

Public Transit and Women’s Safety – Real and Perceived Concerns: A Look at the U.S. and Florida

Project Number
CUTR-NCTR-RR-2018-02

Prepared For
National Center for Transit Research

June 2020

The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the information presented herein. This document is disseminated under the sponsorship of the U.S. Department of Transportation’s University Transportation Centers Program, in the interest of information exchange. The U.S. Government assumes no liability for the contents or use thereof.

Acknowledgement

This work was supported by the National Center for Transit Research, a program of the Center for Urban Transportation Research at the University of South Florida and funded by the U.S. Department of Transportation

Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the information presented herein. This document is disseminated under the sponsorship of the U.S. Department of Transportation's University Transportation Centers Program, in the interest of information exchange. The U.S. Government assumes no liability for the contents or use thereof.

Table of Contents

Acknowledgement	2
Disclaimer	2
Table of Contents	3
List of Tables	4
List of Figures	4
Introduction	5
Background and Literature	6
Introduction	6
Statistics	6
Transportation Planning.....	8
Public Transit – U.S. and Canadian Experiences	10
Public Transit – International Experiences.....	14
Solutions.....	15
Security Data from the National Transit Database (NTD)	22
The National Transit Database (NTD).....	22
NTD Security Data – U.S. and Florida.....	25
Florida Case Studies	40
Introduction	40
Discussions	41
Findings	47
References	50

List of Tables

Table 1: Security Events from the National Transit Database – U.S. Data 2013-2017	25
Table 2: Security Events from the National Transit Database – Florida Data 2013-2017	27
Table 3: Injuries Resulting from Personal Security Events – U.S. Data 2013-2017	29
Table 4: Fatalities Resulting from Personal Security Events – U.S. Data 2013-2017.....	30
Table 5: Injuries Resulting from Personal Security Events – Florida Data 2013-2017.....	31
Table 6: Fatalities Resulting from Personal Security Events – Florida Data 2013-2017	31

List of Figures

Figure 1: Posters on King County Metro.....	13
Figure 2: Anti-Harassment Campaign Images from Edmonton Transit Service (ETS).....	15
Figure 3: Anti-Harassment Campaign Images from Massachusetts Bay Transportation Authority (MBTA)	16
Figure 4: Massachusetts Bay Transportation Authority’s (MBTA) See Say App	17
Figure 5: Anti-Harassment Campaign Poster from Washington Metropolitan Transit Authority (WMATA).....	18
Figure 6: Anti-Harassment Campaign Images from Washington Metropolitan Transit Authority (WMATA).....	19
Figure 7: Anti-Harassment Campaign Images from Chicago Transit Authority (CTA).....	20
Figure 8: Personal Security Events on U.S. Transit Systems (NTD, 2013-2017).....	28
Figure 9: Personal Security Events on Florida Transit Systems (NTD, 2013-2017)	28
Figure 10: Injuries by Gender from Personal Security Events (NTD, 2013-2017).....	32
Figure 11: Fatalities by Gender from Personal Security Events (NTD, 2013-2017)	33
Figure 12: Injuries and Fatalities by Category, Personal Security Events (NTD, 2013-2017)	35
Figure 13: Injuries by Gender from Assaults, U.S. and Florida (NTD, 2013-2017)	36
Figure 14: Injuries by Gender from Robberies, Rapes, and Homicides, U.S. (NTD, 2013-2017)...	37
Figure 15: Fatalities by Gender from Assaults, Robberies, and Homicides, U.S. (NTD, 2013-2017)	39
Figure 16: See & Say Apps at LYNX (Orlando) and JTA (Jacksonville) in Florida	44
Figure 17: Solar Lighting at Bus Stops and Shelters	45
Figure 18: Rendering of a Bus Operator Safety Barrier	46

Introduction

Over the last few years, the Federal Transit Administration (FTA) has emphasized safety as the top priority for transit operations in the U.S. The Public Transportation Agency Safety Plan (PTASP) Final Rule, which became effective in July 2019, will require certain public transportation systems that receive federal funds under FTA's Urbanized Area Formula Grants to develop safety plans that include the implementation of Safety Management Systems (SMS) [1]. SMS is a formal, top-down approach implemented agency-wide to managing safety risks and risk mitigation. Key parts of an SMS include specific responsibilities and roles, strong executive safety leadership, formal safety accountabilities and communications, effective procedures and policies, and active employee involvement [2]. While the implementation of SMS provides a necessary and welcome basis for improving transit safety, there is nothing inherent in the framework that addresses the needs of specific groups of transit users, particularly women. While it is true that the intent of SMS is to ensure the safety of all transit users (as well as workers and others who may be in the proximity of transit vehicles or facilities such as pedestrians and bicyclists), there is still a need to consider any distinct safety or security concerns of particular groups, whether as part of an SMS or not.

One might question whether there is a need to consider the needs of various groups. Why is the provision of good, safe, transit for women, in particular, important? The answer goes beyond a desire for social equity. Access to transit can mean access to significant economic and educational opportunities for women, who make up a large segment of the labor force in the U.S. and in other countries [3]. In addition, the majority of transit riders in the US are women [3].

This report includes three major sections. First, some background and a review of recent literature are presented. Some general statistics are included, as well as a synthesis of literature on women's safety in public spaces as well as safety using public transit. Second, security data from the National Transit Database (NTD) are analyzed for U.S. transit systems as a whole and Florida transit systems. Third, the results of a set of discussions with three Florida transit agencies are summarized to provide a sense of the Florida experience with issues of women's safety, and overall safety and security at their transit agencies. Finally, overall findings from this research are presented.

Background and Literature

Introduction

Research has shown that women do have specific safety concerns in public spaces. Generally, by the time a woman reaches her teenage years, she is already quite familiar with the dangers inherent in public spaces (although, often their homes, schools, and workplaces are not always safe, either) [4]. Many women simply learn to accept that public spaces, particularly at night, are not places where they can feel safe [5]. Women are certainly concerned with harassment in public spaces, and experience physical and emotional insecurity, i.e., a “geography of fear” [6]. Regarding transportation, some of the major issues include the lack of safe pedestrian access to transit services and personal safety on transit vehicles or shared use services (such as Uber and Lyft). It also does not matter whether these safety concerns are real or perceived; they will still influence women’s choices [3]. Much of the personal safety/security concerns that women have involve harassment. Harassment in public spaces, as well as specifically on public transit, has evolved into a “legitimate, and significant, public policy issue.” [7].

Back in the 1970s, feminists in the U.S. identified “street harassment” as a significant and systemic issue for women in public spaces, including public transit. [8]. While this issue has been discussed and researched for decades, the recent visibility of the #MeToo movement can present a key opportunity for not just transit systems, but society as a whole to better understand and address the forces that perpetuate sexual harassment, violence, and fear [9]. In 2006, the phrase “Me Too” was coined to help support women who were survivors of sexual violence. The phrase experienced a rebirth in late 2017 as the hashtag #MeToo amid revelations of sexual misconduct among some of the most powerful men in politics and the entertainment industry [10]. #MeToo has now become the slogan for a reinvigorated anti-sexual harassment movement.

Statistics

For a clearer understanding of why women (and other groups, too) have distinct personal safety concerns, this section presents a set of recent statistics on sexual violence in the U.S. Except where noted, the information and statistics presented in the list below are from the National Sexual Violence Resource Center [11].

- One in five women and one in 71 men will be raped at some point in their lives.
- 46 percent of lesbians, 75 percent of bisexual women, and 43 percent of heterosexual women reported sexual violence other than rape some time during their lifetimes.

- 40 percent of gay men, 47 percent of bisexual men, and 21 percent of heterosexual men reported sexual violence other than rape during their lifetimes.
- Nearly one in 10 women has been raped by an intimate partner in her lifetime.
- 91 percent of the victims of rape and sexual assault are female and 9 percent are male.
- In eight out of 10 rape cases, the victim knew the person who sexually assaulted them.
- Eight percent of rapes occur at the victim's workplace.
- 81 percent of women and 35 percent of men report significant short-term or long-term impacts from being the victim of sexual violence such as post-traumatic stress disorder (PTSD).
- One in four girls and one in six boys will be sexually abused before they turn 18.
- 325,000 children are at risk of becoming victims of commercial child sexual exploitation each year.
- The average age at which girls first become victims of prostitution is 12 to 14, while the average age for boys is 11 to 13.
- Nationally, the state of Florida is ranked as the third-highest human trafficking destination, and half of the victims are children under 18 [12].
- One in five women and one in 16 men are sexually assaulted while in college.
- Over 90 percent of sexual assault victims on college campuses do not report what happened.
- Rape is the most under-reported crime, with 63 percent of sexual assaults not reported to police.
- The prevalence of false reporting is only between two and 10 percent.

As stated above in the list of statistics, rape is the most under-reported crime, and there is significant evidence that other forms of sexual violence and harassment are also significantly under-reported [13]. According to the American Psychological Association (APA), there is science-based reasoning behind women's reluctance to report sexual assault. Sexual assault is a "terrifying and humiliating experience" and women hesitate to report for a number of reasons, including a fear for their safety, fear of not being believed, being in shock, feelings of shame or embarrassment, or expecting blame [13]. It is important to remember that an absence of reporting does not mean that an assault (or attempted assault) did not occur or is exaggerated. The APA cites research that incidents of false reporting are rare and that "far more women are assaulted and don't report than women who make false claims" [13].

The APA also provides insight about how traumatic events are stored in the brain, thus providing an explanation for why some women do not report or do report at a much later time, and why some details can be recalled while others cannot: "While memory of past day-to-day

events is often poor, research has shown that memory of traumatic events is stored differently in the brain...Some memories are so emotionally charged that they become frozen in time, and some particulars can be recalled in excruciating detail, as if the event just occurred, while others may be forgotten" [13].

Of course it is not just women who are victims of sexual violence or harassment. As mentioned above in the statistics from the National Sexual Violence Resource Center, men are also victims. And, men also under-report such incidents, for many of the same reasons that women do not report, as well as perhaps an additional stigma that male victims of assault are thought to be "weak, vulnerable, (and) unable to protect themselves" which conflicts with many men's definition of what it means to be a "'strong' man in contemporary society" [14]. Many male victims simply view what happened to them as a "bad experience" or "mistake." If a man is assaulted by a woman, many men feel that no one will believe them. On the other hand, if they are assaulted by another man, they may be afraid that they will be accused of being gay or of having "enjoyed" it. Regarding all forms of sexual violence and harassment, "men need to start holding other men accountable," which begins to frame this issue as a societal problem, not an individual problem [14].

Transportation Planning

Research on the relationship between women's fear in public spaces and the built environment has shown that women often feel unsafe in public spaces. In transportation environments, unmaintained pedestrian facilities with overgrown foliage and other obstacles, poorly lit parking lots and structures, isolated bus stops, and crowded (or, alternatively, nearly empty) transit vehicles and stations, can represent stressful settings for women [15]. As a result, women often will change their mode of transportation and/or their travel patterns to avoid such settings. There exists a need to further understand how women's safety concerns determine their mode choice. Traditionally, mode choice is estimated based on determinants such as time and cost. For women, however, there are several other factors that influence mode choice, beyond the basics of time and cost. While personal safety and security is certainly important, women often have multiple responsibilities that require multiple trips (food shopping, transporting children, etc.) that will impact travel patterns and mode choice. Ethnicity and culture affect women's mode choice, too [16]. A study of women at the University of Alabama found that transportation issues are very important to women, and that they are less concerned with minimizing time costs when choosing a mode. Instead, the reliability of a mode and the perceived safety are more important than travel time [16].

In general, women are more risk averse than men, and this has implications for transportation safety. Many standards and requirements for traffic engineering and safety are based on men's perception of safety while ignoring distinct safety needs of women [6]. Women tend to be much more concerned with adequate lighting on streets and at intersections (as well at transit stops), and they do not like to be concealed from public view when walking or standing. For example, women prefer not to walk along sidewalks or wait at bus stops that pass behind or are blocked from view by tall shrubs, fences, or other barriers such as tunnels [6]. These situations are perceived as even less safe after dark. As part of a study on public administrators' views on gender safety and its role in transportation planning, Wellman and Hazelton interviewed several traffic engineers and planners. A brief selection of responses is shown below, which demonstrates the need for greater consideration of women's issues in transportation planning.

- "Haven't come across" any gender-specific needs, "men aren't interested" or the needs are considered "trivial" or a "luxury" due to the need for additional funds to address them.
- Many respondents implied that women's safety is more about children, as the women are seen only as mothers.
- Some respondents blamed local elected officials in their area for not providing adequate resources to address needs.

A way to ensure that women's needs are considered in the transportation planning process is to introduce these needs to future engineers, planners, and other future professionals in related fields while they are still studying at the university level, and to recognize that there is a significant role for women in "delivering and planning excellence in all modes" of transportation [6] [3].

Of course, there continues to be a growing body of academic research in the area of women's transportation issues. Back in 1978, the first International Conference on Women's Issues in Transportation was held. Additional conferences were held in 1996, 2004, 2009, 2014, and, most recently, the 6th International Conference was held in 2019. Increasingly, the conferences topics have delved into gender issues related to transportation policy, planning, and engineering. The conference in 2014 included a theme to "bridge the gap" of gender differences in transportation access and mobility, the responsiveness of transportation agencies to the needs and preferences of women (including safety and personal security), and the engagement of women in decision-making in the transportation sector [17].

Public Transit – U.S. and Canadian Experiences

There exists some research which provides evidence that there are differences in the preferences of women as compared to men, particularly among characteristics that impact mode choice and for using transit, but some of these previous research efforts do not explore women's personal safety/security to any extent [18] [19] [20]. Other research efforts have investigated gender differences with regard to transit safety and security more thoroughly. Hsu, et al. found that while people might consider using transit services due to pro-environmental attitudes, concerns about safety can discourage transit use if the transit services are considered to be unsafe. Further, they found that the extent to which safety concerns (that discourage transit use) outweigh environmental concerns (that encourage transit use) was much larger for women than men [21]. A general finding from Hsu, et al. is that the heightened safety and security concerns of women limit their mobility when they choose, for example, to not travel after dark, to not travel/walk alone, not use transit, and not travel on specific routes. They do, however, acknowledge that household structure, social customs, and gender roles affect women's travel patterns as well [21].

