Can discounted transit improve mobility and well-being for lower-income residents?

Pre-Analysis Plan

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Abstract

The cost of transportation can present challenges for low-income Washingtonians: making it harder to get a job, maintain a job, access social services, obtain healthcare, and care for their families. Building on the District's efforts to address cost as a barrier to transit equity—such as Mayor Muriel Bowser's 2019 Free Circulator trial and Kids Ride Free program—the District of Columbia government and the Washington Metropolitan Area Transit Authority are conducting a randomized evaluation of free and discounted transit fares. We will measure the impact of transit cost on low-income residents' mobility, employment, and well-being. The findings may help shape initiatives to make public transit more affordable to low-income residents.

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Purpose of the Pre-Analysis Plan

Pre-analysis plans are a tool to promote scientific integrity and transparency. In a pre-analysis plan, a research team publishes a study's research questions, hypotheses, data to be collected, and analysis methods before any analysis of outcomes for the study begins.

The Lab @ DC uses pre-analysis plans for the following specific purposes:

- Establish a foundation of transparency and the expectation of public reporting for each randomized evaluation project we undertake.
- Provide a clear description of the program being evaluated and the context in which it operates, and why it should lead to a positive outcome for residents.
- Provide a clear record of the confirmatory research questions being answered, the outcomes and samples that will be most important in answering them, and the methods we will use to estimate those impacts.
    - Importantly, this document is not intended to outline exploratory or secondary analyses of experimental results.
- Provide a clear record of what data we have looked at and what we have analyzed at the time this document was published.
- Force ourselves to record the known limitations of our analytical approach and how, specifically, we will or will not address those limitations.
- Allow other people to review, critique, and vet our approach and scientific integrity before or after our results are published.

Background

What is the problem/opportunity that this program is trying to address?

Low-income riders often have limited access to transit because of cost. Compared to other riders, low-income riders spend more than twice as much of their after-tax income on public transit.[2] Inability to afford transit can make it difficult to keep a job, go to the doctor, go to school, and use social services.

Previous studies show that lowering the cost of fares for low-income riders can increase public transit use.[3,4,5,6] Lower the cost can also increase these riders' job search activity. Phillips (2014) found that DC residents who were looking for a job and got $25 to spend on transit searched for work more than people who did not get $25. They completed 19% more job applications and interviews in the two weeks after getting the $25. This result suggests that the transit subsidy might have decreased the length of unemployment.[7]

Despite the existing research, many pressing questions remain: *What does increased access to transit mean for residents' quality of life? How will it impact any number of well-being outcomes, from economic empowerment to health and education? (How) Does the level of discount matter?* Some studies have already begun investigating these questions. Rosenblaum et al. (2019) found that transit discount recipients in Boston reported more health care and social service trips. Other studies have also shown that transportation assistance helps vulnerable people reach their doctors and refill medicine.[8,9] In Santiago, Chile, Bull et al. (2021) found that participants took more leisure and errand trips; and Bough et al (2021) found a disproportionate

[2] Washington Metropolitan Area Transit Authority. 2019. DC Low-Income Fare Pilot. (December 2019). Retrieved March 16, 2023, from https://www.wmata.com/about/board/meetings/board-pdfs/upload/3C-DC-Low-Income-Fare-Pilot.pdf.

[3] Jeffrey Rosenblum, Jinhua Zhao, Mariana Arcaya, Justin Steil, and Chris Zegras. How Low-income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation from http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf.

[4] David C. Phillips. 2014. Getting to work: Experimental evidence on job search and transportation costs. Labour Economics 29, (August 2014), 72–82. DOI: https://doi.org/10.1016/j.labeco.2014.07.005.

[5] Rebecca Brough, Matthew Freedman, and David C. Phillips. 2022. Experimental evidence on the effects of means-tested public transportation subsidies on travel behavior. Regional Science and Urban Economics 96, (September 2022), 103803. DOI: https://doi.org/10.1016/j.regsciurbeco.2022.103803.

[6] Luis A. Guzman and Philipp Hessel. 2022. The effects of public transport subsidies for lower-income users on public transport use: A quasi-experimental study. Transport Policy 126, (September 2022), 215–224. DOI: https://doi.org/10.1016/j.tranpol.2022.07.016.

[7] David C. Phillips. 2014. Getting to work: Experimental evidence on job search and transportation costs. Labour Economics 29, (August 2014), 72–82. DOI: https://doi.org/10.1016/j.labeco.2014.07.005.

[8] W. M. Tierney, L. E. Harris, D. L. Gaskins, X. H. Zhou, G. J. Eckert, A. S. Bates, and F. D. Wolinsky. 2000. Restricting medicaid payments for transportation: effects on inner-city patients' health care. Am J Med Sci 319, 5 (May 2000), 326–333. DOI: https://doi.org/10.1097/00000441-200005000-00010.

[9] Laura E. Starbird, Caitlin DiMaina, Chun-An Sun, and Hae-Ra Han. 2019. A Systematic Review of Interventions to Minimize Transportation Barriers Among People with Chronic Diseases. J Community Health 44, 2 (April 2019), 400–411. DOI: https://doi.org/10.1007/s10900-018-0572-3.

number of new work-related trips.[10,11,12] In Ontario, Canada, Dalziel (2019) found positive impacts on quality of life among low-income households given reduced fares. In the study, quality of life was calculated by looking at less time spent on transit relative to time spent on other activities.[13]

Transit subsidies cannot do everything, however. There is evidence that subsidies are not an effective mechanism to reduce failures to appear in criminal court.[14] While transit discounts have been found to positively affect transit use, they do so at decreasing rates over time.[15]

Why is this problem important to DC?

In 2019, low-income riders in DC comprised 48% of Metrobus ridership, compared with 18% of Metrorail ridership. This difference could be due to the higher cost of Metrorail rides.[16] For example, regular Metrobus rides cost $2, while Metrorail can cost between $2.00 to $6.00, depending on the day of the week, time, and distance traveled.[17] When the bus fare changed from $1.75 to $2.00 in 2017, a 14% increase, Metrobus weekday ridership decreased by 9%.[18] Transit stops may also be farther from low-income residents. Forty-two percent of households that receive public cash assistance live in a Census block that is more than a ten-minute walk from a Metrorail station, compared to 35% of all DC households.[19]

Public transit continued to be essential for low-income residents during the COVID-19 pandemic. Stations and bus lines that tend to have more low-income riders saw smaller drops in ridership during the pandemic. Some of those lines even maintained ridership near pre-pandemic levels. A May 2020 Metrobus survey found that 69% of regular bus riders earning

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[10] Jeffrey Rosenblum, Jinhua Zhao, Mariana Arcaya, Justin Steil, and Chris Zegras. How Low-income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation from http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf.
[11] Owen Bull, Juan Carlos Muñoz, and Hugo E. Silva. 2021. The impact of fare-free public transport on travel behavior: Evidence from a randomized controlled trial. Regional Science and Urban Economics 86, (January 2021), 103616. DOI: https://doi.org/10.1016/j.regsciurbeco.2020.103616.
[12] Rebecca Brough, Matthew Freedman, Daniel E. Ho, and David Phillips. 2021. Can Transportation Subsidies Reduce Failures to Appear in Criminal Court? Evidence from a Randomized Controlled Trial. SSRN Journal (2021). DOI: https://doi.org/10.2139/ssrn.3832463.
[13] Dalziel and Moos. Region of Waterloo Affordable Transit Study (Internal results). (2019)
[14] Rebecca Brough, Matthew Freedman, Daniel E. Ho, and David Phillips. 2021. Can Transportation Subsidies Reduce Failures to Appear in Criminal Court? Evidence from a Randomized Controlled Trial. SSRN Journal (2021). DOI: https://doi.org/10.2139/ssrn.3832463.
[15] Luis A. Guzman and Philipp Hessel. 2022. The effects of public transport subsidies for lower-income users on public transport use: A quasi-experimental study. Transport Policy 126, (September 2022), 215–224. DOI: https://doi.org/10.1016/j.tranpol.2022.07.016.
[16] Ibid.
[17] Cost to Ride | WMATA. Retrieved March 13, 2023 from https://www.wmata.com/fares/basic.cfm.
[18] WMATA Equity Working Group. "Transportation Equity Primer" (Internal Document). June 2020.
[19] Internal analysis of census data by The Lab @ DC team (2019). Retrieved March 13, 2023 from https://docs.google.com/document/d/1xi7RAvhA0NLbg49wdrY4--_cSb-HyPkA/edit.

less than $30,000 a year kept riding during the first two months of the COVID-19 pandemic, as compared to 49% of riders overall.[20]

Low-income adults in DC, as a group, are currently not eligible for a discounted fare, though some get help from DC government or nonprofits. The federal government mandates transit discounts for only older adults (65+) and people with disabilities. DC residents ages 5 through 21 who are enrolled in school can also ride Metrobus, Metrorail, and the regional bus partner (DC Circulator) for free if they use their Kids Ride Free fare card.

This pilot, the Low-Income Fare Trial (LIFT), will assess the impact of providing transit discounts to low-income DC residents. We will specifically look at effects on mobility, employment, and well-being. Given how much federal funding subsidizes public transit (e.g., the 2021 Bipartisan Infrastructure law authorizes up to $108 billion to support federal public transportation programs[21]), the pilot has the potential to make federal subsidies for public transit more progressive and equitable by changing the level of payment for low-income riders.

It is worth noting that two significant transit policy changes are contemplated in DC for summer 2023; the timing of these proposed changes overlap with the planned study period and may affect low-income riders. First, Metrobus rides starting in DC may become free for all riders, regardless of income, beginning July 1, 2023.[22] Second, a Metrorail and Metrobus discount may become available for low-income riders across the region. Our planned analysis includes several strategies to take these potential changes into account.

[20] Metro, Covid-19 Recovery Plan & Budget Update (June 2020)
[21] Grant Programs | FTA. Retrieved March 13, 2023 from https://www.transit.dot.gov/grants.
[22] As of writing, the future of this program is largely uncertain due to budgetary considerations. *See* Fare-Free Buses In Jeopardy As D.C. Revenue Projections Drop. DCist. Retrieved March 13, 2023 from https://dcist.com/story/23/03/01/fare-free-buses-in-jeopardy-as-d-c-revenue-projections-drop/.

