

# Analysis of Challenges Facing Pregnant Women Riding Transit

PREPARED BY

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U.S. Department of Transportation  
Federal Transit Administration

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# Analysis of Challenges Facing Pregnant Women Riding Public Transit

**FEBRUARY 2022**

FTA Report No. 0211

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SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
<b>LENGTH</b>				
<b>in</b>	inches	25.4	millimeters	mm
<b>ft</b>	feet	0.305	meters	m
<b>yd</b>	yards	0.914	meters	m
<b>mi</b>	miles	1.61	kilometers	km
<b>VOLUME</b>				
<b>fl oz</b>	fluid ounces	29.57	milliliters	mL
<b>gal</b>	gallons	3.785	liters	L
<b>ft<sup>3</sup></b>	cubic feet	0.028	cubic meters	m <sup>3</sup>
<b>yd<sup>3</sup></b>	cubic yards	0.765	cubic meters	m <sup>3</sup>
NOTE: volumes greater than 1000 L shall be shown in m <sup>3</sup>				
<b>MASS</b>				
<b>oz</b>	ounces	28.35	grams	g
<b>lb</b>	pounds	0.454	kilograms	kg
<b>T</b>	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
<b>TEMPERATURE (exact degrees)</b>				
<b>°F</b>	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C

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## Abstract

The Federal Transit Administration (FTA) prepared this report pursuant to the Fiscal Year (FY) 2021 Joint Explanatory Statement for the Consolidated Appropriations Act, 2021 (PL 116-260): “The agreement requires the FTA to complete an analysis of the challenges faced by and the accessibility of public transit for pregnant women within 1 year of enactment of this Act and to post the analysis on the FTA's website.” See *Congressional Record* (December 21, 2020) at H8821.

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## Section 1

# Introduction

Women may face many challenges while pregnant, and one of those can be access to safe, reliable, and accommodating transportation. This report assesses challenges of public transportation for pregnant women based upon available research and public information. Pregnant women of color, including women who are limited English proficient, lower-income pregnant women, women with low literacy, women with disabilities, and/or women traveling with dependents, face additional challenges and limitations in their ability to access and use public transportation. System service design, accessibility, passenger amenities, rider policies, and real or perceived safety and security concerns all pose issues.

Access to safe, affordable, efficient, and reliable transportation, or the lack thereof, can be a determining factor in how healthy a woman's pregnancy is and how healthy their baby is. Prenatal care, including regular doctor's visits, is vitally important to a successful, healthy pregnancy. Missing regular prenatal doctor's appointments can result in suffer severe health consequences, both for the pregnant woman and their baby (Kohler, 2019). Some women struggle with finding adequate transportation to get to their regular prenatal doctor's appointments. A study in the Boston area found that Black women are more likely to rely on public transportation and that transportation challenges prevent them from accessing healthcare. That study found that 50 percent of Black women in the Boston area have been late or missed medical appointments because of public transit (Heath, 2020). Prenatal and women's health care is a major challenge across the country. Addressing this need, particularly for Black and Native American women, and reducing maternal mortality are core pillars of the Biden-Harris Administration's National Strategy on Gender Equity and Equality (Biden-Harris Administration, 2021). Inherent in this is the need to improve public transportation access to health services for pregnant women.

The experience of travel itself has many challenges for pregnant women and/or caregivers. Routes to transit often lack adequate sidewalks and safe street crossings, introducing logistical barriers and danger. Out-of-service, poorly-maintained, and/or unavailable elevators and escalators can make transit inaccessible. Pregnant women and caregivers often require access to safe, clean public restrooms, particularly when trip lengths and travel times are extensive, but few public transit systems provide such amenities. Some transit stops lack any or adequate seating, forcing pregnant passengers to stand for what may be extended wait times. Once on board, seating may also be unavailable to pregnant riders due to crowding and/or the refusal of fellow passengers to relinquish seats. Crowding on transit vehicles adds further discomfort to pregnant riders and heightens both concern and risk for those traveling with



children. Pregnant women of color may be further impacted by inherent bias or outright hostility.

