

Public Transportation in Los Angeles: Identifying the link between Metro's Services and Social
Equity

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Table of Contents

Abstract	3
I. Acknowledgements	4
II. Introduction	5
III. Literature Review	8
IV. Methodology	28
V. Findings	31
VI. Analysis	43
VII. Policy Recommendations	47
VIII. Conclusion	55
Bibliography	57
Appendix A: Survey Set A	62
Appendix B: Survey Set B	67
Appendix C: Survey Set C	75
Appendix D: Metro Core Business Goals	80

Abstract

Los Angeles is a very diverse city, not only in culture and race, but also in socioeconomic standing. However, public transportation in Los Angeles has shown a great lack of diversity when it comes to the individuals who most rely on it to get around the city. Los Angeles County has built its city since World War II around the automobile, making it the most convenient way to travel in the region. Transportation is a crucial part of daily life, and the efficiency of it determines one's ability to access necessary resources, including jobs, school, and medical services, among others. Transportation is not simply about providing access to places from one place to another. It is also about being able to offer services that will provide riders with the same ease and accessibility to resources as those who can afford cars. Every day, Metro is a crucial part of the lives of over a million individuals from all over the County, and many people are satisfied with the services that the agency has to offer. Still, there is a large portion of low-income individuals who struggle to pay fares and reach their destinations in an efficient manner. Transportation is a link to greater sense of well-being, and this paper looks at just how the Los Angeles County Transportation Authority can make changes within its system to offer its services in a way that is going to contribute to social equity within Los Angeles. After comparing reduced fare programs from some of the largest public transportation agencies in the country and conducting surveys and interviews of riders and public transit agency officials, I come up with three policy recommendations in which Metro could increase its contribution to social equity. Those recommendations include offering reduced prices to adult-low income riders, modifying the current application process for reduced fares, and changing the Measure R2 campaign to include a stronger emphasis on social equity.

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II. Introduction

This report looks at the Los Angeles County Metropolitan Transportation Authority, otherwise known as Metro, and the potential impact that it can have on social equity in Los Angeles. While the focus of social equity is on Los Angeles, this research also looks at the United States' biggest public transit systems, including those in New York, Boston, Chicago, Seattle, and San Francisco. Currently, 56% of Metro riders earn under \$20,000 a year; so the cost of transit significantly impacts riders' financial well-being. Los Angeles evolved as a city dominated by cars and freeways, while low-income individuals make up the largest group of those who use public transportation. The implications of this pattern, in which wealthier residents use cars, and low-income residents use public transit, is that the type of transportation used affects accessibility to every day resources. Los Angeles is designed to make driving the most convenient and efficient way to get around the city, putting those who cannot afford a car at a disadvantage. Walking, biking or public transit is more time consuming, and several factors diminish its efficiency, from lack of feeling secure, to the limits of where public transit takes people (Gottlieb et al. 207).

Although Metro operates throughout Los Angeles County, I chose to survey at riders only within the city of Los Angeles, due to time constraints. Additionally, I decided it was better to look at just the city, given that it has a greater divide between residents and the more affluent. Furthermore, it would not be feasible for me to survey every Metro rider from the city, so I focused on transit stops that have among the highest ridership.

a. Objective/Goals of Research

I hope to clearly define the impacts that transit fares, including reduced fare programs, can have on social equity, and how public transit as a whole can play a role in increasing this equity for people of all socioeconomic levels.

My Research Question How does Metro's fare structure and services currently impact a rider's ability to have fast, easy and efficient access to resources throughout the city?

In addition, I have also come up with secondary questions to better provide a more comprehensive conclusion to my main question:

- By improving its services, how can Metro help residents achieve greater overall equity in LA?
- How are other large transit agencies connecting their services to social equity?
- What are local organizations doing to promote transportation social equity?
- Have the recent fare increases placed a greater burden on riders' ability to afford Metro? Audience

The audience that this research report looks to target is groups focused on improving social equity in Los Angeles, by identifying through my research that affordable transit is also a way to increase equity, in perhaps a new way that had not been considered before. Furthermore, Metro is an important stakeholder to consider, and this research hopes to influence the agency to manage transit in a more equitable way.

b. Important terms to know

1. Metro: Los Angeles County Metropolitan Transportation Authority (Metro) is the second largest public transportation system in the country, behind only New York City's Metropolitan Transit Authority transportation system ("LA did it. So can we."). It serves a

region made up of approximately 10 million residents (State & County QuickFacts). Metro offers residents services through bus and rail.

2. Transportation inequality: disparity of transportation services offered between low-income and wealthier individuals as a result of funding that favors certain modes of transit over others. A common example is the disparity between funding of projects extending to the suburbs that are geared towards car usage, and of inner city projects, like the bus system. Diverting funds out to the suburbs takes away money that could help improve bus services, whose ridership population is primarily low-income and completely dependent on public transit (Bernstein and Solomon).
3. Subsidized fares: public transportation fares that are able to be kept low with the help of government funding (Merriam Webster). None of the transit agencies discussed in this paper provide an explicit definition of this term. For the purposes of this paper, the term “subsidized fares” is going to imply reduced prices for specific programs that that are partially paid for by governmental funds. In Metro’s fare system, reduced fares and subsidized fares are used separately, Subsidized fares are additional services that are available only to qualifying low-income individuals. Subsidized programs offer lower fares to regular, low-income people as well, no matter if they are disabled or elderly (Adopted FY 2014 Budget 46).
4. Reduced Fares : Reduced fares within Metro are lowered fares that are given to certain groups of eligible people, namely, seniors, disabled/on Medicare, K-12, and full time college or vocational students. Reduced fares are different from subsidized fares in that these fares apply to all bus and rail services. But reduced fares are merely lowered prices for bus and rail

(“Reduced Fares”), and are aimed primarily at elderly and disabled riders (Adopted FY 2014 Budget 46).

5. Social equity: takes on many meanings, depending on the person, however a Chitwood’s definition refers to the distribution of public services and goods in an equitable manner to all individuals in a society. However, it is often the government or institutional entity that determines what constitutes “equitable” (Chitwood 31). In terms of society and social conditions, it can refer to “fair access to livelihood, education, and resources; full participation in the political and cultural life of the community; and self-determination in meeting fundamental needs” (Reliable Prosperity).
6. TAP: “Transit Access Pass. TAP is a durable, eco-friendly, plastic card that contains smart chip technology designed to improve customers’ transit experience. While not a pass in itself, the TAP card allows you to electronically purchase and load passes and/or Stored Value (cash) accepted by Metro and/or participating municipal transit agencies throughout Los Angeles County” (“Frequently Asked Questions”).

IV. Literature Review

Impact Of Access To Transportation/The Burden it Places On Low-Income People

Transportation has the potential to impact individuals, not only in the way that they get around their city, but in their ability to have reliable, equitable access to resources that affect their quality of life. These include job opportunities, educational institutions, medical facilities, and more. “Transit should enable people to reach jobs, schools, food markets, healthcare and human services Public transportation is an especially critical resource to those who do not have any other means of transportation. “Public transit [...]is an indispensable social service [...] for people who, because of income, or disability, do not have regular access to private motor

vehicles (Iseki and Taylor 2). In “The Demographics of Public Transit Subsidies: A Case Study of Los Angeles,” Iseki and Taylor argue that public transportation is more than a means of simply getting from place to place, but rather it can help provide access to daily life needs, despite their lack of an automobile. In the article, the authors describe the demographics of public transit riders in 2001, and although the statistics are dated, they still largely reflect the demographics of current Metro riders. Nationwide, bus riders 13 years ago had a median income of \$15,000 to \$19,000 (Iseki and Taylor 3). Not much has changed from 2001 to present day, where the majority of bus riders in Los Angeles tend to be low-income people of color. Among Metro bus riders, 91% are people of color, and 21% of the riders earn between \$15,000 to \$19,000 yearly. In addition, 65% of Metro’s bus riders make \$19,000 or less per year (2013 Annual On-Board Customer Satisfaction Survey). “With the exception of commuter rail passengers, transit patrons—and especially bus patrons—reside disproportionately in low-income households” (Iseki and Taylor 2).

There is a historical trend of transit subsidies favoring “capital intensive transit services” (Iseki and Taylor 4). Fare subsidies tend to benefit higher income transit users, because they tend to ride longer distances, as opposed to low-income riders. Higher-income riders, at the time of this study, tended to travel longer distances at peak hours, when service costs are higher. They also tend to use more heavily subsidized modes of transit, like light rail (Iseki and Taylor 3). Thus, higher income people are the ones who are benefitting more from the subsidies, rather than low-income who are in greater need to help to pay for fares. The authors suggest that one way of increasing equity within the transit system is to lower the fares on services that low-income riders tend to use, such as the bus, and raise the fares on services used mostly by higher-income, like commuter and light rail. While this would make sense in a city where the demographics are

split this way between services, Metro's demographics do not vary much between bus and rail, and low-income people most heavily use both services. Along with the 56% of bus riders that earn under \$20,000 annually, 47% of all Metro light rail riders earn under the same amount (2013 Metro Annual Customer Satisfaction Survey). This data regarding the income demographics of light rail riders goes against the frequently stated argument people that with higher incomes most often use light rail.

Robert D. Bullard's "Addressing Urban Transportation Equity in the United States," also goes on to discuss the far-reaching impacts of transportation on individuals. He too argues how transportation opens the doors to access jobs, schools, etc. "Transportation plays a pivotal role in shaping human interaction, economic mobility and sustainability" (Bullard 1183). This approach coincides with Chitwood's description of social justice (Chitwood 31). Now more than ever, having access to transportation is important to reach the growing number of jobs available in the suburbs, as well as the overall job-housing imbalance. Especially for low income people living closer to the city center, traveling these far distances is more difficult and expensive, and therefore fewer of these people are able to actually reach these jobs, reinforcing racial disparities (Sanchez, Stolz and Ma 2). There is also a great disparity between the rich and poor when it comes to equal distribution of transportation amenities—and this is also linked to social inequity. As already mentioned, those who are wealthier will receive more benefits when it comes to transportation. Such benefits can include better amenities for cars, like improved highways, light rail systems and freeway improvements that are traditionally seen to be geared towards the upper class. For example, Metro's 2014 Adopted Budget allocates over 75% of its Transit Capital Program to Measure R Construction Projects (Adopted Budget FY 2014 36). Measure R is a half-cent sales tax implemented throughout LA County that is meant to generate funds for

transportation projects and programs. Most of the revenue (62%) from Measure R is dedicated to either rail, at 42%, or to freeway projects for which 20% is dedicated (Measure R). Meanwhile only 20% of tax expenditures go towards bus operations and part of 15% will be dedicated to street improvements, including those for pedestrians and bike lanes. Those of lower classes tend to use buses and ride bikes more than wealthier residents, and thus do not get to receive as many of the benefits from Measure R, potentially creating greater inequity within transportation.

It is not simply a matter of governments allotting money equally to support transportation for lower income people, along with higher income, but the unequal financial burden also affects one's access to goods and resources of a society. A 2003 study revealed that Americans spend about \$0.19 out of every dollar to fund their means of transportation. Furthermore, people in this country, regardless of income level, "spend more on transportation than they do on food, education, and health care" (Bullard 1189). The burdens of transportation are thus often unequal among different groups of people. The wealthy can pay higher prices for transportation without affecting their ability to pay for other necessities, while lower-income people experience the opposite effect. There is currently a push from Metro, to concentrate on expanding the public transportation system, but there is much debate as to how to accomplish this so that it does not create unequal benefits among those with and without alternative modes of transportation. This conflict was revealed most recently in the debate for fare increases and what the extra funds would be attributed to within the budget.

Disparities Among Public Transportation Riders

Though there are several transportation-oriented community groups working on increasing equity through transportation policies, none highlight subsidized fares as a solution. Organizations such as the Bus Riders Union have had successful campaigns in the effort to make

public transportation more accessible and equitable to everyone. Yet the focus tends to remain solely on how transportation sources should be expanded to everyone, rather than the broader focus on how transportation access can link individuals to greater social equity, in which they have access to certain necessities as easily as individuals who can afford a car.

In 1996, the Bus Riders Union won a campaign through a civil rights lawsuit against Los Angeles MTA, arguing that the fare hikes were directly “establishing a discriminatory, separate, and unequal transportation system while using federal funds” (Eng). The organization argued that policies were purposely allocating federal funds that did not benefit the agency’s most dependent riders—predominantly low-income bus riders. At the time, of the 400,000 riders who were consistently using the bus services, 81% were people of color (The Labor/Community Strategy Center).

The victory led to a legal agreement, the Consent Decree, between BRU and Metro, forcing the transit agency to improve the bus system, bringing attention to the bus system and the population that uses it. The Decree increased the efficiency of bus frequency through fleet expansion; many of the diesel buses were replaced with clean fuel CNG buses, the price of the monthly pass was lowered, and the first weekly pass was created (Eng).

The organization and rider advocates in general viewed this campaign as a major victory, demonstrating the power that under-represented groups were able to exert to gain greater social justice. Furthermore it helped significantly strengthen the bus system, which had been largely neglected prior to the lawsuit, as a result of underfunding, which had made it more inefficient, unreliable and overcrowded (Consent Decree Compliance). It was a key moment for public transportation in Los Angeles. The Consent Decree Compliance increased bus services and it reduced fares for riders, making it a significant change; however the BRU focus did not include

subsidized fare structure among its objectives. Focusing solely on the bus system meant that only a certain population who rides buses was involved in this issue, and that even for bus riders the question of subsidies was not central to the settlement.

Thus improving the bus system is seen as a crucial first step to making urban life more equitable for people. People earning under \$15,000 a year make up significant portion of those using public transportation across the nation, particularly those who use buses (American Public Transportation Association 7). Focusing on buses can help bring urgent attention to the people who need the most help. Individuals in Los Angeles who do not have cars struggle to reach their jobs and other basic necessities, and cannot afford to wait long for transit agencies to come up with a better way for these people to access daily needs. To improve the bus system would help make public transportation equitable in that it provides riders with the same efficiency and usefulness as a car (Gottlieb et al. 208).

In addition, public transit riders are disadvantaged in many ways in their every day life that leads them to be so dependable on public transit. In the 2007 survey conducted by the American Public Transportation Association, less than half of public transit riders had access to a car. Looking more closely at the figures, they reveal that 62 percent of bus riders do not have access to a vehicle, while fewer rail riders lack this type of access, with only 42 percent reporting that a car is not an option of transportation for them (27). Los Angeles Metro's customer survey also inquires riders about car access, although it is more specific in that it asks about having a car for the particular trip they are taking at the time of the survey. Nevertheless, bus riders seem to be more disadvantaged more than rail riders. Seventy percent of respondents reported not having a car for that trip they were taking, while the number went down to 58 percent for those using light rail ("Metro Customer Satisfaction Survey Results"). The APTA results revealed that

public transit is crucial in getting people to and from the most important activities and tasks. Almost 60 percent of the riders use it to commute to work, while the next most common response was school. Looking at just these two percentages, it is evident that public transportation is central to a person's well being.

Importance of Fare Subsidies

Approximately 57% of Metro's transit riders earn an annual income of \$20,000 or less (2014 Annual On-Board Customer Satisfaction) and thus offering fares at a lower price are very important for a large population of the riders. In the 2014 Adopted Budget, Metro defines reduced fares and subsidized fares as two different types of prices. Reduced fares are aimed primarily at elderly and disabled riders, while subsidized programs offer lower fares to regular, low-income people as well, no matter if they are disabled or elderly. "[...] LACMTA supplements reduced fares for the elderly and disabled with additional subsidy programs designed to help the less privileged residents of LA County" (Adopted FY 2014 Budget 46). Even in the budget, Metro emphasizes the importance of access only, but does not consider the effects that granting more access to its services relate to broader equity considerations in a society as polarized demographically and financially as the city of Los Angeles (Hamilton). Various factors, including gentrification, have resulted in greater numbers of wealthy individuals moving back into the city center, crowding out the low-income residents currently living there. Should there be a drastic change in population of those living in Los Angeles, it can affect funding of transportation services, and could consequently cut funding for services geared at less privileged residents.