Overview of Study Objectives

Outcome Domain	How is it measured?	Why is this a primary outcome?
Mobility	Average number of rides taken per month on Metrorail, Metrobus, or regional bus partners during the study	● If affordability plays a significant role in low-income riders' use of transit, then we expect discounts to increase their transit ridership. ● When we asked likely participants how this benefit might help them, they most often cited the ability to take more rides. We want to measure whether that change actually happens. If transit discounts greatly affect mobility that could justify scaling up the intervention. ● If transit discounts do not affect mobility, we would question how they could directly affect other outcomes like well-being or employment.[23]
Employment	Proportion of months during the study that an individual was employed	● We want to know whether transit discounts make it easier for residents to find or keep employment, as well as whether transit discounts make it easier for residents to find better-paying employment (income). ● Research shows that increased income and employment improve well-being (*see Background*). We want to know how much transit discounts alone account for changes in well-being. To know that we need to understand how much other factors, such as changes in employment and income, account for changes in well-being.

[23] If someone in either treatment group continues to take the same number of trips but reports higher levels of well-being than the control group it may be because they've paid 50% or 0% of what the control group is paying for that same number of trips.

Well-Being	Self-reported transportation security at the end of study: Survey-based index of six questions related to transportation security; these comprise the short-form version of the Transportation Security Index (TSI).[24] [25]	• When we asked likely participants how this benefit might help them, self-sufficiency was a common response.
Well-Being	Self-reported overall well-being at the end of study: Survey-based responses to the Cantril Ladder.[26] [27]	• An overall well-being metric will help us to understand if people are experiencing gains to their well-being broadly, in response to more affordable transit. • When we asked likely participants how this benefit might help them, they provided a variety of answers (e.g., easier access to groceries, healthcare, school, and children's extracurricular activities). We interpret this variation to mean that more affordable transit may make many day-to-day tasks easier to accomplish (but which specific tasks are made easier may vary widely between people).

This pre-analysis plan focuses on describing confirmatory outcomes and analyses in detail. Potential exploratory outcomes include earnings, fare evasion, and access to grocery stores.

[24] Murphy, A. K., Gould-Werth, A., & Griffin, J. Validating the Sixteen-Item Transportation Security Index in a Nationally Representative Sample: A Confirmatory Factor Analysis | Published in Survey Practice. Retrieved March 13, 2023 from https://www.surveypractice.org/article/27185-validating-the-sixteen-item-transportation-security-index-in-a-nationally-representative-sample-a-confirmatory-factor-analysis. Our study will only use the six questions that make up the short-form version of the Transportation Security Index to create the primary outcome, even if we include questions from the longer version of the Transportation Security Index in our survey.

[25] We will gather data for this outcome during midline and endline surveys. See the Outcomes and Measures sub-section for more details on when we would use midline data over endline data for the primary outcome.

[26] Cantril, H. (1965). The pattern of human concerns. New Brunswick, NJ: Rutgers University Press.

[27] We will gather data for this outcome during midline and endline surveys. See the Outcomes and Measures sub-section for more details on when we would use midline data over endline data for the primary outcome.

The Intervention

LIFT offers two different levels of transit discounts to low-income DC residents. This study will look at how discounts impact their mobility, employment, and well-being.[28]

We have enrolled 2,411 eligible residents[29] and randomly assigned them to one of three groups:

- free, unlimited trips,
- a half-price discount on transit,[30] or
- no discount on transit.

LIFT study-specific SmarTrip cards—Metro's payment technology for bus and rail—were programed with 9 months of the relevant discounts[31] then provided to residents according to their assigned group. Residents assigned to get no discounts on transit did not get a SmarTrip card from LIFT.[32] Regardless of their assigned group, everyone who applied to LIFT and was deemed eligible will get a $25 Visa gift card.

Residents in the treatment groups were directed to pick up their LIFT study-provided SmarTrip cards at WMATA's Transit Accessibility Center from January 27 through February 24, 2023.[33] In-person pick-up was the sole way for residents in the two treatment groups to get their study-provided SmarTrip cards until the end February 2023. We set the deadline for the pick-up period based on the expected pace of pickup; based on budget, our goal was for no more than 500 LIFT SmarTrip cards to require mailing (which was more time and resource intensive). For the cards remaining after the pickup deadline was passed, we mailed the cards to study participants on March 13, 2023.

The discounts will work when participants pay their fare on Metrobus, Metrorail, DC Circulator, and other regional bus partners in Maryland and Virginia. Those regional bus partners include Arlington Transit (ART), the City of Fairfax-University Energysaver Bus System (CUE), the

[28] This project received IRB approval from the University of Maryland, College Park. We are preparing an amendment to the University of Maryland College Park's IRB detailing our plan to include a midline and endline survey. At the time of pre-registration, we have not yet received approval from the IRB on the midline and endline survey.
[29] An additional 67 people participated in the soft-launch.
[30] All single trips as well as half-priced passes, including the 7-day, 3-day, 1-day rail and bus unlimited, the weekly bus pass, and 7-day regional bus pass.
[31] All discounts will expire on the same date, October 31, 2023.
[32] Six months into a soft-launch of LIFT, none of the residents assigned to the control group had used the standard (non-discounted) SmarTrip card we provided to them.
[33] To help us work through the logistical challenges of in-person pick up, we randomly selected 200 people from the discounted group (blocked by treatment arm) to begin picking up their cards one week early, starting January 19, 2023.

Driving Alexandria Safely Home (DASH), the Fairfax Connector, TheBus in Prince George's County, and Ride On buses in Montgomery County.

LIFT is offered through a partnership between the District Department of Transportation (DDOT), the District Department of Energy and Environment (DOEE), The Lab @ DC, and the Washington Metropolitan Area Transit Authority (Metro). The University of Pennsylvania is providing technical assistance.

This research is funded by a Federal Highway Administration Grant (via DDOT) and by the Abdul Latif Jameel Poverty Action Lab (J-PAL). Researchers involved declare no conflicts of interest.

Research Questions

This study seeks to answer six research questions.

The first two questions focus on mobility, as measured by the number of trips taken on public transit. Since we do not know how much discounted transit improves mobility—or what level of discount is most effective—we will make two comparisons: Half-price discounts compared to no discount, and free unlimited trips compared to half-price discounts.[34] That is:

1. Will half-price discounts improve mobility?[35]
2. Will free unlimited trips improve mobility more than half-price discounts?[36]

The next two questions focus on employment and, as above, focus on two comparisons:

3. Will half-price discounts increase time spent employed?
4. Will free unlimited trips increase time spent employed more than half-price discounts?

The final questions focus on the impacts on well-being of *any* discount—free unlimited trips or half-price discounts—relative to no discount:[37]

5. Will discounts on fares improve transportation security?
6. Will discounts on fares improve overall well-being?

[34] Comparisons of free unlimited trips to no discounts are considered an exploratory analysis to focus on the two most important policy questions as primary outcomes.
[35] See the Outcomes and Measures sub-section in the Randomized Experiment Design section for details on which people and which trips will be included in this comparison.
[36] See the Outcomes and Measures sub-section in the Randomized Experiment Design section for details on which people and which trips will be included in this comparison.
[37] These questions focus on any discount relative to no discount due to concerns about power and data availability. As part of our exploratory analysis, we will make three comparisons -- free unlimited trips to half-price discounts, half-price discounts to no discounts, and free unlimited trips to no discounts -- for each well-being outcome.

Randomized Experiment Design

Study Population

Question	Answer
Who is the program designed to impact?	Low-income District residents. We recruited applicants for LIFT from the list of District residents whose households have received public utility assistance from one or more DC Department of Energy & Environment (DOEE) programs in fiscal years 2021 or 2022. These programs are designed to provide support for low-income households and have income thresholds that range from approximately 60% State Median Income (SMI) to 80% Area Median Income (AMI). The included programs are: ● Low Income Home Energy Assistance Program (LIHEAP) ● Utility Discount Program (UDP) ● Clean Rivers Impervious Area Charge Residential Relief Program (CRIAC) ● Solar for All Income requirements for each of these programs vary, and eligibility requirements changed for some of the programs between fiscal years 2021 and 2022. These thresholds are outlined in *Appendix 1*.[38]
Is there a fixed sample size? Is it fixed for treatment and control?	Yes, the budget fixed the maximum sample size across the two treatment arms; the remaining spots (unlimited) were for the control group.

[38] Because we will only be inviting households who signed up for utility assistance before the start of the LIFT in FY22, we do not expect a significant portion of our population to fall at the higher end of the new income thresholds. If the number of participants in this upper income category is large enough, we may choose to separately analyze this group to check for any systematic differences in outcomes.

How many participants are in the eligible population (if we know)?	DOEE provides utility assistance to approximately 17,000 households, and some households receive multiple forms of utility assistance through a combination of these programs.[39]
What, if any, descriptive statistics do we have on the eligible population?	While the administrative data includes some demographic and home address information for the population, we have not cleaned or analyzed that data yet.
How are participants notified of the intervention?	Households receiving utility assistance from DOEE were notified about LIFT by direct mail, email, SMS, and/or robocall. For the most part, the channels used to reach a household depended on the contact information DOEE has for them. However, we also sent SMS messages to anyone in the DOEE data we could match to a phone number in public voter records.
How do participants apply or otherwise become eligible for randomization?	Individuals could apply by mail or online (see *Appendix 2* for the LIFT sign-up form that could be submitted by mail). The application asks for information needed to verify their identity and eligibility, as well as information about how they currently use transit. It also includes details on how their data will be used and protected for the study, as well as their rights as a study participant. When they signed the application, they consented to participating in the study. Only one individual per household could be considered eligible for LIFT.[40]
What criteria make someone eligible for randomization?	In addition to being part of a household enrolled in a DOEE utility assistance program and providing a Social Security Number (SSN) or Alien ID (A-Number) on their sign-up form, participants in LIFT must also meet the following criteria: ● Live in the District of Columbia ● Age between 18 and 64 years old ● Not receiving a student, senior, or disability discount on transit ● Not be a WMATA employee or DC government employee, and

[39] Based on application data from DOEE.
[40] If multiple people from the same household apply and are otherwise eligible for LIFT, we randomly selected one person from that household to participate in LIFT.