Whereas efficient routing to health care is a challenge for trips to appointments, research indicates that women generally face unique, and costly, challenges as they seek to meet everyday needs. Women are more likely than men to be caregivers and have additional household trip demands. Caregiver trip patterns are often dispersed and not efficiently met by transit systems designed around the home-based work commute. This leads to long trip distances and travel times, often with significant travel time uncertainty. Women, particularly pregnant women and/or those traveling with dependents, can have heightened personal security concerns. As a result, researchers find that women are more likely to opt for routes and modes that feel safer, are easier to navigate with children and baggage, and/or are more direct. As a result, women, in the aggregate, pay more for transportation both in dollars and time than men. This is referred to as a “Pink Tax” (Kaufman, Polack and Campbell, 2018). This Pink Tax is a cost burden on all women and is regressive for low-income women, many of whom are also people of color. One researcher summed up the transportation challenges faced by women, especially caregivers, by stating:

Women tend to bear outsized burdens and risks in the course of their daily travel as they navigate transportation networks to get to school, to work, and to run errands for and with their families. Much of their transit usage occurs during off-peak service times, when trains and buses run infrequently or eliminate service altogether, and they are often transporting strollers, wheelchairs, and groceries on infrastructure that does not accommodate such items (Khanna, 2020).

All of this is important, as women make up the majority of transit riders who deserve to have safe, effective, and reliable transportation options. Major transportation demographic surveys note that prior to the coronavirus disease 2019 (COVID-19) pandemic, 55 percent of transit riders were women. More recent research suggests that because women comprise a significant percentage of essential workers, their portion of transit ridership is even higher now.

## Section 2

# Methodology

To develop this report, FTA analyzed available literature derived from key word searches across both peer reviewed journal databases and the internet. As targeted research on pregnant women transit riders is limited, this report relies heavily on research related to women<sup>1</sup> riders on public transportation<sup>2</sup> generally.

This literature review was drawn from information derived from publicly available online articles and reports found through searches of Transportation Research Board (TRB) sites, Google/Google Scholar, information publicly available on FTA's website, and TRID, an integrated database that combines the records from TRB's Transportation Research Information Services (TRIS) Database and the Organization for Economic Cooperation and Development's (OECD) Joint Transport Research Centre's International Transport Research Documentation (ITRD) Database. Search terms used included the following:

- Pregnant transit rider
- Pregnant public transportation
- Pregnant mobility
- Pregnancy mobility
- Prenatal transit
- Prenatal transportation
- Prenatal mobility
- Black, Indigenous, People of Color (BIPOC) transportation
- Minority pregnant transit
- Women transit
- Women public transportation
- Women transit/transportation safety
- Women transit/transportation career
- Transit/public transportation planning women
- Women transit/transportation equity
- Women transit/transportation data.

After a review of sources derived from these searches, articles were selected based on their relevance to the specific topic, with a preference for the most recent articles and examples of local community activities reported by public transit agencies.

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<sup>1</sup> The terms "woman" and "women" refer to anyone identifying as a woman, whether cisgender, transgender, non-binary, or otherwise.

<sup>2</sup> In this report, the terms "public transportation," "public transit," "public transport," and "transit" are used interchangeably to mean "regular, continuing shared-ride surface transportation services that are open to the general public or open to a segment of the general public defined by age, disability, or low income." (49 U.S.C. § 5302(14)(a))

## Section 3

# Findings

Analysis of the most pertinent sources identified the following key findings regarding challenges pregnant women riders face in the use of public transit:

1. Transit systems (routes and service hours) are not designed in a way that facilitates the needs and travel patterns of many caregivers and pregnant riders. System inefficiency leads to negative consequences associated with access to destinations, cost, and time.
2. Women, and in particular caregivers, are subjected to a “Pink Tax” in transportation—often paying more than men to safely meet daily transportation needs.
3. Inadequate or unsafe sidewalks and street crossings present a barrier and danger in pregnant women’s access to transit.
4. Pregnant women and caregivers require quality stop and station facilities such as seating, elevators, escalators, and restroom facilities, which are not provided at all stations, especially stations built before 1990.
5. Safety and security are critical concerns for pregnant women and those traveling with children. Unclean or poorly lit stations increase stress and the sense of insecurity.
6. Overcrowding and/or non-compliance with courtesy seating policies add discomfort and may pose increased risk for pregnant women riding transit.
7. Low-income pregnant women, many of whom are also BIPOC, may be “captive transit riders” (Khanna, 2020) lacking other travel options that avoid these challenges.

