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GREATER MADISON mpo

Greater Madison Metropolitan Planning Organization

Metro Transit Onboard Survey

Greater Madison Metropolitan Planning Organization

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Table of Contents

Summary

The 2024 Madison Metro Transit (Metro) On-Board Survey was conducted to collect information for Metro's service planning, including required review of proposed service changes under Title VI, and for use in the Greater Madison MPO's Regional Travel Demand Model. This report includes findings from the survey that are relevant to service planning, both supporting Title VI review of proposed service changes and providing a deeper understanding of how the Metro Transit system is used and experienced by riders.

Key findings of the survey include:

1. The 2023 Transit Network Redesign was successful in reducing the number of transfers required for riders to complete trips, with a disproportionately beneficial impact on reducing the number of transfers required for Black/African American riders to complete their trips. In 2015, 49%[1] of Black/African American riders needed to transfer to complete their trips, and only 15% of White riders needed to transfer. While Black/African American riders still transfer at much higher rates (33%) than most other racial groups or the system average (13%), the Transit Network Redesign does appear to have reduced the need for Black/African American riders to transfer to complete their trips. (See Figure 30)

2. The Transit Network Redesign was successful in reducing the number of transfers required for trips made by Low-Income ($0–34,999) households, of whom 34% transferred in 2015 compared to only 17% of Mid- and High-Income ($35,000+) households. Following the Transit Network Redesign, transfer rates for these income brackets were reduced to 13% for Low-Income households and to 14% for Mid- and High-Income households. (See Figure 38)

3. People who experience disabilities or mobility impairments have been the most negatively affected by the 2023 Transit Network Redesign, which resulted in greater distances between routes, and the launch of the East-West Bus Rapid Transit Rapid Route A, which resulted in greater distances between stops. (See Figure 104)

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1 Due to the small sample sizes of some populations or other responses, margins of error are expected to be large. Providing percentages to two or even one decimal place would provide an illusion that those decimals are significant. Accordingly, in this report, percentages are given in whole numbers with no decimal places, except where the value is less than 1%, in which case the smallest number of decimals required to provide a meaningful data point are provided.

Introduction

From the Cambridge Systematics Approach, Findings, and Analysis Final Report:

The 2024 Metro transit on-board survey aims to understand the travel patterns and rider characteristics of transit riders in the Madison area. Through the administration of an onboard survey for bus passengers and the subsequent analysis of the data, the study will provide crucial travel and ridership information that can support a variety of short-term and long-term planning studies.

The survey was administered in Spring 2024 by a team led by Cambridge Systematics (CS), with Canete Medina Consulting Group, Inc. (CM), and LOCUS Inc. CM led the data collection efforts on the field, with CS and LOCUS Inc. assisting in the survey design, sampling plans and strategies, and summarization of the survey data. The project was managed by the Greater Madison Metropolitan Planning Organization (MPO) with support from Madison's Metro Transit (Metro).

The 2024 on-board survey for Metro has the following objectives:

- Collect ridership demographics and travel patterns to support short-term service planning and Title VI analysis (including understanding transportation/mobility security).
- Understand the impacts of the recent bus network redesign on the usage and travel patterns for transit riders (including transfer behavior) and establish a baseline assessment ahead of the upcoming deployment of the Phase 1 (East-West Corridor) of the bus rapid transit (BRT) line.
- Support longer-term regional transit planning and travel demand forecasting efforts, including ridership forecasting for the upcoming BRT projects.

The Cambridge Systematics Final Report provides a first-round review and tabulation of survey responses, including limited cross-tabulation of responses:

- Race and Annual Household Income

- Annual Household Income and Number of Vehicles in Household
- Household Size and Number of Employed Workers in Household
- Household Size and Number of Vehicles in Household

Although basic charts showing demographic responses alone are included in the Cambridge Systematics Final Report, they are also provided in this report for convenience. This report expands the number of cross-tabulated fields from the mainline route survey (long form) to provide a more nuanced view of Metro's ridership profile, and provides insight into the relationship between race and ethnicity, income, disability, gender, age, English proficiency, language spoken at home, transportation security, and metrics such as trip length, mode of getting to and from bus stops, route(s) ridden, number of transfers, and more. Although not exhaustive, with 32 relevant questions, there are over 500 combinations in which responses could be cross-tabulated – this report provides nearly 100 charts describing important relationships between these factors.

The UW-Madison route (short form) survey was conducted on Routes 80, 81, 82, and 84. This survey instrument was shorter than the mainline (long form) survey since trips on these routes are much shorter than those on mainline routes and riders have less time to complete the survey on the bus. UW-Madison Transportation Services provided questions that they deemed important to have responses to, and most questions about the trip were omitted from the short form survey. Accordingly, there are many fewer possible cross-tabulations that can be performed with these responses. As very few survey responses were received on Routes 81 and 82 (11 total), responses from those routes are not included in this report. Nevertheless, six additional charts are provided to explore how these routes are being used.

It is important to note that in cross-tabulating responses, the number of surveys available to be compared varies with every combination of questions. For example, if out of 3,040 completed surveys, 2,800 riders

responded to question A and 2,700 riders responded to question B, it might be that only 2,600 riders answered BOTH questions A and B. This also results in situations where the average overall response to a question might be higher or lower than all of the cross-tabulated responses, as when a disproportionate percentage of people who declined to answer the Race question have a higher transfer rate than those who did answer that question; the overall average is skewed by those who did not answer the Race question and is higher than the transfer rate for any individual race or ethnicity.

Survey Details

The On-Board Survey was conducted in two phases: a pre-test on March 6, 2024, of Routes A, B, D, and 80, and the main survey in April 2024 of all regular routes.[2] Surveys were distributed on buses by employees of one of the project consultants. Paper surveys could be completed and returned to the surveyor on the bus, mailed in, or completed online using a unique identifier printed at the top of each paper survey. Paper surveys were available in English and Spanish, and online surveys were available in English, Spanish, Hmong, Chinese, and Korean. Translation services could be requested if surveys were desired in other languages, and surveyors carried translation information cards to assist riders with accessing surveys in their desired language. A total of 3,044[3] main-line route surveys were completed, 3,023 in English and 21 in Spanish, as shown in Figure 1. English-language surveys were pre-assigned to routes on which they were distributed; Spanish-language surveys were not pre-assigned to routes, so these appear in charts in Route "NA". No surveys were completed in any language other than English or Spanish. An additional 1,024 English short form surveys were completed for the UW-Madison routes.

As with past on-board surveys conducted for Madison Metro Transit, surveys were distributed by drivers on paratransit routes instead of by surveyors. Surveys could be returned through the driver or mailed in. Only 11 of these surveys were completed and returned, a small enough sample that these results are unlikely to be representative of the larger paratransit-riding population; accordingly, these results are not presented in this report. For future on-board surveys, it will be important to re-evaluate how paratransit surveys are distributed and collected and to make any needed changes to improve survey response rates.

Figure 1: Long-Form Survey Language by Survey Type

	Paper Surveys	Online	Mail-ins (including pre-test)	Pre-test Paper	Pre-test Online	Grand Total
English	1,820	1,009	111	61	22	3,203
Spanish	17	4	–	–	–	21

Spanish-language surveys were not assigned to routes before being distributed in the field, so in charts showing responses by scheduled route, Spanish-language responses are in the "NA" route category. This results in sub-optimal data hygiene; however, with only 21 Spanish surveys out of a total of 3,044, it does not introduce statistically significant bias in the overall data set. Nevertheless, this unanticipated shortfall in data quality has been noted and will be addressed in the design of future on-board surveys.

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2 Supplemental School routes (600 series) were not surveyed.

3 The Cambridge Systematics Final Report states that a total of 3,045 surveys were completed for main-line routes (excluding UW-Madison Routes 80, 81, 82, and 84); however, there are 3,044 surveys in the final data set provided by Cambridge Systematics and Canete-Medina Consulting Group, so this report uses the total of 3,044 surveys.

Data Hygiene

In addition to providing an in-depth analysis of rider demographics and trip characteristics from all completed surveys, for relevant questions, this report uses a data set that has been carefully reviewed and cleaned to ensure accuracy. Analyses using this cleaned data set include those considering the number of transfers made in a trip as well as all of those related to specific trip origin[4], bus boarding[5], bus alighting[6], and destination[7] points (OBAD). Primarily, these data points are used in the development of the Regional Travel Model and are not considered in this report.

Manual review of every submitted survey was required to identify many of these points, such as when a rider indicated that they got on the bus at "Kwik Trip" but did not provide more information. During review, MPO staff considered information about the trip origin and the bus route the survey was completed on and tried to determine at which Kwik Trip-adjacent bus stop the rider boarded the bus. This review also allowed MPO staff to interpret misspelled place and street names, or to use other available information to identify OBAD points that the rider themselves wasn't sure of or misidentified.[8] All reported stops were geocoded to latitude/longitude coordinates to eliminate this variability. For trips where OBAD points were undeterminable, responses are not included in the data that feeds into the Regional Travel Model.

When reviewing and correcting the number of transfers made for a given trip, MPO staff considered if transfers were really required for the trip, or if the rider misinterpreted the question and provided, for example, the total number of buses they would ride for a round-trip journey. Other riders counted interlined buses as transfers, such as when they boarded a route G bus, which turned into an H bus before they disembarked. And finally, some riders simply misreported the number of transfers their trip could reasonably require, such as riders who boarded route A, F, or R on Sheboygan Ave. and disembarked on W. Johnson St., and who reported that they would transfer one or more times for this trip. This simply does not make any sense, as all three of these routes follow the same alignment between Sheboygan Ave. and W. Johnson St., and no transfer could logically be required.

The survey was designed to collect representative responses by time of day and by route group. Routes were grouped due to low ridership on some routes and the difficulty of obtaining enough responses from riders on those routes to constitute a statistically representative sample. Although this approach is reasonable when setting targets for survey responses, combining the responses from those grouped routes introduces the opportunity for muddying the data related to each route. For example, Routes A, S, and W were grouped together due to very low ridership on the infrequent (30-60-minute headways) Routes S and W, and the very high ridership on the frequent (15-30-minute headways) Route A. Although this makes sense from a response rate target perspective, rider experiences and trip types will be very different between Route A and Routes S and W, so combining responses from these routes will introduce confusion about how those routes are used and the experiences of their riders. Unfortu-

4 The beginning of the trip, such as starting at home, a place of employment, or school.

5 The bus stop where the rider got on the bus being surveyed; not necessarily the stop where the rider got on the first bus of the trip if a transfer was required.

6 The bus stop where the rider will get off the bus being surveyed; not necessarily the stop where the rider will get off the final bus of the trip if a transfer is required. Also referred to as the stop where the rider disembarked.

7 The end of the trip, such as arriving at home, a place of employment, or school.

8 A frequently encountered example of this is the University Ave. and N. Frances St. bus stop (Stop ID 0626). This is a complex location where the bus stop is halfway between N. Frances St. and N. Bassett St., and is located on the corner where W. Gorham St. turns into University Ave. To add to the confusion, W. Gilman St. intersects University Ave. at the same intersection as N. Frances St. at a 45-degree angle between N. Frances St. and University Ave. As such, riders often mis-identified this stop as being at N. Bassett St. and W. Gorham St., W. Gilman St. and University Ave., or similar understandable errors in identifying the stop name.

nately, this means that due to very small sample sizes (four, one, and four, respectively), Routes P, S, and W are not included in charts showing responses by route. In the short-form UW-Madison survey conducted on routes 80, 81, 82, and 84, routes 81 and 82 had seven and four surveys completed, respectively. As with Routes P, S, and W, Routes 81 and 82 are excluded from this report due to a small sample size.

One racial group had such a small response rate that it is not included in most charts showing cross-tabulations by Race: Only five respondents identified themselves as Native Hawaiian/Pacific Islander (0.0016% of responses). This is such a small sample size that reporting these responses would provide a skewed perspective that is unlikely to be representative of this population overall. To further weaken the statistical relevance of responses from riders of this racial group, one or more of these respondents declined to answer many other questions in the survey, resulting in a sample size of only three or four individuals for many cross-tabulations. That said, the population of this racial group in the Metro service area is very small (227 - 0.04% - in the MPO Planning Area[9], and 157 - 0.06% - in the City of Madison[10]) so it is important to note that although this population is under-represented in survey responses, it is simply a very small population and therefore difficult to obtain a statistically significant response rate from.

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9 2013 Planning Area boundary, 2020 Census
10 2020 US Census

Trip Details

Figure 2: Trip Origins by Route

Does not include routes P, S, and W.
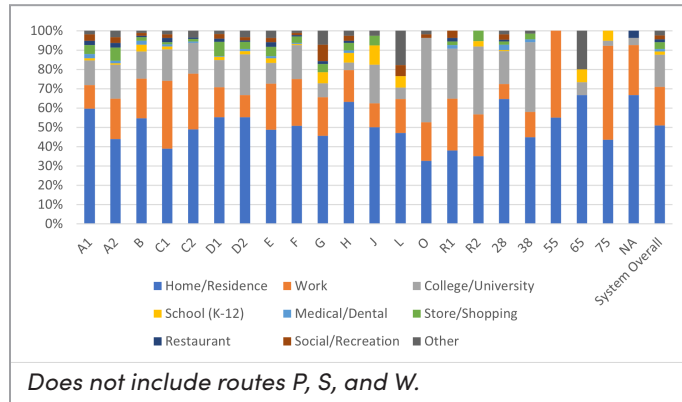
Out of 3,024 survey respondents, approximately half (51%) began their trip from home, 20% from the workplace, and 17% from a college or university. Other trip origins accounted for less significant shares.

Figure 3: Trip Destinations by Route

Does not include routes P, S, and W.
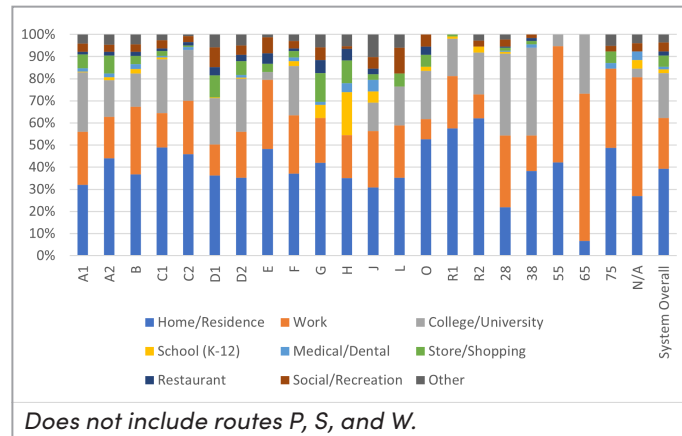
Out of 2,974 survey respondents, 39% reported their destination was home, 23% for work, and 20% for college or university. The remaining trip purposes made up a minor share.

Figure 4: Percentage of Riders Walking to Bus Stop by Route

Does not include routes P, S, and W.
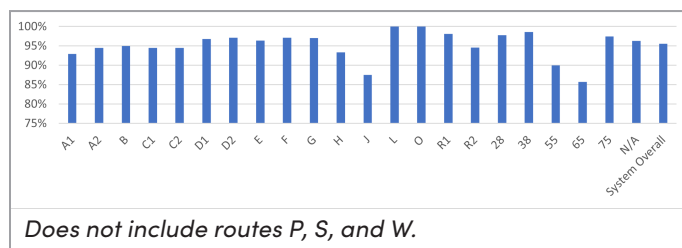
- Out of 2,976 respondents, a large majority, at 96%, walked to access the bus stop.

- All riders on Routes L and O walked to the bus stop.

- All routes had more than 90% of riders walking to the bus stop, except Route J at 88% and Route 65 at 86%.

Figure 5: Non-Walking Access Mode by Route
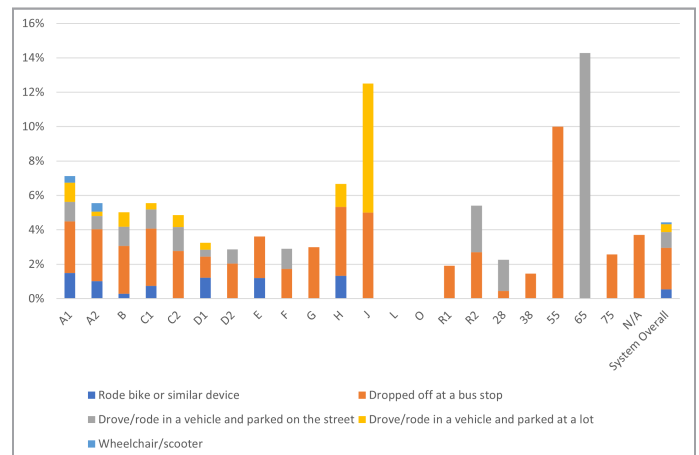
- Route A1 had the highest share of travelers riding a bike to access the bus stop at 2%. However, only a few routes had riders using bikes for access.

- Route 55 had the highest share of riders being dropped off at the bus stop at 10%, followed by Route J at 5%.

- Route 65 had the highest share of riders accessing the bus stop by driving or riding in a vehicle parked on the street at 14%.

- Route J had the highest share of riders accessing the bus stop by driving or riding in a vehicle parked in a lot at 8%.

- Routes A2 (0.5%) and A1 (0.4%) were the only routes with riders reporting that they accessed the bus stop using a wheelchair or scooter.

Figure 6: Distance Biked to Bus Stop
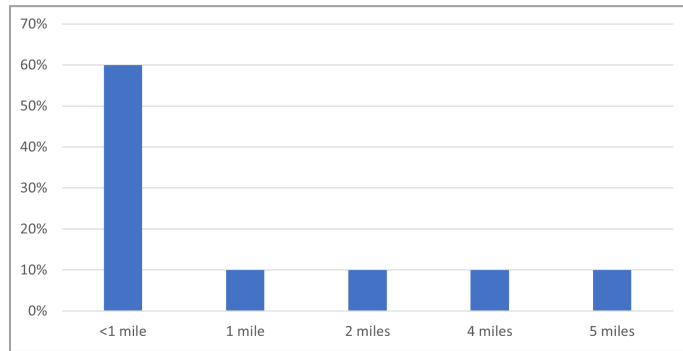
- Only ten respondents indicated that they had ridden a bike to the bus stop, 0.3% of responses.
- Among riders who rode a bike or used a similar device, 60% traveled less than one mile to access the bus stop.