	● Complete the sign-up and consent form online or in hard copy Applicants self-reported that they meet these requirements on the sign-up form.[41] However, to maximize the generalizability of our results for a potential scale-up, we ran the following eligibility checks: ● We checked whether applicants were part of a household receiving DOEE utility assistance using a combination of data available in DOEE datasets covering heads of households for all utility assistance programs (LIHEAP, UDP, Solar for All, and CRIAC) and a DOEE dataset that included limited identifying and demographic information on all LIHEAP household members (including heads of households). Some of the variables we matched on included SSN, address, name, and date of birth. As part of the matching process, we also used the unique application links we emailed to households and unique Form IDs on the paper forms we mailed to households to link them to their administrative records in the DOEE data. ● We checked that each applicant's date of birth indicates that they are at least 18 upon sign up—for ability to give consent—and no older than 64—since residents 65 and above are eligible for other transit discounts. ● We also checked whether anyone who provided a valid SmarTrip card number and responded to the statement "I don't personally receive a senior, disability, or student discount on Metro or bus" with "I'm not sure" (as opposed to "True" or "False") did not have a transit discount activated on that card according to Metro's data.[42] ● If multiple people from the same household applied and met the criteria for LIFT, we picked one of those people at random to participate in the intervention and be considered "eligible" for LIFT. The other otherwise eligible people in the household who applied were excluded from the lottery entirely (in essence, they were considered not eligible for discounted transit). Only the person selected at random to participate in LIFT will receive the $25 Visa gift card as well. Individuals who put the same address on their application form for LIFT were considered part of the same household.

[41] We are not required to verify eligibility from a legal standpoint because there are no statutory requirements governing this program.
[42] Conducting this check was contingent on appropriate data use agreements being in place, as well as other time constraints.

	Finally, in spring 2022, we randomly selected 67 people from the eligible population to participate in a soft-launch of LIFT. These 67 people are excluded from the study sample. Their households will also be excluded from the wider launch of LIFT. The goal of the soft-launch was to identify implementation issues prior to the wider launch. There will be some substantial differences in the communications and process of recruitment between the soft launch and wider launch. We will do only an exploratory analysis on the data for the people (37 received half-price discounts, 13 received free unlimited trips, and 17 were in the control group) in the soft-launch.
What happens to people who are not eligible for randomization?	People who are ineligible for randomization will be excluded from the study sample and are not eligible for the LIFT program.
Will participants be added to the eligible population over time? If so, how will they be added? When will they stop being added?	No.
What information will be collected or accessible on participants?	● Name ● Address ● Date of birth ● Social security number or Alien-number ● Employment status and hours of employment ● Income ● Job-search activity ● Medical care ● School attendance ● Household energy use ● Use of District social services, including food, cash, and medical assistance files maintained by the Department of Human Services, Economic Security Administration and other agencies ● SmarTrip card transactions

	• Use of Metrorail, Metrobus, and transit from regional bus partners • Contact information • Demographics • SmarTrip card number • Answers to questions about how individuals get around • Answers to questions about transportation security and quality of life
Will participants provide informed consent?	No, we received a waiver of informed consent from the University of Maryland College Park's IRB. See *Appendix 2* for the LIFT sign-up form and *Appendix 3* for the privacy statement.

Randomization

Question	**Answer**		
What is your seed(s) for randomization?	Seed 1: For soft launch: 20220510 Seed 2: For wider launch: 2		
What is the level of randomization?	Individual.[43]		
How many experimental arms are there (including the control group), and what proportion or count of participants is being assigned to each experimental arm?	Free unlimited trips (588)	Half-price discounts (783)	No discount on transit (1040)

[43] We consider the level of randomization to be at the individual level since only one person per household was considered eligible for LIFT. However, we cannot prevent card sharing within households and we cannot fully measure card sharing within households.

What is the frequency or cadence of randomization?	Once.[44]
Who is performing the randomization?	The Lab @ DC.
How is the randomization being performed?	Using The Lab's standard method as of publication date. The units are not clustered. There is blocking (see next row).
Is blocking being used?	Yes, using The Lab's standard method as of publication date.
If blocking is used, what variables are used for blocking?	We used answers to two questions on the sign-up form to create blocks: 1) "What is your SmarTrip card number?" and 2) "How often do you use this card when you ride the bus or Metro?".[45] The blocks are: • Block 1 included people who shared a valid SmarTrip card number and said they used that SmarTrip card "most of the time" or "always". • Block 2 included people who gave any other combination of answers to the two questions (i.e., everyone who is not in Block 1). We used those two blocks because we believed the mobility data would likely be more robust for people who already had a SmarTrip card prior to LIFT and used it most of the time or always. We also thought those people would likely to be very different from, for example, people who did not have a SmarTrip card at all prior to LIFT (e.g., did not use transit often, always paid by cash) or people who already had a SmarTrip card but rarely used it (e.g., they may have multiple cards, which we will not be able to track). In the wider launch, roughly 27% of applicants eligible for LIFT (inclusive of the one-application-per-

[44] In Spring 2022, we conducted a soft launch in which a total of 67 people were randomly assigned to either of two treatment groups or the control group. These individuals are not included in the confirmatory analysis.
[45] While we asked, at sign up, "How do you pay for Metro or bus?" (A: "I don't ride either," "Cash," or "SmarTrip"), we do not use the answers for blocking because applicants often skipped that question but still provided a SmarTrip card number.

	household criteria) met the criteria for Block 1, while around 73% met the criteria for Block 2.
How will we measure balance?	Using The Lab's standard method as of publication date. After randomization, we measured balance across the two treatment groups and the control group by calculating the mean and variance for the following variables, self-reported on the sign-up form. ● Age ● Gender ● Race/ethnicity ● The number of days they took Metrobus and Metrorail trips in the last week ● How they pay for Metrobus or Metrorail ● Frequency of using SmarTrip cards ● Whether a SmarTrip card number was listed in the sign-up form In our published analyses, we will report balance using the methods and variables described above plus measure balance across the two treatment groups and the control group by calculating the mean and variance for the following variables: ● Number of household members younger than age 18 (measured using data from DOEE) ● Number of household members ages 18 or older (measured using data from DOEE) ● Income (measured for LIHEAP and UDP customers using data from DOEE and, depending on availability, measured for all LIFT participants using DOES and/or other private payroll and credit reporting data) ● All the variables listed as covariates (see *Covariates* sub-section)
What will be done if treatment groups are not balanced?	Nothing. We will not re-randomize.
If new intervention "slots" become available over time and there are	We do not anticipate adding more slots to LIFT.

already assigned participants in the study, how will new “slots” be assigned?	
Is there any person/place/group receiving the intervention that is not included in the randomization?	The following units are not included in the study sample: 67 DOEE customers who signed up and were randomized during the soft launch. These units are being excluded from the study sample because the soft launch helped us test our processes, and soft launch participants only provided consent for access to WMATA, DOEE, and OSSE data.

Blinding

Question	**Answer**
Are participants blinded to their group assignment?	No
If participants are not blinded, provide brief reasoning/ justification.	Participants are not blinded, because they need to know whether they have a discount and what type before taking transit. If they were blinded, they would not know how much their trip was going to cost and whether they had enough money. They would also be able to easily determine their group assignment after observing whether their trip was discounted.
Are experimenters blinded to participants’ group assignments?	No

If experimenters are blinded, when will the blind be broken?	N/A
If experimenters are not blinded, provide brief reasoning/ justification.	All data are collected from either existing administrative data or through structured questionnaires; the experimenters' awareness of participants group assignment will not affect those data. Experimenters are not blinded because we need to communicate with participants about their SmarTrip cards, including distributing cards and replacing lost cards according to the initial assignment.

Outcomes and Measures

Primary Outcome Measures[46]

The measures here are described at endline (November 2023). We also plan to measure these outcomes at midline (May or June 2023). If either of two policy proposals that discount public transit in DC are implemented before November 2023, (see Key Limitations section for details on free bus in DC and a possible regional low-income fare product), we intend to run our confirmatory analyses for the study period up until the earliest implementation of either policy. We will conduct exploratory analyses for the intersection of LIFT with any of the implemented policies.

[46] A primary outcome measure means the outcome measure of greatest importance. There is usually one primary outcome measure and it is used in the power calculation (clinicaltrials.gov). ClinicalTrials.gov Protocol Registration Data Element Definitions for Interventional and Observational Studies. Retrieved March 16, 2023 from https://prsinfo.clinicaltrials.gov/definitions.html

Domain	Variable Name	Data Type	Description	Timing
Mobility	rides	Numeric	Average number of public transit trips taken per month as measured by administrative data from SmarTrip cards.[47] [48] *Half-price discounts compared to free unlimited trips:* Comparisons of half-price discounts to free unlimited trips will count only trips on study-provided SmarTrip cards. **Sample:** All LIFT participants in either the half-price discount or free unlimited trip treatment arms. *Half-price discounts compared to no discounts:* Comparisons of half-price discounts to no discounts will measure trips differently for people in the half-price discount group and people in the no discounts group. For people in the no discounts group, we will count trips on only the SmarTrip cards they self-reported during sign-up. For people in the half-price discounts group, if the study-provided card is used at least once during the study period, we will count trips on the study-provided SmarTrip cards. If the study-provided SmarTrip cards	Administrative data captured across the 9-month intervention period

[47] We use trips to refer to the transit journey, e.g., from first boarding a bus or train to final alighting. Journeys involving multiple stages and transfers will not count as separate trips.

