

# UC Riverside

## UCR Honors Capstones 2016-2017

### Title

Understanding UC Riverside's U-PASS Program and Student Ridership

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UNDERSTANDING UC RIVERSIDE'S U-PASS PROGRAM AND STUDENT  
RIDERSHIP

By

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A capstone project submitted for  
Graduation with University Honors

May 11, 2017

University Honors  
University of California, Riverside

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## **Abstract**

The purpose of this research is to evaluate UC Riverside's U-PASS Program. U-PASS is UCR's version of an Unlimited Access program, an increasingly popular partnership adopted between universities and transit agencies to increase ridership and service. At UC Riverside the U-PASS program is a free public transportation service provided to all UCR ID cardholders through the Riverside Transit Agency (RTA). While studies have shown that U-PASS programs are successful in increasing student ridership, mobility, and decreasing parking demand- few have focused on the quality of service, utility, change in travel behavior or travel experience of students while using the program.

My research questions are the following: How do UCR students feel about U-PASS program and RTA's current services? Are particular UCR students more or less likely to use the U-PASS program? How can expanding RTA's quality and services improve the quality of life for UCR's uniquely large commuter student population through its U-PASS program? The project consists of an online survey and in person focus groups with UCR undergraduate students. This project seeks to bridge an informational gap between the school's administration and students to decrease barriers of entry into the U-PASS program and increase service quality, access, student mobility and overall ridership.

This study found that car accessibility, economic savings, and travel time were strong factors in determining student travel behavior, perception, and utility of the transit program. Although the program is largely well received by students the transit service itself can be improved in order to serve the UCR undergraduate population better. This

project found that car accessibility, economic savings, and travel time were strong factors in determining student travel behavior, perception, and utility of the transit program.

Although the program is largely well received by students, the transit service itself can be improved in order to serve the UCR undergraduate population better.

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## **History and Literature Review**

### *A Local Context*

According to UC Riverside's Transportation and Parking Services in the fiscal year of 2015-2016, there were 410,389 total boardings made with the U-PASS program. Boardings are defined as the number of times a UCR ID card was swiped and used as payment for a bus ride. This is to say that a UCR ID card was swiped on a RTA bus 410,389 times. Similarly, in that same year there were around 10,000 Unique Riders who used RTA buses through the U-PASS program and up to approximately 4,900 of these riders were undergraduate students. (Figure 1) Historically at UCR, commuter students have been the largest population to use the program. Other riders include Staff, Faculty, Graduate Students, and Other UCR Affiliates (Figure 2.1).

To understand the U-PASS program at UCR local history must be considered in order to comprehend the original purpose and intentions the program was to carry out. In 2005 the City Council of Riverside was given policy recommendations based on the 2004 Go Riverside Report. This report was created by a transit task force invited by Mayor Ron Loveridge to provide an assessment of the transportation programs in place at the time highlighted recommendations on how to better address the growing needs of public transit for the community, while making buses more attractive for city use. In essence Mayor Loveridge's vision was to make "buses a great idea" (*Go Riverside Project Report* 58-8).

One of the recommendations outlined was to, "Design and promote creative bus pass programs that target the unique needs of existing and potential transit rider groups" (*Go Riverside Project Report* 58-3). The largest target rider group identified was college

students because although UC Riverside was growing in size and numbers, the community was not fully engaging with the city due to limitations in mobility. With this in mind the report made route, marketing, and subsidy recommendations to target UCR students. In 2006 UC Riverside's U-PASS program was initiated from the conversations and suggestions the Go Riverside Report proposed.

In Riverside, using the bus is closely linked to a person's race and class. According to RTA's 2016 Title VI Report and customer survey, 34% of customers were Latino/Hispanic, 23% White, 21% African American, 10% Multiple Selections, 6% Unknown, 5% Asian/Pacific Islander, 3% Other, and 2% American Indian. Additionally the largest percentage of respondents had an annual household income of "Less than \$7,500" and indicated that they did not have access to a car for their trip (2016 Title VI Report 67-69). This demonstrates that the mobility of people of color and those of lower economic class is more likely to be dependent on transit.

### *Schools, Universities, and Public Transit*

Some school districts have implemented transit program in hopes of increasing student mobility and school attendance. The 2014 report titled, "Estimating the Costs and Benefits of Providing Free Public Transit Passes to Students in Los Angeles County: Lessons Learned in Applying a Health Lens to Decision-Making," is a cost benefit analysis of a free-transit pass policy program for students in the Los Angeles Unified School District. They utilized a Health Impact Assessment (HIA) model to investigate and draw conclusions for policy decision-making. The paper argues that the program would especially help low-income students in this area. The research found that benefits



of a free public transportation pass for the school district include an increase in school attendance, decrease in juvenile justice interaction, more school funding, and healthier communities overall.

Similarly, in the Bay Area of California a 2006 report by McDonald et al. for the University of California Transportation Center examined effects that the free transit program has had on youth within the first year through AC Transit. The transit program was in response to grass root efforts to increase affordability of school transportation specifically for low-income students. By administering surveys, focus groups, interviews and reviewing school attendance data the researchers concluded that within the first year period of the program there were already an increase in student after-school participation, overall ridership to school, and weekend ridership for non-school commutes.

Institutions like universities more commonly employ transit programs to not only increase student ridership, but typically to decrease their carbon footprint by reducing single-vehicle commuting and reduce demand on campus parking. Unlike k-12 schools universities such as UC Riverside can have transformative roles in the ways that the institutions provide services and promote programs to its students- particularly progressive environmentally-conscious agendas. In fact, in UCR's Sustainability Action Plan policies are outlined to reduce the school's emissions from transportation. Scholars like Carlos Balsas have argued that university campuses can "reshape society's transportation patterns" (Balsas 36). Balsas researched transportation demand management policies in American colleges by examining alternative modes of transportation such as transit, bicycle and pedestrian travel. Ultimately, he concluded that with proper planning a campus can promote sustainable practices for future generations.

UC Riverside is not the first university to have an Unlimited Access program. The following is a review of literature that has studied the effectiveness of free-transit programs at universities in the United States. At the University of California of Los Angeles Jeffrey Brown, Daniel Baldwin Hess, and Donald Shoup evaluated BruinGO within its first year, a fare-free transit program for the community at UCLA. The report used comments from an online survey to assess the success the program had for the population, while also including a cost benefit analysis. The researchers found that the program was widely successful in decreasing parking demand, increasing transit ridership, increasing student mobility, and decreasing the university's environmental impact. In fact, for students BruinGo offered added utility by serving for non-commute trips and helping students go to internships, cultural events, museums, interacting with the city of Los Angeles. (Brown et al 9-10)

Stemming from their BruinGo evaluation Brown, Hess, and Shoup wrote a paper that sought to understand Unlimited Access programs at universities across the United States and their success in increasing transit ridership while maintaining a relative low pass cost per student. They surveyed 35 different universities that offered Unlimited Access programs and transit agency performance data from the US Department of Transportation. Their results mirrored their evaluation of BruinGO at UCLA, they concluded that Unlimited Access benefits universities in general by decreasing parking demand, increasing student mobility, and decreasing expenses associated with attending the school. They also identified the following common factors which explain large increases in ridership within the first year a university enacts an Unlimited Access

Program: reduced fares, improved services, mental maps, residential location, reduced automobile ownership, and group travel.

James H. Miller et al also have a publication titled, “Transportation on College and University Campuses” while analyzes transit patterns on college and university campuses in the United States. It provides an overview of the context of transit within the university setting and it’s unique implications. They devote a chapter specifically to Unlimited Access programs. Based on their surveys they identify that these types of programs can only be successful if there is strong student support, a willing university administration, a capable transit provider, and patience. The strongest argument for the program found in the survey was improved mobility for students.

Similarly, the U-PASS program at the University of Washington was analyzed by Michael E. Williams and Kathleen L. Petrait to examine how to the program was implemented, funded, and adopted as a transportation demand management policy. By reviewing available data and conducting transportation surveys they found that the program was successful in decreasing vehicle trips and parking demand, increasing ridership in transit, carpool, and vanpool. Alex Bond and Ruth L. Steiner conducted a comparable case study at the University of Florida’s unlimited access program suggests that there was an increase in transit ridership among users. The article also addresses how the program decreased automobile dependency and the need for parking infrastructure at the university.

While it is evident in the current research that U-PASS programs have been successful in increasing student ridership, few have sought to determine student perception and utility. In the article “Encouraging Sustainable Campus Travel: Self-

Reported Impacts of a University TravelSmart Initiative” Geoff Rose used surveyed incoming university first-years about their travel behavior and perceptions before and after they began attending classes. For transit travel in particular, the researcher found that a common barriers of ridership identified by students were public transit “takes too long,” “limited service availability,” and “lack of direct services” (Rose 103). Rose suggested that information about public transit should be framed differently to present it as an attractive alternative for students.

### *Universities and Public Transit in a Global Context*

There have also been active efforts abroad to integrate and study the promotion of transit ridership from university campuses through reduced-fare, unlimited access, or improved transit service. Rotaris and Danielis in their paper, “Commuting to college: The effectiveness and social efficiency of transportation demand management policies.” sought to evaluate the net social benefit of transportation demand management (TDM) policies at the University of Trieste, Italy. They tested nine hypothetical TDM policies (such as permits, ticket prices, etc.) by collecting in-person interviews of students and staff. Their results illustrated that the most effective and efficient policy would be to fully subsidize bus fares because it would reduce the number of car users and generate a stronger positive social impact on mobility.

In Belgium, researchers have studied student travel behavior after the Flemish ‘free’ transit program was initiated for universities in Belgium. They use Kauffman’s theory of motility, factors (access, skills, and appropriation) which determine potential individual travel behavior. With surveys, mental maps, and in depth interviews they were

able to gain insight on student travel. They found that perception of the city, car availability, and resident status (French speaking universities have students live in Brussels, where as Flemish speaking universities have a majority of student commuters) were a part of appropriation that affected motility (Witte et al 688).

Other researchers in Spain have analyzed mobility surveys from students, staff, and personnel on how policies can be used to promote sustainability to on the campus of the University of Burgos. The researchers identified peak hours of mobility and travel mode decision that correlated with income, vehicle availability, and university affiliation (study or work). The study also determined that most students use the bus while staff tends to be single drivers. They concluded that in order to improve bus travel, bus routes and service should be offered more frequently to attract more ridership from the campus community (Gonzalo-Orden et al 227).

### *Mobility and its Role in Quality of Life*

There has research done on the role that mobility has in the lives of people of lower-socio economic status. In particular, public transportation is viewed as a necessity for people who do not own or drive cars in areas like in southern California where many cities have been structured to accommodate the automobile due to urban sprawl. This makes it difficult to travel even shorter distances around without a vehicle.

