforming individuals (Lubitow, Abelson and Carpenter, 2020); and BIPOC communities (Purifoye and Brooms, 2020; Golub and Sanchez, 2013; Cater and Johnson, 2021), among others, have unconsidered transit needs or face blatant discrimination while using transit.

Few studies have investigated how various historically marginalized communities experience discrimination, harassment, and violence on transit, and even less research has examined the public spaces that lead to transit access (e.g., bus stops, journeys to transit stops). Although researchers have documented that a range of populations experience identity-based discrimination, harassment, and violence in other public places, and that these negative experiences can have significant effects from death to anxiety to fear of using public spaces, little to no research has considered this in the context of transportation. Within transportation studies, gender minorities, and women in particular, received the most attention in regards to these fears (Ceccato and Loukaitou-Sideris, 2021). In their review of the prevalence of sexual harassment and assault on transit, Ding et al. (2020) found that gendered incidents were occurring across the studies they examined, though they also found it difficult to determine how prevalent the issue was due to definitional and methodological differences between studies. Moving beyond the gender binary, Lubitow et al. (2020) focused on transgender and gender nonconforming transit riders who reported some type of harassment or discrimination routinely on transit or its surrounding public spaces. Negative experiences rooted in prejudice can lead to changes in transit usage. Ding et al. found that 45% of surveyed women reported decreasing bus use due to fear of sexual harassment, and Lubitow et al. found interviewees altered their travel plans and transit usage based on previous negative encounters.

Ding et al. note that few gender studies focused on intersecting identities, with the work on transmobilities (Lubitow et al., 2020) being an exception. Building on these studies concerning gender minorities, our study helps fill the gap in the literature about how different marginalized groups experience harassment, discrimination, and violence as they journey from home to live their lives via public transit. This study explicitly includes

other marginalized groups, including poor people, immigrants, and people of color as well as gender minorities, in order to create more intersectional understandings of the transit environment. We answer Ding et al.'s 2020 call to better understand the experiences of marginalized community members with intersecting oppressed identities. To best understand the experiences of marginalized transit riders, we are also responding to Shelly and Urry's 2016 call for mobile and participatory methods by employing photovoice methodologies that generate rich, contextualized, visual data. This study will inform transportation practitioners and scholars about the various ways and routes where vulnerable populations encounter harassment, discrimination, and violence.

Current Study

As noted above, existing scholarship has found that marginalized populations experience significant barriers in accessing transit. While existing research has explored the economic aspects of transit utilization as they relate to fares and affordability, additional consideration of how broader social and economic environments shape transit choices remains limited; particularly around the journey to or from transit stops and stations for historically underserved populations.

This project features a multi-sited, interdisciplinary mixed-methods study of two sites: Portland, OR, and Salt Lake City, UT. The overarching goals of this project were to: 1) Offer novel insights about the broader social and built environment in which people use transit, highlighting the intersections of transportation and housing equity for vulnerable populations; and 2) Understand how the current COVID-19 crisis impacts transportation choices and behaviors. To this end, this study had four major research objectives:

1. Clarify how low-income people of color are marginalized while using transit: Drawing from the photovoice project with a total of 35 participants in Portland and Salt Lake City, we recruited people from historically marginalized communities, specifically BIPOC and low-income, in order to better understand how people navigate the spaces between where they live and where they utilize public transit. We are particularly interested in understanding how spaces people use to access public transit (such as sidewalks and bus and train stops) are contested public spaces where certain features may circumscribe transportation choices for gender minorities, low-income, and BIPOC individuals.
2. Develop a novel research design: Although the approach we detail below has been utilized to some extent within the public health field, almost no transportation research has sought to engage individuals in photovoice methods. This project will be one of the first of its kind to generate relevant transportation data that are collected with photovoice qualitative methods. Triangulating interviews and participant photographs provides robust evidence of the barriers to mobility experienced by marginalized people and ample illustrative data to engage policymakers and planners in making effective change.
3. Generate timely findings that consider how COVID-19 is impacting mobility: As this project was completed during the COVID-19 pandemic, we had a unique opportunity to

incorporate questions about public health and safety into our broader research goals, ultimately having data that speaks to the impacts that COVID-19 has had on our transit system and people's experiences of the larger transportation environment. Ongoing issues of economic instability, increases in transit dependency, and long-term fears over the use of shared public spaces were relevant. We observed ongoing concerns related to racial discrimination and harassment, gendered harassment, as well as increased stigmatization toward unhoused individuals, especially from other people of color and women.

4. Develop a network of collaborators: To help ensure the impacts of the project extended beyond its time frame, we cultivated a network of scholars and practitioners interested in exploring the linkages between housing and transportation. This network will be used to share data and methods, disseminate findings, and continue the discussion of how equity can best be incorporated into transportation research and planning efforts.

RESEARCH METHODS

Our primary research question asks: How do people with intersecting marginalized identities experience social exclusion as they travel from their homes to other destinations via mass transit? Our team initially planned for 25 go-along interviews at each research site. However, due to the COVID-19 pandemic and subsequent social distancing measures, we altered the methodology to keep both researchers and participants safe. To accomplish this, the team selected a modified photovoice methodology using smartphones, texting, and video calling. A potential participant sent a text message to our Google Voice number, which prompted a researcher to send a link for a screening questionnaire. If the participant qualified, they were sent a series of prompts for them to text us back with reflections and photos. In response to the prompts, participants took photos of significant places relevant to their travel experiences and marginalized identities on the route. All data collection instruments are available upon request.