[48] If free bus is implemented before the regional low-income fare program during the study period, this will be the average number of public transit trips taken per month for the months before free bus in DC was implemented. If free bus is implemented in DC during the study period, an exploratory analysis will look at average Metrobus and Metrorail trips per month after free bus is implemented in DC. Another exploratory analysis will look at Metrorail trips before and after free bus is implemented in DC. Another exploratory analysis will consider trips with origin points outside DC (as free bus is a DC-specific program) before and after free bus is implemented in DC. If a regional low-income fare program is implemented before free bus during the study period, this will be the average number of public transit trips taken per month for the months before the regional low-income fare program is implemented.

			are not used, we will count their trips on the SmarTrip cards they self-reported during sign-up. Some people in the half-price discounts group may switch between using their study-provided cards and their self-reported cards over the intervention period. They may also switch back to using only their self-reported card (e.g., if they lose their study-provided card and have not (yet) received a replacement study card). **Sample:** Since this outcome is measured using administrative data from SmarTrip cards shared by participants, we focus these analyses on only those LIFT participants who reported using the SmarTrip card they listed on their sign-up form "Always" or "Most of the time" and who gave us a valid SmarTrip card numbers on their sign-up form..[49] We will focus on this sub-population of LIFT participants who provided their baseline SmarTrip cards because we will only have administrative trip data for people in the control group if they self-reported a SmarTrip card number during sign-up. We also anticipate that the trip data will be of better quality for the people who said they used their self-reported SmarTrip card "Always" or "Most of the time." As a result, we are most confident in our ability to estimate changes in mobility for the control group if they meet the two criteria described above..[50]	

[49] Block 1 in the randomization.

[50] In an exploratory analysis, we will compare the half-price discount to free unlimited trips as well as the no discount to free unlimited trips using the same approach outlined here for half-price discounts to no discounts. In addition, we will do an exploratory analysis where we compare half-price discounts to free unlimited trips for anyone who did not meet the criteria for Block 1 (i.e., did not provide a valid SmarTrip card number or did not say they use that SmarTrip card always or most of the time). We will also do an exploratory analysis comparing half-price discounts to no discounts using everyone in the half-price discount group and anyone in the control group who provided a valid SmarTrip card, regardless of how often they reported using that card at sign-up. We will also examine as an exploratory analysis how the people that meet the criteria for Block 1 differ from the people that meet the criteria for Block 2 in terms of demographic characteristics, etc.

Employment	emp	Numeric	For what share of months during the 9-month period was the individual employed? (Average of a binary variable for employed or not employed at all each calendar month).[51] Measured using administrative data from a private provider, like Equifax's Work Number data. If that data is not available or does not contain the data we need, then we will use a combination of administrative and survey data: - Administrative data from the Unemployment Insurance (UI) system from the DC Department of Employment Services (DOES). - Survey data to capture non-DC employment (which is not captured by DOES data). Survey questions will ask about non-DC employment during the study period.[52] **Sample:** All LIFT participants	Administrative data captured across the 9-month intervention period
Well-being	tsi	Numeric, scale 0-12	Survey responses to a short-form version of a validated transportation security index questionnaire: [53] [54] 1. In the past 30 days, how often did you have to reschedule an appointment because of a problem with transportation? 2. In the past 30 days, how often did you skip going somewhere because of a problem with transportation? 3. In the past 30 days, how often were you not able to leave the house when you wanted to because of a problem with transportation?	Measured during the endline survey,[55] references the "past 30 days"

[51] If the data are available, we will construct this as a weekly measure instead.
[52] Retrospectively measured during the surveys.
[53] Murphy, A. K., Gould-Werth, A., & Griffin, J. (2021).
[54] Only the six short-form Transportation Security Index questions will count toward the primary outcome, but we may include other questions from the full 16-item Transportation Security Index questionnaire in the survey.
[55] We may ask a similar question during a midline survey to support exploratory, preliminary analyses.

			4. In the past 30 days, how often did you feel bad because you did not have the transportation you needed? 5. In the past 30 days, how often did you worry about inconveniencing your friends, family, or neighbors because you needed help with transportation? 6. In the past 30 days, how often did problems with transportation affect your relationships with others? Responses*: Never (0), Sometimes (1), Often (2)* The sum of all response values (0-2) for each survey respondent. **Sample:** All LIFT participants	
Well-being	cantril	Numeric, scale 1-10	Survey responses to the validated Cantril Ladder:[56] "Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?" **Sample:** All LIFT participants	Measured during the endline survey,[57] references "at this time"

[56] Cantril, H. (1965). The pattern of human concerns. New Brunswick, NJ: Rutgers University Press.
[57] We may ask a similar question during a midline survey to support exploratory, preliminary analyses

Covariates

Covariate[58]	Data Type	Description	Rationale
Age	Continuous	Calculated using date of birth from sign-up form	Age may be correlated with transit use
Baseline use of transit	Categorical	From sign-up form	Baseline transit use may be correlated with endline transit use, which should help us get more precise estimates
Proximity of home address to nearest Metrorail stations	Continuous	Walking distance in minutes between home address and nearest Metrorail station	Distance to public transit may affect use of public transit
Proximity of home address to nearest Metrobus station	Continuous	Walking distance in minutes between home address and nearest Metrobus station	Distance to public transit may affect use of public transit
Proximity to a high-frequency Metrorail station	Binary	Home address is within 0.5 miles of a high frequency Metrorail station during peak periods.[59] According to moveDC, high frequency rail routes are defined as routes offering an average of one	Level of service available through public transit may affect use of public transit.

[58] We will use the home address LIFT participants provided on their sign-up form. To generate the covariates related to proximity, we will only clean the address data from the sign-up forms to correct data entry errors (e.g., misspelled roads).
[59] This walkshed data is available through Open Data DC at https://opendata.dc.gov/datasets/DCGIS::walkshed-rail-peak/about. At the time of publication of this pre-analysis plan, the data was last updated on July 11, 2022.

		train every five minutes or better.[60]	
Proximity to a high-frequency Metrobus stop	Binary	Home address is within 0.25 miles of a high frequency Metrobus stop during peak periods.[61] According to moveDC, high frequency bus routes are defined as offering an average of one bus every ten minutes or better.[62]	Level of service available through public transit may affect use of public transit
Block 1	Binary	Whether an individual is in Block 1 or not[63]	This helps improve precision in our estimates.
Survey mode (survey outcomes only)	Binary	Whether an individual responded to the survey online or by phone	Survey responses may be correlated with survey mode.

[60] moveDC 2021 is the long-range transportation plan for the District of Columbia.
Glossary. Retrieved March 13, 2023 from https://movedc.dc.gov/pages/glossary.
We are attempting to update the moveDC data to reflect transit service near the start of the intervention. Otherwise, we will default to the available data closest to the start of the intervention.
[61] This walkshed data is available through Open Data DC at https://opendata.dc.gov/datasets/DCGIS::walkshed-bus-peak/about. At the time of publication of this pre-analysis plan, the data was last updated on July 11, 2022.
[62] Glossary. Retrieved March 13, 2023 from https://movedc.dc.gov/pages/glossary.
[63] Block 1 is defined in the response to "If blocking is used, what variables are used for blocking?" in the *Randomization* section).

Known and Expected Milestones

	2022				2023												2024
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	2024
Initial IRB determination																	
Enrollment																	
Final confirmation of eligibility and rejections																	
Random assignment																	
Intervention administered																	
In-person pick up of treatment cards available																	
Remaining treatment cards mailed																	
Midline survey administered																	
Endline survey administered																	
Data analysis																	
Final report																	

Analytic Plans

Status of data collection, access, and analysis as of the date of submission[64]

Applicable Status	Definition	Explanation
Registration prior to analysis of the data	The data exist and have been accessed by the researcher, though no analysis has been conducted relative to the pre-analysis plan. Common situations for this are the existence of a large dataset that is the subject of many studies over time, or a split sample in which a portion is not analyzed to be subjected to confirmatory testing after exploratory analysis of the other data. In this scenario, the author must certify that they have not analyzed the data related to the analysis plan (including the calculation of summary statistics), explain what other analysis or reporting of the data has been done by the Entrant or others, and justify how any prior observation, analysis, and reporting of that data avoid compromising the confirmatory nature of the analysis plan.	We have used the application data to determine which people qualify for LIFT. Additionally, we have randomly assigned eligible applicants to either treatment group or the control group and informed eligible applicants of their assignment. As part of the randomization code, we tabulated how many people are in Block 1 and Block 2. As part of the randomization code, we also measured the balance across the two treatment groups and the control groups. We followed the process described earlier in the pre-analysis plan (see the "How will we measure balance?" question). As we have managed communications and customer service tasks for the program, we have tracked the following data points: We know how the share of study participants who picked up their LIFT SmarTrip at the Transit Accessibility Center has changed over time. We have graphed the pick-up rates for Group A (early pick-up period) and Group B (standard pick-up period) over time. We also graphed the pick-up rate by treatment arm. We have not used that information to send more frequent emails to one treatment arm over the other. At the time of submission, most of the outcome data has not yet been created (although participants may have begun using their SmarTrip cards) and we (the authors of this pre-analysis plan) have not accessed or analyzed any of it. One of the coauthors, who works at WMATA, has analyzed trip data in the aggregate and not according to the analyses outlined here in the pre-analysis plan. None of the others authors have seen the outcomes of these analyses or any summaries.

[64] See here under "Can I use pre-existing data set for my pre-registration"; these options will also be in the OSF registration form.

Research question: Will half-price discounts improve mobility?[65]

Question	Answer
What estimand(s) will be calculated	Intent-to-treat (ITT)
What procedure will be used to calculate the estimand	Using The Lab's standard method as of publication date
Will covariates be included?	Yes, using The Lab's standard method as of publication date ● Including covariates in the calculation of the estimand is preferred because we expect our outcome variables to be correlated with individual characteristics. It is not necessary in order to get a valid ITT, but will help with precision.
What covariates will be included?	All the variables listed in the *Covariates* sub-section.
Will the analysis include weights?	No.

