

UCLA

Capstone Projects

Title

Rethinking Transit Safety: Understanding and Addressing Gender-Based Harassment and Enhancing Safety on San Francisco's Muni System

Permalink

<https://escholarship.org/uc/item/4sf8b24j>

Authors

Cowan, Greer
Liu, Pearl

Publication Date

2023-06-15

DOI

10.17610/T64S54

Rethinking Transit Safety:

Understanding and Addressing Gender-Based Harassment and Enhancing Safety on San Francisco's Muni Transit System

Project Leads: Greer Cowan & Pearl Liu

Faculty Advisor: Anastasia Loukaitou-Sideris

Client: San Francisco Municipal Transportation Agency (SFMTA)

*A comprehensive project submitted in partial satisfaction of the requirements for the degree
Master of Urban and Regional Planning.*

June 2023



Technical Report Documentation Page

1. Report No. 2023-52	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A	
4. Title and Subtitle Rethinking Transit Safety: Understanding and Addressing Gender-Based Harassment and Enhancing Safety on San Francisco's Muni System		5. Report Date 2023-06-16	
		6. Performing Organization Code UCLA-ITS	
7. Author(s) Greer Cowan Pearl Liu		8. Performing Organization Report No. LA2228	
9. Performing Organization Name and Address Institute of Transportation Studies, UCLA 3320 Public Affairs Building Los Angeles, CA 90095-1656		10. Work Unit No. N/A	
		11. Contract or Grant No. 2023-52	
12. Sponsoring Agency Name and Address UCLA Institute of Transportation Studies www.its.ucla.edu		13. Type of Report and Period Covered Final	
		14. Sponsoring Agency Code UC ITS	
15. Supplementary Notes DOI: 10.17610/T64S54			
16. Abstract This research aims to prioritize safety on the Muni system from a gender equity perspective and inform the Safety Equity Initiative of the San Francisco Municipal Transportation Agency (SFMTA). A mixed-method approach was used, including a survey of Muni transit riders (n = 1,613), to explore experiences of gender-based harassment and perceptions of safety while riding Muni. The findings reveal a significant prevalence of gender-based harassment, with 67 percent of respondents reporting experiences in the last six months. Perceptions of safety are low, with only 54 percent feeling safe during the daytime and 13 percent feeling safe at nighttime. Certain populations, including women, gender minorities, transit-dependent riders, and non-white riders, experience higher levels of harassment and lower perceptions of safety. Spatial analysis identifies harassment hotspots in downtown San Francisco and Mission Terrace. Reporting incidents is often hindered by reluctance, lack of awareness, and skepticism about the impact of reporting. The most desired safety improvements are transit ambassadors and increased lighting. Based on these findings, transformative recommendations are provided, categorized into three categories: service changes, infrastructure improvements, and campaigns/advocacy. This research contributes to knowledge about gender-based harassment in transit and informs the SFMTA's Safety Equity Initiative.			
17. Key Words transit Bay Area safety California Public transit equity		18. Distribution Statement No restrictions.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 67	22. Price N/A

Acknowledgements

First and foremost, we extend our deepest appreciation to Maia Moran and the SFMTA Safety Equity Initiative staff for their collaboration and for providing us with the necessary resources and data to carry out this research. Their commitment to prioritizing safety and gender equity on the Muni system has been instrumental in shaping the scope and focus of this study. We are also immensely grateful to the participants of our survey, the Muni transit riders, who generously shared their time and experiences with us. Their willingness to provide honest feedback and insights has been invaluable in shedding light on the prevalence of gender-based harassment and perceptions of safety on Muni. We would also like to acknowledge our faculty advisor Anastasia Loukaitou-Sideris and UC ITS researchers Madeline Brozen and Jacob Wasserman for their help throughout the project, from designing the survey to analyzing the data, their expertise and feedback were vital to the success of the report.

The Institute of Transportation Studies at UCLA acknowledges the Gabrielino/Tongva peoples as the traditional land caretakers of Tovaangar (the Los Angeles basin and So. Channel Islands). As a land grant institution, we pay our respects to the Honuukvetam (Ancestors), 'Ahihirom (Elders) and 'Eyoohiinkem (our relatives/relations) past, present and emerging.

Disclaimer

This report was prepared in partial fulfillment of the requirements for the Master in Urban and Regional Planning degree in the Department of Urban Planning at the University of California, Los Angeles. It was prepared at the direction of the SFMTA as a planning client. The views expressed herein are those of the authors and not necessarily those of the Department, the UCLA Luskin School of Public Affairs, UCLA as a whole, or the client.

Table of Contents

Executive Summary	6
Introduction	7
Context & Literature	8
Research Conducted by California Transit Agencies on Gender-Based Harassment	9
Los Angeles Metro (LA Metro)	9
Bay Area Rapid Transit (BART)	10
Perceptions of Safety on Transit	10
Rates of Harassment on Transit	11
Underreporting	12
Suggested Solutions & Policies to address Gender-Based Harassment on Transit	13
Methodology	15
Survey Development	15
Survey Distribution, Outreach, and Data Collection	16
Data Analysis Methods	16
Analysis & Findings	18
Descriptive Statistics	18
Comparison of Sample to Demographics of SFMTA Riders	19
Cross-Tabulations	21
Verbatim Comments Analysis	35
Spatial Analysis	37
Part 1: Hotspot Analysis of Gender-Based Harassment Incidents	37
Part 2: Hotspot Analysis of Gender-Based Harassment Incidents	41
Reporting and Safety Solutions	44
Recommendations	48
Advocacy & Campaigns on Reporting	48
Infrastructure Improvements	49
Services Changes	49
Conclusion	50
References	51
Appendix A	54
Appendix B	55
Appendix C	56
Appendix D	57
Appendix E	58

List of Tables

Table 1: Literature review categorization of harassment safety solutions	14
Table 2: Summary statistics of survey sample	18
Table 3: Summary statistics of 2019 and 2021 Muni Ridership Survey	20
Table 4: Effects of gender identity on harassment	23
Table 5: Effects of race/ethnicity on harassment	25
Table 6: Effects of age on harassment	27
Table 7: Effects of disabilities on harassment	29
Table 8: Effects of car ownership on harassment	30
Table 9: Effects of Muni as primary means of transportation on harassment	31
Table 10: Effects of frequency of Muni ridership on harassment	33
Table 11: Effects of frequency of traveling alone on Muni on harassment	34
Table 12: Frequency of Muni key terms	36
Table 13: Reasons for not reporting harassment incidents by race/ethnicity and gender identity	54
Table 14: Safety improvements by race/ethnicity and gender identity	55
Table 15: Frequency of Muni Key Terms Disaggregated by Gender (Male)	56
Table 16: Frequency of Muni Key Terms Disaggregated by Gender (Female & Gender Minorities)	57

List of Charts

Chart 1: Share of respondents who feel safe during the daytime & nighttime on Muni	21
Chart 2: Share of respondents who have experienced or witnessed harassment on Muni	22
Chart 3: Locations where respondents felt the least safe on Muni	22
Chart 4: Share of respondents who have experienced harassment by gender identity	24
Chart 5: Share of respondents who have experienced harassment by race/ethnicity	26
Chart 6: Sum of incident counts by Muni routes	42
Chart 7: Sum of incident counts by Muni stops	43
Chart 8: Distribution of gender-based harassment on different modes of Muni	43
Chart 9: Reporting of gender-based/sexual harassment on Muni	44
Chart 10: Reasons for not reporting harassment incidents	45
Chart 11: Gender identity and safety solutions	46
Chart 12: Race/ethnicity and safety solutions	47

List of Maps

Map 1: Hotspot analysis of gender-based harassment incidents in San Francisco	38
Map 2: Hotspot neighborhoods	38
Map 3: Hotspot analysis of gender-based harassment experienced by men in San Francisco	39
Map 4: Hotspot neighborhoods of harassment experienced by men	39
Map 5: Hotspot analysis of gender-based harassment experienced by women & gender minorities in San Francisco	40
Map 6: Hotspot neighborhoods of harassment experienced by women and gender minorities	40
Map 7: Harassment incidents around Muni routes	42
Map 8: Harassment incidents around Muni stops	43

Executive Summary

The goal of this research is to support prioritizing safety on the Muni system from a gender equity lens. This work is specifically aimed to inform the Safety Equity Initiative of the San Francisco Municipal Transportation Agency (SFMTA). Using a mixed-method approach, we surveyed Muni transit riders (n = 1,613) to explore their travel behaviors, experiences with gender-based harassment, and perceptions of safety while riding Muni. The findings from this survey presented in this report inform a set of recommendations to improve safety and reduce gender-based harassment on Muni.

We find that the pervasiveness of gender-based harassment on the Muni public transit system is significant, with 67 percent of our sample reporting that they have experienced harassment in the last six months. Perceptions of safety are also quite low, with 68 percent always or often feeling safe while riding Muni during the daytime and only 32 percent feeling safe at nighttime. We found that certain populations are disproportionately victimized while riding transit. With statistically significant differences across both perception of safety and experiences of harassment between women versus men, gender minorities versus cis gender people, transit dependent riders versus those who have access to a private vehicle, and white versus non-white riders. Our spatial analysis reveals a concentration of harassment incidents in downtown San Francisco and Mission Terrace – both men, women, and gender minorities have experienced the most harassment incidents in those areas. In terms of reporting incidents, we found that riders are often reluctant or unaware of how to report the incidents and feel that reporting incidents will not have an impact on safety and harassment on Muni. Lastly, we found that the most popular safety improvements are transit ambassadors and more lighting at stations and stops. Responses to these questions about reporting incidents and safety improvements were mostly consistent across demographic categories.

Based on these findings we provide transformative recommendations to address the high rates of harassment among certain groups of Muni riders. The recommendations are organized into three categories: service changes, infrastructure improvements, and campaigns and advocacy. This work adds the existing knowledge about gender-based harassment in the transit environment while also specifically informing the Safety Equity Initiative of the SFMTA.

Introduction

Sexual harassment, which disproportionately affects women and gender minorities, causes transit riders to feel unsafe while walking to, waiting for, and using public transportation. These feelings and experiences of unsafe conditions influence riders' travel behavior and comfort while using transit. Harassment and safety issues on transit can cause women and gender-expansive people, who don't conform to traditional gender roles, to shift their travel behavior by traveling at different times of day, choosing longer routes where they feel safer, or using rideshares or private vehicles when they can afford to do so (Los Angeles Metro, 2019). Women and gender minorities are often the victims of sexual harassment and reluctant or unaware of how to report these incidents. This underreporting of safety incidents leads to continuous fear of sexual harassment and, in turn, limits mobility for specific population segments, particularly those dependent on transit.

This research presents findings from a survey conducted in February and March of 2023 to gather data from riders of the SFMTA's Muni system about their perceptions of safety and experiences of harassment on Muni. As part of the Safety Equity Initiative, which launched in August 2022, the SFMTA supported this research to better understand Muni riders' experiences and develop safety recommendations, tools, and policies aimed at preventing harassment and assault on Muni. As of 2022, only 42 percent of Muni riders feel safe from crime while onboard and waiting for Muni, a decline from 2019 when only 48 percent felt safe and secure on board and 50 percent felt safe at transit stops (SFMTA, 2023). This research is particularly important to support the safety of those who do not have access to private vehicles and rely on Muni to get to work or school and run errands. Ensuring that transit dependent women and gender minorities feel safe is an important objective.

The goal of this research is to develop a better understanding of harassment on the Muni system, and to inform recommendations to ensure all riders, regardless of their gender expression or identity, feel safe while riding Muni. The survey questions aim to understand the perception of safety and experiences of harassment of Muni riders. The report presents statistics on the extent of gender-based harassment on Muni, including statistics on the share of riders who have experienced harassment and how safe various demographic groups of riders feel. The report also includes a spatial analysis of gender-based harassment hotspots, an analysis of why riders have reported or not reported harassment incidents, and statistics on what safety solutions are favored by Muni riders. The report concludes with policy recommendations to help the SFMTA's Safety Equity Initiative address gender-based sexual harassment on their systems. The recommendations specifically focus on spatial trends in harassment, barriers to reporting incidents, and safety solutions riders indicated would be most impactful.

Context & Literature

While transit crime is well studied, gender-based harassment on transit environments received little research attention until the 1980s (Agrawal & Loukaitou-Sideris, 2020). Over the years since, various scholarly studies on the topic of gender-based crimes in transit environments have been published (Loukaitou-Sideris Et Al., 2020). This research is playing an important role in increasing awareness about sexual harassment on public transportation systems. However, the collection of data and information about gender-based harassment on transit is limited. This is due to two main factors, the underreporting of incidents by victims and the fact that crime statistics often do not differentiate sexual harassment incidents as their own category (Loukaitou-Sideris Et Al., 2020).

Sexual harassment falls under the umbrella of gender-based violence, which is defined as any harmful threat directed to an individual based on the person's biological sex, gender identity, sexual orientation, or socially defined norms of masculinity and femininity. Gender-based violence threats are categorized into physical, sexual, and psychological, that can occur in private or public life (USAID, n.d.). Sexual harassment can be broadly defined as inappropriate or unwanted behavior that has a sexual dimension, including indecent comments, sexual invitations, threats, displaying sexual imagery, or public masturbation (Loukaitou-Sideris Et Al., 2020). Typically for research purposes, sexual harassment is categorized into three categories: verbal, non-verbal, and physical (Loukaitou-Sideris Et Al., 2020).

- **Verbal** harassment refers to sexual comments, being classed unwanted names, being asked for sex, sexual remarks or obscene language, etc.
- **Non-verbal** harassment refers to unwanted gestures, public masturbation, being shown pornographic images, stalking, indecent exposure, etc.
- **Physical** harassment refers to unwanted kissing, being groped or touched inappropriate, rape, etc.

This literature review provides a review of the research on this topic to date, specifically examining research that has been done on the topic in California, perceptions of safety and rates of sexual harassment and gender-based harassment among women and gender minorities, underreporting of incidents, and suggested policies and solutions to addressing gender-based harassment in transit environments.

Research Conducted by California Transit Agencies on Gender-Based Harassment

To date, only a few California transit agencies have conducted research and collected data on gender-based harassment on their systems. But with the recent passage of SB 1661 in February 2022, the largest agencies in the state will now be required to document harassment incidents by “gender, sexual orientation, race, ethnicity or otherwise, and also to start developing policies to make riders feel safer” (Harson, 2022). This legislation is a key next step in addressing harassment of all kinds in transit environments, and will play a large role in helping to identify targeted solutions to address gender-based harassment on transit systems across California. This section outlines actions taken by two California transit agencies, Los Angeles Metro (LA Metro) and Bay Area Rapid Transit (BART), to research gender-based harassment on their systems.

Los Angeles Metro (LA Metro)

In 2019, LA Metro conducted a study titled “Understanding How Women Travel,” which documented the current barriers to mobility that women face in Los Angeles in order to identify strategies to better meet the needs of traveling women. The report included several sections on safety and harassment. Data from both the 2018 On-Board Survey and the 2018 Ridership Growth Action Plan Survey are presented in the report, illuminating findings about women’s perceptions and experiences of safety on transit in Los Angeles. The research found that 60 percent of female riders feel safe on transit during the day but only 20 percent feel safe at night (Los Angeles Metro, 2019). Additionally, 25 percent of female bus riders and 33 percent of female rail riders reported experiencing sexual harassment in the past six months (Los Angeles Metro, 2019). Those who identified as non-binary were found to be the most likely to have been harassed while riding the bus in the past six months (Los Angeles Metro, 2019).

Interestingly, those who ride transit in Los Angeles perceive it to be safer than those who do not ride transit, and safety concerns center around harassment and personal security (Los Angeles Metro, 2019). Women also reported changing their travel behavior due to safety concerns, such as choosing different routes that are often longer, switching to more expensive modes of transportation in the evenings (often choosing to use rideshare after 8:00 or 9:00 pm), or avoiding trips altogether (Los Angeles Metro, 2019).

The report documented that there are several channels to report harassment on LA Metro, including a Metro Transit Watch mobile app, a hotline called It’s Off Limits, an online form and a phone line dedicated to customer comments, and emergency intercoms at stations (Los Angeles Metro, 2019). But there are still many barriers to reporting. None of the women asked knew about the Metro safety app and many said they either do not know how to report incidents or believe it is not worth the time to report them. Additionally, the report notes that the announcements about sexual harassment on the transit, buses, and stops, and stations are only offered in English, creating a barrier for non-English speakers, and did not include any information on how to report sexual harassment (Los Angeles Metro, 2019).

Bay Area Rapid Transit (BART)

In April 2021, BART launched the Not One More Girl Campaign in partnership with several community based organizations (CBOs). The campaign was largely inspired by a report titled “Together We Rise,” which was written by one of BART’s CBO partners, Alliance for Girls (AFG), and documents the lived experiences of girls¹ of color in Oakland, San Jose, and San Francisco. The report includes a section on Girls and Public Space, which specifically talks about experiences on BART and public transit. At every listening session almost all the girls talked about everyday instances of being physically or verbally harassed as they took the bus to and from school or traveled via BART (Alliance for Girls, 2019).

The report was shared with the BART general manager and other staff, which began the dialogue about creating an advocacy campaign as well as identifying other policy changes and actions to address the harassment of girls on the BART system (BART, 2021). Since BART has taken several steps to better understand and address sexual harassment on their system, including adding a question asking if riders have experienced gender-based sexual harassment in the last six months on BART to their Passenger Environment Survey and adding a new reporting category “Unwanted sexual harassment (non-criminal)” to the BART Watch app (BART, 2021). Between October and December 2020 and April and June 2022 the share of passengers responding “yes” to the added question fell from 10 percent to 8 percent (BART, 2021).

Perceptions of Safety on Transit

Across all the literature reviewed, perceptions of safety on transit systems vary based on demographic information. Across the board, women and gender minorities are more likely to be concerned about their safety while using public transit (Odbert Et Al., 2021; Loukaitou-Sideris, 2020; Los Angeles Metro, 2019). The safety concerns of women and gender minorities center around harassment and personal security (Los Angeles Metro, 2019). Additionally, BIPOC, elderly, younger, disabled women, and LGBTQI+ people have heightened fear for their safety while traveling via transit (Odbert Et Al., 2021; Lubitow Et Al, 2017). Research suggested that the mobility of transgender and gender non-binary transit users is routinely limited by their experiences of harassment and discrimination (Abelson, Et Al, 2020). Individuals who identify as Latinx, Black, or Asian are also more likely to feel unsafe as compared to those who identify as white or other (Odbert Et Al., 2021). Black riders and unhoused women also identified feeling unsafe on transit in the presence of law enforcement (Odbert Et Al., 2021; Los Angeles Metro, 2019).

There are also environmental factors that contribute to feelings of safety. A survey of students’ perceptions and experiences of safety on transit found that transit settings that are dark or desolate and have litter make them feel unsafe (Loukaitou-Sideris and Ceccato, 2021). Students also reported that the presence of drunk people, harassment, vandalism at bus stops and station platforms, and general social disorder can cause anxiety and fear (Loukaitou-Sideris and Ceccato, 2021). A study focused on perceptions of unwanted sexual behavior found that women perceive low density settings to be the most unsafe but unwanted sexual behaviors

1 Defined as cis girls, trans girls, non-binary youth, gender non-conforming youth, gender queer youth and any girl-identified youth.

(such as groping) occur with more frequency during peak times (Ball and Wesson, 2017). The authors do note, that the most serious offenses (e.g., rape) occur at quieter times (Ball and Wesson, 2017).

Perceptions of safety have a direct effect on the way women and gender minorities travel. Another study surveying students found that fear leads 60 percent of female students to take some precautions during their transit trips and when riders have other travel modes available these precautions include not taking transit (Loukaitou-Sideris Et Al, 2020). Other research underscores that, for women and gender minorities who have the financial means to do so, fears and experiences of harassment lead them to opt for different modes of transportation that they perceive to be more safe, such as private cars and rideshare (Odbert Et Al, 2022; Los Angeles Metro, 2019). According to a survey and interviews conducted to observe women's travel behavior in Austria, one third of women have experienced frightening situations that caused them to alter their travel behavior (Stark and Meschik, 2019). Among the women who experienced frightening situations, 75 percent of them avoided specific routes or destinations.