Metro's Subsidized Fare Program

Metro and the other 5 major public transit agencies described in this study all provide subsidized fares, though the extent to which groups of people they cover varies.

Metro’s website identifies two categories of subsidized fares: “Special Reduced Fares,” and “Transportation Subsidy Programs.” While both of them offer discounted prices to riders, the groups of people that they cover differ. Figures 1 and 2 below compare regular fares and reduced fares, and breaks up the reduced fare prices according to “Special Reduced Fares” and “Transportation Subsidy Programs”.

Type of Fare	Fare Price
Base Fare	\$1.75
Day Pass	\$7
7-Day Pass	\$25
30-Day Pass	\$100
EZ Pass	\$110
Metro-to-Muni Transfer (transfer to non-Metro bus w/in 2 hours)	\$0.50

Figure 1. Regular priced fares offered through Metro.

Special Reduced Fares:

Category	Type of Discount
Senior	30-Day pass: \$20 Day Pass: \$2.50
Disabled/Medicare	Monthly Pass: \$20
College/Vocational Student	Monthly Pass: \$43
K-12	30-Day pass: \$24 Single-way fare: \$1

Figure 2. A breakdown of the Special Reduced Fares that Metro offers to those eligible by filling out an application.

While all of these groups are given significant discounts on their fares, students still pay double what seniors, disabled/Medicare, and k-12 students have to pay.

Transportation Subsidy Programs

These programs, overseen by Metro, work in conjunction with specific regions and agencies within the county to provide eligible riders with discounts on Metro services that do not

have to necessarily be Metro bus and rail. These programs, unlike the Special Reduced Fares, offer discounts to regular adult riders who do not fall under the other categories, like senior and disabled/Medicare. However, while these programs cover more groups, they only cover certain regions of the county through smaller transportation agencies, rather than the entire county, like the Special Reduced Fares.

Rider Relief Transportation Program

- **What it is:** the program is designed to give out coupons to eligible participants
- **Who is eligible:** Adult riders, senior/Medicare/disabled, college/vocational, and k-12 students who fall below the 2014 Federal Poverty Level (See figure 2).
- **Areas eligible for these subsidies:** Antelope Valley Transit Agency, Big Blue Bus, Culver City Bus Lines, Torrance Transit, LADOT, Santa Clarita Transit, Foothill Transit, Long Beach Transit, Montebello Bus Lines, Norwalk Transit.

There are currently about 57,000 people participating in this program (Borgman). There is no specific explanation as to why only such a small amount of riders take advantage of this program, but possible reasons are to be analyzed later in the research.

Annual Income	Persons in Household
\$28,550 or below	1
\$32,600 or below	2
\$36,700	3
\$40,750	4
\$44,050	5
\$47,300	6

Figure 3. This chart shows the levels of income according to the number of people in a household that fall under the Federal Poverty Level (Metro.net)

Immediate Needs Transportation Program

This program offers a subsidized taxi service to individuals who qualify based on income at the 2014 Federal Poverty Level. Riders must fill out an application that discloses their level of need for this service. The program is aimed at being able to take riders to certain places, such as “shelters, pantries, medical facilities and job interviews” (Adopted FY 2014 Budget 50).

According to Nolan Borgman, a Transportation Planner for Metro, since the fare increases from September 15, there has been an increase in the numbers of those participating in this program.

This is attributed to stronger efforts of outreach and new eligibility guidelines (Borgman).

LA County Transit Subsidy Program

This provides special discounts on 30-day passes to individuals in unincorporated areas in Los Angeles County. This one is similar to the Special Reduced Fares because it offers the subsidies to seniors/disabled/Medicare, college/vocational, and k-12, but not to regular adult riders. In order to apply, individuals must prove their residency in LA County first.

While Metro offers several options to riders to receive discounts on transportation services, it is apparent that they are not able to cover all groups that may want or need lower prices and more services, nor can these fares and programs be offered in all parts of Los Angeles County. Due to budget constraints, Metro does not currently offer discounted fares to everyone, although it is important to note that regular adult riders who do not fall under any of the existing categories might also be in high need of subsidized fares, even though they are not attending school, are over a certain age, or are disabled. This is especially important to note when it comes to the Special Reduced Fares, which cover the largest area in the county, yet leave out this group of people.

Metro's Ridership Demographics

Every year Metro conducts Customer Satisfaction Surveys, revealing information about customers' opinions of the bus and rail services, as well as demographic information. This information gives a better idea of what types of people are using Metro's services. The most recent surveys, taken in Winter 2013, revealed that 56% of Metro's riders, rail and bus, earn under an average of \$20,000 a year, among individual riders. This number is more than \$8,000 under the federal poverty line. Additionally, 66% of riders rely on Metro's services for 5 days or more every week. Lastly, the surveys revealed that 50% of riders are between the ages of 23 and 49 ("2013 Annual On-Board Customer Surveys" Metro). One can infer from these results that the majority of Metro riders rely on transit to get them to their day-to-day business, whether that is work, shopping, child care, or running errands, etc.

This past summer, I conducted research through Occidental's Undergraduate Research Center to investigate the expected effects of Metro's recent fare increases, and to find out if there would be any other options to generate revenue, without having to raise fares. I gathered my primary research through the collection of surveys that I conducted myself, to gain more insight into riders' awareness of the fare increases, their opinion of it, and more demographic information specifically on riders solely within the city of Los Angeles, rather than the whole county, like Metro's Customer Satisfaction Surveys. From my sample of 41 surveys, which provides a small snapshot, 88 percent of respondents had an annual income of \$20,000 or less. Sixty-nine percent of both bus and rail riders who responded answered that the fare increases would not affect their frequency of riding; however it was not because they could afford higher prices; rather these individuals do not have any other options of transportation, so they would have to be able to pay higher prices, whether or not it would place an even bigger financial

burden on them. The other 31 percent responded that they would have to ride Metro less often (Delgadillo 22).

Due to time constraints, and the fact that I distributed these surveys myself, the survey representation remains limited; however I made sure that I gave out these surveys in some of the densest and busiest areas of the cities near Metro stops. Some of these areas were near the MacArthur Park, Pershing Square, and Grand Park/City Hall stations.

This information is very crucial in understanding what types of people most rely on public transportation in Los Angeles, as this will be considered when discussing the idea of expanding subsidies to create greater social equity. Transportation plays a crucial role in the ability of a person to go about their daily lives with relative ease. The reliability of their mode of transportation, and the options they have for it could determine where a person is able to live, work and interact with other people. Those who are low-income have less choice when it comes to these things, and thus subsidies could help alleviate some of that issue.

Metro's Goal/Mission

The Los Angeles County Metropolitan Transportation Agency has a short and concise mission statement: "Metro is responsible for the continuous improvement of an efficient and effective transportation system for Los Angeles county" ("Overview" Metro). Aside from the mission, Metro also has a vision for what its system would be: "Safe, clean, reliable, on time courteous service dedicated to providing Los Angeles County with a world class transportation system" ("Overview" Metro). Furthermore, Metro's Overview page of the agency shows that it is dedicated to expanding the system to help create a less car-centric place. However, achieving social equity is not explicitly stated among its core values or goals. The agency frames itself more as offering a service to people. The focus is more on the types of services that it can offer,

with no emphasis on the effects that their power over the transportation system can have on residents.

When Metro voted 12-1 on May 22, 2014 to increase fares in 2015, low-income riders were considered an important constituency to maintain and increase transit ridership. Along those lines, the board passed the motion, “Pursuing Opportunities for a Fair and Balanced Fare Structure,” to halt the next two phases of price increases until more research on its effects could be done. The rationale behind this motion that halted the proposed second and third fare increases was to help reduce a deficit projected to grow to \$36.8 million within the next two years (Ridley-Thomas, Garcetti, Yaroslovsky). Operational costs are rapidly rising as a result of the extensive rail projects currently in the works; thus the agency was in an urgent need to find more revenue. Low-income and students riders were taken into consideration when it came to changing the prices, and the agency recognizes their difficulty in being able to afford higher prices—hence the adoption of a new policy of free transfers for two hours. While this can be looked at as a way to create equity among riders, there are currently no exact figures as to how many low-income riders require transfers on their average trip, or the distance they tend to travel. However it can be assumed that a significant amount of riders regularly transfer from one line to the next (Navarro). Metro ultimately wants to encourage riders to transfer in order to continue to generate revenue and address environmental factors, including “[to] reduce congestion and promote environmental stewardship” (Ridley-Thomas, Garcetti, and Yaroslavsky).

The motion briefly touches on social equity through fares when discussing youths’ access to public transit by stating, “the lack of affordable transportation is a frequently cited barrier to regular school attendance” (Ridley-Thomas, Garcetti and Yaroslavsky). While bringing public transportation into the discussion for greater social equity, it did not address the positive impact

that fare subsidies can have for riders. Metro indeed recognizes the importance of making transportation accessible to everyone; however, there is still that gap in linking access to broader equity considerations related to the cost of transportation.

Lastly, the Transit Ridership Best Practices Task Force is aiming to find alternatives to garnering more revenue, while avoiding having to raise fares again. It is apparent that the agency shows concern for low income riders, and the Task Force will be looked upon as a means to maintain ridership, when greater access could be looked at in a broader sense of the benefits it can have to make other aspects of life more easily attainable, thus equitable (by reducing the costs of transportation for those who are struggling to make other needs met such as housing or food).

Other Subsidy Fare Structures Of Major Transit Agencies In The U.S.

This research also looks at the subsidy fare structures of 5 of the country's major public transportation agencies. Almost all agencies provide some kind of lower fare to riders, but the groups of people for whom they are made available differ.

New York—MTA

The New York Metropolitan Transportation Authority only offers lower fares to senior citizens who are 65 years old or older, or to those with a qualifying disability. Among the disabilities that can make one eligible are: receiving Medicare benefits other than for age, having a serious mental illness and thus receiving Supplemental Security Income, being blind, having a hearing impairment, an ambulatory disability, loss of both hands, or mental retardation. Any other type of injury does not qualify, and thus failing to meet these conditions, or the age requirement will result in that person paying the full fare. The base fare for a single ride on MTA is among the highest in the world, at \$2.25 (Adopted Budget FY 2014 15).

Boston—MBTA

The Massachusetts Bay Transportation Authority (MBTA) offers reduced fares to seniors, those who are blind or visually impaired, disabled, and junior high and high school students. Unlike Metro, MBTA has different fares according to the mode of transportation. A single way, regular bus fare is \$1.60, while Rapid Transit is \$2.00. Similarly to Metro, Boston also recently implemented a fare increases to most of its services, except for the Student 7-Day Validity Monthly LinkPass (Massachusetts Bay Transportation Authority).

Chicago—CTA

Chicago Transit Authority is the country's second largest public transportation agency, serving 1.7 million riders every weekday ("2014 Public Transportation Fact Book"). The agency offers reduced fares to riders under the age of 11, elementary and high school students, and college students. It also offers reduced fare permits through the Regional Transportation Authority, rather than CTA, to seniors, Medicare recipients and the disabled. These individuals must apply for eligibility, while Medicare recipients apply as long as they have a Medicare card. Holding a reduced fare permit through RTA gives riders access to lower fares for CTA, as well as Pace, a suburban bus service, and Metra, another transit system serving Chicago and surrounding areas in Illinois. A unique feature of the agency's fare structure is that it also offers free rides to individuals in the US Military, and this is not an income-related discount like most other discounts offered by the major transit agencies. In addition, disabled riders are able to ride free on certain fixed routes through their Circuit Breaker Program. This is a result of SB 1920, which implemented the People with Disabilities Ride Free Program, offering free rides to any Illinois resident.

Seattle—King County Metro

Seattle's transit system offers reduced fares to those who earn under 200% below the federal poverty level. This fare structure went into effect in March 2015, and it is based on the riders' household income (Chan 2015). The reduced fare that an individual thus receives is valid for 24 months, and riders qualify by showing proof of participation in benefit systems, like EBT through proof of pay stubs, letters from employers, or income tax returns. Furthermore, Seattle is one of only two systems in the country to partner with Public Health to promote outreach to its riders (Constantine). Along with outreach, Public Health is also able to distribute discounts to people, with the goal to raise awareness of discounts, and add more people to this population.

Most recently, Seattle has also been at the center of the minimum wage debate in the country, and enacted a \$15 minimum wage law to be phased in (Blankinship 2015). The national debate regarding minimum wage has proponents arguing that increasing the minimum wage is going to bring fair wages to workers who are often disadvantaged due to race or gender. Meanwhile opponents argue that raising the minimum wage would cause unemployment ("History and Debate of Minimum Wage").

Seattle's convergence of King County Metro and Public Health reflects the growing concern for income disparity in the city. The minimum wage debate does not focused on public transportation as an important aspect of what people need. An increase in minimum wage could in turn increase the cost of living within the city. Therefore King County's new partnership takes into account the fact that not all riders are going to keep up with the cost of living at the same rate as others. Although some workers are going to be able to earn more per hour, it does not mean that these people who benefit will be completely financially secure. King County and Public Health makes local residents more aware of the options to save money and still continue to have access to places throughout the city.

San Francisco—Muni

San Francisco Muni offers different types of fare discounts to several groups of people. The agency, like King County Metro, offers income-based fares through its Lifeline Pass. This is available for riders who earn a household income under the federal poverty line, according to the household size (San Francisco Municipal Transportation Agency). The pass is a monthly pass that is sold for \$34—half of the regular price. Riders can qualify by showing proof of income eligibility, filling out the agency’s program application, and presenting a government issued ID (“Free Muni for Youth Program” San Francisco Municipal Transportation Agency).

Lastly, San Francisco residents who are youth, senior, Medicare recipients or disabled can receive discounted passes with the correct proof of identification. Unlike Metro passes that are valid for both bus and rail services, these passes only work for one form of transportation (“Youth/Senior/Disability Discounts” San Francisco Municipal Transportation Agency), so applicants must choose ahead of time which type of service they want.

Current Connections Between Social Equity And Transportation Made By Major Transit Agencies, Organizations, And Local Riders

In comparing some of the largest public transportation systems in the United States (Los Angeles, San Francisco, Chicago, Seattle, Washington DC and New York), all of the agencies have something in common—that is that none of the agencies explicitly recognize in their goals or mission statements that they aim to promote their services to enhance social equity. Washington DC and Boston do not even have specific mission statements written on their websites. While Chicago’s CTA does describe the elements of social equity in its mission statement, “We deliver quality, affordable transit services that link people, jobs and communities,” nowhere in its description of fare structure and reduced fares, does it identify this

concept, nor promote its lower fares as a means to greater social equity. For example, Metro's mission statement is oriented towards accessibility and growth of the system. "Metro is responsible for the continuous improvement of an efficient and effective transportation system for Los Angeles County, etc." (Metro). Aside from its mission, Metro also has 9 goals, all related to expansion and the environment. "Deliver quality capital projects on time and within budget...Sustain the environment with energy efficiency and reduce greenhouse gas emissions" (Metro). While promoting a greener transportation system and expanding services could indirectly contribute to greater social equity, it Metro does not look to using their services as a direct means to this. Meanwhile New York's MTA has the goal of increasing ridership and efficiency of its system (Metropolitan Transportation Authority).

Access to resources through Public Transportation

There are current research reports on how public transportation helps connect people to resources, such as food. Low-income people often live in neighborhoods in which proximity to fresh and more affordable food is rare. There are currently 2 public paratransit service programs in Los Angeles, and only the Access program is funded by Metro (Vallianatos et al. 2011). This program is able to take these groups of individuals to go grocery shopping and buy their necessities by the vehicle being able to pick up the riders from their homes, sparing them of the trouble of going to and from transit stops. This program can be very beneficial to seniors and disabled, but it leaves out regular adult riders who could benefit as well from having curbside services, especially when it comes to having to carry multiple grocery bags on transit (Vallianatos et al. 2011).