Equation(s):

$$Outcome_i = \beta_0 + \beta_1 Z_i + \beta_2 (X_i - \bar{X}) + \beta_3 Z_i (X_i - \bar{X}) + \epsilon_i$$

Where *Outcome*$_i$ is the average number of trips taken per month during the 9-month intervention period; Z_i is a binary indicator equal to 1 if the individual received half-price discounts, and equal to 0 if they received no discount; and X_i is the set of covariates defined above. We include $B_2(X_i - \bar{X})$ and $B_3 Z_i (X_i - \bar{X})$ to get a more precise estimate of B_1.

Note: We do not account for blocks for this specific research question because this analysis is only going to include people (in either experimental arm) who are in Block 1, i.e., who reported "Always" or "Most of the time" using the SmarTrip card they listed on their sign-up form and who gave us valid SmarTrip card numbers when they signed-up.

[65] All references to 9-months reflect our planned intervention period. See the *Outcomes and Measures* sub-section for more details on possible changes to the 9-month timeframe.

What significance test will be used	The Lab's standard method for significance tests as of publication date
How do you plan to state the effect for each outcome?	Discounted transit [increased/decreased/had no effect on] transit use among low-income DC residents. On average, LIFT participants with half-price discounted transit took X trips per month, compared to Y trips among participants without discounts (a difference of Z trips per month or Z*9 trips over the course of the 9-month study).

Research question: Will free unlimited trips improve mobility more than half-price discounts?[66]

Question	Answer
What estimand(s) will be calculated	Intent-to-treat (ITT)
What procedure will be used to calculate the estimand	Using The Lab's standard method as of publication date
Will covariates be included?	Yes, using The Lab's standard method as of publication date ● Including covariates in the calculation of the estimand is preferred because we expect our outcome variables to be correlated with individual characteristics. It is not necessary in order to get a valid ITT, but will help with precision.
What covariates will be included?	All the variables listed in the *Covariates* sub-section.
Will the analysis include weights?	No.
Equation(s): $$Outcome_i = \beta_0 + \beta_1 Z_i + \beta_2 (X_i - \bar{X}) + \beta_3 Z_i (X_i - \bar{X}) + \epsilon_i$$	

[66] All references to 9-months reflect our planned intervention period. See the *Outcomes and Measures* sub-section for more details on possible changes to the 9-month timeframe.

Where *Outcome*$_i$ is the average number of trips taken per month during the 9-month intervention period; Z_i is a binary indicator equal to 1 if the individual received free unlimited trips, and equal to 0 if they received half-price discounts; and X_i is the set of covariates defined above (including a dummy variable indicating whether an individual was in Block 1). We include $B_2(X_i - \bar{X})$ and $B_3 Z_i(X_i - \bar{X})$ to get a more precise estimate of B_1.	
What significance test will be used	The Lab's standard method for significance tests as of publication date
How do you plan to state the effect for each outcome?	Providing free, unlimited trips [increased/decreased/had no effect on] transit use among low-income DC residents compared to a half-priced discount. On average, LIFT participants with free, unlimited trips took X trips per month, compared to Y trips among participants with half-price discounts (a difference of Z trips per month or Z*9 trips over the course of the study).

Research question: Will half-price discounts increase time spent employed?[67]

Question	Answer
What estimand(s) will be calculated	Intent-to-treat (ITT)
What procedure will be used to calculate the estimand	Using The Lab's standard method as of publication date
Will covariates be included?	Yes, using The Lab's standard method as of publication date ● Including covariates in the calculation of the estimand is preferred because we expect our outcome variables to be correlated with individual characteristics. It is not necessary in order to get a valid ITT, but will help with precision.
What covariates will be included?	All the variables listed in the *Covariates* sub-section.

[67] All references to 9-months reflect our planned intervention period. See the *Outcomes and Measures* sub-section for more details on possible changes to the 9-month timeframe.

Will the analysis include weights?	No.
Equation(s) $$Outcome_i = \beta_0 + \beta_1 Z_i + \beta_2(X_i - \bar{X}) + \beta_3 Z_i(X_i - \bar{X}) + \epsilon_i$$ Where *Outcome*$_i$ is the share of the 9-month period the individual was employed; Z_i a binary indicator equal to 1 if the individual received half-price discounts, and equal to 0 if they received no discount; and X_i is the set of covariates defined above (including a dummy variable indicating whether an individual was in Block 1). We include $B_2(X_i - \bar{X})$ and $B_3 Z_i(X_i - \bar{X})$ to get a more precise estimate of B_1.	
What significance test will be used	The Lab's standard method for significance tests as of publication date
How do you plan to state the effect for each outcome?	Among low-income DC residents, receiving half-price discounts [increased/decreased/had no effect on] the share of the 9-month period spent employed by X percentage points compared to the group who did not receive any discounts. The LIFT participants who received half-price discounts were employed for Y% of months; no discounts, Z% of months.

Research question: Will free unlimited trips increase time spent employed more than half-price discounts?[68]

Question	Answer
What estimand(s) will be calculated	Intent-to-treat (ITT)
What procedure will be used to calculate the estimand	Using The Lab's standard method as of publication date
Will covariates be included?	Yes, using The Lab's standard method as of publication date ● Including covariates in the calculation of the estimand is preferred because: we

[68] All references to 9-months reflect our planned intervention period. See the *Outcomes and Measures* sub-section for more details on possible changes to the 9-month timeframe.

	expect our outcome variables to be correlated with individual characteristics. It is not necessary in order to get a valid ITT, but will help with precision.
What covariates will be included?	All the variables listed in the *Covariates* sub-section.
Will the analysis include weights?	No.
Equation(s): $$Outcome_i = \beta_0 + \beta_1 Z_i + \beta_2 (X_i - \bar{X}) + \beta_3 Z_i (X_i - \bar{X}) + \epsilon_i$$ Where *Outcome*$_i$ is the share of the 9-month intervention period the individual was employed; Z_i is a binary indicator equal to 1 if the individual received free unlimited trips, and equal to 0 if they received half-price discounts; and X_i is the set of covariates defined above (including a dummy variable indicating whether an individual was in Block 1). We include $B_2(X_i - \bar{X})$ and $B_3 Z_i (X_i - \bar{X})$ to get a more precise estimate of B_1.	
What significance test will be used	The Lab's standard method for significance tests as of publication date
How do you plan to state the effect for each outcome?	Among low-income DC residents, receiving free unlimited trips [increased/decreased/had no effect on] the share of the 9-month period spent employed by X percentage points compared to the group who received half-price discounts. The LIFT participants who received free, unlimited trips were employed for Y % of months; half-price discounts, Z % of months.

Research questions: Will discount on fares improve well-being (transportation security and overall well-being)? [69]

Question	Answer
What estimand(s) will be calculated	Intent-to-treat (ITT)

[69] All references to 9-months reflect our planned intervention period. See the *Outcomes and Measures* sub-section for more details on possible changes to the 9-month timeframe.

What procedure will be used to calculate the estimand	Using The Lab's standard method as of publication date
Will covariates be included?	Yes, using The Lab's standard method as of publication date • Including covariates in the calculation of the estimand is preferred because we expect our outcome variables to be correlated with individual characteristics. It is not necessary in order to get a valid ITT, but will help with precision.
What covariates will be included?	All the variables listed in the *Covariates* sub-section.
Will the analysis include weights?	Yes. While we will ask the entire sample to participate in the survey, we expect differential take-up rates. When analyzing survey outcomes, we will include post-stratification weights on: • Age • Gender • Initial reported SmarTrip Use (Categorical, such that "did not report a SmarTrip card" will be a category, not missing data). • Treatment assignment group • (Pending access to data), pre-treatment income (categorical) • (Absent access to income data) Ward
Equation(s): $$Outcome_i = \beta_0 + \beta_1 Z_i + \beta_2 (X_i - \bar{X}) + \beta_3 Z_i (X_i - \bar{X}) + \epsilon_i$$ Where $Outcome_i$ is a social mobility and/or well-being metric as described above; Z_i is a binary indicator equal to 1 if the individual received free unlimited trips or half-price discounts, and equal to 0 if they received no discounts; X_i is the set of covariates defined above. We include $B_2(X_i - \bar{X})$ and $B_3 Z_i (X_i - \bar{X})$ to get a more precise estimate of B_1.	
What significance test will be used	The Lab's standard method for significance tests as of publication date

How do you plan to state the effect for each outcome?	Discounted transit [lowered/raised/had no effect on] transportation security and [lowered/raised/had no effect on] overall well-being for low-income DC residents. The LIFT participants who received discounted transit (free or half-price) scored X more/fewer points on the Transportation Security Index and reported Y more/fewer points on the Cantril ladder (a measure of overall well-being) compared to the LIFT participants receiving no discounts, a difference comparable to [something interpretable].

Overarching questions and outcomes

Question	Answer
How many hypotheses will be tested?	6, across 3 domains
Will there be corrections for multiple hypothesis testing?	Yes, using The Lab's standard method on multiple comparisons as of publication date: • Accounting for multiple tests when a) we declare the tests to be confirmatory, and b) the tests form a family/domain (here, 1) employment, 2) mobility, and 3) well-being). We will account for multiple hypothesis testing for research questions within the same domain. We will not account for multiple hypothesis testing for research questions across domains.
How will missing data be treated?	We anticipate a few different forms of missing data: • A large portion of the sample did not report SmarTrip card numbers. These respondents will be excluded from analyses specific to mobility, because their proportion of the sample is too large to impute their mobility behavior. • We will not be able to distinguish between users who take 0 trips and users whose mobility data is "missing" (because they lost their card or switched to another card.)[70] We will treat all 0's in data for users whose SmarTrip numbers we know as "true" zeros. • For the Transportation Security Index, we will follow the procedure recommended by the

[70] We do have a protocol for replacing lost cards, if reported to LIFT by email or call.