About one third of the female students surveyed in another study reported that for bus and rail transit, fear of sexual harassment is a significant factor preventing them from using transit (Loukaitou-Sideris Et Al, 2020). Gender minorities interviewed for a study of harassment and violence experienced by transgender and gender nonconforming public transit riders in Portland, OR found that interviewees reported behavioral change they have made to avoid harassment. These included not traveling on certain routes or at certain times of day, changing their gender presentation, leaving the bus or train, or traveling with friends or family (Lubitow Et Al, 2017).

Rates of Harassment on Transit

Rates of harassment vary by demographics, location (i.e., on a transit vehicle, walking to a transit stop or station, waiting for a bus or train to arrive), and type of harassment. In general, the literature shows that women, girls, and gender and sexual minorities are more likely to face sexual harassment and violence on transit. One study examining harassment experiences found that 72 percent of bus riders and 48 percent of rail riders reported experiencing sexual harassment over the last three years while using transit (Loukaitou-Sideris Et Al, 2020). Another study found a similar rate, reporting that 71 percent of respondents reported experiencing sexual harassment behavior while using the bus or rail system in Los Angeles (Loukaitou-Sideris Et Al, 2020). When broken down by gender, category, and location, the study found that across all categories, women experienced higher rates of harassment than men, that verbal harassment is the most common type (followed by non-verbal and lastly physical), and that harassment is most likely to occur while waiting for the bus or on transit vehicles (Loukaitou-Sideris Et Al, 2020). Several other studies have also found that women are more likely to experience harassment on transit (Los Angeles Metro, 2019; Odbert et al., 2022; Loukaitou-Sideris Et Al, 2021).

The study mentioned above focusing on gender minorities in Portland, OR found that almost all the interviewees could recall forms of harassment that they perceived to be motivated by transphobia and that five out of 20 interviewees had experienced physical violence (Lubitow Et Al, 2017). Another report that took an international view, found that verbal harassment is the most common type and that 60 percent of respondents in three (Rio Claro, Melbourne, and Milano) of the four cities they studied had experienced verbal harassment

while using transit (Whitzman Et Al, 2020). Another international study examined 18 different cities and found that female students are more likely to experience harassment on transit in all of those cities (Loukaitou-Sideris Et Al, 2021). The same study found LGBTQ students were more likely to experience harassment in nine of the 11 cities where LGBTQ demographic information was collected (Loukaitou-Sideris Et Al, 2021). Research has also found that riders using transit three or more days per week are more likely to be victims of sexual harassment (Loukaitou-Sideris Et Al, 2020).

Certain land use features have been shown to influence harassment positively or negatively. For example, lack of adequate lighting has been linked to more harassment incidents (Loukaitou-Sideris Et Al, 2020). Many of the recommendations in the studies reviewed noted that creating a set of environmental design guidelines targeted at reducing harassment could be an effective strategy (Loukaitou-Sideris Et Al, 2020). Different parts of the transit system also have different rates of harassment. A global study revealed that in general, rates of harassment are higher on bus systems than on rail systems (Loukaitou-Sideris Et Al, 2020). Additionally, in general verbal harassment is more likely to occur while riders are walking to or waiting for transit and physical harassment is more likely to occur while on transit vehicles (Loukaitou-Sideris Et Al, 2020).

Underreporting

One of the main challenges in addressing gender-based harassment on public transit is the lack of data about where, when, and how frequently harassment incidents are occurring on transit systems. This is due to the fact that few agencies include questions about sexual harassment in passenger surveys, but it is also in part due to underreporting of harassment incidents. A survey in New York City found that while 63 percent of respondents had experienced sexual harassment on transit, 96 percent did not report it to the New York Police Department or the Metropolitan Transportation Association (Stinger, 2007). A global study on the topic found that in 17 of the 18 cities surveyed, more than half the victims of sexual harassment chose not to report the incident; in some cities (such as Los Angeles) reporting was as low as 10 percent (Loukaitou-Sideris Et Al, 2021). Research has also shown that underreporting is higher among certain groups, such as recent immigrants (Ball and Wesson, 2017). Another study conducted with San Jose State University (SJSU) students found that 10 percent of victims reported the harassment they had experienced to anyone at all, and those who did mainly reported to friends and family, but less to public authorities such as police or transit operators (Agrawal and Loukaitou-Sideris, 2020).

Bystanders are also unlikely to report harassment incidents. One study examining university students in Los Angeles found that only 10 percent of students who observe or experience sexual harassment on transit reported the incident (Loukaitou-Sideris Et Al, 2020). Research has found that when passenger density is low, bystanders are more likely to report incidents (Loukaitou-Sideris Et Al, 2020; Ball and Wesson, 2017). Furthermore, the perceived severity of the incident impacts bystanders' likelihood of intervening, when the incident is perceived to be more serious, bystanders are more likely to report it (Ball and Wesson, 2017).

Another report found that 64 percent of men and 64 percent of women surveyed reported witnessing harassment on transit and pretending not to see it, while only 20 percent of women and 18 percent of men came forward and talked to the victim, and 14 percent of women and none of the men talked to the offender (Loukaitou-

Sideris Et Al, 2020). One international study focused on university students in four different cities found that 54 to 25 percent (varying by city) of those who had experienced harassment or assault reported there being at least one witness to the occurrence who did not intervene (Whitzman, 2020).

The SJSU study mentioned above also found that 63 percent of student respondents had experienced some form of harassment during transit trips (Agrawal and Loukaitou-Sideris, 2020). The SJSU study also addressed the issue of respondents who do not understand the definition of sexual harassment. When the survey asked the students if they had experienced “sexual assault, harassment, or other crime,” 23 percent responded ‘yes.’ However, when students were asked if they had experienced specific types of sexual harassment, 63 percent of them said they had experienced at least one type of harassing behavior. It was flagged that students do not categorize verbal offenses as ‘sexual harassment’.

One study evaluated the success of a public awareness campaign to tackle underreporting of unwanted sexual behavior on transit in London, finding that the campaign did increase reporting of incidents, and that the increase was not explained by an overall increase in harassment events (Solymosi, 2018). The study also found that the campaign did not increase fear among passengers.

Research has found various barriers to reporting gender-based harassment incidents. Several studies have revealed that victims of sexual harassment on transit were more likely to report incidents to friends or family rather than police or transit operators (Loukaitou-Sideris Et Al, 2020; Loukaitou-Sideris Et Al, 2021). Research in Los Angeles also found that none of the women asked knew about the Metro Safe App, one of the main channels for reporting harassment incidents, and others said that it was not worth the time to submit a report or that they don’t know how to submit reports (Los Angeles Metro, 2019). Common reasons cited by women as to why they do not report gender-based harassment incidents are listed below (Loukaitou-Sideris Et Al, 2020; Whitzman Et Al, 2022; Los Angeles Metro, 2019; Solymosi, 2018).

- Distrust in the justice system (victims do not believe any action will be taken based on the report)
- Cultural influence of shame and victim blaming
- Social conditions that lead victims to trivialize/normalize harassment (i.e., not perceiving the incident as serious or as a crime)
- Embarrassment (victims prefer to internalize, escape from, and and forget about the incident; can be the result of victims thinking they were at fault for the incident)
- Not knowing how to report incidents or which types of incidents warrant reporting
- Perception that the reporting process is lengthy and time-consuming
- Past bad experiences with police and law enforcement (especially among LGBTQI, people of color, and indigenous women)
- Avoiding “more trouble”

Suggested Solutions & Policies to address Gender-Based Harassment on Transit

Several of the reports reviewed provided policy recommendations or suggested solutions to address gender-based harassment. The commonly recommended solutions are listed in Table 1.

Table 1: Literature review categorization of harassment safety solutions

Category	Solution	Source
Design	Adapt the physical environment, by establishing new design standards that help address perceptions of safety and experiences of harassment (e.g., more lighting including along routes to transit stops and stations)	Loukaitou-Sideris Et Al, 2020; Loukaitou-Sideris Et Al, 2021; Odbert Et Al., 2022
	Designated seats to populations vulnerable to harassment closer to the operator	Herson, 2022
Policing & Security Personnel	Modify the penal code (make full cadre of harassment behaviors criminal offenses)	Loukaitou-Sideris Et Al, 2020
	More security patrols to address drunk individuals and drug activity at stops and stations or onboard transit vehicles (NOTE: Tension between increasing policing and systematic discrimination against certain racial/ethnic groups in the criminal justice system. One suggested solution is to consider unarmed officers.)	Loukaitou-Sideris Et Al, 2021 Loukaitou-Sideris Et Al, 2020
	Hire local women as community ambassadors to provide visible and culturally-competent safety presence in public spaces (particularly in low-income BIPOC communities where trust of police is low)	Odbert Et Al., 2022
Technology	Reduce barriers to reporting incidents (e.g., texting the police, security phone line, reporting apps)	Loukaitou-Sideris Et Al, 2020 Loukaitou-Sideris Et Al, 2020
	Apps to dispatch officers to bus/train next stops	Herson, 2022
	Better real-time predictions of arrivals	Herson, 2022 Loukaitou-Sideris Et Al, 2020
Education & Outreach	Educate the public about gender-based harassment (public outreach campaigns, posters in transit environments, etc.)	Loukaitou-Sideris Et Al, 2020 Herson, 2022 Whitzman, 2020
	Awareness campaigns stressing the responsibility of perpetrators to avoid offending (including info on the legal implications of harassment)	Whitzman, 2020
	Awareness campaigns targeted at bystanders	Whitzman, 2020
	Coordinated campaigns between police, transit authorities, women's organizations, universities, etc.	Whitzman, 2020
	Harassment awareness training for operators	Herson, 2022 Loukaitou-Sideris Et Al, 2020 Odbert Et Al, 2022
	Campaigns using different forms of outreach (e.g., videos, pamphlets, advertisements, etc.)	Solymosi Et Al, 2018
	Partner with schools to create curriculum about prevention of gender-based harassment and violence	Odbert Et Al, 2022
Policy	Increase data collection on sexual harassment on transit	Loukaitou-Sideris Et Al, 2020
	Add more high-capacity vehicles during peak/crowded times	Loukaitou-Sideris Et Al, 2020 Herson, 2022
	Option to be dropped closer to home at night	Herson, 2022
	On demand stops	Loukaitou-Sideris Et Al, 2020

Note: Full citations for sources found in the references section

Methodology

This research focuses on the results of the SFMTA Safety Equity Initiative's Gender-based Experience Survey and uses mixed quantitative and qualitative methods to analyze the results. In this section, we explain the data collection process from survey development to survey distribution and outreach, and lastly explain our data analysis methods.

Survey Development

The SFMTA Safety Equity Initiative's Gender-based Experience Survey includes a set of questions about Muni riders' experience of gender-based harassment in transit environments. The survey development started in February 2022, when the team received the survey questions from Alliance for Girls. Alliance for Girls worked with BART on their "Not One More Girl Initiative," a youth-led campaign to combat harassment in transit and other parts of the city that launched in April 2021. The SFMTA Safety Equity Initiative (SEI) team then began a series of meetings with the SFMTA Communications team to adapt the survey to the context of the City of San Francisco and the language used by the agency. The survey includes questions that answer the following:

- Which Muni riders are experiencing the most gender-based harassment?
- Where do Muni riders experience gender-based harassment?
- When do Muni riders experience the most gender-based harassment?
- What kind of gender-based harassment have Muni riders experienced?
- Why are Muni riders experiencing gender-based harassment?
- How should SFMTA take action on addressing gender-based harassment and improve gender equity?
- SFMTA also had a set of demographic and standard questions, which were included in the survey.

The survey was workshopped within the SEI team until August 2022, when the SEI team received funding from the UCLA Institute of Transportation (ITS) to form a research partnership on the SEI project. The SEI team received feedback from ITS researchers on the design and context of the survey. The survey was then internally launched to the SFMTA staff on September 14, 2022, and the team gathered feedback about the survey format and questions from SFMTA staff who took the draft survey.

From September 2022 to January 2023, the SEI and ITS team edited and reviewed the survey, based on the feedback and data received, to check for data integrity and make the survey more user-friendly. The last step in the survey's development was to translate it into four other languages: Spanish, Mandarin, Tagalog, and Russian, encouraging language accessibility. A full copy of the survey can be found in Appendix E.

Survey Distribution, Outreach, and Data Collection

The SFMTA Safety Equity Initiative Gender-based Experience Survey was officially launched to the public on February 16, 2023. It was hosted on the ArcGIS Survey123 system. The survey was initially distributed via the Transit App. The Transit App had a banner in the user interface of the application for all users in San Francisco who opened the application. Users could follow the link and take the survey, “dismiss” the banner permanently so that it would not show the message again, or if they did not interact with the banner at all it would remain visible for two weeks when users opened the app. A push notification was sent to all users who had not dismissed or already followed the link to the survey on March 3, 2023.

A Muni Alert was sent to all email and SMS subscribers on March 6, 2023. The message sent to the Transit App users and the Muni Alert subscribers directed users to an SFMTA landing page, where the survey was available in five languages (Chinese, Spanish, Tagalog, Russian, and English).

Data Analysis Methods

The data was exported from the ArcGIS Survey123 system as a CSV and cleaned and processed for analysis. We calculated descriptive statistics and cross-tabulations examining the effects of various demographic characteristics on harassment and feelings of safety on transit. We used chi-squared analyses to determine the relationship between the participants’ demographic information and their experiences of harassment and feelings of safety on transit. The chi-squared test is a statistical test that is used to compare observed data with expected data to determine if there is a significant difference between the two. In this study, the chi-squared test was used to determine if there was a significant difference in harassment experiences and feelings of safety on transit between different gender identities, race/ethnicities, people with disabilities, if people have access to a car, and if Muni is their primary form of transportation.

- To perform the chi-squared test in Excel, the following steps were taken:
- The contingency table was created in Excel using the demographic information and data on the experiences of harassment and feelings of safety on transit of respondents.
- The chi-squared function was used in Excel to calculate the chi-squared statistic and the associated p-value.
- The degrees of freedom were calculated based on the size of the contingency table.
- The critical value was calculated using the chi-squared distribution table.
- The p-value was compared to the level of significance (α) to determine if the result was statistically significant.

We also performed spatial analysis on the questions where respondents were asked to use an interactive map built in the ArcGIS Survey 123 system to pinpoint the spot of the incident or the most common spot of incidents. The spatial analysis process studies harassment incidents by evaluating the spatial features of the data set (i.e., the location of harassment incidents). We used ArcGIS Pro to geoprocess the incident points and

used tools such as kernel density, hotspot analysis, cluster, and summarize features that are nearby transit infrastructure. In addition to analyzing the points on the map, respondents were also asked to optionally manually write down which Muni lines, stations, or stop locations.

We conducted an analysis of the survey questions related to reporting incidents of harassment and which safety solutions would make people feel safer. These questions were analyzed across the whole sample as well as cross-tabulations for various demographics, including race/ethnicity and gender identity.

Analysis & Findings

Descriptive Statistics

The descriptive statistics provide an overview of the survey results. The survey was opened from February 16, 2023 to March 31, 2023. We collected a total of 1,613 responses. Table 2 provides an overview of demographic and basic travel patterns of survey respondents.

Comparison of Sample to Demographics of SFMTA Riders

In this section we compare the demographics of the survey respondents with the Muni Ridership Survey to see if our Gender-based Experience Survey is representative of the Muni ridership. The Muni Ridership Survey is launched every year to San Francisco residents to track the satisfaction of Muni riders with SFMTA's service. This tool allows SFMTA to track progress and measure the impacts of changes that have been implemented to improve service. The 2019 and 2021 Muni Ridership Surveys are the most recent results.

Table 3 provides an overview of Muni ridership survey respondents' demographic and basic travel patterns. All the respondents to the ridership surveys had ridden Muni within the past six months of when they took the survey, in our sample a handful of people reported not having taken Muni in the last six months. The distribution of race/ethnicity from the ridership surveys is similar to our sample; the highest share of respondents are white, then Asian and/or Pacific Islander, then Hispanic and/or Lantix, then Black, and small samples of Middle Eastern and/or North African and Native American respondents. For gender identity, the distribution is spread evenly between men and women, which is consistent with our Gender-based Experience Survey. However, the 2019 ridership survey only had male and female as options on the gender question, gender non-binary was added in 2021. In comparison our survey included four options, male, female, transgender, and gender non-binary, as well as the option to select 'other'.

For disability-related questions, in the 2019 survey, 90 percent of respondents did not have a disability or health condition affecting travel choices, which is higher than the Gender-based Experience Survey (66.5 percent). In the 2021 survey, 48 percent of the respondents said Muni provided 'good' access for people with disabilities. Most people who took the Muni ridership survey reported using Muni five days a week or more or several times a week, which is consistent with the Gender-based Experience Survey. The survey respondents for both have a high frequency of riding Muni.

The survey also had safety-related questions, but 'safety' was a general term not limited to harassment or gender-based violence. The 2019 survey, asked about feeling safe and secure from crime while waiting on a Muni vehicle, and 48 percent of respondents said excellent or good, which is an 11 percentage point decrease from 2018. In the 2021 survey, only 38 percent of respondents said excellent or good for feeling safe and secure from crime while onboard or waiting for Muni. When we disaggregate this percentage by gender, 36.4 percent of men responded 'good,' whereas 32.6 percent of women responded 'poor.'

Table 2: Summary statistics of survey sample

		#	%			#	%
TOTAL		1,613	100%				
Race/ Ethnicity (Note: does not sum to 100% and total number of respondents as individuals could select multiple options)	Black	78	4.7%	Gender Identity (Note: does not sum to 100% and total number of respondents as individuals could select multiple options)	Male	750	46.5%
	White	875	54.2%		Female	707	43.8%
	Asian and/or Pacific Islander	412	25.5%		Transgender	47	2.9%
	Hispanic and/or Lantix	159	9.9%		Gender Non-Binary	79	4.9%
	Middle Eastern and/or North African	40	2.5%		Prefer not to answer, Other, Blank	85	5.3%
	Native American	24	1.5%				
	Prefer not to answer, Other, Blank	163	10.1%		Car Ownership	Access to a private car	771
Age	18 or under	81	5.0%	No access to a private car		747	46%
	19-34	463	28.7%	Not applicable, don't know, prefer not to answer, Blank		95	6%
	35-54	464	28.8%	Muni is primary means of transportation	Yes	1,075	67%
	55-74	403	25.0%		No	461	29%
	75+	126	7.8%		Don't know/not sure, Blank	77	3%
	Prefer not to answer, Blank	76	4.7%	Frequency of Muni Ridership	Everyday	527	33%
People with Disabilities (Note: does not sum to 100% and total number of respondents as individuals could select multiple options)	Blindness or vision impairment	47	2.9%		A few times a week	674	42%
	Hearing impairment	76	4.7%		A few times a month	272	17%
	Mobility disability	174	10.8%		Once a month or less	99	6%
	Cognitive or mental impairment	47	2.9%		Never	30	2%
	Another disability or disabling health condition	38	2.4%		Don't know/not sure, Blank	11	1%
	None	1,072	66.5%		Frequency of Traveling Alone	Always	734
	Don't know/not sure, prefer not to answer, Blank	242	15.0%	Often		677	42%
				Sometimes		127	8%
			Rarely/Never	31		2%	
			Don't know/not sure or Blank	44		3%	

Table 3: Summary statistics of 2019 and 2021 Muni Ridership Survey

		2019	%	2021	%
TOTAL		554	100%	397	100%
Race/ Ethnicity	Black	31	5.6%	24	6%
	White	312	56.3%	242	61%
	Asian and/or Pacific Islander	130	23.4%	105	26.4%
	Hispanic and/or Lantix	75	13.5%	23	5.8%
	Middle Eastern and/or North African	3	0.5%	3	0.8%
	Native American	6	1.1%	16	4%
	Prefer not to answer, Other, Blank	21	3.7%	17	4.2%
Age	18-24	25	4.5%	18	4.3%
	25-34	104	18.8%	31	7.5%
	35-44	134	24.2%	54	13.1%
	45-54	116	20.9%	78	18.9%
	55-64	71	12.8%	89	21.5%
	65 years or older	89	16.1%	138	33.4%
Gender Identity (Note: 2019 Survey only had two options for gender)	Male	269	48.6%	182	44.7%
	Female	285	51.4%	224	55%
	Transgender	-	-	-	-
	Gender Non-Binary	-	-	1	0.2%
Frequency of Muni Ridership	5 days a week or more	192	34.7%	160	38.7%
	Several times a week	146	26.4%	101	24.5%
	About once a week	62	11.2%	39	9.4%
	2 or 3 times a month	87	15.7%	28	6.8%
	About once a month	32	5.8%	15	3.6%
	Less than once a month	35	6.3%	27	6.5%

Cross-Tabulations

This section includes cross-tabulations and bivariate analyses of our sample. Tables 4-11 include cross-tabulations across various demographic and travel behavior categories and experiences of harassment/perceptions of safety. There are eight cross-tabulations, four of them are demographics (gender identity, race/ethnicity, age, and people with disabilities) and four are related to travel patterns (car ownership, Muni as primary means of transportation, frequency traveling on Muni, and frequency traveling on Muni alone). The survey questions on experiences and witnesses of harassment asked respondents to recall the last six months, so all reported rates apply to that timeline.