There are certain policy recommendations published in "Bringing people to good food, and good food to people" (2011), that recognize the benefits of such services. The authors, for

example, call for Metro to be more conscious of where bus and rail lines take riders, and should stop in areas where people will be able to access healthy food, along with developing more paratransit services as well. Furthermore, riders should be able to be eligible for discounts for Metro through their enrollment in certain food access programs, like EBT or WIC (Vallianatos et al. 2011).

The conditions of transit services also affect one's health and wellness, as well as the ability to reach other medical services. A 2014 study reveals how social equity in terms of transportation does not only imply the efficiency and effectiveness getting to the destination, but also having a safe and satisfying experience on the way there. Many residents within the city take public transportation to go to and from the health clinic MEND, in Pacoima. Transit stops often lack shade, seating and access to water, among other necessities (Vallianatos, Shamasunder and Gottlieb 2014). It is important then to consider that the conditions surrounding transit stops can affect one's inclination to use public transportation. Elderly or sick people would be less inclined to endure harsh weather conditions on their way to receive medical services, thus reducing their access to medical attention. From another viewpoint, areas with a high rate of transit dependency means that riders might have to endure unhealthy conditions to get to their destination—something that most people who own cars would not have to endure.

The number of students K-12 students today who use a mode of transportation other than car has been decreasing (Ham, Martin and Kohl 2001), although people of color are those who tend to rely on these alternative modes of transportation (2014 Customer Satisfaction Survey Results). Thus various modes of transportation are crucial to a students' access to school, and are most efficient when transit stops are near the students' home and school, and operate in a timely manner that will allow students to arrive to school on time every day.

Strengths and Gaps in Public Transportation and

After researching the information about social equity, transportation, fare subsidies, and the major transit systems, there are certain trends that agencies and local riders consider to be priorities for the agency's services, as well as how their views differ in the role that Metro provides in linking services to equity.

Comparing the different transit agencies' mission statements, goals, budgets, and values, there appears to be a lack of focus on social equity. Some agencies recognize the potential that lower fares can have on granting low-income people access to other resources, like job opportunities, education, etc. However, they are not actively working towards promoting subsidies and modifying their subsidy programs as a direct means of creating greater social equity. Scholars have pointed out that the access or lack of transportation plays a very important role in people's access to other resources, so it is important that agencies, particularly Metro, begin to look at subsidies in this light. There is not much discussion on having an equity-based fare, in which transportation could contribute to the lack of equity.

And lastly, transportation agencies are not targeting free lunches, or other means of determining financial stress. Many of these factors may be making it difficult for low-income people to get by financially on a day-to-day basis, and providing better subsidies could help relieve some of that stress.

Application process for Metro reduced fares

In addition to subsidized fares, eligible riders can also get reduced fares, which could significantly cut costs for riders, if they are seniors, disabled or on Medicare, a K-12 student, or a full time college or vocational student. The process to apply varies according to the category that the rider thinks he or she falls under. For one to apply for a senior reduced fare pass, the rider has

two options: visit a Metro Customer Centers in Los Angeles, or to mail in the application form. Only four such centers exist, and are located at Union Station, South Los Angeles, East Los Angeles, or Koreatown. Disabled riders can also apply the same way, except they are charged a \$2 processing fee along with the full-face photo and documentation. Students must provide proof of enrollment at an accredited school in Los Angeles County. Certain Metro riders do not have stable home lives, and just to be able to provide the correct documentation could be difficult, as records and paperwork could easily get lost as a result of not having a consistent home (Mawhinney-Rhoads). While some schools make applications available, others must turn them in at the customer center. Reduced rate passes can be loaded with more money at specific area pass vendors, though this access to load cards is not readily available to regular priced fares (“College/Vocational TAP cards”). A potential issue is that Metro states on its application that it takes up to 20 days to process (“Senior TAP Card Application”) and approve for pass, which is going almost an entire month without the discount.

V. Methodology

In addition to the secondary research, I also conducted primary research that will be very important to the outcome of my research by distributing surveys to Metro riders, as well as conducting interviews with Metro personnel, officials from King County Metro, and SF Muni. Lastly, I also conducted interviews with members of local social justice organizations.

Setbacks

I encountered certain issues with my primary research that has influenced my methods and findings as a result. As stated above, the goal was to collect 100 surveys of Metro riders in Los Angeles. These surveys were to come from riders to be approached at various bus and rail stops. Additionally, I hoped to work with local organizations that work with transit riders so that

they could distribute my survey to their constituents. I ran into problems with both of these methods. First, the fact that I am going alone throughout Los Angeles to give out surveys made it a very slow process. Secondly, perhaps due to their busy schedules, or simply disinterest in this research, I was unable to connect with any organizations to distribute the surveys. I sent out various emails and made phone calls to local people and organizations regarding this, however, I did not receive any responses. Consequently, the data collection for this portion of my research has been more difficult than I expected, although the 70 surveys that I do have still provide a good insight into riders' experience with Metro.

Furthermore, the interviews that I conducted had led me towards an approach that would require me to do heavy research on the economics aspect of subsidies and budget analysis. My limited knowledge of economics would have made it difficult to do such research, so I changed the direction of my surveys. I thus developed new surveys, which looked more into the impact that public transportation and different fares have on riders. These new surveys may provide a better idea of how public transportation currently connects to social equity, as well as the areas in which change is needed in order to help increase equity in the city. The data from the new surveys will serve as an extension of what I learned in the interviews, and are crucial for the policy recommendations in the report.

Interviews

I researched several people from major public transit agencies in the United States, as well as members of local transportation organizations. The interviews consisted of Beth Steckler of Move LA, Eric Romann of the Bus Riders Union, Carol Merrill and Daphne Pie of King County Metro, Roberta Boomer of San Francisco Muni, Nolan Borgman and Anelli-Michelle Navarro. So far in my research I have found that Metro does not directly address social equity in

its mission and goals for the transit agency. The agency does discuss the issue of making the services more widespread over the county and making services more accessible. However I wish to find out if Metro would be willing to make efforts to extend these ideas further and apply them to the concept of social equity, and how public transportation could help underprivileged people achieve this.

Interviewing members of local social equity organizations is important as well, because it will help me get a better insight into what factors local people view as being important contributions to social equity specifically in Los Angeles. Organizations are working directly with the groups of people most in need of options that will allow them to prosper and be successful in Los Angeles, so they will have a better idea of just what these people need.

Surveys

Starting in January I conducted surveys of local Metro transit riders. The sample was derived from riders at bus and rail lines with the highest amount of daily ridership. Due to time constraints and trends that I encountered during the survey process, I distributed two different samples for my data. The primary data also consists of a first set of surveys I conducted in June and July of 2014. Thus my sample survey consisted of approximately 70 responses, and although it is not representative of the ridership population, the responses give insight into the impact that Metro has on riders' everyday lives. The responses that I did get give a good idea of what aspects of the Metro services certain riders believe to be beneficial, and what is not working. I was able to recognize trends among responses that allowed me to analyze in conjunction to the background research and interviews that I did.

The surveys contain questions that are aimed at finding out how the use of Metro's services affects the quality of the riders' every day lives. Thus, questions ask riders whether or

not the current fares, especially the recent fare increases have affected their ability to ride as well as how much of a financial burden, if at all, are the fares. I also seek to find out the awareness of reduced and subsidized prices, and how the riders themselves perceive the link between public transit and social equity. Furthermore, through the surveys I want to find out how current riders are currently paying their fares, whether in the form of single ride fares, weekly or monthly passes, etc.

Both the surveys and interviews are going to be crucial components of my research to help me determine just how public transportation is going to benefit people all over Los Angeles.

VI. Findings

Objective

The objective of my primary data is to find out how large transit agencies around the country connect the concept of social equity to the services that they provide to their residents. I interviewed various people involved in public transportation and in city departments from Los Angeles, Seattle and San Francisco. From Los Angeles, those with whom I spoke included: Beth Steckler (Move LA), Eric Romann (Bus Riders' Union), and Nolan Borgman and Michelle Navarro (Metro). I also spoke with Carroll Merrill (King County Metro) and Daphne Pie (Public Health) of Seattle, and Roberta Boomer (SF Muni). In addition to interviews, I conducted surveys of local Metro riders in Los Angeles, to use their responses as additional ways to explore the issues that are raised in the interviews.

Interviews

All of the interviews except one were conducted over the phone, and lasted between 30 minutes to an hour. I interviewed Nolan Borgman in person at Metro Headquarters in Los Angeles, California.

Local Ridership in the Three Cities

One of the main differences between the LA Metro and SF Muni and King County Metro is the presence of public transportation between the cities. While the population in Los Angeles is much larger than San Francisco and Seattle combined (United States Census Bureau), officials of San Francisco and Seattle both stressed the large presence that public transportation has on its residents. As discussed in the literature review, public transportation ridership in Los Angeles is largely made up of low-income individuals, with 56% percent of all bus and rail riders earning \$20,000 or less per year (Customer Satisfaction Survey Results).

Roberta Boomer identified the discrepancy not only in ridership count, but size of the area that public transportation serves. The size of San Francisco is just 7 by 7 miles, with “a bus stop at every two blocks” (Boomer). Additionally, Muni supports about 715,000 riders each day—almost the same amount as the population of the entire city of San Francisco. The city is also one that has favored transit use over personal car use for the past 4 decades (Boomer).

In Seattle, King County Metro also has a large portion of the city’s population using public transit. “Seattle is very much a choice ridership program [...] everyone’s got a bus pass in their pocket” (Carroll Merrill). Meanwhile the situation for low-income individuals in Seattle is the opposite of that in Los Angeles, as those in Seattle who do not ride the bus are minimum wage workers who cannot afford to use transit and buy a pass (Carroll Merrill). Furthermore, a major reason that so many people in Seattle use public transit is that many employers provide their personnel with bus passes, and the minimum wage workers work in places where their employers cannot afford to provide transportation.

Special Programs

As previously stated, Los Angeles Metro provides special subsidized programs, which riders can qualify for based on their income being below the federal poverty level. The subsidized programs are unique to Metro. However San Francisco and Seattle both offer their own types of programs to serve certain groups of riders. King County Metro just began a program on March 1, in which fares are going to be based on individual income, and it is a model that is based on the Affordable Care Act (Merrill). In addition, this program is being run in partnership with Public Health, which will help increase outreach to low-income riders and will help the process of qualifying riders for reduced fares much easier. King County Metro has entrusted Public Health to take on this task, as the department has already been doing the Affordable Care Act, and are experienced in outreach (Pie). Given that this new program has been into effect for barely more than one month, the results are still unknown, although King County and Public Health hope that this can make it easier on residents to gain access to public transit.

San Francisco is also using its relations with local entities to provide increased service to its residents. Currently San Francisco Muni riders only pay about 35% of the actual cost of a fare, but despite this discount, there are still many people who cannot afford to pay the price for public transit here. Thus the agency offers free fares to youths who are 19 years old and younger. This was made possible with a grant from Google that supplied the agency with the necessary funds to run this program (Boomer).

Social Equity Goals: Public Transportation Agencies

The missions/goals/objectives sections of some of the major transportation agencies in the countries were also reviewed. The majority of the agencies defined the importance of expanding their services in order to maximize access to public transportation; explanations on the impacts

their services have did not go further than this. Thus, the following interviews provide a deeper perspective on how transportation officials connect their agencies to increasing social equity in their cities.

Los Angeles Metro

I interviewed Nolan Borgman, a Transportation Planner, and Michelle Navarro, Director of the Office of Management and Budget in order to get an idea of what employee's thoughts are about social equity and transportation. Metro provides various subsidized services for those earning under 200% below the poverty level, including Rider Relief and Immediate Needs Program, with the objective of connecting people within the city, where bus and rail may not reach them. "If you don't have a specific route that reaches you, can get door-to-curb service [with Rider Relief] specifically geared toward acting against inequality," according to Borgman. In addition, the agency offers reduced fares, which were discussed earlier in this report. Many riders still have much difficulty affording fares, and the agency is aware of this issue. In early 2015, the American Public Transportation Association (APTA) reviewed Metro's current services and fare structure, and has recommended for the agency to raise fares again to increase revenue. Although the agency does not explicitly discuss social equity, Navarro states that Metro is well aware that many of its riders are transit dependent, and thus must first consider other options for revenue that avoid raising fares.

Metro's budget continues to be a difficult discussion point, as board members also are conflicted with how to spend the revenue, in regards to which type of project in the wake of various individuals and groups asking for free fare programs, such as the Bus Riders' Union (Romann). At this point in time, agency officials felt that there is not much they can do to reduce prices, especially since the agency just raised its fare in September 2014 to increase

the farebox recovery rate. “[There is] a lot of competition for Metro’s dollar [...] the agency has competing interests, even though people can’t afford to pay it. [We need] people to bite the bullet every so often because fares go up” (Borgman). Borgman makes it clear that Metro’s projects are all done with the rider in mind, and in a city where private cars dominate the streets, greater access to public transportation is important. Thus the agency seems to view public transportation’s role in social equity as being able to provide everyone access to bus and rail services so that everyone has a means of getting around the city without needing a car. However, the issue of money makes it difficult to provide this access in a way that makes all riders satisfied (Borgman).

San Francisco Muni

On the other hand, San Francisco’s view on social equity is to provide its residents to services to the areas of the city where the majority of the people go. According to Secretary to the Board, Roberta Boomer, the agency pays close attention to the transit patterns of riders and how they have changed. “We recognize that transit patterns have changed in the city. It used to be residents going to downtown in the central core” (Boomer). The amount of people going to downtown has changed with the development of different neighborhoods, such as those south of Market, and is drawing people to new places. For the agency, equity means that all people have access to the areas that are most serving people with various necessities every day. This means that it will influence which services will be cut. In Muni’s case, they have cut the most underutilized bus lines. Despite low ridership on certain lines, there are people who still board these routes, and San Francisco continues to be one of the most expensive cities to live in in the United States (CBS Money Watch), and the average resident’s income is higher than that of Los Angeles’ (United States Census Bureau, City-

Data). Therefore, it would be unfair to assume that all of San Francisco's initiatives within the public transit agency will be feasible in Los Angeles. San Francisco Muni officials may believe that cutting lines will have a big enough impact on its riders in terms of the benefits it will reap from the money saved this way. However, Los Angeles is a much more sprawled city, and many would believe that every line is crucial to connecting people from every region.

In addition to providing riders with access to the busiest places, the agency works toward creating programs that provide everyone with the ability to ride public transit, regardless of income. Furthermore, Muni believes that social equity should mean that students could get around the city to get to school consistently and on time. Thus, Muni has connected with Google, which provided the agency with a grant to allow Muni to offer students up to age 19 with free fares (Boomer). The agency has a history of providing free fares to its riders in the past, including offering them to low and moderate-income seniors. Lastly, social equity for Muni means making San Francisco into a city that can accommodate all of its residents as its population continues to grow. The population will reach 1 million in 10 years, and the agency believes that getting people out of their cars and into public transit will help prevent the issues that could potentially come with an overcrowded city, such as housing and resource shortage (Boomer).

King County Transit

The interview regarding King County Transit took place with Carol Merrill, Communications and Services, and Daphne Pie, of Public Health in King County. King County Metro has taken the most unique approach to providing equal access to its agency's services. Starting at the beginning of this month, the agency revealed its new ORCA Lift Program, of which riders will

be eligible for discounts to those who are 200% under the federal poverty level (Merrill). It is the first of its type of program in the country. By offering discounts, King County Metro hopes to connect residents from one end of the city to the other, so that they may easily access important resources, such as social services, jobs, and other necessities. While this could potentially help thousands of people with the burden of paying for transportation, King County Metro acknowledges that it still does not help the homeless population, as they would still be required to pay. This is where Merrill acknowledged that there is still room for improvement in how the agency can play a role to improve social equity, even for the homeless.

In addition, the agency began working with Public Health (Pie); public transportation should be as convenient to obtain as one's personal car. As a result, working with Public Health means that the agency may be able to broaden its outreach to people, and offer its services through a variety of places, such as libraries and community centers. This way, King County is able to reach out to people who may have trouble getting to one specific location to sign up for a transit pass.