Like Hsu, et al., other research has demonstrated that transit users' concerns about safety influence their travel decisions. And, "this situation is more acute for particular groups of women, who because of age, income, type of occupation, sexual preference, and place of residence may be or feel more vulnerable to victimization and harassment than others" [15]. As women have been found to be more transit-dependent than men, particularly low-income women, the effects of safety concerns on their mobility cannot be ignored [5]. For those who may have a choice in how they travel, it may only take a single negative experience using transit for those individuals to not consider using transit again, instead using services such as Uber and Lyft, or driving their own car [7]. However, there can also be safety concerns with using ride-hailing services, as well. Recently, a young female college student was killed when she mistakenly entered a vehicle that she thought was her Uber ride [22].

As discussed previously, harassment, and particularly harassment targeted toward women, occurs throughout public spaces, including sidewalks, parking lots and structures, on the street, on elevators, on public transit, and in many other places accessible to the general public. Specifically regarding transit, the vehicles used in transit operations are confined spaces with perhaps just one or two doors. Transit vehicles can often be overcrowded with passengers who end up uncomfortably close together. Very crowded transit vehicles are more common in larger cities and for shorter trips, which could enable harassers to escape quickly at an upcoming stop or station before they can be approached or apprehended. On the other hand, transit services in smaller cities may be characterized by less crowding on vehicles, or even trips

that may find a person being the only one, or only one of a few people, on board. Both situations can make people feel uneasy, particularly women. “Beyond the physical setting, the combination of anonymous crowds and conventions of public behavior allow harassment to go unrecognized or unchallenged” on public transit or in transit facilities, according to Hickey [8]. In addition, women tend to feel that they are always expected to be a “nice girl” and so these expectations may lead them to not want to call out, embarrass, or otherwise make people around them feel uncomfortable. As such, women often do not confront their harasser or ask for help from others around them [8]. According to Julie LaLonde, director of Ottawa Hollaback!, an international advocacy group focused on ending street harassment, “These things happen in plain sight of other people and there’s little to no bystander intervention. They know something is going on, but they’re not sure what it is or what they should do” [23]. As a result, harassment (and worse) on transit is significantly under-reported, and this may be expected given the statistics provided earlier in this report from the National Sexual Violence Resource Center [11]. For example, based on 2012 data, New York’s subway system had an average daily ridership of 5.3 million, but only about 1,000 sexual harassment complaints per year were reported [4].

The Washington Metropolitan Area Transportation Authority (WMATA) also has low reports of harassment compared to its ridership. Yet, according to one WMATA rider, the “unavoidable reality” of harassment is “always in the back of my head when I step on Metro” [7]. In 2012, Collective Action for Safe Spaces, a D.C. organization, lobbied WMATA in 2012 to address harassment on the city’s public transit system. In response, a WMATA spokesman testified to the D.C. City Council that harassment “really isn’t a big issue” and the Metro Transit Police Chief “dismissed uninvited comments and leering stares as ‘not being a crime’” and that “One person’s harassment is another person’s flirtation” [8]. These comments prompted significant backlash and the public relations debacle that ensued resulted in a stronger, more serious anti-harassment campaign in D.C. (see Figures 5 and 6 later in this section).

Blaming the victim and individualizing the issue (rather than recognizing it as a societal problem) is difficult to counter, according to Hickey. Some responses from a 2007 survey of New York City subway riders chastised women for “asking for it” through their choices of clothing, faulted women for not reporting incidents, or dismissed it as one of the various “odd occurrences” that can be expected of city living (“catching these people is impossible”) [8]. In another example, a woman reported her experience only to be told, “You’re a pretty girl, what do you expect?” [24].

Back in 2011, there were only 95 documented sex crimes (and 40 arrests) combined on Bay Area Rapid Transit (BART), Alameda-Contra Costa Transit (AC Transit), and San Francisco

Municipal Transportation Agency (Muni), while there were 370 million passenger trips taken on those same systems that year [25]. According to a Muni police spokesman, “Statistically, looking at the numbers, it does not appear to be a big problem, but that’s not to say it’s not a big deal for the victims...Some cultures may not be trusting enough to contact the police for help.” [25]. One BART rider did not report because she was not hurt and “did not want to make a scene” in front of other passengers. On a Muni bus, one woman experienced a man masturbating in front of her: “It was kind of funny, but I did feel very violated by it.” She did not want to say anything while he was still on the bus, and did not report it afterward, but “I guess I should have. I just didn’t even think about it. I just wanted to forget it.” [25].

A woman riding on Chicago Transit Authority (CTA) train felt a man rubbing his crotch against her wrist. “It feels silly to say, but I’m not sure if it was criminal. There was no indecent exposure. Maybe just as a woman, we’re kind of desensitized to the fact that guys are sometimes creeps.” [26]. This woman’s decision to not report is common, and illustrates that many women believe that these types of experiences are simply a “rite of passage.” From another woman’s experience, “I didn’t bother because I didn’t think they would do anything...The notion of reporting everyday harassment to authorities is bizarre to me. What would they do?” [27]. In many cases, victims just feel like the only thing they can do is just get out of the transit vehicle and away from the area as quickly as they can. According to King County Metro Police Captain Jose Marengo, “When a victim steps forward and says something happened, how they are treated by the person they report to is going to be key in that victim continuing or being willing to report to the police” [27].

However, amid the #MeToo movement, “women in particular, and certainly some men who are also victimized are saying ‘I shouldn’t have to put up with this’” [27]. In 2018, reports of sexual misconduct on King County Metro’s bus system tripled from the previous year. It should be noted that this increase in reporting “likely reflects more reporting rather than more incidents,” based on trends at other transit agencies and current research about the underreporting of such incidents [27]. King County Metro now has posters on most of its buses that urge passengers to report misconduct. Figure 1 shows two examples of posters produced by King County Metro. While not yet available as of this writing, King County Metro is working on a text-based app. Nearby, Sound Transit has a phone line for calls and texts to report misconduct. Texting can be a very discreet and quick way to ask for help or to report a problem, and other agencies have or are in the process of implementing similar apps.

It is important to note that these issues affect not only female transit passengers, but female transit workers as well (operators, supervisors, etc.). To be certain, women transit users have distinct travel needs, but “these needs are not well-addressed in the U.S.,” and there is a

mismatch between the needs expressed by women passengers and the types of safety and security strategies and initiatives adopted by many transit agencies [15]. In many cases, transit agencies do focus on treating everyone equally, and often believe that “women are no more vulnerable than men and do not have special safety and security needs” [24]. The #MeToo movement has influenced a surge of new research regarding the experiences of women on transit, as well as women walking, biking, or even flying in an airplane because women can be harassed while traveling in public via any mode.



<https://kingcountymetro.blog/2018/04/24/report-it-to-stop-it-lets-put-an-end-to-sexual-misconduct-on-our-services>

Figure 1: Posters on King County Metro

Public Transit – International Experiences

Outside of the U.S., a continuing barrier to women being able to participate fully in society is the lack of adequate transportation services. Globally, "...the world has a long history of countenancing violence against women" [28]. Within the home, violent acts against women were typically framed as family matters that did not require police intervention. In public, women could be at least partially blamed for acts against them if they were considered to be in a place they didn't "belong" or dressed "inappropriately." "She could then be defined as bringing the assault upon herself" [28]. Officials in Shanghai even made statements publicly that women invite harassment by how they dress [4].

Across the world, as women become more educated and enter the workforce in larger numbers, they become more exposed to harassment and violence: "...women are susceptible to such unpleasant experiences as they become spatially mobile" experiencing behavior including leering, winking, gestures, touching, leaning/pressing, groping, and worse [28].

In Latin America, harassment on public transportation is an "everyday experience" for women [29]. In Bogotá, on the TransMilenio bus rapid transit system, female officers are employed to patrol the buses. In an attempt to remedy the problem of harassment, one strategy in many places is to implement women-only train cars or buses. There are women-only cars or sections on transit vehicles in India, Japan, and Egypt [4]. In Mexico City, which also has women-only buses, 65 percent of women have been the victim of gender violence on public transportation [29]. Women transit riders in Mexico City are generally happy with the women-only buses, but men reported being upset if they had to wait longer for a regular bus [30].

In many places, the harassment seems routine to women transit users, but the psychological impacts can be significant. In one study, approximately two-thirds of the responding women indicated that harassment made them feel sad for a long time afterward, caused changes in mood, and affected their relationships with others [28].

Several global organizations are working on developing research and policy recommendations to address these issues, particularly in the developing world. These organizations include EMBARQ, which focuses on sustainable transportation in Brazil, China, Mexico, India, and Turkey, and the Asian Development Bank, which has 68 members and focuses on promoting growth and cooperation in poor areas of the world (including places such as India, Azerbaijan, Georgia, and Pakistan) [31].

Solutions

Much of the recent literature provides potential solutions to address the issues of harassment and crimes against women on public transportation and in public spaces. One hurdle appears to be the transfer of knowledge from researchers to the practitioners who can actually influence real changes. There is a need to better communicate the results of research on these topics to the transportation agencies and other decision-makers who are responsible for implementing policies. These agencies, as well as local/regional governments, must incorporate women's voices in planning processes and prioritize safety and security needs in public transit as well as the whole transportation system [15]. In the U.S., an opportunity currently exists to incorporate women's issues as transit agencies develop and implement Safety Management Systems (SMS).

While the knowledge transfer from researchers to practitioners must be improved, many transit agencies and other local organizations have taken action in their communities. In the past 10 years, several larger-scale anti-harassment campaigns have been implemented at many U.S. transit agencies, including Massachusetts Bay Transportation Authority (MBTA), Chicago Transit Authority (CTA), Washington Metropolitan Area Transit Authority (WMATA), and Edmonton Transit Services (ETS) in Alberta, Canada. The campaigns have grown to target a wider audience than women, also including older people, men, people from different races, people with disabilities, and the LGBTQ community [8]. Figure 2 exhibits anti-harassment campaign images from ETS.



<https://shawglobalnews.files.wordpress.com/2015/08/08-18-ets3.png>

<https://shawglobalnews.files.wordpress.com/2015/08/08-18-ets4.png>

Figure 2: Anti-Harassment Campaign Images from Edmonton Transit Service (ETS)

I COULD HEAR THIS DUDE SAYING, "I'M JUST FOOLING AROUND, BRO" ... and then a young voice say, "Please, leave me alone," and I knew something wasn't right so I called the T police.

Everyone has the right to a safe ride, and anyone can experience verbal or physical sexual harassment. If it happens to you or someone else, report it to stop it.

To report, call the Transit Police: **617-222-1212**
For support, call the BARCC 24-Hour Hotline: **800-841-8371**

THE CAR WAS PACKED AND HE COULDN'T MANEUVER HIS WHEELCHAIR TOO WELL. I KNEW HE COULDN'T GET AWAY ... from the woman harassing him so I squeezed between them and texted the T police.

Everyone has the right to a safe ride, and anyone can experience verbal or physical sexual harassment. If it happens to you or someone else, report it to stop it.

To report, call the Transit Police: **617-222-1212**
For support, call the BARCC 24-Hour Hotline: **800-841-8371**

I COULD TELL THE WAY SHE WAS LOOKING AT ME SHE WANTED ME ... to back her up. So, I told the guy harassing her to leave her alone and sent his photo to the T police.

Everyone has the right to a safe ride, and anyone can experience verbal or physical sexual harassment. If it happens to you or someone else, report it to stop it.

To report, call the Transit Police: **617-222-1212**
For support, call the BARCC 24-Hour Hotline: **800-841-8371**

Rub against me and I'll expose you.

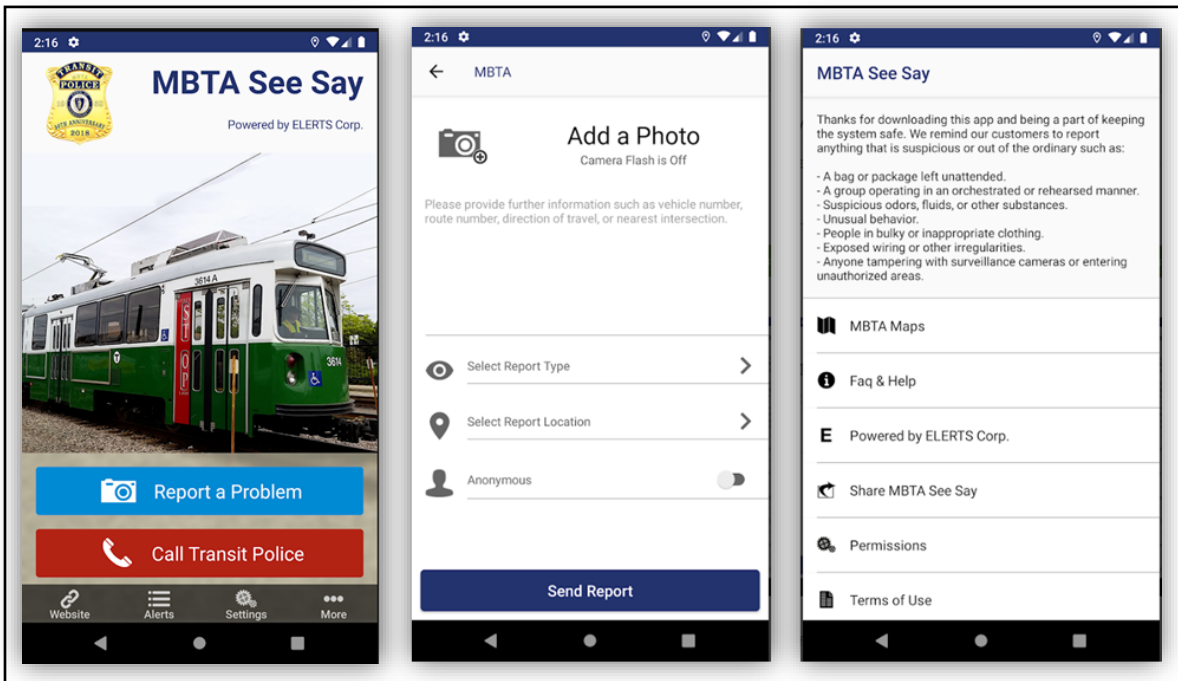
If someone rubs or touches you inappropriately, speak up. Even better, use your camera phone to snap a picture. Then report it to an MBTA station official or call 617-222-1212.