The tables focused on the effects of gender identity, race/ethnicity, people with disabilities, car ownership, and Muni as the primary mode of transportation also include chi-squared tests. These tests examine if each demographic or travel behavior category has a statistically significant relationship with whether or not people have experienced or witnessed harassment and their perceptions of safety on transit. We conducted these cross-tabulations and chi-squared tests to examine the effects of various demographic characteristics on harassment and feelings of safety on transit.

The total rates across the entire sample are reported alongside the demographic breakdowns in each table. Across the sample, verbal harassment is the most common type of harassment that people experience and witness on transit, followed by non-verbal (see Chart 2). Physical harassment is the least common. These findings are consistent with past research (Loukaitou-Sideris et al, 2020; Loukaitou-Sideris et al, 2021; Whitzman et al, 2020). We also found that transit stations (including train platforms, bus stops, and station elevators) are the places where people feel the least safe (see Chart 3). This is consistent across all demographic groups analyzed in the tables that follow. As shown in Chart 1, the majority (68 percent) of respondents 'always' or 'often' felt safe during the day but were less likely to feel safe at nighttime (down to only 32 percent), this is similarly true across many of the demographics but is a more drastic contrast for some demographic groups over others.

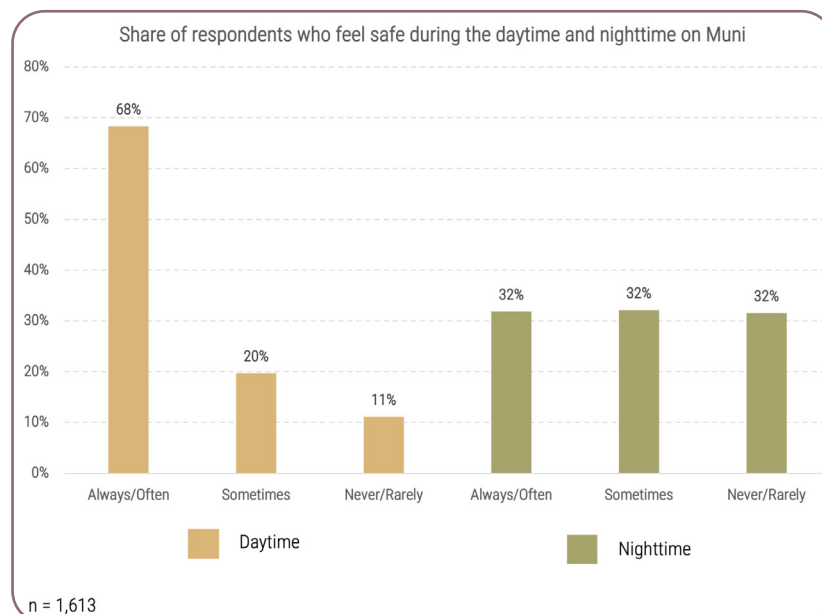


Chart 1: Share of respondents who feel safe during the daytime & nighttime on Muni

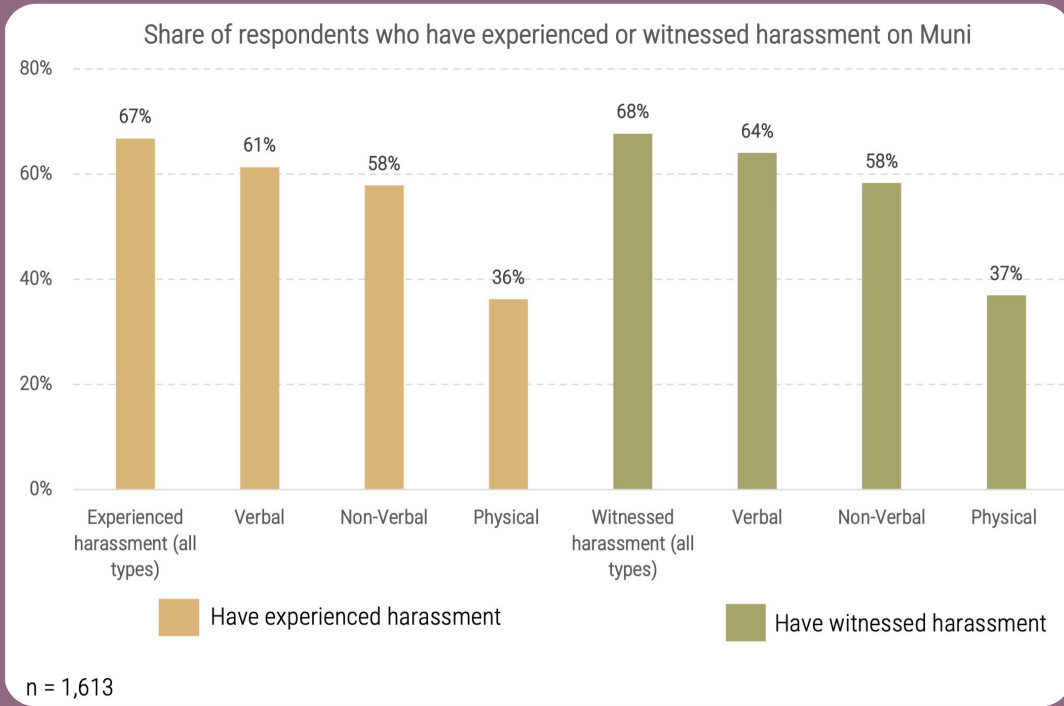


Chart 2: Share of respondents who have experienced or witnessed harassment on Muni

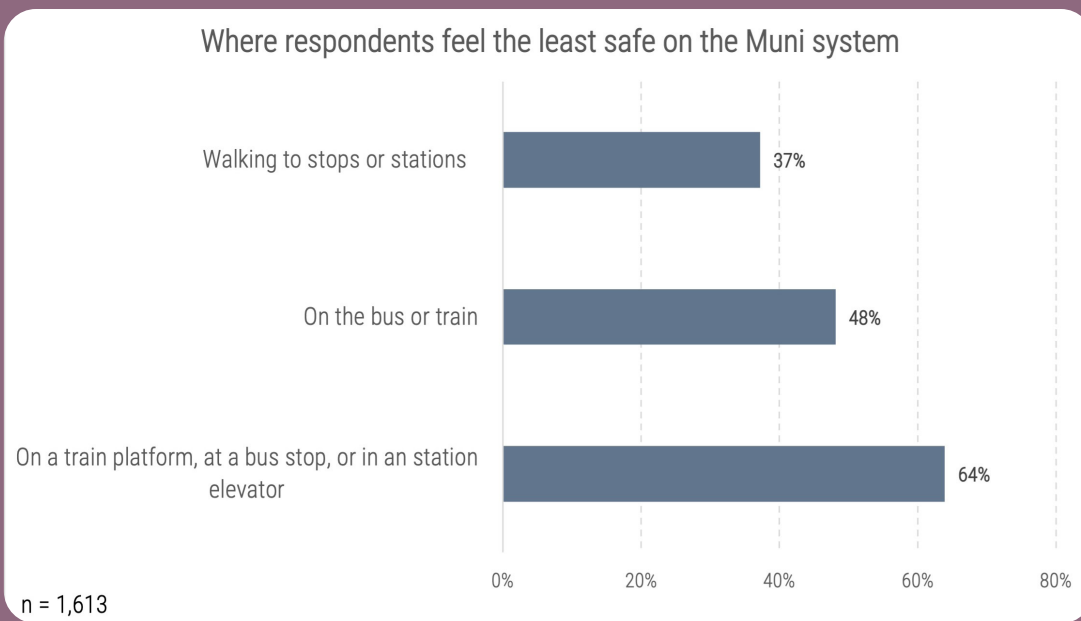


Chart 3: Locations where respondents felt the least safe on Muni

Table 4: Effects of gender identity on harassment

	Cis-Gender		Gender Minorities				TOTAL		Male vs. Female		Cis-Gender vs. Gender Minorities			
	Male	Female	Transgender	Gender Non-Binary				X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value			
TOTAL	750	-	707	-	47	-	79	-	1,613	-	alpha = 0.05	alpha = 0.05		
Experienced harassment (all types)**	415	55%	533	75%	42	89%	63	80%	1,077	67%	64.4 (1)	<0.0000	17.4 (1)	<0.0000
Verbal	375	50%	489	69%	38	81%	59	75%	989	61%	55.4 (1)	<0.0000	15.2 (1)	0.0001
Non-Verbal	337	45%	473	67%	41	87%	62	78%	933	58%	71.2 (1)	<0.0000	32.5 (1)	<0.0000
Physical	210	28%	282	40%	27	57%	39	49%	584	36%	15.2 (1)	0.0001	11.4 (1)	0.0007
Witnessed harassment (all types)**	469	63%	498	70%	41	87%	66	84%	1,092	68%	10.2 (1)	0.0014	18.3 (1)	<0.0000
Verbal	443	59%	468	66%	39	83%	63	80%	1,032	64%	7.9 (1)	0.0050	17.1 (1)	<0.0000
Non-Verbal	384	51%	439	62%	34	72%	60	76%	940	58%	17.6 (1)	<0.0000	15.6 (1)	0.0001
Physical	236	31%	264	37%	26	55%	44	56%	596	37%	3.7 (1)	0.0558	14.5 (1)	0.0001
Feel safe during the daytime*											31.9 (2)	<0.0000	24.0 (2)	<0.0000
Always/Often	579	77%	451	64%	30	64%	52	66%	1,102	68%				
Sometimes	113	15%	168	24%	4	9%	11	14%	318	20%				
Never/Rarely	54	7%	84	12%	13	28%	16	20%	179	11%				
Feel safe at nighttime*											95.2 (2)	<0.0000	3.6 (2)	0.1632
Always/Often	330	44%	155	22%	12	26%	21	27%	514	32%				
Sometimes	240	32%	241	34%	16	34%	31	39%	518	32%				
Never/Rarely	155	21%	276	39%	19	40%	26	33%	509	32%				
Where do you feel the least safe**														
On the bus or train	365	49%	341	48%	18	38%	29	37%	776	48%				
On a train platform, at a bus stop, or in an station elevator	419	56%	499	71%	39	83%	58	73%	1,031	64%				
Walking to stops or stations	216	29%	339	48%	12	26%	25	32%	600	37%				

Notes:

Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or grouping.

* total does not sum to 100% because "don't know / not sure" and Blank answers are not included

** total does not sum to 100% because respondents could select multiple options

The findings presented in Table 4 reveal that there are statistically significant differences between male and female and cis-gender people and gender minorities across almost all questions examined. This includes the share of respondents who have experienced or witnessed verbal, non-verbal, and physical harassment (except for between men and women who have witnessed physical harassment). The magnitude of the χ^2 test statistics (64.4 for all types, 55.4 for verbal harassment, and 71.2 for non-verbal harassment) for the chi-squared test comparing how many female and male respondents have experienced various types of harassment also reveals that there is a substantial difference between proportions of male and female respondents who have experienced harassment on transit. The findings are consistent with past research in this area. As noted in the literature review, several studies (Loukaitou-Sideris Et Al, 2020; Los Angeles Metro, 2019; Odbert et al., 2022; Loukaitou-Sideris Et Al, 2021) similarly found that women have experienced higher levels of harassment.

The differences in how many male and female respondents feel safe on transit during the daytime and nighttime is also statistically significant. The size of the χ^2 test statistics examining feelings of safety between female and male respondents during the daytime (31.9) and nighttime (95.2) shows that the observed frequencies deviate significantly from the expected frequencies between these two groups. Our findings of what share of female respondents feel safe during the day versus at night are consistent with what we found in the literature. For example, LA Metro (2019) found that 60 percent of female riders feel safe during the daytime (compared to our finding of 64 percent), but that only 20 percent feel safe during the nighttime (compared to our finding of 22 percent).

While less studied, our finding that gender minorities experience more harassment than cis gender individuals is consistent with findings from the Lubitow et al. (2017) interview-based research report, which found that gender minorities have experienced frequent harassment while engaging with the public transit systems. Additionally the LA Metro On-board Survey conducted in 2018 found that non-binary people are most likely to have been harassed (Los Angeles Metro, 2019).

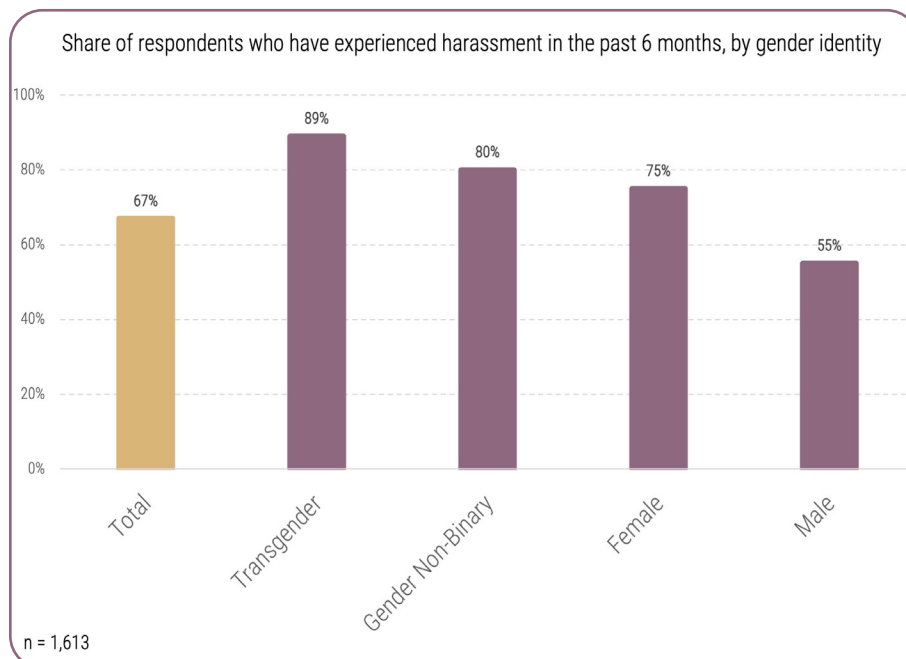


Chart 4: Share of respondents who have experienced harassment by gender identity

Table 5: Effects of race/ethnicity on harassment

	White		Black		Asian and/or Pacific Islander		Hispanic and/or Latinx		Middle Eastern and/or North African		Native American		TOTAL		White vs Black		White vs Asian and/or Pacific Islander		White vs Hispanic and/or Latinx	
	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value	X ² Statistic (df)	P-Value
TOTAL	875	-	76	-	412	-	159	-	40	-	24	-	1,613	-	alpha = 0.05		alpha = 0.05		alpha = 0.05	
Experienced harassment (all types)	522	60%	56	74%	296	72%	126	79%	31	78%	17	71%	1,077	67%	5.8 (1)	0.0163	96.7 (1)	<0.0000	22.1 (1)	<0.0000
Verbal	472	54%	55	72%	268	65%	115	72%	31	78%	16	67%	989	61%	9.6 (1)	0.0019	14.1 (1)	0.0002	18.5 (1)	<0.0000
Non-Verbal	431	49%	53	70%	264	64%	115	72%	30	75%	17	71%	933	58%	0.980 (1)	0.0006	1.0 (1)	<0.0000	1.0 (1)	<0.0000
Physical	237	27%	39	51%	169	41%	78	49%	25	63%	12	50%	584	36%	14.2 (1)	0.0002	17.2 (1)	<0.0000	21.3 (1)	<0.0000
Witnessed harassment (all types)	541	62%	60	79%	304	74%	126	79%	35	88%	21	88%	1,092	68%	8.8 (1)	0.0030	17.8 (1)	<0.0000	17.8 (1)	<0.0000
Verbal	503	57%	59	78%	291	71%	118	74%	34	85%	18	75%	1,032	64%	11.7 (1)	0.0006	20.5 (1)	<0.0000	15.7 (1)	0.0001
Non-Verbal	453	52%	50	66%	260	63%	115	72%	32	80%	18	75%	940	58%	0.9 (1)	0.0189	1.0 (1)	<0.0000	1.0 (1)	<0.0000
Physical	247	28%	41	54%	172	42%	78	49%	27	68%	12	50%	596	37%	15.3 (1)	0.0001	15.7 (1)	<0.0000	18.6 (1)	<0.0000
Feel safe during the daytime:															21.0 (2)	<0.0000	27.7 (2)	<0.0000	68.2 (2)	<0.0000
Always/Often	686	78%	52	68%	266	65%	80	50%	26	65%	13	54%	1,102	68%						
Sometimes	134	15%	8	11%	98	24%	42	26%	5	13%	4	17%	318	20%						
Never/Rarely	52	6%	15	20%	45	11%	36	23%	9	23%	7	29%	179	11%						
Feel safe at nighttime:															3.6 (2)	0.1688	39.7 (2)	<0.0000	39.0 (2)	<0.0000
Always/Often	351	40%	24	32%	96	23%	28	18%	9	23%	3	13%	514	32%						
Sometimes	275	31%	25	33%	154	37%	56	35%	12	30%	10	42%	518	32%						
Never/Rarely	209	24%	25	33%	147	36%	70	44%	18	45%	11	46%	509	32%						
Where do you feel the least safe:																				
On the bus or train	391	45%	32	42%	218	53%	82	52%	21	53%	8	33%	776	48%						
On a train platform, at a bus stop, or in an station elevator	527	60%	48	63%	273	66%	111	70%	26	65%	16	67%	1,031	64%						
Walking to stops or stations	313	36%	24	32%	163	40%	68	43%	18	45%	9	38%	600	37%						

Notes:
Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or grouping.
 * total does not sum to 100% because "don't know / not sure" and Blank answers are not included
 ** total does not sum to 100% because respondents could select multiple options

Table 5 includes cross-tabulations and chi-squared tests across different races and ethnicities. The results show that Hispanic, Black, and Asian and/or Pacific Islander respondents were more likely than white respondents to experience or witness harassment on Muni. This is consistent with several articles reviewed, which found white respondents reported less frequent harassment on transit (Odbert et al, 2022; Loukaitou-Sideris, 2020). Middle Eastern and/or North African and Native American respondents also had experienced and witnessed higher rates of harassment than white respondents, however the sample sizes were small (which is why they were not included in chi-squared tests). The chi-squared tests revealed that for all but one category, the difference between Black, Asian and/or Pacific Islander and Hispanic respondents were statistically significant.