Figure 7: Distance Walked to Bus Stop
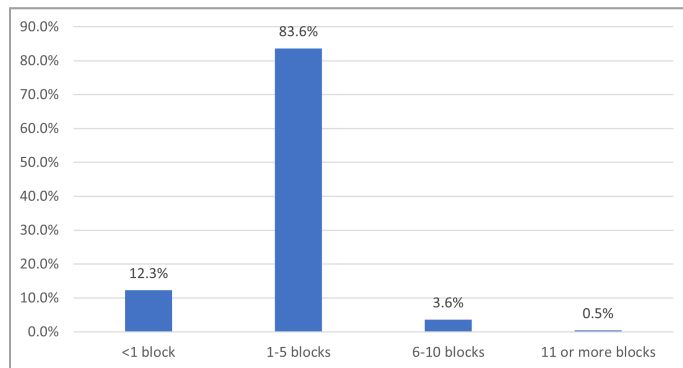
- The vast majority of riders (84%) walked or wheelchaired between one and five blocks to access the bus stop.
- 12% of riders accessed the bus stop from less than one block away.
- 4% traveled between six and 10 blocks, and very few riders traveled 11 or more blocks, although some riders reported walking multiple miles to access the bus system.

Figure 8: Distance Biked from Bus Stop to Destination
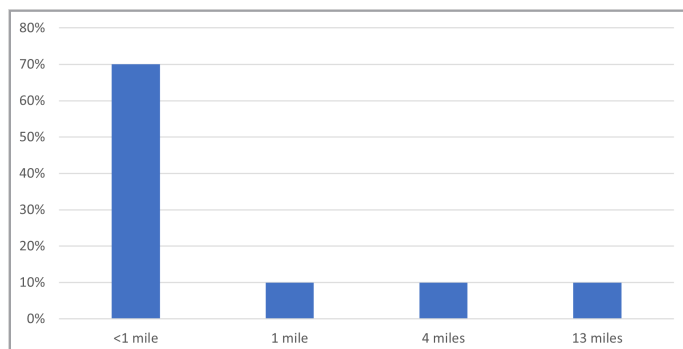
- Only ten respondents indicated that they had ridden a bike to the bus stop, 0.3% of responses.
- 70% of riders who rode a bike or used a similar device traveled less than one mile from the alighting bus stop to their destination.

Figure 9: Distance Walked to Destination
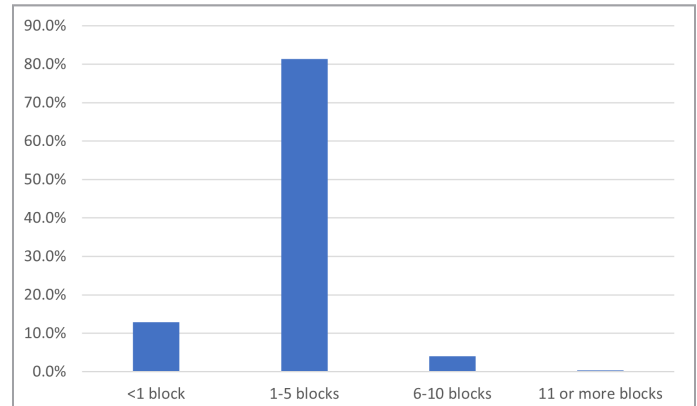
- 81% of riders walked or used a wheelchair to travel between one and five blocks from the alighting bus stop to their destination.
- 13% of riders traveled less than one block.
- 4% of riders traveled between 6 and 10 blocks.
- A very small share of riders traveled more than 11 blocks, although one respondent stated that they had walked 71 blocks to the bus, and another had walked 3 miles.

Figure 10: Trip Duration by Route
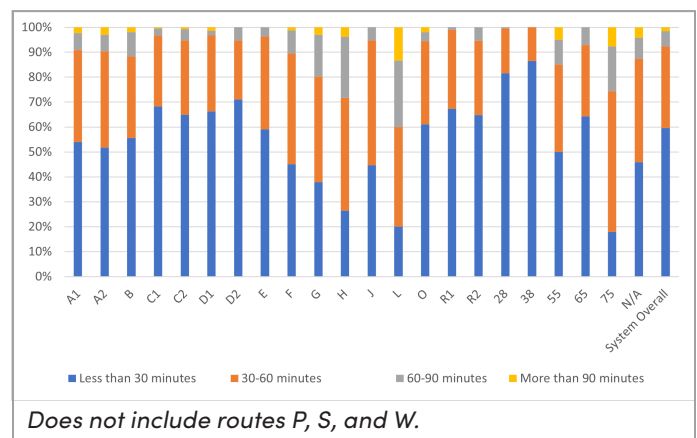
Does not include routes P, S, and W.

**Trip duration includes time spent walking, waiting for the bus, riding the bus, any transfers, and walking to the final destination.**

- Out of 2,794 respondents, 60% of riders took less than 30 minutes to travel from origin to destination.
- 33% took 30 to 60 minutes, 6% took 60 to 90 minutes, and 2% took more than 90 minutes.

- Likely due to short route lengths (less than one hour end-to-end), nearly all riders on Routes R2 (95%) and 28 (96%) and all riders on Routes R1 and 38 (100%) completed their trips within 60 minutes. This also indicates that trip origins and destinations for these riders are served well, as they do not need to walk long distances or transfer to other routes to complete their trips.
- Route L had the highest share of trips exceeding 60minutes, at 40%.

Figure 11: Discounted Fares by Route

Does not include routes P, S, and W.
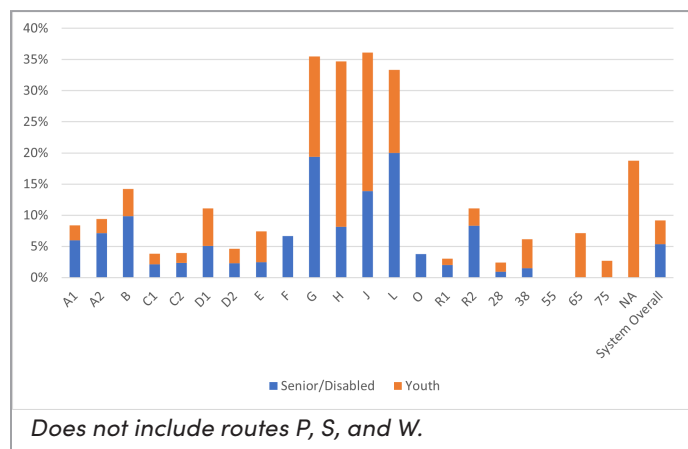
- Out of 2,638 respondents, 5% accessed the discounted fare for seniors or people with disabilities, while 4% accessed the youth discounted fare.
- Route L had the highest share of riders using a Senior/Disabled discounted fare at 20%, followed by Route G at 19%.
- Route H had the highest share of youth discounted fare users at 27%, followed by Route J at 22%.
- Although Route O had no riders using the Youth discounted fare during the April survey, this route serves the Goodman Pool, a popular destination for youth and families, which does not open until June of each year. It is likely that the use of Youth discounted fares would have been much higher if the survey had been conducted during summer months.
- When combining both categories, Route J had the highest overall share of discounted fare users at 36%.
- Routes G, H, and L also had high shares of combined discounted fare use, each exceeding 33%.

Figure 12: Access Mode by Fare Type
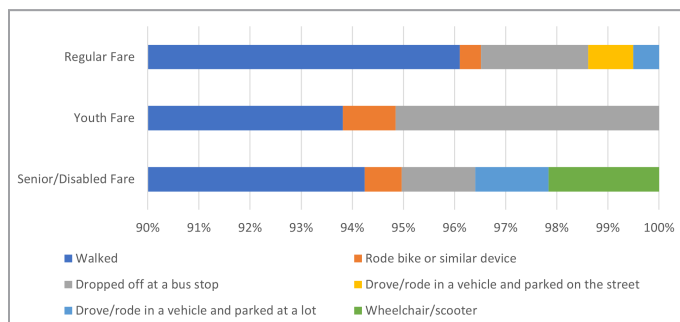
- Walking is the most common way for all riders to reach bus stops, with over 93% of all riders accessing the bus by walking.
- 5% of riders using Youth discounted fares were dropped off at the bus stop, the highest among all fare types, indicating greater dependence on others for this part of the trip.

Figure 13: Egress Mode by Fare Type
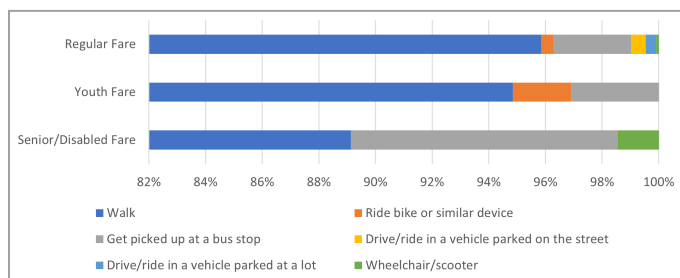
- 89% of riders using a Senior/Disabled discounted fare walked from the bus stop to their destination, the smallest proportion of those walking to their destination of any fare group.
- 9% of riders using a Senior/Disabled discounted fare were picked up at the bus stop—the highest among all fare types—showing greater reliance on someone else for this part of the trip.

Trip Details by Demographics

Figure 14: Trip Duration by Age
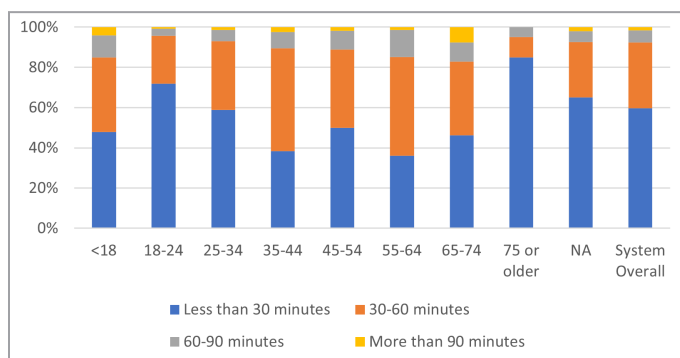
Trip duration includes time spent walking, waiting for the bus, riding the bus, any transfers, and walking to the final destination.

- Riders aged 75 or older had the highest share of trips under 30 minutes at 85%.
- Riders aged 55 to 64 had the highest share of trips between 60 and 90 minutes, at 14%.
- Riders aged 65 to 74 had the highest share of trips over 90 minutes, at 8%.

Figure 15: Trip Duration by Ethnicity
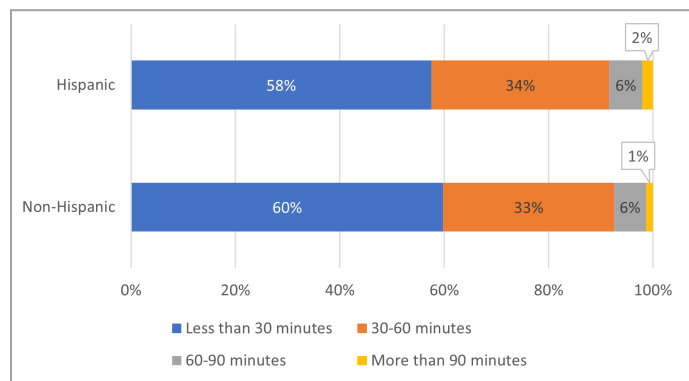
- Out of 2,593 respondents, 346 riders identified as Hispanic, representing 13% of the total.
- A lower share of Hispanic riders, at 58%, took less than 30 minutes to travel, compared to 60% of non–Hispanic riders.
- A higher share of Hispanic riders, at 2%, took more than 90 minutes to travel, compared to 1% of non–Hispanic riders.
- Between the two groups, the variation across different travel time categories is minimal.

Figure 16: Trip Duration by Race

Does not include Native Hawaiian/Pacific Islander due to small sample size
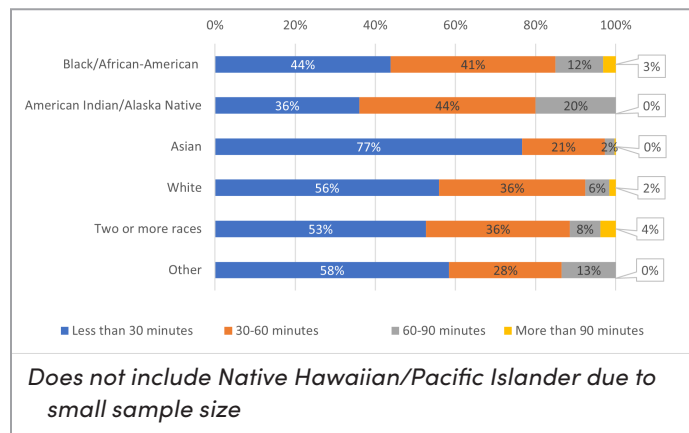
- A greater share of American Indian/Alaska Native and Black/African American riders have trips over 30

minutes in length than do any other races, as well as having the largest percentage of riders taking over 60 minutes to complete their trips.

- Asian riders typically enjoy the shortest overall trip length, with over 97% of these riders completing their trips within 60 minutes.

Figure 17: Trip Duration by Disability or Mobility Impairment
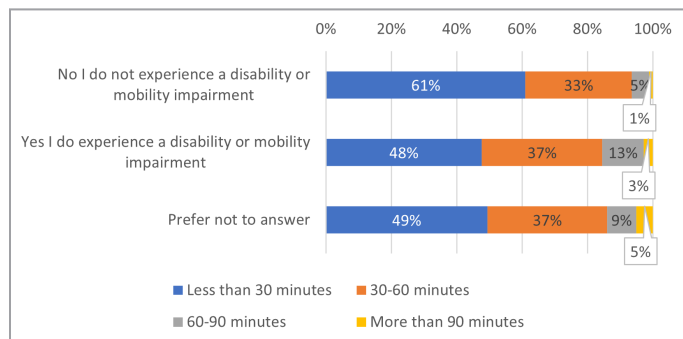
Riders who experience a disability or mobility impairment are more likely to take longer to complete their trips than those who do not experience a disability or mobility impairment, with 52% of their trips requiring longer than 30 minutes to complete, compared to 39% of trips made by those who do not experience disabilities or mobility impairments.

Figure 18: Trip Duration by English Proficiency
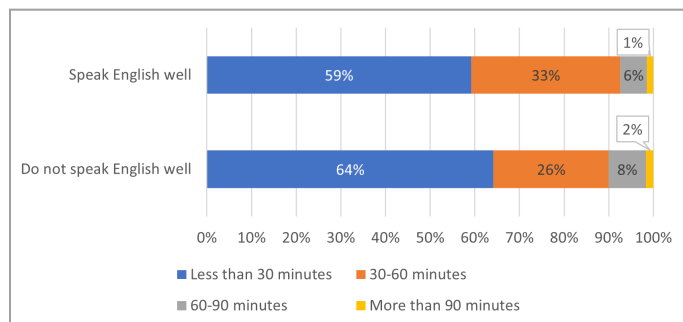
- Riders who do not speak English well had a higher share of trips under 30 minutes at 64%, compared to 59% among those who speak English well.
- They also had a higher share of trips lasting more than an hour at 10%, compared to 8% among riders who speak English well.

Figure 19: Trip Duration by Household Income
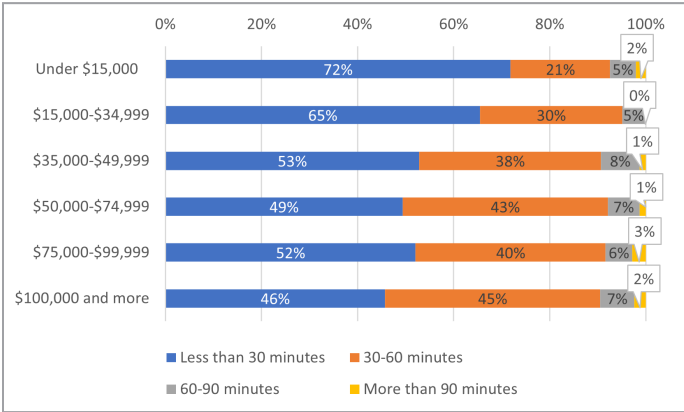
- Riders from households earning under $15,000 had the highest share of trips under 30 minutes, and approximately 93% of trips by this group were under 60 minutes.

- Riders from households earning $100,000 or more had the highest overall share of long trips (60 minutes or longer) at 10%.

Figure 20: Trip Duration by Number of Trips per Week
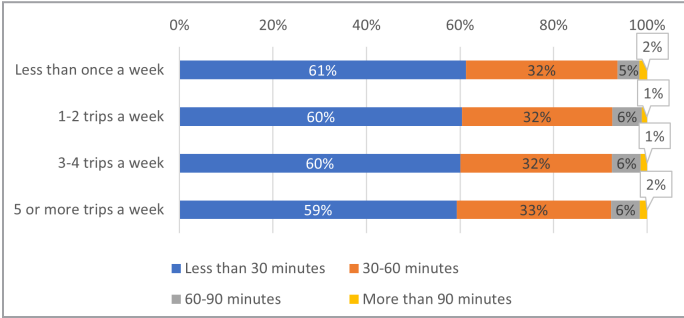
Riders were asked how many times they make "this trip" per week; this is intended to be a one-way trip, a common transit metric (unlinked passenger trip).

Trip length does not appear to be related to the number of transit trips riders take each week. About 60% of Metro Transit users' trips are less than 30 minutes, regardless of how frequently they ride.

Figure 21: Disability or Mobility Impairment by Trips per Week
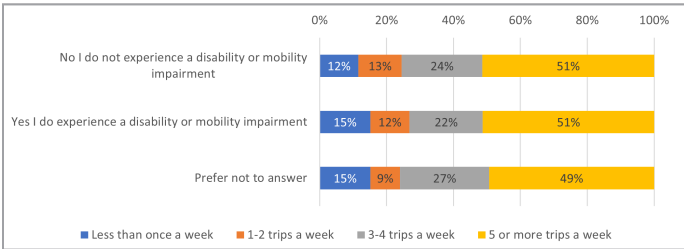
Whether riders had a disability or mobility impairment did not appear to make a difference in how often they traveled by bus. About half of the riders in all three groups made five or more trips per week.