Logos: TRANSIT POLICE, barcc, INDEPENDENT LIVING, Massachusetts Bay Transportation Authority, Download the One Day app at mbta.com/transitpolice.

<https://barcc.org/blog/details/barcc-mbta-and-partners-launch-campaign-against-sexual-harassment>

Figure 3: Anti-Harassment Campaign Images from Massachusetts Bay Transportation Authority (MBTA)

In 2013, the Boston Area Rape Crisis Center, Fenway Health, and MBTA formed a partnership to revive the original 2008 anti-harassment campaign (Figure 3 displays posters from this campaign). One of the initiatives of this new effort included an app that allows transit passengers to send a photo and a message to the transit police, with an added safety feature that automatically disables the phone’s flash to aid in discretion [23]. Figure 4 shows screenshots of MBTA’s See Say app. Since the introduction of the See Say app, there has been a 58 percent increase in the number of reported incidents of harassment, thus exposing the underreporting of such events [23]. Several other transit agencies in the U.S. now also use a version of this app.



<https://play.google.com/store/apps/details?id=com.elerts.mbta&hl=en>

Figure 4: Massachusetts Bay Transportation Authority’s (MBTA) See Say App

In Japan, an app called Digi Police can be used to activate an extremely loud voice shouting “Stop it!” or to show a full-screen message that can be shown to other passengers stating, “There is a molester. Please help.” [32]. The number of downloads of the Digi Police app has been increasing by about 10,000 every month. Even apps that track transit vehicles in real time, such as NextBus, can help enhance safety by letting users know how long they will need to wait for a bus [5]. Overall, online reporting tools, texting services, and safety apps are examples of innovative solutions that take advantage of technology and the public’s comfort in using such technology to encourage communication and publicity to expose and reduce harassment [8].

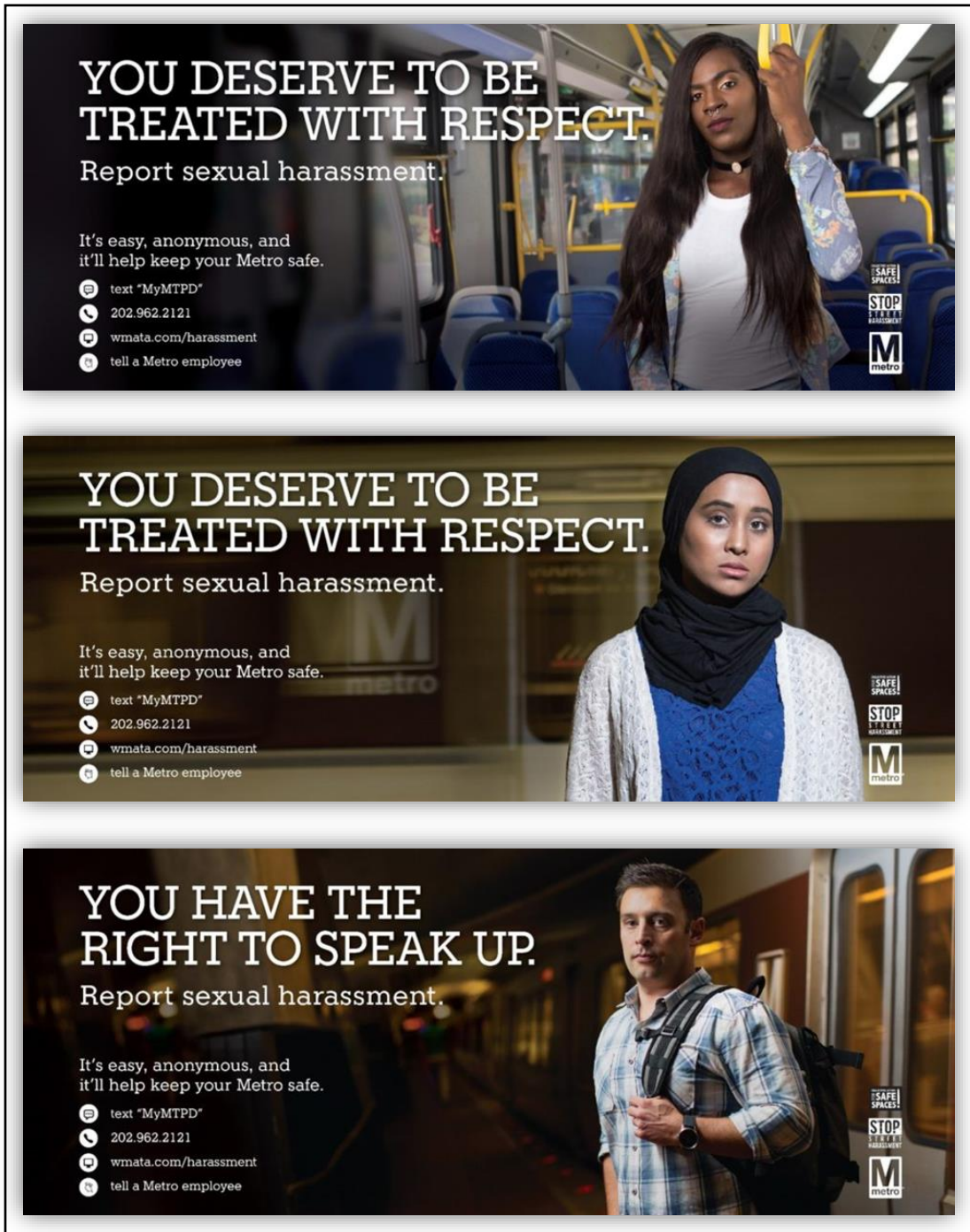
WMATA has borrowed from the successful MBTA campaign and found that the online reporting tool provided a way for the agency to track incidents such as verbal harassment, which they had not tracked previously. WMATA also increased specific training for this issue and also focused on the safety of its bus operators, as well, in an effort to eliminate assaults [23]. In Chicago, the CTA implemented a “zero tolerance” approach to harassment with a “Speak Up” campaign that includes signage and system-wide audio announcements [26]. Figures 5 and 6 show anti-harassment campaign images from WMATA, while Figure 7 shows images from CTA’s Speak Up! campaign.



<https://www.metro-magazine.com/rail/article/211753/transit-agencies-partner-to-prevent-sexual-assault>

Figure 5: Anti-Harassment Campaign Poster from Washington Metropolitan Transit Authority (WMATA)

While not currently available in the U.S., an app called Safetipin is available in India, Colombia, Kenya, Indonesia, and the Philippines to map the safety in public spaces, including on public transportation. For example, bus stops are given a safety score. The app can help women to make decisions regarding their travel and personal safety by providing information about safe routes to walk, using transit, and even choosing a place to live [33].



<http://www.stopstreetharassment.org/category/public-harassment/page/3/>

Figure 6: Anti-Harassment Campaign Images from Washington Metropolitan Transit Authority (WMATA)

We're all watching.



Together we can stop harassment. If you see someone else is being harassed, tell a CTA employee or call 1-888-YOUR-CTA (1-888-968-7282) and **report** date, time, location and bus or rail car number or station location. *If it's unwanted, it's harassment.*

If someone's immediate safety is threatened, call 911 right away.





SPEAK UP!

If it's unwanted, it's harassment.

If you or someone else is being harassed, push rail operator call button; tell CTA employee; or call 1-888-YOUR-CTA (1-888-968-7282) as soon as possible and **report** date, time, location and bus or rail car number or station.

If someone's immediate safety is threatened, call 911 right away.



Rail Car Call Button



IT'S NOT OK

If it's unwanted, it's harassment.

Many forms of harassment are criminal and violators will be prosecuted. Respect your fellow passenger.

If someone's immediate safety is threatened, call 911 right away.



<https://www.transitchicago.com/speakup/>

Figure 7: Anti-Harassment Campaign Images from Chicago Transit Authority (CTA)

Besides the implementation of reporting tools and apps, transit agencies can change operational policies to enhance safety. One example is allowing intermittent, or flag-stops, along routes at night or that run in areas that are considered to be less safe [15]. Flag-stops allow transit passengers to “flag down” a bus between marked stops along its route alignment, and also allow passengers to request to be dropped off at a location in between stops. These types of stops can minimize the distance a passenger must walk to access or egress the transit service at night or in areas where they do not feel safe. Transit agencies can also enhance lighting, communications, security personnel presence, and other amenities at their facilities to help women and all users feel safer using their services.

In addition to transit agency safety and operational initiatives and the better spread of knowledge from research, it is likely that more needs to be done to address the shortcomings in addressing women’s safety in the overall transportation planning process. The best place to start might be in the education of transportation engineers and planners: university programs should “start taking more responsibility for this” [6]. If engineers and planners are not going to be exposed to effective ways to deal with these issues in the field, then it needs to begin with the education of the next generation of professionals. In addition, women should continue to be encouraged to become transportation engineers, planners, and to work in the field of public transportation.

As mentioned above, recent research suggests significant shortcomings in addressing gender-based harassment on public transportation and in public spaces in general. According to Hickey, of primary concern is that the current solutions are only addressing the problem at the level of individual behavior, when it is really a problem of a “sense of community engagement and civic responsibility” [8]. If only treated as a matter between individuals, then the victims are left on their own to determine if they have been violated and then to decide if and how they should respond. Most recent campaigns “are not yet asking why we, as a society, have allowed these behaviors to develop” and persist, and “overlook how and why harassment creates fear and limits mobility for its victims, particularly women” [8]. While they are public entities, most public transportation agencies do not look to be solving societal problems but must instead focus, with their limited resources, on the provision of services to move people within their communities. However, according to Holly Kearl, the founder of Stop Street Harassment, a Washington, D.C.-area organization, “When it comes to public spaces, transit agencies are in a unique position to be leaders in addressing (harassment)” [26].

Security Data from the National Transit Database (NTD)

The National Transit Database (NTD)

This section presents data on security events as reported by transit agencies to the National Transit Database (NTD). Data are shown at the national level, and for the state of Florida. The NTD was established by the U.S. Congress to be the country's primary source for information and statistics on the transit systems that operate in the U.S. Those agencies receiving grants from the Federal Transit Administration (FTA) under the Urbanized Area Formula Program (§5307) or the Other than Urbanized Area (Rural) Formula Program (§5311) are mandated by statute to report data to the NTD. Currently, approximately 850 transit providers in urbanized areas report directly to the NTD via an online reporting system. More than 1,300 additional systems operating in rural areas report to the NTD, either directly or through their state departments of transportation. NTD data are used to apportion more than \$5 billion of FTA funds to agencies in urbanized areas (UZAs) [34].

For this study, it is important to recognize both the strengths and limitations of the NTD data. While the NTD Safety and Security database is readily available to the researchers and contains relatively detailed information on transit incidents (including the gender of those involved), there may be pieces of information that would be helpful but are not captured in the fields of the Safety and Security forms. In addition, it must be remembered that these incidents are self-reported in the NTD by the transit agencies. The safety and security data submitted to NTD by transit agencies are reviewed for clarity and completeness, but there is currently no validation or auditing process to fully determine the accuracy of reporting.

Before delving into the data, it is important to understand the definitions of the types of incidents (or, "events," as defined by NTD) relevant to this study. First, NTD divides incidents into "major" and "non-major". According to the NTD, major incidents must meet at least **one** of the following thresholds [35]:

- A fatality (not including deaths due to natural causes).
- An injury requiring immediate medical attention away from the scene.
- Property damage (to transit agency property and other parties' property) of \$25,000 or more.
- Evacuations due to life safety reasons ("imminent danger").
- Mainline derailment.

Second, the incidents are classified as either safety events or security events. According to the NTD, safety incidents are defined as “a collision, derailment, fire, hazardous material spill, act of nature, evacuation, or (other incident) occurring on transit-controlled property and meeting established NTD thresholds.” [35]. Security events are further classified as either system security events or personal security events. System security events include bombing, bomb threat, suspicious package, chemical/biological/nuclear/radiological release, arson, hijacking, sabotage, cyber events, burglary, and vandalism. Personal security events include assault, robbery, rape, motor vehicle theft, larceny/theft, homicide, and suicide/attempted suicide [35]. For the purposes of this study, the focus is on personal security incidents classified as major events.

The data included in this section represent NTD personal security major events for the years 2013 through 2017. The U.S. data encompasses all of the transit systems in the U.S. classified as urban systems that report to NTD and operate the following modes: motorbus, commuter bus, rapid bus (BRT), heavy rail, light rail, streetcar rail, and automated guideway (peplemover). The Florida data includes all urban transit agencies for the following modes operated in the state: motorbus, commuter bus, rapid bus (BRT), heavy rail, streetcar rail, and automated guideway (peplemover). It should be noted that NTD security data were not available for the commuter rail mode (for example, the Tri-Rail system and SunRail system in Florida). A brief definition for each of the modes included in the data is provided below (from the NTD glossary) [36].

Motorbus

Motorbus is bus service that operates over regular streets and roads, according to fixed routes with on-board motor power sources.

Commuter Bus

Commuter bus is a fixed-route bus system that primarily connects outlying areas with a central city. Service typically uses over-the-road buses with service predominantly in one direction during peak periods, limited stops, and routes of extended length.

Bus Rapid Transit

Rapid bus, or bus rapid transit (BRT) includes fixed-route bus systems that combine passenger stations, traffic signal priority or pre-emption, low-floor vehicles or level-platform boarding, and separate branding of the service.

Heavy Rail

Heavy rail is a transit mode that uses an electric railway with the capacity for a heavy volume of traffic. It is characterized by passenger rail cars operating singly or in multi-car trains on fixed rails along separate rights-of-way (ROW) from which all other vehicular and foot traffic are excluded. The mode includes signaling systems and raised platform boarding.

Light Rail

Light rail typically operates on an electric railway with a lighter volume traffic capacity compared to heavy rail. It is characterized by passenger rail cars operating singly (or in short, usually two car, trains) on fixed rails in shared or exclusive ROW, low or high platform loading, and vehicle power drawn from an overhead electric line via a trolley or a pantograph.

Streetcar Rail

This mode is for rail transit systems operating entire routes predominantly on streets in mixed-traffic. This service typically operates with single-car trains powered by overhead catenaries and with frequent stops.

Automated Guideway

An electrically-powered mode of transit operating in an exclusive guideway or over relatively short distances. The service is typically characterized by peplemover systems with automated operation.