Based on the previous literature, we developed four themes from which to base the discussion with participants: (1) safety, (2) discrimination, (3) economic barrier, and, (4) inclusion. Each participant had to answer some questions for each theme and provide us at least one photo per theme. This approach allowed participants to complete a concrete "action" as part of the research, which could give them a sense of accomplishment and another benefit of study participation. Engaging in this participatory research approach promotes individual empowerment, which tends to motivate participants to engage in community work and impact their surrounding environment positively. Using this qualitative approach allowed researchers to ask participants to describe the factors that shape their travel behavior and elicited reported experiences of safety, discrimination, and harassment in rich detail.

POPULATION

Across the two sites participants identified as BIPOC and with an income level less than \$35,000 per person per year or \$70,000 per family per year who use transit regularly. Purposive sampling was used to target qualified participants, with recruitment efforts targeted toward other historically marginalized populations such as immigrants and transgender and gender nonconforming people. While currently houseless individuals were an initial population of interest, recruitment was not successful due to complications of the COVID-19 pandemic and disruptions to the capacity of local partner organizations. Participants were offered the opportunity to be interviewed in Spanish.

RECRUITMENT AND SAMPLE

Flyering on university campuses, transit routes, and transit centers was first used to attract participants. Partnering with community groups such as transit riders and day laborers from non-governmental organizations (NGOs) required us to develop new recruitment tools, such as an instructional sign-up video in both English and Spanish. Our team took out advertisements on Instagram and Facebook to target potential participants, which produced moderate success and should be considered for similar projects in the future. Finally, a snowball sampling method was also employed and bolstered participation numbers.

After all prompts were answered, a video chat was scheduled for the participants to elaborate on their responses. The transcript from the interview, text message threads, and photos were collated and coded for a thematic analysis in Atlas.ti. Triangulating interviews, participant photographs, and text messages allowed our team to obtain a more complete understanding of mobility experiences across the two sites. In total, our team gathered 23 participants from Salt Lake City and 12 participants from Portland. Below is a table that summarizes some of the characteristics of these participants.

TABLE 1. SUMMARY SELECTED PARTICIPANT DEMOGRAPHICS

City	n	%
Portland	12	34%
SLC	23	66%
Gender		
Woman	21	60%
Man	12	34%
Nonbinary/genderqueer/Woman	2	6%
Race/Ethnicity		

Asian- Chinese, Japanese, Korean, etc.	12	34%
Black, African American, or African	5	14%
Hispanic	4	11%
Do not know	1	3%
Indigenous, American Indian, or Alaska Native	4	11%
Middle Eastern	2	6%
Multiracial	6	17%
Other Asian or Pacific Islander	1	3%
Age		
18-22	7	20%
23-30	16	46%
31-40	6	17%
41-58	6	17%
Frequency of Transit Use		
Everyday	9	26%
2-6 times per week	20	57%
Once a week	3	9%
A few times a month	2	6%
Once a month	1	3%

DATA ANALYSIS

A thematic analysis using Atlas.ti was conducted to ascertain the relationship between the repeated themes and experiences of the participants. This process required four distinct steps: 1) Interview transcripts were read and general codes were developed; 2) Codes were tested, reviewed, and refined; 3) Transcripts were coded; and 4) A co-occurrence table and word cloud were developed in Atlas.ti to identify consistent themes. We identified 49 codes as shown in Table 3, with an example of a quote as well as how many times we used the code. In the report we used these 49 codes to show a narrative for the following themes (1) COVID-19 and Personal Safety; (2) Technology: Paying for Transit and Safety; (3) Transit Workers: Passenger Safety and Inclusive Environments; and (4) Policing and Passenger Safety. The results of this study were generated through analyzing the 35 transcripts and finding repeating and co-occurring common themes through the participants’ interviews. Selected quotations and commentary are described in this section to illustrate the strongest themes.

TABLE 2: SUMMARY OF CODES

Codes	Narrative excerpts	Frequency of Occurrence across Sample
Gender & Safety: On Transit	“Normally I feel safe, but a little bit afraid of men about the safety in the bus, sometimes the streetcar.”	26
Personal Safety: Off transit	“Every time I'm at that MAX stop, I just always end up having unwanted strangers, just start talking to me.”	60
Racial Discrimination: On Transit	“I think it's just because of how I present myself, just being female and Asian. I can't really hide being Asian.”	20
Walking at Night	“The bus stop where I took my bus did not have public lighting, that scared me and I always found people smoking, probably because of the cold and many cigarette butts in my whereabouts...”	56
Fears of Others	“I almost always seem to have bad luck when riding on public transportation. My roommate and I have had multiple incidents where we had a guy follow us into Walmart, another where we ran into a herd of homeless people eyeing us and circling around us while we waited for the train.”	57
Neighborhood Safety	“The last two photos depict a shady area which I had to walk through to get to the bus stop. I was scared for my life and was constantly praying that I didn't get kidnapped or raped.”	79
Bus Stop Isolation	“I feel a major difference because during the day I can see everyone, and I don't feel like I'm the only person outside. There're usually at least several other people walking around in the	46

	neighborhood because there's a lot of elderly people in my neighborhood, but there's also a lot of low-income people, so there's a lot of people walking around, either just taking walks or just going to a bus stop or something like that."	
Creating a Welcoming/ Inclusive Environment	"Sometimes at Pioneer Square there's businessmen coming to and/or from work, so I'll kind of stay by them. They're older men that look like fatherly or like a grandpa figure. I try to stay near them if I can. So, I try to do... Or other if there's another woman, we kind of... I tend to notice we stick together."	17

FINDINGS

1. COVID-19 AND PERSONAL SAFETY

Data for this study were collected from summer to fall 2021 during the middle of the COVID-19 pandemic. Personal and public health safety were at the forefront of most people's minds, especially those who regularly rode transit. Photovoice provided an excellent method to capture the pulse of captive riderships as their travel behavior was now shaped by the ongoing pandemic (Sharifi and Khavarian-Garmsir, 2020). While there was much uncertainty and many societal stressors, transit provided people with stability and some degree of safety, especially in the early stages of the pandemic. Tranquilino explained:

“...this one, is a good example of Salt... The bus system in Salt Lake has required a mask mandate, regardless what else is occurring in the state. So, you have grocery stores, places like that, people don't wear masks anymore. However, on the bus, they do wear masks. And there's proper social distancing. So, it feels like at least on the route that I use, people adhere to COVID protocols, safety protocols. And I don't know if this is necessarily the case on other routes.”