Of particular note, the magnitude of the χ^2 test statistics between white and Asian and/or Pacific Islander respondents was 96.7, revealing that there is a substantial difference in the proportions of white versus Asian and/or Pacific Islander transit riders who have experienced harassment. This is consistent with the literature (Odbert et al, 2022; Loukaitou-Sideris, 2020) and aligns with recent growing concerns about how incidents of anti-Asian harassment on transit have increased since the pandemic (Federal Transit Administration, 2023).

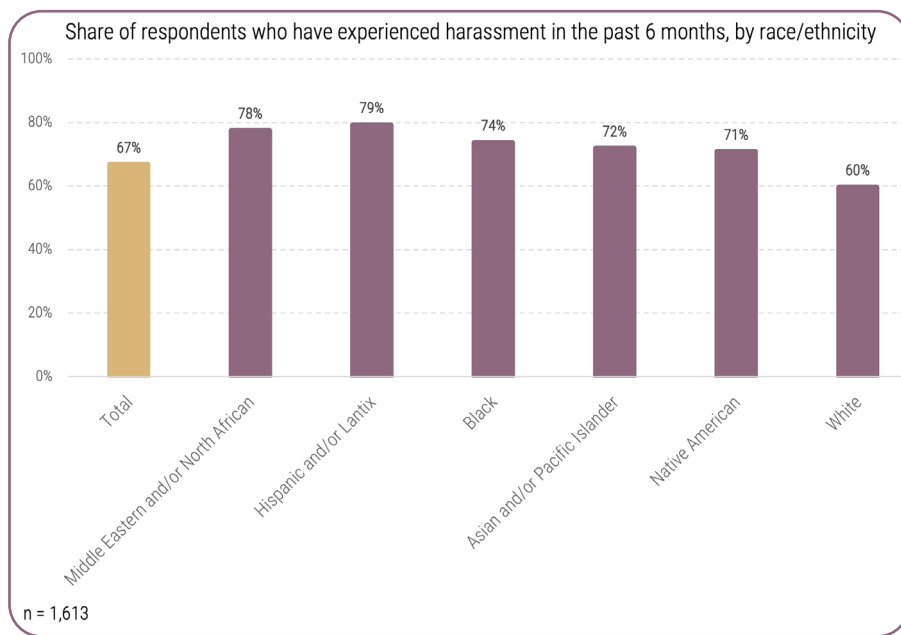


Chart 5: Share of respondents who have experienced harassment by race/ethnicity

Table 6 shows a cross-tabulation between age groups, harassment experiences, and perceptions of safety. The findings show that younger individuals have experienced the highest rates of harassment on transit. Among respondents 18 or under, 74 percent have experienced some form of harassment and among those age 19-34, 70 percent have experienced harassment. The subsequent three age groups all have consistently lower percentages in terms of the share of the sample that has experienced harassment. A similar trend holds true for those who have witnessed harassment, with the two youngest age groups displaying the highest rates in terms of the share of the sample that have witnessed harassment. Not much of the literature focused on differences across age groups, but one study found that younger respondents had heightened perceptions of fear while traveling (Odbert et al, 2022). In our sample, the youngest participants felt slightly more safe during the day and slightly less safe during the nighttime, otherwise safety perceptions were fairly consistent across age groups.

Table 6: Effects of age on harassment

	18 or under		19-34		35-54		55-74		75 or over		TOTAL	
TOTAL	81	-	463	-	464	-	403	-	126	-	1,613	-
Experienced harassment (all types)	60	74%	326	70%	310	67%	262	65%	62	49%	1,077	67%
Verbal	49	60%	297	64%	291	63%	238	59%	56	44%	989	61%
Non-Verbal	51	63%	296	64%	267	58%	219	54%	52	41%	933	58%
Physical	32	40%	160	35%	174	38%	141	35%	38	30%	584	36%
Witnessed harassment (all types)	54	67%	349	75%	319	69%	259	64%	61	48%	1,092	68%
Verbal	53	65%	326	70%	307	66%	242	60%	56	44%	1,032	64%
Non-Verbal	44	54%	305	66%	281	61%	223	55%	42	33%	940	58%
Physical	34	42%	178	38%	178	38%	141	35%	31	25%	596	37%
Feel safe during the daytime:												
Always/Often	48	59%	217	47%	199	43%	182	45%	52	41%	1,102	68%
Sometimes	13	16%	82	18%	110	24%	76	19%	14	11%	318	20%
Never/Rarely	2	2%	44	10%	57	12%	59	15%	4	3%	179	11%
Feel safe at nighttime:												
Always/Often	17	21%	148	32%	148	32%	138	34%	47	37%	514	32%
Sometimes	31	38%	165	36%	158	34%	117	29%	31	25%	518	32%
Never/Rarely	28	35%	137	30%	144	31%	134	33%	31	25%	509	32%
Where do you feel the least safe:												
On the bus or train	32	40%	225	49%	242	52%	213	53%	32	25%	776	48%
On a train platform, at a bus stop, or in an station	53	65%	322	70%	290	63%	261	65%	53	42%	1,031	64%
Walking to stops or stations	27	33%	179	39%	170	37%	156	39%	36	29%	600	37%

Notes:

Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or grouping.

* total does not sum to 100% because "don't know / not sure" and Blank answers are not included

** total does not sum to 100% because respondents could select multiple options

Table 7 includes cross-tabulations and chi-squared tests between people with disabilities and people without disabilities. The results show that people with disabilities experience statistically significant higher rates of verbal, non-verbal, and physical harassment on transit than people without disabilities. The trend is also true to a lesser extent for the share of people with disabilities who have witnessed harassment experiences, but this result is not statistically significant. There are also not statistically significant differences between people with disabilities and people without disabilities in terms of perceptions of safety during the daytime and nighttime. One of the reports reviewed in our literature review found that women with disabilities were more likely to have heightened fears while riding transit – while we did find that people disabilities have slightly heightened perceptions of fear on transit during the nighttime, the differences were not statistically significant (Odbert et al, 2022).

Table 8 includes cross-tabulations and chi-squared tests across respondents that have access to a private car versus those without access to a private car. From this variable, we can get a general sense of transit dependents' harassment experiences and perceptions of safety. Transit dependents are defined as "people who are too young, too old, can't afford, or do not have access to a personal automobile and rely on transit to reach their destinations" (UCLA ITS, 2014). The findings in Table 8 show that people without access to cars have experienced and witnessed the highest rates of harassment on transit (68 percent and 69 percent).

Through the chi-squared test, we see that there are statistically significant differences between people who have and do not have access to a private car across almost all questions examined. This includes the types of harassment experienced and witnessed (except for who have witnessed all types of harassment). When looking at the non-verbal harassment for experienced and witnessed, the magnitude of the χ^2 test statistics between people who have access to a car and people who don't have access to a car was 71.2. This demonstrates that there is a substantial difference in the proportions of people who have experienced harassment and have cars versus the rates of harassment among people who don't have a car. This goes to show that the differences of people who are transit dependent that have experienced harassment are statistically significant. Many women and gender minorities are transit dependent, and therefore are more exposed to experiencing and witnessing gender-based harassment. There are also statistically significant differences between people with cars and people without cars in terms of perceptions of safety during the daytime, but not at nighttime.

Table 9 includes cross-tabulations and chi-squared tests between people who use Muni as their primary means of transportation and people who don't use Muni as their primary means of transportation. From the cross-tabulations, respondents who use Muni as their primary means of transportation were more likely than respondents who do not use Muni as their primary transportation to experience or witness harassment on Muni. The chi-squared tests revealed that for all but one category (feeling safe at nighttime), the difference between respondents who have and have not used Muni as primary means of transportation were statistically significant. The magnitude of the χ^2 test statistics were the highest for experiencing and witnessing non-verbal harassment. This demonstrates there is a substantial difference between the two groups and shows that respondents who use Muni as their primary mode of transportation are more likely to experience harassment.

Table 7: Effects of disabilities on harassment

	People with Disabilities										People with disabilities vs people without disabilities	
	Blindness or vision impairment	Hearing impairment	Mobility disability	Cognitive or mental impairment	Another disability or disabling health condition	People without Disabilities	TOTAL	X ² Statistic (df)	P-Value			
TOTAL	47 -	76 -	174 -	47 -	38 -	1,072 -	1,613 -	alpha = 0.05	alpha = 0.05			
Experienced harassment (all types)	34 72%	47 62%	122 70%	39 83%	27 71%	706 66%	1,077 67%	2.7 (1)	0.1034			
Verbal	33 70%	43 57%	116 67%	36 77%	26 68%	642 60%	989 61%	5.2 (1)	0.0227			
Non-Verbal	30 64%	42 55%	109 63%	37 79%	25 66%	600 56%	933 58%	0.9 (1)	0.0094			
Physical	21 45%	27 36%	77 44%	26 55%	15 39%	370 35%	584 36%	5.1 (1)	0.0135			
Witnessed harassment (all types)	29 62%	52 68%	124 71%	38 81%	25 66%	718 67%	1,092 68%	1.3 (1)	0.2534			
Verbal	28 60%	46 61%	117 67%	37 79%	25 66%	681 64%	1,032 64%	0.9 (1)	0.3437			
Non-Verbal	26 55%	42 55%	107 61%	33 70%	24 63%	612 57%	940 58%	0.6 (1)	0.2153			
Physical	15 32%	30 39%	76 44%	23 49%	15 39%	373 35%	596 37%	3.6 (1)	0.0582			
Feel safe during the daytime:								0.1 (2)	0.9569			
Always/Often	34 72%	57 75%	116 67%	35 74%	26 68%	743 69%	1,102 68%					
Sometimes	7 15%	8 11%	37 21%	10 21%	9 24%	199 19%	318 20%					
Never/Rarely	6 13%	11 14%	20 11%	2 4%	3 8%	123 11%	179 11%					
Feel safe at nighttime:								1.79 (2)	0.4087			
Always/Often	17 36%	20 26%	51 29%	14 30%	11 29%	356 33%	514 32%					
Sometimes	12 26%	21 28%	49 28%	22 47%	13 34%	343 32%	518 32%					
Never/Rarely	16 34%	27 36%	61 35%	11 23%	13 34%	331 31%	509 32%					
Where do you feel the least safe:												
On the bus or train	13 28%	34 45%	75 43%	20 43%	18 47%	523 49%	776 48%					
On a train platform, at a bus stop, or in an station	28 60%	36 47%	116 67%	31 66%	18 47%	702 65%	1,031 64%					
Walking to stops or stations	23 49%	35 46%	75 43%	19 40%	18 47%	392 37%	600 37%					

Notes:

Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or groping.

* total does not sum to 100% because "don't know / not sure" and Blank answers are not included

** total does not sum to 100% because respondents could select multiple options

Table 8: Effects of car ownership on harassment

	Access to a private car						Access to a private car vs. no access to a private car	
	Yes		No		TOTAL		X ² Statistic (df)	P-Value
TOTAL	771	-	747	-	1,613	-	alpha = 0.05	
Experienced harassment (all types)**	474	61%	505	68%	1,077	67%	6.2 (1)	0.0127
Verbal	430	56%	474	63%	989	61%	9.3 (1)	0.0023
Non-Verbal	397	51%	447	60%	933	58%	71.2 (1)	0.0011
Physical	227	29%	294	39%	584	36%	10.9 (1)	0.0010
Witnessed harassment (all types)**	488	63%	513	69%	1,092	68%	3.1 (1)	0.0776
Verbal	455	59%	486	65%	1,032	64%	8.1 (1)	0.0045
Non-Verbal	412	53%	445	60%	940	58%	71.2 (1)	0.0160
Physical	236	31%	293	39%	596	37%	8.1 (1)	0.0045
Feel safe during the daytime*							28.1 (2)	<0.0000
Always/Often	546	71%	474	63%	1,102	68%		
Sometimes	163	21%	121	16%	318	20%		
Never/Rarely	57	7%	114	15%	179	11%		
Feel safe at nighttime*							4.5 (2)	0.1000
Always/Often	264	34%	228	31%	514	32%		
Sometimes	251	33%	221	30%	518	32%		
Never/Rarely	215	28%	239	32%	509	32%		
Where do you feel the least safe**								
On the bus or train	380	49%	342	46%	776	48%		
On a train platform, at a bus stop, or in an s	469	61%	471	63%	1,031	64%		
Walking to stops or stations	294	38%	245	33%	600	37%		

Notes:

Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or grouping.

Multivariate Analysis:

* total does not sum to 100% because "don't know / not sure" and Blank answers are not included

** total does not sum to 100% because respondents could select multiple options

Table 9: Effects of Muni as primary means of transportation on harassment

	Muni is primary mean of transportation						Muni is primary mean transportation vs. Muni is not primary means of transportation	
	Yes		No		TOTAL		X ² Statistic (df)	P-Value
TOTAL	1,075	-	461	-	1,613	-	alpha = 0.05	
Experienced harassment (all types)**	756	70%	249	54%	1,077	67%	18.8 (1)	<0.0000
Verbal	695	65%	224	49%	989	61%	34.6 (1)	<0.0000
Non-Verbal	671	62%	201	44%	933	58%	71.2 (1)	<0.0000
Physical	428	40%	113	25%	584	36%	21.4 (1)	<0.0000
Witnessed harassment (all types)**	755	70%	267	58%	1,092	68%	37.5 (1)	<0.0000
Verbal	711	66%	250	54%	1,032	64%	17.2 (1)	<0.0000
Non-Verbal	660	61%	220	48%	940	58%	71.2 (1)	<0.0000
Physical	433	40%	125	27%	596	37%	15.4 (1)	0.0001
Feel safe during the daytime*							16.8 (2)	0.0002
Always/Often	752	70%	283	61%	1,102	68%		
Sometimes	163	15%	104	23%	318	20%		
Never/Rarely	57	5%	36	8%	179	11%		
Feel safe at nighttime*							0.110 (2)	0.9465
Always/Often	352	33%	131	28%	514	32%		
Sometimes	347	32%	134	29%	518	32%		
Never/Rarely	344	32%	127	28%	509	32%		
Where do you feel the least safe**								
On the bus or train	509	47%	214	46%	776	48%		
On a train platform, at a bus stop, or in an station	731	68%	234	51%	1,031	64%		
Walking to stops or stations	397	37%	159	34%	600	37%		

Notes:

Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or grouping.

Multivariate Analysis:

* total does not sum to 100% because "don't know / not sure" and Blank answers are not included

** total does not sum to 100% because respondents could select multiple options

Table 10 shows a cross-tabulation between frequency of Muni ridership and harassment experiences and perceptions of safety. The findings show that people who use Muni everyday have experienced and witnessed the highest rates of harassment on transit. Among respondents who use Muni everyday, 79 percent have experienced some form of harassment and among the group that use Muni once a month, 21 percent have experienced harassment. The less frequent groups have lower percentages in terms of the share of the sample that has experienced harassment. Respondents who never use Muni have a high percentage of experiencing harassment, and our interpretation is that it is because of harassments they faced before that they don't take Muni anymore. Looking at the perception of safety, we see that respondents who use Muni a few times a month have the highest percentage of feeling safe during the daytime and nighttime. For the locations of where respondents feel the least safe, it is shown that across various frequencies of ridership, on a train platform, at a bus stop, or in a station elevator are the places that respondents have felt the least safe.

Table 11 shows a cross-tabulation between frequency of traveling alone on Muni and harassment experiences and perceptions of safety. The findings show that people who always or often travel alone on Muni have experienced and witnessed the highest rates of harassment on transit (68 percent and 69 percent), with verbal forms of harassment being the most common. Compared to respondents who always or often travel alone, the samples of those who travel sometimes, rarely or never are quite smaller, therefore, it is difficult to compare their experiences and perceptions of safety.

Table 10: Effects of frequency of Muni ridership on harassment

	Frequency of Muni Ridership										TOTAL	
	Everyday		A few times a week		A few times a month		Once a month or less		Never			
TOTAL	527	-	674		272		99	-	30	-	1,613	-
Experienced harassment (all types)**	416	79%	428	64%	150	55%	57	21%	20	67%	1,077	67%
Verbal	381	72%	399	59%	131	48%	52	19%	20	67%	989	61%
Non-Verbal	376	71%	363	54%	119	44%	52	19%	17	57%	933	58%
Physical	263	50%	201	30%	70	26%	31	11%	14	47%	584	36%
Witnessed harassment (all types)**	411	78%	433	64%	162	60%	60	22%	20	67%	1,092	68%
Verbal	392	74%	411	61%	146	54%	56	21%	20	67%	1,032	64%
Non-Verbal	374	71%	358	53%	136	50%	48	18%	18	60%	940	58%
Physical	273	52%	202	30%	72	26%	29	11%	15	50%	596	37%
Feel safe during the daytime*												
Always/Often	335	64%	485	72%	209	77%	61	22%	8	27%	1,102	68%
Sometimes	92	17%	142	21%	43	16%	28	10%	9	30%	318	20%
Never/Rarely	97	18%	42	6%	19	7%	9	3%	12	40%	179	11%
Feel safe at nighttime*												
Always/Often	140	27%	243	36%	104	38%	23	8%	3	10%	514	32%
Sometimes	168	32%	231	34%	81	30%	31	11%	5	17%	518	32%
Never/Rarely	205	39%	180	27%	68	25%	32	12%	20	67%	509	32%
Where do you feel the least safe**												
On the bus or train	275	52%	318	47%	123	45%	41	15%	16	53%	776	48%
On a train platform, at a bus stop, or in an station elevator	382	72%	422	63%	145	53%	62	23%	18	60%	1,031	64%
Walking to stops or stations	190	36%	262	39%	92	34%	38	14%	15	50%	600	37%

Notes:

Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or grouping.

Multivariate Analysis:

* total does not sum to 100% because "don't know / not sure" and Blank answers are not included

** total does not sum to 100% because respondents could select multiple options

Table 11: Effects of frequency of traveling alone on Muni on harassment

	Frequency of traveling alone on Muni						TOTAL	
	Always/Often		Sometimes		Rarely/Never			
TOTAL	1,411	-	127		31		1,613	-
Experienced harassment (all types)**	958	68%	73	57%	18	58%	1,077	67%
Verbal	877	62%	68	54%	16	52%	989	61%
Non-Verbal	831	59%	62	49%	15	48%	933	58%
Physical	514	36%	37	29%	12	39%	584	36%
Witnessed harassment (all types)**	973	69%	77	61%	15	48%	1,092	68%
Verbal	914	65%	75	59%	15	48%	1,032	64%
Non-Verbal	834	59%	68	54%	13	42%	940	58%
Physical	519	37%	44	35%	12	39%	596	37%
Feel safe during the daytime*								
Always/Often	972	69%	94	74%	22	71%	1,102	68%
Sometimes	272	19%	26	20%	7	23%	318	20%
Never/Rarely	159	11%	7	6%	1	3%	179	11%
Feel safe at nighttime*								
Always/Often	445	32%	51	40%	13	42%	514	32%
Sometimes	222	16%	39	31%	9	29%	518	32%
Never/Rarely	447	32%	30	24%	7	23%	509	32%
Where do you feel the least safe**								
On the bus or train	693	49%	52	41%	12	39%	776	48%
On a train platform, at a bus stop, or in an st	922	65%	75	59%	14	45%	1,031	64%
Walking to stops or stations	523	37%	50	39%	8	26%	600	37%

Notes:

Types of harassment: Verbal includes inappropriate language; Non-verbal includes staring or leering, stalking, indecent exposure, and sexual gestures; Physical category includes inappropriate touching or grouping.

Multivariate Analysis:

* total does not sum to 100% because "don't know / not sure" and Blank answers are not included

** total does not sum to 100% because respondents could select multiple options

Verbatim Comments Analysis

The survey included a qualitative question asking, “At which Muni lines, stations, or stop locations have you experienced or seen gender-based/sexual harassment or violence?” Respondents filled out the answer with written responses, and we analyzed the results by counting the frequency of the words within a list of key terms, including neighborhoods, Muni stations, and lines. 687 out of 1,613 respondents (43 percent) input location data through the written response option. We did not combine the written responses with the spatial mapping responses because many verbatim comments are on a bigger scale, like the neighborhoods and a section of the bus routes, making them hard to compare with point data. The comments are also much more scattered, making it less consistent if analyzed with the point data. Therefore we analyzed the verbatim comments independently and compared the findings with our spatial data.