It is important to note that there is a distinction between the types of incidents reported in the NTD which must meet the thresholds listed previously, and incidents such as harassment which were discussed at length earlier in this report. As mentioned earlier, one of the main thresholds for reporting an incident to NTD is an injury which requires immediate medical attention away from the scene. Many incidents of harassment (or leering, groping, etc.) do not result in an injury that requires immediate transport for medical attention, and so will not be reflected in the NTD data. However, when a woman (or any other passenger) considers the safety of using public transportation she will think about not only the possibility of harassment, but the possibility of other crimes such as assault and robbery, etc. The purpose of illustrating the NTD security data is to show the extent to which crimes such as assault, robbery, etc. do occur on U.S. transit systems, including transit systems in Florida. These data can in no way reflect how often harassment incidents are occurring (which, as well-documented in the literature discussed earlier in this report, tend to be significantly under-reported).

NTD Security Data – U.S. and Florida

All security events, including system security events, are provided in Table 1 for all U.S. transit agencies operating the bus and rail modes indicated, for the years 2013 through 2017. As shown in the table, system security events are relatively rare, and mostly encompass bomb threats and suspicious packages. For the U.S. data, there was only a total of 280 system security events for the five-year period from 2013 through 2017. For comparison, the total number of passenger trips and revenue miles of service for the transit systems and modes included in the analysis are also presented in Table 1. The data for passenger trips and revenue miles of service were also compiled from the NTD. For example, over the more than 14 billion miles of revenue service operated by the U.S. transit agencies from 2013 to 2017, there were only 280 system security events. During this five-year time period, there were more than 47.6 billion passenger trips.

Table 1: Security Events from the National Transit Database – U.S. Data 2013-2017

Event Type	2013	2014	2015	2016	2017	Total 2013-2017
System Security*	66	58	54	63	39	280
Personal Security						
<i>Assault</i>	783	832	905	900	1,003	4,423
<i>Robbery</i>	116	105	108	120	129	578
<i>Rape</i>	4	10	7	9	10	40
<i>Larceny/Theft</i>	0	0	5	3	4	12
<i>Homicide</i>	16	14	7	20	18	75
<i>Suicide</i>	131	145	161	143	154	734
Other	21	24	18	24	23	110
Total	1,137	1,188	1,265	1,282	1,380	6,252
Passenger Trips	9,687,764,962	9,675,135,500	9,666,559,631	9,466,625,262	9,178,637,457	47,674,722,812
Revenue Miles of Service	2,682,013,620	2,704,630,400	2,886,606,842	2,925,029,367	2,955,286,422	14,153,566,651

Source: National Transit Database, representing the following modes: Bus (motorbus, commuter bus, rapid bus) and Rail (heavy rail, light rail, streetcar rail, automated guideway).

*Includes arson, bombing, bomb threats, burglary, chemical/biological/nuclear/radiological release, hijacking, suspicious packages, and vandalism (there were no sabotage or cyber events for the data analyzed in the table).

Because they are of greater concern for this study, the occurrences of personal security events are broken out in more detail in Table 1. The categories for personal security events include assault, robbery, rape, larceny/theft, homicide, and suicide/attempted suicide. As the table illustrates, assaults are the most common personal security event occurring on public transit; however, with 4,423 assaults and 47.6 billion passenger trips over the five-year period from 2013 through 2017, they are still a rare occurrence. Suicides, or attempted suicides, are the next most common event, with a total of 734 incidents from 2013 to 2017. Robberies are the third most common personal security event, with a total of 578 incidents over the five-year period. Reported rapes and homicides are fortunately very rare events on public transit property, according to the table. For the time period in this study, there were a total of 40 reported rapes and 75 homicides. There were only 12 incidents of larceny/theft between 2013 and 2017.

The “Other” category in Table 1 includes security events that are reportable by NTD thresholds but do not fall under the definitions for system security or personal security events. They include mainly incidents of objects thrown at transit vehicles (rocks, tree limbs, eggs, etc.), shots fired, mace or pepper spray discharged on a transit vehicle, verbal arguments, brandishing weapons, threats (not bomb threats), and one incident of a laser beam pointed at an operator’s eye. These are relatively rare events when they meet the NTD reporting thresholds; there were only 110 such incidents from 2013 to 2017.

Table 2 shows similar data but for transit agencies in the state of Florida. All security events, including system security events, are provided in Table 2 for the urban transit systems in the state operating the bus and rail modes indicated, for the years 2013 through 2017. During this time period, there were 29 urban transit systems in Florida (excluding the two commuter rail systems, Tri-Rail in southeast Florida and SunRail in central Florida, for which NTD security data are not available). It should be noted that some of Florida’s urban transit systems, particularly the very small systems, did not have any reportable security incidents during the time period of this analysis. State total data for passenger trips and revenue miles of service for the Florida urban agencies are also shown in Table 2. Similar to the U.S. data shown in Table 1, system security events are relatively rare in Florida as well, and only included bomb threats and suspicious packages. In Florida, there was only a total of 15 system security events for the five year period from 2013 through 2017 (although one of these was at one of the small transit systems in the state). During this same time period, there was approximately 700 million revenue miles of service traveled and nearly 1.3 billion passenger trips taken.

Table 2: Security Events from the National Transit Database – Florida Data 2013-2017

Event Type	2013	2014	2015	2016	2017	Total 2013-2017
System Security*	6	5	2	1	1	15
Personal Security						
<i>Assault</i>	12	5	10	11	4	42
<i>Robbery</i>	1	1	0	0	0	2
<i>Rape</i>	0	0	0	1	0	1
<i>Larceny/Theft</i>	0	0	0	0	0	0
<i>Homicide</i>	1	2	0	1	0	4
<i>Suicide</i>	0	0	1	1	0	2
Other	2	1	0	0	0	3
Total	22	14	13	15	5	69
Passenger Trips	272,857,098	271,676,048	264,252,359	244,229,261	224,508,269	1,277,523,035
Revenue Miles of Service	134,997,341	137,825,110	139,413,508	141,786,896	141,988,813	696,011,668

Source: National Transit Database, representing the following modes: Bus (motorbus, commuter bus, rapid bus) and Rail (heavy rail, streetcar rail, automated guideway).

*Includes bomb threats and suspicious packages (there were no arson, bombing, burglary, hijacking, sabotage, chemical/biological/nuclear/radiological release, cyber events, or vandalism for the data analyzed in the table).

As in Table 1, the personal security events are further broken down in Table 2 for the Florida data. Again, while rare, assaults comprise the largest portion of the personal security events, with a total of 42 reported assaults from 2013 through 2017. As shown in the Table 2, over the time period analyzed, there were two robberies, one rape, zero incidents of larceny/theft, four homicides, and two suicides/attempted suicides. There were just three “Other” incidents during the five-year period.

Overall, the data in Tables 1 and 2 indicate that reported personal security events (and security events in total) are relatively rare occurrences on public transit in the U.S. and Florida. Figures 8 and 9 illustrate the breakdown of personal security events in the U.S. and Florida, respectively (totals may not sum to 100 due to rounding).

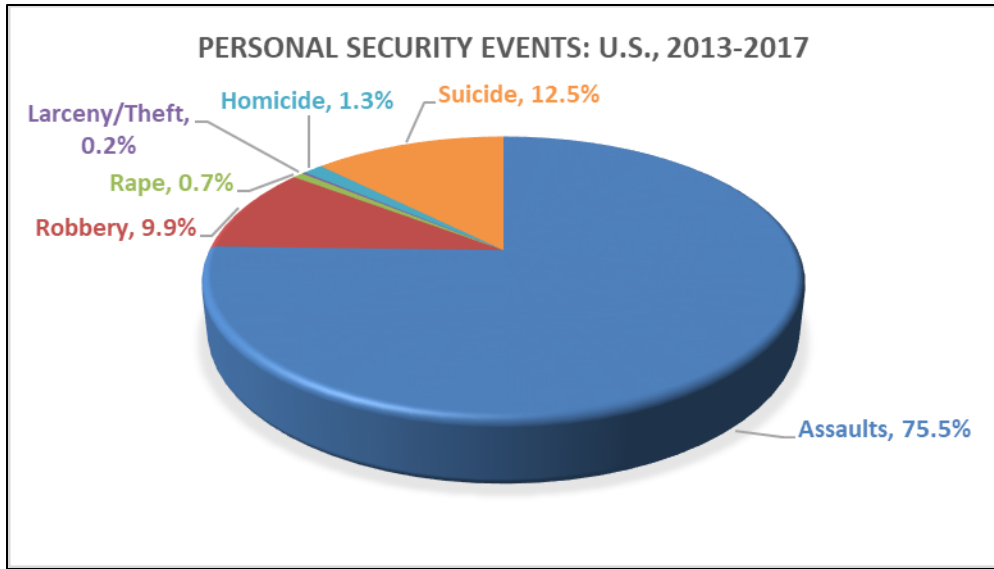


Figure 8: Personal Security Events on U.S. Transit Systems (NTD, 2013-2017)

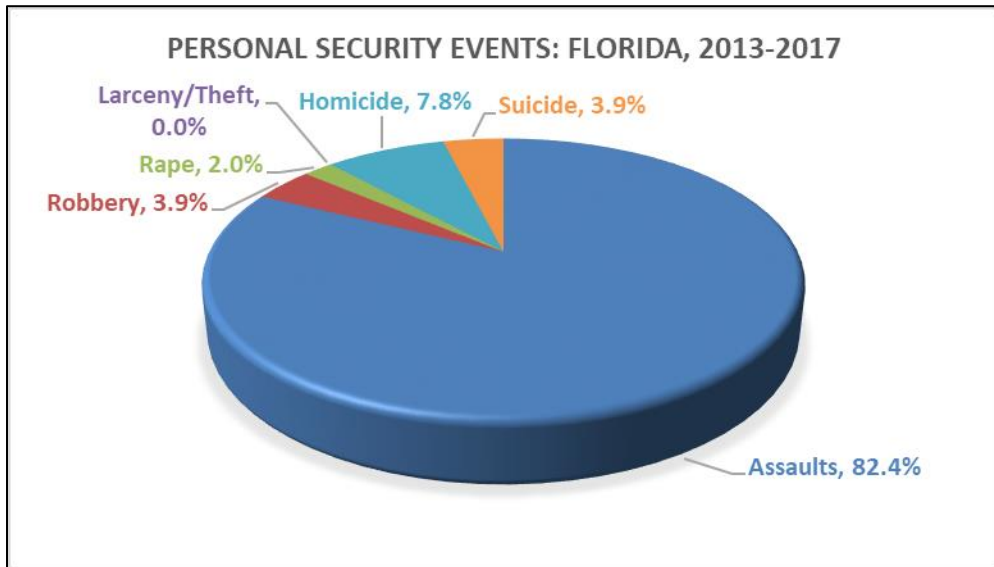


Figure 9: Personal Security Events on Florida Transit Systems (NTD, 2013-2017)

Tables 3 through 6 examine information about personal security events more closely by looking at the numbers of injuries and fatalities, for the U.S. and Florida. Because more than one person can be injured or killed during a security event, the number of injuries/fatalities in each category can be greater than the number of events in the respective category. For example, Table 1 indicates that there were 4,423 assaults on U.S. transit systems from 2013 through 2017; however, there were 4,671 injuries resulting from those assault events, according to Table 3. As with Tables 1 and 2, the transit service supplied (revenue miles of service) and consumed (passenger trips) are also provided in Tables 3 through 6 to illustrate the relatively rarity of injuries and, particularly, fatalities, associated with these personal security events.

Table 3 shows a total of 5,571 injuries resulting from personal security events on U.S. transit systems for the five-year period from 2013 through 2017. In Table 4, it is shown that there was a total of 432 fatalities resulting from these incidents during the same time period. Table 4 shows that there were only six fatalities resulting from assault events and only three fatalities resulting from robbery events. There were no fatalities resulting from rape or larceny/theft events. As might be expected, the number of fatalities is highest for suicides and homicides, with 346 and 77 fatalities, respectively, occurring between 2013 and 2017.

Table 3: Injuries Resulting from Personal Security Events – U.S. Data 2013-2017

Event Type	2013	2014	2015	2016	2017	Total 2013-2017
Assault	833	883	967	952	1,036	4,671
Robbery	117	107	108	120	138	590
Rape	5	10	7	9	10	41
Larceny/Theft	n/a	n/a	3	1	2	6
Homicide	4	2	3	4	6	19
Suicide	64	84	99	74	103	424
Total	1,023	1,086	1,187	1,160	1,295	5,751
Passenger Trips	9,687,764,962	9,675,135,500	9,666,559,631	9,466,625,262	9,178,637,457	47,674,722,812
Revenue Miles of Service	2,682,013,620	2,704,630,400	2,886,606,842	2,925,029,367	2,955,286,422	14,153,566,651

Source: National Transit Database, representing the following modes: Bus (motorbus, commuter bus, rapid bus) and Rail (heavy rail, light rail, streetcar rail, automated guideway).

Table 4: Fatalities Resulting from Personal Security Events – U.S. Data 2013-2017

Event Type	2013	2014	2015	2016	2017	Total 2013-2017
Assault	3	2	1	0	0	6
Robbery	1	0	1	1	0	3
Rape	0	0	0	0	0	0
Larceny/Theft	n/a	n/a	0	0	0	0
Homicide	16	14	7	21	19	77
Suicide	72	61	69	77	67	346
Total	92	77	78	99	86	432
Passenger Trips	9,687,764,962	9,675,135,500	9,666,559,631	9,466,625,262	9,178,637,457	47,674,722,812
Revenue Miles of Service	2,682,013,620	2,704,630,400	2,886,606,842	2,925,029,367	2,955,286,422	14,153,566,651

Source: National Transit Database, representing the following modes: Bus (motorbus, commuter bus, rapid bus) and Rail (heavy rail, light rail, streetcar rail, automated guideway).

Tables 5 and 6 exhibit these data on injuries and fatalities for the Florida transit systems. Table 5 shows 40 injuries from assaults, and one injury each from robbery, rape, and attempted suicide for the time period studied. Table 6 indicates that fatalities are very rare on public transit systems in Florida from personal security events. The table shows four fatalities from homicide and one fatality each from assault, robbery, and suicide.