Most notable is Dr. Evelyn Blumenberg's work on mobility and economic/job security. Her work with Manville titled, "Beyond the Spatial Mismatch: Welfare Recipients and Transportation Policy," provides a review of the longstanding spatial mismatch theory. This theory argues that poor minorities are less likely to have economic

stability because promising employment is unlikely to be located farther from their low-income neighborhoods. The research moves beyond this theory by highlighting transportation's role in poverty and how lack of consistent transportation can affect a person's economic stability. She argues that policy makers should look to alleviate poverty comprehensively by incorporating transportation methods that can facilitate mobility of welfare recipients and job security.

A 2011 report produced by the Mineta Transportation Institute, "Getting Around When You're Just Getting By: The Travel Behavior and Transportation Expenditures of Low-Income Adults," conducted a study that interviewed San Jose's Hispanic and low-socio economic community to inquire their travel behavior and the burden travel expenses had on their families. It concludes that these families, whether they were car owners or relied on public transit, often did worry about their travel expenses, even if they received transit subsidies. The study suggests policy strategies to reduce transportation costs to ultimately alleviate economic concerns and increase the opportunities of low-income families to access work, healthcare, education, and even civic engagement among other things.

Transportation and mobility also affect people's health and how they access necessities such as groceries. Deokyre Baek's article, "The Effect of Public Transportation Accessibility on Food Insecurity," offers an empirical analysis of the relationship between food insecurity and access to public transportation in the United States. The article primarily draws on data from the Current Population Survey Food Security Supplement (2006-2009) Urbanized Area Formula Grants (UAF), National Transit Database. Baek finds that there is a negative correlation between the rates of

public vehicle access and food insecurity. This is particularly true for low-income populations while making little difference for non-poor households. Additionally, in poor African-American households' access to public transportation is a stronger and more important determinant of food insecurity. Baek concludes that these relationships likely exist because there is less car ownership among poor African American households public transportation then plays a role in their mobility and ability to purchase healthy foods, which tend to be located farther away from their neighborhoods. Essentially, mobility can have a big influence the quality of a person's life in terms of economic opportunity, food security, and access to other social services and goods especially if their mobility is severely limited.

## **Methods**

This research project consisted of an online survey and in person focus groups with UCR undergraduate students. The project used a mixed methods approach because the survey data was to reveal the larger patterns of travel behavior, utility, and perceptions while the focus group data could provide more depth and personal stories into the same trends. Ethnographic research and focus group methodology was drawn from literature by David Fetterman, Margaret Diane LeCompte, and Jean J. Schensul.

195 undergraduates were surveyed at a random sample and from the survey 14 were recruited to participate in focus groups. The survey was sent to the larger UCR undergraduate community through school emails, school partners such as the Transportation and Parking Services, Student Life Office, and the School of Public Policy facilitated this process. Additionally the survey was posted to UCR affiliated Facebook

groups to garner responses. At the end of the survey, respondents were asked if they would like to participate in an in person focus group. For those who indicated they were interested they were asked to provide their email and the primary researcher emailed them with availability and scheduling. Four focus groups were scheduled on campus in a four-week period.

The survey was limited to closed-ended questions and scales, whereas the focus groups had more open-ended questions to collect qualitative data to support the quantitative data from the surveys. Participants were asked questions both in the survey and focus groups regarding their feelings and experiences with public transportation that affected their travel behavior within the U-PASS program and RTA services. They were also asked questions about their demographic background and the utility the transit program served in different scenarios.

UCR's undergraduate students were chosen as the population sample because they consist of a large portion of RTA passengers who use U-PASS. In order to understand their reasons and motivations for using public transit studying the undergraduate population's can provide the greatest insight for overall U-PASS ridership patterns.

Because the survey data set is relatively small when compared to the 19,799 undergraduate students who were enrolled in UCR as of October 2016, the data analysis was limited to descriptive statistics (UCR Facts). PivotTables were used to capture more detail in the relationships between Rider status and survey responses. Rider status is the main point of analysis because to accurately depict ridership trends among students. The focus group data was analyzed through coding to unveil reoccurring themes and responses provided by the undergraduates.



Respondents were allowed to self identify their ridership category. The categories consisted of *Super Riders* who ride the bus almost every day, *Frequent Riders* ride the bus at least once a week, *Occasional Riders* take the bus at least one a month, *Riders* are anyone who has taken the bus at least once within the last year, and *Inactive* riders have never taken the RTA bus.

## **Results and Data Analysis**

### *Demographics*

In the survey, 28.7% of respondents were Super Riders, 23.6% Frequent Riders, 17.4% Occasional Riders, 15.4% Riders, and 14.8% Inactive. [Fig. 2.2]. In the focus groups, there were 4 Super Riders, 5 Frequent Riders, 2 Occasional Riders, 2 Riders, and 1 Inactive. However, 5 of the 14 focus groups participants revealed that their rider status had changed throughout the years as a UCR student.

While there was a good mix of ethnic backgrounds captured in the survey, there were 38.5% Hispanic/Latino, 26.3% Asian, 19.5% White, 8.8% Multiracial, 3.9% Black, 0.5% Native American, 0.5% Pacific Islander and 2% Other [Fig. 3.1]. This is reflective of UC Riverside's diverse student population based off of UCR's reporting in which students are Hispanic or Latino 37.2%, Asian 30.9%, White 14.6%, Black or African American 3.5%, Two or More Races 5.5%, Unknown 1.7%, Native American or Alaskan Native 0.1%, and Native Hawaiian or Other Pacific Islander 0.2%

(UCR Facts). However, the majority of respondents were female (63%) [Fig. 3.2]. On the other hand, focus group participants were equally split between male and females.

Figure 3.11 compares the ethnic and racial backgrounds of the survey respondents to their

ridership status. Some significant findings were that 39% of Super Riders were Hispanic Latino, 49% of all Frequent Riders were Hispanic/Latino, 41% of all Occasional Riders were Asian, 35% of Inactives were Hispanic/Latino, and 27% of Riders were White.

The survey revealed that 83.5% of respondents were born in the U.S. and 68.4% of respondents had one or more of their parents born outside the U.S. [Fig. 3.3, Fig. 3.4]. The vast majority (99.5%) were full-time undergraduates, whereas only 5.2% had dependents [Fig. 3.5 , Fig. 3.6]. 71.3% were off-campus residents, and 63.6% commuted to campus. [Fig. 3.7, Fig. 3.8].

An overwhelming amount (90.7%) of survey subjects received financial aid [Fig. 3.9]. This is similar to UCR's high population of Pell grant recipients (UCR Facts), because of this receiving financial aid did not constitute a statistical difference in a person's ridership pattern. Going into the project there was an assumption made that a person's financial aid status would be an indicator of socioeconomic status, however it was surprising to find that almost all respondents did receive financial aid in either the form of grants or loans. Because of this confident statements about class difference among participants cannot be made. Student survey responses were almost evenly split amongst those who had reliable access to a car. [Fig. 3.10] In the focus groups half of participants had reliable access to a car that year, while the others did not.

### *Perception of RTA Services and U-PASS Program*

To revisit the question how do UCR students feel about U-PASS program and RTA's current services, subjects were asked to rate their experiences with RTA with a scale from 1 to 5 (1= very poor, 2= poor, 3= adequate, 4= good, 5=very good). Overall,

42.1% rated RTA as a 4 “good”, and only 4.6% rated the service as “poor” or “very poor.” [Fig. 4.1]. The average rating for focus group participants was a 3.5 with no one scoring their experience less than a “3 adequate,” yet only one person ranked their RTA experiences as “5 very good.”

Many students during the focus groups talked about how the free Wi-Fi and charging ports on the buses were really useful for transit commutes. In fact, one focus group participant changed their rating from a 3.5 to a 4 because they hadn’t considered these features into their original rating until others mentioned them in the discussion. Other students compared RTA to previous transit experiences when rating the transit service. One Inactive rider referred to their experiences riding the bus in the Los Angeles region, they claimed that cleanliness was much better with RTA and therefore gave them a 4 rating. An Occasional Rider, who had previously used the bus more frequently until their boyfriend got a car, rated the bus a 3. They explained their reasoning by saying, “I don’t want to give it a 4 because you know considering all the resources we have and UCR being such a driving factor in them being able to improve RTA, I feel like we could’ve made so much progress.” The student asserted that UCR could do more to influence RTA to create better services for students and therefore it was simply “adequate”.

Conversely, the U-PASS program itself was rated by 76.4% as “very good” by survey subjects [Fig. 4.2]. In the focus groups a subject clarified this dynamic and the difference between the program and the actual transit services by saying, “There can’t be any improvements to the program itself because it’s fine- it allows us to get on the bus.

My only quirk is with the buses themselves.” This dissatisfaction along with other barriers of entry will be discussed in greater detail throughout the paper.

### *Car Accessibility and Transit Ridership*

One main trend that is most indicative of a person who will ride the bus; more so than ethnicity, gender, or family background is car accessibility. Figure 5 demonstrates that very few Inactive Riders have unreliable car access, whereas Super Riders were more likely to not have reliable car access. A Super Rider mentioned, “If I don't have the U-PASS program, I would have to rely on other people for transportation since I can't afford a car right now...I would probably have to end up taking 3 hour walks to school everyday and a 3 hour walk back.” One student who previously lived in Northern California said that, “If you go to San Francisco, buses are everywhere. It's pretty easy to get to where you need to go. I didn't use public transport as much as I do now and here I do have a greater appreciation for [public transit] than I did back then.” While obvious at first, this trend is indicative of the larger infrastructure and automobile reliance that is found in southern California, greater Los Angeles suburban sprawl. People's mobility is highly dependent on cars and this is no different for students at UC Riverside.

The car culture in southern California might be another way to frame this trend. One student mentioned, “I know students who have gas inefficient cars and they know that and they still want to drive a block to get Starbucks. People like their cars and people who have cars are going to use them.” They went on to add how UCR's limit student parking could be addressed with better RTA services, “It's more about economic benefits, because I know recently with the whole parking fiasco... if RTA did improve and add

more routes, add more stops, and etc. they could actually relieve that problem.” Since public transit infrastructure is not as large as it is in other places like the Bay Area in northern California or even more dense cities like New York, students are not as frequently exposed to transit travel and may be skeptical to begin to use it if they already have car accessibility.

One Inactive Rider had actually been more of an Occasional Rider during the first two years of college they explained that the reason for this was, “because I bought my own car. Ever since then I’ve been using my car over RTA.” In another focus group a Rider echoed the same experience. They said, “I used to carpool with my brother and I wouldn't want to stay on campus until he was going to leave... So I would hop on the bus to get home.” However, in the past year this student got a car and license which for them, “became more inconvenient for me to wait for the bus and then sometimes it would be late or sometimes I would miss a stop... But I still ride every now and then, like my parents will borrow my car and I want to go somewhere.” This proposes that travel behavior for students is fluid, not fixed. While this study did not focus on the long-term nature of student ridership this might also be factors to consider when attempting to expand the program or recruit new riders.

