RESEARCH REPORT

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Impacts of LA Metro's K-14 Fareless Transit Initiative on Youth Travel Behavior

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16. Abstract
In October 2021, the Los Angeles Count Metropolitan Transportation Authority (LA Metro), in collaboration with other regional transit operators and multiple school districts across the county, launched the GoPass pilot program to offer free transit passes to K-14 students, which became permanent in early 2024. Students in a high school district in the Greater Los Angeles area were surveyed to determine the reasons students decided to participate in GoPass and how the students subjectively valued their travel preference. Students were less likely to participate in the GoPass program if they had the use of a car for trips to school but more likely if they had the option to take transit for trips leaving school. Student demographics did not play a large role in whether they participated in GoPass. Students highly value cars and trip amenities, such as onboard Wi-Fi. They subjectively value reduced travel time at $71/hour, similar to other studies among adults, but valued reduced waiting time at $98/hour, again consistent with other studies that find a high relative value for shorter waiting time. Students are not likely to be persuaded to take transit merely by making it free. Instead, school districts may consider increasing the cost for campus parking permits and reducing the number of campus parking spaces to encourage greater use of transit and shared travel modes.

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Disclaimer

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In October 2021, the Los Angeles County Metropolitan Transportation Authority (LA Metro)—the largest transit agency in Los Angeles County—in collaboration with other regional transit operators and multiple school districts across the county, launched the GoPass pilot program to offer free transit passes to K-14 students, which became permanent in early 2024. Students attending eligible schools may enroll in the program by receiving a card from their school and activating it for use on transit by registering it online with LA Metro. Participation in the fareless pilot program was up to the individual school districts, which could opt in by paying a cost-sharing fee of $7 per student per year. This bold initiative provided a unique opportunity to study youth travel behavior.

Youth travel behavior has not been well studied, and where it has been these studies have typically been on a small scale, and often fail to characterize the types of youth who benefit from free transit service. Studies that do characterize transit use among youth have not involved large-scale fareless programs. Moreover, some rely on data sources such as the National Household Travel Survey (NHTS), which survey parents, not their children.

This study carried out a survey of students in the Centinela Valley Union High School District (CVUHSD), a small public high school district in the Greater Los Angeles area. First, we determined the reasons students decided to participate in GoPass; second, we documented the students' travel preferences and how they subjectively valued the experience.

We draw the following summary findings from our study:

- Students were less likely to participate in the GoPass program if they had the use of a car for trips to school but more likely if they had the option to take transit for trips leaving school. Demographics did not play a large role in whether a student participated in GoPass.
- Students highly value cars and trip amenities, such as onboard Wi-Fi, when these options were provided. Also, they subjectively value reduced travel time at $71/hour, similar to other studies that have looked at travel behavior among adults.
- Students dislike waiting more than they do travel time. They valued reduced waiting time at $98/hour, again consistent with other studies that find a high relative value for shorter waiting time.

Our findings suggest that students place very high values on travel speed and reliability. The strong preference for cars suggests that students are not likely to be persuaded to take transit merely by making it free. Instead, travel demand management strategies aimed at making car trips more expensive or difficult would be more effective in reducing private vehicle trips. While enacting sweeping measures such as congestion pricing or carbon taxes are not within the purview of school districts, they may consider policies such as increasing the cost for parking permits and reducing the number of parking spaces on their school campuses to encourage the use of transit and shared travel modes.

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Introduction

The decline in transit ridership following COVID-19 is widespread and well-documented, with most agencies still seeing fewer transit trips in 2023 than in 2019 (1). In Southern California, transit ridership had already been suffering prior to COVID-19, thanks to increased access to private vehicles among transit-dependent groups (2). Yet, the reality of the post-pandemic "normal" for transit ridership also coincides with the fact that fewer and fewer teenagers are obtaining driver's licenses compared to previous generations (3), opting instead for travel options such as public transit or transit network company services, such as Uber and Lyft. As a result, transit agencies have launched programs aimed at tapping into this potential growing demand among youth to compensate for lagging recovery in ridership from other groups of riders. Perhaps the most notable case is the introduction of the GoPass program in Los Angeles in 2021, which eliminated most fares for K-12 and community college students in participating school districts and colleges within Los Angeles County.

Both youth travel behavior and the effects of transit subsidies for youth riders have been explored, although not extensively. Therefore, the introduction of GoPass provides an opportunity to study a large-scale program that could be replicated elsewhere. Some prior fareless initiatives had some success: a fareless pilot at the University of California, Los Angeles reduced the share of solo commuting among students and increased the share of transit ridership within the service boundaries of its free bus service (4; 5). Another fareless program for youth in Alameda County, California, not only increased ridership, but also resulted in greater participation in after-school activities (6). However, these studies did not look at why students choose to participate in these programs.

While fare incentives may influence students' choice of how to get to school, other factors are undoubtedly important. Evidence from one study conducted in Cyprus (7) showed that safety and concern for the environment shaped these decisions; those prioritizing safety were more likely to choose car travel while those prioritizing the environment and/or active lifestyles more often chose transit and active transportation modes. Evidence from another study in Gainesville, Florida showed that choices for getting to school there reflected the type of infrastructure available for certain types of trips (such as sidewalks for walking) and the travel times using different travel modes (8). Larger-scale studies of youth travel behavior (9; 10) suggest that young transit riders are not very likely to carry those habits into adulthood, although the data collected for some of these studies came from the National Household Travel Survey (NHTS), which often relies on accounts from parents to describe youth trips.

This study examined the factors that influenced the students' participation in the GoPass program and the travel behavior of students and their preferences for different modes based on survey data collected from high school students in the Centinela Valley Union High School District (commonly referred to as CVUHSD). We found that first, demographic factors (other than their grade-level and their parents' wealth) have little bearing on students' GoPass participation. Second, we found that students, when faced with given choices for hypothetical trips, make rather similar decisions to adults.

Section 2 of this report describes the GoPass program and CVUHSD; Section 3 explains the survey instruments and procedures used in conducting our analysis and summarizes the results. Section 4 analyzes the data collected from the survey. Section 5 presents the results of our model explaining the effect of various factors on students' awareness of and participation in the GoPass program based on the survey results. Section 6 is the conclusion.

Background

LA Metro GoPass Program

In September 2020, the Los Angeles County Metropolitan Transportation Authority (LA Metro)—the county transportation planning organization and largest transit provider—launched its Fareless Systems Initiative, which inaugurated GoPass, a pilot program to study the effects of eliminating student fares on Metro buses for K-12 and community college students (11). The LA Metro Board approved two-year funding for the project beginning on October 1, 2021. The program was renewed at the end of the initial two-year pilot and was made permanent in April 2024.

The GoPass program offered free fares to eligible students onboard most county transit services, other than Metro Micro, which is a shared ride service operated by LA Metro and is designed primarily for on-demand short neighborhood trips. The program involved the cooperation of the county's multiple school districts and transit agencies. School districts opt into the GoPass program by entering a cost-sharing agreement with LA Metro where the district pays a nominal fee, currently set at $7 per enrolled student for the 2023-24 academic year. Students who are eligible to participate in GoPass may request a special reloadable transit fare card (typically referred to as a TAP card) and then activate that card for use by registering it online with LA Metro.