Following Tables 5 and 6, Figures 10 and 11 illustrate the breakdowns of injuries and fatalities for the U.S. data and the Florida data, respectively, by gender. While women tend to make up more than half of public transit ridership, these data show that men are more impacted by injuries and fatalities from NTD-reportable personal security events [3]. Figures 10 and 11 show that, with the exception of injuries from rape, men incur most of the injuries and deaths from personal security events on public transit. In Florida, there were no fatalities for women due to personal security events from 2013 through 2017.

Table 5: Injuries Resulting from Personal Security Events – Florida Data 2013-2017

Event Type	2013	2014	2015	2016	2017	Total 2013-2017
Assault	12	5	9	11	3	40
Robbery	0	1	n/a	n/a	n/a	1
Rape	n/a	n/a	n/a	1	n/a	1
Larceny/Theft	n/a	n/a	n/a	n/a	n/a	0
Homicide	0	0	n/a	0	n/a	0
Suicide	n/a	n/a	1	0	n/a	1
Total	12	6	10	12	3	43
Passenger Trips	272,857,098	271,676,048	264,252,359	244,229,261	224,508,269	1,277,523,035
Revenue Miles of Service	134,997,341	137,825,110	139,413,508	141,786,896	141,988,813	696,011,668

Source: National Transit Database, representing the following modes: Bus (motorbus, commuter bus, rapid bus) and Rail (heavy rail, streetcar rail, automated guideway).

Table 6: Fatalities Resulting from Personal Security Events – Florida Data 2013-2017

Event Type	2013	2014	2015	2016	2017	Total 2013-2017
Assault	0	0	1	0	0	1
Robbery	1	0	n/a	n/a	n/a	1
Rape	n/a	n/a	n/a	0	n/a	0
Larceny/Theft	n/a	n/a	n/a	n/a	n/a	0
Homicide	1	2	n/a	1	n/a	4
Suicide	n/a	n/a	0	1	n/a	1
Total	2	2	1	2	0	7
Passenger Trips	272,857,098	271,676,048	264,252,359	244,229,261	224,508,269	1,277,523,035
Revenue Miles of Service	134,997,341	137,825,110	139,413,508	141,786,896	141,988,813	696,011,668

Source: National Transit Database, representing the following modes: Bus (motorbus, commuter bus, rapid bus) and Rail (heavy rail, streetcar rail, automated guideway).

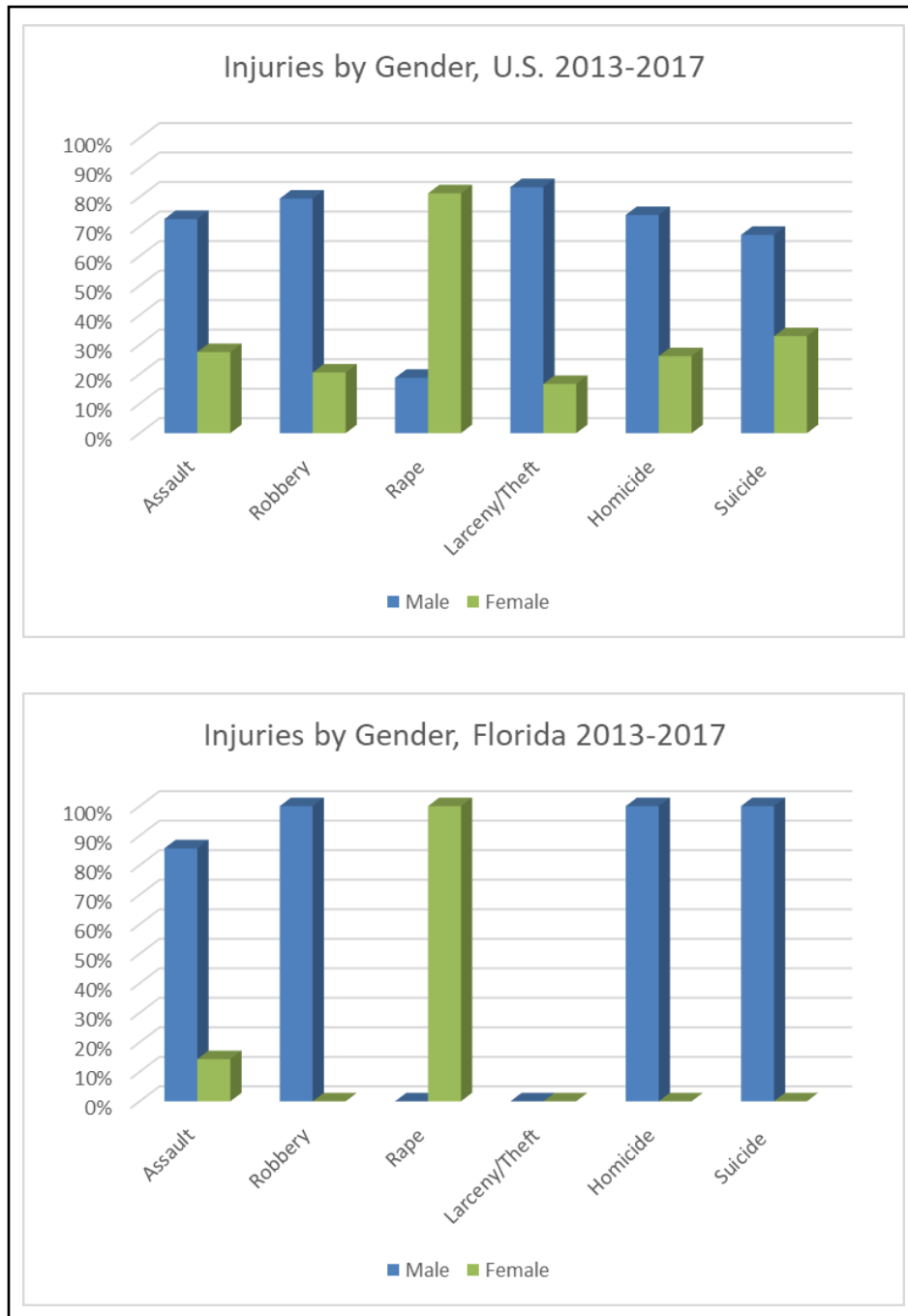


Figure 10: Injuries by Gender from Personal Security Events (NTD, 2013-2017)

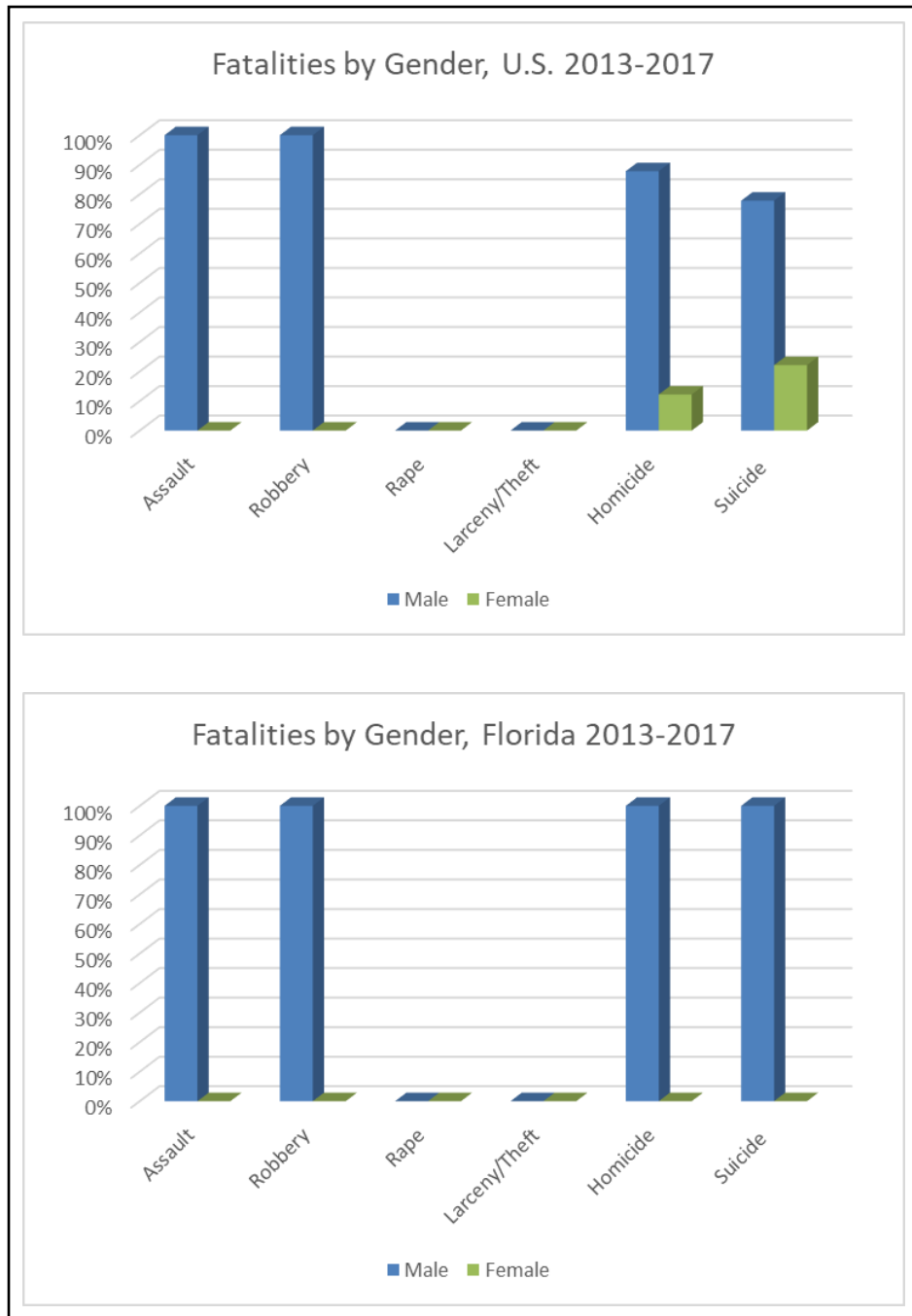


Figure 11: Fatalities by Gender from Personal Security Events (NTD, 2013-2017)

To further explore the breakdown of injuries and fatalities, NTD categorizes affected individuals as passengers, workers (operators, contracted workers, other staff), pedestrians, bicyclists, or others. For the purposes of this study, the categories were combined into the following:

- *Passengers* – located on board a transit vehicle at the time of the event
- *Operators* – drivers (operators) of transit vehicles during an event (at the time of an event they could be on board the vehicle or outside of the vehicle)
- *Workers* – comprise contracted workers for the transit system and other workers directly employed by the transit agency (excluding operators) affected by an event
- *Persons waiting or leaving* – located at a transit stop or station, either waiting to board or having recently alighted a transit vehicle during an event
- *Other* – includes pedestrians, bicyclists, and all others affected by an event

Figure 12 classifies injuries and fatalities into these categories, for both the U.S. and Florida data (sums may not equal 100 due to rounding). For the U.S. data, the highest percentage (39 percent) of injuries affected individuals who were waiting at stations or stops to board transit or had recently alighted a transit vehicle and were still within the stop or station area. The next highest percentage of injuries (35 percent) affected passengers on board transit vehicles. Transit vehicle operators across the U.S. experienced 16 percent of the injuries resulting from personal security events from 2013 through 2017. In Florida, more than half (54 percent) of the injuries from these events were to transit passengers. Operators incurred nearly 28 percent of the injuries, while only 14 percent affected those who were waiting or leaving at transit stops or stations. Other workers, pedestrians, and bicyclists comprise the remainder of these injuries.

Regarding fatalities, Figure 12 shows that, for both the U.S. and Florida, the largest percentage of deaths occurred for those who were waiting or leaving at the transit stops or stations (67 percent and 43 percent, respectively). The next largest category of fatalities is the “other” category, which comprises pedestrians, bicyclists, and others not in the remaining categories (24 percent for the U.S. data; 29 percent for the Florida data). For the U.S. data, 8 percent of the fatalities were passengers, while the Florida data indicates 14 percent of fatalities were passengers. From 2013 to 2017, Figure 12 shows that there were no operator fatalities from personal security events. Unfortunately, there has been at least one recent operator fatality in Florida, when a bus operator was stabbed while driving a bus in Tampa, Florida in May 2019 [37]. Still, it is clear from the data that fatalities from personal security events on public transit are rare occurrences.

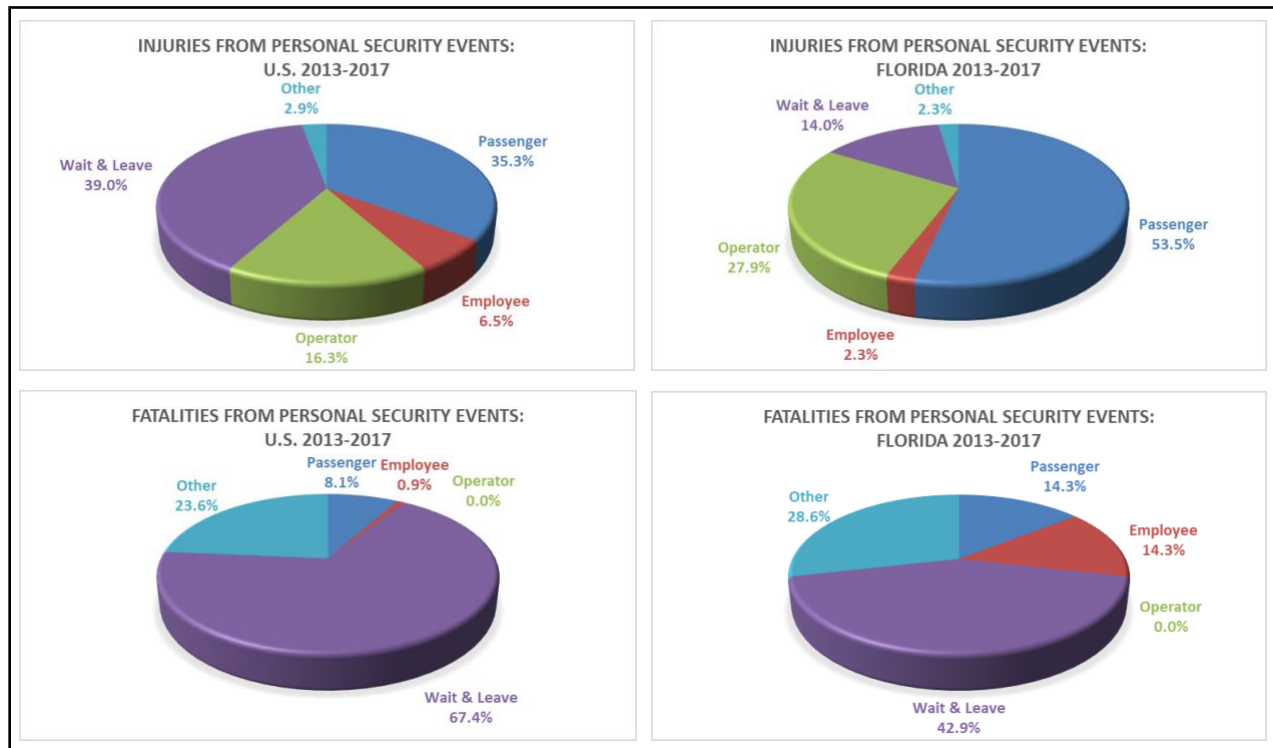


Figure 12: Injuries and Fatalities by Category, Personal Security Events (NTD, 2013-2017)

For the purposes of this study, the NTD data can be broken down even further by gender. It was indicated previously in this section that assaults are the most common personal security event on public transit. Figure 13 categorizes the injuries from assaults by gender for the U.S. and Florida data. The figure indicates that, for the U.S. data, men are injured more than women as a result of assaults on transit. The same is true for the Florida data, except that the only women injured from assaults were passengers and operators.