Figure 22: Employment Status by Trip Frequency
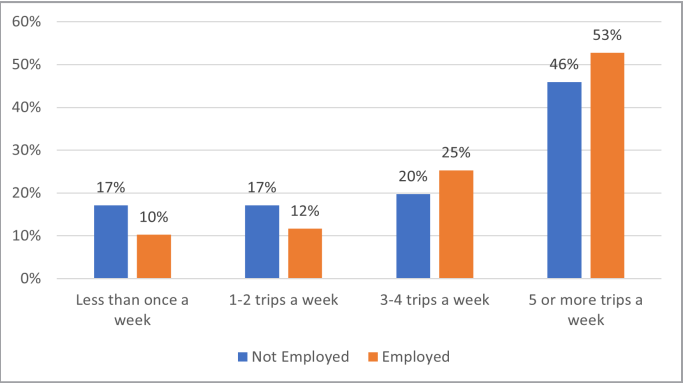
Employed people tend to ride the bus at a somewhat higher frequency than those who are not employed, with more than 50% riding at least five times per week and more than 78% riding three or more times per week.

Route Profiles

Figure 23: Route by Race

Not including White
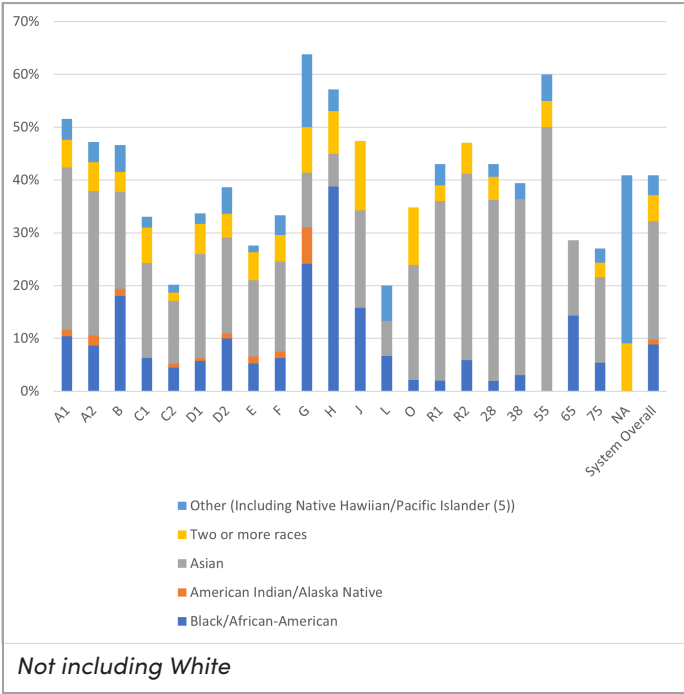
- Route H had the highest share of Black riders, at 39%, followed by Route G at 24%.

- Asian riders accounted for more than 30% of ridership on Routes A1, R1, R2, 28, 38, and 55.

- "Other" races made up nearly 32% of riders on unknown routes, which are primarily from Spanish-language surveys.

- Routes with minority (non-White) ridership above the system average include Routes A1, A2, B, G, H, J, R1, R2, 28, and 55.

Figure 24: Route by Hispanic Ethnicity
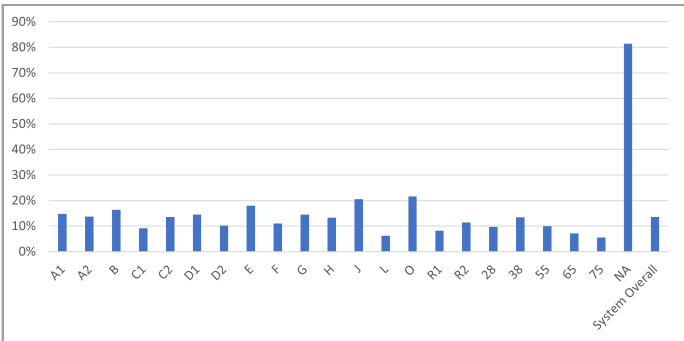
- The overall share of riders identifying as White and of Hispanic, Latino, or Spanish origin is 14%.

- Route O had the highest share at 22%.

- Route 75 had the lowest share of riders from this group, at 6%.

- As mentioned above, Spanish-language surveys were not assigned to routes before being distributed, which resulted in over 80% of surveys without assigned routes being completed by people of Hispanic ethnicity.

Figure 25: Limited English Language Proficiency, by Route
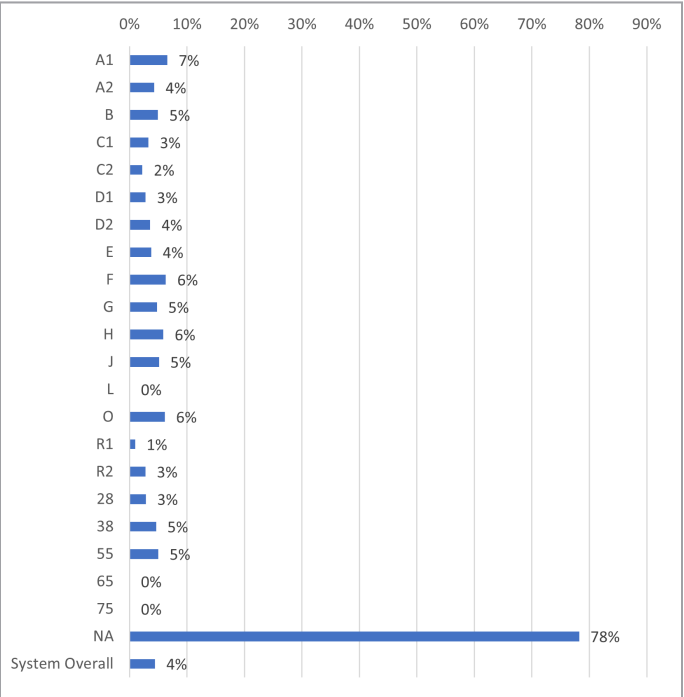
- The overall share of riders who either do not speak English or do not speak it well was 4%.

- Route A had the highest share at 6.6%, followed by Routes F and O.

- No riders on Routes L, 65, and 75 reported being able to speak English less than well.

- As no Spanish-language surveys were assigned to a route before being distributed, nearly 80% of surveys for unknown (NA) routes indicate that the respondent does not speak English well.

Figure 26: Household Income by Route

Does not include routes P, S, and W.
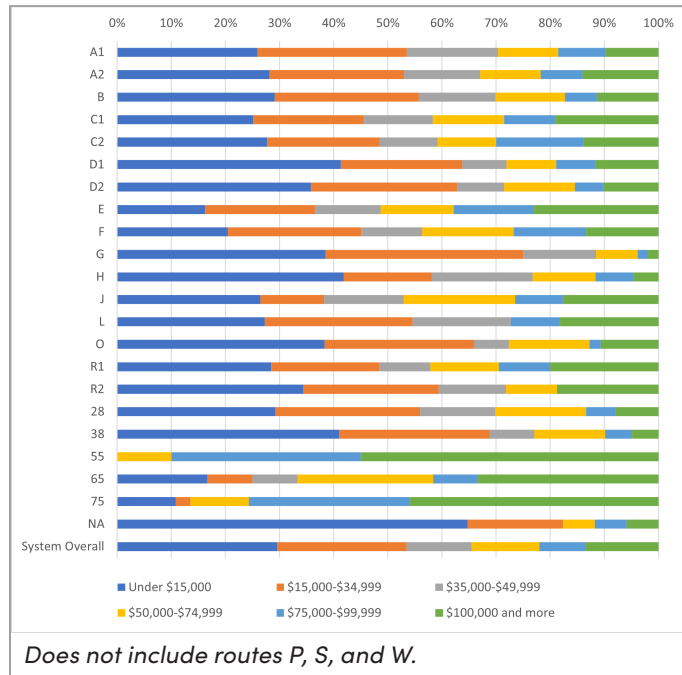
- Riders from households earning under $15,000 made up the highest share system-wide, at 30%, followed by those earning between $15,000 and $34,999, at 24%.

- 53% of all riders came from households earning under $35,000.

- More than 40% of riders on Route D1 and 38% on Route H have household incomes of under $15,000.

- Routes with above-average numbers of riders with household incomes below $35,000 include A1, A2, B, D1, D2, G, H, L, O, R2, 28, and 38.

- Riders of Routes 55 and 75, which serve the Epic campus in Verona, have the highest household incomes of any routes, with 100% of surveyed riders of Route 55 and 87% of Route 75 riders having household incomes $50,000 or more.

Transfers

Three respondents would transfer three or more times to complete their trip; these are such a small percentage of any category that they rarely appear in the following charts.

Figure 27: Number of Transfers by Fare Type
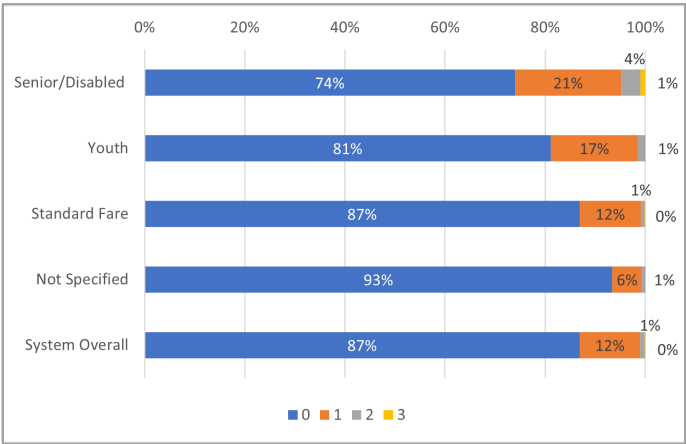
- Riders paying Senior or Disabled reduced fares transfer more than other riders, with 26% of these riders requiring one or more transfers to complete their trip.

- Riders paying Youth reduced fares transfer more than riders paying standard fares, with 19% of Youth riders requiring one or more transfers.

Figure 28: Number of Transfers by Ethnicity
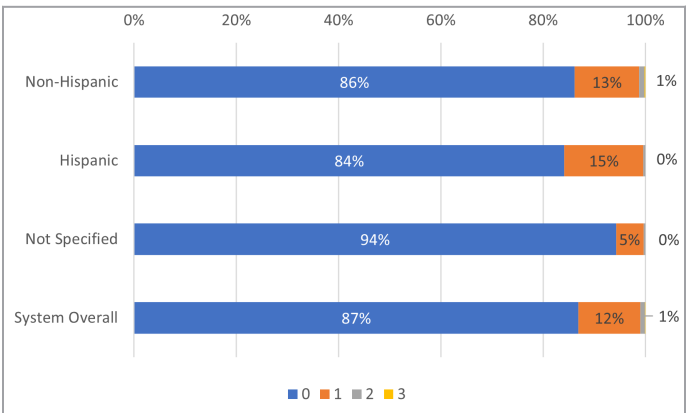
Figure 29: Number of Transfers by Race

Does not include Native Hawaiian/Pacific Islander.
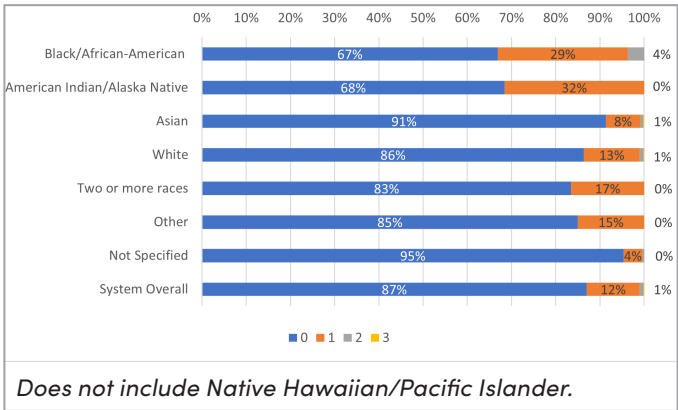
- Fewer Asian riders require transfers (8%) than any other racial group.

- Black/African American (33%) and American Indian/ Alaska Natives (32%) transfer at much higher rates than other racial groups or the system average (13%).

Figure 30: Riders Making One or More Transfers by Race, 2015–2024
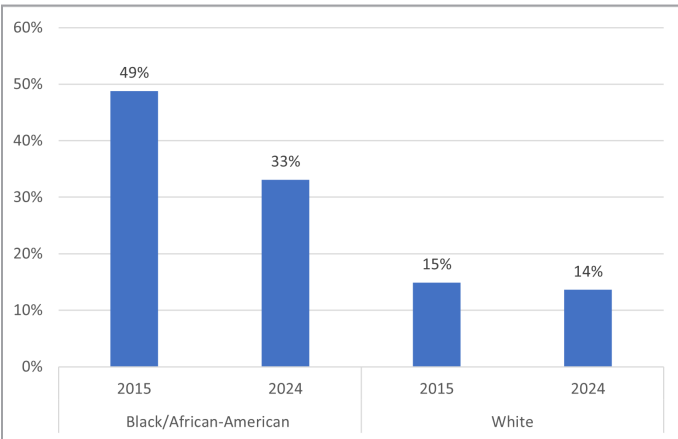
Reducing the number of transfers needed to complete common trips was a primary goal of the Transit Network Redesign, especially reducing the number of transfers required for trips completed by Black/African American riders, nearly half of whom reported that their trip required a transfer in the 2015 On-Board Survey. Only 15% of white riders' trips required a transfer in that survey.

While Black/African American riders still transfer at much higher rates than most other racial groups, the Transit Network Redesign appears to have substantially

reduced the need for Black/African American riders to transfer to complete their trips.

Figure 31: Number of Transfers by Age

One of 15 respondents 75 or older transferred three times; in the survey overall, only three respondents transferred three times.
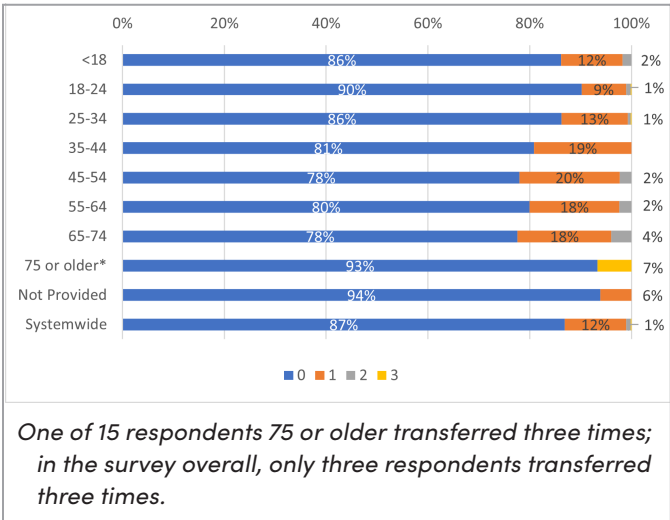
Figure 32: Number of Transfers by English Proficiency
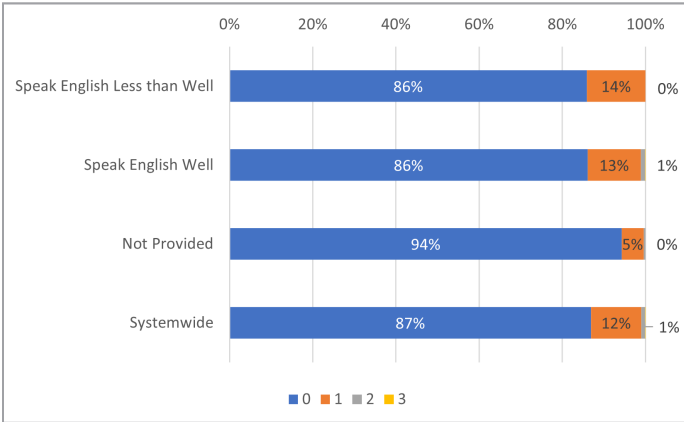
- Riders who indicated that they speak English less than well transfer at nearly identical rates as those who speak English well.
- No riders who speak English less than well require two transfers to complete their trips.

Figure 33: Number of Transfers by Language(s) Spoken at Home

*Caution: Small Sample Size (5)
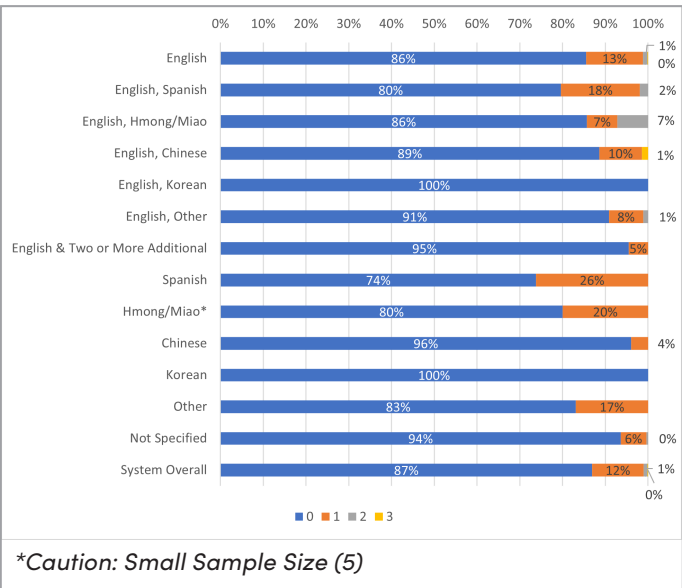
Riders who speak Spanish at home (26%) have the highest transfer rate, followed by those who speak both English and Spanish, and respondents who speak Hmong/Miao.