Bus system policy to enforce the federal mask mandate provided Tranquilino a sense of safety on his usual route. The presence of a bus driver who enforced safety protocols may have also been important, as illustrated by Khan's experience of not having access to a transit operator when riding light rail. She describes how on TRAX, the light rail train system in Salt Lake City, passengers do not often interact with the train operator, which can make it difficult to enforce face mask mandates or other passenger issues. Khan stated:

“And there was no one in TRAX, there is no TRAX driver. So if there is a TRAX driver maybe, he's like at the end of the train. So you are not supposed to get someone to help you inside the tracks. So you cannot tell someone that, "Hey, tell them to wear mask" and even you cannot tell them because you feel terrified. I was not feeling like that friendly to tell them. And those homeless people were finding it very difficult to access the train with a whole lot of stuff.”

Figure 1 shows that people in Salt Lake City sometimes did not wear masks on and off transit, which made some other travelers feel unsafe.



Figure 1: People at transit station with and without masks (Source: Akul)

Khan felt less safe in the captive environment of the train without the presence of the operator. However, transit employees' own behavior and enforcement of public health measures varied, and feelings of safety among riders shifted with enforcement. Salvador described a worrisome experience early in the pandemic when bus drivers were reluctant to wear face masks and were unsupportive of public health measures. Salvador went into detail:

"I believe in the beginning, the bus drivers were kind of like forced...that seems like a strong word, but a lot of the bus drivers seemed to be wearing face masks in the beginning of the pandemic. And then all of them looked like they weren't comfortable, at least from my point of view. So I remember hearing the bus driver talking to a... because some of the patrons on the bus saying that he like agrees with them, and he doesn't feel like he should be wearing a mask, especially if like he is the one who's driving because he says it distracts him from the driving...It's always very interesting seeing them like not enforcing and not encourage people to wear the mask. Especially like if I'm the only one wearing a mask when I'm on the train or the bus, I feel like I'm being judged by that, which is kind of strange in a way. So it also makes me feel like I'm nervous and then I'm not safe because I bet someone's going to say something because I'm wearing a mask and that the

conductors or the train host or bus drivers aren't going to say anything because of it.”

Overall, consistent enforcement of public health measures by transit workers provided comfort for passengers who might feel nervous or unsafe with other riders. When workers enforced policy unevenly or when riders lacked access to transit workers while traveling, participants felt less supported and less safe.

2. TECHNOLOGY: PAYING FOR TRANSIT AND SAFETY

When reflecting on technology, several participants discussed in depth how important the role technology plays in their day-to-day lives. Technology in the study refers to the transit-oriented infrastructure, such as fare media, real-time arrival screens, maps, and apps. It also refers to personal technology like cell phones and computer access. Riders said that cell phones are vital for using transit (Phithakkitnukoon et Al., 2017) and a key part of how technology impacts their feelings of safety. While the benefits of developing smart transit systems with streamlined app-based fare options is appealing, it can also widen the class gap by hindering travel, including access to jobs, for those who have limited access to newer technology.

Technology and other resource gaps can cause economically marginalized riders to feel further disempowered. Rhea elaborated on these points when explaining a picture she took of her bus pass and her Hop card, an electronic fare card often linked to a bank account or credit card. In describing the photos, she explained:

“Like the first one is a transit bus pass that I received through a social services to get a bus pass to get to my appointments. And then the next one was a Hop pass, which was also tricky to use because I don't have a bank account. And so I had to use somebody else's bank account to use the transit pass and I find that as a barrier to people who don't have bank accounts. Previously, TriMet would issue paper passes, which were easier to use. Now I find the electronic pass less accessible and less easy to use. And also, I think it's more intrusive because now your movements can be tracked if there's more surveillance over people who use the electronic pass versus the paper pass. So I feel like there is greater loss of privacy too...It makes me feel less safe to use the electronic pass versus a paper pass, because I feel that there is a possibility for abuse and surveillance of vulnerable populations when you use an electronic pass.”

Rhea's relationship to fare technology and access is evident in her description of the limits of the electronic fare card. This technological advancement may leave low-income riders behind when barriers to their use, such as necessitating bank accounts or credit cards, or concerns about privacy are not addressed by agencies employing these

technologies. Lila expands on the effects of this technological divide with her experience with a senior and disabled discount program:

“Well, I did want to add that I'm not sure if you can apply to the Honored Citizen program through paper or in person. I did notice most of it was online, which I know most people don't have access to the internet or a phone or a company, or they might not be tech-savvy, so that might be a barrier for them. So, I think maybe just expanding the ways of application would benefit the community.”

These two examples highlight the immobility or inaccessibility technology may generate for marginalized riders.