Nonetheless, it is important to note that the inverse relationship of this pattern is less strong when observing student ridership is they do have reliable car access. As shown in Figure 5 although 93% of Inactive Riders had reliable car access there were still 33% of Super Riders who also had reliable car access. This is to disclaim the notion that no car access is the only determining factor that encourages Super Riders to utilize the

bus. There are other factors, which are compelling and considered when students make their travel mode decisions.

### *Compelling Reasons for Using U-PASS*

According to the survey respondents, the most compelling reasons for using the U-PASS program were that it was free (92.1%). 61.6% liked the program because they did not worry about parking, 53.7% liked reducing their carbon footprint, and 37.9% indicated that it was hard for them to travel without this service. [Fig. 6] Overall, the free element of the U-PASS program is an attractive component for encouraging student ridership. In the focus groups this was also a reoccurring compelling factor, however it was compelling for different reasons for different people.

For some students expenses related to cars such as gas and parking permits, made the free aspect of the U-PASS program appealing. A Super Rider explained that the U-PASS program, “Saves me so much time, money, stress...” One student mentioned how alternatives such as Uber had a high price tag. A Super Rider estimated that if they had to pay a \$50 monthly pass for a quarter, which is approximately 3 months, “I can pay for multiple bills for \$ 150.” Whereas another Super Rider mentioned that they rode the bus whenever they needed to commute to school because they lived in a cheaper off-campus apartment and they had a physical disability. This student said, “Having the bus, have a ramp up has been very helpful for me.” Similarly others talked about expenses related to school such as, “Books, supplies, food, rent...” and how the free bus rides at least alleviated transportation costs for a college student. This finding is consistent with

research done by Brown, Jeffrey, and Shoup who argue that Unlimited Access programs decrease expenses associated with attending the school.

Others felt that if U-PASS were no longer available it might even hinder economic opportunities for students. One comment was, “It would cut down job opportunities because that means we could only go closer for jobs- that would be a problem.” This echoes Blumenberg’s work on spatial mismatch theory and expanding job security to low-income communities with public transit. Additionally some researchers in the Washington DC region have found that after examining how commuter benefits provided by employers can influence transportation demand management (TDM), when parking is not free and public transportation benefits are introduced approximately 20% more people began to use public transportation service (Hamre and Buehler 81). This supports the survey’s findings that undergraduate students consider the issue of parking as a factor when using transit for travel.

### *Barriers to Entry*

A main reason that discouraged students using the U-PASS program is time. In the survey 54% considered travel time and 39.2% considered the bus schedules as unfavorable factors when taking the bus. [Fig. 7] Time (waiting for the bus, the bus leaving early, travel time, etc.) was also the most common barrier to entry for students who spoke at the focus groups. An Inactive rider admitted, “I used to use [the bus], I would wait forever and I’d [ask], ‘When is [the bus] going to come?’ And then I’ll tell myself, ‘I shouldn’t use the bus, I should drive.’... That is one discomfort, it’s the uncertainty. I don’t like uncertainty, that’s why I don’t like it.” One student that would

take the bus to commute to school shared how they considered inconsistent or late bus arrivals as very inconvenient, “It's okay when it's the [routes] that come every 20 minutes, but there was a time when ... I would miss one bus because it would come early or it would come late.” Correspondingly, several focus group participants shared similar feelings of dissatisfaction when the bus has left them because it was early or when the bus arrived late. A student shared the complexity of the relationship, “It's kind of like a double - edge sword in a way, because people don't want to ride public transportation because its inconvenient, but also [RTA] probably doesn't get enough funds because not enough people ride it. It's a conflict, but it's not going to change unless they do something to make it more convenient because people aren't going to ride it when it's inconvenient-that's just never going to happen.” Public transit in less dense cities like Riverside might find it hard to be consistent in their time arrival, even if these are not frequent occurrences student perception is heavily influenced by inconvenient travel time.

Similarly, autonomy was another barrier to entry indicated in the survey. 49% identified in the survey that “I like to leave and go as I please”. This can be closely related to 39% of students who felt like the bus routes did not match their schedule. [Fig. 7] However in focus groups, the notion of autonomy was more complex. Students either felt like the transit program gave them more freedom in travel choice or that it limited their autonomy because they were set on the transit schedule. “Problems in terms of [bus] schedules matching your schedule, and just the route itself not being as direct,” was one concern a student had. Having to wait for the bus when you no longer need to be on campus or arriving to a location early because the following bus on the route arrives too late for your schedule can be an inconvenience that students may prefer not to deal with.



Conversely, one student said, “I also feel like it allows students, who don't have those resources to have their own car, the ability to control their own mobility.” One Super Rider said, “If I don't have the U - PASS program, I would have to rely on other people for transportation.” Another Inactive rider who was previously a Super Rider said, “I could hop on the bus, I can go to the mall, or if I wanted to get home and my mom, dad or brother aren't home to pick me up; I could just get on the bus and I'll be there.” Later the same student added, “I still ride every now and then, like my parents will borrow my car.” During another session a Rider said they liked having the U-PASS program because they liked, “Having options, especially with emergencies do occur.” This illustrates how students may initially perceive riding the bus as restricting their autonomy if they have other options. Nevertheless, the reality may be that many students prefer to have autonomy and the U-PASS program expands their choices and opportunities in travel modes, even if they already have access to a more convenient vehicle of transportation.

Another barrier students faced when attempting to use the U-PASS program is lack of knowledge about the bus routes. 30.1% of survey respondents identified this as an issue and focus group participants also vocalized this barrier [Fig. 7]. Several in the first focus group actually wished there was a more transparent system that allowed them to know when buses were arriving in real time. One student said, “I think UCR can improve by having an online alert system of when and where the bus is.” Others had qualms with the bus route maps and RTA pamphlets, claiming that they weren't clear or indicative of all the stops the bus will make on a route.

An Occasional rider said, “I've been in the scenario when you're on the bus and you're not sure where it's going to stop, and you're like, "Should I get off here and be

safe? Or should I wait?” They also mentioned, “I've noticed Google Maps has a better representation of where the stops are than the actual RTA does because Google Maps actually maps where each of the buses are and what stops there. If you've never actually seen it in person you can go on it and see there's stop right there. That's actually more useful than the actual RTA maps online.” A former Super Rider mentioned that they found a website on Google that allowed them to see exactly when the buses were arriving, while another Super Rider in the same focus groups talked about the RTA service number which connects you to an operator who can tell you the location of the buses on their route. However, when these tools were mentioned no one in the groups knew about them beforehand. Perhaps there are tools available, but students are not connected to them, which only heightens the informational gap and making it less likely students will feel confident enough to use the bus program initially.

Another barrier students were asked during the survey were factors of safety and security. 26% responded that they had concerns about this issue and that it was something that discouraged them from using the bus [Fig. 7]. Some students during the focus groups talked about “Sketchy characters” such as homeless people who make students feel uncomfortable. Nonetheless safety was not limited to encountering homeless people, a female who is a frequent rider mentioned that during nighttime sometimes she is discouraged from taking the bus. She shared the following, “there was one time I was waiting at the bus stop and these guys were harassing this girl...” Another female Frequent Rider shared that during the evenings, if she were to stay on campus past 8 o'clock, her mother prefers her father to pick her up from school rather than have the student ride the bus home. However, one female Rider mentioned that for her riding the

bus was actually, “Safer in a sense, especially at night” rather than walking back to their home. While safety and security concerns are not as strongly link as other barriers were, the female focus group participants did highlight this issue more than male riders.

### *Utility and Travel Behavior*

In terms of travel behavior respondents research subjects were also asked to choose on a scale of 0-3 (0 “never,” 1 “not likely,” 2 “likely,” and 3 “very likely”) how likely they were to use RTA services for a list of purposes. Overall, 49.2% indicated that they were “very likely” to use it to commute to school, 41.5% were “very likely” to use it to get around Riverside, 37.9% were “very likely” to use it to go shopping or reach recreational destinations. However, only 28.2% were “very likely,” 27.7% “never,” and 27.2% were “not likely” to use it to run errands. [Fig. 8]

Nonetheless, these statistics do not tell the full story. Ridership was analyzed based on ridership category, housing, and other social determinants to understand why Super Riders ride the bus so often among other things. For example, Super Riders tend to be off-campus residents [Fig. 9]; commuting to and from school could be used to explain their ridership because they might the bus almost every single day especially if they have class most days of the week. Based on Figure 10.1 approximately 91% of Super Riders indicated that that they are “very likely” to use RTA to commute to school. On the other hand, on-campus residents may not need to travel beyond the school’s perimeter on a daily basis, which may result in less frequent travel mode decision-making and transit ridership overall. One Frequent Rider mentioned that the previous year they were a Super Rider because they rode two RTA bus routes every single day to commute to

school. They expressed that, “It was my only mode of transportation.” They did not own a car and their father’s work hours were incompatible with their school schedule therefore, they couldn’t rely on him to drop them off or pick them up. That same participant also mentioned that bus routes like the 16 will become very full with students trying to take a faster, but short trip, to campus in order to make their classes on time. This demonstrates how students are likely to use the U-PASS program to get to the UC Riverside campus, whether because they are running late or because it is their sole mode of transportation.

When measuring U-PASS’s utility for students, approximately 82% of Occasional Riders indicated that they were either “likely” or “very likely” to use the bus to get around Riverside. Frequent Riders (80%) and Super Riders (70%) were even also receptive to riding the bus to travel in Riverside either “likely” or “very likely.” [Fig. 10.2] Similarly, Figure 10.3 demonstrates that 40% of all respondents would use the U-PASS program to reach recreational destinations or go shopping. An Occasional Rider mentioned that although they would prefer to ask a friend for a ride in their car they enjoyed having the bus as an option. They said, “Because I don't have a car, so just being able to ride the bus, whenever I really need to go somewhere. I think it's really convenient.” One student reiterated this sentiment when they mentioned that having the U-PASS, “Expanded my opportunity as a student... I always wanted to get out of school and try some dance studios outside, but being a freshman and sophomore back when I didn’t have a car ... With the RTA service I was able to go to Downtown Riverside.” As a dancer, the U-PASS program expanded the student’s experience because they were able to connect to the larger Riverside dance community. In another focus group a Frequent

Rider indicated that they liked using the U-PASS to visit cafes downtown. Similarly a Super Rider, who mainly used U-PASS to commute to school, said that the program “motivate[d] me to go outside rather than just stay at home because I know there are things downtown.” With increased mobility through the U-PASS program, these students were able to enrich their experience living in Riverside by being able to engage with activities and people outside of the school’s campus.