Figure 34: Number of Transfers by Employment Status?
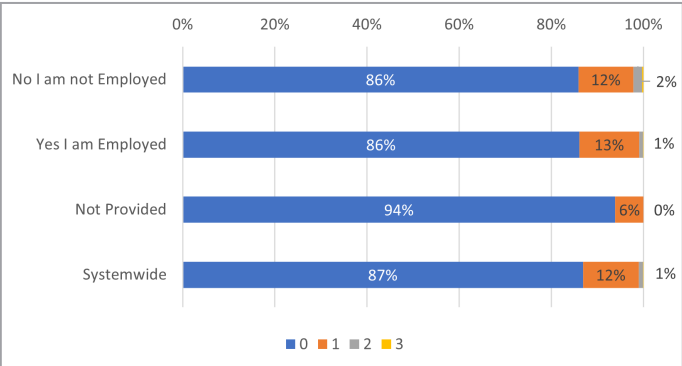
Employment does not appear to be a significant factor in the number of transfers riders must make to complete their trips.

Figure 35: Number of Transfers by Disability/Mobility Impairment
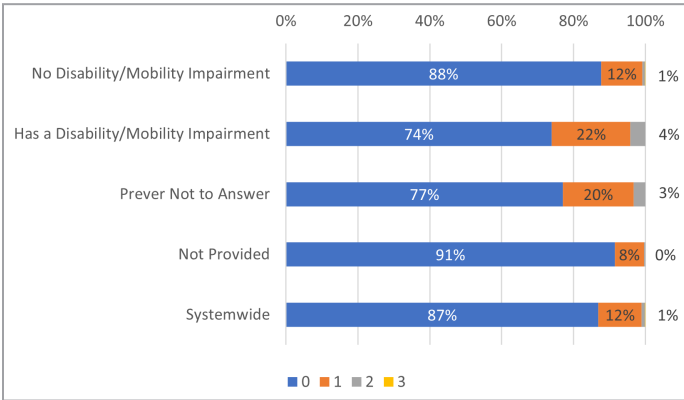
People who reported experiencing a disability or mobility impairment indicate that they require transfers to complete their trips at a much higher rate (26%) than those who do not experience a disability or mobility impairment (12%).

Figure 36: Number of Transfers by Gender
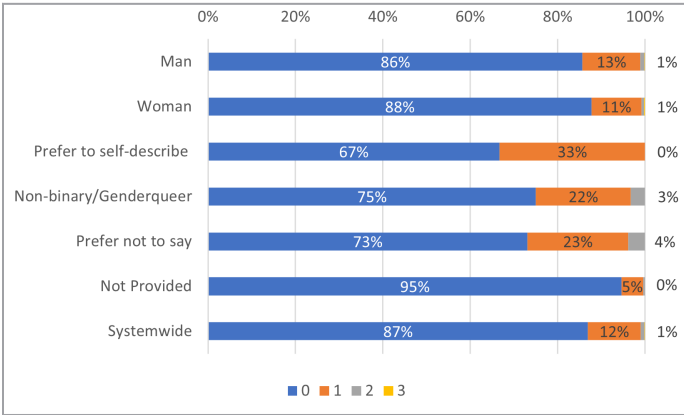
- Riders who selected a response other than Man or Woman were about twice as likely to transfer as other respondents.
- Men report transferring for 14% of trips, only slightly more frequently than the 12% reported by women.

Figure 37: Number of Transfers by Household Income
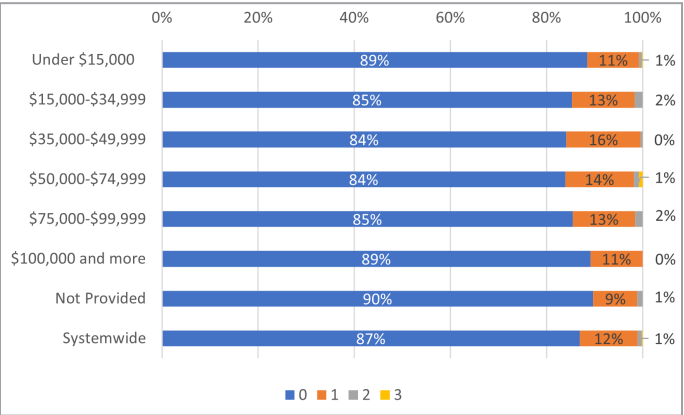
Household income appears to have only a minimal relationship with whether riders had to transfer.

Figure 38: Riders Making One or More Transfers by Household Income, 2015–2024
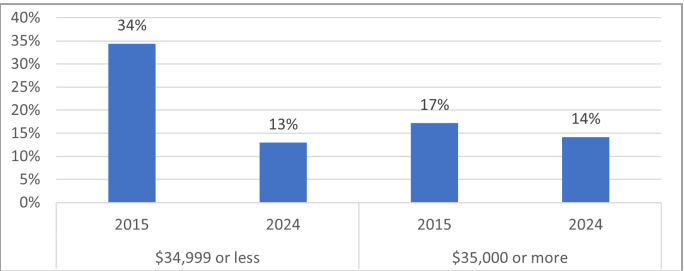
The Transit Network Redesign aimed to reduce the number of transfers required for trips made by Low-Income ($0–34,999) households. Following the redesign, the percentage of these riders requiring a transfer fell by more than half, to just 13%.

Figure 39: Number of Transfers by Vehicle Availability
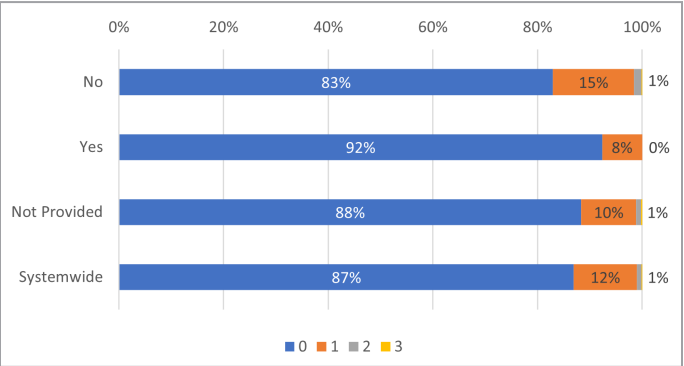
Riders without an available vehicle transfer to complete their trip at more than double the rate of riders with a vehicle – 17% compared to 8%.

Transportation Security Index

The Transportation Security Index (TSI) was developed by University of Michigan researchers as "a validated survey instrument composed of items that focus on the symptoms of transportation insecurity (for example, taking a long time to plan out everyday trips and re-scheduling appointments). By focusing on symptoms of transportation insecurity, the measure spares research-ers from attempting the impossible task of cataloging every possible input — from bus schedules to gas prices — that influences transportation insecurity."[11]

Although the full TSI is a sixteen-question interview and therefore beyond the scope of what can be included in a survey such as the Metro On-Board Survey, Great-er Madison MPO staff worked with TSI researchers to identify a subset of three questions that achieve near-ly the same rigorous accuracy as the full 16-question survey. These three questions have also been used by other transit agencies and communities to identify transportation-insecure communities, allowing Madi-son's responses to be compared to a growing number of other transit agencies' TSI profiles.

Figure 40: Household Income by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days
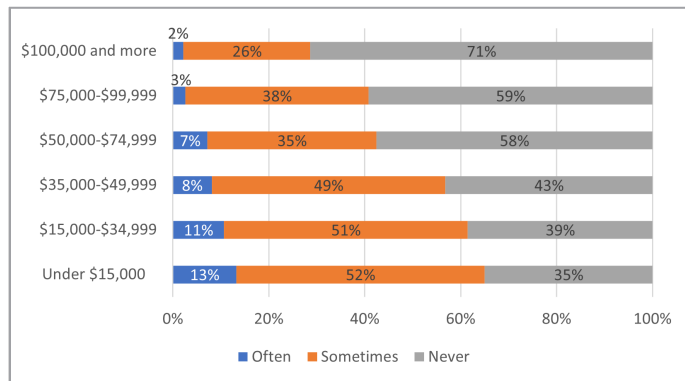
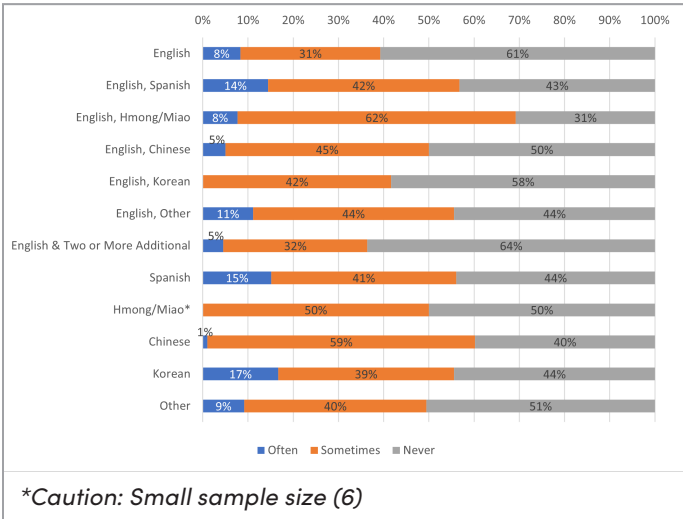**Figure 41. Household Income by Frequency of Not Able to Leave the House when Desired over the past 30 Days**
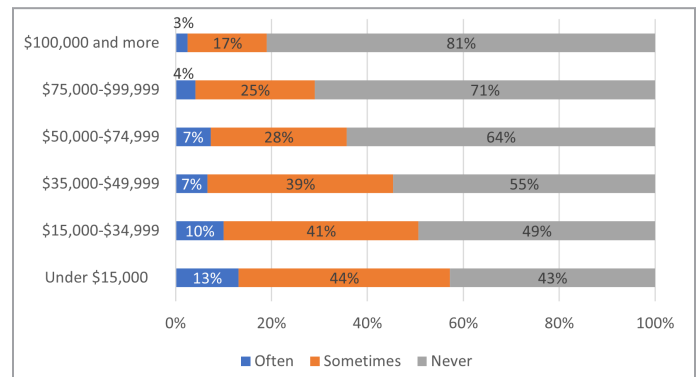
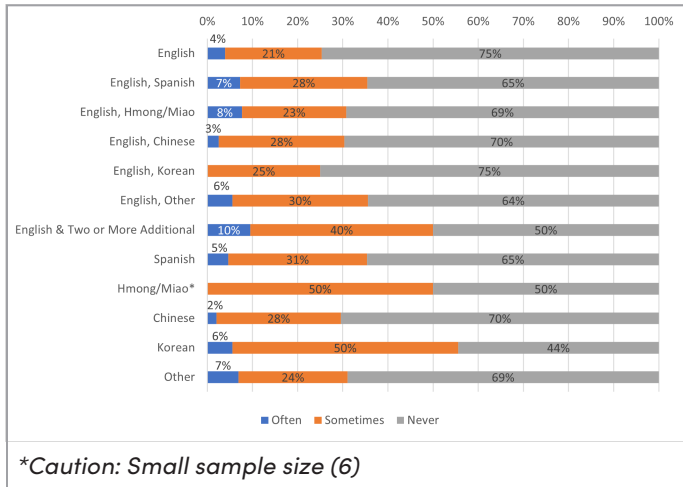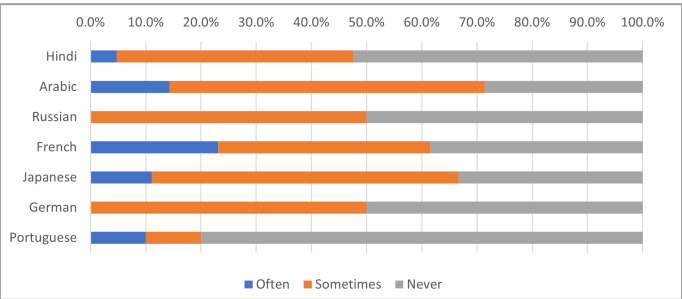**Figure 42: Household Income by Frequency of Transportation-Related Relationship Problems over the past 30 Days**
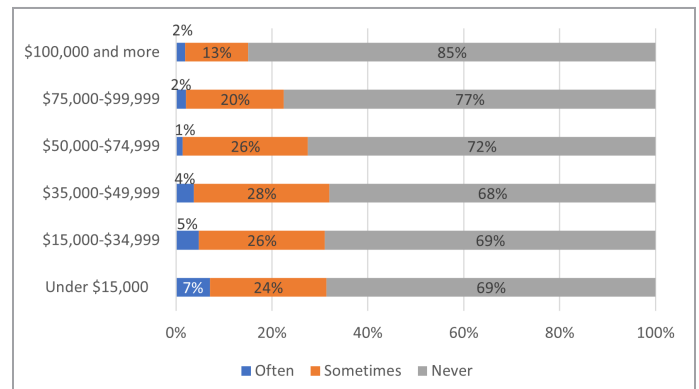
Household Income clearly has a direct relationship to transportation security, with lower-earning households experiencing more transportation insecurity than higher-income households.

Figure 43: Disability by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days

11 https://poverty.umich.edu/research-funding-opportunities/data-tools/the-transportation-security-index/
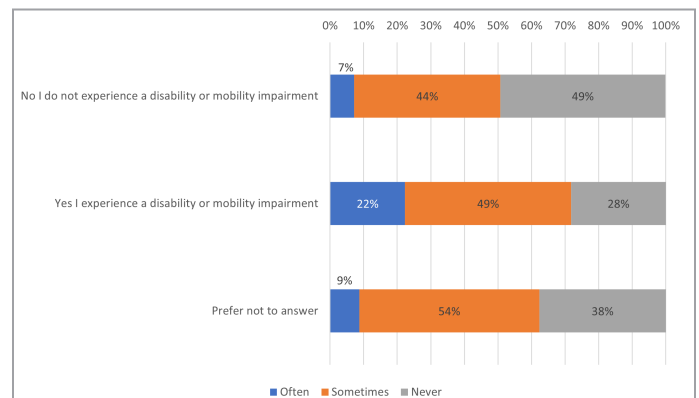
Figure 44: Disability by Frequency of Not Able to Leave the House when Desired over the past 30 Days
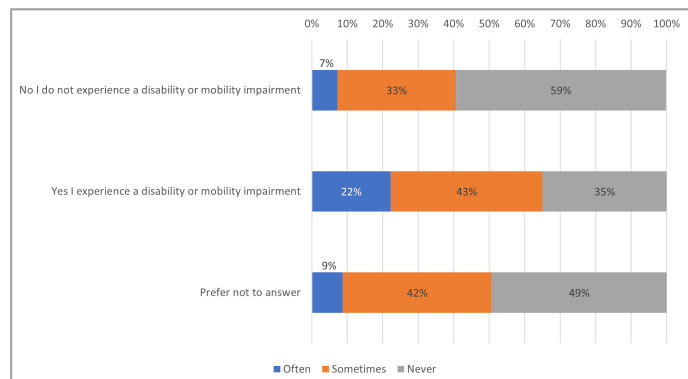
Figure 45: Disability by Frequency of Transportation-Related Relationship Problems over the past 30 Days
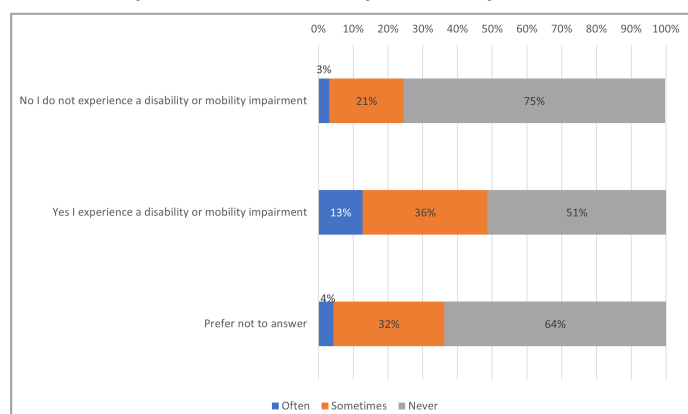

Experiencing a disability or mobility impairment clearly has a direct relationship to transportation insecurity, with people experiencing a disability or mobility impairment experiencing more transportation insecurity than people who do not experience a disability or mobility impairment.

Figure 46: Race/Ethnicity by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days
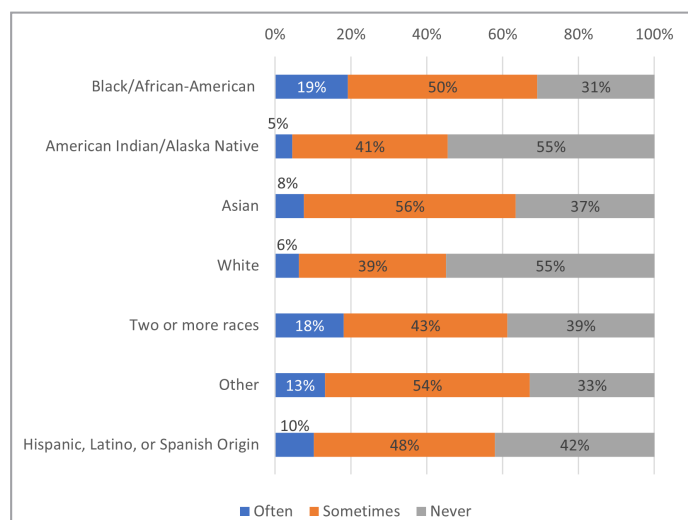
Figure 47: Race/Ethnicity by Frequency of Not Able to Leave the House when Desired over the past 30 Days
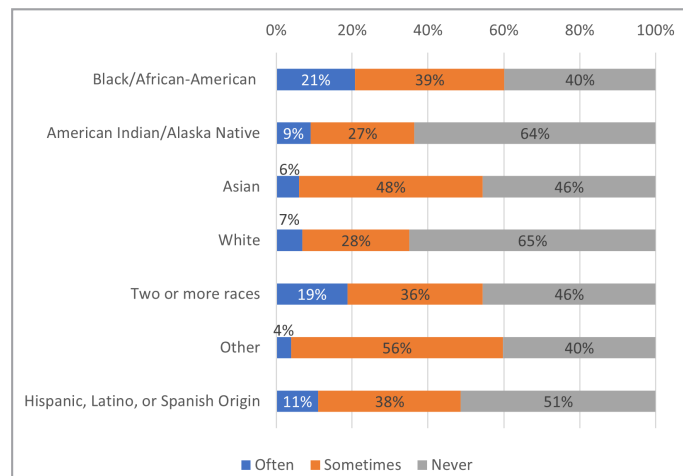

Figure 48: Race/Ethnicity by Frequency of Transportation-Related Relationship Problems over the past 30 Days
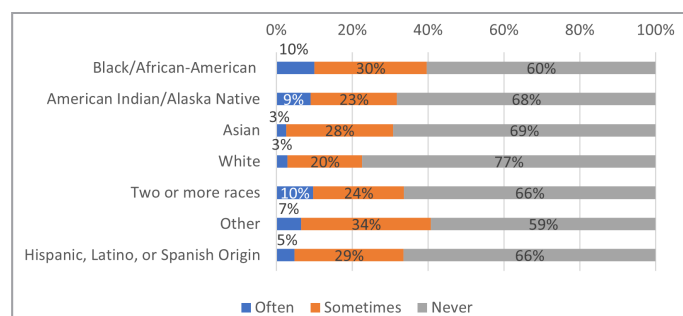

Riders who identify as Black/African American or Two or more races experience transportation insecurity at higher rates than other racial or ethnic groups.