Table 12 demonstrates the frequency of Muni key terms, and the five most frequently written words are Mission, Civic Center, Market, Powell, and Van Ness. The results show that the Muni Metro system has a high frequency of people experiencing and seeing harassment. Other than Muni Metro, the bus route that has the highest frequency of people reporting experiencing harassment is the 38 Geary. Once the data is disaggregated by gender there are disparities between the Muni stations and lines where the two groups have experienced harassment (see Appendix C and D). Women and gender minorities are combined, with 291 written responses from men and 397 written responses from women and gender minorities. There is a higher percentage of women and gender minorities experiencing harassment on 38 Geary (10 percent) compared to men (7 percent). We see a general trend that women and gender minorities experience harassment in more dispersed locations and have a higher frequency of harassment on buses than men. This trend is consistent with the spatial analysis in the following section.

Table 12: Frequency of Muni key terms

Key Terms	Total Counts (with %)	% of total men	% of total women and gender minorities	Key Terms	Total Counts (with %)	% of total men	% of total women and gender minorities
Mission	125 (11%)	16%	18%	52	13 (1%)	1%	3%
Civic Center	103 (9%)	14%	14%	5	12 (1%)	1%	2%
Market	80 (7%)	9%	12%	k	11 (1%)	1%	2%
Powell	73 (6%)	10%	11%	31	11 (1%)	0%	3%
Van Ness	62 (5%)	8%	8%	30	10 (1%)	1%	2%
38	59 (5%)	7%	10%	Haight	10 (1%)	0%	2%
Geary	57 (5%)	7%	9%	7	10 (1%)	0%	3%
14	46 (5%)	7%	6%	J	9 (1%)	1%	2%
n	35 (3%)	4%	5%	F	8 (1%)	0%	2%
49	35 (3%)	4%	6%	SOMA	8 (1%)	1%	1%
Church	25 (2%)	2%	5%	28	8 (1%)	1%	2%
Tenderloin	24 (2%)	3%	3%	44	7 (1%)	1%	1%
Castro	22 (2%)	3%	3%	5R	7 (1%)	0%	2%
Montgomery	21(2%)	2%	3%	Forest Hill	7 (1%)	1%	1%
Embarcadero	21 (2%)	2%	3%	48	7 (1%)	1%	1%
22	20 (2%)	3%	3%	27	7 (1%)	0%	2%
38R	16 (1%)	3%	2%	33	6 (1%)	1%	1%
T	16 (1%)	3%	2%	54	5 (0%)	0%	1%
24	15 (1%)	1%	3%	12	5 (0%)	0%	1%
9	15 (1%)	1%	3%	45	4 (0%)	0%	1%
14R	14 (1%)	2%	2%	43	4 (0%)	0%	1%
L	14 (1%)	1%	2%	6	2 (0%)	0%	1%
M	14 (1%)	1%	3%	9R	2 (0%)	0%	0%
19	14 (1%)	2%	2%	15	2 (0%)	0%	0%
29	13 (1%)	2%	2%	23	1 (0%)	0%	0%
1	13 (1%)	0%	3%	67	1 (0%)	0%	0%
8	13 (1%)	3%	1%	21	1 (0%)	0%	0%
West Portal	13 (1%)	1%	2%	47	1 (0%)	0%	0%

In order to recommend safety interventions, particularly for women and gender minorities, on where geographically safety should be prioritized, we analyzed the spatial patterns of gender-based harassment in San Francisco based on our survey data. For this study, we used spatial analysis tools in ArcGIS, such as hotspot analysis, clustering, and summarize buffering.

In the experience section of the survey, we asked survey takers where they had experienced or seen gender-based/sexual harassment while riding on transit, traveling to/from transit stops, or waiting at stops/stations. In the survey, there was an interactive map for respondents to pinpoint the spot of the incident or the most common spot of incidents. 299 out of 1,613 respondents (18.5 percent) input location data through geospatial pins. Here we are using these points for a spatial analysis.

Part 1: Hotspot Analysis of Gender-Based Harassment Incidents

Map 1 visualizes densities or concentrations of incident points over the City of San Francisco. The map on the left was generated through kernel density, calculating a one-mile search radius (a radius used in the algorithm to calculate density). Kernel density has no statistical value and cannot be tested for significance. Therefore, the map on the right uses optional hot spot analysis, implying statistical significance by mapping out the cold and hot spots with 90 percent, 95 percent, and 99 percent confidence. Areas in red symbolize large (hot) clusters, and areas that are not statistically significant are symbolized in gray.

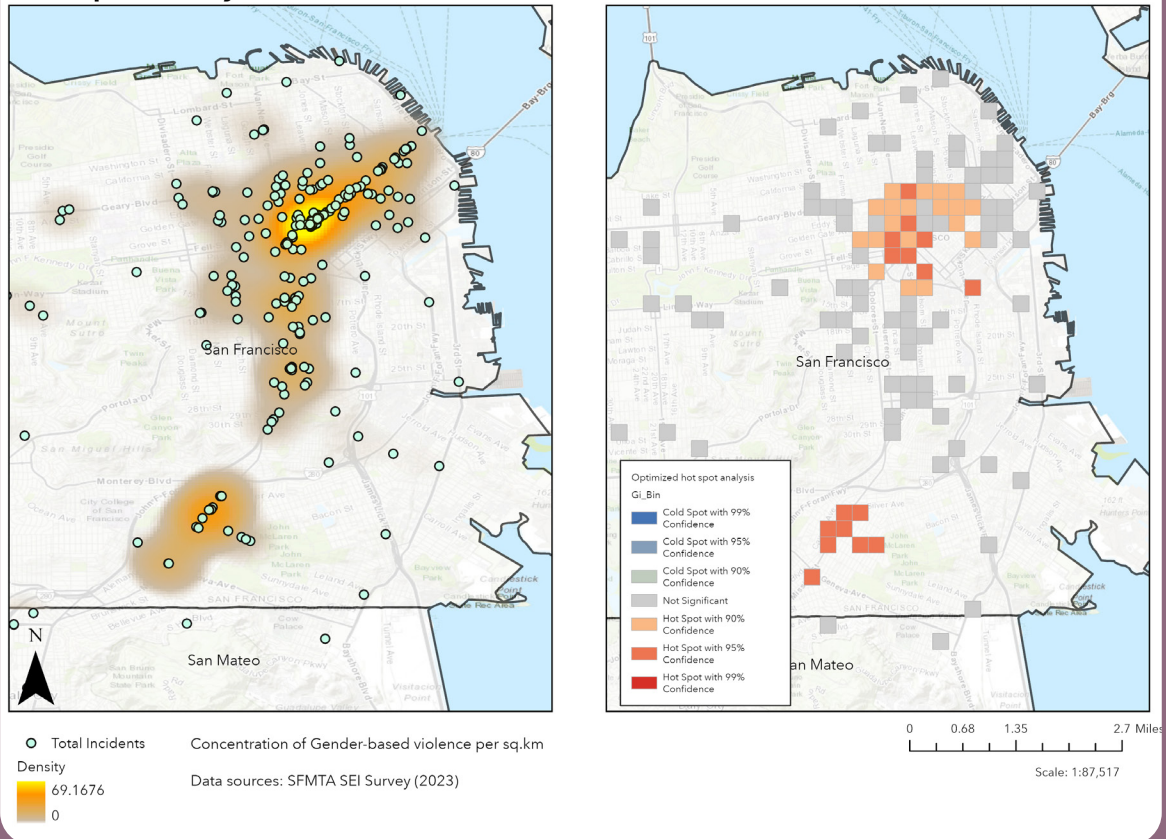
From Map 1, we see two clusters; one is in downtown San Francisco, and the other is around Mission Terrace. Map 2 demonstrates neighborhoods in these clusters that are also hotspots with 90 percent to 99 percent confidence. For downtown San Francisco, the neighborhoods are Civic Center, Tenderloin, Cathedral Hill, Hayes Valley, Mint Hill, and Showplace Square. The other cluster includes neighborhoods Mission Terrace and Excelsior. These neighborhoods are statistically significant hotspots.

Map 3 demonstrates the hotspots when we disaggregate the incident points by gender. There are a total of 122 incidents points that men experienced. The concentration of men experiencing harassment is mainly located in downtown San Francisco. Lower Nob Hill, Tenderloin, Civic Center, and South of Market neighborhoods are statistically significant hotspots in Map 4.

Map 5 demonstrates the hotspots of harassment experienced by women and gender minorities. There are 129 incidents points that women and gender minorities experienced. The concentration of women and gender minorities experiencing harassment is mainly in downtown San Francisco, Mission Terrace, and Excelsior. However, the optimized hot spot analysis shows that Mission Terrace and Excelsior in Map 6 are statistically significant neighborhoods.

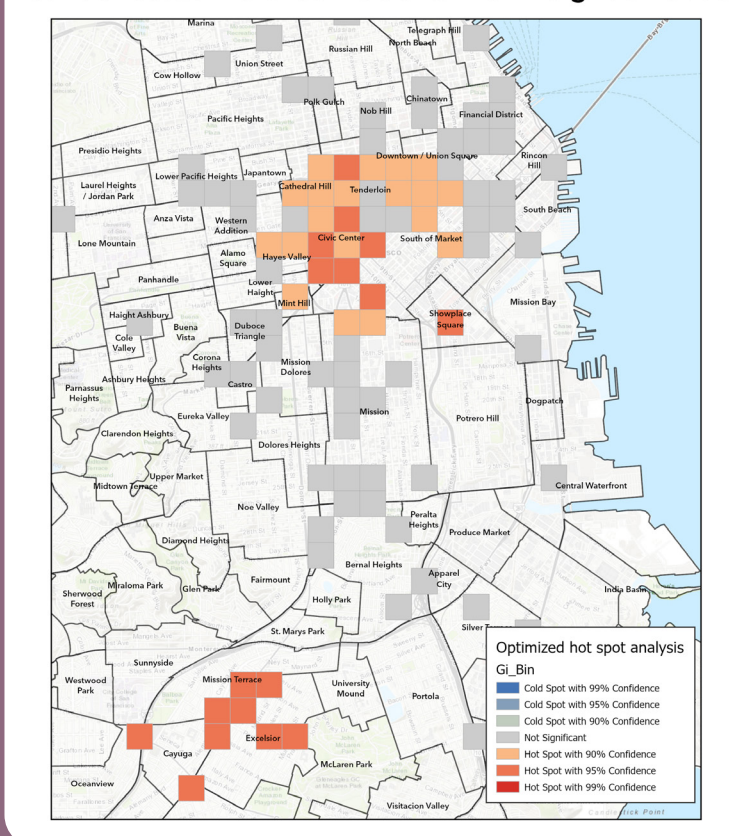
Comparing hotspots that all respondents, men and women, and gender minorities experienced, we see a high density of incidents in downtown San Francisco; both men and women/gender minorities have experienced the most incidents in these areas. Women and gender minorities have experienced gender-based harassment in more locations and more dispersed areas than men. From the cold and hot spot analysis, we see the statistically significant spots for men are downtown, whereas for women and gender minorities they are in Mission Terrace.

Hot Spot Analysis of Gender-based Violence Incidents in San Francisco



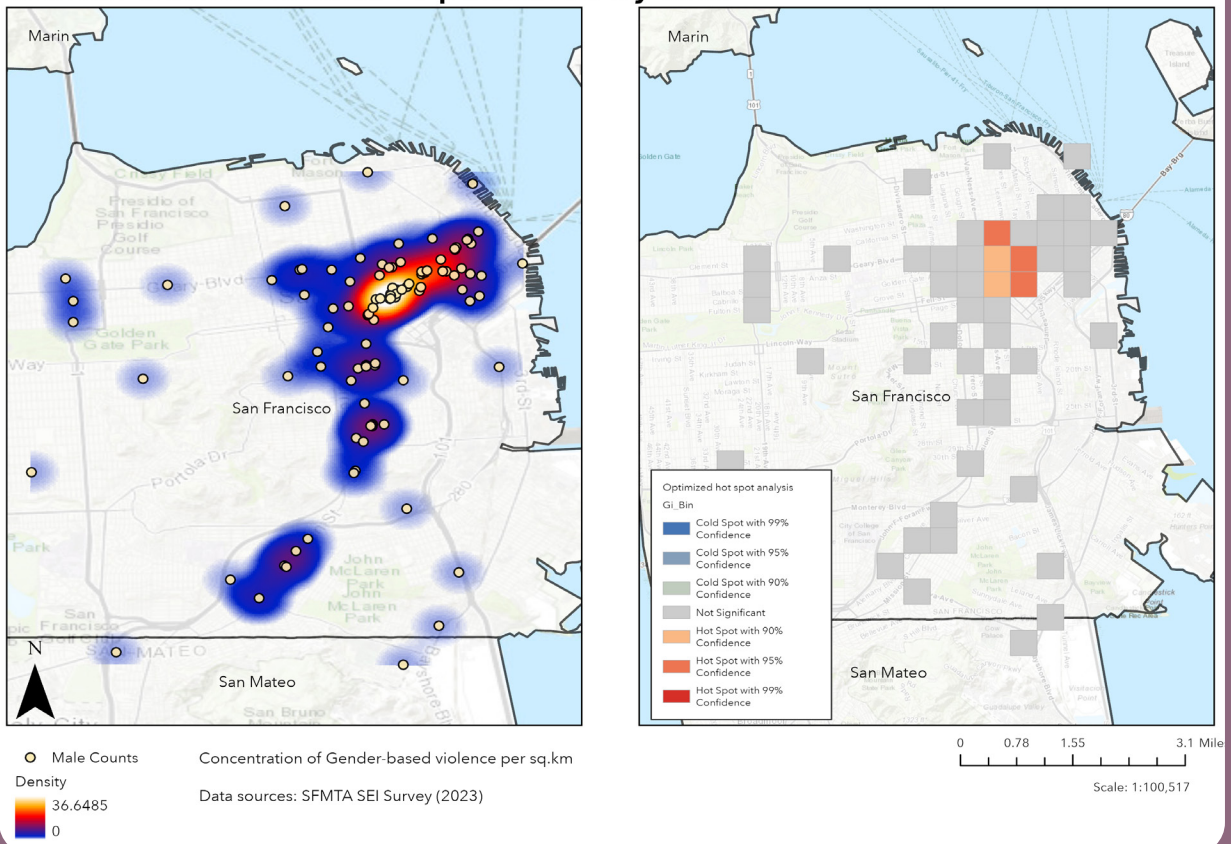
Map 1: Hotspot analysis of gender-based harassment incidents in San Francisco

Gender-based Violence Incidents in SF Neighborhoods



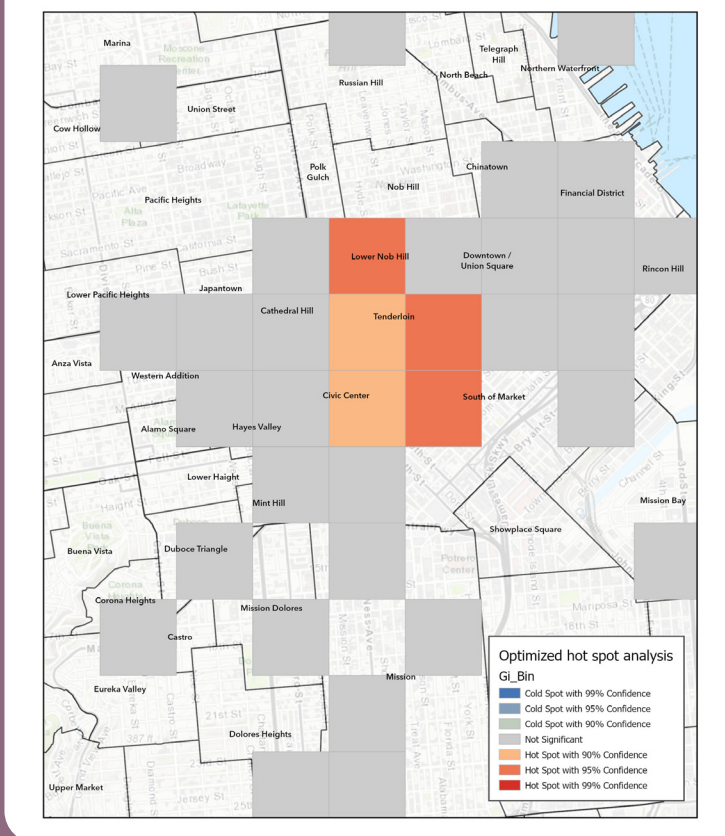
Map 2: Hotspot neighborhoods

Gender-based Violence Experienced by Men



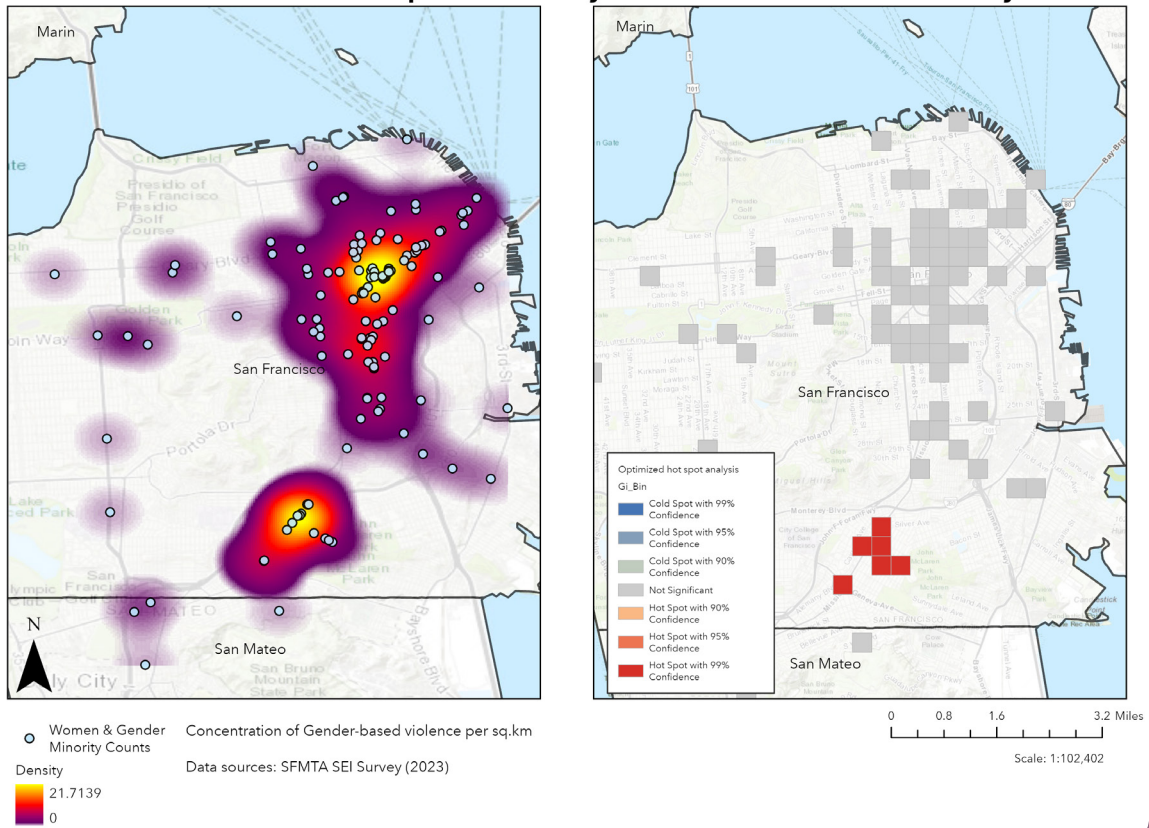
Map 3: Hotspot analysis of gender-based harassment experienced by men in San Francisco