When students were asked how likely they were to take the bus to go to job or internship, 54% of all survey students responded that they would “never” or “not likely” use the bus to go to a job/internship, among these 25% were Inactive Riders and 20% were actually Super Riders [Fig. 10.4]. This suggests that there are strong notions against trying to take the bus for a job. A common theme for not using the bus found in the focus groups was time, additionally 54% of total respondents indicated that a reason that discourages them from using RTA was that, “It would take me longer to reach my destination than my current transportation method.” This pattern is consistent with research like that of Dr. Geoff Rose who, after surveying incoming university student’s travel behavior and perceptions, discovered that common barriers of ridership identified was that public transit “takes too long,” “limited service availability,” and “lack of direct services” (Rose 103). A study conducted at University of Burgos also has similar findings, their survey described transit passengers who were young students to consider punctuality as the most important factor in transit travel (Gonzalo-Orden et al 223). Another study conducted in Granada Spain attempted to identify satisfaction and perception of the service from different types of passengers. The researchers found that

passengers who are young students consider punctuality as the most important factor in transit satisfaction (De Oño et al 735).

One Occasional Rider explained this time dilemma, “I don't ride the bus because sometimes the schedule is just a little inconsistent or it'll leave early or they'll get there a little late. I feel like that will delay my plans. So sometimes I feel like it's not as consistent as I'd like it to be.” This could mean that the reason for which some students do not like to use the U-PASS program to travel to jobs/internships is because they do not trust the timeliness of the buses and they do not want the inconsistency to affect their job performance.

On the other hand, a Frequent Rider mentioned, “I think it would be awful if [U-PASS] wasn't available anymore, just because a lot of students use it to get around to jobs and internships...” and another Occasional Rider said, “I know that if I were to have a job or try to get a job around the city, I wouldn't save money to get a car because it wouldn't make sense because I'm trying to get a job to save money.” Essentially, the perception or value the free transit provides is very personal and subjective. Some might value certain elements such as economic savings more than others, which in return affects how they use the program. This implies that utility of the program varies from student to student.

Fig. 10.5 also demonstrates that approximately half of Frequent Riders are “very likely” to use RTA to run errands. I had one on-campus resident who was a Frequent Rider indicate that they heavily relied on taking the bus to get groceries. They said, “I usually take the bus to go grocery shopping. I also do have a bicycle with me, but usually I just take the bus instead because it allows me to hold more and I can only carry so much

in a backpack so I have bags I can carry around.” Without the U-PASS errands such as getting food for this individual would become increasingly difficult if they rode their bike or it would incur a personal expense for them to pay for a bus fare every week for grocery shopping.

However, this narrative is more complex especially when considering that overall 107 of all respondents (55%) indicated that they were “not likely” or would “never” use the bus to run errands [Fig. 10.5]. During a focus group a Super Rider denoted a problem with trying to run errands when taking the bus, which could be used to explain the travel decision displayed in the survey. The student said, “If I were to get groceries...[RTA] ha(s) the three-bag policy and you can't really do anything about that. I live close by to a grocery store, but they are kind of expensive so I try to go to WalMart, which is in Moreno Valley. If I were try to bring [groceries] to my apartment, [bus drivers] say, ‘Oh you can't bring that all,’ so then I would have to walk all the way to my apartment with all those bags, it's a pain. And if I were to bring my bike, then I wouldn't be able to bring my bike because I'll probably break it with all the weight on my back.” The three-bag policy is supposed to limit the amount of space a person takes on the bus to allow for more passengers and provide an exclusionary measure against homeless people. Nevertheless, for students trying to carry more groceries to avoid frequent trips RTA’s three-bag policy might be inhibiting students from using the U-PASS program for errand purposes.

Similarly, another Frequent Rider mentioned that, “Even though [the bus] does get me to where I need to go, sometimes they don't like take the extra minute for me to catch up or something.... one time I was grocery shopping... I see the bus flying by, the

one I need, and I'm all like, "Oh no wait" so I have to run after it and it took me three bus stops or something to finally catch up to it. And believe me it was not easy with three grocery bags." These instances highlight the inconvenience that sometimes is associated with trying to run errands such as groceries especially with timing. In fact another frequent rider mentioned "It takes way longer than by going by car. 10-minute trips turn into 40-minute trips. It's really difficult when you're doing groceries and stuff like that so I prefer to go with a friend who has a car or something when it's groceries." While the three-bag policy might be inconvenient, the time travel with using the bus is another deterrent for students trying to run errands.

### **Policy Suggestions**

Based off of the findings from this research and student input, there are some changes and policy suggestions that UCR may control that can result in enhancing student experiences with RTA and increasing participation in the U-PASS program. As previously discussed, students consider time (longer travel times, late arrivals, or delayed departures) as an important factor that dictates their travel mode decisions. Besides simply providing more frequent bus services and making them more consistent a way to mitigate this uncertainty, which cannot always be prevented, UCR might be able to create or promote transit apps. The Riverside Transit Agency has listed on their website an array of apps that people can download. (RTA Transit Apps) One student actually suggested UCR implement LCD signs on bus stops surrounding campus to show a live stream of bus routes and arrival times, similar to that of a train station and may be appropriate for the new transit hub to be constructed at UCR. While installing screens may require more



resources, informing students about these apps while introducing the U-PASS program may facilitate program adoption rates.

Marketing or teaching students about these apps during Highlander Orientation can increase transparency between potential passengers and the buses routes themselves. Similarly, RTA's route pamphlets may be more helpful to students who are non-Riverside natives by adding more or all of the bus stops to their maps; currently most routes in the booklets only include main stops in their timetables. Adding or creating a more detailed guide for students will make it more friendly and less confusing for first time users trying to navigate public transit.

Along the lines of marketing and promoting the program, something not previously discussed is that in the survey students were asked if they knew that they could ride RTA buses for free by swiping their UCR ID card. Nearly all respondents (98%) did know about the U-PASS program, therefore this displays that UCR has done a good job of providing exposure to the program. However, UCR may be able to go a step beyond exposure and make U-PASS an attractive travel mode for those with car access to gain more unique riders and boarding. Increased ridership and utility may mean not only marketing the program as a sustainable and green lifestyle, but also highlighting it as a way to offset costs for students for things such as university parking permits. UCR can capitalize on the compelling reason that the program is free to remind students that they do not lose anything financially if they ride the bus.

### *Further Considerations*

If the campus decides to invest more efforts in its sustainability campaign by reducing CO2 emissions it may be helpful for the university to conduct a more detailed ridership analysis of U-PASS users to identify key travel times and routes that can be expanded or used to improve the RTA partnership with the school. A report that can provide insight into day to day travel decision, similar to the South Coast Air Quality Management District (SCAQMD) survey, or can identify their ridership status throughout the years can be very helpful for the transit agency in terms of strategizing their efforts when providing services to UC Riverside students. This may be especially helpful for the new transit hub being created on campus and to address recent decrease in overall use of the U-PASS program in 2015-2016 [Figure 1].

An element that was not explicitly measured in this study is the stigma sometimes associated with using public transit, particularly in areas like Riverside where transit is not the main source of mobility for people. In one focus group, a student said that the stigma was “very real” and another mentioned that riding the bus was looked down upon when they tried suggesting as a means to get to an off-campus student club event. This is something that UCR should also consider or investigate when making marketing campaigns for U-PASS.

At the time of that this article is being written there have been many conversations occurring on UC Riverside’s campus about the issue of student food insecurity. The main policy suggestions for the UC Global Food Initiative’s *2016 Student Food Access and Security Study* do not mention transportation and student mobility. When dealing with food insecurity and lack of access to healthy foods, transportation and mobility is an

important element to consider. Considering that U-PASS is a free service that students can use to access healthy foods off-campus, it should be taken into consideration when trying to comprehensively ameliorate food insecurity among students. This is especially necessary when cheaper grocery stores are located farther away from the campus or students do not have reliable car access.

The three-bag policy in particular is limiting in the amount of food a student can purchase when grocery shopping. Multiple trips to the store via bus may not be convenient because of time spent, student availability, and because it relies on a student's ability to plan accordingly. Since not all students have reliable access to a car or know someone who can do them the favor taking them grocery shopping the three-bag policy itself can contribute to UCR's students' high levels of food insecurity. This research has found that there are barriers such as the three-bag policy, travel time, or overall student perception of RTA can play a role in how students can access healthy foods consistently.

Finally, another issue not greatly discussed in this paper's findings but that were nonetheless interesting is RTA's bike policy. Two focus group participants were very passionate and upset with RTA's rule that only no more than 2 bikes on the bike rack and prohibits bicycles from boarding the bus, unless if the bus is the last one in it's route for the day. Both students said that this provided a big inconvenience for them- sometimes resulting in up to three hours of the student waiting to be able to take a bus home with their bike. One of the students resolved this bike issue by purchasing a motorcycle, while the other still deals with this situation by simply waiting for a bus with an empty bike rack. Seeing that university students are a unique population and that UCR's campus

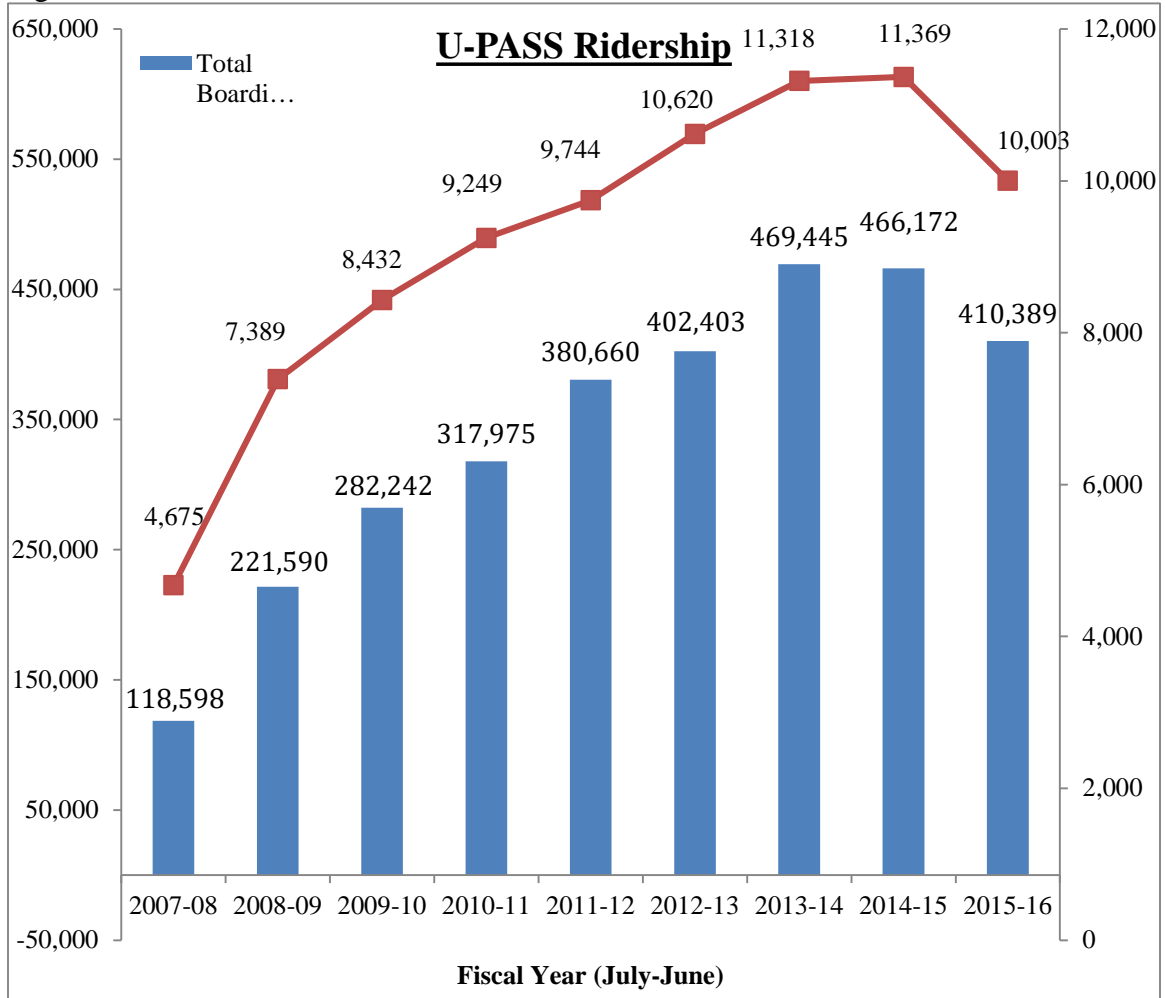
itself has a fair share of bikes on campus, it may be in the school's interest to evaluate how much of a barrier of entry this bike policy is for students trying to use U-PASS.