Figure 49: Language Spoken at Home by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days

Caution: Small sample size (6)
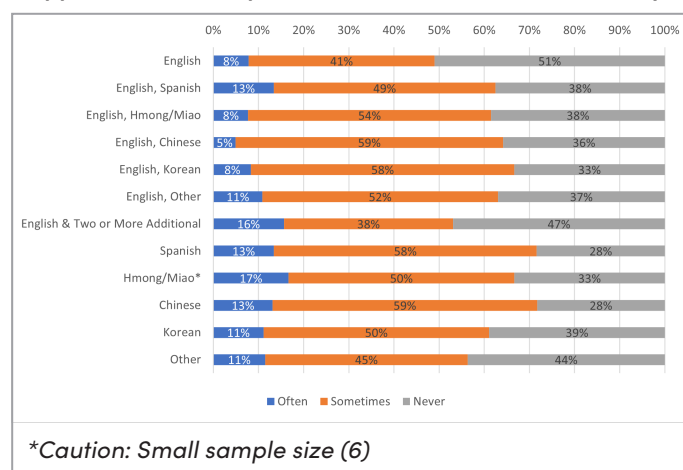
Figure 50: Language Spoken at Home by Frequency of Not Able to Leave the House when Desired over the past 30 Days

Caution: Small sample size (6)

Figure 51: Language Spoken at Home by Frequency of Transportation-Related Relationship Problems over the past 30 Days

Caution: Small sample size (6)

Figure 52: Other Language Spoken at Home by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days
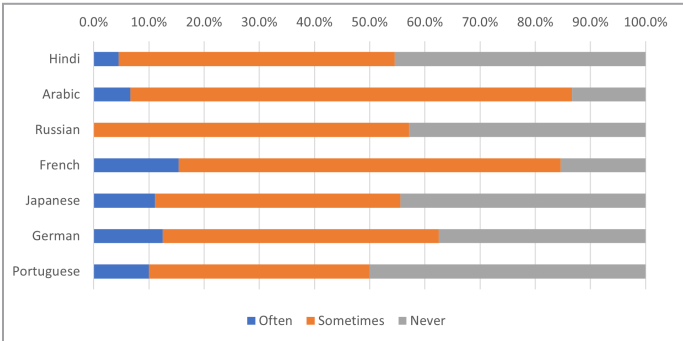
Figure 53: Other Language Spoken at Home by Frequency of Not Able to Leave the House when Desired over the past 30 Days

Figure 54: Other Language Spoken at Home by Frequency of Transportation-Related Relationship Problems over the past 30 Days
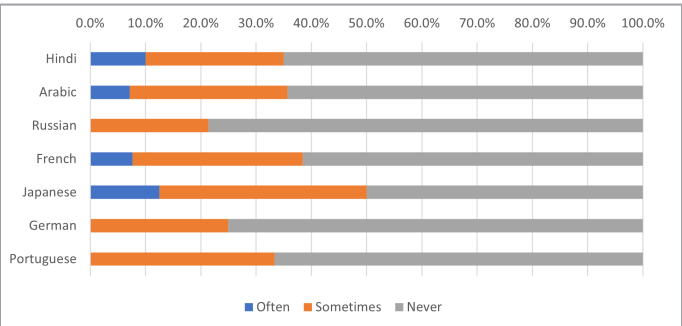
Figure 55: Gender by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days
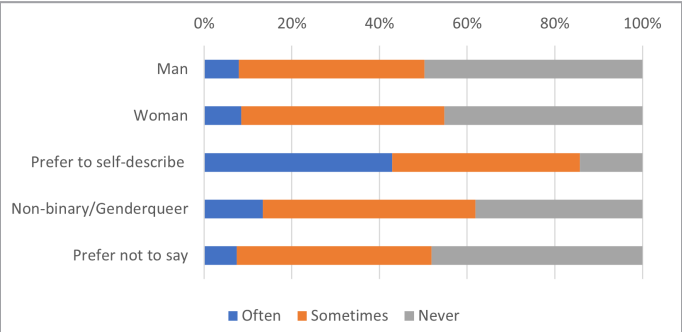
Figure 56: Gender by Frequency of Not Able to Leave the House when Desired over the past 30 Days
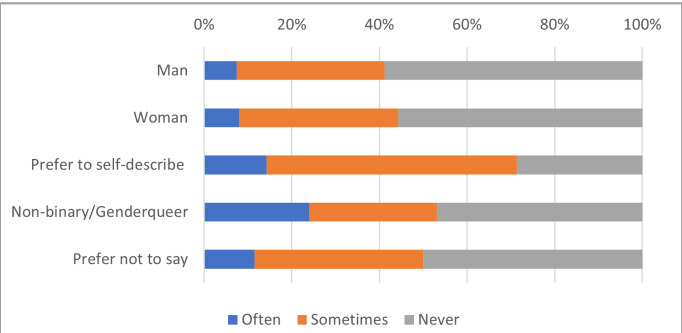
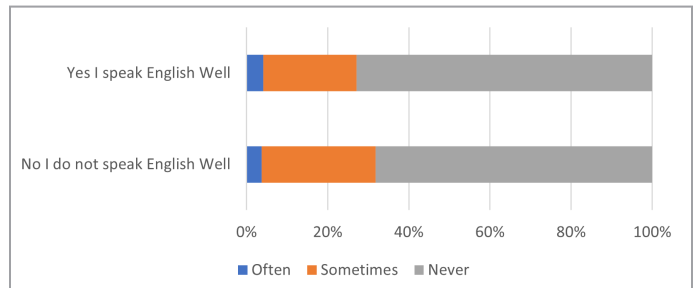**Figure 57: Gender by Frequency of Transportation-Related Relationship Problems over the past 30 Days**
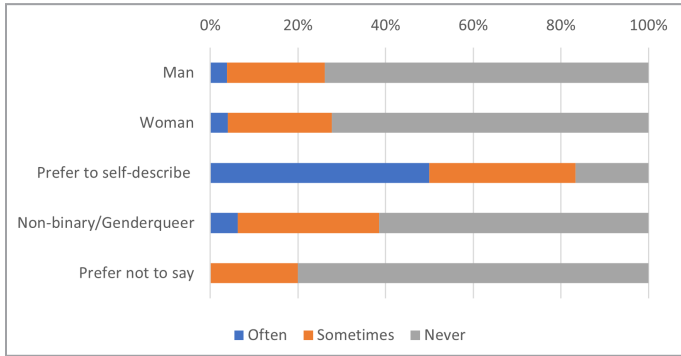
Figure 58: Age by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days
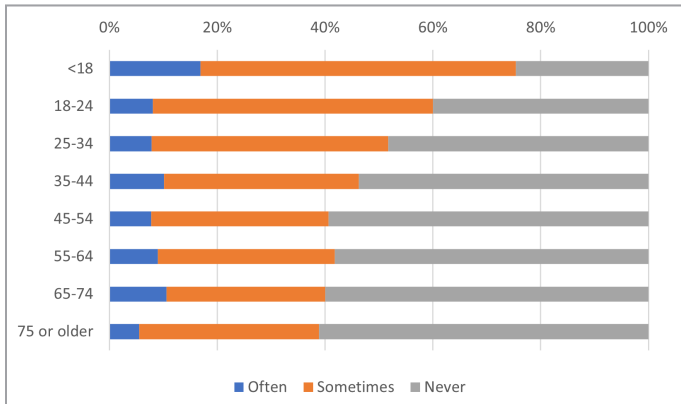
Figure 59: Age by Frequency of Not Able to Leave the House when Desired over the past 30 Days
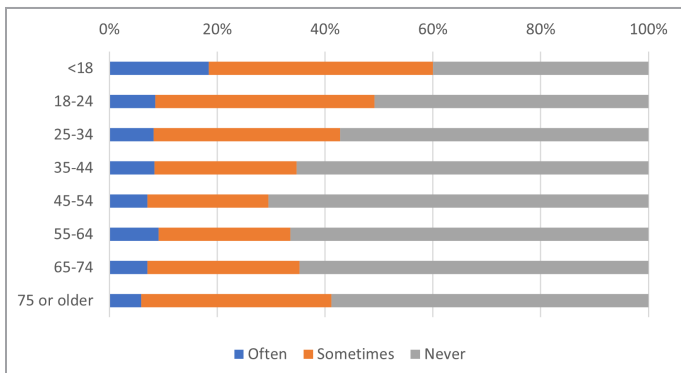
Figure 60: Age by Frequency of Transportation-Related Relationship Problems over the past 30 Days
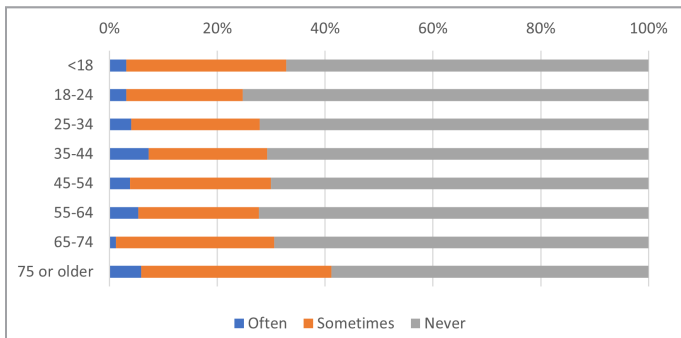
Figure 61: English Proficiency by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days
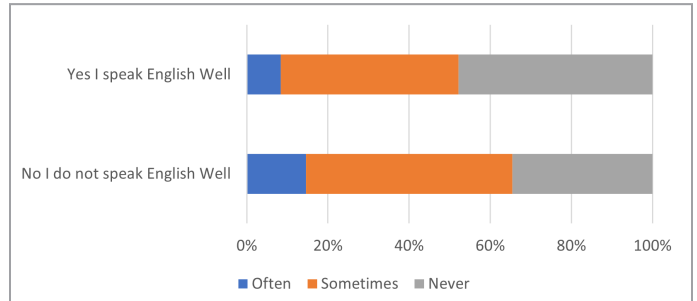
Figure 62: English Proficiency by Frequency of Not Able to Leave the House when Desired over the past 30 Days
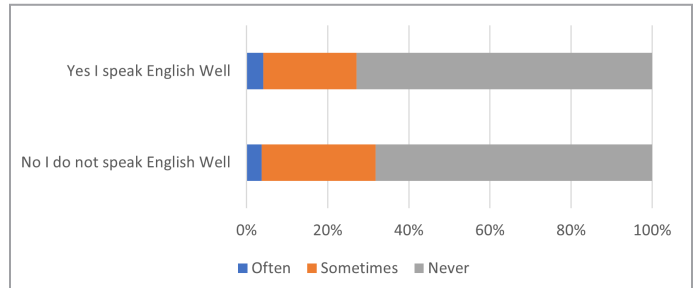
Figure 63: English Proficiency by Frequency of Transportation-Related Relationship Problems over the past 30 Days

Figure 64: Transfers by Frequency of Trips Skipped due to Transportation Problems in the last 30 Days
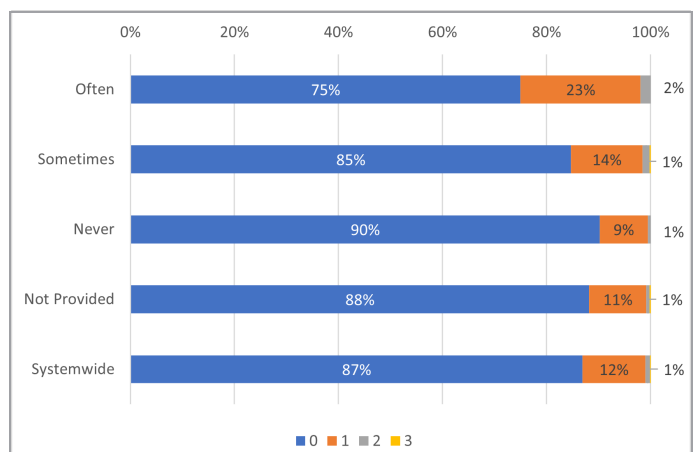
Riders whose trips require one or more transfers are more likely to skip trips due to transportation problems. Riders who report that they "often" have to skip trips

transfer on 25% of their trips, while riders who report that they "never" skip trips transfer on only 10% of their trips.

Figure 65: Transfers by Frequency of Not Able to Leave the House when Desired over the past 30 Days
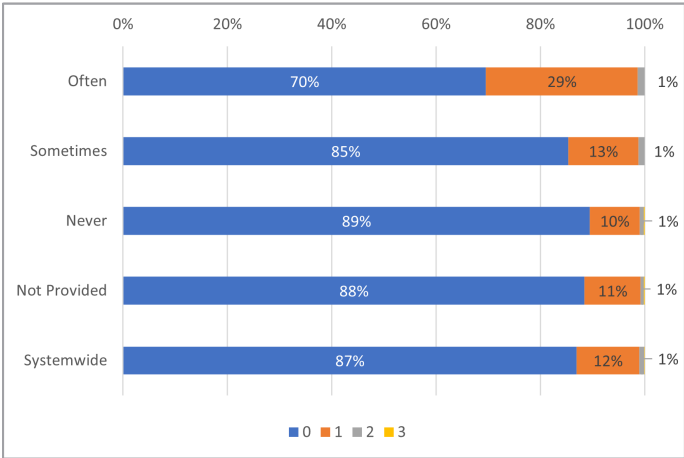
Riders whose trips require one or more transfers are more likely to be unable to leave their homes when they want to due to transportation problems. Riders who report that they "often" have to stay home transfer for 30% of trips taken, while riders who report that they "never" have to stay home transfer for only 10% of trips.

Figure 66: Transfers by Frequency of Transportation-Related Relationship Problems over the past 30 Days
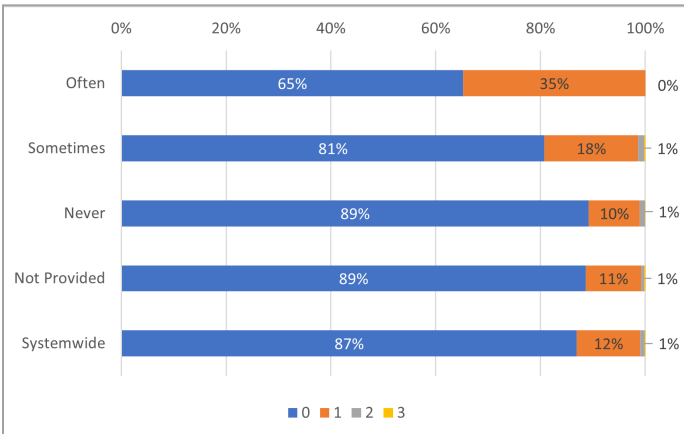
Riders whose trips require transfers are more likely to report that their relationships have been affected due to transportation problems. Riders who report that they "often" have transportation issues affect their relation–ships transfer for 35% of trips taken, while riders who report that they "never" have transportation problems affect their relationships transfer for only 11% of trips.

Demographic Profile

Figure 67: Respondent Age by Hispanic Ethnicity
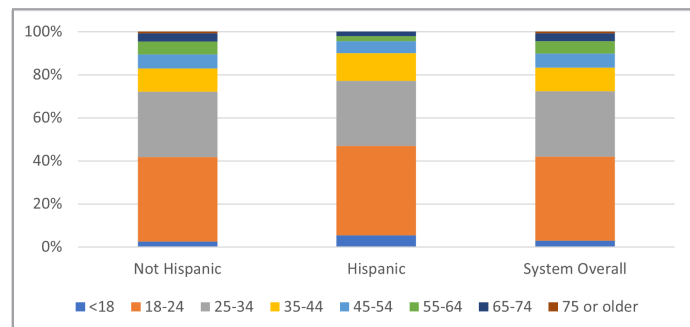
Hispanic respondents were somewhat overrepresented among younger riders, particularly those under 18, and underrepresented among riders over 45 years old, relative to non-Hispanic respondents.

Figure 68: Respondent Age by Race

Caution: Small Sample Size (5)
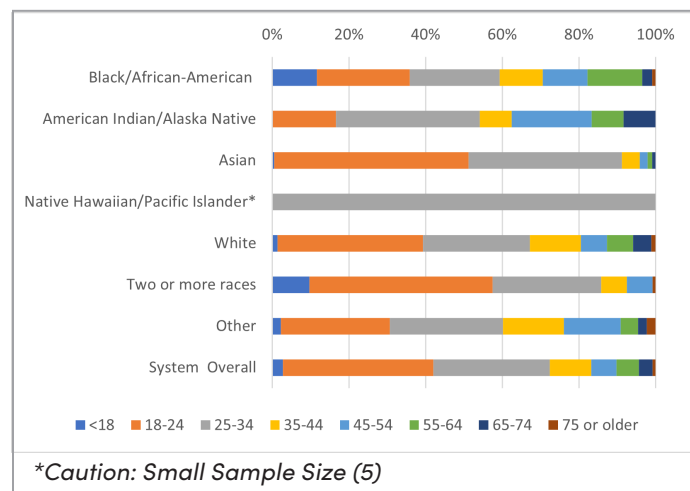
Riders aged 18 to 24 made up the largest share of almost all racial groups and the system overall, with the exceptions of American Indian/Alaska Natives, those who selected "other", and Native Hawaiian/Pacific Islanders.