While new technologies can create new barriers for marginalized riders, there are instances of positive experiences and increased safety due to technology. Salvador used mobile gaming as a way to mitigate the anxiety he experienced early in the pandemic due to his mobility being completely reliant on transit (De Vos, 2020). He felt a great deal of fear and anxiety when riding because he was worried about catching COVID, yet he had no reasonable alternative to commute to work. Salvador used the augmented reality mobile game PokemonGo to help alleviate his stress:

“I included a Pokemon because that's what I do whenever I'm on the TRAX. Especially when like COVID started, I felt like my anxiety was very high at the time were like the bus drivers and everyone was encouraging people to put on a mask, even though it was supposed to be enforced. So that wasn't a thing where people would like put on their mask and then take them off. So I always felt like very like unsafe. So using Pokemon GO as a distraction, [it] definitely helped out a lot. It made me feel a little bit more safer because I wasn't thinking about the fact that I could possibly be getting COVID from someone not wearing a mask on the bus or the train. And that's why I included that, just because it's definitely helped me out a bit.”

Like Salvador said, maintaining a feeling of safety was crucial for riders and could be facilitated by technology, specifically mobile phones. Overall, the integration of mobile phones, transit apps, electronic fare cards, and other technologies provides mixed feelings of safety for riders.

3. TRANSIT WORKERS: PASSENGER SAFETY AND INCLUSIVE ENVIRONMENTS

The importance of a human touch and emotional connection found in fields such as healthcare and education is well known and the same can be said for transportation. Despite the push for automation, the human factor is still important for providing safety

and building inclusive environments for sound transit (Tillmann et Al., 2013; Brown et Al., 2021). In our analysis we found repeated instances of bus operators or other transit workers being directly responsible for creating a welcoming environment for riders or acting as protectors. Transit operators work directly with the communities they serve and often become fixtures in the daily lives of riders. HaLe described her experience:

“I felt that on the bus, drivers are actually very, very friendly and very considerate. There's some drivers that aren't great, but there are a lot that try to make it as successful as possible. Like if someone comes in with a wheelchair, they'll make sure to get that person all settled, like that. They'll also, I've noticed that if there's a person that's a frequent rider, they'll check in with that person, too, and things like that. It is a very interesting contrast because it's a lot more personable, even if it's a person from a more [different] socioeconomic status and things like that.”

Seo-Yun feels similar to HaLe, except she makes a similar comparison regarding differences when riding rail versus bus as noted earlier in the analysis. Seo-Yun found that bus drivers provided a feeling of community engagement and developed relationships with regular riders (Purifoye and Brooms, 2020). Seo-Yun explains:

“So regarding buses, there's always a driver who sees you and then who lets you come in. Compared to TRAX, I felt more welcomed because they're always saying... Because I always say hi and then they say hi or things like that. When you hop off, you say, "Have a good day," those kinds of stuff. That makes me feel like the journey was pleasant. Also, there was a day where the bus driver allowed a lady who did not have the pass, but still she seemed... I don't know. She didn't seem also well enough to afford the fee, but the bus driver was friendly enough and nice enough to allow her to hop on and then drop to the destination where she wanted, and that felt welcoming and inclusive. Even though I wasn't the lady who was getting on without paying, but still that made me feel like it's still a happy world, those kinds of stuff. For the staffs on TRAX, I think there would be a difference when there are more people around on TRAX as well.”

While rail operators are often discouraged or banned from interacting with riders due to safety protocol, or separated from riders, some still find ways to show kindness and care. Yang Zi texted a response to our inclusion question reflecting:

“Some instances of where I feel included or welcomed occurred when people held the doors of the light rail open for me when I am hurrying to catch it. Sometimes the bus operator or train operator will wait for me to catch it as well.”

Instances like these demonstrate how important operators can be as keystones of communities, especially for regular riders. While driving the train or bus is still the core responsibility of the operator, they also play a crucial role as the face of any local transit system. The presence of operators is necessary to develop the safety and cohesion of the riders' environment.

Finally, it also matters who those operators are and how they do their job. Nicole pointed out how representation of diversity can influence the safety and wellbeing of transit riders from marginalized communities:

“She's not the usual conductor on the Amtrak train. The usual conductors are usually older white guys and they sit on their bench and gossip all the time. And this lady, I really liked. She was a sub during the time when they were on vacation, the regular conductors were on vacation, and she's a young Asian woman and she's very bright and intelligent, and she's on top of things. And she also is a young woman, and I just felt like for me, she represented greater safety and greater diversity.”

The substitute conductor provided Nicole with a sense of belonging and safety not only as a young woman of color, but due to the competence and attention that she approached her work. Like in the first section of this analysis, the presence of transit workers could make for a welcoming environment, especially if they demonstrated care for riders.

4. POLICING AND PASSENGER SAFETY

When asked to reflect on policing and personal or passenger safety, participants held quite nuanced views. As noted above, transit staff who consistently enforced policy could increase feelings of safety for riders, yet the presence of police on transit rarely led to increased safety. Participant reflections on policing most often centered on fare enforcement or harassment of people experiencing homelessness (Figure 11 and 12).² These events were connected to experiences of racial discrimination by the participants themselves, incidents where they witnessed racial discrimination of others by the police (Cater and Johnson, 2021), or moments where they saw police targeting low-income and/or houseless community members.

Research participants associated policing with particular neighborhoods, where participants reported a stronger police presence in wealthier and often whiter communities (Purifoye, 2020) and more enforcement actions against members of historically marginalized communities. Nancy pointed out:

“I don't know if you're also trying to map out where your interviewees live, but if you do, it would be interesting to observe the amount of policing in what is deemed more of a minority community. Because I do feel there is more policing in more of minority-rich communities where their bus stops or rail lines is in more affluent areas. There's just more of a focus to have things more orderly and neat in affluent areas as in minority communities.”

²We use caution when assuming someone's housing status, and would normally preface a description of some as experiencing homelessness as such. However, we are prioritizing riders' descriptions of their experiences.