The GoPass program is notable for its scale. As of March 2024, GoPass covered 17 transit agencies and 113 K-12 public school districts, charter school networks and independent charter and private schools. A total of 376,000 unique GoPass participants have benefited from the program, and GoPass boardings grew consistently in each year of its pilot phase, from 5.4 million in 2021-22 to 17.8 million in 2022-23, and again to 19.7 million in 2023-24 (12).

Centinela Valley Union High School District

The Centinela Valley Union High School District (CVUHSD) is a public union high school district that serves Lawndale, Lennox and parts of Hawthorne, Alondra Park and Inglewood. The district's boundaries cover the southwestern portion of L. A. County, a short driving distance from Los Angeles International Airport. CVUHSD operates three senior high schools, one continuation high school, an online independent study school, and an adult education program. **Figure 1** and **Figure 2** show the service area boundaries for CVUHSD and the locations of CVUHSD schools, respectively.

CVUHSD had a total enrollment of roughly 6,500 students for the 2021-22 school year. The student population is more Hispanic and Black than the state as a whole: roughly 75 percent is of Hispanic origin, while 15.8 percent is Black, 2.8 percent is multiracial, 2.1 percent is Asian, 0.9 percent is Pacific Islander, and 1.9 percent is non-Hispanic White. CVUHSD has a high share of English learners, comprising 17.3 percent of the

student body. Additionally, 79.8 percent of the CVUHSD student body is classified as economically disadvantaged (13).

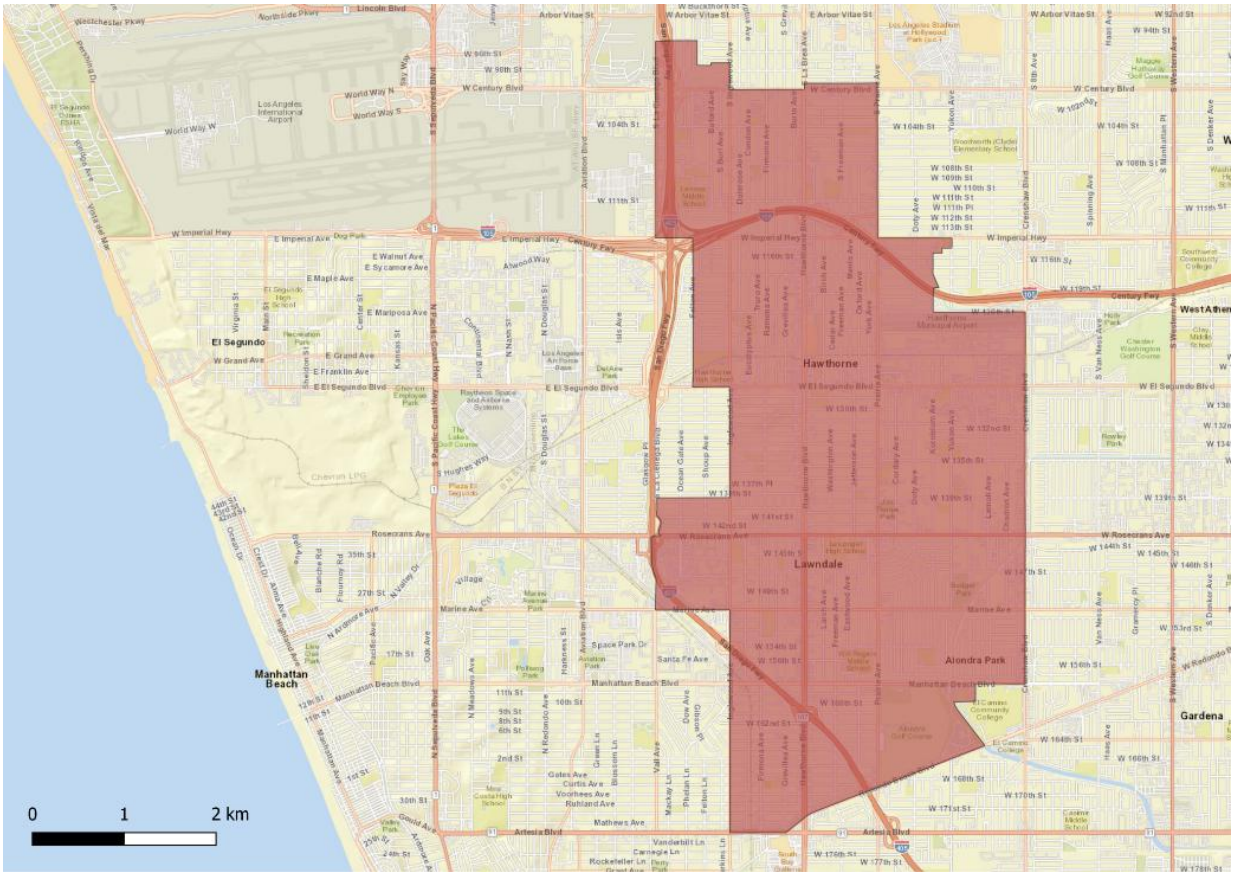

Figure 1. CVUHSD Service Area Boundaries

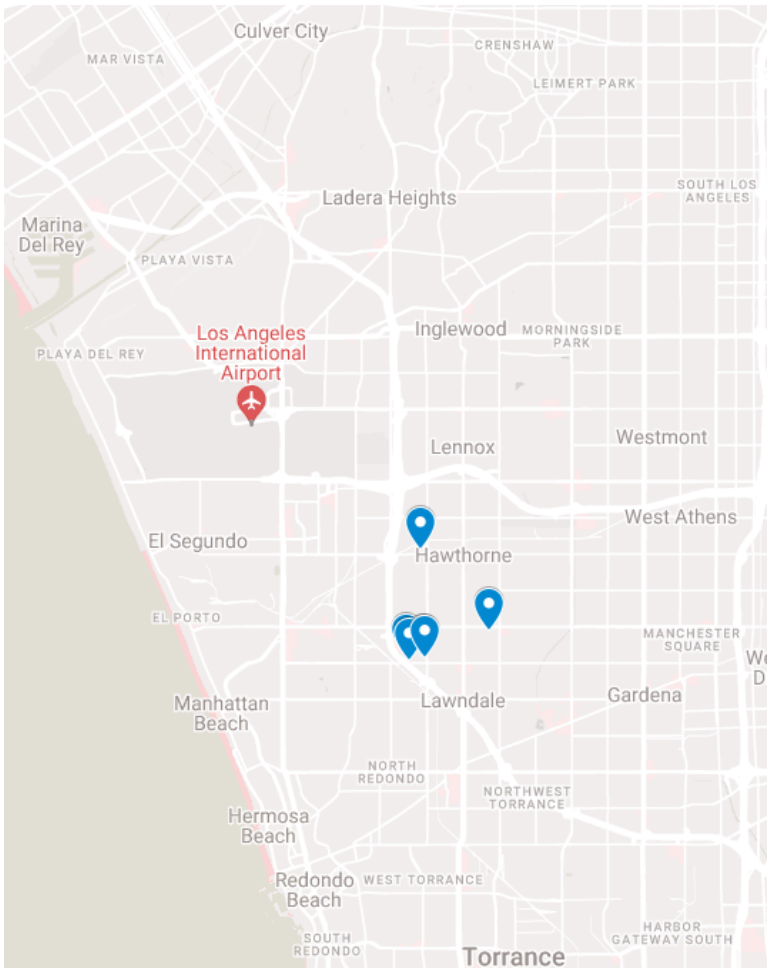

Figure 2. Locations of CVUHSD Schools

Data Collection and Methodology

We sent an online survey invitation by email to all students attending CVUHSD schools in March 2024. As an incentive all participants were entered in a lottery for a $50 Amazon gift card, which roughly 1 in 15 received. Students were also directed to a website where they could ask any questions and view complete information about the study.[1] A total of 429 students completed the online survey, answering questions related to their awareness of and participation in the GoPass program; available transportation modes; mode choices for travel to school, travel from school, and for other purposes; and their demographics including grade level, self-reported grade-point average, race, Hispanic origin, gender, and housing type.