Social Equity Goals: Transportation Organizations

i. Bus Riders Union

The interview with Eric Romann, Campaign Organizer and Researcher for the Bus Riders Union shows a stark contrast in the attitude towards public transportation. Nolan's interview has made it clear that Metro is placing a lot of attention on expanding the rail lines throughout the county. However, Romann stresses the importance of improving bus services for LA's low-income residents, because Metro, in the organization's opinion, has not done enough to increase social equity for all. The BRU focuses solely on the expansion of the bus system and takes a cynical viewpoint regarding Metro's current projects. When I asked Romann how BRU views

the efficiency of Metro's services as a whole, he said they are "lacking." However, Romann believes that there is much to be done so that Metro can help increase social equity, and that process is currently not happening. The organization recognizes that there are positive aspects of Metro's services; however they say that that these strongpoints have only worked because the lawsuit that BRU implemented against MTA forced them into developing the bus services. The one positive development identified was the implementation of the Bus Rapid Transit line (Romann). However, BRU believes that Metro is failing to accommodate the most dependent riders by cutting the frequency of the bus, and the agency has made it difficult for residents to use public transit at all since the fare increases from September. Thus, the organization is fighting for greater social equity in the sense that services should be more affordable for low-income riders, and argues that Metro has "enough money to reduce fares across the board" (Romann). As a result of raising fares, low-income residents who cannot afford cars are at a major disadvantage, as they struggle to find any way to be mobile around the city.

ii. Move LA

In contrast, the interview with Move LA's Deputy Director, Beth Steckler, reflects the organization's focus on the public transit system overall. While the Bus Riders Union focuses on solely the bus, Move LA also places heavier focus on expanding the light rail system, and is apparent in Move LA's R2 campaign. The organization, she says, is currently campaigning for the R2 measure, in which they are calling for 20% of this new sales tax revenue to go towards Metro's operation costs to help expand services and avoid raising fares once again (Steckler). Social equity in regards to public transportation means that students, who often lack steady incomes, deserve to have affordable transportation that will help them go to and from school. Thus, Move LA is looking to San Bernardino County and Santa Monica College's example of

providing its students with free passes for public transit. While the bus lines form an extensive network throughout Los Angeles, Move LA thinks that public transportation ought to operate more quickly, and so it supports the expansion of the light rail system, which would be able to increase efficiency for riders. Furthermore, Steckler stated that the recent fare increases can be detrimental to many riders, and her organization looks to come up with ways that Metro can support itself financially, but in a way in which it does not discourage or prevent individuals from using its services.

Survey Results

Survey Set A

I conducted surveys over the summer, which looked into the demographics of public transit riders in Eagle Rock, Downtown LA, and Pasadena. Additionally, the surveys gathered responses concerning the public opinion of the then-recently implemented fare increases, and the impacts that riders expected to have as a result. I collected 40 results, and below are the results for some of the questions. The rest of the results will be in the Appendix at the end of this report. While I will not be using all of the results for this research, some of the questions will contribute to the riders' view on Metro's services, which will help support the policy recommendations that will be made later. Below are some of the most relevant responses.

As mentioned earlier in this paper, Los Angeles Metro boasts some of the lowest fares in the world, among the biggest transit agencies in the country (Adopted Budget 2014). Yet, the survey responses revealed that more than half of the respondents in July 2014 were not aware of the upcoming fare increases that were to take place in September. Furthermore, the sample revealed that 51% of respondents could not let the higher fares affect the frequency with which they use Metro's services, even if this increase will put a strain on their other expenses. The survey

provided a short description of the recently implemented fare restructure, and after reading the description of these changes, 83% of the riders said that they held negative views of the new fares, despite knowing that its objective is to fund the increasing rail projects. However 55% of riders use bus, rather than rail. Historically, the majority of public transit riders in Los Angeles have been bus riders (Customer Satisfaction Survey Results). While the sample size was small and not indicative of the entire ridership population, the opinions of the fare increases reflect that the majority of riders' interests lies on improving the bus system, rather than rail expansion, where most of the new funding would go.

Survey Set B

At the beginning of my comps research, I intended to focus on the benefits that greater fare subsidies would have on riders in granting them greater social equity in Los Angeles. I believed that by Metro providing more ways to provide lower fares through greater subsidies, it would grant riders, who are often low-income, to have the ability to have equal access to resources as those who have the privilege of a car. Thus, for much of my primary data I initially created a survey that focused on subsidies—on riders' awareness, the impact that they could potentially have if increased, as well as the access to such reduced fares, and whether riders are aware of them, as well as how they impact current riders. I managed to gather 15 of these surveys before I came to this realization, so I call this first set of surveys my pilot survey. They provided a basis of responses that led me to ask more specific questions with a new set of surveys.

The survey results reveal important information about people's riding habits and their awareness of certain services. Half of the riders who responded to the survey said that they use Metro on a daily basis, while 25% of riders use it 2-3 times a week (Appendix A, figure 1; Appendix B, figure 13; Appendix C, figure 27). Therefore Metro has a prominent presence on

riders' day-to-day business. Furthermore, riders were given a short description of subsidized fares, and 22% were still unsure if they qualify for such fares, while 33% came to believe that they are eligible. Lastly, 67% of respondents stated that they would qualify for a low-income adult discount, although this was a hypothetical choice, given that such a discount is not offered by Metro.

Survey Set C

Therefore, I created a new set of surveys that would provide me with more direct responses as to how Metro fares and its services impact riders' access to transportation and other resources. These responses were collected at various bus and rail stops in Los Angeles. These interviews were more concise in order to draw in more people to take them, even as they are waiting for their bus/train. Survey Set B was created due to certain limitations that I encountered during my interviews. The more I spoke exclusively about increasing subsidized fares, it turned into more of an economics question, rather than social equity question. In order to properly assess the effectiveness of subsidies and being able to provide more, it would have required me to evaluate Metro's budget in a way that my limited economics knowledge would have made difficult. Thus the objective of the second surveys was to create more conversation with riders in a time efficient way, and find out how the current fare structure and services are affecting riders, and thus be able to provide recommendations later to improve the quality of service so that riders have greater social equity. Unlike the first surveys, these elicited more conversation and comments about the questions and Metro services. Thus, some turned more into loose interviews, and became more time consuming, which is why partly I collected less than expected. I took the majority of these surveys to Highland Park and Downtown Los Angeles. All of the survey results

can be found in the appendix at the end of this paper. The following results identify the most relevant data that was crucial to the policy recommendations that will come later on.

Half of those who answered the survey said that they do not have access to a car or another mode of transportation, and therefore rely on public transportation for their every day needs. The same number of riders uses public transit for work (37%) as for school (37%). Both of the reasons contribute to determining one's well-being and quality of life. While the majority of riders said they pay regular prices (47%), several of them admitted to possibly being eligible for lower fares, but they didn't have the time, didn't know how to apply, or were not aware of available discounts. Yet, 75% of riders answered that they believe they can qualify for reduced or subsidized fares. Additionally, 75% of riders said they believe, or they already know they are eligible for student discounts. In regards to the recent fare increases from September, 64% of riders said that the new fares have negatively impacted their ability to use Metro services. Nevertheless, 88% of the respondents still use Metro's services with the same frequency, while only 12% said they use it less. This does not necessarily mean that they can afford new fares. However they had to find a way to manage, as it is a crucial part of their life. Lastly, the range in amounts in which riders spend on public transportation is from \$0 (if using passes provided by employer or special passes) to \$48 a month on public transportation. Some riders pay Metro fares by monthly pass, and others pay more often, depending on whether they purchase daily or weekly fares.

In addition to the survey questions, many riders would make additional comments to express their content with certain aspects of the agency, and some of these points can be related to one's overall well-being. While some discussed operational aspects, such as timeliness, especially for trains, and certain services that are offered 24 hours a day, there were several other

riders focus on aspects related to the environment of buses and rail lines. Some like the socializing and community feel within the bus or train, others enjoy the extra time they save with not having to drive, to do other things such as talking and relaxing. Along those same lines, some riders enjoy the fact that public transportation, most often light rail, allows riders to avoid rush hour traffic.

On the other hand, complaints about the system tended to be based more on service operations, than aspects of environment of the bus and rail. Although riders are satisfied with many aspects of Metro services, there are other areas in which riders are not currently satisfied. Many riders cite the fare increases as burdensome, and think that the agency needs to “cut us some slack.” Other riders find problems with the bus system, as they feel there are not enough buses operating in their area, and thus must put up with longer wait times. One rider in particular said he struggles to commute from his home in Glendale to Downtown Los Angeles. Another rider who is a new Los Angeles resident found it a hassle to ride the bus, saying she has had trouble boarding on time and figuring out how to use the bus more efficiently. As she told me this at the end of the survey, her bus passed her up. Still, others brought up cleanliness, especially when it came to the red and purple underground lines.

VII. Analysis

The surveys conveyed significant quantitative results, as well as important insight into how the current Metro services and fare structure are impacting riders, particularly those who are low-income. The majority of the riders rely on Metro on a daily basis to get them to their various tasks in Los Angeles. Although the sample size is small for the data collected for the purpose of using Metro, it revealed that many riders use it for work and school.

Although Los Angeles Metro has among some of the lowest fares for its riders in the country compared to the other of the largest transit agencies (“Adopted Budget FY 2014”), local riders are divided when it comes to their ability to maintain ridership after the fare increases from September 2014. The vast majority of riders use Metro buses and/or trains on a daily basis, although most use the buses more frequently (Appendix A, B, C; Figures 1, 13, 27). The largest percentage of riders is between the ages 18-30 (Appendix A, Figure 10). Despite an overwhelming negative response to the recent fare increases from September, riders stated that they would continue to ride Metro the same amount (Appendix A, Figure 9). Much of the reason for this seemingly contradictory response reveals the lack of transportation options that riders have (Appendix B, Figure 21), as was also revealed in the surveys done by the APTA. Riders simply cannot compromise their transportation in order to save money, regardless of the strain that the higher fares may have on their budgets.

Furthermore, at first glance, the quarter dollar fare increase on one-way fares does not seem to be too burdensome. However, the difference in price from the old fares increases significantly for longer-term passes. So while the single ride fare only changed from \$1.50 to \$1.75, the passes increased by much more, with the monthly pass going up from \$75 to \$100 (Ucar 2014). One rider stated, in regards to the impact of the fare increases, that “It’s hard to pay for fares. Our situations don’t change, but the fares still do.” This calls into question whether the riders are faced with the decision of having to cut money from other parts of their budget to make up the difference for what they are now paying. On the other hand, many other respondents reveal that they are unable to keep up with the increases, and thus it has affected their ability to ride Metro as often as they had before (Appendix C).

The surveys also call into question the awareness of being eligible for lower fares, and accessibility to the applications. Though my sample may not be representative of the entire Metro rider population, at least 1/5 of riders said that they were not sure whether or not they qualified for reduced or subsidized fares (Appendices A, B; Figures 2 and 17). As far as the subsidized programs that Metro offers, the majority of riders did not know that the agency offered such services, which is surprising, given that approximately 41 percent of riders have been using Metro's services for more than 10 years (Appendix A, Figure 3). Thus, those who were being surveyed were just learning about this program for the first time. Lack of awareness could be resulting in a large portion of riders who are paying more than they should to use public transportation, based on Metro's own criteria for those eligible for lower fares.

Many transit riders are very-low income and work all day to still struggle to make ends meet, so while reduced or subsidized fares may seem like an obvious necessity for them, accessibility to these services may be difficult. Other respondents answered that they did qualify for lower fares. Yet their inability to get to the necessary office to turn in the application deterred them from turning it in. Metro accepts applications for reduced fares and subsidized programs at each of its Metro Customer Centers. However there are only 4 such locations throughout Los Angeles ("Customer Centers"). One can imagine that for a city that is so sprawled, it could take a very long time just to reach an office, if they have that time at all. One woman in particular is homeless, and must pay each day for the daily pass. She currently enrolled in school and she is in between jobs, so having to spend \$7 a day for transportation was extremely difficult for her. Her day was consumed by school and job-hunting, and although she clearly is eligible for a reduced fare, she lacks the free time to go to the Metro Customer Center to apply for the full time college student/vocational student pass. This person is an example of social inequity being exacerbated

by the current structure of the agency. Although Metro offers services to relieve the burden of fares on riders, the process to receive these services is difficult. The fact that some riders must rely on public transit results in taking more time out of the day to travel. Meanwhile that time could be used to apply for lower fares.

The majority of respondents (69%) found Metro buses and rail to be comparable to a car in certain aspects, in that it is timely and can help residents avoid traffic that they would normally encounter in a car. In this sense, riders can consistently rely on public transit taking them from place to place in the time it is scheduled to. Thus riders have learned to plan their schedules around travel time, although the total time that it takes to get from point A to point B might overall take longer. Public transit riders are at a disadvantage when compared to people who own cars, because overall it might take someone more time not only traveling on the bus or rail, but also having to take time to get to the transit stop. This is when it is important to take into account that the majority of riders do not have access to a car at all (APTA), meaning that they must either walk to or bike to get to a transit stop.

Once on the bus or train, riders can make up for some of this lost time with the free time they have to do other things, since they do not have to worry about driving. When riders were asked what they liked best about Metro, several of them brought up that they enjoy having other people around them, or they can do other things while they sit and wait. In this sense, Metro riders' health and well-being is benefitted, as numerous studies have linked traffic to causing stress (Stokols et al. 467).

It is important to note that while riders would like to see certain changes to the system to relieve them of certain financial burdens, a majority of the transit riders overall are content with their Metro experience. The question is whether these benefits are enough to outweigh the

financial burdens and other inconveniences that make it difficult for riders to go about their days as easily as possible. Many riders wish that they could apply some of the money that they use on fares, to other resources, including food, school materials and rent. Therefore, Metro is doing a good job at addressing the problem of access to transportation to some extent, but it forces some riders to make sacrifices in other parts of their life. Social equity should mean that all people, regardless of socioeconomic status, has access to a stable job, education, and other daily needs. Having a mode of transportation is helpful, but it does not mean anything if riders still struggle to go about their daily lives.

VIII. Policy Recommendations

The data collected throughout this research has given me a sense of how public transit riders in Los Angeles feel about their experiences with Metro. This paper seeks to contribute to the discussion of how public transportation is tied to social equity in Los Angeles, and thus makes suggestions for further consideration.

Funding For A New Group Of Riders: Adult Low-Income

Metro currently provides reduced fares to several groups of riders, including students K-12, full time college or vocational, and disabled or senior individuals. However, regular adult, low-income riders are not able to receive reduced fares, only discounts on the specific subsidized programs, depending on their income in relation to the federal poverty level, as mentioned in the literature review. Therefore it would be effective for Metro to have a pilot program that is going to at least temporarily provide this neglected population with reduced fares until Metro takes action after the APTA recommendations and Task Force recommendations. This could be a program that is funded similarly to the program in San Francisco that was funded by Google.

It could be very beneficial to initiate a pilot program that would be able to serve the low-income adult riders in the meantime while Metro continues to evaluate the recommendations from APTA, and the ones that will come later this year from the Best Practices Task Force. San Francisco Muni differs from Los Angeles Metro in that Muni is operating with a \$22.2 million surplus this year (Chinn 2014), therefore the agency had the financial freedom to run this program for k-12 students, which would cost the agency \$2.8 million if they choose to continue it after the two pilot years. Before SF Muni made 18 year olds eligible for the reduced student prices in 2014 (Boomer Interview), 31,000 students were signed onto the program. We can assume that this number is significantly lower than the amount of low-income adult riders. Approximately 68% of Los Angeles Metro riders are between 23 and 64 years old (“2014 Customer Satisfaction Survey Results”), thus they account for an estimated 912,000 of the average bus and rail weekday boardings (“Facts at a Glance”). Although not all of these riders are in need of lower fares, given that 57% of riders earn under \$20,000 (2014 Customer Satisfaction Survey Results), one can assume that the population of low-income adult riders is going to be much larger than SF Muni’s student ridership.