Each of these findings is discussed in greater detail below.

Overall, more research is needed. Very few articles and studies specifically focused on the experience of pregnant women utilizing public transit, and no available research focused on BIPOC pregnant women, pregnant women with disabilities, or pregnant women who are limited English proficient or low literacy. A study with representative sampling across several communities of various sizes and regions in the U.S. incorporating diversity of race, abilities, language, and socioeconomics is recommended to verify, refute, or add to the findings in this report. Solid research and information on pregnant women riders’ unique needs and experiences will help transit agencies provide appropriately responsive service.

## System Design

Women often are responsible for a greater share of household trips. Women are disproportionately likely to be caregivers and, therefore, commonly must complete not only their own travel needs but also transport children or other

dependents and make other trips necessary to satisfy household needs such as grocery shopping, health visits, and other errands. These trips often occur outside of traditional peak-hour service and between destination pairs that are more challenging in typical commute-oriented systems, creating long, complex trips. Household income limits viable transportation options for these trips. As noted in a report about women in Los Angeles, “Women are responsible for a disproportionate share of the household’s transport burden while at the same time having more limited access to available means of transport” (Los Angeles County Metropolitan Transit Authority (Metro), 2019).

Access to prenatal care is perhaps the most important trip demand of pregnant women. A healthy pregnant woman usually has 10 to 15 regular medical appointments and can have more appointments if the pregnancy is high-risk or the pregnant woman has other health issues or disabilities (Geddes, 2021). Postpartum care is also very important. Research suggests it can often be difficult to access prenatal and postpartum care via transit. Long travel times and infrequent and/or unreliable service can lead to missed appointments or present a barrier to even seeking care. Adriana D. Kohler, a Senior Health Policy Associate from Texans Care for Children, provided testimony to the Texas Senate Committee on Health & Human Services stating, “Prenatal and postpartum care are vital to the health of mothers and babies [...] Unfortunately, transportation is a barrier for many mothers to get this critical care” (Kohler, 2019). She detailed in her testimony how pregnant women in both urban and rural areas delay or miss medical appointments because they are unable to find a suitable and affordable transportation option. Doctor offices, clinics, hospitals, and times of appointments may not be served by traditional public transportation routes. This is especially exacerbated for low-income pregnant women or caregivers with children who are prohibited from using non-emergency medical transportation (NEMT) services that are otherwise available to Medicaid recipients.

Ms. Kohler’s testimony noted that “every year, 3.6 million Americans miss medical appointments due to a lack of reliable transportation, with no-show rates as high as 30 percent nationwide. Missed medical appointments cost the U.S. health system \$150 billion per year” (Kohler, 2019). Missed appointments can lead to worsening health conditions, visits to emergency rooms, and expensive hospitalizations and can disrupt clinical schedules, resulting in lost revenue for medical providers and harming patient care and provider-patient relationships. All of these issues can be attributed to poor, inadequate, inefficient, unsafe, and expensive transportation options. Much like the public transportation needs of people with disabilities, older adults, and persons of limited income, pregnant women need easily accessible, available, safe, and reliable transportation throughout the day.