	Transportation Security Index team. • For all other variables (e.g., employment, income, mobility), we will impute following the Lab's standard method as of publication date.
How will attrition be measured?[71]	We will define attrition separately for each outcome/analysis. • We will report overall attrition and differential attrition between experimental groups for each outcome/analysis. • We will report whether the key baseline characteristics of attritors—including mobility self-reported at baseline and baseline measures of outcomes (if available)—vary across the experimental arms.
Are expected missingness, attrition, and non-compliance sufficiently addressed by the estimand?	No. We have included any threats from missingness, attrition, and non-compliance in the Key Limitations section.
What is the anticipated extent of experimental non-compliance?	Two-sided non-compliance[72] is conceivable: Individuals in the treatment group may not exclusively use their study-provided SmarTrip card because they may share their SmarTrip cards with family or friends, or they may at times switch to a standard SmarTrip card (without a discount) other than the one they listed on their sign-up form. This kind of noncompliance would lead to our underestimating the treatment effect of the true benefit of discounts, but not of the policy; in a scaled-up version of the intervention, the same noncompliance is possible and even likely. Individuals assigned to the control group may also seek out alternative discounted fares through another program during the intervention; they may also take transit without paying pay fares at all. If these actions were to happen, we would underestimate the effect of the treatment (because the control group's behavior would look similar to the treatment group's behavior).

[71] Attrition is when study participants drop out of the study over time, and when researchers cannot find all study participants for follow-up surveys or other data collection efforts. Impact Evaluation in Practice - Second Edition. World Bank. Retrieved March 13, 2023 from. http://localhost:4000//entities/publication/ebbe3565-69ff-5fe2-b65d-11329cf45293

[72] Duru, Maya & Kopper, Sarah. (2022, August). Data Analysis. J-PAL. Retrieved March 13, 2023 from https://www.povertyactionlab.org/resource/data-analysis.

Statistical Power

We conducted power analyses for our two primary outcomes of mobility and employment.

Outcome	Minimum detectable effect[73]	Source of base rate, MDE and Variance
Mobility	• To test the effect of **half-price discounts** vs. **no discounts**, we can use only the portion of the sample that reported a valid SmarTrip card number and self-reported using the reported SmarTrip card always or most of the time (so that we can track the control group). For this sample, we would need an increase of **10 trips per month** to detect an effect. • To test the effect of **half-price discounts** vs. **free, unlimited trips**, we can use all study-provided SmarTrip cards, so we have a larger sample size. For this sample, we would need an increase of **6 trips per month** to detect an effect.	Using simulation-based methods, a mean of 22 trips per month (WMATA) and a dispersion factor of 2.56 (from WMATA standard deviation).
Employment	• 15% relative increase in (binary) probability of employment	We do not currently have employment data, so this data is estimated using the most conservative approach, without concrete baseline data.

Note: 80% power, 2-sided test (see The Lab's standard method), the half-price discount versus no-discount comparison assumes at least 28% of each group provides SmarTrip card numbers, and the free, unlimited trips versus half-price discount comparison assumes data is available for all SmarTrip cards assigned to individuals in both treatment arms.

[73] Any effects smaller than the minimum detectable effect size will not be detectable. Minimum detectable effect sizes are confirmed via power calculations.

Key Limitations

Limitation	Response

What do we know about the program, the data available, or our analytical approach that will make us less confident our results can be trusted?	• Survey non-response
	  ○ Depending on the share of individuals who do not respond, we may be unable to estimate the impact of the intervention on well-being as planned (a confirmatory analysis). Our ability to capture non-DC employment may also be negatively impacted if we can only capture those data through surveys rather than administrative data.
	  ▪ For the outcomes measured exclusively via surveys, we may estimate bounds on the treatment effects using Manski and Lee bounds. We may also conduct an analysis where we re-weigh observations by the inverse probability of attriting.
	  ○ Individuals might not respond to all the questions that make up the Transportation Security Index.
	• Technological errors with individual SmarTrip cards, fare boxes, or fare gates may result in incomplete data on bus or rail trips and transfers.
	• Non-compliance
	  ○ Individuals, especially those in the control, may not use the SmarTrip card they shared with the study team.
	  ○ Individuals might not swipe or tap their SmarTrip card when taking bus or rail.
	  ○ Individuals might share their SmarTrip card, including with people in other treatment arms or the control group.
	  ▪ We will ask about sharing practices in the surveys.
	  ○ Individuals might receive some other transit discount.

What went “wrong” during the experiment that we know about right now?	Due to logistical issues, the LIFT SmarTrip cards were ready for distribution before the $25 Visa gift cards. The delayed distribution of the gift cards may affect trust in the program, and ultimately affect compliance and survey response rates.

	After running the lottery on January 17, 2023, we discovered that a few duplicates were included in the randomized study population. We decided to use the original assignment lottery numbers, remove duplicates, and re-assign by moving the line of separation between treatments and control down the list to fill all available treatment slots after removing duplicates. In March, we discovered that a soft-launch participant was included the wider-launch sample.
Have agency partners placed any limits on what we can or can't do in analysis?	No.
How might our study population be reflective (or not) of who the program/policy is designed to impact? How might any similarities or differences impact the use of our results?	Households receiving utility assistance may be systematically different from the larger low-income population in some ways. For example, accessing utility assistance is predicated on having somewhat stable housing—this may not be true for all low-income residents across the District.
Are there any anticipated limitations or challenges related to data collection or access?	Not all data use agreements are in place. Not having these agreements in place may affect the way we construct our outcomes. Where such issues are known to us at this point, we have outlined how we plan to use alternative data sources (such as using the private payroll and credit reporting data in place of the DOES data to measure changes in employment) earlier in the pre-analysis plan. There are a number of policy proposals for discounted transit being actively considered in Washington DC as of the time of this document. For instance, legislation proposing that riding Metrobus be free for rides originating in DC beginning July 1, 2023 has passed, though funding is uncertain as of the time of publication. If implemented, this change will mean that there is no longer card tap data from people boarding the bus. Mobility outcomes related to bus trips could also be impacted potentially prior to that date if customers change their payment behavior prior to July 1st. The free bus change is only planned for DC, so may make

	the results less applicable to the rest of Metro's ridership in Maryland/Virginia. Additionally, there is a WMATA proposal to adopt a regional low-income fare similar to the half-price discount being tested as part of this study.
What (if any) exploratory or sensitivity analysis might be conducted?	We have described some exploratory analyses throughout this document but focus this pre-analysis plan on the confirmatory analyses. Some sensitivity analyses we are considering include: • Comparing half-price discounts to no discounts using only the sample that self-reported "always" using the validated SmarTrip card they listed on their sign-up form • Comparing half-price discounts to no discounts using a control group that only includes people who used the validated SmarTrip card they listed on their sign-up form at least once a month after baseline • Comparing half-price discounts to no discounts using a control group that only includes people who used the validated SmarTrip card they listed on their sign-up form consistently before they signed-up for LIFT • Running all our pre-registered comparisons for mobility using people in only single-person households (where the possibility of card-sharing is anticipated to be lessened)
Are there risks that the study may be under-powered?	Yes. The portion of the control group that reported regular use of a single SmarTrip (and provided the number for that SmarTrip) was small (about 28% of the sample). This limitation may impact our power to detect an effect specifically for the "half vs. No discount" test on mobility outcomes measured using WMATA data. We would interpret a positive, but not significant, effect, as suggestive, but not strong, evidence for a positive impact of the program, and would seek to corroborate these effects by considering mobility-related survey outcomes. It is also possible that efforts to study the other non-mobility outcomes may be under-powered if administrative data on LIFT participants is unavailable or survey response rates are too low.

What action (policy or otherwise) will be supported by a positive or null result?	*Action Supported by Positive Result* The results of our study will be shared with transit decisionmakers, including the City Administrator, WMATA, DDOT, and DOEE. If our study finds positive effects of transit discounts, WMATA may choose to expand this program to a wider group of low-income residents. To provide strong evidence in favor of expansion, the result must be greater than our lowest effect size threshold. We could see positive results for either our half-price discount group, the free unlimited trips group, or both. Positive results for each treatment group would lead to different policy decisions. For example, expanding free unlimited trips would be twice as expensive as a half-price discounts. To justify that policy choice, we would want the positive effect size to be twice as large (or larger) for free unlimited trips. We may see positive results from the transit discounts in the mobility, employment, and well-being of participants. Changes in these three domains will help inform the level of investment justified by a wider program. We will also consider fare evasion in our exploratory analysis. Discussions of fare evasion have featured in WMATA's efforts to make transit more accessible and equitable;[74] findings from our study might inform policies designed at addressing the root causes of fare evasion. We will also consider home energy use in our exploratory analysis. If receiving a transit discount allows residents to spend more time out of the home, it is possible that they may change their home energy consumption as a response. As there is little existing evidence on this question and it is not the study's primary purpose, we restrict this question to the exploratory analysis. Suggestive evidence on this question might prompt future research shaping home energy policy.

[74] Metro to begin fare enforcement November 1 | WMATA. Retrieved March 13, 2023 from https://www.wmata.com/about/news/Fare-evasion-citations.cfm

	Action Supported by Null or Unexpected Result A null result would mean that we are unable to conclude that the effects of the study are different from zero. An unexpected result would be a decrease in transit use or employment during the study period, for example. Null results are common in scientific evaluations and can still help inform future research or policy decisions. We could see null (or unexpected) results for one or both treatment groups. Depending on the group, a null result would mean different things for future research or policy decisions. We could also see null results for one of our outcomes of interest (i.e., transit, employment, or well-being) or several. A null (or unexpected) result on mobility outcomes would be surprising. Previous trials in Boston and Seattle have found significant mobility results from similar interventions.[75] If we were to see null (or unexpected) results on our mobility outcomes, it could mean that something about our study is different than Boston or Seattle in a way that makes our intervention less effective. It could be that the COVID-19 pandemic has changed transit behavior or that cost is no longer a factor in mobility. Since there are few studies looking at well-being and transit subsidies, a null (or unexpected) result for well-being outcomes would be less surprising. Null results still provide meaningful opportunities for learning about well-being and mobility. There are many factors that go into making transportation more equitable and accessible for residents. In addition to cost, geographic access, complexity of trip, perceived safety, comfort, as well as the frequency, speed, and reliability of service all matter. There are also other factors that play into our well-being outcomes directly such as access to job training, education, or career counseling. A null result could mean that we need to invest more in these other programs, separately or in addition to transit discounts to reach the outcomes we want.