Survey Instrument

The survey instrument was composed of six main parts, which most students completed in under 20 minutes. The information collected in each part of the survey is described below:

1. **Familiarity with GoPass, household vehicle use, and available transportation modes:** In this section, students were asked about their knowledge of GoPass, whether they had obtained a GoPass, whether they had a GoPass the prior school year, and whether they had a driver's license or learner's permit. Participants who said they had a GoPass were asked whether they had registered and activated their GoPass with LA Metro and whether they used it. They were then asked about whether they had access to a car, bicycle, electric bicycle, scooter, school bus, or could walk for trips to and from school and other locations. Finally, they were asked how many cars there were in their households and whether any of those vehicles were electric.
2. **School-related trips:** Participants were asked about their trips to and from school (14; 15).
    a. *Travel to school:* Students were asked to recall whether they used each mode they mentioned to go to school in the previous week. For each mode used they were asked trip-specific details: travel time, departure time, and how often the specific mode was used during the week. Students who used cars were also asked whether they drove or had another person like a friend or relative drive them to school.

[1] Initially the survey was to be administered by randomly selecting a subsample of schools within the Los Angeles Unified School District (LAUSD) as LAUSD was by far the largest school district participating in the GoPass program, and is one of the largest public school districts both in California and the United States. Approval for the project was granted in early June 2023 for administration of the survey in the fall of 2023. Unfortunately, due to a lack of responses from both parents and students, this initial survey using LAUSD student responses had to be canceled.

b. *Travel from School:* Students were asked a short set of questions about their trips leaving school. Given the larger dispersion of after-school activities and departure times, Students were asked to recall trip details only for the last trip leaving school, their immediate after-school destination, and the mode used to leave the school's campus for the day.

3. **Trips not related to school:** Students were asked about whether they used any mode at their disposal for trips that did not begin or end at their school's campus in the previous week. For each mode that students reported were used for miscellaneous trips, students were asked to recall the purpose(s) of the trips, and how many trips they made using that specific mode during the previous week.
4. **Stated preference questions:** Students were presented with three hypothetical trips to a destination very close to a bus stop: one 12 miles away, one seven miles away, and finally one two miles away. For each trip, they were presented with three alternatives and were given a choice of mode, and told the respective travel time, waiting time, cost, and whether Wi-Fi would be available for their trip. They were told there were no right answers, and to just choose the best one of the three alternatives. The possible modes for the first two hypothetical trips were either bus, train, car, self-driving car, e-bicycle or scooter rental. For the two-mile trip Metro Micro was substituted for "train" and participants were also asked a follow-up question whether they preferred to walk instead of using the travel method they had chosen.
5. **Attitudinal questions:** Students using GoPass were asked to rank from 1 to 5 their opinion of GoPass's impact on their lives regarding cost savings, accessibility, reliance on others for transportation needs, absenteeism, and service reliability. Students without GoPass were asked why they did not use GoPass, where the options they could select from were speed, safety, traveling with others without GoPass, lack of parental consent, and whether the students lost or forgot to register their GoPass with LA Metro.
6. **Demographic questions:** Finally, students were asked their grade level, self-reported grade-point average, type of housing, ZIP code, gender, race, and Hispanic origin. Juniors and seniors were asked about their postsecondary plans, and their attitudes about issues such as affordability of living independently, climate change, and safety, both in their neighborhoods and while riding transit. These questions were only asked of juniors and seniors, because civic engagement is more salient among students as they are closer to entering college (16), older students have views that are more influenced by peers than parents (17), and views on political issues tend to be less prone to wide changes later in adolescence (18).

Additional information regarding our methodology for evaluating our survey results is available in the Technical Appendix.

Summary of Survey Data

GoPass Availability and Vehicle Use

Table 1 displays the summary statistics for the answers to the questions regarding GoPass awareness and use along with information on household vehicles.

Table 1. Summary of GoPass Variables and Vehicle Information

Variable/Characteristic	N	Value	S. D.
GoPass awareness and participation			
Aware of GoPass, %	423	74.94	
Have a GoPass, %	423	27.90	
Had a GoPass in 2022-23, %	422	21.33	
Registered a GoPass, %	423	21.75	
Used GoPass, %	423	19.15	
Household vehicle use			
Have driver's license/Learner's permit, %	422	8.29	
Have electric vehicles in household, %	380	3.42	
Number of household vehicles, mean	378	2.18	1.30

About 75 percent of the students surveyed reported being aware of GoPass. About 28 percent of the surveyed students said they have a GoPass. About 22 percent registered their GoPass for use with LA Metro and about 19 percent of the students used GoPass at least once. Thus, about 37 percent of students who were aware of GoPass choose to obtain one. Moreover, about 78 percent of students with a GoPass registered it with Metro, and 89 percent of students with registered GoPass cards reported using it.

Mode Availability and Use

Table 2 tabulates the modes students had available for trips to school, trips from school, and other trips.

Table 2. Available Modes for Different Trip Purposes

Variable/Characteristic	N	Value (%)
Available transportation modes: trips to school (n=400)		
Walk	400	59.50
Active transportation	400	22.50
School bus	400	14.50
Public transportation	400	32.75
Car	400	82.00
Available transportation modes: trips from school		
Walk	400	68.75
Active transportation	400	22.25
School bus	400	19.75
Public transportation	400	40.75
Car	400	67.75
Available transportation modes: other trips		
Walk	400	53.50
Active transportation	398	56.53
Public transportation	400	53.00
Car	400	59.25

Overall, the modes that students cited as least available, both on trips to and from school, were active transportation options (such as bicycle, e-bicycle, scooters, and e-scooters) and school buses. While students were technically allowed to select “school bus” as an available mode for other trips, we omit this mode from the summary statistics. Active transportation was deemed as a possible mode for trips unrelated to school by a majority of students (56.5 %), which suggests that students may use these modes more for leisure outside of classes rather than as a consistent way to get to and from school. Furthermore, a larger share of students mentioned walking and public transportation as an option to get from school than to school, while the share of those reporting that riding in or driving a car is an option is higher for trips to school than for trips from school. One explanation for this is that most students who use cars for trips to school depend on relatives to drive them since few have a driver's license but may not be able to rely on family members who are likely still at work when they leave school to pick them up.

Students were asked about the modes used for trips to school in the previous week, their most recent trip from school, and any trip made for other purposes in the previous week. To compare the distribution of modes for trips to and from school, the most frequently used mode used for trips to school was tabulated for every student in the sample. These results are presented in **Table 3.**

Table 3. Modes Used for Different Trip Purposes

Variable/Characteristic	N	Value
Mode most frequently used for trips to school		
Walk, %	376	24.20
Active transportation, %	376	3.72
School bus, %	376	0.27
Public transportation, %	376	7.71
Car, %	376	64.10
Mode used for last trip from school		
Walk, %	360	36.67
Active transportation, %	360	3.61
School bus, %	360	1.11
Public transportation, %	360	11.11
Car, %	360	47.50
Modes used for any other trips		
Walk, %	398	25.38
Active transportation, %	398	4.52
Public transportation, %	398	8.50
Car, %	398	39.02
Reported at least one non-school trip in the last week, %	398	54.77

A car was the most frequently used mode for trips to school, with 64 percent of students relying on them. Walking was the next most often relied-on mode, at 24 percent, followed by public transportation at around eight percent. Few students relied on active transportation (just under 4%) and only one student reported relying on the school bus.