The U.S. Department of Transportation (DOT) has funded some projects that support pregnant riders' access to prenatal care. In 2015, DOT awarded the Smart City Challenge to Columbus, Ohio. One of the program's goals was to reduce infant mortality rates in eight at-risk areas by improving transportation options. Research from Sidewalk Labs, a partner in the initiative, found that "expectant women face transportation challenges when going to their prenatal doctor visits [and] that there were opportunities to improve current transportation services provided through Medicaid" (Ginther, 2019). Columbus spent \$1.3 million on a demonstration project from June 2019 to January 2021, serving 143 participants with 1,158 trips for medical care and pharmacy, grocery, or other service-related trips. The outcomes showed that those who were provided services (intervention group) took more trips overall and had increased use of prenatal care. The City of Columbus notes on the project's website:

"Often the barrier between pregnant individuals and their doctors is as simple as reliable transportation. If an expectant person doesn't have access to a car, they're forced to rely on public transit or non-emergency medical transportation provided by Medicaid plans. This can be time consuming or unreliable, leading to skipped doctors' appointments before and after a baby is born" (City of Columbus, n.d.).

Other research funded by FTA also shows the utility of ensuring pregnant women have access to care. Two projects from the Rides to Wellness Program, Mommy and Me Ride Free in the Toledo area through the Ohio Department of Transportation and GO Buffalo Mom through the Niagara Frontier Transportation Authority in Buffalo, New York, focused on improving public transportation services and transit access to low-income, high-risk pregnant women (Federal Transit Administration, 2020). The Mommy and Me Ride Free project improved access to health care by providing 474 one-way trips on paratransit and thousands of other trips on local fixed-route bus services through subsidized fares. Surveys of participants showed that 92 percent of renewing clients said the program helped them make needed trips, and 58 percent of those trips were for healthcare appointments. Additionally, 75 percent of participants no longer missed healthcare appointments, and 64 percent were no longer late to their appointments. Use of the fixed-line transit service also increased from 39 percent before enrollment in the program to 72 percent after enrollment. The program has helped increase access to food shopping, work, and children's school. Anecdotal evidence for GO Buffalo Mom showed an increase in full-term pregnancies and healthy babies among participants.

Many researchers and organizations have articulated the need for more women and people of differing abilities and needs at the table when community and transportation planning and design decisions are made and the benefit in

providing a more responsive system. Pre-pandemic, more than half of transit riders in the U.S. were women, yet research from TransitCenter found that women are underrepresented in the transit workforce, especially in leadership positions (TransitCenter, 2018). Women’s participation in transit service and system design can aid in “gender mainstreaming,” the practice of incorporating women’s needs and perspectives into public spaces, which can make cities and transit services more inclusive (Kern, 2021). Including women, people with disabilities, BIPOC, people of limited English proficiency and low literacy, and people of low income in decision-making groups for planning decisions helps to provide a more accessible and inclusive community and system.

## **Pregnant Women are Subjected to a “Pink Tax” on Transportation**

Women, including pregnant women, commonly incur greater transportation costs, both in time and dollars, compared to their male counterparts. This type of disparity in cost is referred to as the “Pink Tax” or gender-based pricing. It is associated with comparable products or services that are more expensive for a woman than a man. Women incur a transportation Pink Tax in needing to take more net trips as a result of their caretaking role or take more expensive trips to avoid feeling unsafe or vulnerable (Kaufman, Polack and Campbell, 2018). As described in the previous section, pregnant women must travel to several doctor appointments while pregnant, and doctor offices are not always accessible by transit. If traveling with children, transit may not be the most efficient, effective, or safe way to get to their destination. The cost burden of the transportation Pink Tax is not inconsequential. A 2018 study in New York City estimated that caretakers spent an additional \$26–50 per month on transportation and that women spend an additional \$26–50 per month on safer transportation options, concluding that women in New York City pay a Pink Tax of up to \$100 per month just to efficiently and safely travel (Kaufman, Polack and Campbell, 2018).

## **Lack of Sidewalks and Safe Crossings are a Barrier to Transit**

The Americans with Disabilities Act (ADA) was signed into law on July 26, 1990, and has been in place for over 30 years. The ADA is a Federal civil rights law that prohibits discrimination against people with disabilities in everyday activities and guarantees that people with disabilities have the same opportunities as everyone else to enjoy employment opportunities, participate in state and local government programs, and purchase goods and services, including public transit services (U.S. Department of Justice, Civil Rights Division, n.d.).