Therefore a grant of a similar size for Los Angeles Metro could possibly benefit riders for a couple of years as well for a pilot program. The American Public Transportation Association’s recommendations include some to increase revenue. APTA is recommending for Metro to raise its fares, it is also calling for other option that would be least detrimental for its low-income riders. Some of these changes would be able to be applied to creating the necessary funds to continue to subsidize fares for this group of riders. Some of these revenue sources from APTA that Metro should consider are placing ATM machines at rail stops, adopting performance pricing in which in which Metro parking lots will charge riders to park their cars there, and

establishing loyalty programs in which businesses in the county would offer discounts to Metro riders, and in exchange the Metro agency would promote that particular business (American Public Transportation Association). Local community colleges and other universities could also participate in a program like this, in which they provide discounted fare passes for their students. Pasadena Community College and Rio Hondo College are two such schools that are already incentivizing their students to use Metro (Navarro 2015), thus reaching out to students who might have a difficult time attending to school otherwise. Employers in Los Angeles should also offer such passes, as it could have similar effects for its employees. Thus Metro would be bridging the gap between transportation access and its ability to help riders go about their daily lives with ease. These are just a few of the possible recommendations for generating revenue that were given by APTA, and they are sources that could help increase revenue in a way that would help avoid doing so in a way that will minimize the impact it would have on riders most in need.

Although the surveys I conducted are not representative of those who already use reduced fares, providing fares for this new group of riders could potentially benefit approximately 19% of the population, which is the amount of Los Angeles County residents whose annual income is under the federal poverty level (“Los Angeles County QuickFacts Beta”). Looking at it at a narrower scope, Metro riders who are very low income exceed the County average, as almost 57% of riders make under \$20,000 (2014 Customer Satisfaction Survey Results). From another perspective, providing low-income adults with reduced prices would reach a demographic of individuals ages 25-64 that make up 53.8% of the Los Angeles County population (“Profile of General Population and Housing Characteristics: 2010”). I chose this age range because it consists of an age bracket that is typically above school age, so they would not qualify for student prices, but also mostly below the senior citizen age of 62 years. It is clear that Metro is in need of

funding to support its rapidly growing system, and finding a private entity to give the agency a grant could be a way for Metro to provide free fares or heavily subsidized fares to lower income adults that do not qualify for the current reduced fare categories.

Changing The Application Process

My primary surveys and interviews revealed that Metro's services have improved in recent years, and that the quality of service satisfies many riders. However, it is clear that there are many riders who are eligible for lower fares, but lack the time or resources to apply. I have been able to learn about the methods that other transit agencies use in order to help their residents go about their daily lives with ease. Currently, people who wish to apply for special fares must be able to access 4 specific locations in order to do so, or else mail in the application. Given the large area that Los Angeles covers, and the riders spread throughout, 4 centers likely will not be located in regions that will be equally accessible to everyone. Riders will be able to make the time to travel to one of the centers, although they may be far from where they work and live. This also assumes that all riders have access to printers, but just like the female homeless rider, others may not have access to such tools and the money to be able to mail it in. Lastly, the 20 day processing period is often too long for riders to wait to be approved.

Therefore, I suggest that LA Metro follows the model from King County Metro to work with the Public Health department or another organization dealing with residents who are at most need for help to obtain resources. This would be a way for Metro to be able to more easily connect with those who are in need of help with transit fares. By working with another municipal or county entity, it could consolidate various services that low-income people need into one place, to ease the hassle of having to travel to many places. King County Metro currently works with several organizations that provide services to people in need. King County has thus

consolidated public transportation services with other services, and thus making it easier for riders to be able to obtain all of their resources in one place.

King County Metro not only works with Public Health, but has also established relation with various other communities in the region, broadening the scope of services to riders. Therefore, besides Public Health, Metro should also work to provide reduced fares through other organizations, such as MEND in Pacoima, Boys and Girls Clubs, and the Downtown Women's Shelter. King County provides its reduced fares through organizations that reach out to different populations, such as the Catholic Community Services, Compass Housing Alliance, and the Refugee Women's Alliance (ReWA) ("Enrollment Locations"). Similarly, the Los Angeles based organizations would also help connect various groups of people in the area to reduced fares that are not normally represented in the current fare structure, particularly low income adults. Individuals that have access to cars would most likely be able to go from one office to another with greater ease, or chances are that they are not struggling as much to obtain lower fares in the first place. Thus transit riders should not have to carry the stress of paying more than is necessary, simply because the application process is not accessible.

Riders should be able to provide proof of eligibility through the existing system, where individuals must provide identification and a full-face photo ("Senior TAP Card Application"). However, the process to take a photo also requires riders to need additional resources, like the money and ability to find a location to take the picture. Therefore this is where the consolidation of agencies is helpful. Riders should also be able to apply for reduced fares with their current resources, and not have to manage many documents to receive the benefits they need. Thus EBT and Medicare cards, or letters of eligibility for those riders who are homeless would be sufficient proof for reduced fares. It is important for riders to have flexibility in their means of applying,

because just one standardized option would not account for these individuals' varying access to customer centers, certain documents, or time to complete the agency's requirements. Metro must be able to accommodate these different situations in order to help ensure that the agency provides all riders with the same opportunity to receive the benefits they are entitled to—whether it is a student discount, senior or disabled discount, and ideally, an adult low income as discussed in the previous recommendation.

In fact, the American Public Transportation Association recently released its recommendations to Metro on how to improve the fare policy, increase revenue, and improve efficiency of services (“Board Meeting: APTA Peer Review of Fare Policy”). One of their suggestions includes Metro coordinating with other governmental programs to provide the discounts that are offered to the various groups, potentially making the application process a much more efficient one for riders, regardless of where they live in Los Angeles. Michelle Navarro, from the Office of Management and Budget, has stated that Metro is looking at this recommendation, along with the others made by the APTA. Should Metro adopt this recommendation, it could help significantly in providing discounts to those who are most in need, but are unable to meet the application's limited options for submission.

Making Social Equity and Buses a Stronger Presence in Measure R2

Move LA is currently working on the Measure R2 campaign—a sales tax that would go into effect alongside the Measure R tax from 2008. The organization is campaigning for this plan, which would implement a half-cent tax to Los Angeles County residents for the next 45 years, eventually generating \$45 billion (Sulaiman 2015). Included in the proposal is a breakdown of how the revenue generated from this tax will be dedicated in transportation (Figure 4).

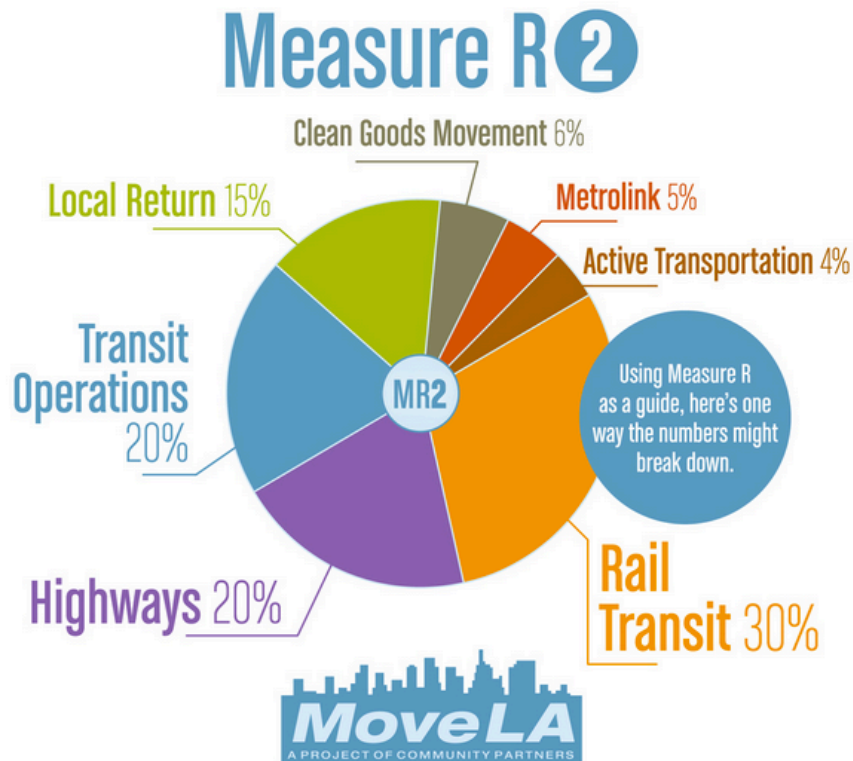


Figure 4. A breakdown of the revenues that would be generated from Measure R2. (Move L.A.)

Measure R2 does not state specifically that funds will be dedicated to bus maintenance and expansion, like Rail Transit is shown in the figure above. The main focus of Measure R2 is to build and expand the rail system. While rail transit serves many low-income residents in the area, buses serve $\frac{3}{4}$ of the ridership population (Sulaiman 2015), and therefore more riders will be directly impacted by changes made for this mode of transportation.

The current description of the proposal only mentions funding for bus services under the “Transit Operating Funds” category, which will make up 20% of the expenditures, or \$18 billion (Move LA 2014). In order for this measure to be more politically powerful, its proponents ought to broaden its argument to make social equity considerations part of its core goal, in the form of greater funding for buses, as well as other pedestrian and bike improvements. Referring back to the large group of transit riders who lack access to a car, these individuals will most likely walk or ride their bikes to and from transit stops. Therefore by showing concern for those who are

dependent on the bus, Measure R2 could broaden its appeal to the more than 1 million individuals who board Metro every day (“Facts at a Glance”). One percent of the \$18 billion from transit operating funds, \$180 million, would be set aside to subsidize fares for college students, k-12 students, and residents living near affordable housing transit. Garnering these funds is already one step to greater social equity in that it would incentivize certain groups of students often disadvantaged to use the system. However, these subsidies should also include the regular adult low-income riders who continue to be underrepresented in the fare structure.

Improving The Conditions Of Buses And Trains

One of the most common statements that survey respondents made was that they would like it if Metro buses and trains, especially the underground lines, were cleaner. While this may seem like a simple request, it could go a long way in improving a riders’ experience on public transit. People with cars have the comforting feeling to be in his or her own space within the car, without having to worry about what inconveniences may be caused from overcrowded buses or trains. Maintaining a clean and orderly environment will give riders a sense that Metro cares about their comfort and overall experience, rather than simply providing someone a ride to and from work. Furthermore, improving the interior of the vehicles could appeal to those who may not normally use public transit. There are many other factors that would have to be considered as a result of increased ridership, including overcrowding. However, from a simpler outlook, presenting public transportation in promotional advertisements as a good alternative to driving could drive up revenue, and thus increase the investment put into improving the buses and trains, possibly improving services for everyone as a whole.

X. Conclusion

This research reveals the gaps in current literature and within the goals of major transit agencies in addressing social equity and the role that public transit has on this. As discussed in Bullard's article, "Transportation touches every aspect of where we live, work, play, and go to school...[it] also plays a pivotal role in shaping human interaction, economic mobility, and sustainability" (Bullard 1183). The interviews and surveys in this report reveal that while there are current efforts to provide riders with access to certain services, there is a lack of focus of social equity, and how it is impacted by the services provided by Metro and other agencies. Public transportation in Los Angeles has done much to help its riders, most of whom are low-income, yet there is still need for further inclusion of adult low-income riders who are not represented in the reduced fare structure, It is important to modify the application process for reduced fares so that it accommodates the abilities and limitations of all types of riders. Consolidating various services that help those who are most in need would increase social equity in having convenient access to services regardless of whether or not they own a car. Lastly, public transportation cannot provide social equity for its riders, unless it makes all riders active participants in the discussion for public transportation development. Los Angeles is going to great lengths to provide its residents with accessible and efficient transit to decrease dependence on cars. Measure R2 should take advantage of the opportunity to include social equity as part of its core goal in the campaign. Millions of residents in Los Angeles could not live their day-to-day lives without Metro transit. So it is important for the country's largest agencies, starting with Los Angeles Metro to take this into consideration with its future plans and the effects that it could have on people's access to jobs, proper schooling, medical facilities of their choice, and so on. While the data presented in this report is not representative of all Metro riders, it provides

insight into the current struggles that the most transit dependent riders have. It is important to not see public transportation as simply a means to get from one point to another, but it must do so in a way that allows for the same efficiency and mobility around a city, as a car would offer.

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Appendix A: Survey Set A

The following charts reveal the responses for each question of the survey that 41 Metro bus and rail riders took throughout Los Angeles. Due to time constraint, I conducted surveys in Eagle Rock, Colorado Blvd. in Pasadena, and various streets in Los Angeles, including downtown and Koreatown. The goal was to get a diverse group of respondents. Surveys were taken at various times of the day.