For trips leaving school, students were only asked about their last trip leaving the school campus, because students are more likely to engage in an array of after-school and extracurricular activities, and so there is likely to be less consistency in terms of how students choose to leave school. However, it is notable that the share who left school using a car was considerably less than for trips to school. Moreover, the shares of students who reported walking and taking public transportation increased to 36.7 percent and 11.1 percent, respectively.

Only a slight majority of students reported taking any non-school trips in the previous week. Thirty-nine percent reported taking a car trip, 25.4 percent reported walking, 8.5 percent reported taking public transportation, while 4.5 percent reported using active transportation.

Attitudinal Questions

Juniors and seniors were asked to rate their concerns about safety, affordability, and climate change from 1 (low) to 5 (high) to determine how those might affect their decision to obtain a GoPass. These results are presented in **Table 4.**

Table 4. Summary of General Attitudinal Questions

Concern	N	Mean	S. D.
Safety in the neighborhood	189	3.40	1.25
Safety while riding transit	189	3.92	1.05
Affordability of living independently	189	3.93	1.30
Impacts of climate change	189	3.86	1.17
Affordability of a safe place to raise a family	189	3.57	1.28

Overall, there were moderate and nearly identical levels of agreement with the concerns for safety while riding transit, affordability of living independently, and the impacts of climate change. However, there was significantly higher concern for safety on transit than overall safety within the students' neighborhoods, where students showed a more mixed response to safety concerns.

Respondents who participated in GoPass were asked how they felt about certain benefits of having GoPass. They were again asked to rate their attitude regarding cost savings, accessibility, reliance on others, absenteeism, and their perceived abilities to help friends and family**. Table 5** reports the results.

Table 5. Summary of GoPass Attitudes from Users

Benefit	N	Mean	S. D.
Saves money	98	4.56	0.81
Access more places	98	4.09	0.90
Rely on others less	98	3.86	1.08
Miss fewer days of school	98	3.59	1.19
Make more appointments on time	98	3.40	1.14
Help friends and family more easily	98	3.81	1.12

There was near-unanimous consent that having a GoPass saved money. There was also relatively strong agreement that GoPass helped them access more places and rely less on others. However, they were somewhat neutral on two key points: the ability to miss fewer school days, and the ability to make more appointments on time. These results may reflect their attitudes about the speed and reliability of LA Metro and other transit services that this group of students is using with their GoPass.

Demographics and Student Characteristics

The final survey questions asked students about their grade level, self-reported grade-point average, type of housing, ZIP code, gender, race, and Hispanic origin. These results are shown in **Table 6.**

Table 6. Summary of Demographics and Student-Level Characteristics

Variable/Characteristic	N	Value
Race/Ethnicity		
White, %	345	10.43
Black, %	345	11.88
Native American, %	345	2.03
Asian/Pacific Islander, %	345	8.12
Other, %	345	57.10
Multiracial, %	345	10.43
Hispanic of any race, %	342	74.85
Gender		
Male, %	344	35.47
Female, %	344	60.76
Non-binary, %	344	0.58
Declined to answer, %	344	3.20
Housing		
Apartment building or duplex, %	311	53.38
Detached single-family home or townhome, %	311	46.62
Grade Level		
9th grade, %	345	18.26
10th grade, %	345	24.93
11th grade, %	345	29.57
12th grade, %	345	27.25
Self-Reported Grade-Point Average		
A (3.5 or greater)	344	56.69
B (2.5 - 3.49)	344	33.43
C (2.49 or less)	344	9.88

In line with district-wide population demographics, 74.9 percent of the sample reported being of Hispanic origin. A total of 10.4 percent were White (this includes White Hispanics), 11.9 percent were Black, two percent were Native American or American Indian, 8.1 percent were Asian or Pacific Islander, 57.1 percent reported being of some other race (primarily owing to the sample being heavily Hispanic) and 10.4 percent were multiracial. The sample had more females than males (60.8% to 35.5% male), and 53.4 percent reported living in a detached single-family home or a townhouse, compared to 46.6 percent stating they lived in an

apartment building or duplex. A total of 18.3 percent of the students in the sample were 9th graders, 24.9 percent were 10th graders, 29.6 percent were 11th graders, and 27.3 percent were 12th graders. Finally, a majority of students (56.7%) reported having a grade-point average of 3.5 or higher, while 33.5 percent reported a grade-point average between 2.5 and 3.49, and 9.9 percent reported having a grade-point average below 2.49.

Survey Results

GoPass Availability and Vehicle Use

As noted above, very few students have even a learner's permit and the rates do not differ much between students who have GoPass and those who don't, as shown in **Table 7**. However, students who have a GoPass reported fewer vehicles (mean = 1.93) in their households than those who did not (mean = 2.28) and this difference in household vehicle access is statistically significant at the 5% level (denoted by ** in the table), meaning that there is only a five percent chance that this difference was due to random chance.

There are also rather striking differences in the availability of different travel modes to and from school between the GoPass and non-GoPass users. For trips to school, walking is more of an option for students with GoPass (significant at the 10% level, denoted by a * in the table),[2] while active transportation is more of an option for students without a GoPass (significant at the 10% level). Unsurprisingly, a majority of GoPass students said they can take public transportation to school versus only about a quarter of students who do not have a GoPass. A lower share of GoPass students cited having access to a car than those without one.

There are fewer differences between the available modes of GoPass students and non-GoPass students for trips from school. Close to 70 percent of GoPass students say public transit is an available option compared to about 30 percent of non-GoPass. A lower share of students with GoPass have access to a car for returning from school compared those without a GoPass. On the other hand, there were no significant differences in the shares of available modes for trips unrelated to school between the two groups of students. **Table 7**, presents cross-tabulations between household vehicle use and mode availability with test statistics shown for two-tailed t-tests (or z-tests, in the case of a percentage).

Table 7. Cross-tabulations of Household Vehicle Use and Mode Availability, by GoPass Participation

Variable/Characteristic	No GoPass		Has GoPass		T. S.	Sig.
	N	Value	N	Value		
Household vehicle use						
Have driver's license/learner's permit, %	304	8.89	118	6.78	0.703	
Number of household vehicles (mean)	275	2.28	103	1.93	2.311	**
Available transportation modes: trips to school						
Walk, %	288	56.95	112	66.07	-1.670	*
Active transportation, %	288	25.00	112	16.07	1.920	*
School bus, %	288	15.63	112	11.61	1.025	
Public transportation, %	288	25.35	112	51.79	-5.059	***
Car, %	288	85.07	112	74.11	2.562	**

[2] Values greater than 10% indicating a more than 10% chance the result are due to random chance are considered not significant.