Whereas non-disabled pregnant women and caregivers with children are not included within the covered group of people with disabilities under the ADA, they benefit greatly from safe and accessible routes to transit. The physiological changes associated with pregnancy may make it difficult to stand for long periods and maintain balance while riding a bus or train, climb stairs, or navigate obstacles. Given the disproportionate caretaking role of women, pregnant women may also be traveling with young children or other dependents. Continuous, accessible sidewalks are critical when traveling with children in strollers or walking alongside, traveling with a dependent adult, and/or traveling with baggage.

The ADA applies to almost all providers of transportation service, whether public or private, regardless of whether the entity receives Federal financial assistance. Some of the requirements of the ADA for transit agencies include lifts and ramps to transit vehicles (or level boarding), proper lighting, and accessible paths to and within the facilities, among other requirements (Federal Transit Administration, 2015). These requirements can make travel easier and more accessible for pregnant women who may have mobility challenges while pregnant (Wu et al., 2011).

Some cities across the United States also have worked to make it easier and more accessible to get to transit stations and stops by adding ramps to sidewalks, installing curb cuts, and making other improvements to sidewalks to make it safer for people using mobility devices to easily and safely get to and from transit facilities (Federal Transit Administration, 2017). As quoted in an article in *The Washington Post* on the 30th Anniversary of the ADA and the current state of transit, Scott Bogren, Executive Director of the Community Transportation Association of America (CTAA), says, “We look at mobility as a basic human right. Whether it’s accessing health care, work or any other destination, it’s hard to achieve a good quality of life if you don’t have mobility” (Alderton, 2020). The ADA helps ensure that people with disabilities have a better quality of life by improving access to transit and other services, and the mobility and quality of life benefits extend to others in the population as well.

In the last decade, 53,435 pedestrians were killed on American streets—more than 14 people per day—and, unfortunately, the trend is increasing (Smart Growth America, 2021). Many cities and states have adopted “Vision Zero” policies or goals, joining an international movement to end traffic-related deaths and serious injuries through holistic street design, education, and enforcement to improve traffic safety. Children, older adults, persons with disabilities, and pregnant women are often identified as more vulnerable street users. In addition to adding or improving sidewalks, transportation and transit agencies across the country are working to provide safe pedestrian crossings

between transit stops and to local destinations to improve access to transit and save lives.

## Pregnant Women and Caregivers Require Elevators, Public Restrooms, and Seating

Climbing stairs may be difficult or impossible for a pregnant transit rider or caregiver with a stroller and/or small children. Many fixed guideway systems have grade-separated stations but lack accessible alternatives to stairs (Halais, 2020). A 2019 Los Angeles (LA) Metro study noted, “Easily accessible and properly working elevators and escalators can ease the difficulty of transit travel for women with carts, bags, strollers, and mobility assistance devices” (Los Angeles County Metropolitan Transit Authority (Metro), 2019). Elevators and escalators are vitally important for access and safety. In January 2019, a young mother from Stamford, Connecticut, who brought her one-year-old daughter into Manhattan on a shopping trip, died while trying to carry her daughter in the stroller down the stairs of the Seventh Avenue subway station, a station that has no elevators. The mother fell down a flight of stairs and died of complications from the fall (Gold and Fitzsimmons, 2019).

Public restrooms are more than an amenity for many pregnant women; they are a necessity. A growing fetus takes up more room in a woman’s abdomen and places pressure on the bladder, especially later in the gestation period. The lack of public restroom facilities can deter pregnant women from using transit, especially for longer trips. Likewise, children, older adults, and persons with disabilities also commonly have urgent needs for public restrooms. Despite having restrooms, many transit systems do not make them available to the general public due to the expense of maintenance and security. In 1940, the New York City Metropolitan Transportation Authority had 1,676 public toilets available throughout the system but by 2015 maintained only 129 at 77 of its 468 stations (Marshall, 2015). The Chicago Transit Authority (CTA) stopped building public restrooms at transit stations in 1958 and in the 1970s began closing the existing public restrooms due to a lack of “resources to update, maintain and monitor the facilities.” These decisions influenced newer transit systems, such as the Washington Metropolitan Area Transit Authority (WMATA), to not incorporate public restrooms into the original system design. Other systems, such as San Francisco’s Bay Area Rapid Transit (BART) system, have locked their public restrooms since the terrorist attacks of September 11, 2001, for security concerns (Jaffe, 2013). Most systems do make restroom facilities available upon special and exceptional request if a passenger with special needs requires them.