Figure 14 shows injuries for the U.S. data from robberies, rape, and homicides (there were only six injuries from larceny/theft during the time period studied; five men and one woman). For robberies men were injured more than women; however, from 2013 to 2017, four male and four female operators were injured as a result of robberies on transit. Similarly, these data show that more men were killed by homicide than women, but three male passengers and three female passengers were injured during a homicide event during the time period analyzed. For rape, more women were injured than men. It is important to remember that more than one injury can occur during a security event; bystanders or people attempting to intervene in an event can possibly get injured.

Injuries by gender and by category (passenger, operator, etc.) are not shown in the figures for the other personal security events due to the very low number of occurrences in the Florida data for the time period studied. Instead, they are listed here:

- Robberies -- Injuries to two men
- Rape – One injury to a woman
- Homicide – Injuries to four men
- Suicide – Injuries to two men

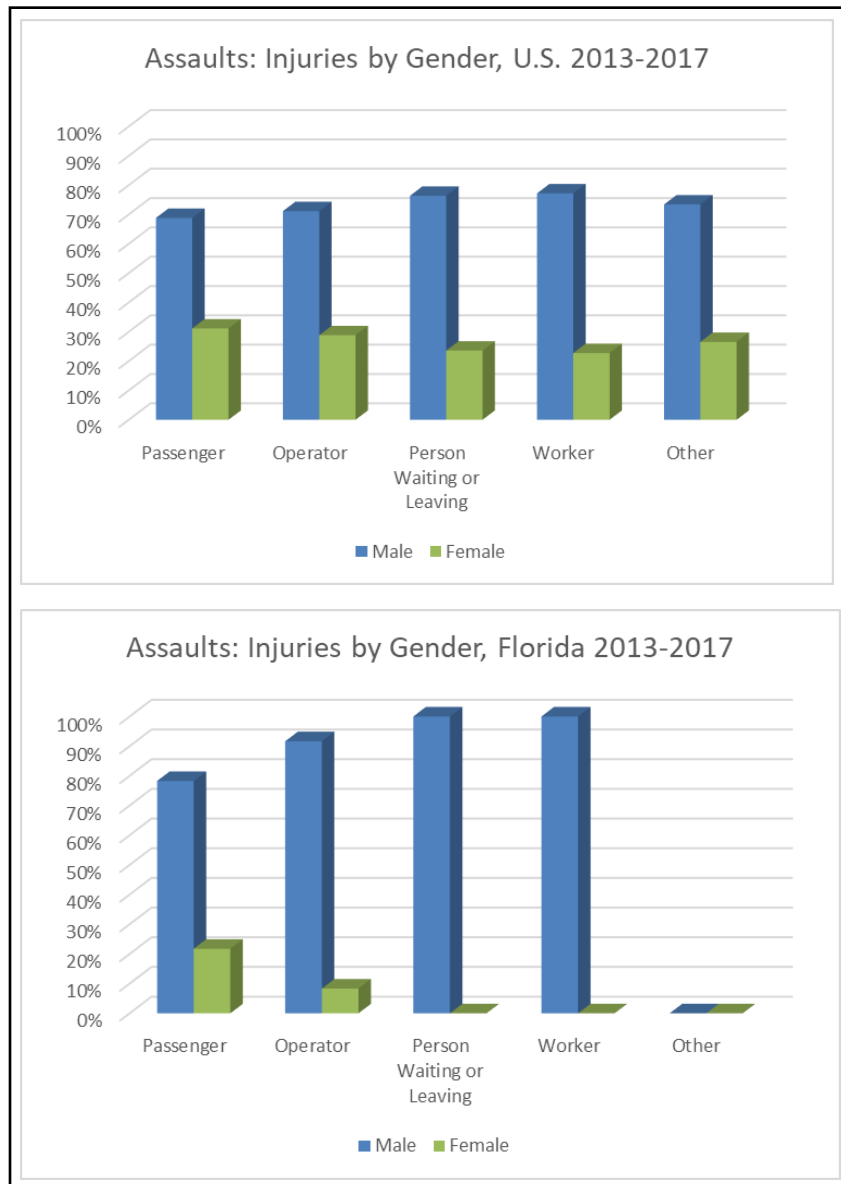


Figure 13: Injuries by Gender from Assaults, U.S. and Florida (NTD, 2013-2017)

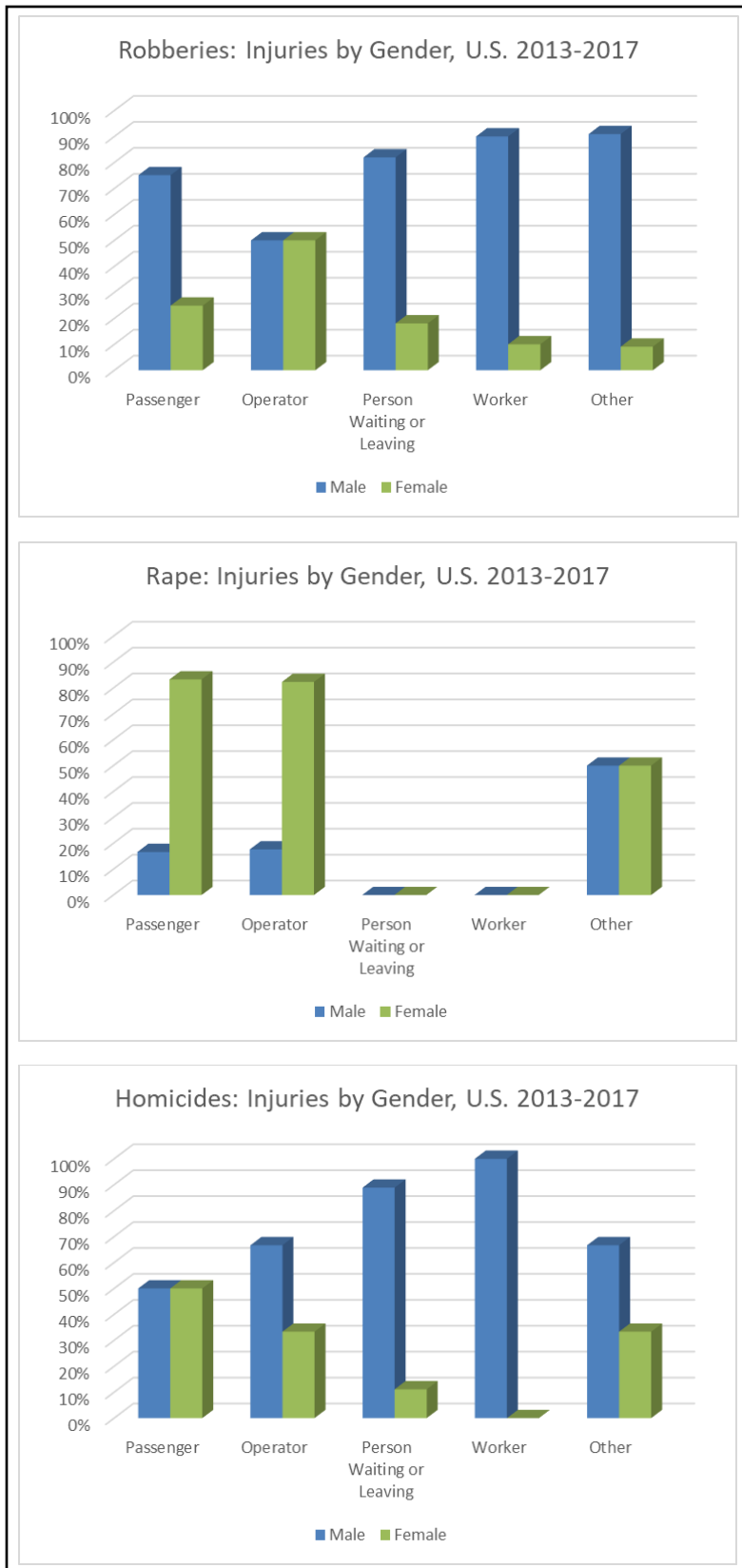


Figure 14: Injuries by Gender from Robberies, Rapes, and Homicides, U.S. (NTD, 2013-2017)

Fatalities by gender and person category are displayed in Figure 15 for assaults, robberies, and homicides in the U.S. data (there were no fatalities from rapes or larceny/theft, and 346 fatalities from suicide from 2013 through 2017). For the time period analyzed, the U.S. data indicates that there were only six fatalities resulting from assaults; all were men and all were transit passengers. For robberies, there were three male fatalities, one was a passenger and two were waiting in or leaving from the transit stop/station area. Regarding homicides, most fatalities were men (total of 72 men and 10 women were killed by homicide during the time period analyzed).

There were only seven fatalities in Florida as a result of personal security events between 2013 and 2017. While these are not illustrated in a figure, they are listed below:

- Assault – One male worker
- Robbery – One male waiting or leaving
- Homicide – Four males (two waiting or leaving, one passenger, and one pedestrian)
- Suicide – One male pedestrian

This section analyzed NTD security data for the U.S. and Florida for the five-year period from 2013 through 2017. Data were examined in detail for personal security events (assaults, robberies, rapes, larceny/theft, homicides, and suicides) and categorized by gender and person type (passenger, operator, other worker, persons waiting or leaving the transit area, etc.). Personal security events are a relatively rare occurrence, with only 5,862 incidents from 2013 to 2017, resulting in 5,751 injuries and 432 fatalities. During this time period, there were more than 47.6 billion passenger trips taken and more than 14.1 billion revenue miles of service provided on U.S. transit systems. For Florida transit systems between 2013 and 2017, there were only 51 personal security events resulting in 43 injuries and 7 fatalities over more than 1.3 billion passenger trips and 700 million revenue service. The NTD analysis showed that more men than women are injured or killed as a result of personal security events on transit (with the exception of rape), even though women tend to make up more than half of all transit ridership [3].

As mentioned at the beginning of this section, there is a clear distinction between the types of incidents that meet the thresholds to report in NTD (injury, fatality, property damage minimum, etc.) and the types of incidents that include harassment, particularly toward women. These NTD data do not reflect incidents of harassment which, as discussed previously, already tend to be significantly under-reported. Nonetheless, according to the literature reviewed for this study, women fear not only harassment on transit but also fear being the victims of crimes such as assault, robbery, etc. The analysis of recent NTD data provides evidence that the occurrence of these crimes on public transit is very low.

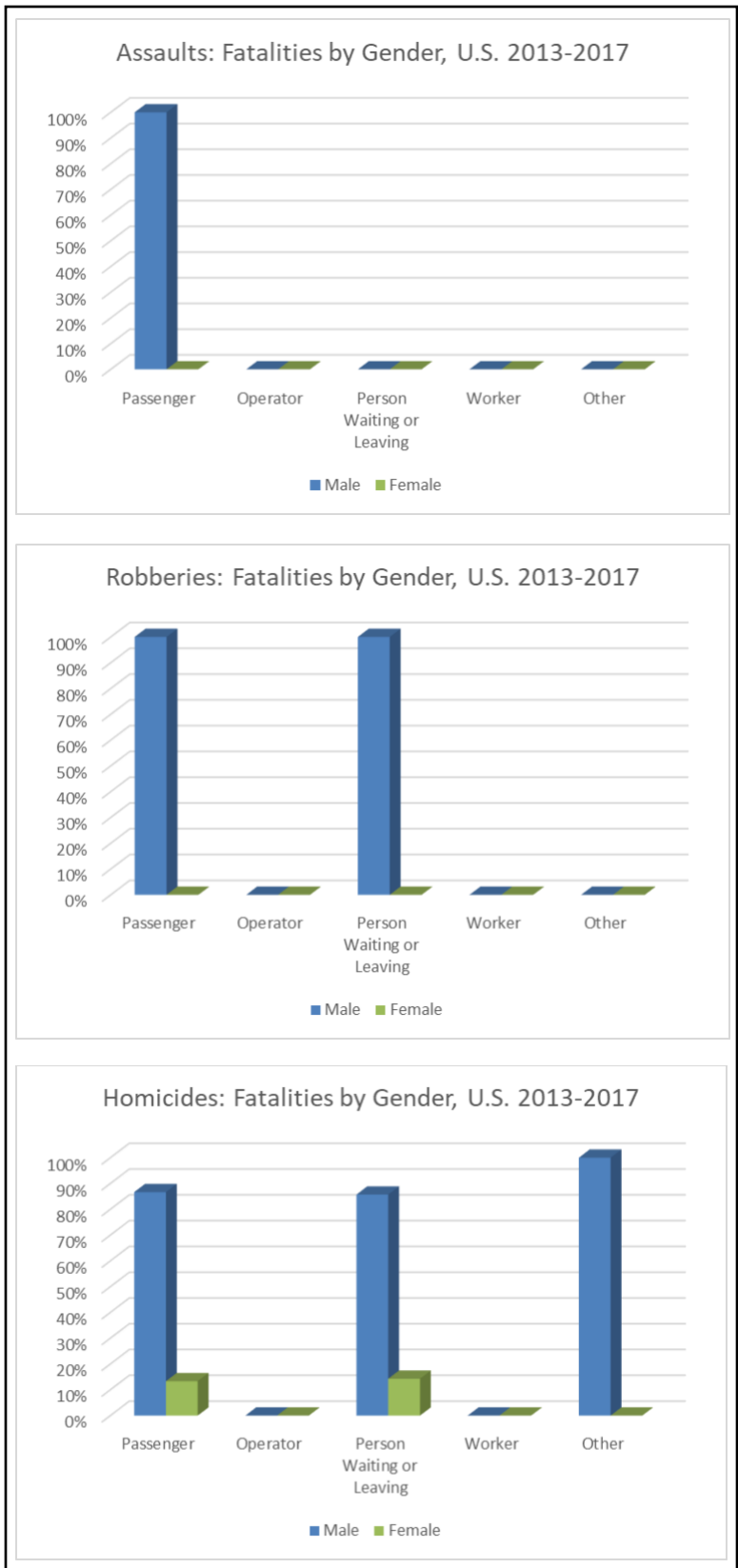


Figure 15: Fatalities by Gender from Assaults, Robberies, and Homicides U.S. (NTD, 2013-2017)