## **Conclusion**

This research focused on answering the following three questions: How do UCR students feel about U-PASS program and RTA's current services? Are particular UCR students more or less likely to use the U-PASS program? How can expanding RTA's quality and services improve the quality of life for UCR's uniquely large commuter student population through its U-PASS program? Based on the study's findings, overall UCR students have a higher and more positive perception of the U-PASS program, than RTA services. Nevertheless, RTA did not receive significant poor ratings. Super Riders are more likely to be off-campus residents and Inactive riders tend to have higher rates of car accessibility. By expanding RTA services and increasing ridership/trips used with the U-PASS program, UCR has the potential to significantly increase student's quality of life by providing greater autonomy, increasing mobility, alleviating economic burdens for college students by lessening travel expenditures, holistically tackling food insecurity with increased access to grocery stores, and enriching their student experience by connecting them to the greater UC Riverside community. Overall the U-PASS program has served UCR undergraduates, but it can also be refined and re-evaluated to ensure that it is effective, efficient, and equitable.

**Figures**

**Fig. 1**



**Fig. 2.1**

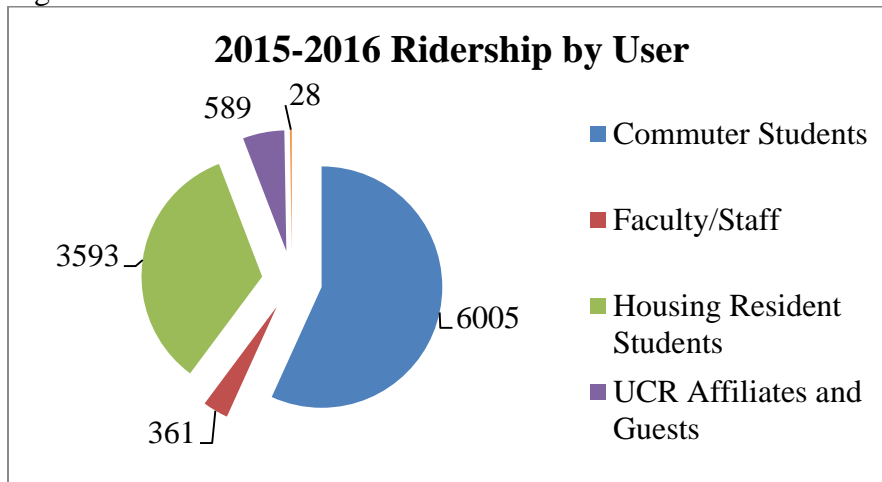


Figure 2.2