The Occupational Safety and Health Administration (OSHA) requires employers to provide employee restrooms, which also must follow ADA requirements (Occupational Safety and Health Administration, 2011). As such, most systems do have restroom facilities for employees. Despite lobbying by several



associations and organizations, there is no Federal requirement for public restroom access in public transit systems (American Restroom Association, Inc., 2007).

Seating at stops and stations can further enhance transit use for pregnant riders. Pregnant riders may experience fatigue, balance issues, loose joints, and/or swelling of the legs and require opportunities to sit. Safety can be improved by having places for young children to sit while at a transit stop, and seating improves the transit experience for all riders. According to a study by the TransitCenter:

Amenities at bus stops make the wait easier to endure, according to a University of Minnesota study. The study found that transit riders tend to overestimate the amount of time they wait for the vehicle by 1.5 to 4 times, but stop amenities go far in reducing the perceived waiting time. Researchers found that on average, riders at stops without amenities who waited for 10 minutes perceived that time to be 21 minutes. Amenities markedly reduced the perceived time for the same wait, to 13 minutes at stops with shelters and benches, and to 11 minutes at stops with shelters, benches, and real-time information. The study also suggests that amenities can make riders feel safer: for women who perceived their surroundings to be unsafe (Buchanan and Hovenkotter, 2018).

## Security Concerns Constrain Mobility for Women and Pregnant Riders

The 2017 World Bank Global Mobility Report found that:

Women’s mobility is of concern in both rural and urban areas. Although there is no database on public-transit-related crimes, there is evidence that security issues constrain women’s mobility. The lack of personal security, or the inability to use public transport without the fear of being victimized—whether on public transport, walking to or from a transit facility or stop, or waiting at a bus, transit stop, or station platform—can substantially decrease the attractiveness and thus the use of public transit (Sustainable Mobility for All, 2017).

Adequate street and station lighting can improve real and perceived safety and security when using transit. A survey in the United Kingdom found that 93 percent of female respondents felt fearful while waiting for a train at night, compared to 53 percent of male respondents, because of poor visibility (Ro, 2021). Similar surveys in the U.S. and Canada verified that better lighting makes women feel safer riding transit. These surveys also found that men prefer

technology-based protective measures, such as closed-circuit television (CCTV) cameras in stations and vehicles and in-vehicle radios for drivers, but women generally feel that CCTV is not enough, as it is mostly a reactive measure and someone must be monitoring the video feed during an incident to potentially stop the incident. Both women and men, but especially women, feel safer when transit agency staff are walking through trains (Loukaitou-Sideris and Fink, 2008).

Transit facility cleanliness at stations, shelters, and elevators not only factors into a rider's perception of safety but can trigger or exacerbate nausea for pregnant women. One pregnant woman quoted in the 2019 LA Metro report said she was concerned about her health in the dirty, stinky elevators (Los Angeles County Metropolitan Transportation Authority (Metro), 2019). Before the COVID-19 pandemic, cleaning of transit stations and vehicles was inconsistent across transit agencies in the U.S. Most transit agencies have increased their cleaning and disinfection due to COVID-19. Continuing this practice after the pandemic ends will continue to benefit the health and safety of riders and workers and the quality of the transit experience.

## Crowding and Lack of Seating Contribute Risk for Pregnant Women Riding Transit

Safety and security are principal factors in mode choice for women and pregnant women. Women are routinely subject to sexual harassment and gender-based violence (GBV) on public transit (Urban Institute, 2020). Crowded conditions exacerbate these threats.