Figure 1

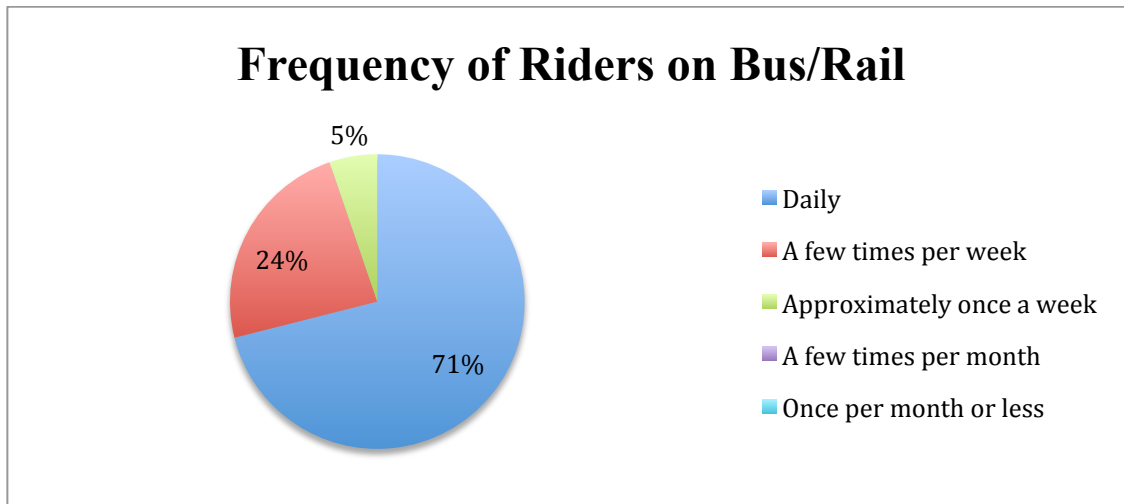


Figure 2

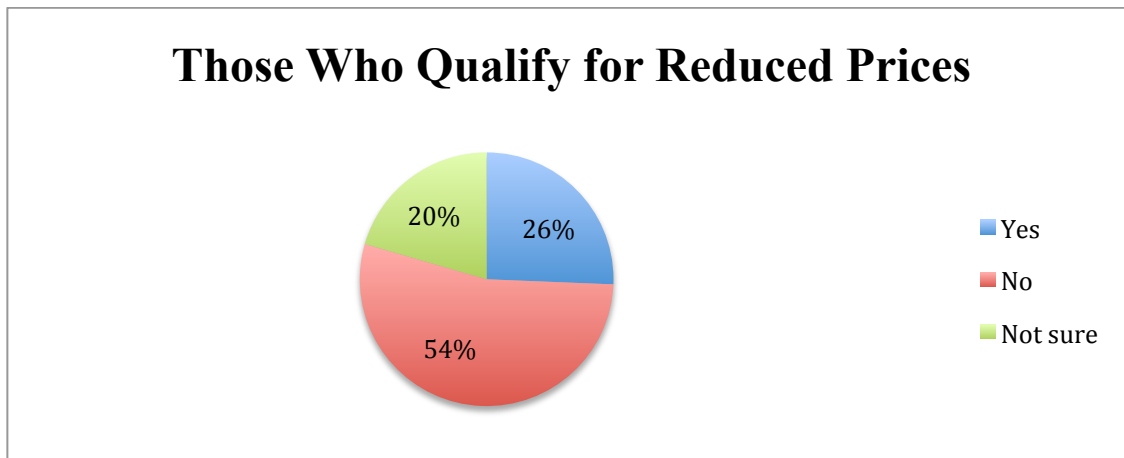


Figure 3

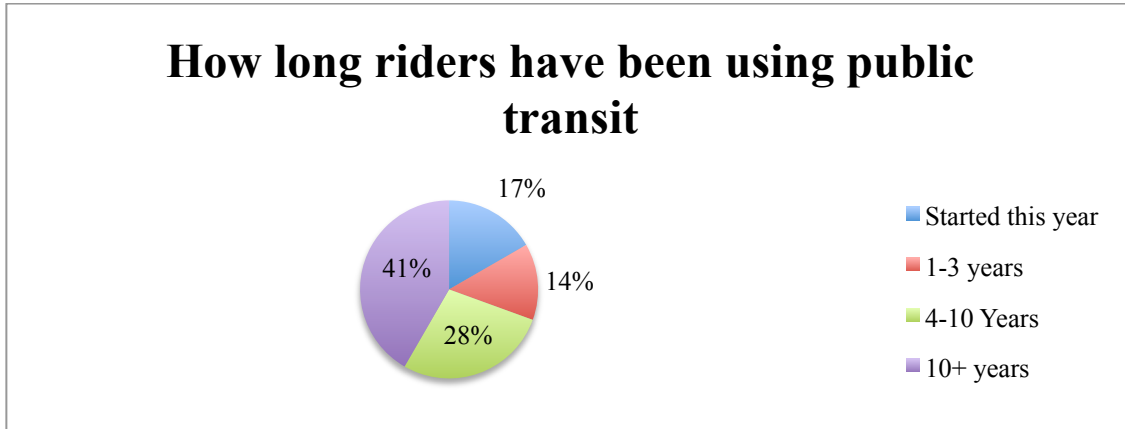


Figure 4

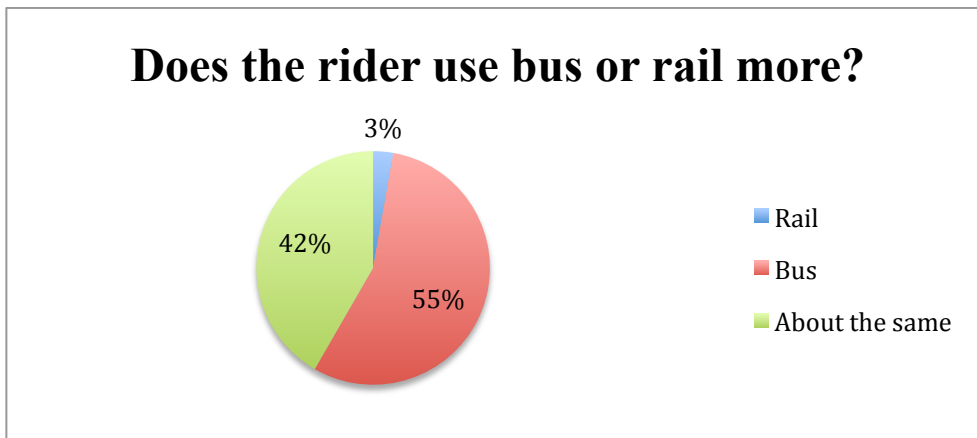


Figure 5

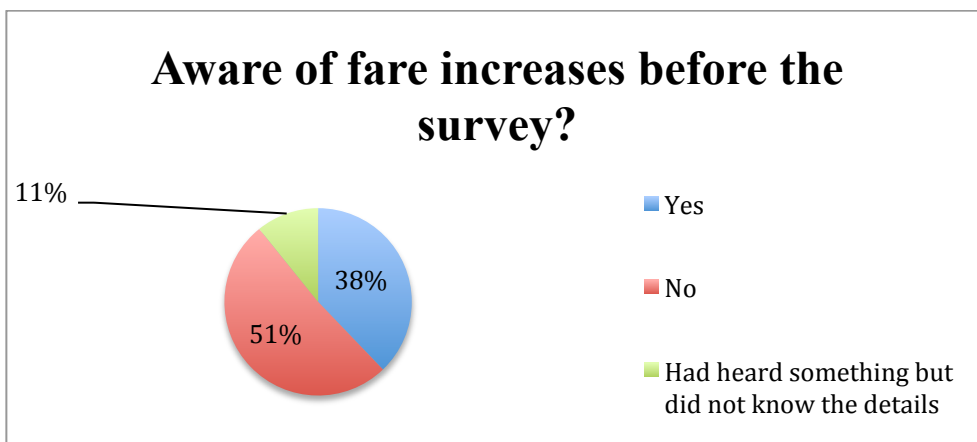


Figure 6

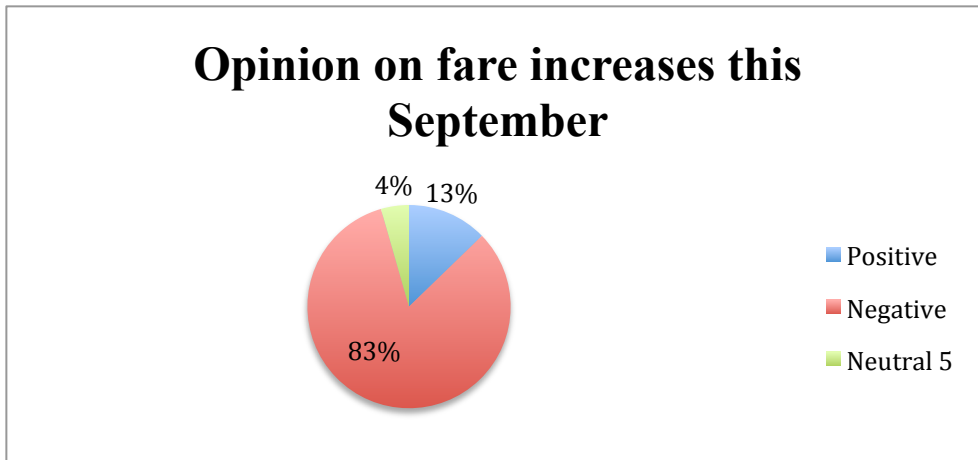


Figure 7

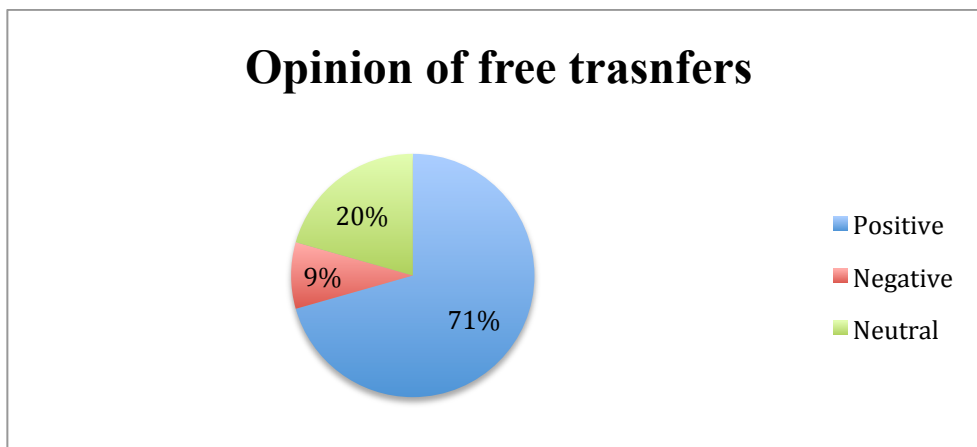


Figure 8

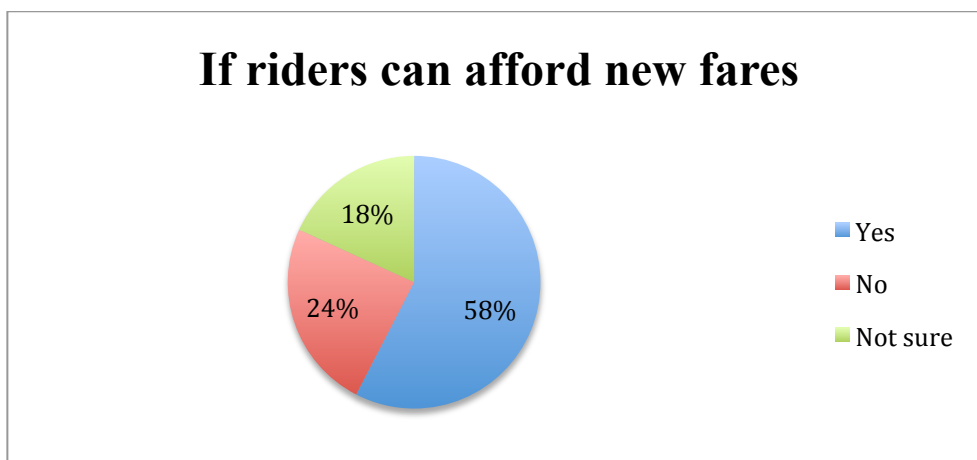
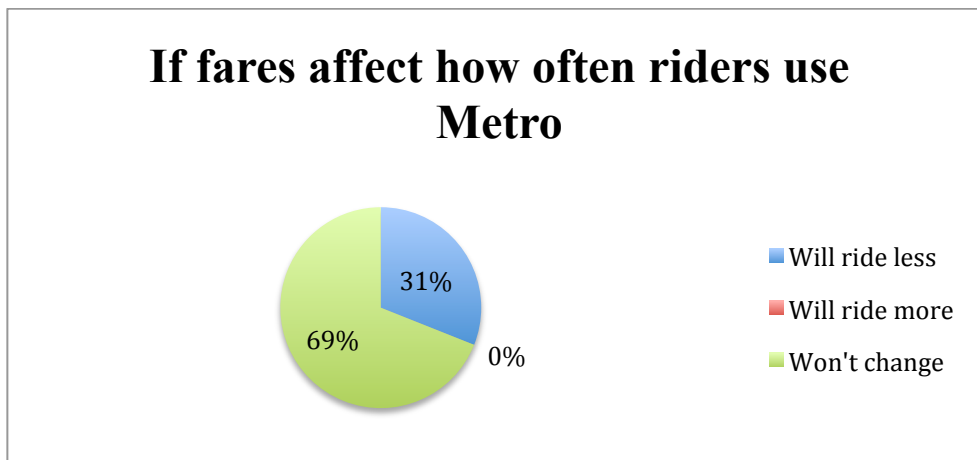


Figure 9



Appendix B: Survey Set B

The following charts display the results for the first set of surveys conducted of Metro riders in Los Angeles in February 2015. The surveys were taken at various bus stops and rail stops in Los Angeles, including Eagle Rock, Downtown Los Angeles and Highland Park.