Florida Case Studies

Introduction

One objective of this study was to examine issues of safety and security for women on public transit in the state of Florida. The previous section provided an analysis of NTD security data for a recent five-year time period (2013 to 2017) for all U.S. transit systems as well as for Florida transit systems. Overall, the incidence of personal security events (including assaults, robberies, rapes, larceny/theft, homicides, and suicides) on public transit in the U.S. is very low. In Florida, for over 1.3 billion passenger trips and 700 million revenue miles of service from 2013 to 2017, there were only 51 personal security events resulting in 43 injuries and 7 fatalities. However, as discussed previously in this report, incidents of harassment also affect women's sense of personal security on transit. It was instructive to speak with representatives of a few Florida transit agencies to learn more about the experiences of women transit users as well as women employees regarding their personal safety. It was hoped that some of the agencies might have detailed passenger survey data (with responses by gender) that could provide additional insight into women's perceptions of safety and security; however, no such data were available for this study.

A total of three Florida transit agencies responded to the research team's inquiry and were also able to provide information within the timeframe of this study. These agencies are: Palm Tran in Palm Beach County, VOTRAN in Volusia County (Daytona Beach), and Lee Tran in Lee County (Fort Myers area).

Palm Tran operates bus services in Palm Beach County on the southeast coast of Florida. It is one of the larger transit systems in the state, with 130 buses operated in peak service. In 2017, Palm Tran provided 7,230,007 revenue miles and generated 8,915,163 passenger trips [38].

Farther north up Florida's east coast, VOTRAN provides transit services in Volusia County, including Daytona Beach. VOTRAN is one of the state's medium-sized transit agencies, operating 54 buses in peak service as of 2017. In 2017, VOTRAN's ridership comprised 3,189,082 passenger trips on its bus service, with 2,792,889 revenue miles of service traveled [38].

On Florida's southwest coast, Lee Tran operates its services in Lee County, which includes Fort Myers and the surrounding areas. Lee Tran is similar in size to VOTRAN, with 49 buses operating in peak service as of 2017. In 2017, the agency provided 2,929,585 revenue miles of bus service which generated 3,126,846 passenger trips [38].

Discussions

Representatives of the three transit systems, Palm Tran, VOTRAN, and Lee Tran, participated in discussions about personal security in transit. Those participating included safety/security personnel, as well as others at the discretion of the agency. Topics of the discussions included the following:

- Background on the topic, including a brief summary of recent literature
- Security events reported in NTD
- Complaints/perceptions from passengers or employees regarding personal security (including any data from surveys, etc., if available)
- Specific safety/security initiatives at their agency (including such items as lighting, protections on board vehicles, training, awareness campaigns, methods for customer reporting of incidents)
- Solutions for making women (and other groups) feel more safe using public transit at their agency and in general

First, as a way to spur the discussion, the researchers provided a brief summary on the topic of women's experiences and perceptions of personal security on transit and in public spaces. This information was taken from the background information and literature reviewed for this study. Next, the low incidence of personal security events in the NTD, for the U.S. as a whole and for Florida in particular, was addressed. One of the participating agencies, VOTRAN, did not have any reportable personal security events in the NTD from 2013 to 2017, the time period for this study. Lee Tran reported three assaults during this time period to NTD, with all related injuries affecting men only. At Palm Tran, according to the NTD, there were two assaults between 2013 and 2017, one resulting in an injury to a man, and another resulting in an injury to a woman. Also at Palm Tran, there was one homicide during this time, with a male victim. The remainder of the discussions are summarized below. For confidentiality, no direct quotes are attributed to any one individual at any agency; instead, the responses are summarized by topic.

Harassment/Personal Security

While harassment incidents or complaints are not generally tracked, agency representatives "can't say it's not an issue;" however, reports of harassing behavior at these three transit agencies are not significant at the present time. From passengers, there are occasional complaints of harassment, and they are mostly from women. While most of the time the complaints are regarding men harassing women, there have been instances of women harassing other women, or attempting to assault other women, as well. Another type of harassment that

is common at one of these agencies originates from large groups of teens, comprising both males and females. These large groups tend to have one particular member who leads the others on in harassing each other or other passengers on the buses. They have policies in place to ban certain individuals from using the transit services, but they can be difficult to enforce. Bus operators are also generally trained to not get involved in altercations with the public, but the public generally looks to them (and their uniform) as an authority. As a result, sometimes it may not be clear to passengers that the operator should not be interfering with passengers who are fighting with or harassing each other. Instead, the operator has a protocol to follow and will contact the proper personnel for response.

At one of the participating agencies, if a particular passenger is harassing another passenger or an operator, the supervisors/manager will usually try to find out who that person is and confront them directly, often at one of the bus stops. Typically, in most of these cases it is a regular customer who is the harasser, and they can be identified and possibly banned from riding the system. This type of action by the agency is more likely to occur on smaller transit systems where individuals can be more easily identified as regular passengers, etc.

As expected, it is not just passengers that might feel harassed, but operators as well. One agency has had approximately seven female bus operators report feeling harassed in the recent past. The other agencies also report that female operators sometimes complain of harassment. The reported harassment has included passengers going forward of the standing line, stalking, staring, pinching/groping, making comments about appearance and smell, and other unwanted conversation while driving. As a way to reduce the harassment from unwanted conversation while operating a transit bus, one agency emphasizes remaining free of distractions while driving, including keeping conversations with passengers to a minimum. Nonetheless, there is a balance that needs to be achieved because bus operators are the face of the transit agency and must also work to provide strong customer service and have a good rapport with passengers. Some passengers may take advantage, however, and push what should be professional contact too far.

Female transit supervisors can experience uncomfortable situations, as well. One agency reported that, sometimes, if a female transit supervisor goes out by herself to respond to an incident, her authority may not be respected by those involved and the situation will not be resolved until a male supervisor arrives at the scene. The result is a resource issue for the agency because some female supervisors are not comfortable working late night shifts by themselves and/or the agency may need to send two supervisors out to the scene of certain incidents. Echoing the literature from a previous section of this report, “women unfortunately

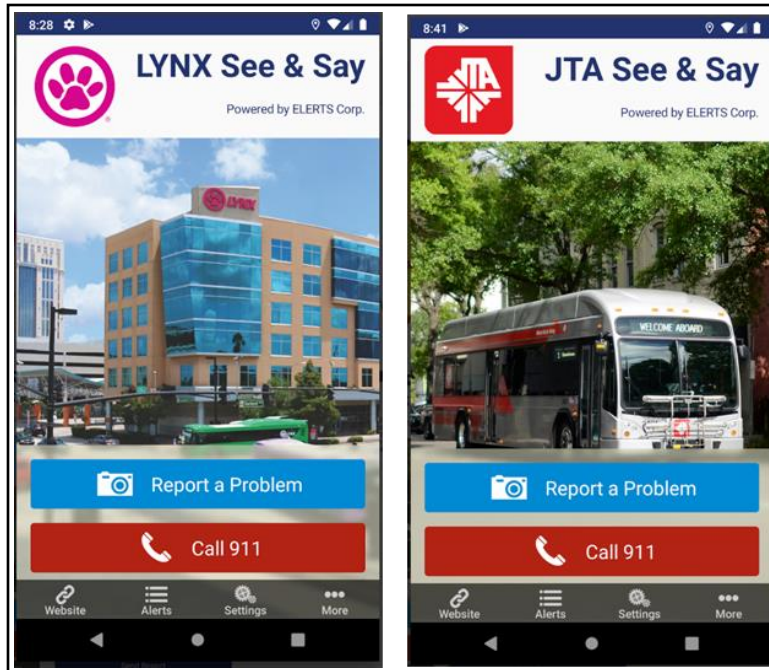
just accept it as a reality” that they have to sometimes alter their behavior to avoid situations that may result in harassment or worse, and that their authority as operators and supervisors is not always recognized and respected.

As mentioned earlier in this section, it was hoped that some on-board survey data might be available at sufficient levels of detail to examine differences in perceptions and experiences between men and women on transit. No such data were available for this study. However, one of the participating agencies is conducting an operator survey at the time of this writing. The research team suggested some questions to be added to gain further insight into female operators’ perceptions and experiences. The results may be useful for future research, and perhaps the questions can be used for operator surveys at other transit agencies.

Agency Initiatives

Many of the initiatives in place at the participating agencies focus on the safety and security of all passengers and employees. Initiatives include those focused on vehicle safety such as collision reduction, and those focused on system security events (described earlier in this report as bombings, bomb threats, suspicious packages, chemical/biological/nuclear/radiological release, arson, hijacking, sabotage, cyber events, burglary, and vandalism). Agencies are working with the Transportation Security Administration (TSA) with tests and training on how to respond to suspicious packages and other suspicious activities. Those with unarmed security guards at transfer facilities and other locations are considering armed security to protect those areas. “See something, say something” types of campaigns are common but tend to have more of a system security focus at the present time, rather than a personal security focus. Operators and supervisors are the “eyes and ears out there” and are trained to report risk concerns, but passengers can be encouraged to report concerns as well.

Some agencies in Florida have online methods for reporting safety and security concerns. The three agencies that participated in this study do not currently use these methods, but are considering various reporting tools. One of the agencies is currently looking to implement a “see and say” app similar to the one used by MBTA in Boston (discussed earlier in this report and illustrated in Figure 4). Similar apps are being used in Florida at the Jacksonville Transportation Authority (JTA) in Jacksonville and LYNX in Orlando, as shown in Figure 16. It is more likely that transit passengers will choose to report safety and security issues “when they can do so without getting ‘too’ involved” and with these apps, “in seconds, riders can send a description of what’s happening, a photo, and the GPS location” [39]. These apps are useful for the reporting of both system security and personal security events, as well as harassment.



https://play.google.com/store/apps/details?id=com.elerts.lynx&hl=en_US
https://play.google.com/store/apps/details?id=com.elerts.jta&hl=en_US

Figure 16: See & Say Apps at LYNX (Orlando) and JTA (Jacksonville) in Florida

Another one of the participating agencies is considering the use of small cards for reporting various incidents. A person can simply grab a card, answer a few short questions, and submit it to report a safety or security concern. A key factor is to make it quick, easy, and discreet for people to report incidents. Physical cards, online reporting forms, and apps can meet these conditions and facilitate such reporting, though the available apps might be the quickest and most discreet method.

Better lighting at transit stops, stations, and facilities will also improve safety and security. While all three participating agencies have addressed lighting concerns to some extent, two of them are in the process of upgrading lighting at bus stops and transfer facilities. Figure 17 shows examples of solar lighting options, including one in use at JTA. Solar lights at shelters and, particularly, regular bus stops, can help improve personal security at these locations at night. In most cases, regular bus stops do not have any lighting, so options such as those shown in the figure would be a significant improvement.



<https://www.urbansolarcorp.com/products/applications/bus-stop-lighting/>
<https://www.urbansolarcorp.com/products/applications/>

Figure 17: Solar Lighting at Bus Stops and Shelters

In addition to lighting, the overall design and amenities of stops and shelters are important in promoting personal security. While shelters should provide cover from the elements, they should not “give someone a place to hide.” People will be more likely to use transit services that provide shelter from sun, wind, and rain at the stops, but may be less likely to feel safe waiting if the shelter feels too concealed from the roadway or passersby. As discussed previously in this report, women in particular do not want to be too hidden from view when traveling in public spaces [6].

All three participating transit agencies stressed the importance of training (including refresher training) in reducing all types of safety and security incidents. Operators are also trained on how to properly deal with passenger issues, including to not interfere in passenger altercations and to balance the provision of good customer service with keeping “chatter” with passengers to a minimum.

The recent fatal stabbing of a bus operator at HART in Tampa, Florida has transit agencies in the state looking for new strategies to prevent a similar crime in the future, including the addition of protective barriers for the operators on the vehicles [37]. While the victim of the stabbing in Tampa was a male bus operator, this is an issue that certainly affects all operators. At a recent statewide transit Safety and Security Symposium held in Tampa, operator barriers were a major topic of discussion [40]. One of the agencies that participated in this study has received some feedback that their operators are not currently in favor of such barriers, feeling that they would remove some of the customer focus of the agency: they don’t want to “put up a wall” and want to remain “community friendly.” At another agency that participated in this study, they “want to take the temperature” of the operators on this subject. It appears that, at

least anecdotally, the larger transit agencies in Florida, including HART in Tampa, really like the idea of barriers. Figure 18 shows a rendering of one type of barrier. Transit Cooperative Research Program (TCRP) Synthesis Report 93, Practices to Protect Bus Operators from Passenger Assault, further investigates operator security and provides industry best practices [41].



<https://www.abcactionnews.com/news/region-pinellas/psta-approves-new-safety-barriers-on-all-buses-to-protect-drivers>

Figure 18: Rendering of a Bus Operator Safety Barrier

The participating transit agencies are aware of human trafficking and how its operation can often rely on public transportation to move victims “hidden in plain sight” [42]. Human traffickers depend on others to not pay attention or to not recognize the signs that trafficking is taking place. As indicated in an earlier section of this report, Florida is ranked as the third highest destination in the U.S. for human trafficking, and Palm Beach County (home to one of the participating transit agencies) has the third highest incidence of human trafficking in the state [12]. At the 2019 Florida Public Transportation Association/Florida Department of Transportation/Center for Urban Transportation Research Professional Development Workshop, a session on transit’s role in identifying and reporting human trafficking was held [42]. Transit agencies have begun to incorporate human trafficking awareness into their training.