Gender-based Violence Incidents in SF Neighborhoods



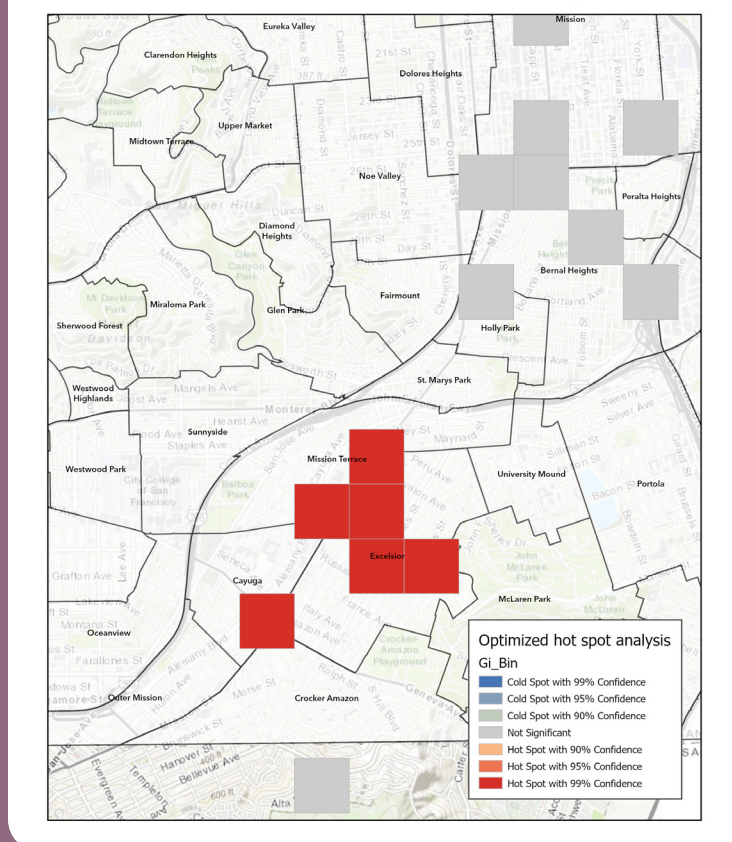
Map 4: Hotspot neighborhoods of harassment experienced by men

Gender-based Violence Experienced by Women & Gender Minority



Map 5: Hotspot analysis of gender-based harassment experienced by women & gender minorities in San Francisco

Gender-based Violence Incidents in SF Neighborhoods



Map 6: Hotspot neighborhoods of harassment experienced by women and gender minorities

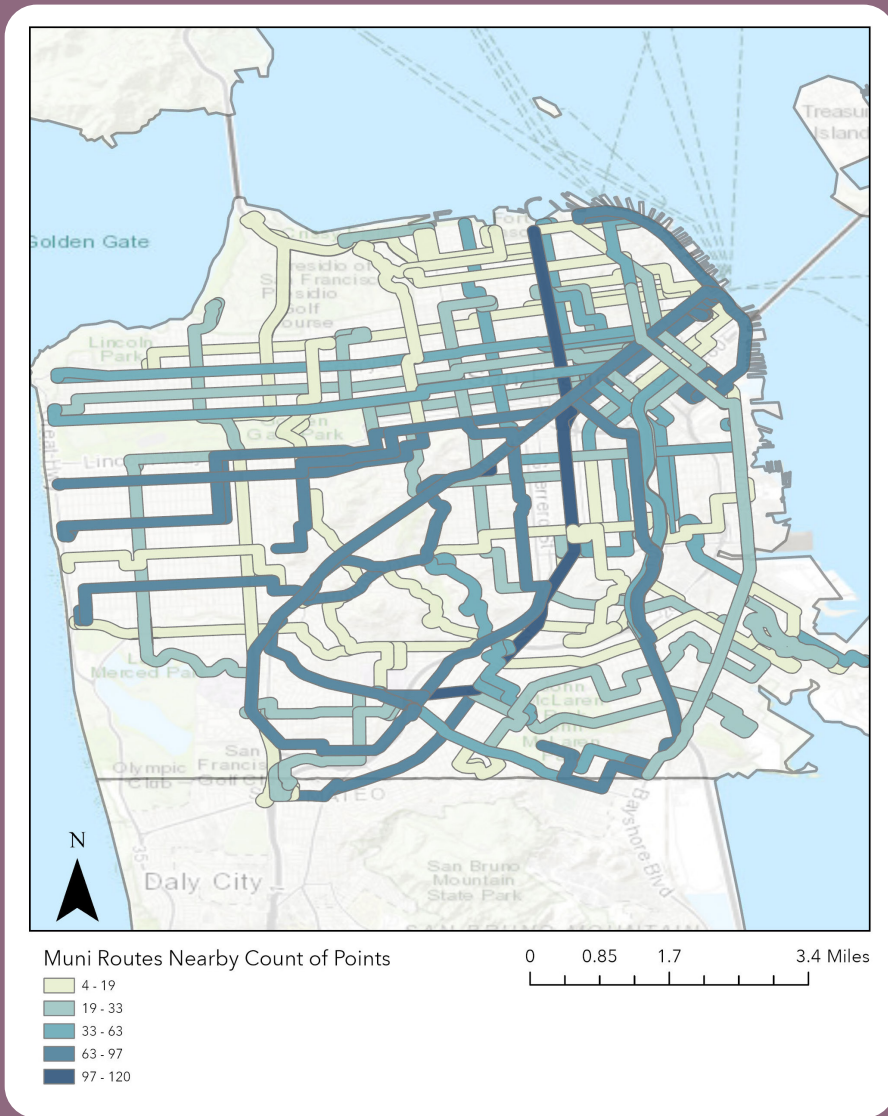
Part 2: Hotspot Analysis of Gender-Based Harassment Incidents

By overlaying the incident heatmap with the Muni layers, including the transit routes and stops, we can see which routes and stops have gender-based harassment clusters. The incidents were counted more than once (across multiple lines) because the analysis takes into account all incidents in a buffer of 100 meters from a Muni route or station.

Map 7 calculates the number of incidents within a 100 meters distance of Muni transit routes and demonstrates the transit lines that would need prioritization and safety improvements. The data points from verbatim comments were also added. Chart 6 shows the route names by the amount of gender-based harassment incidents within the distance. We see that the five routes with the highest gender-based harassment reports are 14 Mission, N Judah Muni Metro, 49 Van Ness/Mission, L Owl, and M Muni Metro. The 14 Mission has a total of 120 incidents and passes through downtown/civic center and the Mission. The L Owl is an all-nighter service and runs every half hour between 1 and 5 a.m. nightly, serving off-peak commuters.

Using the same method of creating a buffer from transit routes, we analyzed the transit stops in Map 8. The ten stops with the highest gender-based harassment are shown in Chart 7. Most stations are located in downtown San Francisco and the Mission District.

Chart 8 shows which mode of transportation people experienced the most harassment between Muni Metro and buses. By summing the number of incidents in each transit route and categorizing them by the two modes, Muni buses have 1,583 incidents. This significant number is because some spots are double counted due to transit lines overlapping or being very close to each other.



Map 7: Harassment incidents around Muni routes

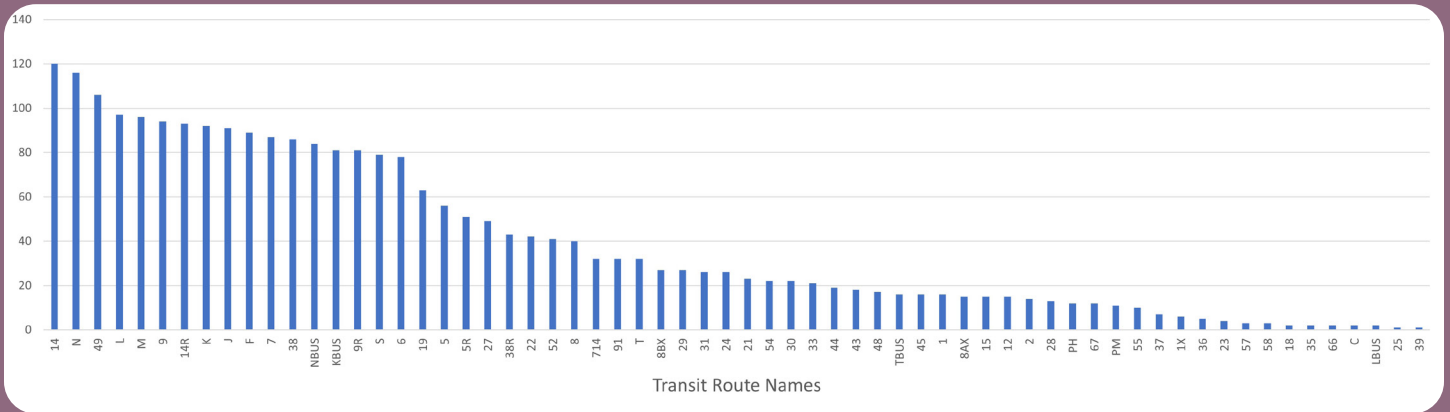
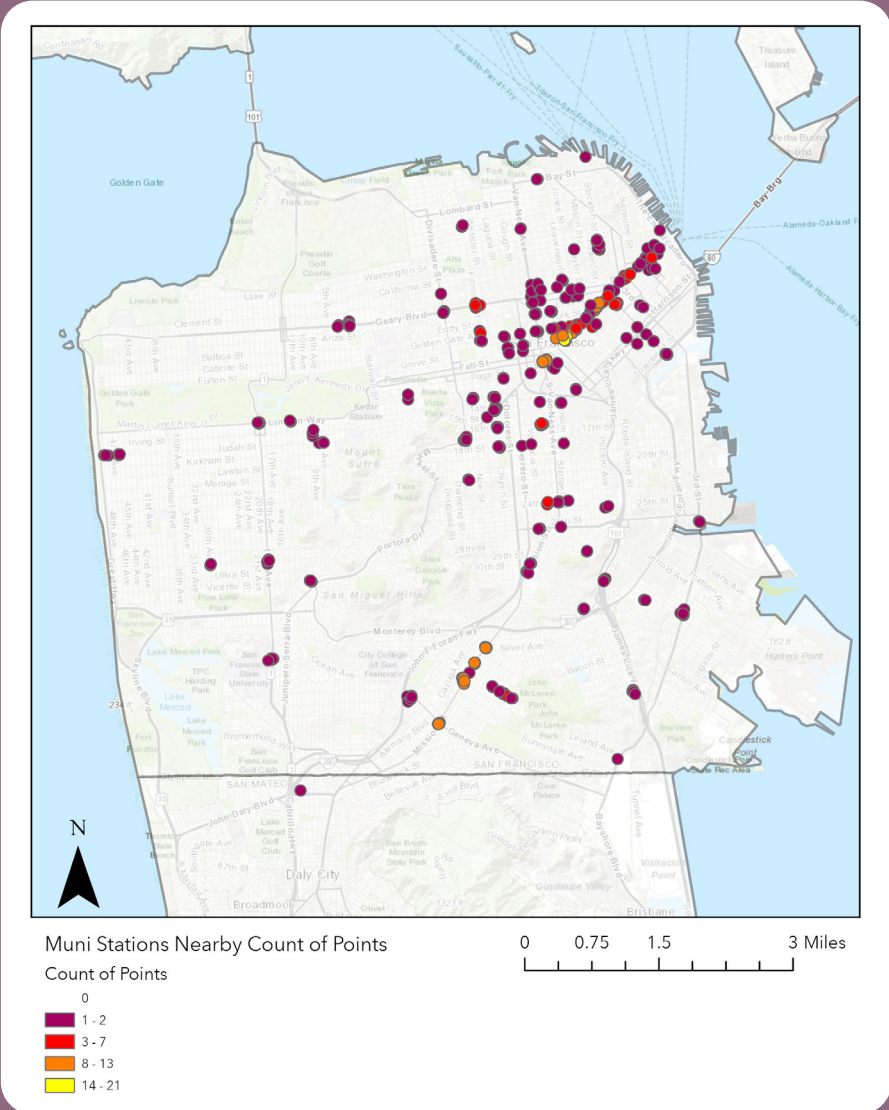


Chart 6: Sum of incident counts by Muni routes



Map 8: Harassment incidents around Muni stops

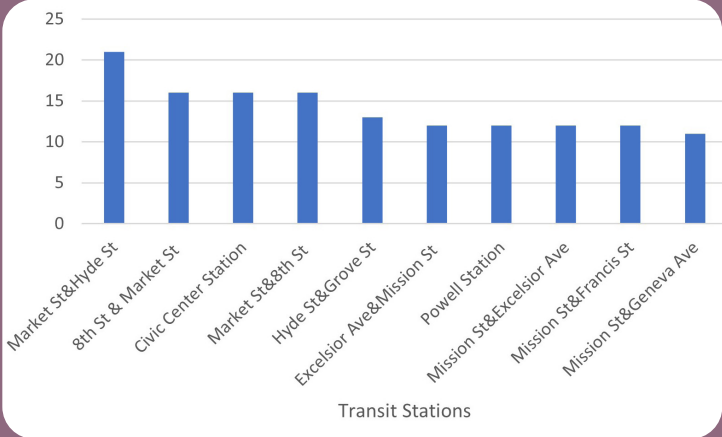


Chart 7: Sum of incident counts by Muni stops

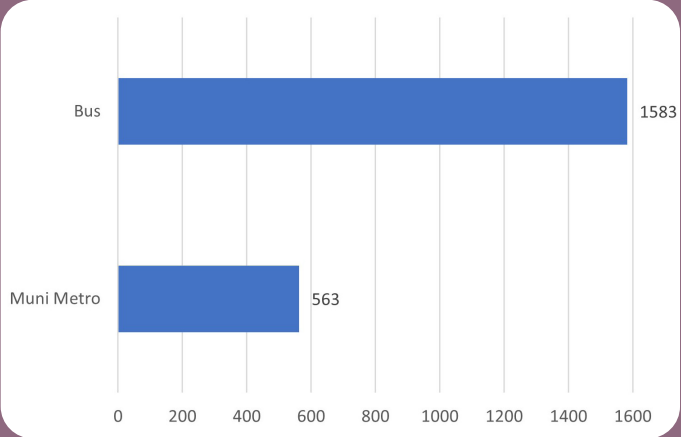


Chart 8: Distribution of gender-based harassment on different modes of Muni

Reporting and Safety Solutions

As discussed in the literature review above, typically the majority of harassment incidents on transit go unreported. To understand the magnitude of underreporting on Muni, our survey included several questions asking if respondents had reported gender-based harassment on Muni and why people chose not to report. As depicted in Chart 9, only 6 percent of respondents had reported incidents they witnessed or experienced, despite the fact that 66 percent had witnessed and 67 percent had experienced harassment in the last six months. This high level of underreporting is consistent with what was found in the literature review, research that has been conducted in New York (96 percent did not report incidents), Los Angeles (only 10 percent reported incidents), and at San Jose State University (only 10 percent reported incidents).

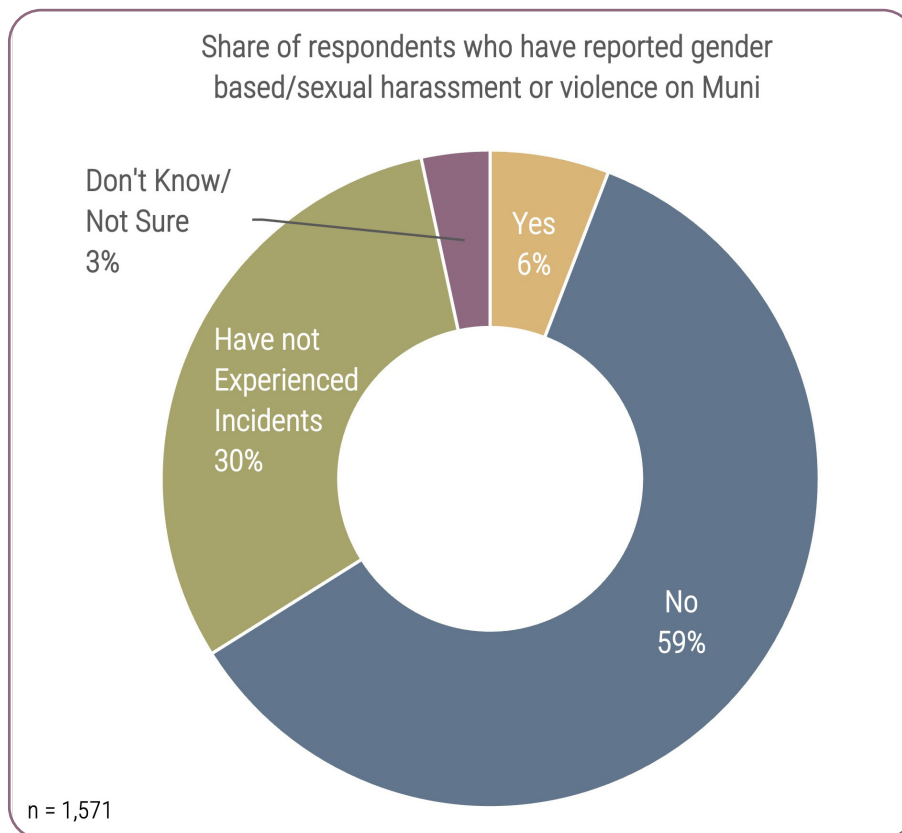


Chart 9: Reporting of gender-based/sexual harassment on Muni

Among those who did not report incidents, we also asked what reasons contributed to their decision to not report incidents they observed or experienced. As shown in Chart 10, we found that almost two thirds (62 percent) of people who did not report harassment incidents said that the reason was that they did not think reporting would make a difference. About a third of respondents said they did not think the situation was serious enough to report and 28 percent said they did not know how to file reports. A common write-in response to the “other” option was that people did not want to report individuals that they perceived to have mental health issues, were experiencing homelessness, or dealing with substance abuse challenges.

Some of these reasons came up in the literature. Specifically, Ball and Wesson’s (2017) findings that bystanders are less likely to intervene or report when incidents are perceived to be less serious, which aligns with our finding that people did not report incidents because they did not find them serious enough. LA Metro found that people did not report because they were not aware of the main reporting channels or did not know how to submit reports, which is consistent with our finding that many individuals did not report because they don’t know how to file a report. Furthermore, Whitzman (2020) found that distrust in the justice system to provide a satisfactory response or doubt that the perpetrator would be ‘caught’ was a top reason people did not report. This is consistent with the top reason from our survey, that people did not think reporting would make a difference.

The responses about why individuals did not report incidents did not vary much by demographic (see Appendix A). Across all gender identities and race/ethnicities “I didn’t think reporting would make a difference” was the most common reason for not reporting. Similarly the second most common reason for most all demographic groups is that they did not find the situation serious enough to report or that they didn’t know how to file a report.