Figure 10

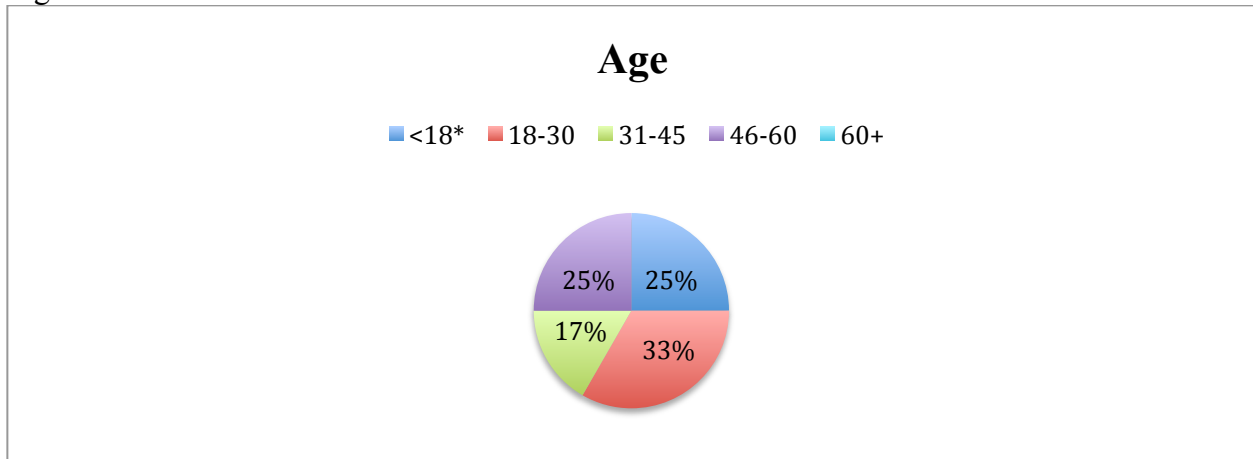


Figure 11

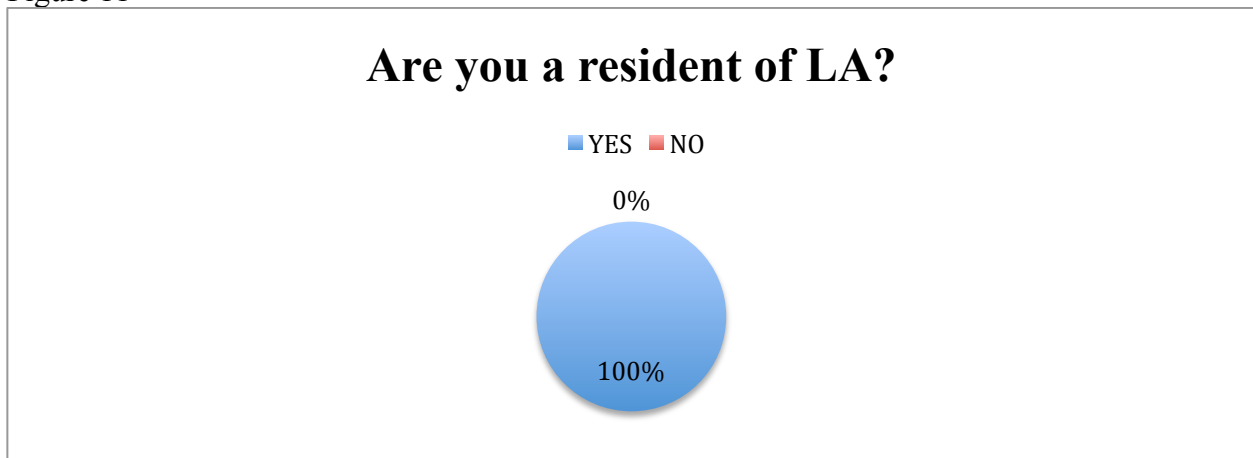


Figure 12

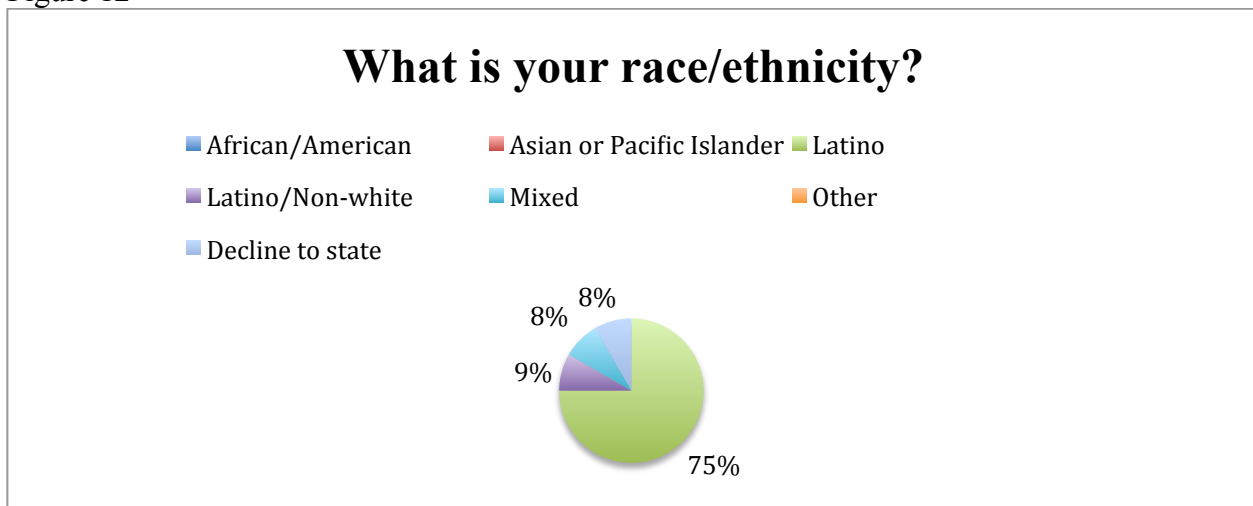


Figure 13

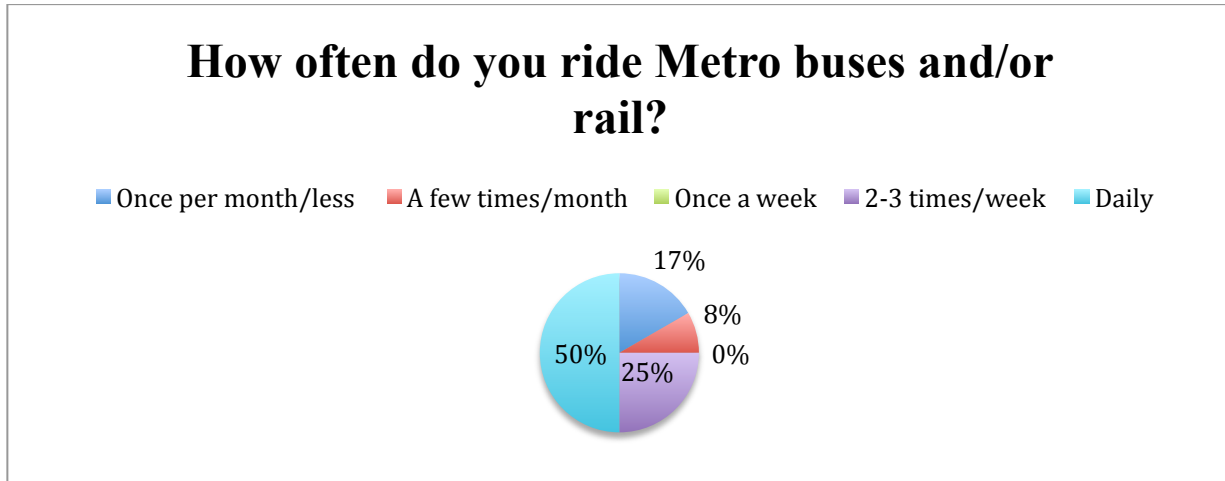


Figure 14

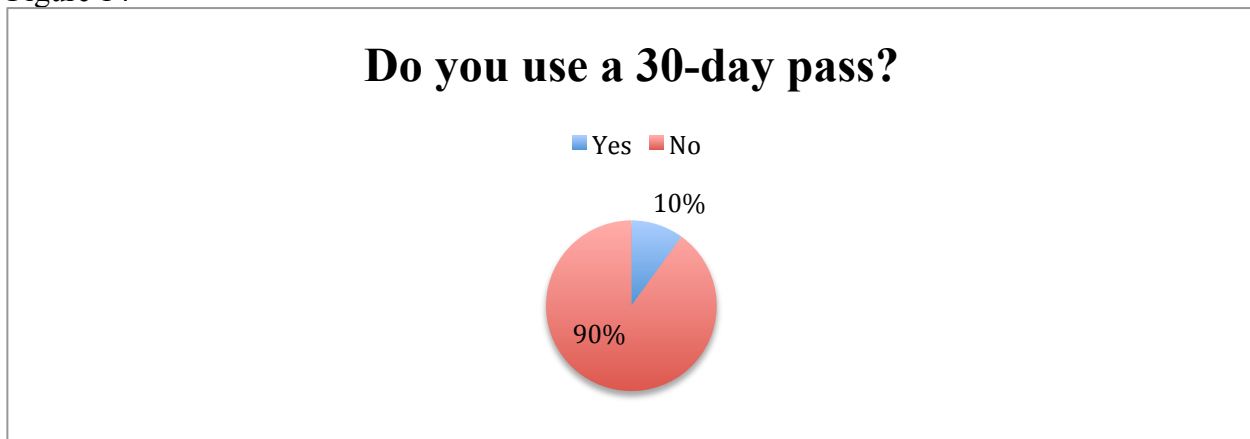


Figure 15

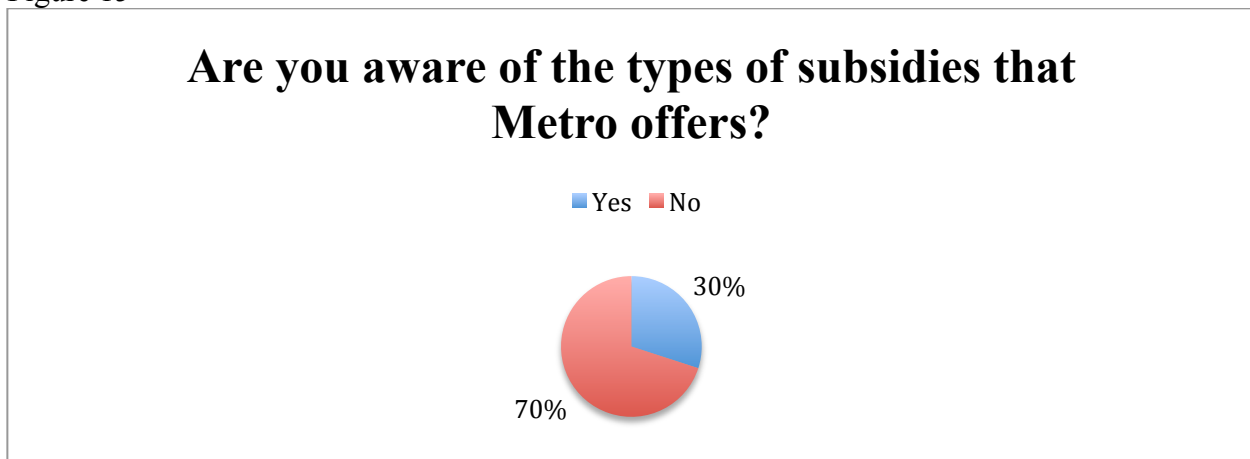


Figure 16

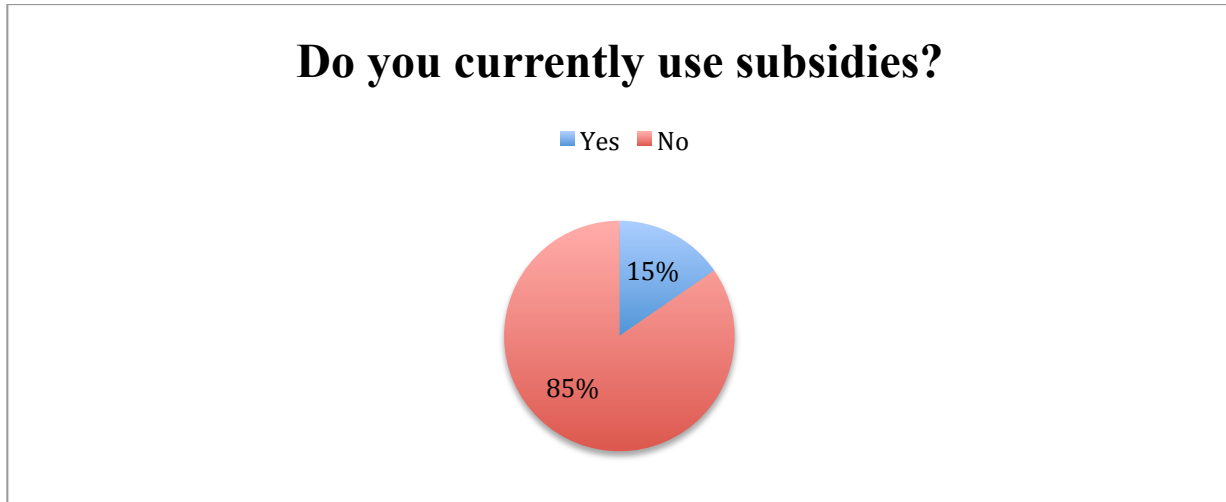


Figure 17

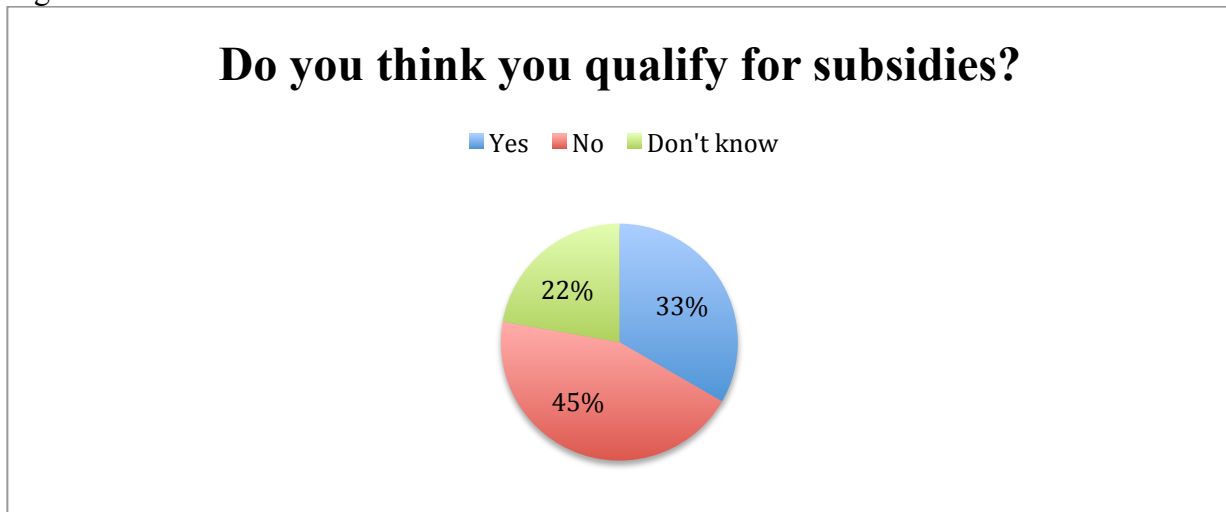


Figure 18

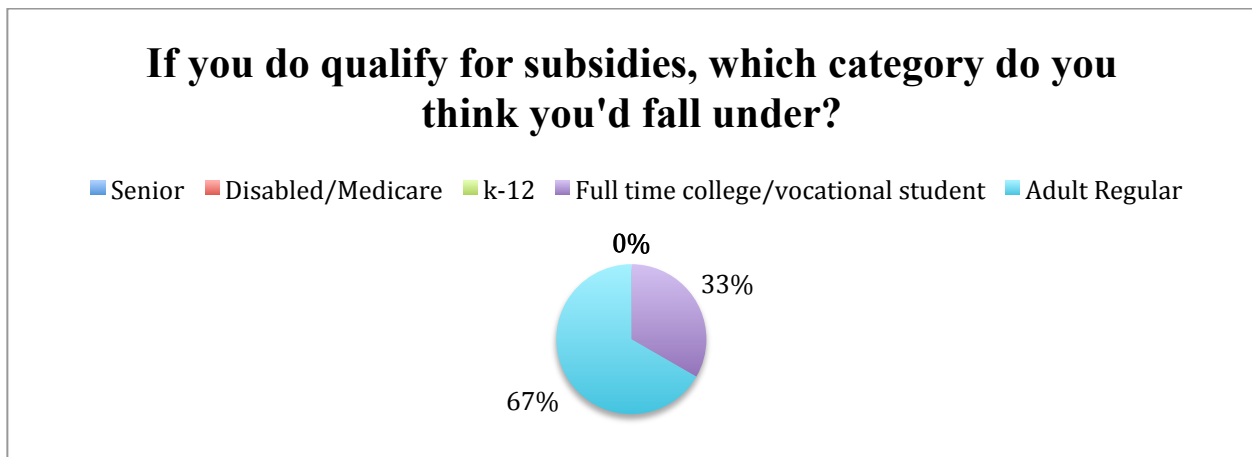


Figure 21

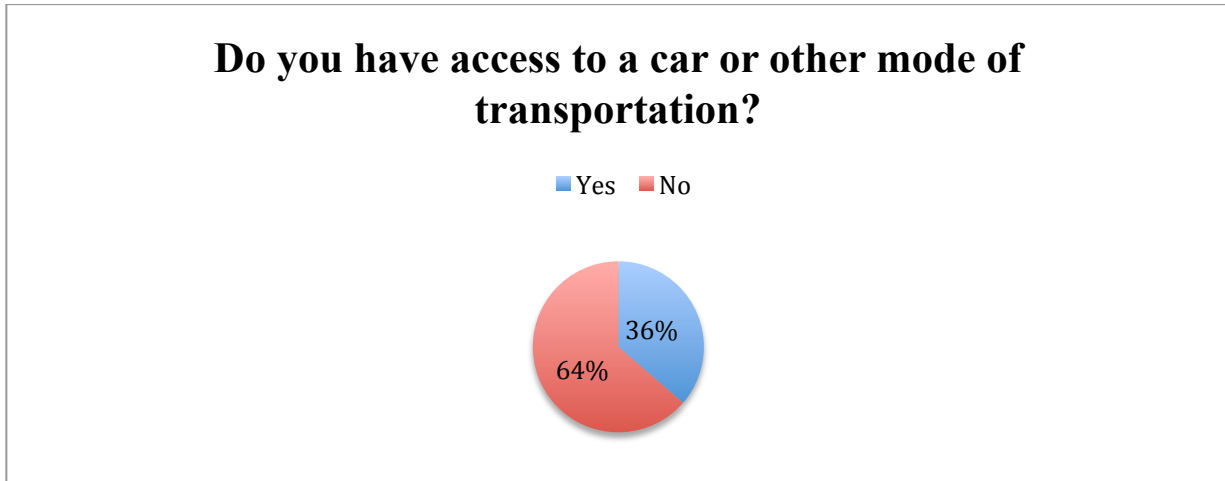


Figure 22

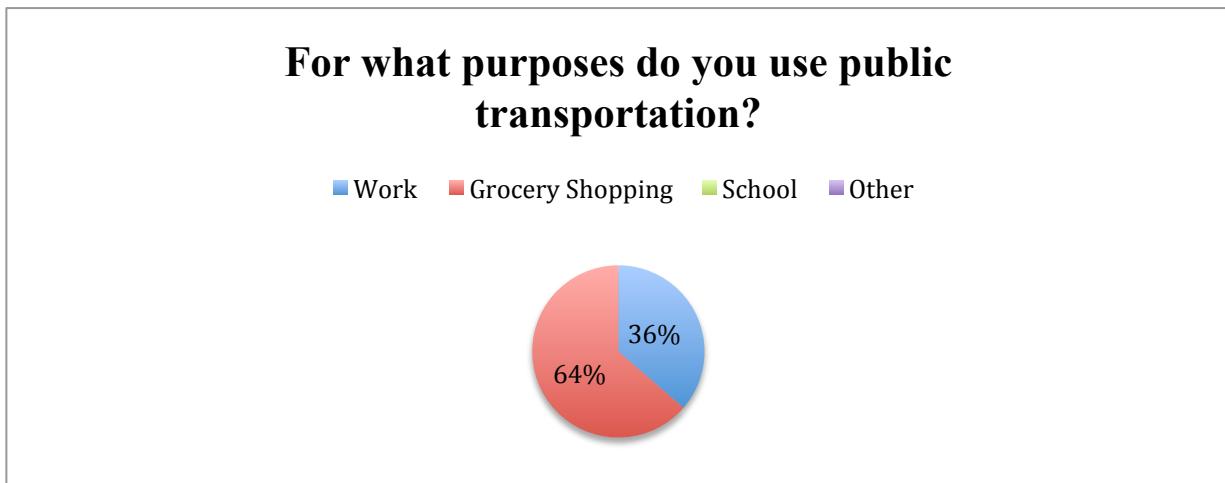


Figure 23

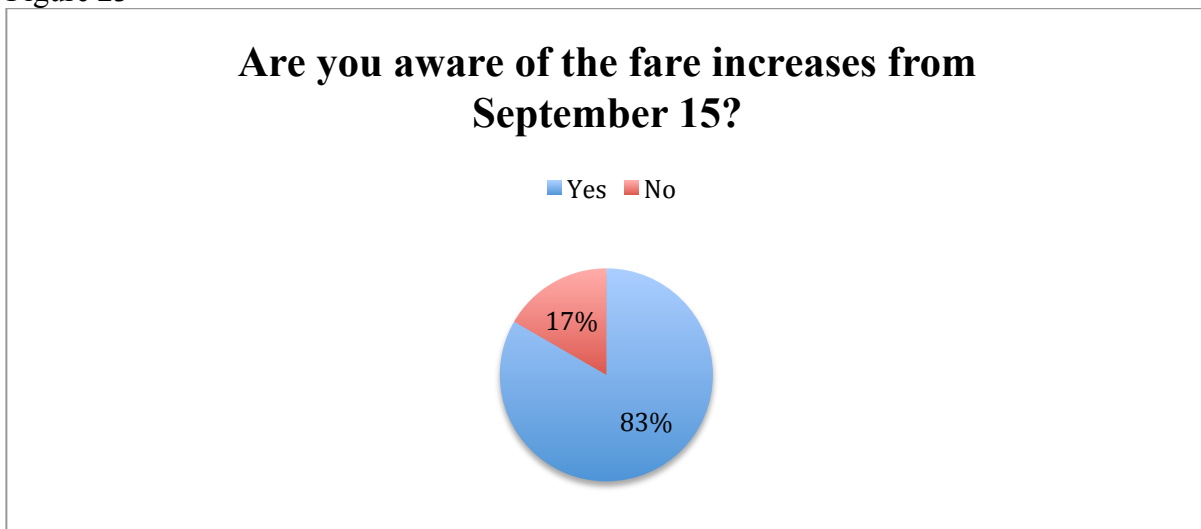


Figure 24