- Riders aged 25-34 made up the second-largest share of almost all racial groups and the system overall, and the largest share of American Indian/Alaska Natives, those who selected "other", and Native Hawaiian/Pacific Islanders – all five respondents from this racial group are in this age group.

Figure 69: Language Spoken at Home

Not including English
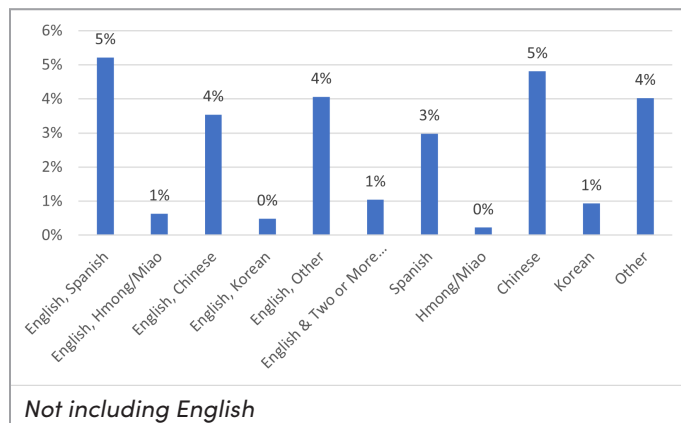
- Out of 2,683 respondents, 72% spoke only English at home.

- The next highest shares were riders who spoke both English and Spanish and those who spoke only Chinese, at 5%.

Figure 70: Other Languages Spoken at Home (10 or More Responses)

Only includes languages identified by 10 or more respondents
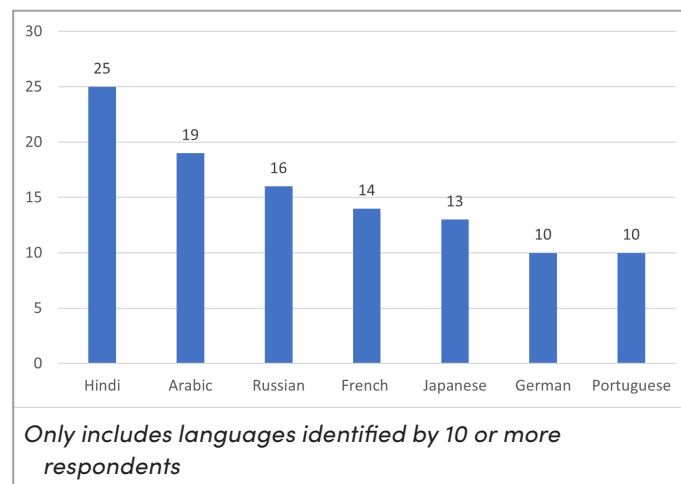
Figure 71: Do you work/have a job?

- No
- Yes

22%
78%
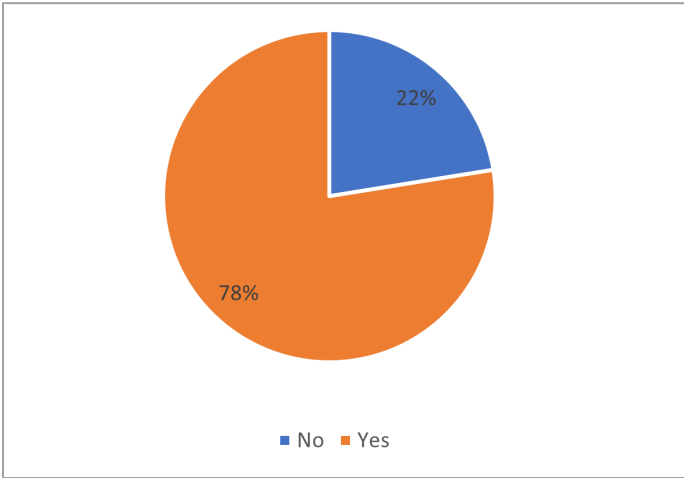
Figure 72: Do you experience a disability or mobility impairment?

3%
8%
89%

- No
- Yes
- Prefer not to answer
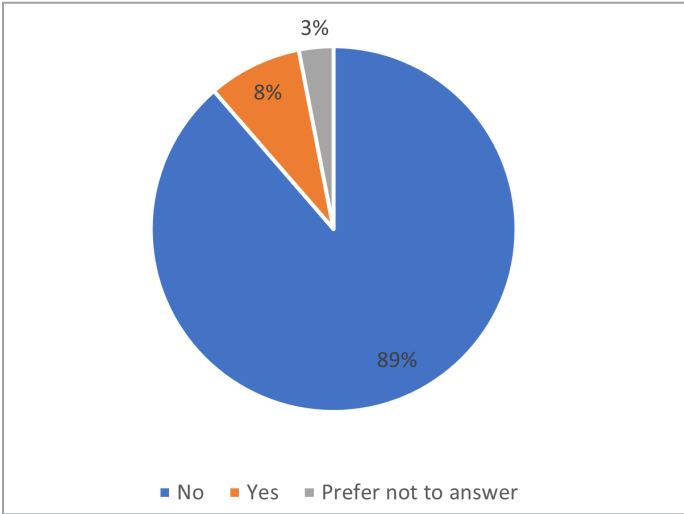
Figure 73: What is your gender?

0% 4% 1%
48%
47%

- Man
- Woman
- Prefer to self-describe
- Non-binary/Genderqueer
- Prefer not to say
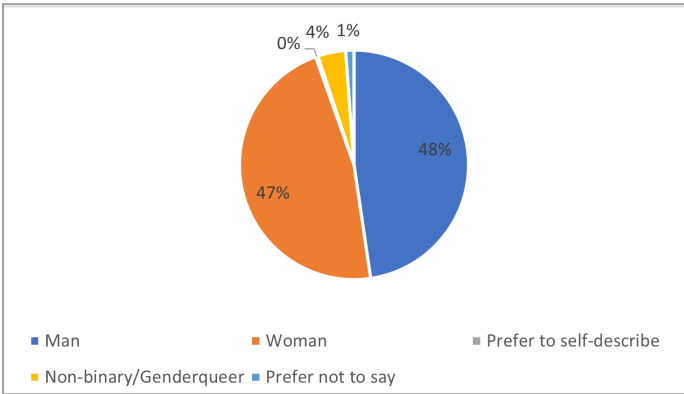
Figure 74: How much money did you and the people you live with make last year (before taxes)?

14%
9%
12%
12%
30%
24%

- Under $15,000
- $15,000-$34,999
- $35,000-$49,999
- $50,000-$74,999
- $75,000-$99,999
- $100,000 and more
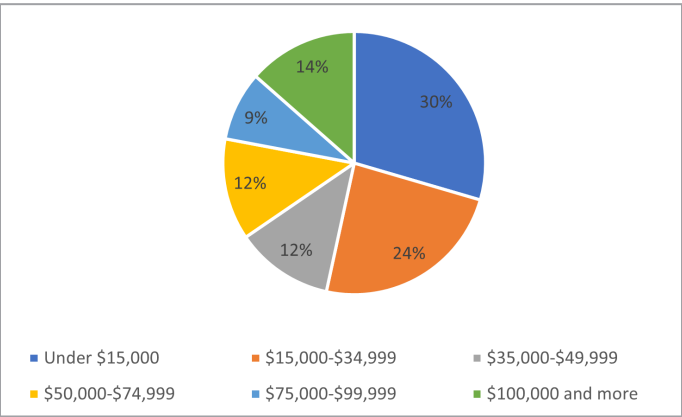
Figure 75: Do you have a valid driver's license?

29%
71%

- No
- Yes
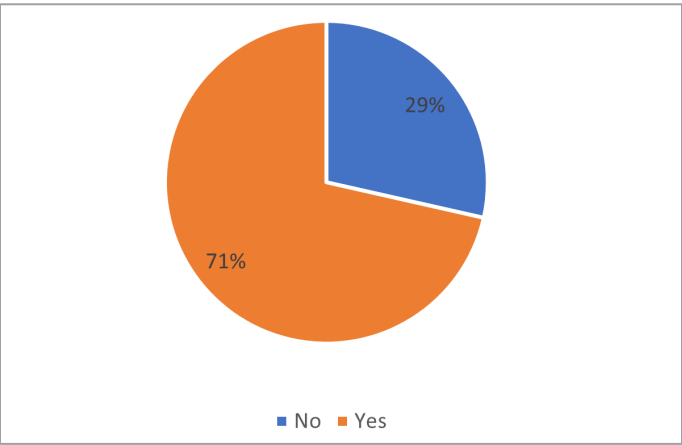
Figure 76: Are you a student?

5%
46%
49%

- No
- Yes, University/College (18+)
- Yes, Other
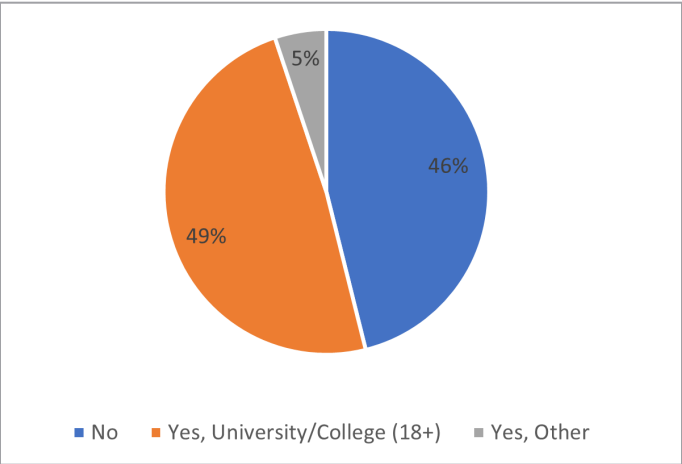
Figure 77: Household Size by Number of Workers
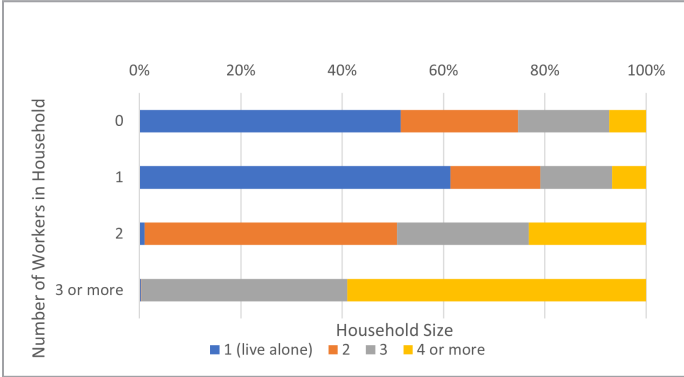
There are clearly errors in the responses to these questions, as households with one person living alone cannot have two or more workers in the household, and households with two people cannot have three or more workers in the household.

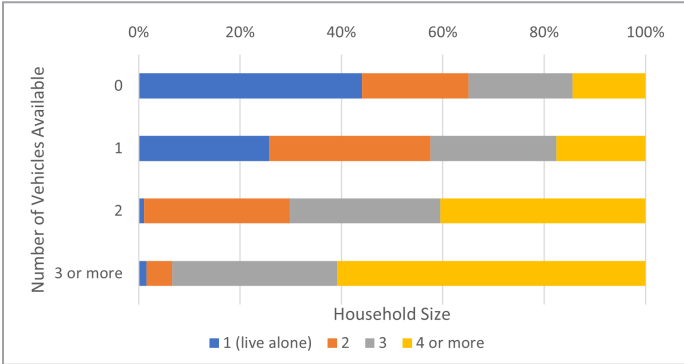**Figure 78: Household Size by Number of Vehicles Available**

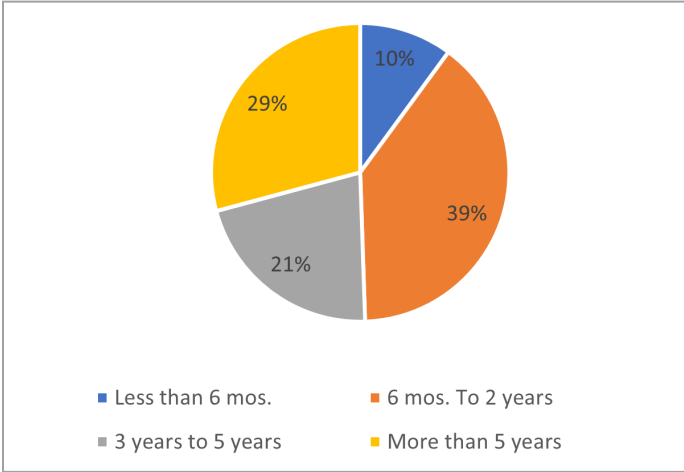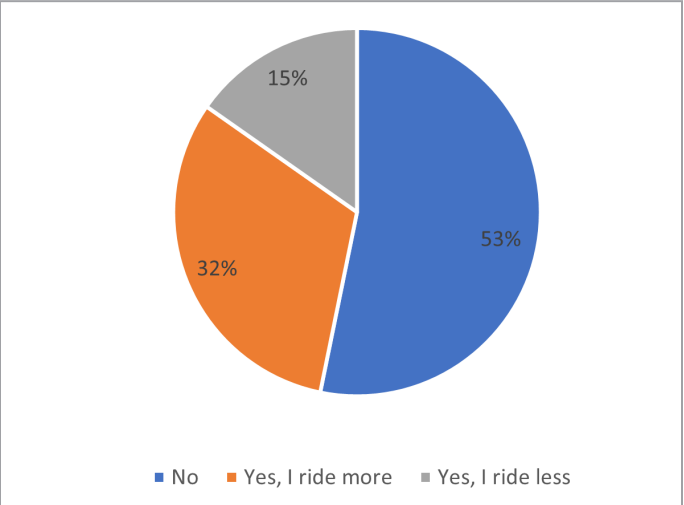**Figure 79: How long have you used Metro Transit?**

Figure 80: Has your use of Metro changed since routes were redesigned in 2023?

The majority (53%) of riders say their use of Metro has not changed following the Transit Network Redesign. The number of riders whose use has increased (32%) is more than double the number of riders whose use has decreased (15%).

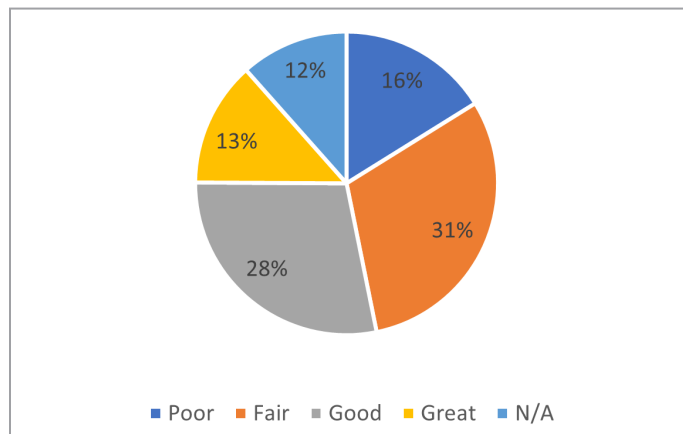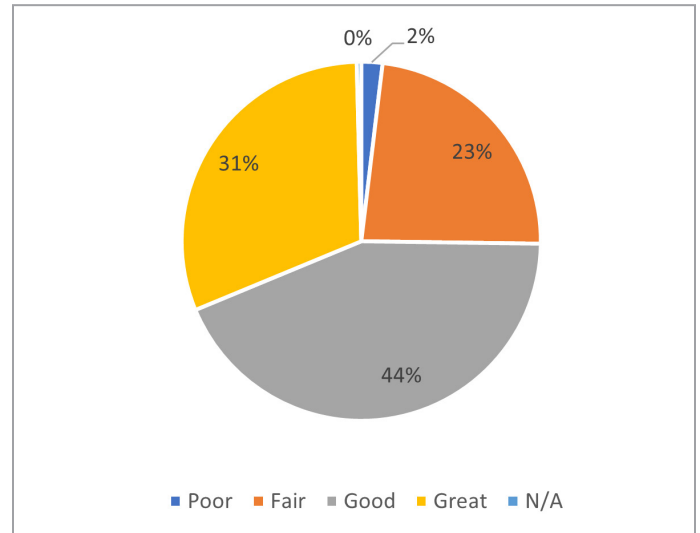# Metro Service Ratings

Figure 81: Cleanliness of Buses

Poor ■ Fair ■ Good ■ Great ■ N/A
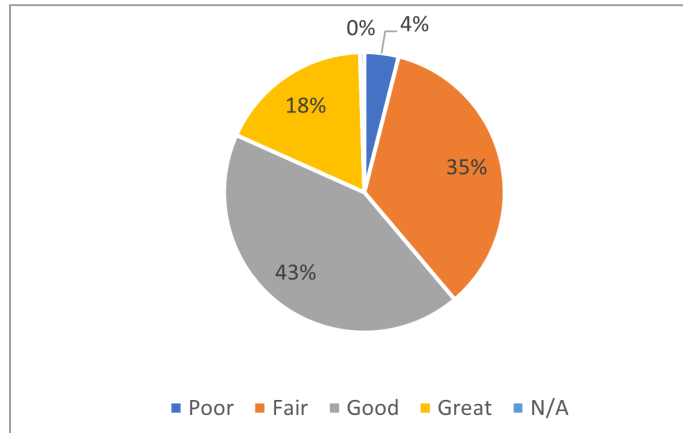
Figure 82: Changes to Routes in June 2023


Poor ■ Fair ■ Good ■ Great ■ N/A

Marginally more riders responded that they think the Transit Network Redesign was "poor" (16%) than that it was "great" (13%); however, 59% think that it was "fair" or "good".