	Potential shifts in policy context DC Council and the broader capital region have already begun discussing how to best support transit access for residents. The Metro Board is interested in providing some form of support for low-income Metro riders. Other regional operators have planned, piloted, or implemented their own fare-free programs. The DC Council has also passed the Metro for DC bill, which, pending funding, will make WMATA buses operating in the District free and will seek to put $100 per month on all residents' SmarTrip cards in the future. Our learnings from the pilot may be able to inform how these other initiatives could work best for residents and what level of impact to expect. We will update the pre-analysis plan or our reporting once final details on any new and relevant initiative are publicly shared.

[75] Jeffrey Rosenblum, Jinhua Zhao, Mariana Arcaya, Justin Steil, and Chris Zegras. How Low-income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation from http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf.; Rebecca Brough, Matthew Freedman, and David C. Phillips. 2022. Experimental evidence on the effects of means-tested public transportation subsidies on travel behavior. Regional Science and Urban Economics 96, (September 2022), 103803. DOI:https://doi.org/10.1016/j.regsciurbeco.2022.103803

Appendix 1: Income Thresholds for DOEE Programs in FY21 and FY22

Maximum household income in FY21	Maximum household income in FY22
Programs: LIHEAP, UDP, and CRIAC CAP 1[76] 60% SMI 1 person $37,575 2 people $49,137 3 people $60,698 4 people $72,260 5 people $83,822 6 people $95,383 7 people $97,551 8 people $99,719	*Programs: LIHEAP and CRIAC CAP 1* 60% SMI 1 person $42,920 2 people $56,126 3 people $69,332 4 people $82,530 5 people $95,744 6 people $108,950 7 people $111,426 8 people $113,902
Program: CRIAC CAP 2 80% AMI 1 person $70,600 2 people $80,650 3 people $90,750 4 people $100,800 5 people $110,900 6 people $121,000 7 people $126,000[77] 8 people $126,000[78]	*Programs: UDP and CRIAC CAP 2* 80% AMI 1 person $72,250 2 people $82,600 3 people $92,900 4 people $103,200 5 people $113,550 6 people $123,850 7 people $134,200 8 people $144,500

[76] Customer Assistance Program (CAP)
[77] Capped by the Budget Support Act
[78] Capped by the Budget Support Act

Program: Solar for All[79]	*Program: Solar for All*[80]
80% AMI 1 person $72,250 2 people $82,600 3 people $92,900 4 people $103,200 5 people $113,550 6 people $123,850 7 people $134,200 8 people $144,500 9 people $154,800 10 people $165,150	80% AMI 1 person $79,700 2 people $91,100 3 people $102,500 4 people $113,850 5 people $125,250 6 people $136,650 7 people $148,050 8 people $159,400 9 people $170,800 10 people $182,200

Note: CRIAC CAP 1 and CAP 2, UDP, LIHEAP, and Solar for All numbers are from current and archived text on DOEE's website.

[79] Unlike the other DOEE programs listed in the table, Solar for All's income cutoffs are set in the spring. These income cutoffs were effective from spring 2021 through 4/17/2022.

[80] According to DOEE's website, these income cutoffs are effective as of 4/18/2022. 2023. Solar for All. Department of Energy and Environment. Retrieved from https://doee.dc.gov/solarforall

Appendix 2: Sign-Up Form

DEPARTMENT OF ENERGY & ENVIRONMENT

Enter a lottery for transit discounts

DC Government is offering a lottery for free unlimited trips or half-price discounts on Metro and bus for nine months. It's called the Low-Income Fare Trial (LIFT). You may be eligible if you get help paying utilities. **Applications due November 20, 2022.**

Apply at lift.dc.gov in just 10 minutes!

1. Check if you're eligible for LIFT.

Respond to the statements below to check your eligibility. Only **one person from your household** may apply.

I live in DC	☐ True	☐ False	
I'm 18-64 years old	☐ True	☐ False	
My household gets help paying for utilities from DOEE or has in the past year	☐ True	☐ False	☐ I'm not sure
*I'm **not** currently employed by DC Government*	☐ True	☐ False	☐ I'm not sure
*I'm **not** currently employed by the Washington Metropolitan Area Transit Authority (Metro)*	☐ True	☐ False	☐ I'm not sure
*I **don't** personally receive a senior, disability, or student discount on Metro or bus*	☐ True	☐ False	☐ I'm not sure

Did you answer...	**..."True" to all six statements?**	**..."False" to any statements?**	**... "I'm not sure" to any statements?**
	You may be eligible. Complete the rest of the form to enter the lottery.	You are not eligible to enter the lottery. Visit lift.dc.gov to learn more.	You may complete the rest of the form, and we'll check your eligibility.

2. Tell us about yourself.

Full Name:	Birthdate: / /	SSN or A-Number: *(required)*	
Home Address:	Unit:	Washington, DC	ZIP:
Mailing Address: *(if different)*	Unit:	Washington, DC	ZIP:
Email:	Phone: ☐ Cell ☐ Landline		
Gender: ☐Man ☐Woman ☐Nonbinary ☐Prefer not to say	Are you Hispanic/Latinx? ☐Yes ☐No ☐Prefer not to say		
Race: *(choose all that apply)* ☐ American Indian/ Alaska Native ☐ Black/African American ☐ Native Hawaiian/ Pacific Islander ☐ Asian ☐ White ☐ Prefer not to say ☐ _____			
Which language would you like to receive information about LIFT in? ☐ English ☐ Español ☐ 普通话 ☐ 한국어 ☐ Français ☐ አማርኛ ☐ Tiếng Việt ☐ _____			

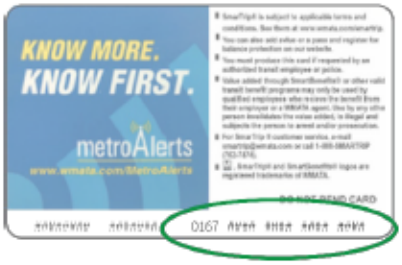
3. Tell us about how you get around.

How many days did you ride the bus or Metro last week? ☐ 0 days ☐ 1 day ☐ 2 days ☐ 3 days ☐ 4 days ☐ 5+ days

How do you pay for Metro and bus? ☐ I don't ride either, skip to page 2 ☐ Cash, skip to page 2 ☐ SmarTrip, complete the rest of this page

What is your SmarTrip Card number? *Choose the first 4 digits and write the rest.*

☐0167
☐0176
☐0177
— — — — — — — — — — — — — — — —



Instructions:

- *Look on the back of your card, in your digital wallet app, or in the SmarTrip app.*
- *If you have more than one, choose the card you use most.*
- *Reread to make sure what you write matches your card.*
- *If you're eligible and you provide your valid SmarTrip card number, we'll enter you into a lottery to **get an additional $25 Visa gift card!***

How often do you use this card when you ride the bus or Metro? ☐ Never ☐ Sometimes ☐ Most of the time ☐ Always

Sign on page 4.

Low-Income Fare Trial (LIFT) Privacy Statement

Sign on page 4.

In addition to offering discounts on Metro and bus, the Low-Income Fare Trial (LIFT) will help DC Government learn how these discounts affect the way you get around, as well as your employment, income, family, health, and home energy use. It's important that you understand and agree to how DC Government agencies, their contractors, and partners (collectively "the District," "we," and "us") will use and share your data before you sign and submit your application.

4. Information we receive from you

Signing up	We collect information about you and your household when you fill out an application form and when you provide documentation. Personal information may include: • name, • date of birth, • Social Security Number, A-number, or student ID number • contact information, • demographics, • SmarTrip card number, and • answers to questions about how you get around.
Social Security Number (SSN)	We requested your Social Security Number (SSN) in the application form under the authority of 42 U.S.C. § 405(c)(2)(C)(i). You must report your SSN, if you have one, to take part in LIFT. We will use your SSN as an identifier throughout your participation in LIFT. We will use the information we gather using your SSN to administer LIFT and analyze its outcomes.
Communicating with us via text message, phone, or email	We may collect your name, contact information, and any other personal information you choose to share when you reach out to us for support, give us feedback, or otherwise interact with us.
Completing surveys	When you complete voluntary surveys, we collect information to verify your identity, including your name, social security number, and contact information. We'll also ask you questions about how you get around, your employment, income, family, health, and energy use.

5. Information provided by others

Companies who provide services for the District	We may work with third parties to contact you about LIFT by mail, text message, phone, and email. They'll provide us with information about your responses to our messages.
Consumer reports and the Fair Credit Reporting Act (FCRA)	We will request consumer reports for everyone taking part in LIFT. The consumer report will include credit and employment information. We'll use this information to evaluate LIFT's impact on income and employment. The Fair Credit Reporting Act protects the information in your consumer report. Learn about your rights at consumerfinance.gov/learnmore.
Other government agencies and private companies that provide public services	The following entities may provide information about you and your household members needed to help us evaluate LIFT: • Department of Employment Services (DOES) • Department of Energy and Environment (DOEE) • Department of Health Care Finance (DHCF) • Department of Human Services (DHS) • Office of the State Superintendent of Education (OSSE) • Washington Metropolitan Area Transit Authority (WMATA) • PEPCO • Washington Gas Examples of the type of information the agencies may provide about you and your household members include: • name, • address, • date of birth, • social security number or A-number, • employment, income, and job-search activity • medical care, • school attendance, • household's energy use, • use of District services, including food, cash, and medical assistance files maintained by the Department of Human Services, Economic Security Administration and other agencies • SmarTrip card transactions, and • use of Metrorail, Metrobus, and regional bus partners.