HaLe echoed Nancy's reflection:

"When I get onto public transit, I get on in the areas of Salt Lake that are known as not as well-off socioeconomically and a lot of stuff like that. Then I commute all the way up to a much more fancier area, which is the hospital, and all of that. I notice when law enforcement likes to get into the cars, right? Sometimes they do. Every once in a while, they would get on to check if we were riding legally with a pass and stuff, up on campus. But a lot of times, most of the times I saw it, it was like after you got past a certain station that indicated you were entering the less affluent parts of Salt Lake, that wasn't downtown affluent Salt Lake. So, I would see them get on, usually, at that time and that was often when they would target a lot of people like unsheltered folks and a lot of things like that."

Thus, the disproportionate presence of police enforced law and order for wealthier and whiter communities, which in effect protected those communities from supposed threats from poor people and people of color.

Participants reported being targeted by police for their race and socioeconomic status. In their observations, police were more likely to surveil and interact with BIPOC or economically marginalized people and less likely to use their discretion to show leniency to them. Jose's personal experience with policing is continually negative and he feels targeted by them as a low-income person of color. He described the frequent unequal treatment he faces:

"My experiences with them is... I can't really talk my way out of anything. They don't really give me a warning. It's just like, "Yeah, you're a student. You didn't tap your card on so you're going to have to pay our fine," type of thing. And that's pretty consistent with my experience with the UTA police... So they're pretty, pretty consistent with just not letting things fly as far as, once you're outside of the free fair zone, you have to pay for a ticket. Or if you're jaywalking... I've gotten a ticket for just walking across the street. And there was a UTA cop just on station and they've given me a ticket for that. So that was annoying. They don't really give warnings in my experience. They're very like, 'Pay our fine,' type of thing."

Jose reported increased surveillance and enforcement against him by the police. Police officers showed little leniency in those interactions. Participants similarly reported increased police interactions with houseless individuals. For example, regarding experiences with transit police Salvador described a photo (Figure 2) he took of an officer standing on a train platform. He explained:

"I took this one (photo) of the transit police. They tend to be more lenient to folks who aren't experiencing homelessness. I've seen folks who have not paid for their bus ticket get away with a warning. But have seen folks who are experiencing homelessness get a ticket just for riding public transportation."

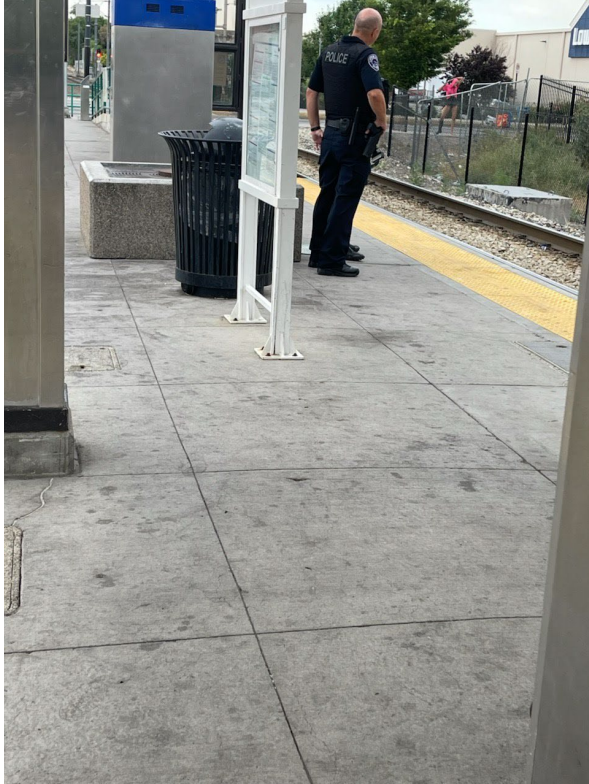


Figure 2: Transit police on platform represents intensified scrutiny for houseless, low- income, and BIPOC riders. (Source: Salvador, 2021)

Similarly, Lila took photos of police ejecting an apparently homeless man from a train (Figure 3 and 4) to point out the disproportionate police enforcement and harassment she has observed while on and around transit.