Figure 83: Personal Safety while Riding

Poor ■ Fair ■ Good ■ Great ■ N/A

Less than 2% of respondents feel that personal safety while riding is "poor", while nearly 75% feel that it is "good" or "great".
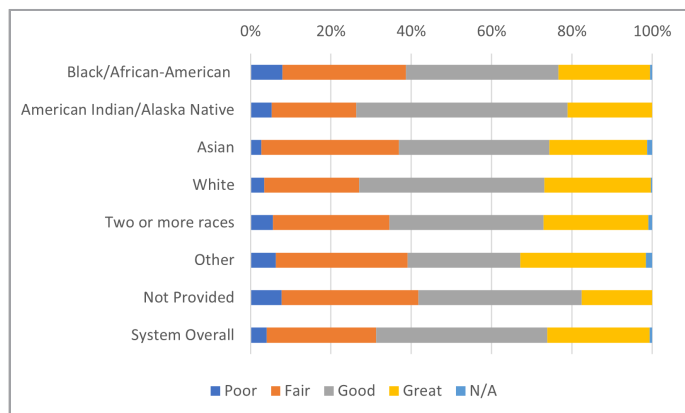
Figure 84: Personal safety at bus stops

Poor ■ Fair ■ Good ■ Great ■ N/A
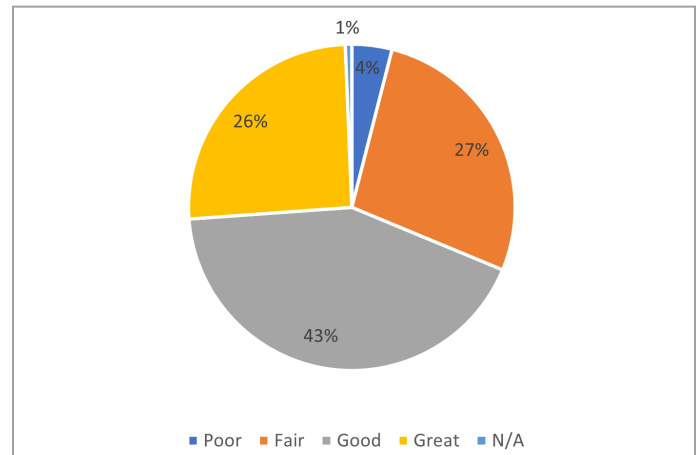
Just 4% of respondents feel that personal safety at bus stops is "poor", while 68% report that it is "good" or "great".

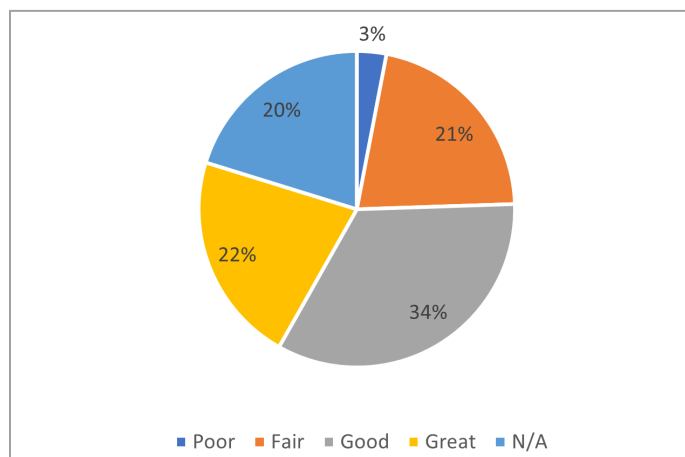**Figure 85: Personal Safety at Bus Stops by Hispanic Ethnicity**
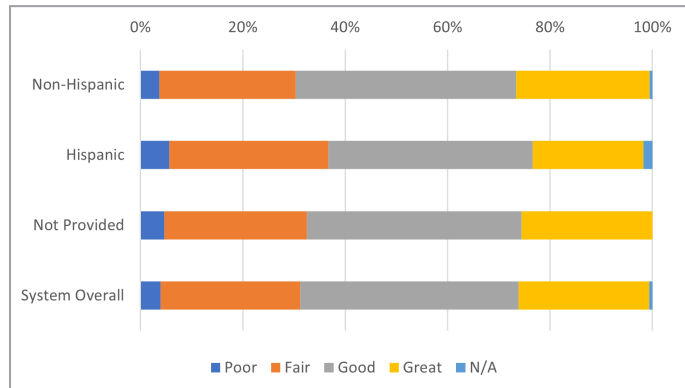
Hispanic riders report a higher perception of "poor" safety at bus stops (6%) than non–Hispanic riders (4%).

Figure 86: Personal Safety at Bus Stops by Race

Black/African American riders report the highest perception of "poor" safety at bus stops, at 8%.

Figure 87: Personal Safety When Transferring

- 3% of respondents feel that personal safety while transferring is "poor".

- Although safety at bus stops has previously been reported to be a concern for Asian riders,[12] this racial group and White riders reported the lowest perception of "poor" safety at bus stops, 3%.

- Racial groups that reported a combined "poor" and "fair" rating by more than the system average (31%) of respondents include Black/African American and Other (39%), Asian (37%), and Two or More races (35%).

Figure 88: Convenience of Routes
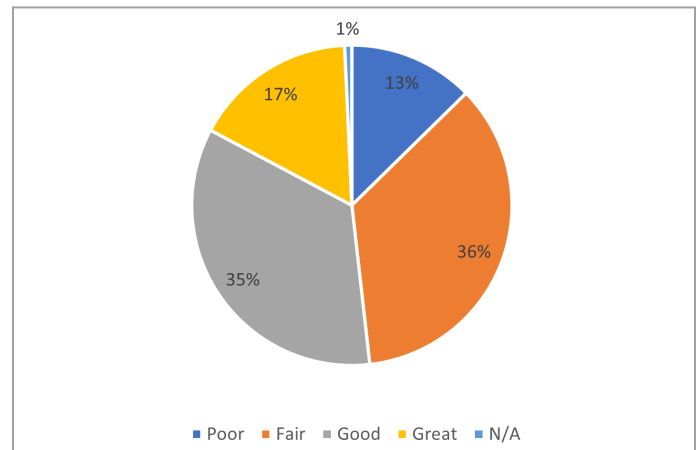
In an interesting conflict with riders' responses regarding the Transit Network Redesign (Figure 82), more riders rated the convenience of routes as "great" (17%) than "poor" (13%).
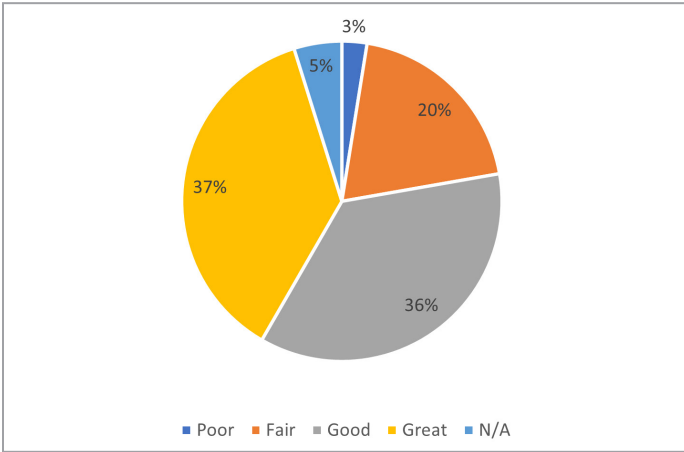
Figure 89: Driver Courtesy
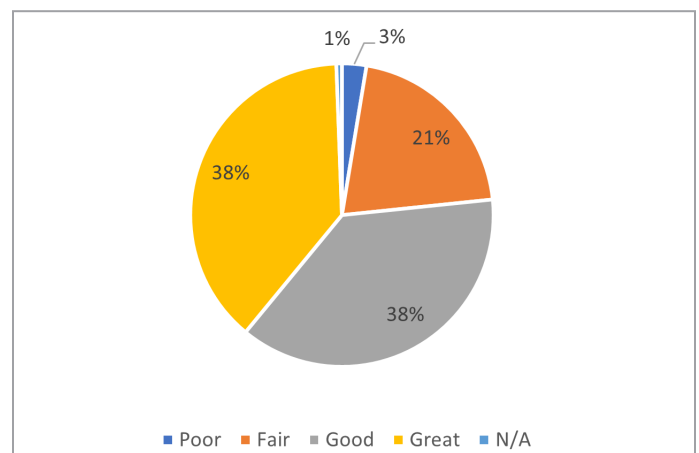
Three percent of riders responded that driver courtesy is "poor", while 38% reported that it is "great".
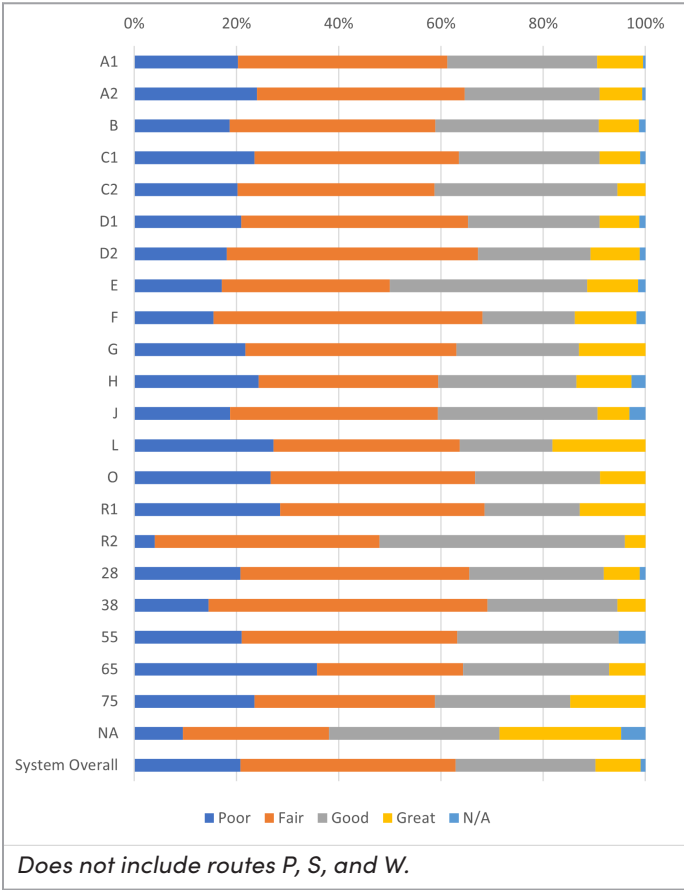
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12 Including from the Vera Court Neighborhood Association and Hmong focus groups held for the 2025 Transit Development Plan.

Figure 90: Driver Helpfulness

Three percent of riders responded that driver helpfulness is "poor", while 37% reported that it is "great".

Figure 91: Wait Time for Buses by Route

Does not include routes P, S, and W.

Responses to this question are, in some ways, to be expected – relatively infrequent routes such as L, O, and R1 have higher-than-typical "poor" wait time ratings. Unexpectedly, Route L, with headways of over an hour, had the highest "great" wait time rating of any route, while frequent service routes such as A, B, C, and D
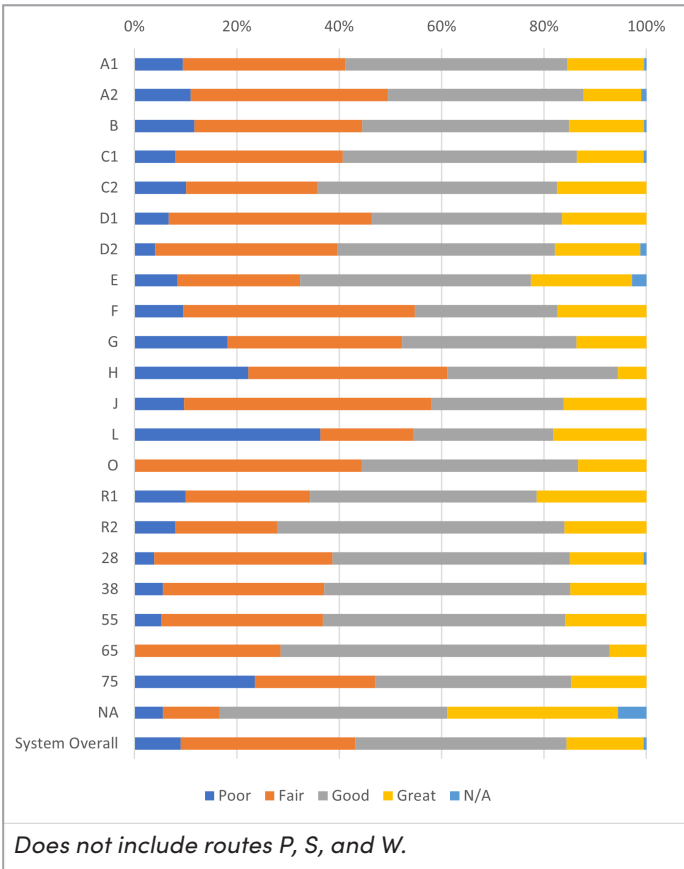
routes were rated very similarly to – or worse than – routes E, F, G, H, and J.

Figure 92: Travel Time on Buses
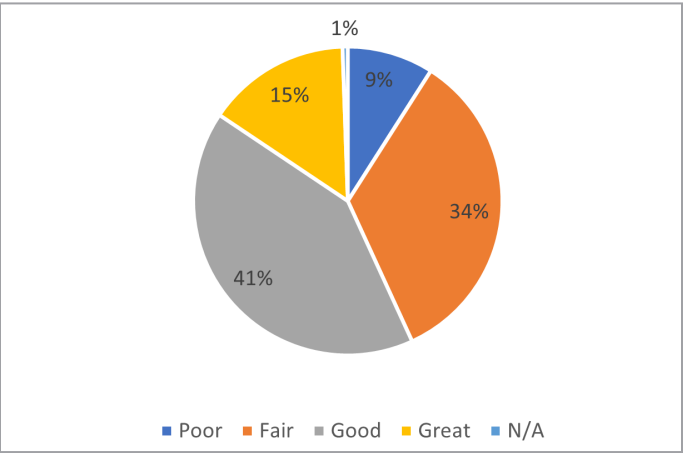
While 9% of riders reported that travel time on buses was "poor", 56% reported that it was "good" or "great".

Figure 93: Travel Time on Buses by Route

Does not include routes P, S, and W.

Route L, which takes just over an hour to run its entire length, has the poorest travel time rating, followed by Route 75, which takes just under an hour to run its course.
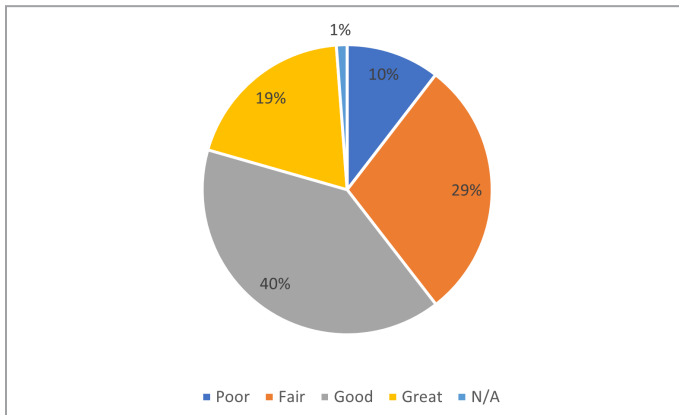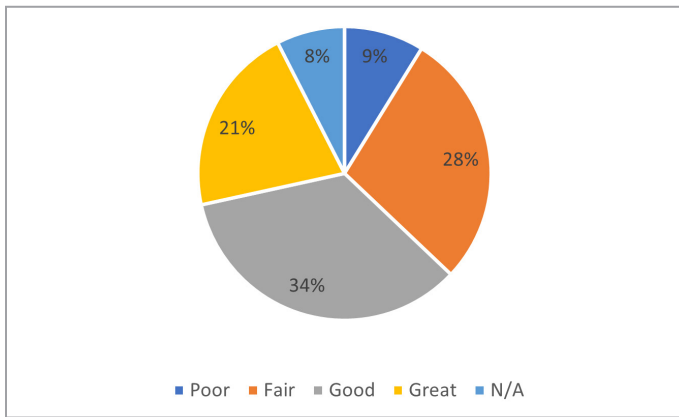
Figure 94: Maps, Schedules, and Information

Poor 10% · Fair 29% · Good 40% · Great 19% · N/A 1%

Figure 95: Online Trip Planning

Poor 9% · Fair 28% · Good 34% · Great 21% · N/A 8%

While 9% of riders responded that online trip planning was "poor", 21% reported that it was "great". Since the survey was conducted, many bugs in Google's online trip planning have been eliminated. Additionally, Metro has begun working with the Transit app, as well as offering its own real-time bus locator service using new technology.