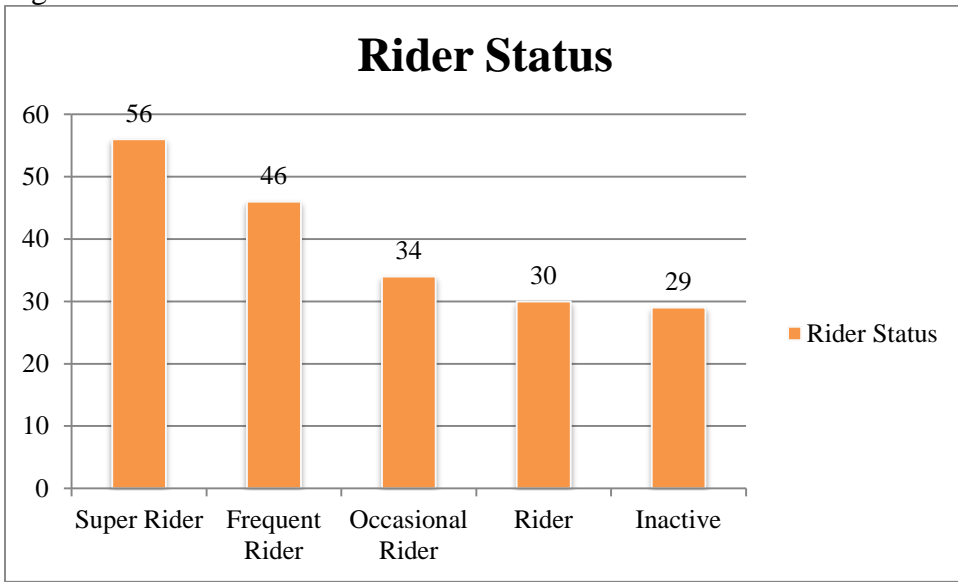


Fig. 3.1

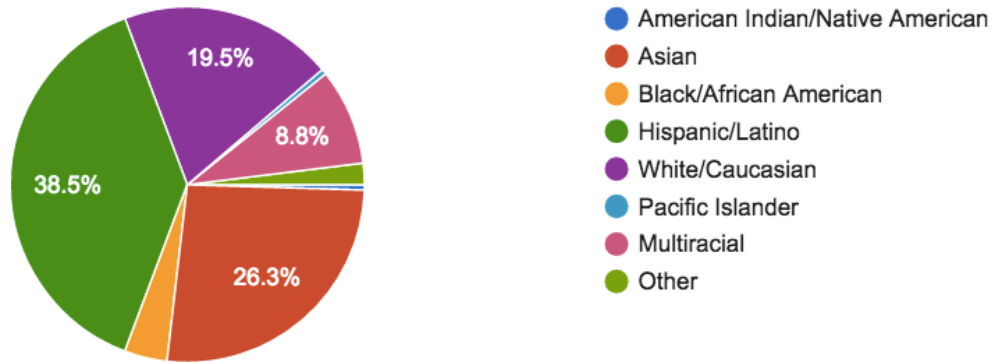


Fig. 3.2

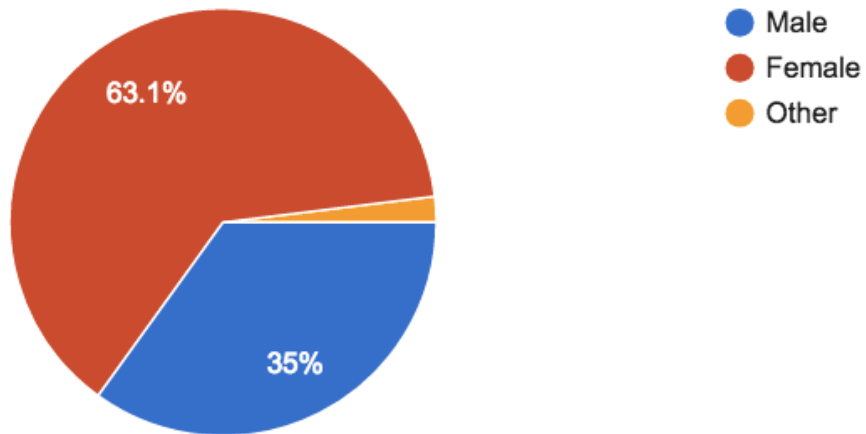


Fig. 3.3

**Were you born in the United States?** (206 responses)

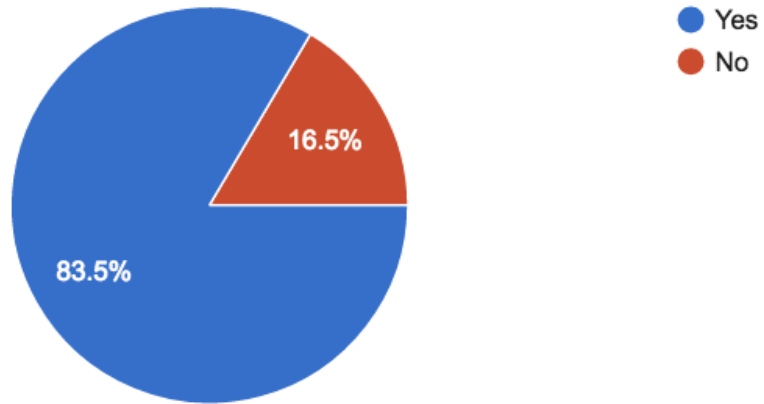


Fig. 3.4

**Was one or more of your parents born outside of the United States?**  
(206 responses)

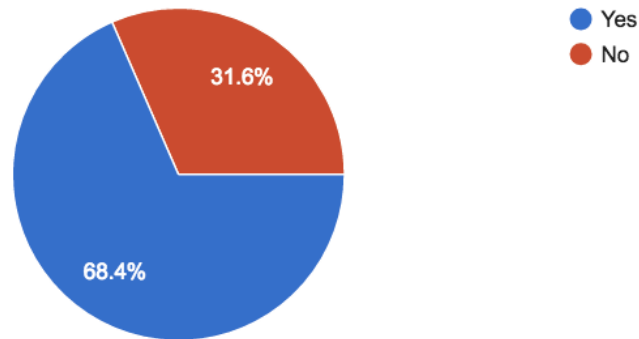


Fig. 3.5

**Please select your student status** (194 responses)

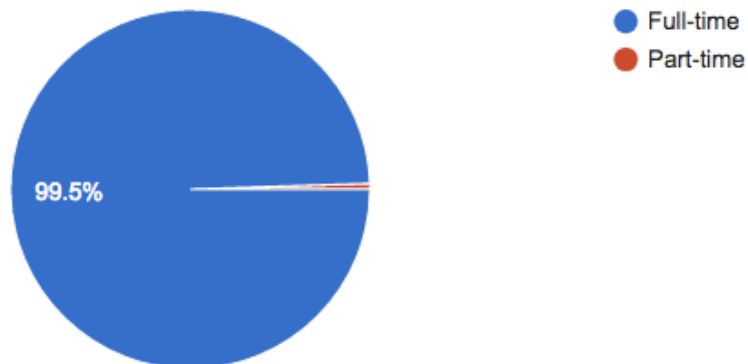


Fig. 3.6

**Do you have any dependents?** (194 responses)

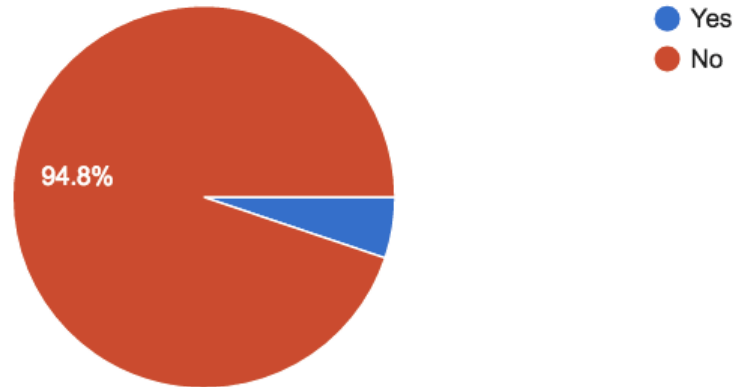


Fig. 3.7

**Identify your housing accommodations:** (195 responses)

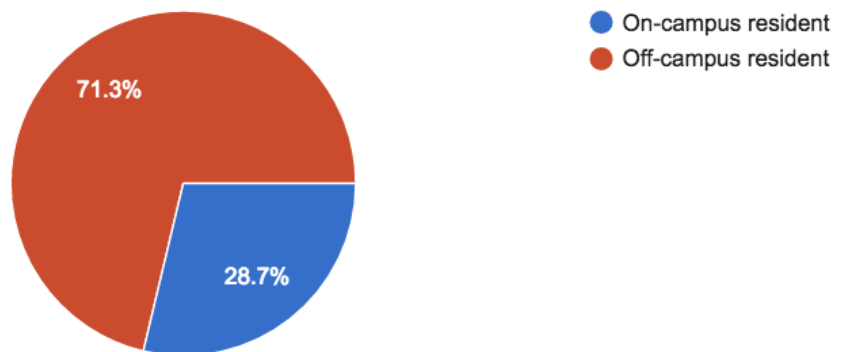


Fig. 3.8

**Do you commute to campus?** (195 responses)

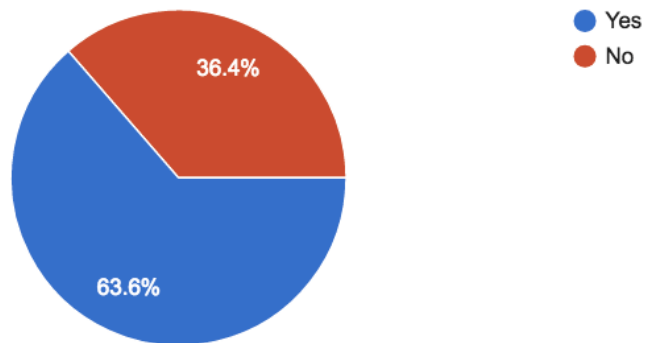




Fig. 3.9

Do you receive financial aid in the form of grants and/or loans? (193 responses)

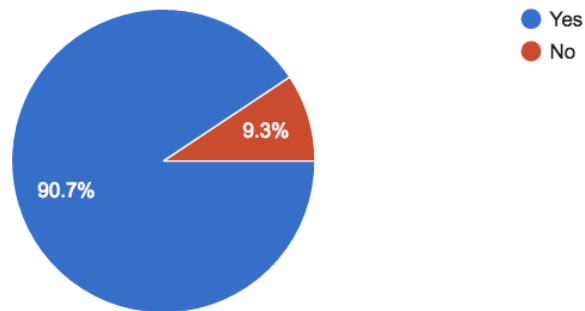


Fig. 3.10

Do you have reliable access to a car? (194 responses)

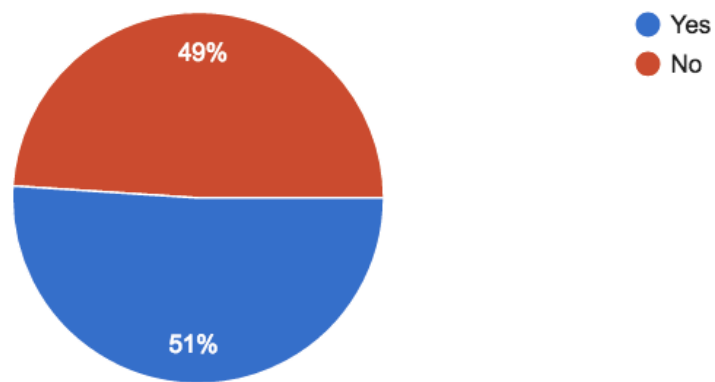


Fig. 3.11

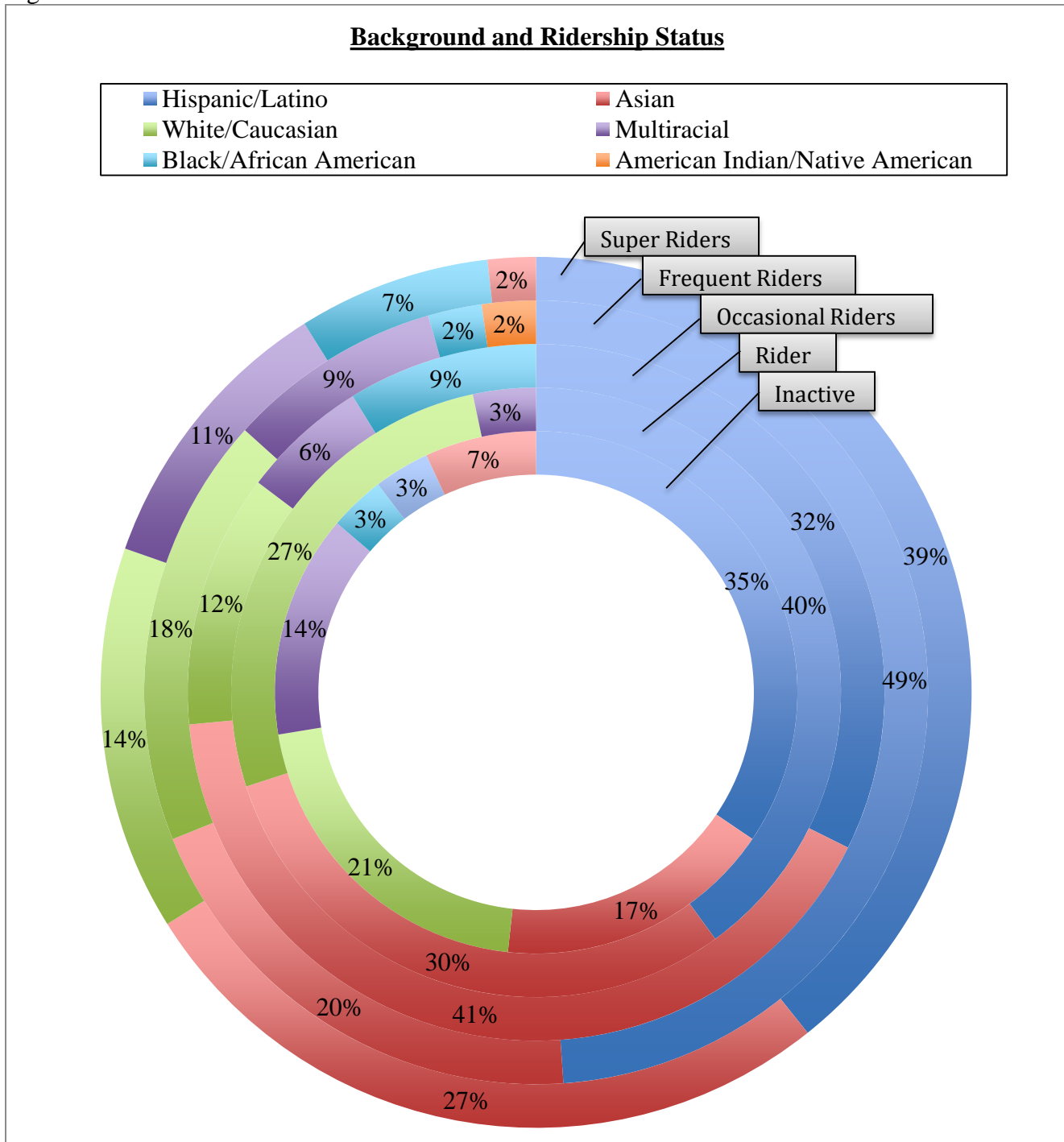


Fig. 4.1

On a scale from 1 to 5, rate your travel experiences with RTA.

(195 responses)

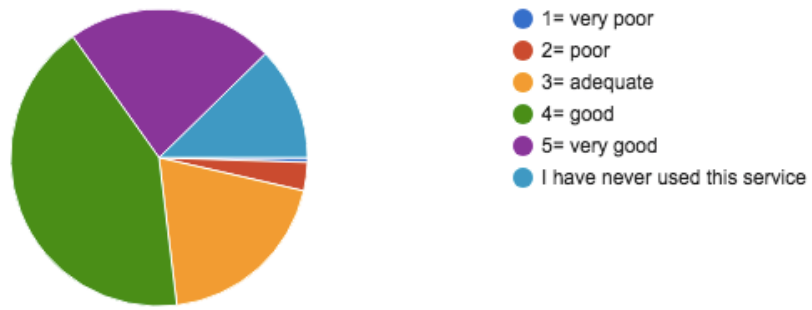


Fig. 4.2

On a scale from 1 to 5, rate what you think about UCR's U-PASS program that allows students, faculty, and staff to ride RTA buses for free by swiping their UCR ID Card.