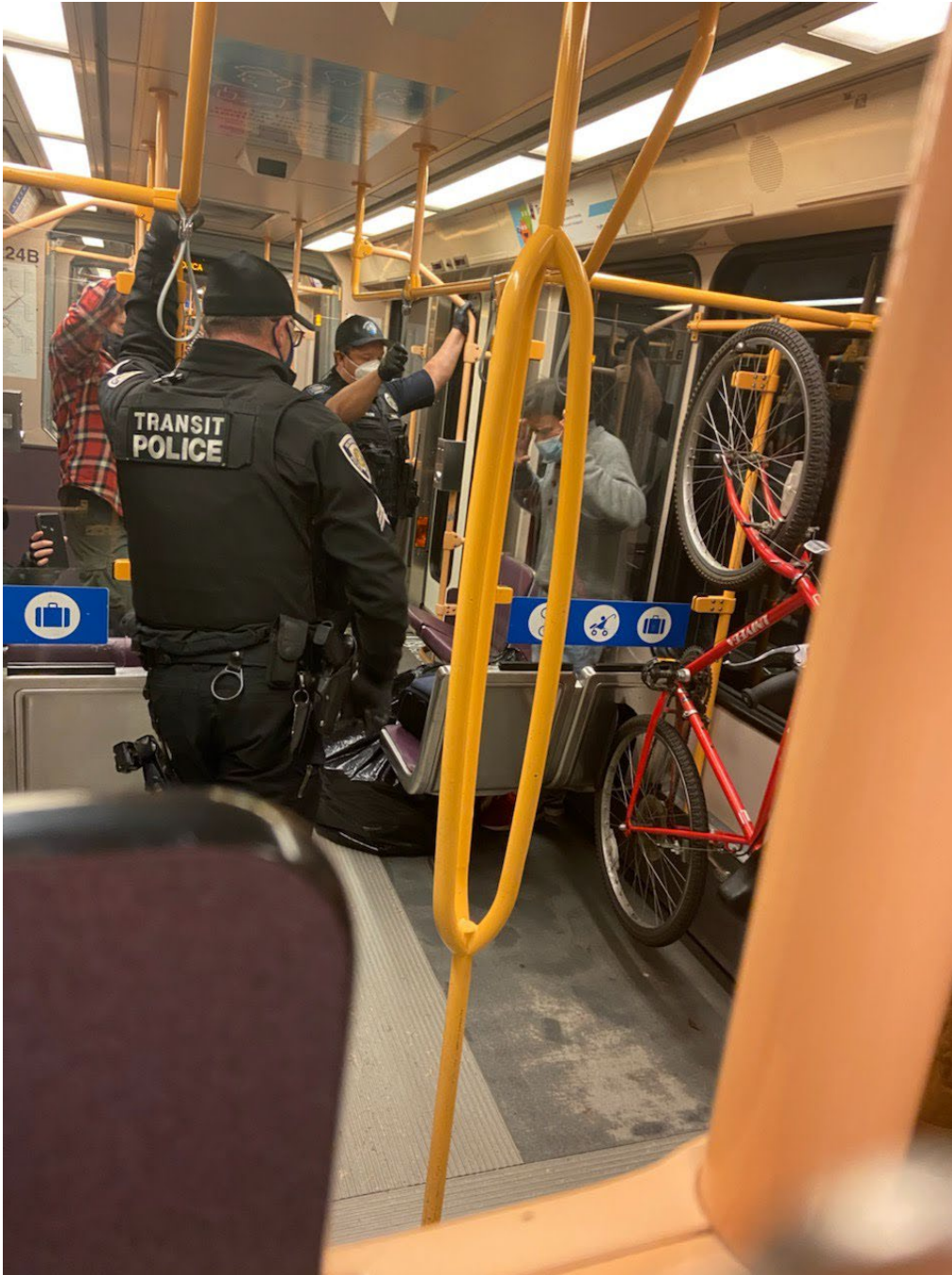


Figure 3. Transit police interacting with rider (Source: Lila, 2021)



Figure 4: Police eject rider with bags of cans from train (Source: Lila, 2021)

Racial discrimination and unequal treatment of low-income and homeless riders was witnessed or experienced often by participants when riding transit. According to most participants, a police presence did not increase their feelings of safety and they often experienced the opposite. They expressed the desire for protection or aid on transit, for example, when passengers are unruly; however, they do not want the police involved because the police themselves perpetuated this discrimination and harassment. Rhea gave a recommendation to improve transit safety without police:

“Well, ideally there should be an emergency phone. If not linking with community organizations who perhaps there is room to pay volunteers to ride on certain buses or trains to be the community safety officer, not to be a policeman or, but to be a mediator. So if there's a conflict, they can help mediate that conflict, but of course, that's another expense. But I've seen that in previous negative experiences, it's been other members of the community that have stepped in to make things safer. For example, there was a time when I was on the train and a white woman started insulting this group of black children. It felt very unsafe on that train. Some people on the train sided with a woman, but a couple of people stepped in and told her to stop. And that's what made her stop temporarily, is other people, other community people stepping in and telling her to stop. So I think it lies... It still lies in the community more than the transit company. Although if the transit company wanted to put in a safety officer, I'm not sure how effective that would be.”

Participants overall desired a safe and welcoming environment on transit and wanted a range of resources outside of police presence. As Rhea pointed out, these could include access integration with community organizations experienced in mental health and other interventions. Bystander interventions from other passengers are another potential key source of making a safe and welcoming environment on transit for all riders.

DISCUSSION

In this study we identified the four most frequent and salient themes representing the experiences reported by the participants of this study: COVID-19 and Personal Safety; Technology, Paying for Transit and Safety; Transit Workers: Passenger Safety and Inclusive Environments; and Policing and Passenger Safety. These themes represent the most poignant experiences reported by the participants of this study, and the selected quotes illustrate these noteworthy experiences while using transit. While each theme can stand alone, they are best examined through an intersecting lens since they contain significant overlap.

Throughout the analysis of these data, we found technology as a common thread through the identified themes. Technology, specifically mobile phones, applications and digital fares, were brought up frequently in the interviews. While this is not too surprising, given that phones were a part of the methodology, the nuance here is how technology often framed the participants' experiences and provided context or documentation for their stories. Many of the recommendations included some type of technology to enhance safety or information access to improve ridership experiences. Mobile phones are so important to accessing and using transit that mobile phones can be considered a keyholder to modern daily life.

While technology like mobile phones usher modernity, the desire and expression for human connection and community is still needed for functioning and quality transit systems (Rose et al., 2017). The participants continually mentioned how transit operators influenced a rider's transit experience. Interactions with bus drivers, train operators, and other transit workers have the power to influence how comfortable and safe a rider may feel. When people of marginalized identities must navigate a public space, like transit, a transit operator is in a position of power that can truly shape their experience. This is why multicultural representation in transit workers is needed to curate an inclusive environment, as expressed by Nicole's reflection when she witnessed a woman of color in a position of power on Amtrak. To an extent, the same is true with the local community of fellow riders where the cultivation of a welcoming rider culture can impact the ridership experience. However, this rider and operator culture can be complicated by the policing and harsh fare enforcement. Many of the participants in this study did not feel comfortable with policing involved with transit, even at the cost of tolerating disruptive riders. Therefore, we can infer that transit riders' travel behavior is influenced by operators and fellow riders as they develop a welcoming and safe transit rider community.