Figure 96: Bus Tracking

Poor 14% · Fair 32% · Good 33% · Great 16% · N/A 4%
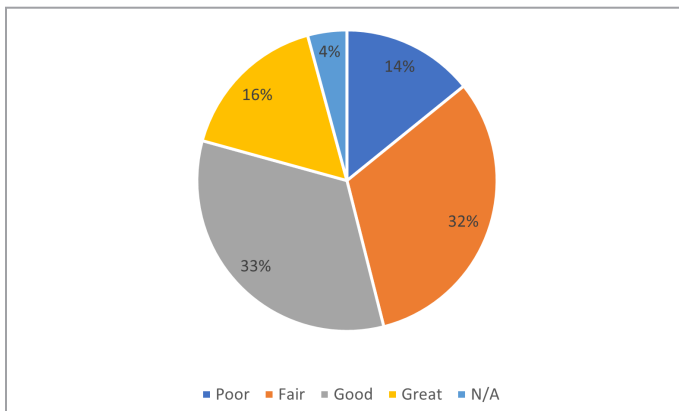
Fourteen percent of riders responded that online bus tracking was "poor", and 17% reported that it was "great". Since the survey was conducted, Metro has begun working with the Transit app, as well as offering

its own real-time bus locator service using new technology.
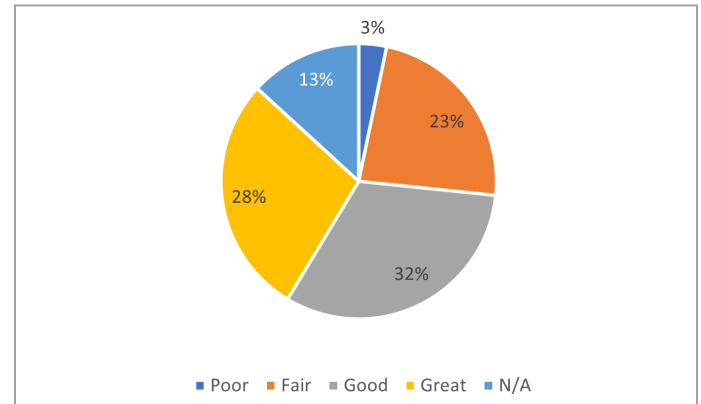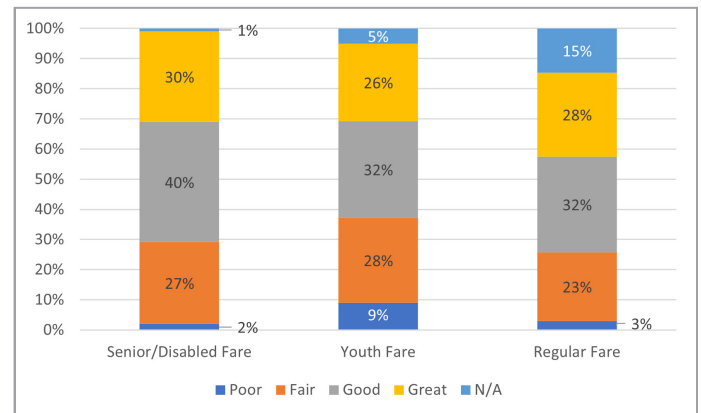
Figure 97: Fare Cost

Poor 3% · Fair 23% · Good 32% · Great 28% · N/A 13%

Figure 98. Fare Cost by Reduced Fare Use

	Senior/Disabled Fare	Youth Fare	Regular Fare
N/A	1%	5%	15%
Great	30%	26%	28%
Good	40%	32%	32%
Fair	27%	28%	23%
Poor	2%	9%	3%

- Riders who use Senior/Disabled reduced fares find their fares costs to be better (Fair, Good, or Great) than do those who use Youth reduced fares or those who pay regular fares, with only 2% of this population rating fare costs as "poor" and 30% rating fares as "great".

- Youth reduced fare riders find their fares to be worse than those who pay Senior/Disabled reduced fares or those who pay regular fares, with 9% of this population rating fare costs as "poor" and 26% rating fares as "great".

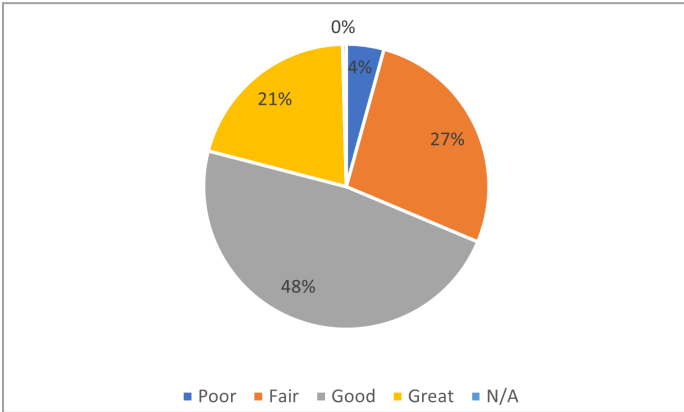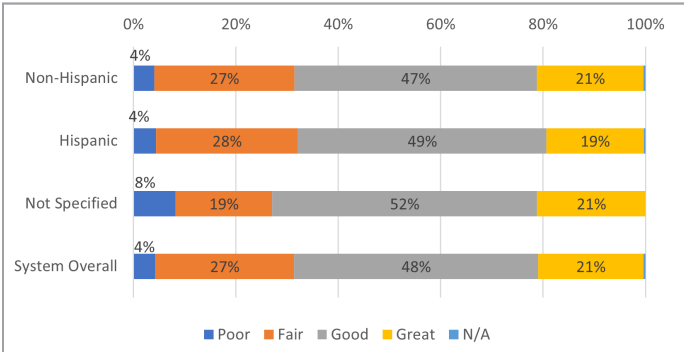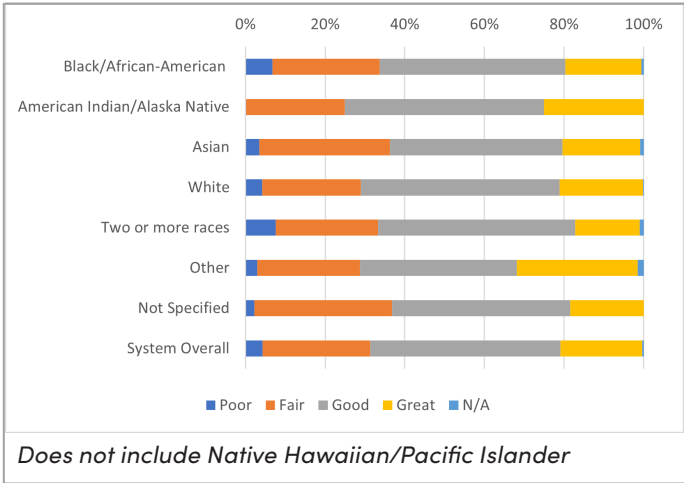**Figure 99: Overall Satisfaction**

**Figure 100: Overall Satisfaction by Hispanic Ethnicity**

Hispanic and non–Hispanic riders report very similar overall satisfaction with the Metro system.

Figure 101: Overall Satisfaction by Race

*Does not include Native Hawaiian/Pacific Islander*

- Riders of Two or More Races have the lowest satisfaction with the Metro system (8%), followed by Black/ African American riders (7%).
- Riders who selected the "Other" race category have the highest satisfaction with the Metro system (30%), followed by American Indian/Alaska Natives (25%).
- The majority of all racial groups report an overall satisfaction of "good" or "great".

**Figure 102: Attitude towards June 2023 Route Changes by Hispanic Ethnicity**
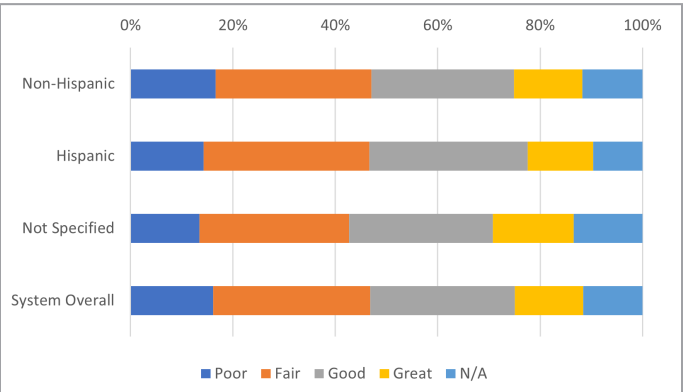
- Non–Hispanic riders (17%) are more likely than Hispanic riders (14%) to rate the route changes enacted in June 2023 as "poor".
- More Hispanic riders rate the route changes as "good" or "great" (44%) than do non–Hispanic riders (41%).

Figure 103: Attitude towards June 2023 Route Changes by Race

*Does not include Native Hawaiian/Pacific Islander*
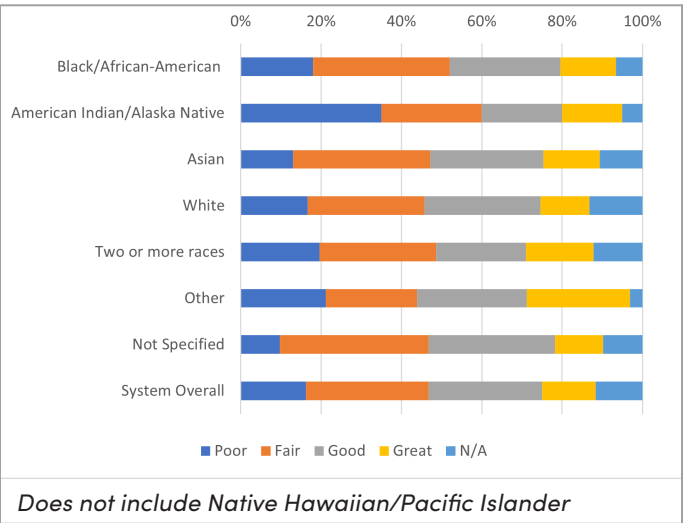
- American Indian/Alaska Native riders report the most dissatisfaction with the changes to routes that were enacted in 2023, with 35% rating these changes as "poor", and 60% rating them as either "poor" or "fair". Thirty–five percent of these riders rate the changes as "good" or "great", the lowest of any racial group.
- Riders identifying as "other" races have the highest approval rating of the 2023 route changes, with 53% of these riders rating the changes as "good" or "great".

Figure 104: Attitude towards June 2023 Route Changes by Disability/Mobility Impairment
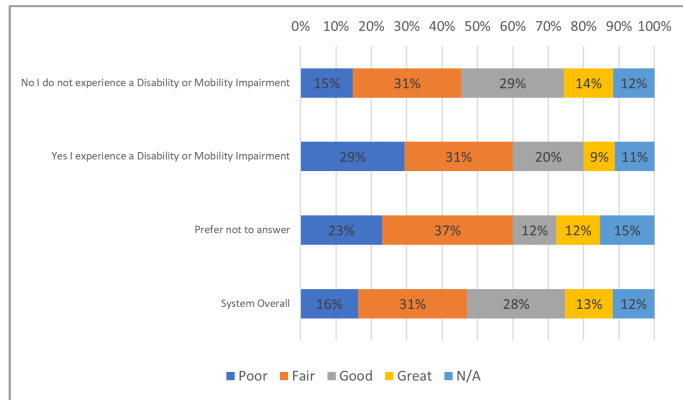
- Nearly 30% of riders who experienced a disability or mobility impairment rated the system poorly after the June 2023 route changes, nearly double the percentage of riders who do not experience a disability or mobility impairment.

- Twenty-nine percent of riders who experience a disability or mobility impairment rate the changes as "good" or "great", compared to 43% of those who do not experience a disability or mobility impairment.

Figure 105: Attitude towards June 2023 Route Changes by Household Income
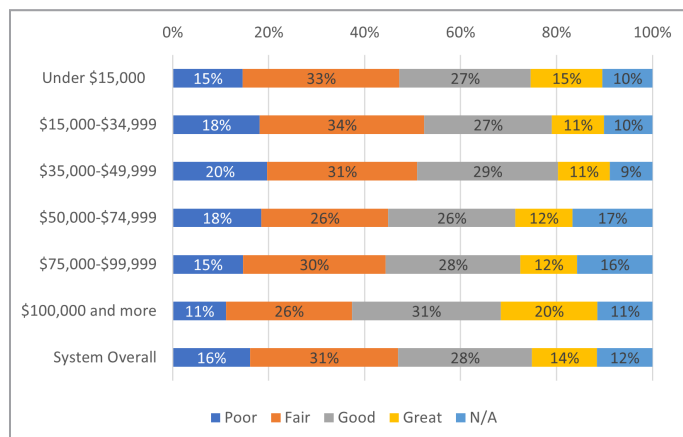
Forty-two percent of riders from the lowest-income group ($15,000 and less) rate the route changes as "good" or "great", slightly above the system-wide average of 41%. The lowest rating of "poor" is from the highest income bracket, with 11% of these riders giving the route changes a rating of "poor". This bracket also had the highest overall approval ratings, with 51% of riders rating the changes as "good" or "great".
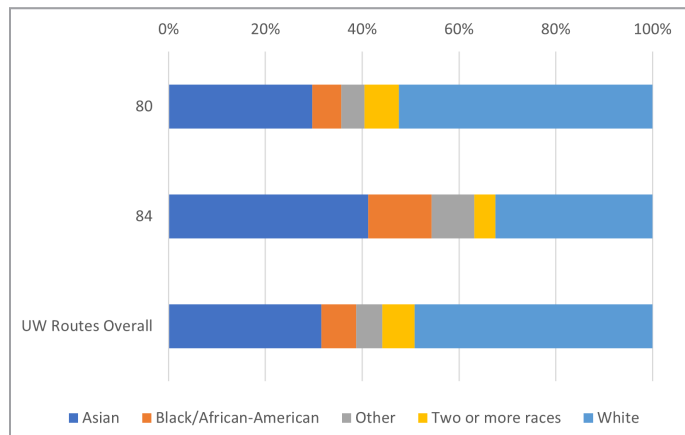
UW-Madison Routes (80 & 84)

Figure 106: Routes by Hispanic Ethnicity

*Routes 81 and 82 included in UW Routes Overall due to small sample size (11)*
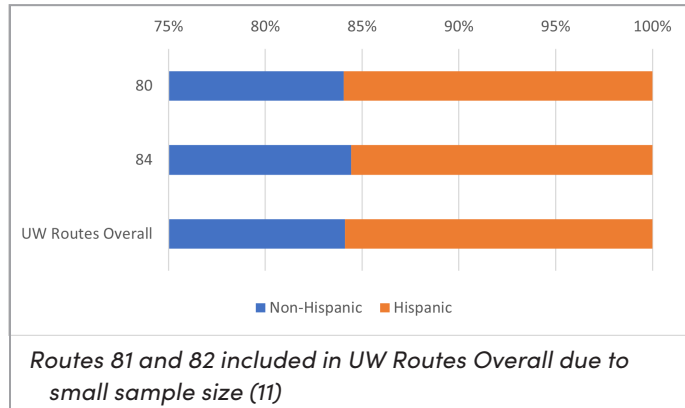
There is very little variability between Hispanic use of UW routes.

**Figure 107: Routes by Race**

- Although White riders outnumber riders of other races on Route 80, Asians outnumber White riders (32%) on Route 84, with 41% of ridership.
- Black/African American riders only compose 6% of Route 80 ridership, but they compose 13% of Route 84 ridership.

Figure 108: Routes by Gender

*Routes 81 and 82 included in UW Routes Overall due to small sample size (11)*
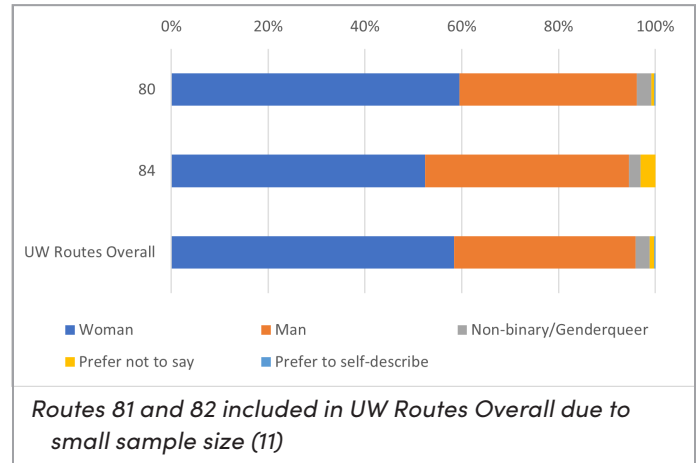
- Women outnumber Men on all UW Routes, comprising between 46% and 60% of total ridership.
- Non-binary/Genderqueer riders compose 2% of Route 84 ridership and 3% of Route 80 ridership.

Figure 109: Routes by Disability or Mobility Impairment

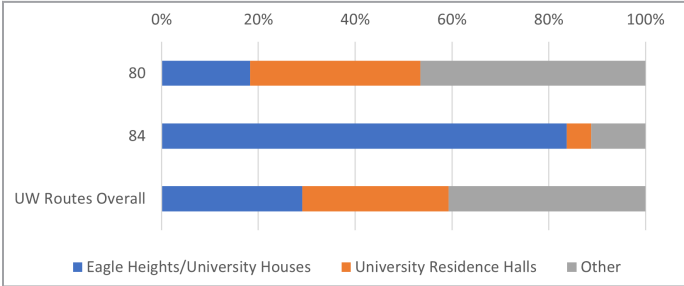*Routes 81 and 82 included in UW Routes Overall due to small sample size (11)*
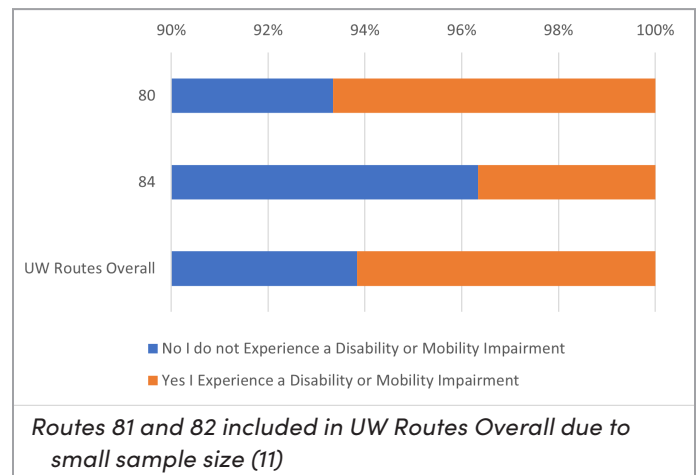
Riders experiencing a disability or a mobility impairment compose 4% of Route 84 ridership and 7% of Route 80 ridership.

Figure 110: Routes by Household Income
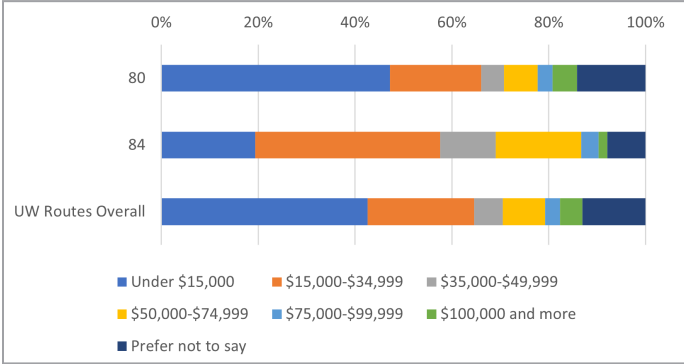
The majority of riders on all UW routes have a household income of under $35,000.

Figure 111: Routes by Residence

- Eighty-four percent of riders on Route 84, which serves Eagle Heights, reside in Eagle Heights.

- Thirty-five percent of riders on Route 80 reside in University Residence Halls.

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