Variable/Characteristic	No GoPass		Has GoPass		T. S.	Sig.
	N	Value	N	Value		
Available transportation modes: trips from school						
Walk, %	288	67.36	112	72.32	-0.961	
Active transportation, %	288	23.61	112	18.75	1.050	
School bus, %	288	21.18	112	16.07	1.152	
Public transportation, %	288	29.51	112	69.64	-7.334	***
Car, %	288	71.88	112	57.14	2.830	***
Available transportation modes: other trips						
Walk, %	288	53.13	112	54.46	-0.241	
Active transportation, %	288	58.89	112	50.45	1.522	
Public transportation, %	288	55.56	112	46.43	1.642	
Car, %	288	59.03	112	59.82	-0.145	

Note: * means that the difference between the No GoPass and Has GoPass values are significantly different at the 10% level, ** is significantly different at the 5% level, and *** is significant at the 1% level

Mode Use and Travel Behavior

A much larger share of those using GoPass (35.7%) reported taking public transportation to school at least once in the previous week compared to students without a GoPass (5.6%). Unsurprisingly, a larger share of students without a GoPass relied on cars to get to school (73.6 %) compared to students with a GoPass (62.5%). However, the differences in walking to school in the previous week among those with a GoPass and those without were insignificant, as were differences using active transportation modes.

For trips returning from school, while 51.9 percent of students without a GoPass reported using a car for their last trip from school, only 36 percent of GoPass students left school in a car. A higher share of students without a GoPass reported walking in their last trip leaving school compared to those with a GoPass. And unsurprisingly, a much larger share of students with a GoPass (31%) used public transportation to leave school compared to students without a GoPass (3.5%). Clearly there are differences in how students leave school based on whether they have a GoPass.

For non-school trips, a higher share of GoPass students reported at least one walking trip or at least one public transportation trip in the previous week. This is likely due in part from an overall higher share of GoPass students reporting at least one non-school trip in the previous week. **Table 8** presents the cross-tabulations between mode use and GoPass participation for trips to school, from school, and other trips.

Table 8. Cross-tabulations of Mode Use, by GoPass Participation

Variable/Characteristic	No GoPass		Has GoPass		T. S.	Sig.
	N	Value	N	Value		
Modes used for trips to school in previous week						
Walk, %	288	35.42	112	41.96	-1.216	
Active transportation, %	288	4.51	112	5.36	-0.356	
Public transportation, %	288	5.56	112	35.71	-7.805	***
Car, %	288	73.61	112	62.50	2.188	**
Modes used for last trip from school						
Walk, %	260	39.62	100	29.00	1.872	*
Active transportation, %	260	3.85	100	3.00	0.385	
Public transportation, %	260	3.46	100	31.00	-7.447	***
Car, %	260	51.92	100	36.00	2.710	***
Modes used for other trips in previous week						
Walk, %	288	21.61	112	35.14	-2.782	***
Active transportation, %	288	4.18	112	5.41	-0.527	
Public transportation, %	288	3.81	112	20.54	-5.833	***
Car, %	287	39.72	111	37.84	0.345	
Reported any other trips in the past week, %	288	50.87	112	64.86	-2.515	**

Note: * means that the difference between the No GoPass and Has GoPass values are significantly different at the 10% level, ** is significantly different at the 5% level, and *** is significant at the 1% level

GoPass Use and Social Attitudes

Remarkably, there are almost no significant differences in social attitudes between the GoPass and non-GoPass juniors and seniors, including their concerns for safety on transit. The differences in the mean of answers provided to questions about concerns over safety, affordability of living independently, and climate change are miniscule. This shows that these factors did not likely influence their decisions to obtain a GoPass. **Table 9** presents the results of the cross-tabulations between having a GoPass or not and responses to the attitudinal questions.

Table 9. Cross-tabulations of Attitudinal Questions, by GoPass Participation

Concern	No GoPass			Has GoPass			T. S.	Sig.
	N	Mean	S. D.	N	Mean	S. D.		
Safety in the neighborhood		3.33	1.25		3.54	1.27	-1.092	
Safety while riding transit	128	3.87	1.05	61	4.03	1.05	-1.012	
Affordability of living independently	128	3.89	1.33	61	4.01	1.26	-0.624	
Impacts of climate change	128	3.81	1.18	61	3.95	1.15	-0.759	
Affordability of a safe place to raise a family	128	3.45	1.28	61	3.80	1.28	-1.761	*

Note: * means that the difference between the No GoPass and Has GoPass values are significantly different at the 10% level, ** is significantly different at the 5% level, and *** is significant at the 1% level

Student Demographics and Other Characteristics

There were no significant differences in the distributions of race or ethnicity, gender, or self-reported grade-point average between the GoPass and non-GoPass students. However, a larger share of students with a GoPass live in an apartment building or duplex, a difference which is statistically significant at the 10% level. This is likely because housing type can be thought of as a proxy for family wealth, and therefore, students in a “worse" housing condition will be more likely to need GoPass and participate in the program. Perhaps the most striking, though not unexpected, difference is that seniors make up a much larger share of students with GoPass, which is the only difference that is statistically significant between the GoPass and non-GoPass students. **Table 10** presents crosstabs between GoPass use and student demographics.

Table 10. Cross-tabulations of Demographics and Student Level Characteristics, by GoPass Participation

Variable/Characteristic	No GoPass		Has GoPass		T. S.	Sig.
	N	Value	N	Value		
Race/Ethnicity						
White, %	250	10.80	95	9.47	0.360	
Black, %	250	11.20	95	13.68	-0.637	
Asian/Pacific Islander, %	250	8.40	95	7.37	0.313	
Other, %	250	54.40	95	64.21	-1.645	*
Multiracial, %	250	12.40	95	5.26	1.937	*
Hispanic of any race, %	249	74.70	95	75.27	-0.108	
Gender						
Male, %	249	60.24	95	62.11	-0.317	
Female, %	249	35.74	95	34.73	0.174	
Housing						
Apartment building or duplex, %	227	50.22	84	61.90	-1.834	*
Detached single-family home or townhome, %	227	49.78	84	38.10	1.834	*
Grade Level						
9th grade, %	250	20.00	95	13.68	1.356	
10th grade, %	250	26.80	95	20.00	1.304	
11th grade, %	250	31.60	95	24.21	1.344	
12th grade, %	250	21.60	95	42.11	-3.821	***
Self-Reported Grade-Point Average						
A (3.5 or greater)	249	57.03	95	55.78	0.207	
B (2.5 - 3.49)	249	34.14	95	31.58	0.450	
C (2.49 or less)	249	8.84	95	12.63	-1.055	

Note: * means that the difference between the No GoPass and Has GoPass values are significantly different at the 10% level, ** is significantly different at the 5% level, and *** is significant at the 1% level

Model Analysis

GoPass Participation

In order to determine which factors might help predict whether students will participate in a free fare transit program, we developed a logistic regression model based on the responses we received to our survey questions. Regression analysis is a set of statistical methods to estimate the effect that various known factors (also called variables) have on a particular outcome, in this case, participation in the GoPass program.

Our results showed that students who live in detached single-family homes or townhomes are less likely to obtain a GoPass, but the statistical significance is marginal. Seniors are significantly more likely to participate in GoPass. This finding is not unexpected, given seniors are older and more likely to have more independence and thus have more mobility. Students with access to active transportation, school buses, and cars for trips to school are significantly less likely to have a GoPass, while those with access to public transportation for trips from school are much more likely to have one. **Table 11** presents the results of our regression model, truncated to only display categories containing variables that are statistically significant.