Vehicle interior design changes can help relieve overcrowding that may make women feel vulnerable or uncomfortable. More open spaces in transit vehicles also provide room for strollers and other items women carry, and increasing the number of railings and poles that are within reach can make riding safer and easier for women (Los Angeles County Metropolitan Transportation Authority (Metro), 2019).

Priority seating is required by the ADA on both fixed-route bus and rail (rapid, light, and commuter) for persons with disabilities. Signage in a priority seating area must inform other passengers that they should make the seats available to persons with disabilities who wish to use them. Additionally, many systems have "courtesy" policies that ask passengers to relinquish seats anywhere to people covered by the ADA, older adults, pregnant riders, and young children to increase both safety and comfort.

Despite the widespread policy, public transit agencies still find that patrons fail to adhere to priority seating requirements and courtesy norms (Blackwell, 2013). Pregnant riders and others with accommodation needs are often forced

to stand on moving transit vehicles when seats could be made available to them. This not only adds to discomfort for a pregnant rider but can pose a health and safety risk to pregnant riders and other passengers. There are various explanations for this. In the early months, pregnant women may experience severe physiological symptoms such as nausea, fatigue, dizziness, and shortness of breath that could impact their ability to safely stand, but surrounding passengers or operators may not be able to identify a person as a pregnant traveler. On crowded vehicles, there may be more passengers with accommodation needs than quantity of priority seats, which leads to an informal and inconsistent “pecking order” for priority. Finally, some passengers may dispute or not fully understand that the needs of pregnant passengers outweigh their own desire or need for seating and, therefore, will not relinquish their seats.

Some transit systems have tried to increase sensitivity to the needs of pregnant riders by implementing courtesy campaigns and providing a means for pregnant women to self-identify themselves as such, even if they are not visibly pregnant. Examples include the London Underground (Transport For London, n.d.), New York’s Metropolitan Transportation Authority (John, 2017), and the Chicago Transit Authority (Chicago Transit Authority, 2019). Additional attempts have been made to use visual alerts (Kleinman, 2016) or mobile messaging technology (Kirk, 2017) to aid women in finding transit seats during their pregnancy.

## Section 4

### Next Steps

Information reviewed for this report shows that challenges exist for many women riders, including pregnant riders. To increase the understanding of these issues and identify useful solutions, more research is needed that is inclusive of all pregnant women and their varied needs, including the needs of BIPOC pregnant women, pregnant women with disabilities, pregnant women at lower income levels, and pregnant women who are limited English proficient or who have low literacy. In the literature search, 78 articles, reports, and other resources were found, of which 43 met this report's criteria or contained sections of relevant information; only 6 resources specifically focused on pregnant women's or caregiver's needs. The remaining relevant resources addressed women generally, and none of these resources focused on BIPOC pregnant women. Although significant research has been conducted about women and the use of public transit, research is scarce related to the experience of pregnant transit riders.

Initial findings suggest that transit agencies could do more to improve services for pregnant women and women in general. In the short term, transit agencies can involve more women in design/planning, including pregnant women. They can promote courtesy campaigns to increase rider awareness of the need to be more aware/sensitive to others while taking a transit trip. They can look at the safety posture of their system and review whether all areas of transit stations and stops are well lit, whether security cameras are working properly, and if amenities exist in stations/bus stops and work with local law enforcement or the transit agency's dedicated police force to review crime statistics and ensure that there is a police presence at stations within the service area where crime is higher.

Transit agencies also can partner with their local health departments to find ways to improve access to prenatal and postpartum health care. Additionally, transit agencies that employ women who currently are or previously were pregnant can benefit from the lived experience of these employees to make more inclusive and better-informed decisions about service provision and travel needs. But targeted research is needed to increase transit agencies' understanding of the needs of pregnant transit riders of all races, levels of English proficiency and literacy, and socioeconomic statuses and provide useful, affordable, and practical solutions.

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