Finally, riders frequently reported concerns with witnessing the treatment of fellow riders experiencing houselessness. Many participants indicated that riders experiencing houselessness rarely caused negative issues on transit and were accustomed to houseless riders on transit. Often, negative experiences took place when law enforcement arrived, since the participants would witness compassionless enforcement of fares or discrimination by law enforcement. This illustrates how transit is both a place

and action where socioeconomic inequalities are expressed, whether it's through infrastructure disparities, fare collection, or how laws are enforced (Lubitow et al., 2020).

Participants shared a number of suggestions to alleviate the issues they experienced and witnessed on transit. Their key recommendations include: (1) developing a diverse transit workforce who create a welcoming environment while fairly and compassionately enforcing policy; (2) balancing the benefits of technological advancements with the reality of technology gaps that can reinforce economic precarity; and (3) developing resources outside of policing to address issues that arise on transit that bring further support to racially and economically marginalized people, especially those experiencing homelessness. While we did not discuss these findings in depth, research participants also suggested increasing transit passes for low-income individuals; higher frequency of buses to avoid long waits, especially when they were alone at night; lighting in dark areas; and Spanish messaging in stations and on buses.

CONCLUSION

We hope that this work bridges relationships between groups that do not always sit together such as our MPOs and homeless service nonprofits, as well as academic research, transportation planners, and social justice advocates to advance understanding about and action for historically marginalized populations by drawing attention to the ways in which these community members experience transit use. Most significantly, specific strategies for enhancing equity in relation to transportation will be valuable to regions and planning agencies across the country. The project presents innovation in research practice in order to generate a new approach to transportation research methods while also directly engaging vulnerable communities in ways that best illustrate the social, spatial, and economic inequities they experience. Our work had its limitations. Initially we wanted to do go-along interviews and triangulate that with GPS data. However, because of COVID-19 we were not able to do this. This means that there is an opportunity for future research using other participatory methodologies that have the potential to center the insights of members of historically marginalized communities themselves.

By establishing new inroads into understanding the links between transportation and the way that marginalized populations experience transit, we can use our findings to encourage planning entities and transit agencies to pursue more equitable and just transportation planning. Clarifying the places and spaces in which our most vulnerable residents experience mobility restrictions can help to impact long-term planning in both regions. As our transit systems evolve, insights from historically marginalized communities are necessary to create innovations that serve to narrow, rather than widen, existing disparities.

REFERENCES

- Beecham, R., & Wood, J. (2014). Exploring gendered cycling behaviors within a large-scale behavioral data-set. *Transportation Planning and Technology*, 37(1), 83–97. <https://doi.org/10.1080/03081060.2013.844903>
- Bills, T. S., & Walker, J. L. (2017). Looking beyond the mean for equity analysis: Examining distributional impacts of transportation improvements. *Transport Policy*, 54, 61–69. <https://doi.org/10.1016/j.tranpol.2016.08.003>
- Bocarejo S, Juan Pablo, and Daniel Ricardo Oviedo H. 2012. "Transport accessibility and social inequities: a tool for identification of mobility needs and evaluation of transport investments." *Journal of Transport Geography* 24: 142-154.
- Brown, Karikari, I., Abraham, S., & Akakpo, T. (2021). Left Off the Route: A Qualitative Examination of Urban Bus Drivers Wanting to be Players in the Bully Prevention Solution. *Journal of Interpersonal Violence*, 36(7-8), NP4271–NP4295. <https://doi.org/10.1177/0886260518787204>
- Carter, & Johnson, L. T. (2021). "Blacks Can't Jump": The Racialization of Transit Police Responses to Fare Evasion. *Race and Justice*. <https://doi.org/10.1177/21533687211007548>
- Ceccato, Vania, and Anastasia Loukaitou-Sideris. "Sexual harassment in transit environments among college students in the # MeToo era: Reporting evidence from six continents." *American journal of criminal justice* 46.1 (2021): 107-129.
- De Vos. (2020). The effect of COVID-19 and subsequent social distancing on travel behavior. *Transportation Research Interdisciplinary Perspectives*, 5, 100121–100121. <https://doi.org/10.1016/j.trip.2020.100121>
- Dill, J., & McNeil, N. (2016). Revisiting the Four Types of Cyclists: Findings from a National Survey. *Transportation Research Record: Journal of the Transportation Research Board*, 2587, 90–99. <https://doi.org/10.3141/2587-11>
- Ding, H., Loukaitou-Sideris, A., & Wasserman, J. L. (2022). Homelessness on public transit: A review of problems and responses. *Transport Reviews*, 42(2), 134–156. <https://doi.org/10.1080/01441647.2021.1923583>
- Ding, Hao, Anastasia Loukaitou-Sideris, and Asha Weinstein Agrawal. "Sexual harassment and assault in transit environments: A review of the English-language literature." *Journal of planning literature* 35, no. 3 (2020): 267-280.
- Dunckel-Graglia, A. (2013). Women-only transportation: How "pink" public transportation changes public perception of women's mobility. *Journal of Public Transportation*, 16(2), 5.
- Evans, James, and Phil Jones. 2011. "The Walking Interview: Methodology, Mobility and Place." *Applied Geography* 31 (2): 849–58. <https://doi.org/10.1016/j.apgeog.2010.09.005>.
- 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>