(195 responses)

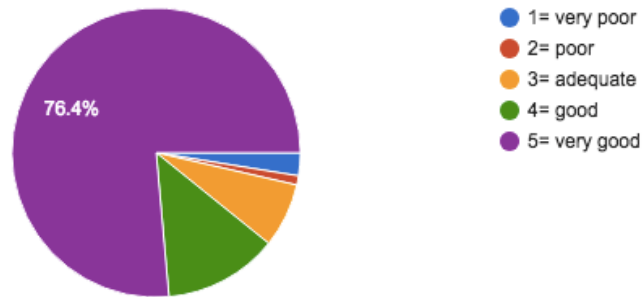


Fig. 5

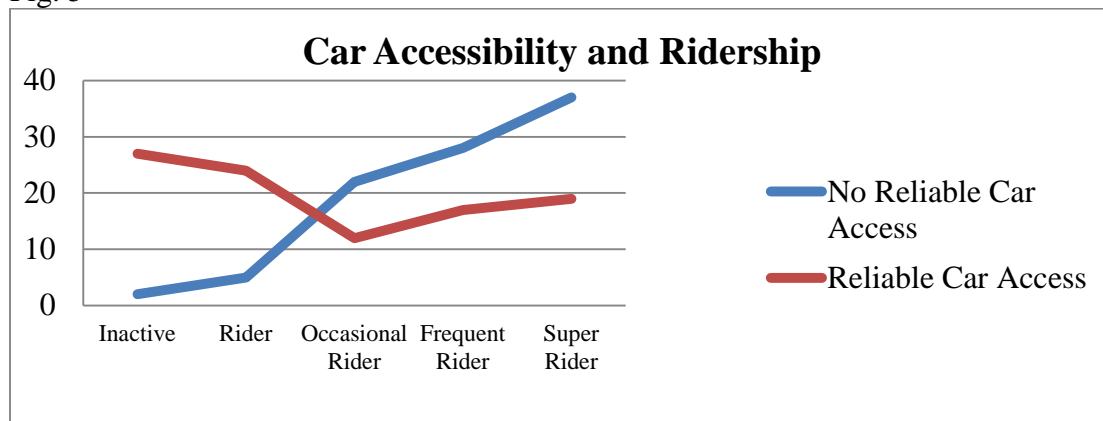


Fig. 6

**What are the most compelling reasons for using the U-PASS program and riding the bus? Check all that may apply**  
(190 responses)

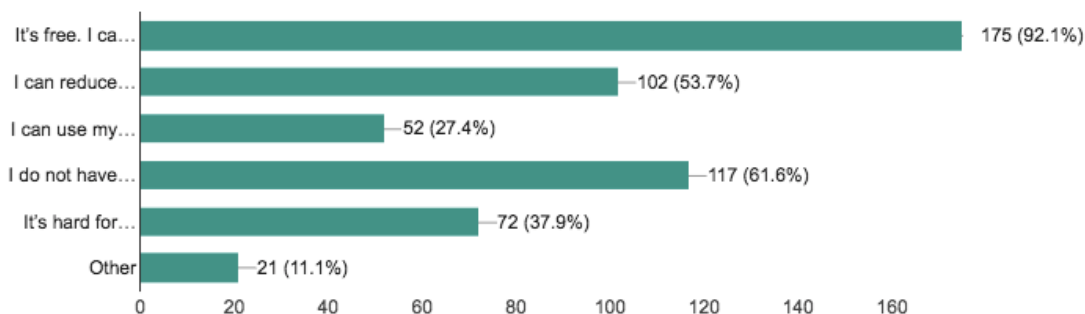


Fig. 7

**Select which reasons discourage you from using RTA services through the U-PASS program? Check all that may apply**  
(176 responses)

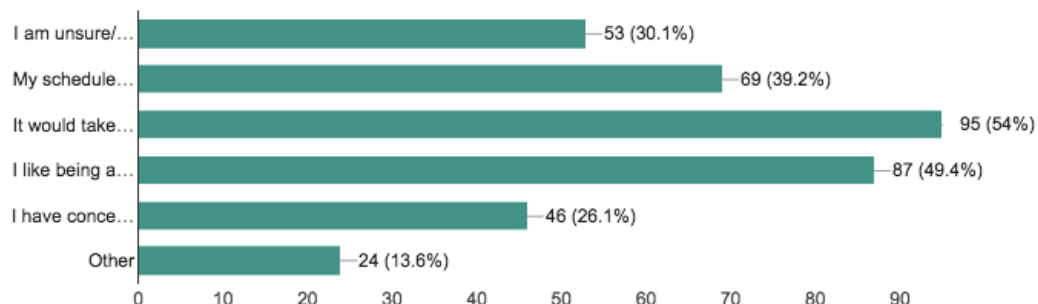


Fig. 8



Fig. 9

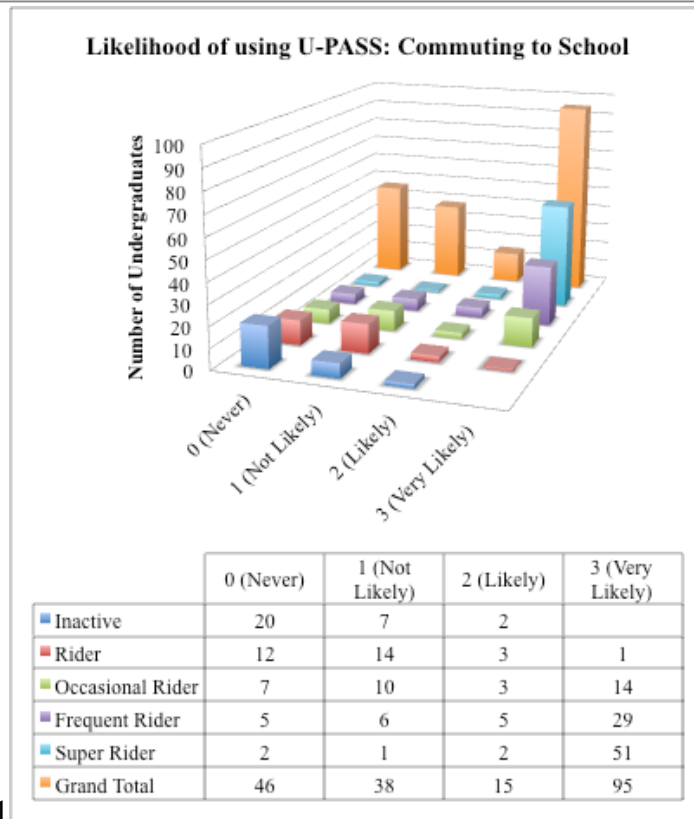
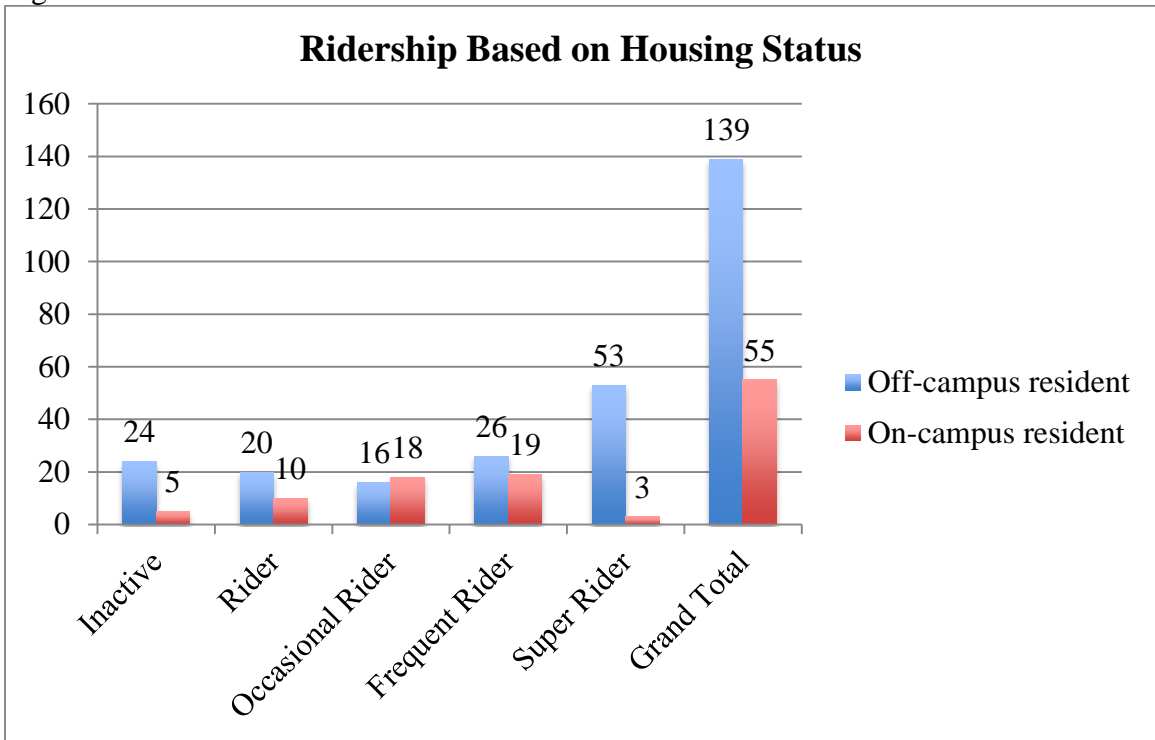