Table 11. Logistic Regression Results for GoPass Participation

Variable/Characteristic	Coeff.	S. E.	Sig.
Housing (default case = Apartment or duplex)			
Detached single-family home or townhome	-0.633	0.337	*
Grade Level (default case = 9th grade)			
10th grade	0.471	0.562	
11th grade	0.776	0.531	
12th grade	1.822	0.538	***
Available transportation modes: trips to school			
Walk	0.074	0.416	
Active transportation	-1.876	0.980	*
School bus	-1.156	0.567	**
Public transportation	0.215	0.474	
Car	-1.303	0.528	**
Available transportation modes: trips from school			
Walk	-0.235	0.419	
Active transportation	1.173	0.932	
School bus	0.297	0.499	
Public transportation	1.956	0.496	***
Car	0.425	0.434	
Available transportation modes: other trips			
Walk	-0.004	0.352	
Active transportation	-0.368	0.388	
Public transportation	0.471	0.393	
Car	-0.195	0.361	
Constant	-1.202	0.756	

Note: Sig. means that the coefficient is significantly different from 0 at the 10% *, 5%**, or 1%***.

A second approach for explaining participation in the GoPass program is using an ordered logistic model, where students are placed into three categories which represent their GoPass "exposure." The first category includes students who are not aware of GoPass, the second category is those who are aware of GoPass but do not have one, and the third category includes students with a GoPass. Similar to the unconditional GoPass logit model discussed above, students living in detached housing or who are seniors are significantly more likely to be in the GoPass program. Those living in a detached single-family home or townhome less likely to having a GoPass. Unlike the binary GoPass participation model, the ordered logit model shows that having a "B" grade-point average decreases odds of obtaining a pass, but this effect has marginal statistical significance. **Table** presents our results employing this method using the same independent variables from the logistic model.

Table 12. Ordered Logistic Regression Results for GoPass Participation

Variable/Characteristic	Coeff.	S. E.	Sig.
Housing (default case = Apartment or duplex)			
Detached single-family home or townhome	-0.465	0.244	*
Grade Level (default case = 9th grade)			
10th grade	0.020	0.365	
11th grade	0.273	0.352	
12th grade	1.174	0.376	***
Self-Reported Grade-Point Average (default case = 3.5 or greater)			
B (2.5 - 3.49)	-0.497	0.267	*
C (2.49 or less)	0.551	0.419	
Available transportation modes: trips to school			
Walk	0.058	0.297	
Active transportation	-0.740	0.541	
School bus	-0.711	0.398	*
Public transportation	0.392	0.390	
Car	-0.788	0.395	**
Available transportation modes: trips from school			
Walk	-0.138	0.296	
Active transportation	0.325	0.540	
School bus	0.310	0.354	
Public transportation	1.251	0.393	***
Car	0.150	0.311	
Available transportation modes: other trips			
Walk	-0.049	0.259	
Active transportation	-0.217	0.290	
Public transportation	0.298	0.289	
Car	-0.355	0.274	
Category 1-2 threshold	**-2.153**	**0.795**	
Category 2-3 threshold	**0.373**	**0.785**	

Notes: Sig. means that the coefficient is significantly different from 0 at the 10% *, 5%**, or 1%***.

Because the third (and highest) category is the decision to obtain a GoPass, adapting the same interpretation for the coefficients in the binary logit model for unconditional GoPass participation is acceptable.

The results are similar to the logistic GoPass model. Availability of a school bus to school is marginally significant and lowers the odds of obtaining a GoPass. Availability of cars for trips to school is fairly significant,

and lowers the odds of obtaining a GoPass. Finally, for trips from school, the availability of public transportation dramatically raises the odds of obtaining a GoPass. The availability of travel options for other trips does not significantly change the odds of obtaining a GoPass.

Stated Preference Experiment

Since the CVUHSD sample is from a small geographic region there is little variation in student travel times and costs. To assess the demand for different modes of travel under different conditions, as described in Section 3 above, we asked the participants to state their preference for one of three different travel scenarios using different modes to take them to three hypothetical destinations to determine how the participants would estimate the economic value to them of travel time, wait time and overall travel cost (19; 20). Because we expected that most respondents would take the survey on a cell phone, we were limited to three alternatives for each choice experiment. **Figure 3** shows a screen shot of an actual survey page corresponding to one of the choice experiments.

We chose modes that are either currently available in the Los Angeles area or are new and not widely available yet – Metro Micro and self-driving cars (those that can be driven without the need for a human driver to be present controlling the vehicle). We did not include services like Uber and Lyft since it is illegal for those under the age of 18 to use these services. Google's Waymo "robo-taxi" service began serving Los Angeles just before we fielded our survey, but its availability is currently very limited. We did not include regular (non-electric) bicycles in the stated preference survey to avoid making it too complicated. As noted above we did include walking as a fourth alternative in the short two-mile trip.