- Handy, S. (2006). Conference on Research on Women's Issues in Transportation. Research on Women's Issues in Transportation, report of a conference. Volume 1, Conference overview and plenary papers (Conference proceedings (National Research Council (U.S.). Transportation Research Board) ; 35, v. 1). Washington, D.C.: Transportation Research Board.
- He, S., Cheung, Y., & Tao, S. (2018). Travel mobility and social participation among older people in a transit metropolis: A socio-spatial-temporal perspective. *Transportation Research Part A*, 118, 608-626.
- Karner, Alex, Jonathan London, Dana Rowangould, and Kevin Manaugh. "From Transportation Equity to Transportation Justice: Within, Through, and Beyond the State." *Journal of Planning Literature* 35, no. 4 (November 1, 2020): 440–59. <https://doi.org/10.1177/0885412220927691>.
- Karner, A., Rowangould, D., & London, J. (2016). We Can Get There From Here: New Perspectives on Transportation Equity. National Center for Sustainable Transportation. <https://escholarship.org/uc/item/9zp565xr>
- Kim, Keuntae, and Ivis Garcia. 2019. "Why Do Homeless Families Exit and Return the Homeless Shelter? Factors Affecting the Risk of Family Homelessness in Salt Lake County (Utah, United States) as a Case Study." *International Journal of Environmental Research and Public Health* 16 (22): 4328. <https://doi.org/10.3390/ijerph16224328>.
- Klein, N. J., & Smart, M. J. (2016). Travel mode choice among same-sex couples. *Transportation Research Part A: Policy and Practice*, 90, 1–13. <https://doi.org/10.1016/j.tra.2016.05.009>
- Koch. (2008). Spaced Out in the City: The Wrinkled World of Transit for Those with Limited Mobility. *Disability Studies Quarterly*, 28(2). <https://doi.org/10.18061/dsq.v28i2.94>
- Litman, Todd. "Evaluating Transportation Equity: Guidance For Incorporating Distributional Impacts in Transportation Planning." Victoria Transport Policy Institute, 2020. www.vtpi.org/equity.pdf.
- Loukaitou-Sideris, A. (2014). Fear and safety in transit environments from the women's perspective. *Security Journal*, 27(2), 242–256. <https://doi.org/10.1057/sj.2014.9>
- Lubitow, Rainer, J., & Bassett, S. (2017). Exclusion and vulnerability on public transit: experiences of transit dependent riders in Portland, Oregon. *Mobilities*, 12(6), 924–937. <https://doi.org/10.1080/17450101.2016.1253816>
- Lubitow, Amy, Miriam J. Abelson, and Erika Carpenter. 2020. "Transforming Mobility Justice: Gendered Harassment and Violence on Transit." *Journal of Transport Geography* 82.
- Marcantonio, R. A., Golub, A., Karner, A., & Nelson, L. (2017). Confronting Inequality in Metropolitan Regions: Realizing the Promise of Civil Rights and Environmental Justice in Metropolitan Transportation Planning. *Fordham Urban Law Journal*, 44(4), 1017. <https://ir.lawnet.fordham.edu/ulj/vol44/iss4/4>
- Martens, Karel, and Aaron Golub. "A Fair Distribution of Accessibility: Interpreting Civil Rights Regulations for Regional Transportation Plans." *Journal of Planning Education and Research* 41, no. 4 (December 2021): 425–44. <https://doi.org/10.1177/0739456X18791014>.

- Pereira, Rafael H. M., and Alex Karner. "Transportation Equity." SocArXiv, October 19, 2020. <https://doi.org/10.31235/osf.io/gykud>.
- Phithakkitnukoon, S., Sukhvibul, T., Demissie, M., Smoreda, Z., Natwichai, J., & Bento, C. (2017). Inferring social influence in transport mode choice using mobile phone data. *EPJ Data Science*, 6(1), 1–29. <https://doi.org/10.1140/epjds/s13688-017-0108-6>
- Purifoye. (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>
- Purifoye, G. Y., & Brooms, D. R. (2020). Transit Affinities: The Distinctiveness of Black Social Interactions on Public Transportation. *Du Bois Review*, 17(2), 389–410. doi:<http://dx.doi.org/10.1017/S1742058X2000017X>
- Rose, E.J., Racadio, R., Martin, T., Girard, D., & Kolko, B. (2017). Expert yet vulnerable: Understanding the needs of transit dependent riders to inform policy and design. *The Journal of Community Informatics*, 13(1), 1262. <https://doi.org/10.15353/joci.v13i1.3291>
- Rowangould, D., Karner, A., & London, J. (2016). Identifying environmental justice communities for transportation analysis. *Transportation Research Part A: Policy and Practice*, 88, 151–162. <https://doi.org/10.1016/j.tra.2016.04.002>
- Sharifi, & Khavarian-Garmsir, A. R. (2020). The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management. *The Science of the Total Environment*, 749, 142391. <https://doi.org/10.1016/j.scitotenv.2020.142391>
- Sheller, Mimi, and John Urry. 2016. "The New Mobilities Paradigm." *Environment and Planning A*, July. <https://doi.org/10.1068/a37268>.
- Smart, M. J., & Klein, N. J. (2013). Neighborhoods of Affinity: Social Forces and Travel in Gay and Lesbian Neighborhoods. *Journal of the American Planning Association*, 79(2), 110–124. <https://doi.org/10.1080/01944363.2013.883227>
- Tillmann, V., Haveman, M., Stöppler, R., Kvas, Štefan, & Monninger, D. (2013). Public Bus Drivers and Social Inclusion: Evaluation of Their Knowledge and Attitudes Toward People With Intellectual Disabilities. *Journal of Policy and Practice in Intellectual Disabilities*, 10(4), 307–313. <https://doi.org/10.1111/jppi.12057>
- Zhou, J., Zhang, M & P. Zhu. 2019. "The equity and spatial implications of transit fare." *Transportation Research Part A: Policy and Practice* 121: 309-324