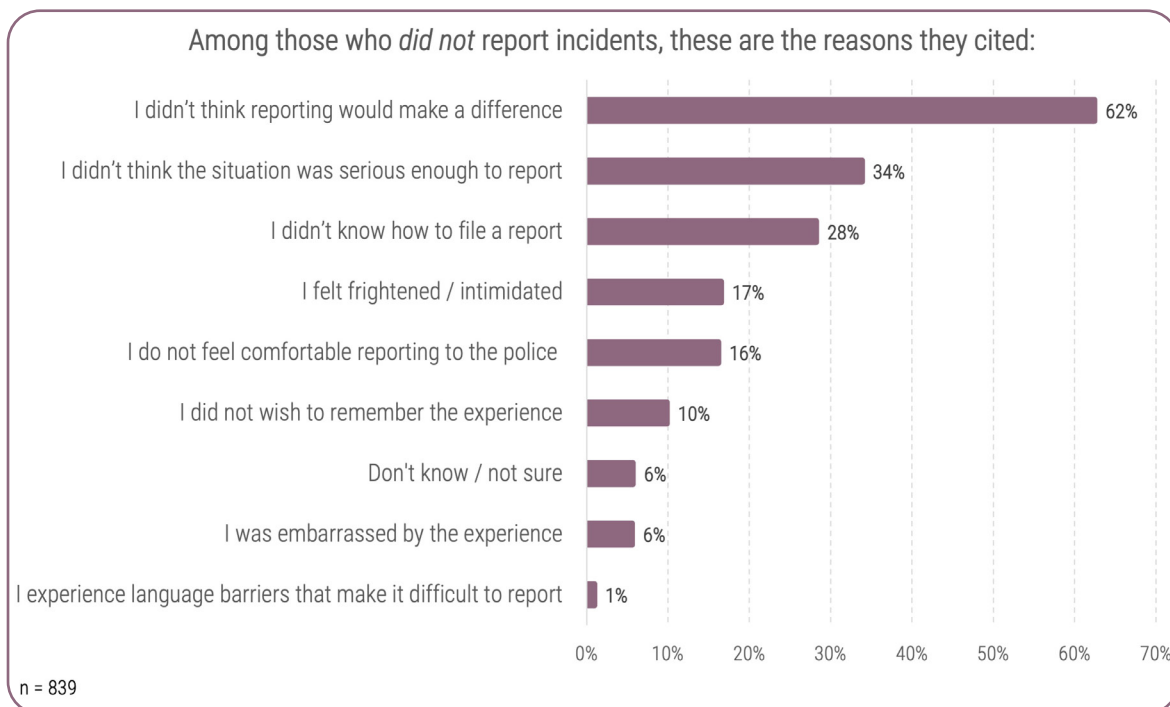


Chart 10: Reasons for not reporting harassment incidents

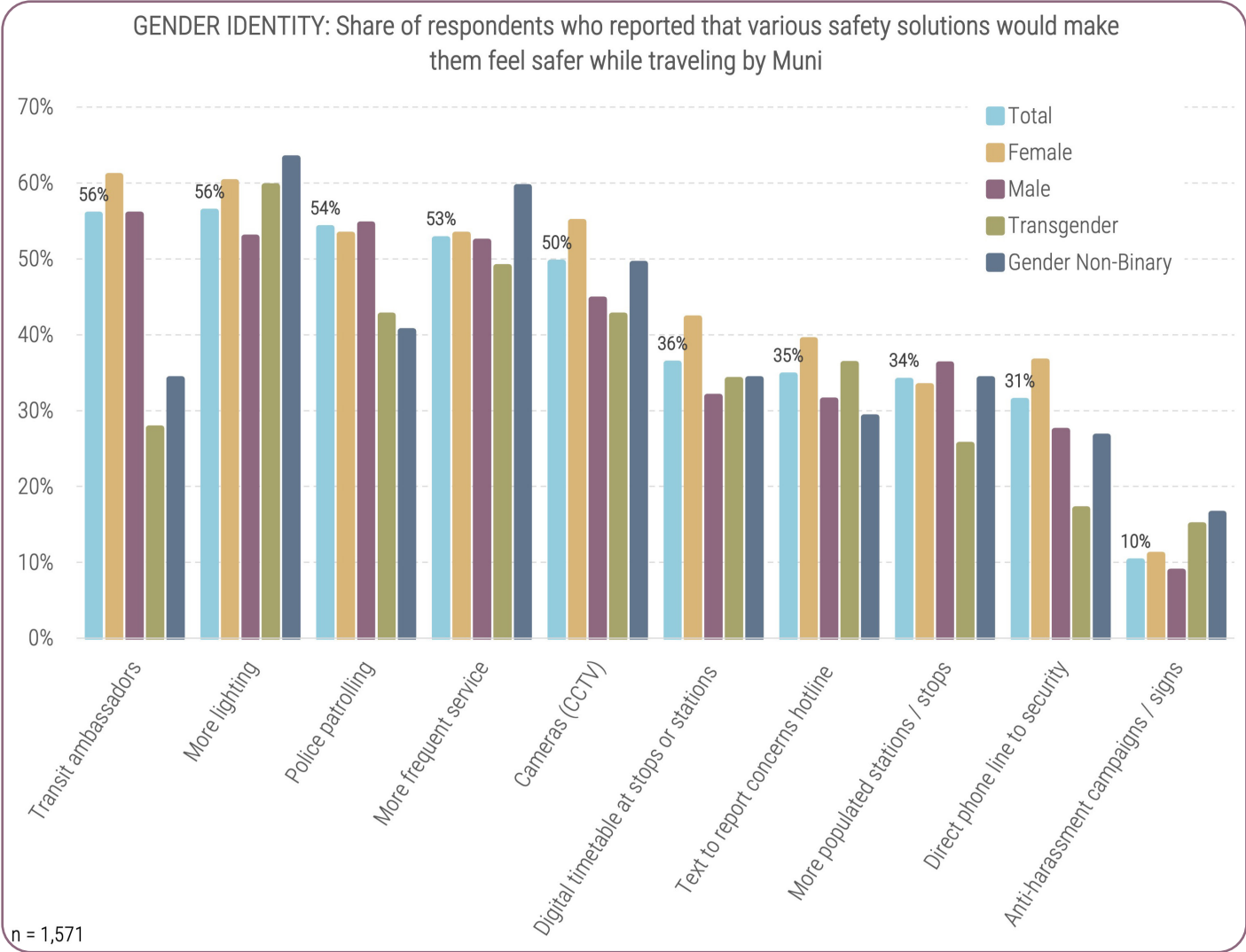


Chart 11: Gender identity and safety solutions

In order to inform potential safety solutions that improve safety on Muni, we asked respondents what types of improvements and changes would make them feel safer while traveling by Muni. Several operational (more frequent service) and design (more lighting at stations and stops) changes were among the top safety improvements that would make riders feel safer on Muni. As shown in Chart 11, more lighting was especially popular among female, transgender, and gender non-binary people.

Over half of the respondents feel security personnel in the form of transit ambassadors (56 percent) and police patrols (54 percent) at stops and stations would make traveling by Muni safer. However this varies by demographic group. As shown in Chart 12, about 60 percent of the Hispanic/Latinx and Asian/Pacific Islander respondents felt that police patrols would make Muni safer, but under half of white and Black respondents agreed.

Additionally, while a similar share of white and Black respondents felt police patrols would improve safety, 60 percent of white respondents felt transit ambassadors would improve safety on Muni, while only 44 percent of Black respondents agreed. A much smaller share of transgender (28 percent) and gender non-binary (31 percent) respondents felt that transit ambassadors would improve safety, compared to over half of the female and male samples.

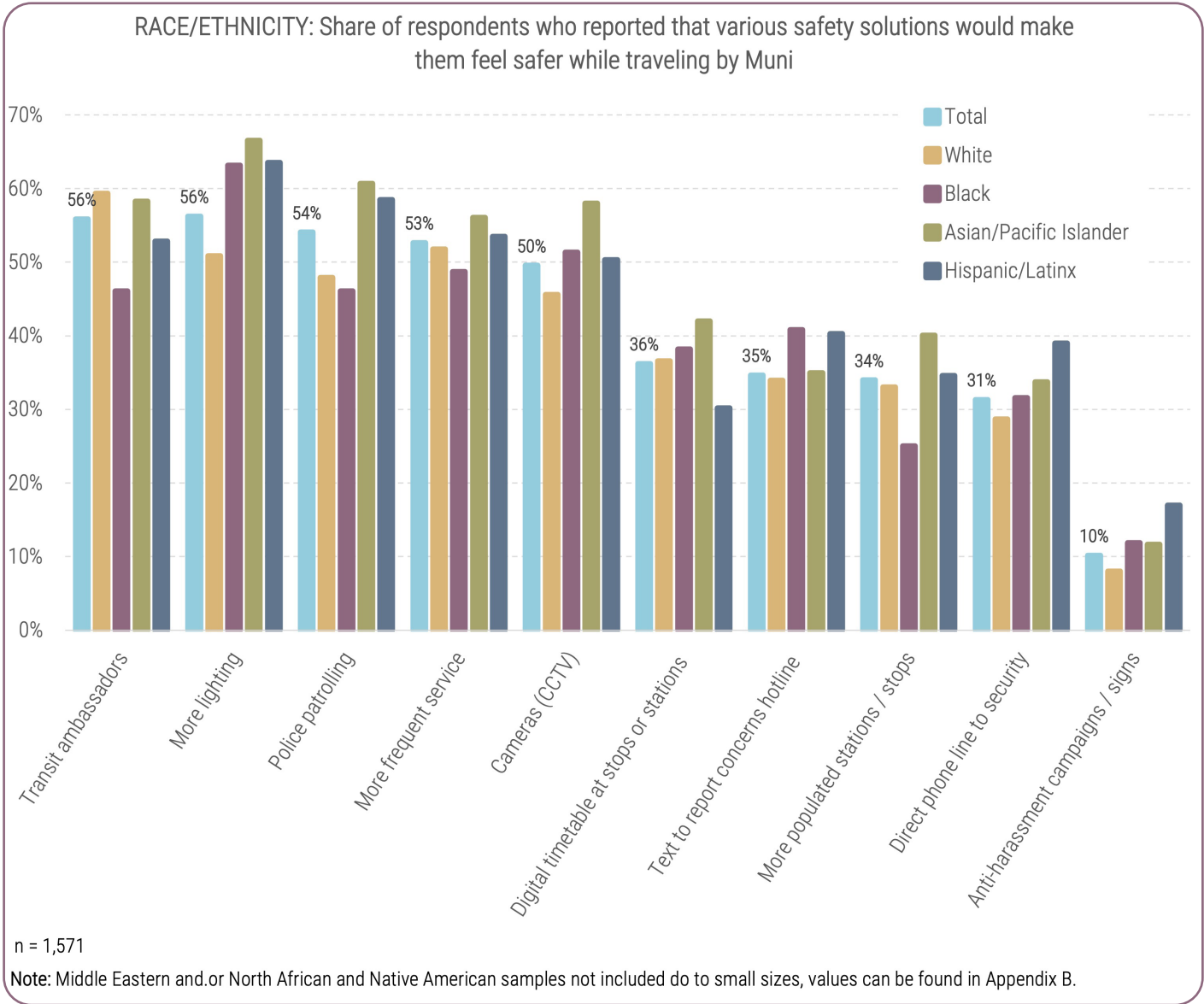


Chart 12: Race/ethnicity and safety solutions

While it was the least popular safety improvement, anti-harassment campaigns are one of the few options that were more popular among both transgender and gender non-binary people than among male/female identifying people. Female respondents were more in favor of almost all safety solutions than male respondents, except for police patrols and more populated stations and stops, which male respondents were slightly more likely to select as a safety improvement.

These findings are aligned with the harassment safety solutions found in the literature review and documented in Table 1. For example, several studies recommended either increased security, policing, or community ambassadors. Multiple studies also recommended adapting the physical environment to increase safety, such as increasing lighting. Other safety improvement recommendations from the literature review that appear include digital timetables, text hotlines, and phone lines to security. The literature also included various recommendations about anti-harassment campaigns, but a small share of respondents in our agreed that these would make them feel safer on Muni.

Recommendations

The following recommendations flow from the findings of the spatial analysis section and reporting and safety solutions above. They aim to inform strategies and policy interventions to improve riders' perceptions of safety and reporting of harassment incidents. In turn, they will help Muni inform solutions to gender-based harassment on the system. We have categorized them into three principles – service changes, infrastructure improvements, and campaigns and advocacy. Within every principle, there are several recommendations.

Advocacy & Campaigns on Reporting

1. Publicize how to report harassment incidents and what happens when you file a report.

The top cited reasons for not reporting harassment are that individuals do not know how to file a report and do not think any action will be taken based on their report filed. Focused campaigns on how to easily report harassment incidents and what actions are taken when a report is filed could improve rates of reporting and in turn help Muni address incidents of harassment.

2. Engage with community members to understand how best to implement transit ambassadors programs or police patrols throughout the Muni system.

While both transit ambassadors and police patrols were popular safety improvements, the agreement on ambassadors and police patrols as effective safety measures varied by race/ethnicity. An important first step in exploring these options would be to host various forms of community engagement to understand how to structure a safety patrol. Additionally, examining the success of other transit ambassador programs in California, nationally, and internationally could provide information on how to structure a security patrol on the Muni system.

3. Provide information about how to contact homelessness and mental health services on Muni.

A common write-in answer in response to why people did not report harassment incidents is because they did not want to contact police and/or Muni staff about harassment perpetrators who they perceived to have mental health issues or to be experiencing homelessness. Respondents cited that they did not think police or Muni staff would have the training or tools available to them to support unhoused individuals or people experiencing mental health challenges. Publicizing to Muni riders how they can contact support lines that are equipped to support unhoused people and/or mental health support services could increase reporting of harassment incidents of this nature.

Infrastructure Improvements

1. Install more lighting at stops and stations.

Many respondents reported having seen or experienced harassment at stations and stops, and 56 percent of respondents said that increased lighting would make them feel safer riding Muni. Increased lighting could both increase perceptions of safety and address the harassment incidents at stops and stations.

2. Improve bus related infrastructure and facilities.

Transit riders feel the least safe at a bus stop or in a station elevator. Across all Muni modes, the bus was where people experienced the most harassment. Therefore, we recommend improving the safety measures specifically on buses, including:

- Safety training for bus operators
- On-board alert systems to inform bus operators when there is an active harassment incident
- More buses during rush hour along routes passing through downtown San Francisco to reduce overcrowding that could lead to groping incidents

3. Target safety improvements on Market Street

Routes and stops on Market Street have the densest gender-based harassment incidents. Therefore, prioritizing Market Street as the first corridor to implement safety measures would decrease harassment incidents significantly.

Services Changes

1. Explore offering more frequent service on Muni lines where harassment incidents are most prevalent.

Over half of the respondents reported that more frequent service would make riding Muni safer. Analyzing the lines (14 Mission, N Judah Muni Metro, 49 Van Ness/Mission, L Owl, and M Muni Metro), and stops (mostly in downtown San Francisco and the Mission) where people are experiencing the most harassment could inform along which lines it would be most impactful to increase service frequency as a strategy to improve safety.

2. Add more frequent transit services across more hours of the day

All-nighter service bus routes have seen a high amount of gender-based harassment. Therefore, having transit service throughout the day and building a system that serves more than 9 am to 5 pm white-collar employees can reduce the risk of commuters experiencing gender-based harassment.

Conclusion

Our research underscores the importance of addressing gender-based harassment on the Muni transit system in San Francisco. Our findings demonstrating that harassment on transit disproportionately affects women and gender minorities, as well as non-white riders, demonstrates that the Muni system is no exception to these trends that has been uncovered in past research and on other transit systems. The high rates of underreporting of harassment incidents among Muni riders exemplifies the need to build awareness about how and where to report incidents. Additionally, various findings related to perception of safety and harassment events across different parts of the Muni system shows the need for service- and infrastructure-based changes to address harassment.

These findings are addressed within our set of recommendations. The suggested changes to service changes, infrastructure improvements, and advocacy related to reporting incidents are all aimed at addressing the high rates of fear and experiences of harassment on transit that we uncovered among Muni riders. Addressing this issue is of the utmost importance, so that Muni riders – especially women, gender minorities, racial/ethnic minorities, and transit dependent riders – have proper access to mobility without fearing for their safety or feeling uncomfortable while traveling by transit.

References

Abelson M.J., Carpenter, E. Lubitow, A. (2020). Transforming Mobility Justice: Gendered Harassment and Violence on Transit. *Journal of Transport Geography*: 82.

<https://reader.elsevier.com/reader/sd/pii/S0966692319302960?token=FABFE40A477E66CD6CFCCC07824E466404E76E0E74F9FA53BBCECC95C9735F3255B492E72AB5EC7C4EF1E35802440DC7&originRegion=us-east-1&originCreation=20221108045818>

Agrawal, A.W. Loukaitou-Sideris, A (2020). Crime and Harassment on Public Transportation: A Survey of SJSU Students Set in International Context. *Mineta Transportation Institute Publications: Project 1810*. https://scholarworks.sjsu.edu/cgi/viewcontent.cgi?article=1285&context=mti_publications

Ball, K. and Wesson, C. Perceptions of unwanted sexual behavior on public transport: exploring transport density and behavior severity. *Crime Prevention and Community Safety* 19 (2017): 199-210. <https://www.semanticscholar.org/paper/Perceptions-of-unwanted-sexual-behaviour-on-public-Ball-Wesson/247c8618d481883614ead2c88feaff76bff65168>

Bay Area Rapid Transit (2021, April) Together We Rise Campaign. Retrieved from: <https://www.bart.gov/guide/safety/gbv/campaign>

Federal Transit Administration (2023, January 6). "Asian American, Native Hawaiian, and Pacific Islanders Transit Listening Session: Bay Area Meeting Summary | FTA." <https://www.transit.dot.gov/about/asian-american-native-hawaiian-and-pacific-islanders-transit-listening-session-bay-area>.

Herson, J. (2022, March). Transit Rider Harassment: SB 1161 (Min) Seeks to Address an Endemic Problem Faced by Women and Vulnerable Communities. *California Transit Association*. <https://caltransit.org/news-publications/publications/transit-california/transit-california-archives/2022-editions/march/transit-rider-harassment/>

Los Angeles Metro (2019, August 30). Understanding How Women Travel. Los Angeles Metro. http://libraryarchives.metro.net/DB_Attachments/2019-0294/UnderstandingHowWomenTravel_FullReport_FINAL.pdf.

Loukaitou-Sideris, A., Brozen, M., Ding, H., Pinski, M., and Siddiq, F. (2020, April 1). Public Transit Safety among University Students. *UCLA Lewis Center*. <https://escholarship.org/uc/item/9wf3r12k>

Loukaitou-Sideris, A., Brozen, M., Pinski, M., and Ding, H. (2020, September 25). Documenting #MeToo in Public Transportation: Sexual Harassment Experiences of University Students in Los Angeles. *Journal of Planning Education and Research*, 0739456X20960778. <https://doi.org/10.1177/0739456X20960778>.

Loukaitou-Sideris, A., and Ceccato, V. (2021, January 7). Sexual Harassment on Transit: A Global, Comparative Examination. *Security Journal*. <https://doi.org/10.1057/s41284-020-00271-1>.

Lubitow, A., Carathers, J., Kelly, M., and Abelson, M. (2017, October 3). Transmobilities: Mobility, Harassment, and Violence Experienced by Transgender and Gender Nonconforming Public Transit Riders in Portland, Oregon. *Gender, Place, and Culture*, 24(10), 1398–1418. <https://doi.org/10.1080/0966369X.2017.1382451>.

Odbert, C., Kiani, N., Angius, C., Carias, A., Petruska, L., Flynn, P., Douglass, R., Schoner, J., Loukaitou-Sideris, A., Blumenberg, E., Brozen, M., Bellows, S., Kaufman, S., Lawson, C., Cheng, J., Meaney, J., Padilla, V., Ortiz, D., Cruz, Y., Ybarra, A., and Ybarra, P. (2021, June). Changing Lanes: A Gender Equity Transportation Study. Los Angeles Department of Transportation. <https://ladot.lacity.org/sites/default/files/documents/changing-lanes-report.pdf>.