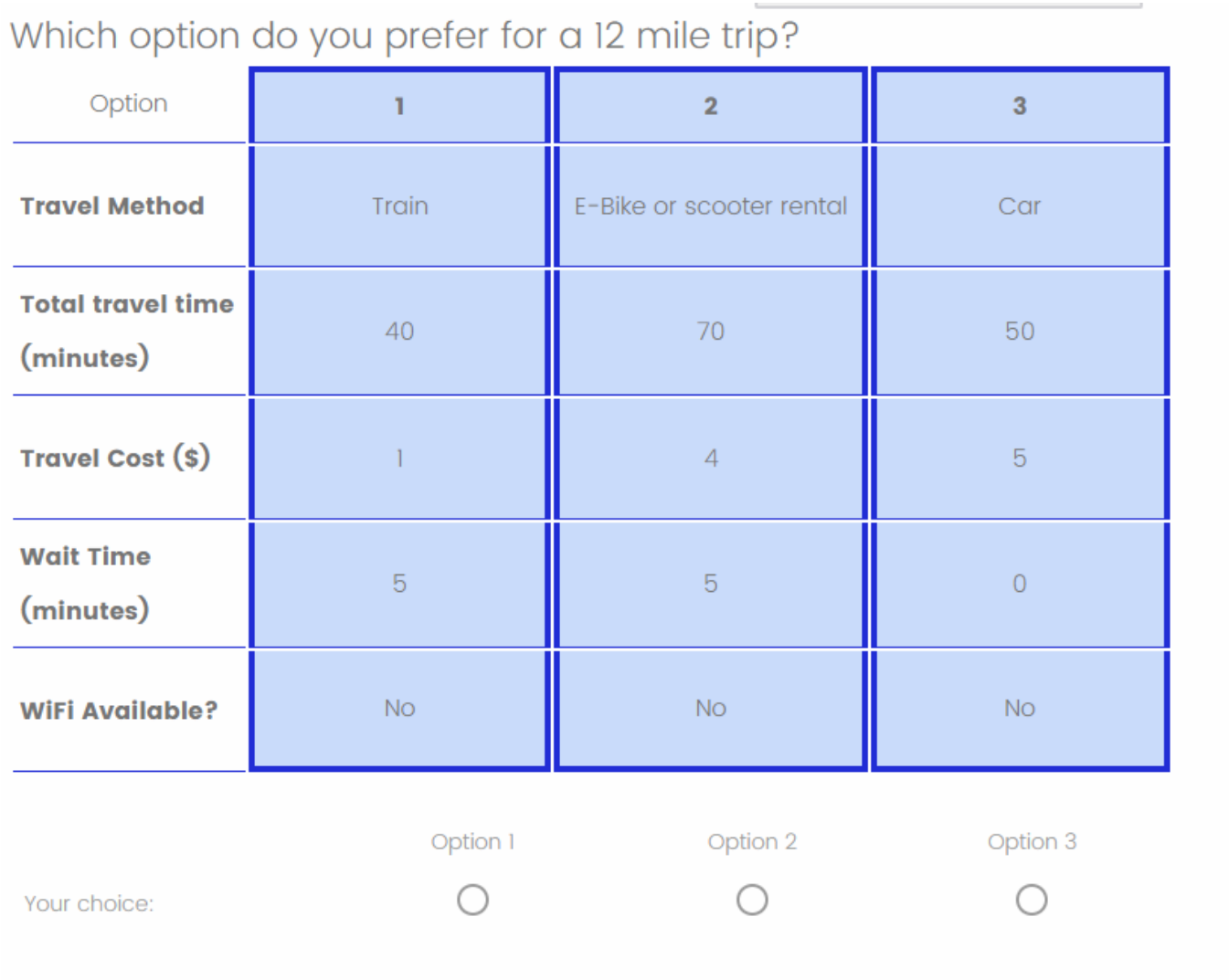

Figure 3. Screenshot of the Stated Preference Task

We used the conditional logit model described above to analyze the results from our stated preference experiment. Additional details regarding the methodology can be found in the Technical Appendix.

Table 13 shows the distribution of modes offered and modes chosen for all the stated preference questions. The mode choices offered to the respondents were independent of any responses to the survey questions made by the 350 survey participants who completed the stated preference tasks. Note that "Car" and "Walking" are chosen relatively more frequently, and "E-bicycle or scooter rental" and "Metro Micro" are chosen relatively less frequently. Since very few of our respondents have a driver's license, the "Car" mode means that they would have to be driven by their parents or other family members.

Table 13. Distribution of Travel Modes Offered and Chosen

Mode	Offered		Chosen	
	N	%	N	%
Bus	902	22.65	313	26.02
Car	192	4.82	115	9.56
E-bicycle or scooter rental	597	14.99	91	7.56
Metro Micro	442	11.1	79	6.57
Self-driving Car	968	24.3	311	25.85
Train	532	13.36	145	12.05
Walk	350	8.79	149	12.39

The modes used in our stated preference experiments have different attribute values, so we developed a mode choice model to learn about how respondents trade off the different values of time and monetary cost when they travel. We began by estimating separate conditional logit models for the three different trip length options (12, 7, and 2 miles) presented to each respondent. We used these three models as a benchmark to test a more restrictive model with common coefficients for the key travel time, travel cost, and wait time coefficients. A likelihood ratio test did not reject the hypothesis that the restrictions imposed on the model are correct at any reasonable significance level. **Table 14** shows the maximum likelihood estimates for our final model. The constants for each travel alternative can be interpreted as the utility relative to the "Car" base (alternative-specific constant set to zero) of the different modes holding the other attributes constant.

Table 14. Conditional Logistic Regression Results of Stated Preference Experiment

Variable	Coeff.	S. E.	t	Sig.
Alternative-Specific Constants (Base Alternative: Car)				
Walk	0.825	0.297	2.78	***
Bus for long trips	-1.720	0.331	-5.20	***
Bus for medium and short trips	-0.855	0.280	-3.05	***
Self-driving car for long trips	-1.628	0.275	-5.93	***
Self-driving car for medium and short trips	-0.756	0.258	-2.93	***
Train for long trips	-2.170	0.352	-6.16	***
Train for medium trips	-1.215	0.291	-4.17	***
E-bicycle or Scooter for long trips	-2.965	0.435	-6.82	***
E-bicycle or Scooter for medium trips	-1.457	0.303	-4.81	***
E-bicycle or Scooter for short trips	-0.765	0.299	-2.56	**
Metro Micro	-1.359	0.304	-4.47	***
Attribute Coefficients				
Travel time	-0.042	0.004	-10.17	***
Wait time	-0.022	0.010	-2.20	**
Travel Cost	-0.036	0.020	-1.77	*
Wi-Fi for long trips	0.973	0.168	5.80	***
Wi-Fi for medium and short trips	0.348	0.090	3.86	***

Note: Sig. means that the coefficient is significantly different from 0 at the 10% *, 5%**, or 1%***.

The positive coefficient for "Walk" (0.825) shows that it is preferred for short (two-mile) trips with the same total travel time (recall that "Walk" is only offered for the two-mile trip scenario). "Self-driving car," "Bus" and "Train" all have negative coefficients indicating they are disliked, but less so for medium and short trips. "E-bicycle and Scooters" are also disliked more as the trip distance increases.

The value of students' travel time is $71 based on the ratio of the travel time coefficient (-0.042) in Table to the travel cost coefficient with a standard error of ±$30 (24), and the value of wait time is $98 with a standard error of ±$70. The relative dislike of waiting time not unusual (25; 26), but the large standard errors imply that we cannot conclude that the value of wait time is really any larger than the value of travel time. Still, the results from our value of time calculations are very similar to what is found in studies of adult populations. For example, Brownstone and Steimetz (27) used actual behavior on the I-15 Express Lanes in San Diego to estimate the value of travelers' time at $56 (in current 2024 dollars). Our high school survey respondents' values for speed and reliability are also very similar to those found from samples of traditional adult working commuters.

Respondents value having Wi-Fi available—especially for long (12-mile) trips. Since travel cost is included in our experiment, we can estimate the monetary value of Wi-Fi as the ratio of the coefficient for Wi-Fi (0.973 for long trips and 0.348 for medium and short trips) divided by minus the coefficient for travel cost (-0.036). Our

results show that our respondents value Wi-Fi at approximately $27 for long trips and $10 for medium and short trips.

Conclusions and Policy Recommendations

In modeling students' overall decisions to participate in GoPass, one striking finding was how little effect student demographics or characteristics had. To some degree, this comes as a surprise given that underlying preferences for public transportation typically tend to vary by, for instance, gender, due partly to increased concerns about crime and gender-based violence among women (28; 29). While some of this may be due to our small sample size, the trips to and from school had much greater effect on their decision to obtain GoPass. This finding is consistent with the literature on youth travel behavior. Importantly, car availability for trips to school reduced the likelihood of obtaining a GoPass while transit availability for trips returning from school increased the likelihood.

Both the survey results and the choices that students made in the stated preference experiment were consistent that cars, when available, are favored over other alternatives. However, the availability of transit did make an impact in their decisions to obtain GoPass.

Policy Implications

The first potential implication of our study is that penalizing car use (and in turn, car availability for school trips) could increase transit use. Indeed, cities like London, Stockholm, and Singapore have introduced congestion zones where drivers must pay a fee to enter. These cities have been successful at maintaining high transit use. A single school district like CVUHSD, however, could not implement such a sweeping restriction on private vehicle use. Yet schools are not powerless in implementing travel demand management strategies to restrict private vehicle flows into and out of their campuses. For example, schools may choose to raise fees for parking permits significantly to discourage driving and parking at school, although very few students have driver's licenses or permits. Additionally, schools may choose to increase the waiting area for transit vehicles, which may reduce boarding times for students and make it a more desirable option.