6. How we use your information

To confirm your eligibility	• Make sure that you are eligible to participate in LIFT • Confirm who you are
To serve you	• Send you a LIFT SmarTrip card and/or gift card(s) • Reach out to you for additional information via email, mail, text, or phone call • Answer your questions and resolve disputes • Personalize your experience
To study our service	• Evaluate how this program affects you and other District residents • Conduct research, including by partnering with academic institutions • Combine and anonymize information about you to create aggregate, anonymized statistics for use in research
To improve our service	• Create new programs or update and improve existing programs for District residents • Improve our services by analyzing how they are used

7. How we share your information

When we share your information, it may no longer be protected by federal privacy laws, and we may not be responsible if a third party rediscloses your information. We will only share your data with third parties in the circumstances listed in this privacy statement. We will *not* share your data with advertisers or law enforcement, unless required to by law.	
To contact you	We may share your contact information with third parties to contact you about LIFT by mail, text message, and phone. We'll only share the information they need to contact you about LIFT.
To confirm your eligibility	We may share your SmarTrip card number with WMATA to confirm that you are not already receiving a senior, disability, or student discount on Metro or bus.
For research	We may share information with third parties—such as academic institutions, government, and non-profit organizations—for research purposes or to publish academic or policy-related materials. We only share information in a way that would not allow you to be identified.

8. How we protect your information

We will treat your data as confidential and protected information, meaning we will store your data securely and will use it for only the purposes described in this privacy statement.	
When we access and transfer your data	• We will only store and access your data on encrypted computers. • We will never email your data, post it online, or make it available through unencrypted channels. • If your data is transferred via flash drive, the data will be deleted immediately from the flash drive after the transfer is complete and the deletion will be confirmed by ensuring that the data does not appear in the trash or recycle bin of the flash drive. • Any data that is printed will be stored in a locked file cabinet and shredded when it is no longer needed.
When we publish findings	• Any research findings that we publish will not include names or personal information for you or any other participants. • Your consent is valid until we complete the evaluation of LIFT or until you withdraw your consent. Upon finishing the analysis, we will no longer access or use your information, and where possible, we'll dispose of your data entirely.

9. Your rights

Change your mind at any time	• You can change your mind about participating in LIFT and withdraw your consent for us to use your data at any time. Contact DOEE at 202-304-1975 or lift@dc.gov to let us know. • If you decide not to participate anymore, your LIFT SmarTrip card will stop working. • Any data we collect *before* we receive your request may still be used in an evaluation of LIFT.
Still receive benefits you would normally	Whether you decide to participate in LIFT will not affect the benefits and services you would normally receive from DOEE or other District agencies.
Receive a copy of your data	You may request a copy of the information about you described in this statement by calling 202-304-1975 or emailing lift@dc.gov.
Ask questions	You may ask any questions you have about LIFT or your rights as a participant in LIFT by contacting DOEE at 202-304-1975 or lift@dc.gov.

Your Signature

✓ Sign telling us you agree to these terms.

I agree to the following statements:

1. I certify that the information I provided in this form is true, correct, and complete to the best of my knowledge, ability, and belief.
2. I understand that my information in this application and existing DC Government records may be protected by federal privacy laws. I agree to waive this privacy for certain information and authorize DC Government agencies and certain private companies to collect, share, and use my data according to boxes #4-9.
3. I understand that my consent is valid until the District completes the evaluation of LIFT or until I withdraw my consent (see Box #9).
4. I understand that I cannot take part in LIFT if I don't agree to these terms.
5. I am fully informed and voluntarily agree to participate in LIFT.
6. I understand this application does not guarantee I will receive anything.

Your signature: _____ Date: _____

10. Submit this completed form.

Send DOEE your completed, signed form by **November 30, 2022**. You can also apply online at lift.dc.gov.

Email	Scan or take a picture of all four pages and email them to lift@dc.gov.
Mail	Using the enclosed, postage-paid return envelope, mail your completed, signed form to: Department of Energy and Environment, Utility Affordability Administration 1200 First Street NE, 5th Floor Washington, DC 20002

11. Get ready for next steps.

Thank you for being part of Mayor Bowser's efforts to make transportation more affordable and sustainable for you and your DC community. Here's what you can expect to happen next:

1. If you're not eligible, you'll get an email or letter within 30 days with the reason why and instructions to let us know if you think there's been a mistake.
2. If you're eligible, you'll get an email by **late 2022** to let you know what you're selected to get in the lottery. You'll be randomly selected to get one of the following:

Free unlimited trips on Metro and bus for 9 months and a $25 Visa gift card	**Half-price discount** on Metro and bus for 9 months and a $25 Visa gift card	A $25 Visa gift card

3. We'll mail you your LIFT SmarTrip card and $25 Visa gift card with instructions on how to use them.
4. We may ask you to complete optional surveys to learn if LIFT affects how residents get around and residents' well-being.

Appendix 3: LIFT Privacy Statement

DEPARTMENT OF ENERGY & ENVIRONMENT
GOVERNMENT OF THE DISTRICT OF COLUMBIA

Low-Income Fare Trial (LIFT) Privacy Statement

In addition to offering discounts on Metro and bus, the Low-Income Fare Trial (LIFT) will help DC Government learn how these discounts affect the way you get around, as well as your employment, income, family, health, and home energy use. It's important that you understand and agree to how DC Government agencies, their contractors, and partners (collectively "the District," "we," and "us") will use and share your data before you sign and submit your application.

1. Information we receive from you

Signing up	We collect information about you and your household when you fill out an application form and when you provide documentation. Personal information may include: • name, • date of birth, • Social Security Number, A-number, or student ID number • contact information, • demographics, • SmarTrip card number, and • answers to questions about how you get around.
Social Security Number (SSN)	We requested your Social Security Number (SSN) in the application form under the authority of 42 U.S.C. § 405(c)(2)(C)(i). You must report your SSN, if you have one, to take part in LIFT. We will use your SSN as an identifier throughout your participation in LIFT. We will use the information we gather using your SSN to administer LIFT and analyze its outcomes.
Communicating with us via text message, phone, or email	We may collect your name, contact information, and any other personal information you choose to share when you reach out to us for support, give us feedback, or otherwise interact with us.
Completing surveys	When you complete voluntary surveys, we collect information to verify your identity, including your name, social security number, and contact information. We'll also ask you questions about how you get around, your employment, income, family, health, and energy use.

2. Information provided by others

Companies who provide services for the District	We may work with third parties to contact you about LIFT by mail, text message, phone, and email. They'll provide us with information about your responses to our messages.
Consumer reports and the Fair Credit Reporting Act (FCRA)	We will request consumer reports for everyone taking part in LIFT. The consumer report will include credit and employment information. We'll use this information to evaluate LIFT's impact on income and employment. The Fair Credit Reporting Act protects the information in your consumer report. Learn about your rights at consumerfinance.gov/learnmore.
Other government agencies and private companies that provide public services	The following entities may provide information about you and your household members needed to help us evaluate LIFT: • Department of Employment Services (DOES) • Department of Energy and Environment (DOEE) • Department of Health Care Finance (DHCF) • Department of Human Services (DHS) • Office of the State Superintendent of Education (OSSE) • Washington Metropolitan Area Transit Authority (WMATA) • PEPCO • Washington Gas Examples of the type of information the agencies may provide about you and your household members include: • name, • address, • date of birth, • social security number or A-number, • employment, income, and job-search activity • medical care, • school attendance, • household's energy use, • use of District services, including food, cash, and medical assistance files maintained by the Department of Human Services, Economic Security Administration and other agencies • SmarTrip card transactions, and • use of Metrorail, Metrobus, and regional bus partners.

3. How we use your information

To confirm your eligibility	• Make sure that you are eligible to participate in LIFT • Confirm who you are
To serve you	• Send you a LIFT SmarTrip card and/or gift card(s) • Reach out to you for additional information via email, mail, text, or phone call • Answer your questions and resolve disputes • Personalize your experience
To study our service	• Evaluate how this program affects you and other District residents • Conduct research, including by partnering with academic institutions • Combine and anonymize information about you to create aggregate, anonymized statistics for use in research
To improve our service	• Create new programs or update and improve existing programs for District residents • Improve our services by analyzing how they are used

4. How we share your information

When we share your information, it may no longer be protected by federal privacy laws, and we may not be responsible if a third party rediscloses your information. We will only share your data with third parties in the circumstances listed in this privacy statement. We will *not* share your data with advertisers or law enforcement, unless required to by law.

To contact you	We may share your contact information with third parties to contact you about LIFT by mail, text message, and phone. We'll only share the information they need to contact you about LIFT.
To confirm your eligibility	We may share your SmarTrip card number with WMATA to confirm that you are not already receiving a senior, disability, or student discount on Metro or bus.
For research	We may share information with third parties—such as academic institutions, government, and non-profit organizations—for research purposes or to publish academic or policy-related materials. We only share information in a way that would not allow you to be identified.

5. How we protect your information

We will treat your data as confidential and protected information, meaning we will store your data securely and will use it for only the purposes described in this privacy statement.

When we access and transfer your data	• We will only store and access your data on encrypted computers. • We will never email your data, post it online, or make it available through unencrypted channels. • If your data is transferred via flash drive, the data will be deleted immediately from the flash drive after the transfer is complete and the deletion will be confirmed by ensuring that the data does not appear in the trash or recycle bin of the flash drive. • Any data that is printed will be stored in a locked file cabinet and shredded when it is no longer needed.
When we publish findings	• Any research findings that we publish will not include names or personal information for you or any other participants. • Your consent is valid until we complete the evaluation of LIFT or until you withdraw your consent. Upon finishing the analysis, we will no longer access or use your information, and where possible, we'll dispose of your data entirely.

6. Your rights

Change your mind at any time	• You can change your mind about participating in LIFT and withdraw your consent for us to use your data at any time. Contact DOEE at 202-304-1975 or lift@dc.gov to let us know. • If you decide not to participate anymore, your LIFT SmarTrip card will stop working. • Any data we collect *before* we receive your request may still be used in an evaluation of LIFT.
Still receive benefits you would normally	Whether you decide to participate in LIFT will not affect the benefits and services you would normally receive from DOEE or other District agencies.
Receive a copy of your data	You may request a copy of the information about you described in this statement by calling 202-304-1975 or emailing lift@dc.gov.
Ask questions	You may ask any questions you have about LIFT or your rights as a participant in LIFT by contacting DOEE at 202-304-1975 or lift@dc.gov.