SFMTA. Customer rating: Feeling safe and secure on Muni. Accessed on May 19, 2023 from: <https://www.sfmta.com/reports/customer-rating-feeling-safe-and-secure-muni>

Solymosi, R., Cella, K. & Newton, A. (April, 2018) Did they report it to stop it? A realist evaluation of the effect of an advertising campaign on victims' willingness to report unwanted sexual behavior. *Secur J* 31, 570–590. <https://doi.org/10.1057/s41284-017-0117-y>

Stark, J and Meschik, M. (2019). Women's Constrained Travel Behavior. *TR News* May-June 2019: Women and Gender in Transportation, pp 6-8. <https://onlinepubs.trb.org/onlinepubs/trnews/trnews321ConstrainedTravel.pdf>

Stringer, S.M. (2007) Hidden In Plain Sight: Sexual Harassment and Assault in the New York City Subway System. Office of the Manhattan Borough President. https://www.nytimes.com/packages/pdf/nyregion/city_room/20070726_hiddeninplainsight.pdf?pagewanted=all

The Alliance for Girls. (2019) Together We Rise. Retrieved from: <https://www.alliance4girls.org/wp-content/uploads/Together-We-Rise-Report.pdf>

UCLA Institute of Transportation Studies (ITS). Westside Transportation Access Needs Assessment - Short and Long Term Improvements. https://www.its.ucla.edu/wp-content/uploads/sites/2/2014/05/0304Papandreu_GISProject3.pdf

USAID (n,d). Gender-Based Violence Prevention and Response. <https://www.usaid.gov/what-we-do/gender-equality-and-womens-empowerment/reducing-gender-based-violence>

Whitzman, C, Et al. (2020) Incidence and Reporting: Making the Invisible Matter. Transit Crime and Sexual Violence in Cities. 1st Edition, 237-252. Routledge. <https://www.taylorfrancis.com/chapters/edit/10.4324/9780429290244-24/incidence-reporting-carolyn-whitzman-jason-thompson-serena-favarin-farid-nourani-seiji-shibata>

Appendix A

Table 13: Reasons for not reporting harassment incidents by race/ethnicity and gender identity

	Gender Identity									
	Total	Female		Male		Transgender		Gender non-Binary		
Total	839	707		750		47		79		
I was embarrassed by the experience	47 6%	26 4%	15 2%	4 -	5 -					
I experience language barriers that make it difficult for me to report	8 1%	1 0%	6 1%	1 -	0 -					
I did not wish to remember the experience	83 10%	50 7%	19 3%	6 -	10 13%					
I didn't know how to file a report	237 28%	114 16%	107 14%	11 23%	17 22%					
I didn't think the situation was serious enough to report	284 34%	160 23%	111 15%	7 -	12 15%					
I didn't think reporting would make a difference	524 62%	269 38%	189 25%	28 60%	37 47%					
I felt frightened / intimidated	139 17%	68 10%	38 5%	16 34%	21 27%					
I do not feel comfortable reporting to the police	136 16%	64 9%	46 6%	12 26%	23 29%					

	Race/Ethnicity									
	Black	White		Asian/Pacific Islander	Hispanic/Latinx	Middle Eastern/North African	Native American			
Total	76	875		412	159	40	24			
I was embarrassed by the experience	1 -	16 2%	18 4%	7 -	0 -	1 -	-			
I experience language barriers that make it difficult for me to report	- -	1 -	1 -	5 -	0 -	0 -	-			
I did not wish to remember the experience	4 5%	36 4%	26 6%	10 6%	2 -	2 -	-			
I didn't know how to file a report	13 17%	119 14%	80 19%	26 16%	3 -	2 -	-			
I didn't think the situation was serious enough to report	12 16%	171 20%	80 19%	31 19%	4 -	3 -	-			
I didn't think reporting would make a difference	24 32%	269 31%	142 34%	58 36%	15 38%	12 50%	-			
I felt frightened / intimidated	12 16%	50 6%	40 10%	22 14%	7 -	5 -	-			
I do not feel comfortable reporting to the police	10 13%	64 7%	36 9%	27 17%	3 -	2 -	-			

Appendix B

Table 14: Safety improvements by race/ethnicity and gender identity

	Gender Identity									
	Total	Female		Male		Transgender		Gender non-Binary		
Total	1,613	707		750		47		79		
Transit ambassadors	901	56%	431	61%	419	56%	13	28%	27	34%
More lighting	907	56%	425	60%	396	53%	28	60%	50	63%
Police patrolling	872	54%	376	53%	409	55%	20	43%	32	41%
More frequent service	849	53%	376	53%	392	52%	23	49%	47	59%
Cameras (CCTV)	799	50%	388	55%	335	45%	20	43%	39	49%
Digital timetable at stops or stations	584	36%	298	42%	239	32%	16	34%	27	34%
Text to report concerns hotline	559	35%	278	39%	235	31%	17	36%	23	29%
More populated stations / stops	548	34%	235	33%	271	36%	12	26%	27	34%
Direct phone line to security	505	31%	258	36%	205	27%	8	17%	21	27%
Anti-harassment campaigns / signs	164	10%	78	11%	66	9%	7	15%	13	16%

	Race/Ethnicity											
	Black		White		Asian/Pacific Islander		Hispanic/Latinx		Middle Eastern/North African		Native American	
Total	76		875		412		159		40		24	
Transit ambassadors	35	46%	519	59%	240	58%	84	53%	15	38%	11	46%
More lighting	48	63%	445	51%	274	67%	101	64%	28	70%	17	71%
Police patrolling	35	46%	419	48%	250	61%	93	58%	19	48%	11	46%
More frequent service	37	49%	453	52%	231	56%	85	53%	24	60%	10	42%
Cameras (CCTV)	39	51%	399	46%	239	58%	80	50%	20	50%	18	75%
Digital timetable at stops or stations	29	38%	320	37%	173	42%	48	30%	13	33%	9	38%
Text to report concerns hotline	31	41%	297	34%	144	35%	64	40%	13	33%	7	29%
More populated stations / stops	19	25%	289	33%	165	40%	55	35%	15	38%	6	25%
Direct phone line to security	24	32%	251	29%	139	34%	62	39%	11	28%	9	38%
Anti-harassment campaigns / signs	9	12%	70	8%	48	12%	27	17%	6	15%	2	8%

Appendix C

Table 15: Frequency of Muni Key Terms Disaggregated by Gender (Male)

Key Terms	Total Counts	%	Key Terms	Total Counts	%	Key Terms	Total Counts	%
Mission	47	16%	19	6	2%	67	1	0%
Civic Center	41	14%	29	6	2%	54	1	0%
Powell	28	10%	Church	6	2%	15	1	0%
Market	25	9%	SOMA	4	1%	12	1	0%
Van Ness	23	8%	24	3	1%	Haight	1	0%
Geary	21	7%	k	3	1%	f	1	0%
14	20	7%	33	3	1%	1	1	0%
38	19	7%	44	3	1%	5r	1	0%
n	13	4%	5	3	1%	45	1	0%
49	11	4%	Forest Hill	2	1%	23	1	0%
Tenderloin	10	3%	j	2	1%	27	1	0%
22	9	3%	48	2	1%	47	1	0%
Castro	9	3%	30	2	1%	31	1	0%
38r	9	3%	West Portal	2	1%			
t	8	3%	28	2	1%			
8	8	3%	m	2	1%			
Embarcadero	7	2%	l	2	1%			
Montgomery	7	2%	52	2	1%			
14r	6	2%	9	2	1%			

Appendix D

Table 16: Frequency of Muni Key Terms Disaggregated by Gender (Female & Gender Minorities)

Key Terms	Total Counts	%	Key Terms	Total Counts	%	Key Terms	Total Counts	%
Mission	73	18%	Castro	10	3%	14r	6	2%
Civic Center	56	14%	7	10	3%	48	5	1%
Market	47	12%	31	10	3%	44	4	1%
Powell	42	11%	m	10	3%	Forest Hill	4	1%
38	39	10%	l	9	2%	43	4	1%
Geary	34	9%	5	8	2%	8	4	1%
Van Ness	32	8%	19	8	2%	54	4	1%
14	25	6%	West Portal	8	2%	12	3	1%
49	22	6%	Haight	7	2%	33	3	1%
n	21	5%	30	7	2%	45	3	1%
Church	18	5%	38r	7	2%	SOMA	3	1%
Tenderloin	13	3%	t	7	2%	6	2	1%
Embarcadero	12	3%	j	6	2%	9r	1	0%
Montgomery	12	3%	k	6	2%	21	1	0%
22	11	3%	29	6	2%	15	1	0%
1	11	3%	f	6	2%			
24	11	3%	27	6	2%			
9	11	3%	28	6	2%			
52	11	3%	5r	6	2%			

Appendix E

SFMTA Safety Equity Initiative - Gender-based experience survey

SFMTA Safety Equity Initiative - Gender-Based Experience Survey

The SFMTA is committed to prioritizing safety in transit and mobility systems. Particularly, by combating harassment and violence and empowering Muni riders and workers. Everyone deserves public transit that prioritizes safety and security. That includes all Muni users, SFMTA employees, San Franciscans and visitors to San Francisco.

The aim of the Safety Equity Initiative is to create a safer environment for all Muni riders and SFMTA staff. This supports SFMTA's mission of providing excellent transit and mobility service. This survey will help the SFMTA understand existing and evolving needs of Muni riders and those traveling in San Francisco.

Content Warning: This survey includes questions that reference sexual harassment and gender-based violence. Completing this survey may be difficult for some participants with similar past experiences. Please engage in self-care as you decide to complete the survey.

Part 1 Travel Pattern

Thinking about your experiences in the past six months ...

1. For the past six months, how often do you ride Muni (buses, Muni Metro trains, streetcars and/or cable cars)?

- Every day
- A few times a week
- A few times a month
- Once a month or less
- Never
- Don't know / not sure

If answered 'never' or 'don't know / not sure' to question 1, skip to Part 2.

2. Is Muni your primary means of transportation? For example, do you take Muni buses, trains, and streetcars more frequently than you drive a personal vehicle or use taxis/Uber/Lyft?

- Yes
- No
- Don't know / not sure

3. When you use Muni, how often do you travel alone?

- Always
- Often
- Sometimes
- Rarely
- Never
- Don't know / not sure

4. Do you use Muni to connect to regional transit? If so, to which do you connect? (Check all that apply)

- I don't use Muni to connect to regional transit
- BART
- AC Transit
- Golden Gate Transit
- SAMTrans
- Caltrain
- Don't know / not sure
- Other

Part 2 Experiences

Thinking about your experiences in the past six months ...

Reminder: We will use this data to better understand how to improve customer safety and prevent gender-based violence and harassment.

5. If you have personally experienced any of the following forms of gender-based/sexual harassment or violence, please indicate the location. (Check all that apply, but if you have not experienced a specific form, simply leave the question blank and move on to the next question.)

Inappropriate/unwanted language

- On the bus / train
- At a bus stop
- On a train platform
- Near / in station elevators
- Walking to and from stops/stations
- Don't know / not sure
- Inappropriate/unwanted touching or groping

On the bus / train

- On the bus / train
- At a bus stop
- On a train platform
- Near / in station elevators

Walking to and from stops/stations
Don't know / not sure
Inappropriate/unwanted touching or groping

Staring or leering

On the bus / train
At a bus stop
On a train platform
Near / in station elevators
Walking to and from stops/stations
Don't know / not sure
Inappropriate/unwanted touching or groping

Stalking or being followed

On the bus / train
At a bus stop
On a train platform
Near / in station elevators
Walking to and from stops/stations
Don't know / not sure
Inappropriate/unwanted touching or groping

Indecent exposure

On the bus / train
At a bus stop
On a train platform
Near / in station elevators
Walking to and from stops/stations
Don't know / not sure
Inappropriate/unwanted touching or groping

Sexual gestures

On the bus / train
At a bus stop
On a train platform
Near / in station elevators
Walking to and from stops/stations
Don't know / not sure
Inappropriate/unwanted touching or groping

6. If you have seen any of the following forms of gender-based/sexual harassment or violence, please indicate the location. (Check all that apply, but If you have not witnessed or seen a specific form, simply leave the question blank and move on to the next question.)

Inappropriate/unwanted language

On the bus / train

At a bus stop

On a train platform

Near / in station elevators

Walking to and from stops/stations

Don't know / not sure

Inappropriate/unwanted touching or groping

On the bus / train

On the bus / train

At a bus stop

On a train platform

Near / in station elevators

Walking to and from stops/stations

Don't know / not sure

Inappropriate/unwanted touching or groping

Staring or leering

On the bus / train

At a bus stop

On a train platform

Near / in station elevators

Walking to and from stops/stations

Don't know / not sure

Inappropriate/unwanted touching or groping

Stalking or being followed

On the bus / train

At a bus stop

On a train platform

Near / in station elevators

Walking to and from stops/stations

Don't know / not sure

Inappropriate/unwanted touching or groping

Indecent exposure

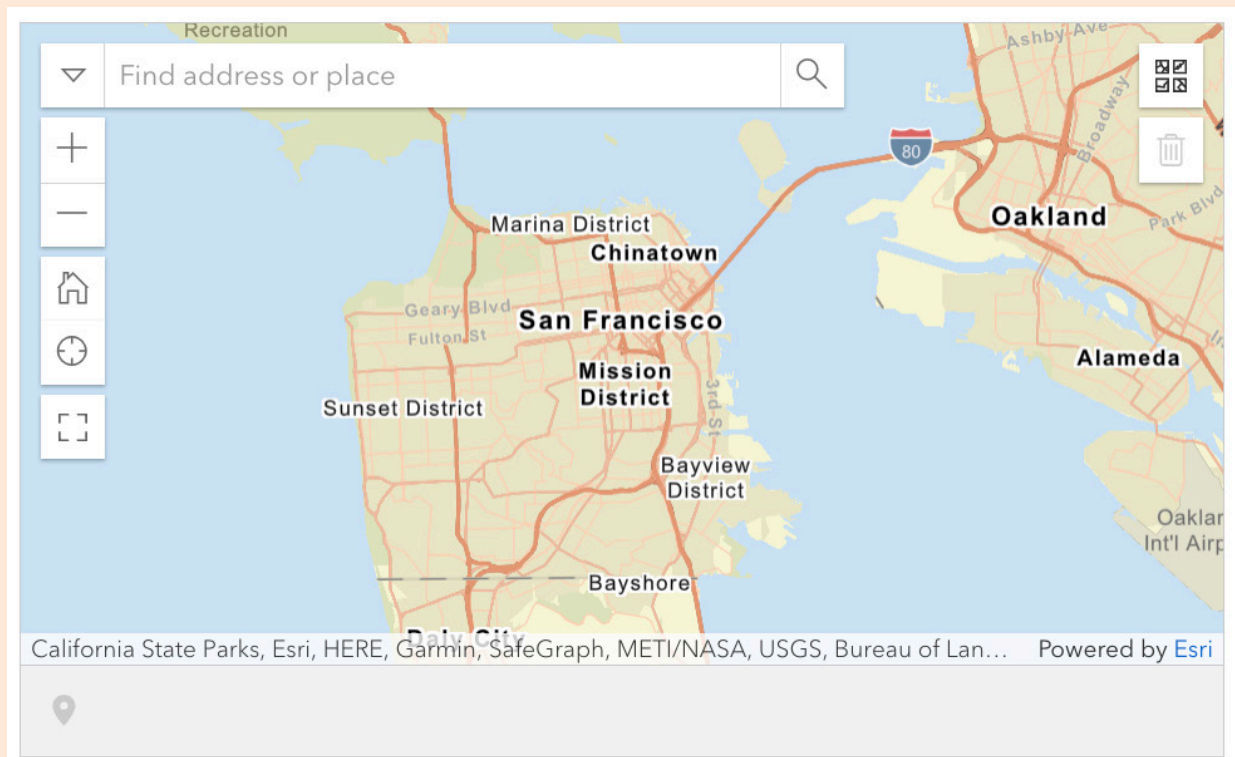
- On the bus / train
- At a bus stop
- On a train platform
- Near / in station elevators
- Walking to and from stops/stations
- Don't know / not sure
- Inappropriate/unwanted touching or groping

Sexual gestures

- On the bus / train
- At a bus stop
- On a train platform
- Near / in station elevators
- Walking to and from stops/stations
- Don't know / not sure
- Inappropriate/unwanted touching or groping

7. While riding on transit or to transit stops, where have you experienced or seen gender-based/sexual harassment or violence? If able, please pin point the spot of the incident or the most common spot of incidents. If not able to pinpoint, please fill out the question below.

8. At which Muni lines, stations, or stop locations have you experienced or seen gender-based/sexual harassment or violence? If able, please note the intersection or neighborhood/district of the incident.



Part 3 Reporting

9. Have you ever reported gender-based/sexual harassment or violence on Muni?

Yes

No

I have not experienced incidents in the past

Don't know / not sure

If answered 'Yes' to question 9 skip to question 10, if answered 'No' skip to question 11, and if answered 'I have not experienced incidents in the past' or 'don't know / not sure' skip to Part 4.

10. To whom have you reported the incident? (check all that apply)

A police officer

Called 311 or 911

A Muni staff

Friends / family

Don't know / not sure

Other

11. If you have not reported gender-based/sexual harassment or violence on Muni, why not? (Check all that apply)

I was embarrassed by the experience

I did not wish to remember the experience

I do not feel comfortable reporting to the police

I didn't know how to file a report

I didn't think the situation was serious enough to report

I didn't think reporting would make a difference

I felt frightened / intimidated

I experience language barriers that make it difficult for me to report

Don't know / not sure

Other

Part 4 Impressions of Safety

Reminder: We will use this data to better understand how to improve customer safety and prevent gender-based violence and sexual harassment.

12. Do you feel safe when using Muni during the daytime?

Always

Often

Sometimes

Rarely

Never

Don't know / not sure

13. Do you feel safe when using Muni during the nighttime?

- Always
- Often
- Sometimes
- Rarely
- Never
- Don't know / not sure

14. Where do you feel the least safe when using Muni? (Check all that apply)

- Have not experienced this
- On the bus / train
- At a bus stop
- On a train platform
- Near / in station elevators
- Walking to and from stops/stations
- Don't know / not sure
- Other

15. In your view what can make traveling by Muni safer? (Check all that apply)

- Police patrolling stops, stations and vehicles
- Transit ambassadors at stops, stations, and on vehicles
- Cameras (CCTV) on the vehicle or at stops and stations
- More lighting at stops or stations
- Direct phone line to security at stops or on vehicles
- Text to report concerns hotline
- Digital timetable at stops or stations
- More frequent service
- Anti-harassment campaigns / signs
- More populated stations / stops
- Don't know / not sure
- Other

Part 5 Demographics

Now we have some questions about you! They are meant to help us better understand the diverse communities SFMTA serves. If you don't feel like answering a question, please move on to the next one. These are all completely optional, voluntary and confidential.

16. How do you describe your gender identity? (Select all that apply)

- Female
- Male

Transgender
Gender Non-binary
Don't know / not sure
Prefer not to answer
Another gender

17. With what race and/or ethnicity do you identify? (Select all that apply)

Asian and/or Pacific Islander
Black and/or African American
Hispanic and/or Latinx
Middle Eastern and/or North African
Native American
White
Don't know / not sure
Prefer not to answer
Another race or ethnicity, please specify:

18. What is your age?

18 or under
19-24
25-34
35-44
45-54
55-64
65-74
75 or over
Don't know / not sure
Prefer not to answer

19. Please select all languages that you speak at home. (Select all that apply)

English
Cantonese
Mandarin
Spanish
Filipino and/or Tagalog
Russian
Vietnamese
Don't know / not sure
Prefer not to answer
Another language, please specify:

20. How well do you speak English?

Very well

Well

Not well

Not at all

Don't know/not sure

Prefer not to answer

21. Do any of the following disabilities currently affect your daily life? (Select all that apply)

Blindness or vision impairment

Hearing impairment

Mobility disability (example: difficulty walking or climbing stairs)

Cognitive or mental impairment

None

Don't know / not sure

Prefer not to answer

Another disability or disabling health condition, please specify:

22. Do you have access to a private car that can be used for transportation in San Francisco?

Yes

No

Not applicable / Don't know / not sure

Prefer not to answer

23. What is your zip code?

Confirmation of survey submission page included the following message:

Thank you for taking our survey. Read more about our program vision, goals, intended outcomes and commitment to the community on the Safety Equity Initiative project page. Email us about this initiative, and other safety issues, at MuniSafe@SFMTA.com Incidents can be reported through our Muni Feedback form and the 311 Customer Service phone line.