Future Work

While our work contributes to the still relatively unchartered field of youth travel behavior, we encountered some limitations to extending the findings we present in this report. First, there is little geographic variation in the sample of students who completed our survey. As such, we are unable to comment on how the built environment influences either their decisions to obtain GoPass or how these factors affected their stated preferences. Second, our models are limited by the relatively small number of observations that were used in estimating the models presented. This lack of statistical power is apparent when computing standard errors of derived estimates, such as the values of travel and wait time. Third, our survey could not ask about students' household income (or any proxies for income), which is a notable downside of interviewing high school students.

Future work that builds on our results could involve a similar survey of a larger school district, with matching parent surveys to obtain information on household and family wealth, since these are important individual characteristics in influencing travel behavior (30; 31). More elaborate mode choice models, such as the nested (32) or mixed logit models (33; 34) could be used to analyze the results from stated preference experiments, although this extension would be more useful with a larger sample size. Joint models that combine GoPass participation and stated preference choices might provide some additional insights into the value of time estimates presented in our report.

Technical Appendix

Survey Methodology

GoPass Participation Outcomes

Because participation in GoPass is a binary decision—students can choose to obtain one or not—we chose a logistic regression for modeling the decision to obtain a GoPass. We presumed that both individual characteristics of the student and the student's choices to school will be most influential in determining the student's decision to obtain a GoPass. Therefore, used reported demographics and student-level characteristics alongside the student's choice set for the three different trip purposes as independent variables.

One main complication with this procedure is that not all participants are aware the GoPass program exists. Hence, it would be reasonable to jointly model the awareness and participation outcomes. To do this, we employed a natural ordering of outcomes where different students receive differing levels of GoPass "treatment," which can be classified into three categories. Under this approach, the students unaware of GoPass are the least "exposed" and were be placed in a first category. The next category was those students that were aware GoPass exists but still decided not to get one. Finally, the third category simply contains those students who obtained a GoPass. For this joint modeling exercise, we made use of the ordered logistic model, which has two important benefits: first, it is a more parsimonious model than other models measuring categorical outcomes and second, it provides a simple interpretation of the coefficient estimates (22).

Stated Preference Experiment

Our model assumes that all respondents have the same utility function and that the error terms are independent and identically distributed according to the Extreme Value (Gumbel) distribution. We also assume that respondent's choices are based on their actual preferences and were not using the hypothetical choices to try to influence policy. Our experimental design allowed us to estimate more general models that allow for heterogeneous preferences and correlations of the error terms across choice tasks. As noted in previous sections of this report, our sample is small and there are not large differences in the demographic variables we can measure.

Table A1, **Table A2**, and **Table A3** show the coding of the attribute values for the 12-mile, 7-mile, and 2-mile trips respectively. The travel time for the walk trip was 40 minutes (the time it takes an average person to walk two miles) and all other attribute values are set to zero.

The prompt shown for the first scenario was as follows:

> For the next question, we would like you to consider how you would take a hypothetical trip from your home to a destination about 12 miles away that is very close to a bus stop. There are no right answers, just choose the best one of the 3 alternatives listed on the top row. The "self-driving car" option is an ordinary car that is able to be driven without the need for a driver to be present controlling the vehicle.

For the first two scenarios, modes (coded 0 – 4) are car, train, self-driving car, bus, and e-bicycle rental.

We used the conditional logit model to analyze the stated preference experiment results, which is standard in much of the discrete choice literature (23). This assumes that all respondents have the same utility function and that the error terms are independent and identically distributed according to the Extreme Value (Gumbel) distribution. This implies that the scale is the same across all three choice scenarios and there are no error correlations. We also assume that respondents are choosing based on their preferences and not using the hypothetical choices to try to influence policy.

An unusual feature of our experimental design is that we added a "walk" alternative to the two-mile trip scenario 3. If the respondent does not choose this walk option, then we know that the option chosen from the three alternatives presented in scenario 3 is preferred over all four possible alternatives. If the respondent does choose the walk option, then we know that the walk option is the best across all four alternatives. However, it is still true that the option chosen from the original three alternatives is the best from that choice set. Therefore, the likelihood function factors into two separate choices when the walk alternative is chosen: the probability of choosing walk across all four alternatives times the probability of the chosen alternative among the three presented in the stated preference two-mile scenario for that respondent.

Table A1. Possible Values for Trip Attributes in the 12-mile Trip Scenario

Travel Method:	LA Metro Rail train Or Bus	Car (either driving or as a passenger) Or Self-Driving Car	E-bicycle Rental
One-Way Travel Time (Minutes)	40, 55, 70	30, 40, 50	60, 70, 80
Cost for Trip	Free, $1, or $2	$5, $10, or $15	$3, $4, $5
Waiting Time (Minutes)	5, 10, or 15	0 if Car 5, 10, 15 for Self-Driving Car	0, 5, or 10
WiFi Available?	yes, no	No (always for car) Yes, no for self-driving car	No always
Your Best Choice:			

In the second scenario, the trip was reduced to seven miles and respondents were shown the following prompt:

> For the next question, we would like you to consider how you would take a hypothetical trip from your home to a destination about 7 miles away that is very close to a bus stop. There are no right answers, just choose the best one of the 3 alternatives listed on the top row.

Table A2. Possible Values for Trip Attributes in the 7-mile Trip Scenario

Travel Method:	LA Metro Rail train Or Bus	Car (either driving or as a passenger) Or Self-Driving Car	E-bicycle Rental
One-Way Travel Time (Minutes)	30, 40, 50	25, 35, 45	30, 40, 50
Cost for Trip	Free, $1, or $2	$4, $7, or $10	$3, $4, $5
Waiting Time (Minutes)	5, 10, or 15	0 if Car 5, 10, 15 for Self-Driving Car	0, 5, or 10
WiFi Available?	yes, no	No (always for car) Yes, no for self-driving car	No always
Your Best Choice:			

For the final scenario, respondents were asked about their mode choice for a two-mile trip. The prompt shown was the following:

> For the next question, we would like you to consider how you would take a hypothetical trip from your home to a destination about 2 miles away that is very close to a bus stop. There are no right answers, just choose the best one of the 3 alternatives listed on the top row. The "Metro Micro" option is a shared van (similar to Uber or Lyft) that is operated by LA Metro which can be called from any location from where you are requesting it.

A follow-up question on whether respondents preferred to walk was asked, with the following prompt:

> Would you prefer to walk instead of using the travel method chosen above?

In the final scenario, the modes (coded 0 – 4) varied slightly from the first two: these were car, Metro Micro, self-driving car, bus, and e-bicycle rental.

Table A3. Possible Values for Trip Attributes in the 2-mile Trip Scenario

Travel Method:	Metro Micro Or Bus	Car (either driving or as a passenger) Or Self-Driving Car	E-bicycle or Scooter Rental
One-Way Travel Time (Minutes)	10, 15, 25	7, 12, 17	10, 20, 30
Cost for Trip	Free, $1, or $2	$4, $7, or $10	$2, $3, $4
Waiting Time (Minutes)	5, 10, or 15	0 if Car 5, 10, 15 for Self-Driving Car	0, 5, or 10
WiFi Available?	yes, no	No (always for car) Yes, no for self-driving car	No always
Your Best Choice:			

The attribute values for the stated preference experiments were set using the NGENE software package. We used a D-efficient design for the conditional logit model, and we found that we needed 24 blocks to minimize the error measures. Blocks were then transcribed from NGENE into a survey software, Qualtrics, using an approach used in Weber (21). Each respondent was randomly assigned to one of these 24 blocks, and Qualtrics was used to ensure that the number of respondents who were assigned to each block was roughly equal.

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