All three of the participating transit agencies are aware, to some degree, of the unique security issues faced by women traveling in public spaces, including public transit. However, at the current time, resources are scarce and most are allocated toward a variety of safety and security

initiatives that focus on the safety and security of all passengers, operators, workers, and others. To be certain, initiatives such as better lighting, improved shelter design, anonymous incident reporting, enhanced training, and operator barriers will improve security for both men and women. As concluded from the earlier Background section of this report, the literature recognizes that transit agencies currently focus on harassment and women’s security issues as a problem of individuals, rather than a problem at the societal level. For example, transit agencies will react to individual episodes of harassment but are not necessarily in a place to be proactive in curbing such behaviors. More close attention to these issues will require strong top-down leadership from the agencies.

Findings

This study has examined issues of women’s safety and security on public transit. The first section of the report provides background information and synthesizes recent literature on the topic of women’s security not only when using (or working in) public transit, but while traveling in any public space. Women are quite used to the idea of being aware and concerned about harassment in public, as well as other crimes such as assault. The research indicates that there are shortcomings in addressing gender-based harassment on public transit and, more generally, in public spaces. Transit agencies tend to follow the current norm of treating harassment of women as a problem of individuals, rather than a problem in society of how women are treated. Future research to help fill these shortcomings can include more in-depth research and surveys of passenger characteristics and travel patterns on transit. Non-users of transit can be surveyed to better understand the extent to which safety concerns are influencing their travel behavior. Additional research could also be conducted on a wider scale on the potential and existing strategies for reducing gender-based harassment and making women (and other under-represented groups) feel safer using transit.

The second section of the report analyzed transit security data reported to the NTD for a five-year time period from 2013 to 2017. Data on personal security events (assaults, robberies, rapes, larceny/theft, homicides, and suicides) were analyzed and categorized by gender and person type (passenger, operator, other worker, persons waiting or leaving the transit area, etc.). Personal security events are a relatively rare occurrence on public transit in the U.S., with only 5,862 incidents from 2013 to 2017 that resulted in 5,751 injuries and 432 fatalities. During this time, there were more than 47.6 billion passenger trips taken and more than 14.1 billion revenue miles of service provided on U.S. transit systems. For Florida transit systems during this time

period, there were only 51 personal security events resulting in 43 injuries and 7 fatalities over more than 1.3 billion passenger trips and 700 million revenue miles of service.

The analysis of the NTD data showed that more men than women are injured or killed as a result of personal security events on public transit (with the exception of rape), even though women tend to make up more than half of all public transit ridership [3]. It was noted that there is a clear distinction between the types of incidents that meet the thresholds to report in NTD (injury, fatality, property damage minimum, etc.) and the types of incidents that include harassment, particularly toward women. The NTD data do not reflect incidents of harassment, which typically will not meet the NTD reporting threshold and are often under-reported by the victims. However, when a woman (or any other passenger) considers the safety of using public transit she will think about not only the possibility of harassment, but the possibility of other crimes such as assault and robbery. The inclusion of the NTD security data in this report shows that the occurrence of these crimes on public transit is very low, but these data can in no way reflect how often incidents of harassment are occurring.

The third section of this report included case study discussions with three transit agencies in Florida: one larger agency (Palm Tran in Palm Beach County) and two mid-sized agencies (VOTRAN in Volusia County—Daytona Beach area and Lee Tran in Lee County—Fort Myers area). While NTD-reportable personal security events at these three agencies for the past five years are very low (or zero, in the case of VOTRAN), the discussions provided insight into the agencies' awareness of gender-based harassment and the types of initiatives that are being implemented to address the safety and security of all passengers and workers. These initiatives include:

- “See something, say something” campaigns
- Exploration of anonymous incident reporting (via apps or physical cards)
- Solar lighting and enhanced shelter design
- Consideration of bus operator safety barriers
- Enhanced training, including human trafficking awareness

Research suggests that transit agencies can benefit from focusing attention on women's security by gaining ridership because, when women feel unsafe on transit, they will likely not take the trip. When the Los Angeles Metropolitan Transportation Authority (L.A. Metro) opened a new light rail line, there was a unique opportunity to survey ridership habits. It was found that while more households that lived close to the new service did increase their rail trips, women increased their trips only half as much as men. Overall, 20 percent of women said they avoided

the rail service due fear of harassment and other safety concerns [43]. L.A. Metro has learned that “men should listen to women when they describe their environment” [43]. The agency has since worked with partners to develop a Gender Action Plan and has launched a Women and Girl’s Governing Council.

Initiatives such as those at L.A. Metro are an excellent example of a public organization doing their part in working toward a societal change in how women’s safety issues are perceived and addressed. Due to the limited resources of most public transit agencies, their actions to improve safety and security will tend to be focused on all passengers and workers. However, additional focus on the unique needs of women traveling in public space can pay off in terms of higher ridership, as well. In society, women should not have to simply accept that they will be the targets of gender-based harassment or worse. Transit agencies are in a unique position as public entities to lead the way in addressing gender-based harassment, not only by addressing incidents on their services, but by engaging with their communities to address these issues on a larger, societal scale.

References

- [1] Federal Transit Administration, "Public Transportation Agency Safety Plans," 13 May 2019. [Online]. Available: <https://www.transit.gov/PTASP>.
- [2] Federal Transit Administration, "Safety Management Systems (SMS)," 13 May 2019. [Online]. Available: <https://www.transit.dot.gov/regulations-and-guidance/safety/safety-management-systems-sms>.
- [3] G. K. Bailey, "Improving public transit safety for women and the impact of ride-hailing services," 2018.
- [4] M. V. Deven, "How to stop sexual harassment on public transportation," 9 October 2012. [Online]. Available: <https://www.theguardian.com/commentisfree/2012/oct/09/stop-sexual-harassment-public-transportation>.
- [5] A. Friedman, "Will Women Ever Feel Completely Safe on Mass Transit?," 27 March 2014. [Online]. Available: <https://www.citylab.com/transportation/2014/03/will-women-ever-feel-completely-safe-mass-transit/8728/>.
- [6] G. C. Wellman and J. K. Hazelton, "Gendered Intersections: Public Administrators' Views of Gender and Its Role in Transportation Decision making," Center for Urban Transportation Research, Tampa, 2017.
- [7] M. Powers, "Women share their #MeToo experiences on Metro — and offer solutions," 8 January 2018. [Online]. Available: https://www.washingtonpost.com/news/dr-gridlock/wp/2018/01/08/women-share-their-metoo-experiences-on-metro-and-offer-solutions/?noredirect=on&utm_term=.dd57e14d0fe2.
- [8] G. Hickey, "Anti-Harassment Campaigns for Mass Transit in the 21st Century US: A Critique from History," in *The 5th International Conference on Women's Issues in Transportation*, Paris, France, 2014.
- [9] J. Korn, "Women's Safety Must Be Part of Transportation Planning," 27 March 2018. [Online]. Available: <https://nextcity.org/daily/entry/womens-safety-must-be-part-of-transportation-planning>.
- [10] C. A. J. a. K. Hawbaker, "#MeToo: A Timeline of Events," Chicago Tribune, 2 May 2019. [Online]. Available: <https://www.chicagotribune.com/lifestyles/ct-me-too-timeline-20171208-htmlstory.html>.

- [11] National Sexual Violence Resource Center, "Statistics about sexual violence," National Sexual Violence Resource Center z Info & Stats For Journalists, 2015.
- [12] Florida Department of Children and Families, "MyFLFamilies.com," 2013. [Online]. Available: <https://www.myflfamilies.com/admin/publications/year-in-review/2012/page18.shtml> .
- [13] J. H. Daniel, "Statement of APA President Regarding the Science Behind Why Women May Not Report Sexual Assault," 24 September 2018. [Online]. Available: <https://www.apa.org/news/press/releases/2018/09/report-sexual-assault>.
- [14] M. Martinez, "Underreporting among males likely due to gender-based stigma," 27 February 2018. [Online]. Available: <https://marquettewire.org/3988006/news/underreporting-among-males-likely-due-to-gender-based-stigma/>.
- [15] A. Loukaitou-Sideris, A. Bornstein, C. Fink, L. Samuels and S. Gerami, "How to Ease Women's Fear of Transportation Environments: Case Studies and Best Practices," Mineta Transportation Institute, 2009.
- [16] V. Sisiopikou and O. Ramadan, "Understanding Women's Needs as Determinants of Mode Choice: A Case Study of University of Alabama at Birmingham," *Policy, Safety and Human Factors, Planning and Forecasting*, 7 January 2018.
- [17] A. Dupont-Kieffer, "Conference Description and Objectives," in *5th International Conference on Women's Issues in Transportation, Conference Proceedings*, Paris, 2014.
- [18] A. Farzad, M. N. Postorino, A. Dupont-Kieffer and A. Gegov, "Gender-Based Analysis of Zones of Tolerance for Transit Service," *Transportation Research Record: Journal of the Transportation Research Board*, pp. 73-80, 1 January 2016.
- [19] T. Litman, "Safer Than You Think! Revising the Transit Safety Narrative," in *Transportation Research Board 2013 Annual Meeting Compendium of Papers*, Washington, D.C., 2013.
- [20] H. Jin and J. Yu, "Exploring Gender Sensitive Obstacles in Public Transit Usage: Evidence from the 2017 US National Household Travel Survey," *1777 Gender Issues in Transportation*, 2019.
- [21] H.-P. Hsu, M. G. Boarnet and D. Houston, "Gender and Rail Transit Use: Influence of Environmental Beliefs and Safety Concerns," *Transportation Research Record Journal of the Transportation Research Board* , 19 March 2019.

- [22] Associated Press, "She Thought it was Her Uber. Student Got Into Wrong Car and was Killed, Police Say," 31 March 2019. [Online]. Available: <https://www.latimes.com/nation/nationnow/la-na-south-carolina-college-student-20190331-story.html>.
- [23] N. Schlosser, "Transit agencies partner to prevent sexual assault," 24 April 2013. [Online]. Available: <https://www.metro-magazine.com/rail/article/211753/transit-agencies-partner-to-prevent-sexual-assault>.
- [24] A. Schmitt, "Transit Agencies Aren't Doing Enough to Prevent Sexual Harassment," 6 November 2017. [Online]. Available: <https://usa.streetsblog.org/2017/11/06/transit-agencies-arent-doing-enough-to-prevent-sexual-harassment/>.
- [25] Z. Elinson, "Sex Crimes Pass Under the Radar on Public Transit," 25 February 2012. [Online]. Available: <https://www.nytimes.com/2012/02/26/us/on-bay-area-transit-sex-crimes-ride-under-the-radar.html>.
- [26] T. Swartz, "Experts: Sexual harassment on transit underreported," 28 July 2014. [Online]. Available: <https://www.chicagotribune.com/news/ct-red-sexual-harassment-cta-20140728-story.html>.
- [27] H. Groover, "Reports of sexual misconduct on King County Metro buses spike, tripling in one year," 27 April 2019 . [Online]. Available: <https://www.seattletimes.com/seattle-news/transportation/reports-of-sexual-misconduct-on-king-county-metro-buses-spike-tripling-in-one-year/>.
- [28] M. Chesney-Lind, "Violence Against Women Riding Public Transport is a Global Issue - Especially in Developing Countries," 1 June 2013. [Online]. Available: <https://scholars.org/brief/violence-against-women-riding-public-transport-global-issue-especially-developing-countries>.
- [29] M. Ceratti, "Sexual harassment: the high cost of being a woman on a bus," 8 September 2014. [Online]. Available: <http://www.worldbank.org/en/news/feature/2014/09/08/gender-violence-public-transportation>.
- [30] Associated Press, "Mexico City Introduces Women-Only Buses to Deter Groping," 25 January 2008. [Online]. Available: <https://www.foxnews.com/story/mexico-city-introduces-women-only-buses-to-deter-groping>.
- [31] Asian Development Bank, "Policy brief: A safe public transportation environment for women and girls," Asian Development Bank, Mandaluyong, 2015.
- [32] J. McCurry, "'Stop It!' Japanese Women Turn to App to Stop Groping on Trains," *The Guardian*, Tokyo, 2019.

- [33] Global Business Outlook, "Using data to improve women's safety in cities, transport".
- [34] Federal Transit Administration, "What is the National Transit Database (NTD) Program?," 22 February 2017. [Online]. Available: <https://www.transit.dot.gov/ntd/what-national-transit-database-ntd-program>. [Accessed 20 September 2018].
- [35] Federal Transit Administration, "2019 NTD Safety & Security Policy Manual," Washington, DC, 2019.
- [36] Federal Transit Administration, "NTD Glossary," 2018.
- [37] E. Glasser, "HART Bus Drivers Demand Protective Barrier in Wake of Deadly Stabbing," Tampa, 2019.
- [38] Florida Department of Transportation, "FDOT Public Transit Office," October 2018. [Online]. Available: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/transit/documents/2018_transit_hdbk.pdf?sfvrsn=6d5238ae_2. [Accessed 26 March 2019].
- [39] ELERTS, "ELERTS - Public Transport," 2019. [Online]. Available: <https://elerts.com/transit/>. [Accessed 10 June 2019].
- [40] Florida Department of Transportation, "Statewide Safety and Security Symposium," Tampa, 2019.
- [41] W. C. F. Yuko J. Nakanishi, "TCRP Synthesis Report 93: Practices to Protect Bus Operators from Passenger Assault," Transit Cooperative Research Program, Transportation Research Board, National Academies of Science, Washington, D.C., 2011.
- [42] Florida Public Transportation Association, "FPTA/FDOT/CUTR Professional Development Workshop and Transit Safety and Operations Summit," June 2019. [Online]. Available: https://www.cutr.usf.edu/fpta/2019_pdw_session_4.1.19.pdf. [Accessed 10 June 2019].
- [43] A. Marshall, "Want to Boost Transit Ridership? Try Making Women Feel Safer," Wired, 2019. <https://www.wired.com/story/boost-transit-ridership-women-safer/>