Fig. 10.1

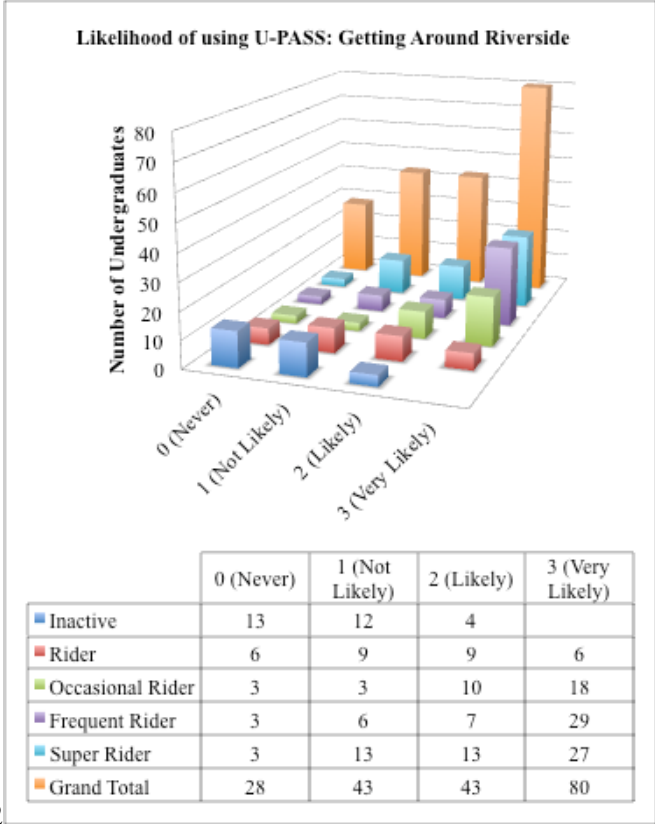


Fig. 10.2

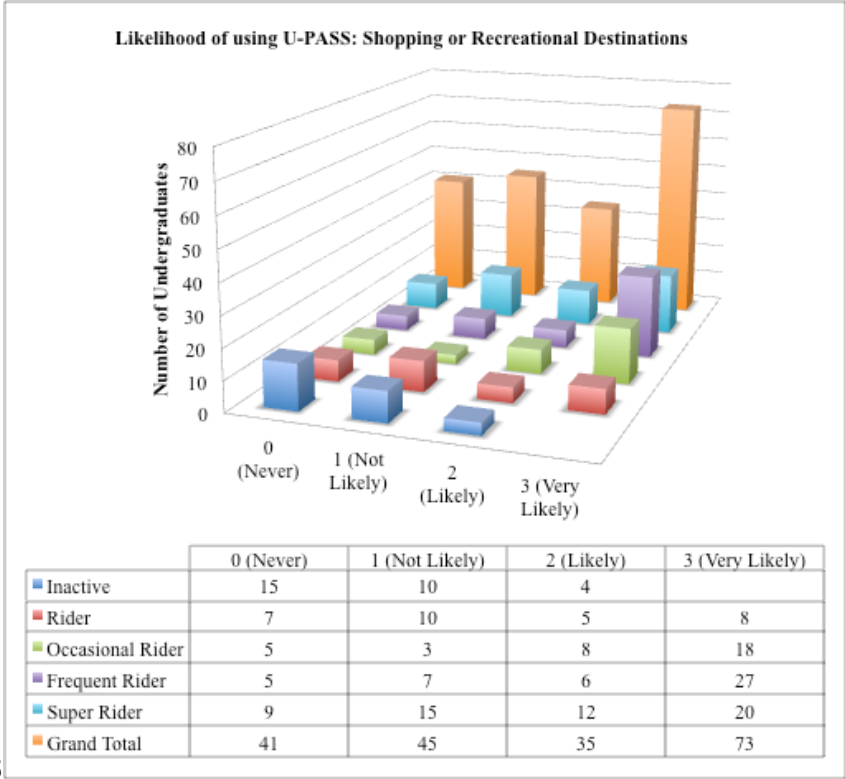


Fig. 10.3

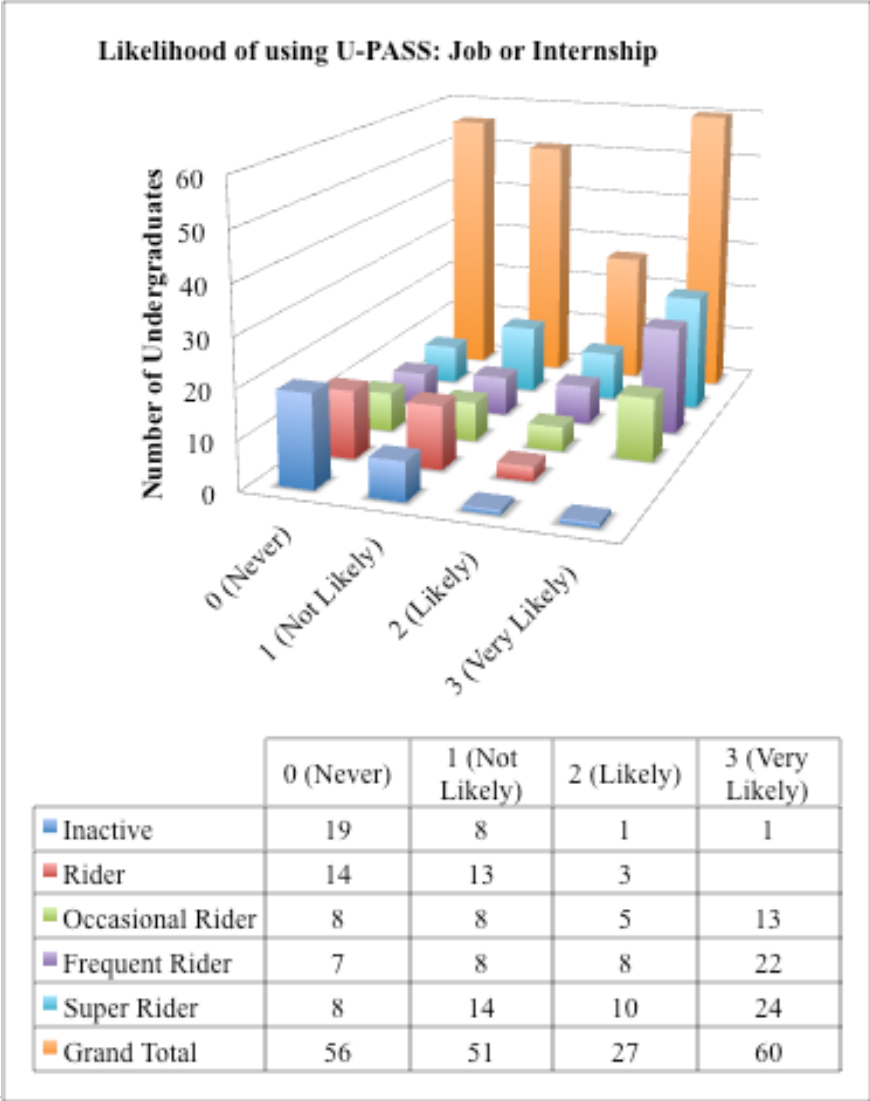
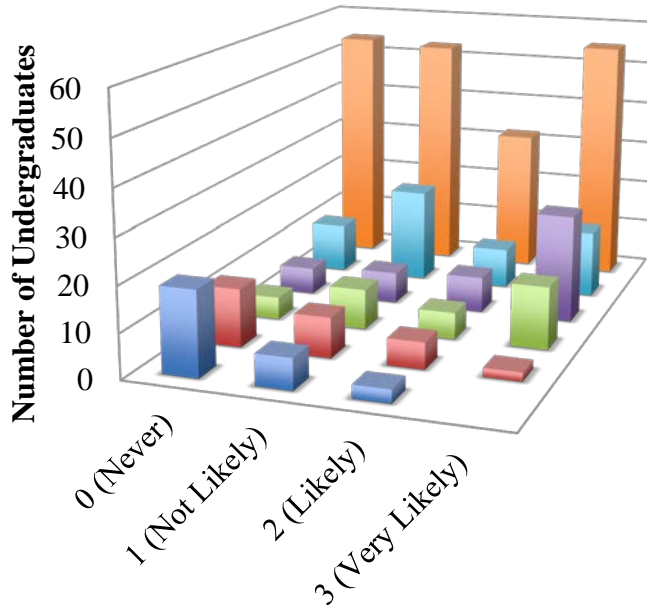


Fig. 10.4



### Likelihood of using U-PASS: Running Errands



	0 (Never)	1 (Not Likely)	2 (Likely)	3 (Very Likely)
<span style="color: blue;">■</span> Inactive	19	7	3	
<span style="color: red;">■</span> Rider	13	9	6	2
<span style="color: green;">■</span> Occasional Rider	5	9	6	14
<span style="color: purple;">■</span> Frequent Rider	6	7	8	24
<span style="color: cyan;">■</span> Super Rider	11	21	9	15
<span style="color: orange;">■</span> Grand Total	54	53	32	55

Fig. 10.5

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## Appendices

### Appendix A: Survey Questions

#### Survey Questions

1. Please identify your gender:
  - Female
  - Male
  - Other
  
2. Which do you describe yourself as?
  - American Indian/Native American
  - Asian
  - Black/African American
  - Hispanic/Latino
  - White/Caucasian
  - Pacific Islander
  - Multiracial
  - Other
  
3. Was one or more of your parents born outside of the United States?
  - No
  - Yes
  
4. Were you born in the United States?
  - No
  - Yes
  
5. Are you an undergraduate student?
  - Yes
  - No
  
6. Please select your student status:
  - Full-time
  - Part-time
  
7. Identify your housing accommodations:
  - Off-campus resident
  - On-campus resident
  
8. If you answered off-campus resident, do you commute to campus?
  - Yes
  - No
  
9. Do you have any dependents?
  - No
  - Yes, children
  - Yes, other
  
10. Do you have reliable access to a car?
  - Yes
  - No

11. Do you receive Financial Aid in the forms of grant and/or loans?
- Yes
  - No
12. Were you aware that UC Riverside has the U-PASS program that allows students, faculty, and staff to ride RTA buses for free by swiping their UCR ID Card?
- Yes
  - No
13. On a scale of 0-3 how likely are you to use RTA buses with your UCR ID card for each of the following reasons? (0 never, 1 not likely, 2 likely, 3 very likely)
- Commuting to and from school
  - Getting around Riverside
  - Going to a job/internship
  - Going shopping or reaching recreational destinations
  - Running errands
14. Please indicate which of these you identify as the most:
- Rider (I have used the bus at least once in the past year)
  - Occasional Rider (I use the bus at least once a month)
  - Frequent Rider (I ride the bus at least once a week)
  - Super Rider (I ride the bus almost everyday)
  - Inactive (I never ride the bus)
15. What are the most compelling reason for using the U-PASS program and riding the bus?  
Check all that may apply
- It's free. I can save money on gas, parking permits, and other car -related expenses
  - I can reduce my carbon footprint
  - I can use my time to do something else besides driving
  - I do not have to worry about parking
  - It's hard for me to get around without this service
  - Other (Please describe the reason)\_\_\_\_\_
16. Select which reasons discourage you from using RTA services through the U-PASS program?  
Check all that may apply
- I am unsure/do not know about the RTA bus routes
  - My schedule does not align with the bus routes
  - It would take me longer to arrive to my destination than my current transportation method
  - I like being able to go and leave as I please
  - I have concerns about my safety and security
  - Other (Please describe the reason)\_\_\_\_\_
17. On a scale from 1 to 5, rate your travel experiences with RTA.
- 1= very poor
  - 2= poor
  - 3= adequate
  - 4= good
  - 5=very good
18. On a scale from 1 to 5, rate what you think about UCR's U-PASS program that allows students, faculty, and staff to ride RTA buses for free by swiping their UCR ID Card.
- 1= very poor
  - 2= poor
  - 3= adequate
  - 4= good
  - 5=very good
19. Are you interested in participating in an in-person focus group session about this topic?
- Yes (provide your UCR email address) \_\_\_\_\_
  - No

## *Appendix B: Focus Group Questions*

### Focus Group Questions

- 1) Please indicate which of these you identify as the most:
  - o Rider (I have used the bus at least once in the past year)
  - o Occasional Rider (I use the bus at least once a month)
  - o Frequent Rider (I ride bus at least once a week)
  - o Super Rider (I ride bus almost everyday)
  - o Inactive (I never ride the bus)
  
- 2) Did you know that through the U-PASS Program UCR allows students, faculty, and staff to ride RTA buses for free by swiping their UCR ID Card? How did you find out about the U-PASS program?
  
- 3) Please share your reasons and motivations for using RTA services through the U-PASS program? (i.e., "I ride the bus because..."). Feel free to add how your travel mode decisions may change based on certain circumstances or needs.
  
- 4) Please share your reasons and motivations for or not using RTA services? (i.e., "I don't ride the bus because...").
  
- 5) From 1 to 5 (1= very poor, 2= poor, 3= adequate, 4= good, 5=very good), rate your travel experiences with the U-PASS program and RTA. How do you feel about the program and RTA services? What is your opinion public transit? Explain and use examples for your reasoning.
  
- 6) How does having accessibility to free public transit impact your experience as a student? If the U-PASS program were no longer available, how would this affect your mobility?
  
- 7) Do you see using public transportation, such as UCR's U-PASS program, as having an added value besides taking you to your destination, if so explain? (i.e. economic benefits, environmental benefits, etc...)
  
- 8) What can UCR and RTA do to improve the current program?
  
- 9) Please share any additional comments or thoughts you may have about UCR's U-PASS program or RTA services.