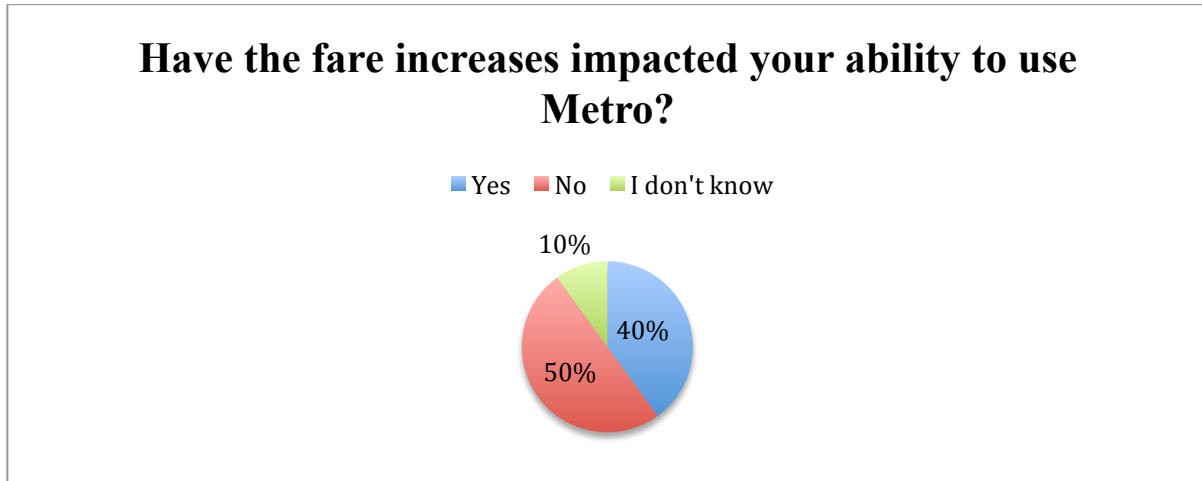


Figure 25

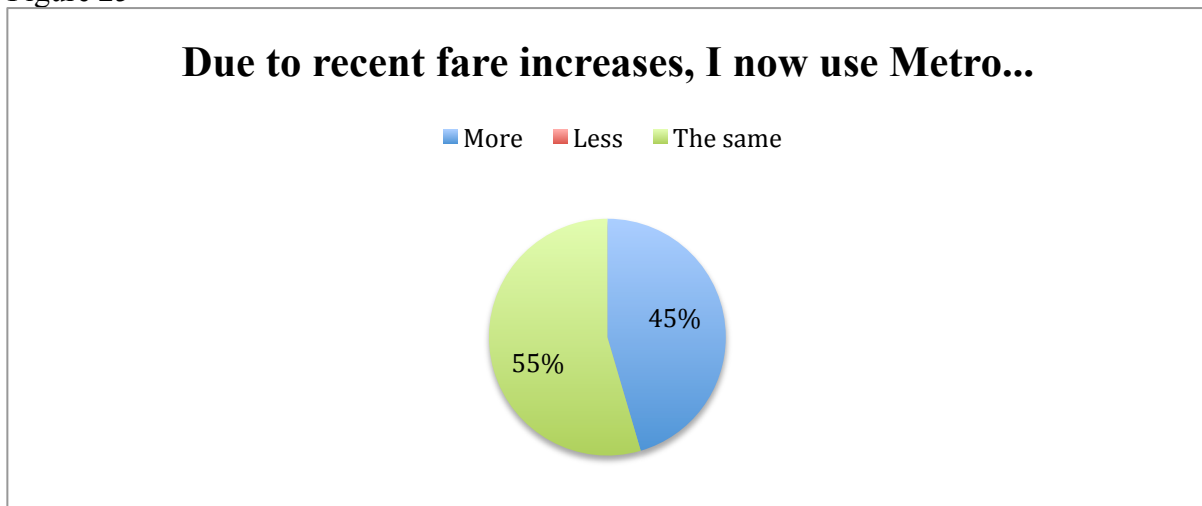
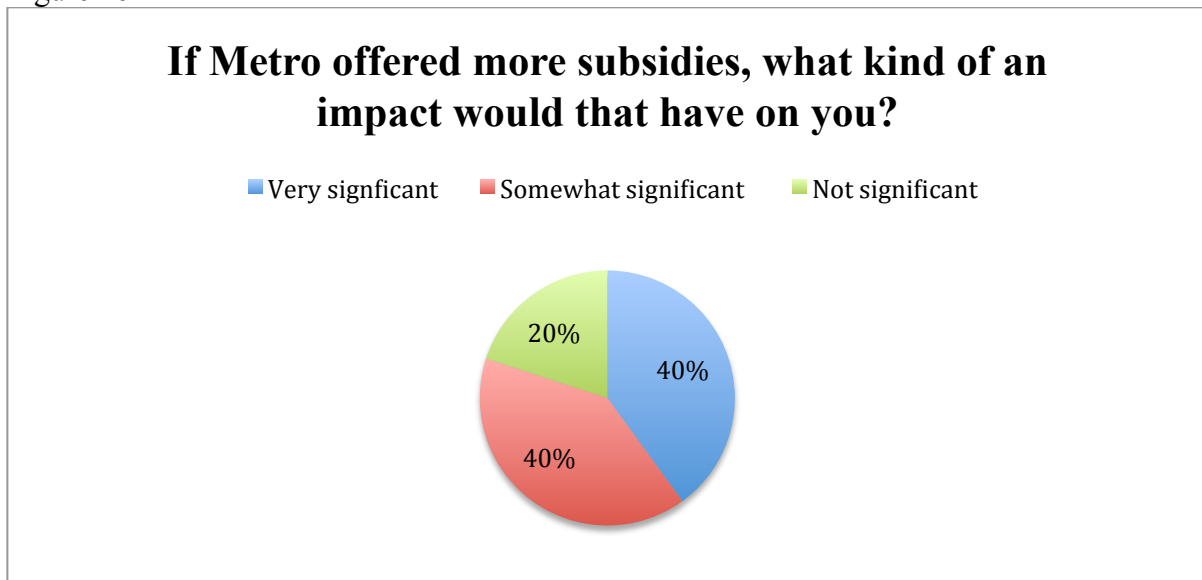


Figure 26



Appendix C: Survey Set C

The following surveys are part of the third survey set that was distributed from February 2015 to March 2015. Questions in these surveys focused on the general opinion that Metro riders have of the services, as well as how their use of Metro impacts their daily lives.

Figure 27

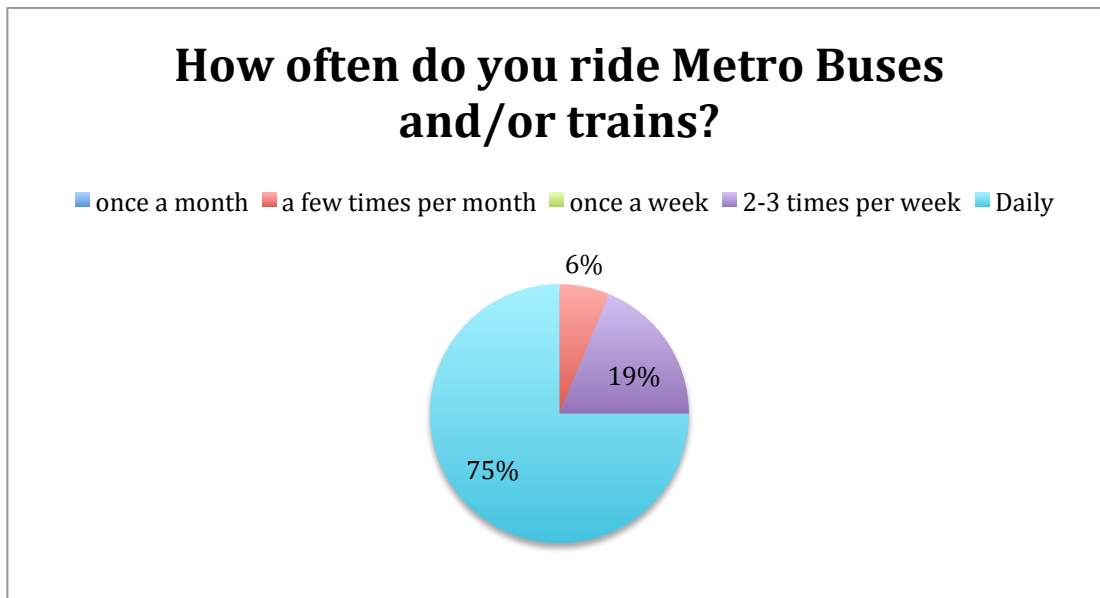


Figure 28

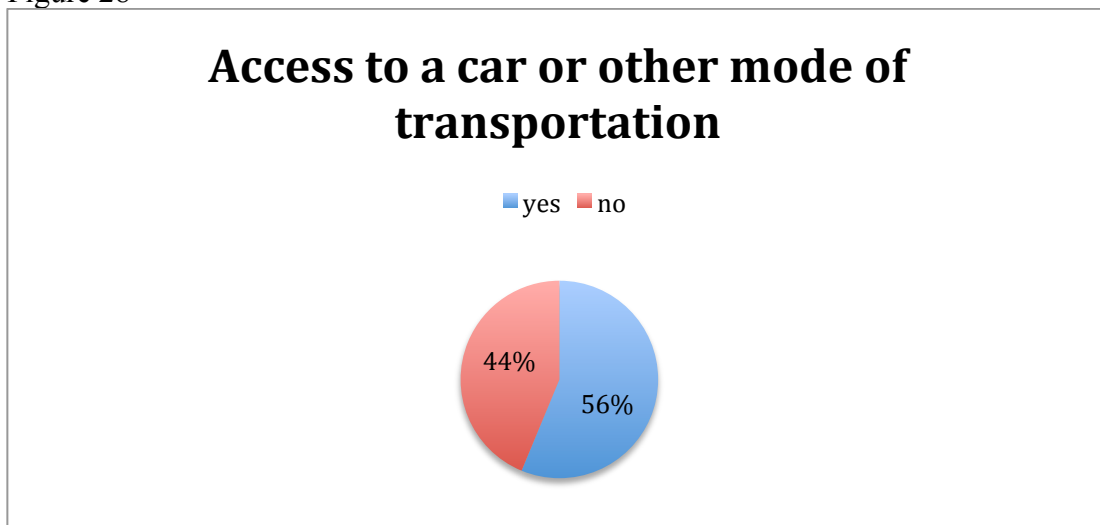


Figure 29

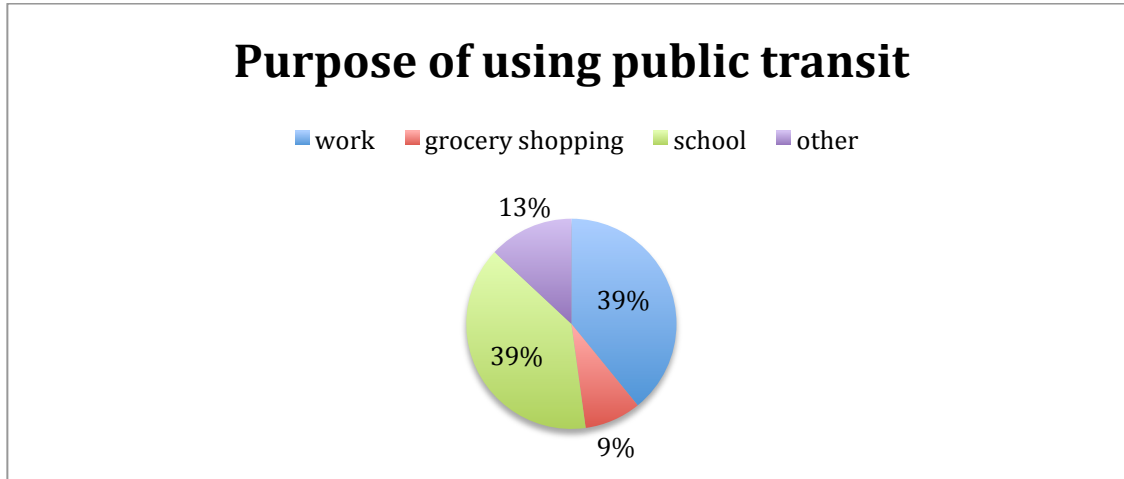


Figure 30

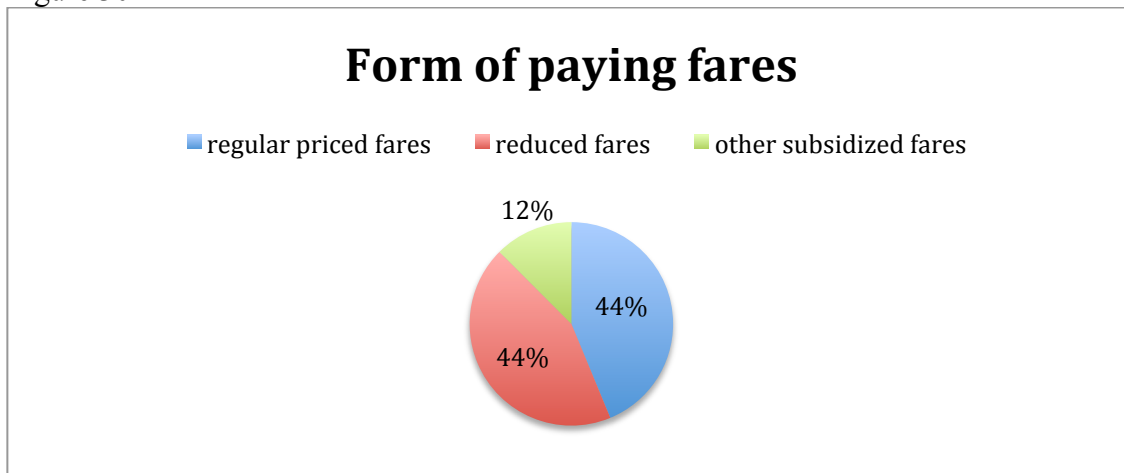


Figure 31

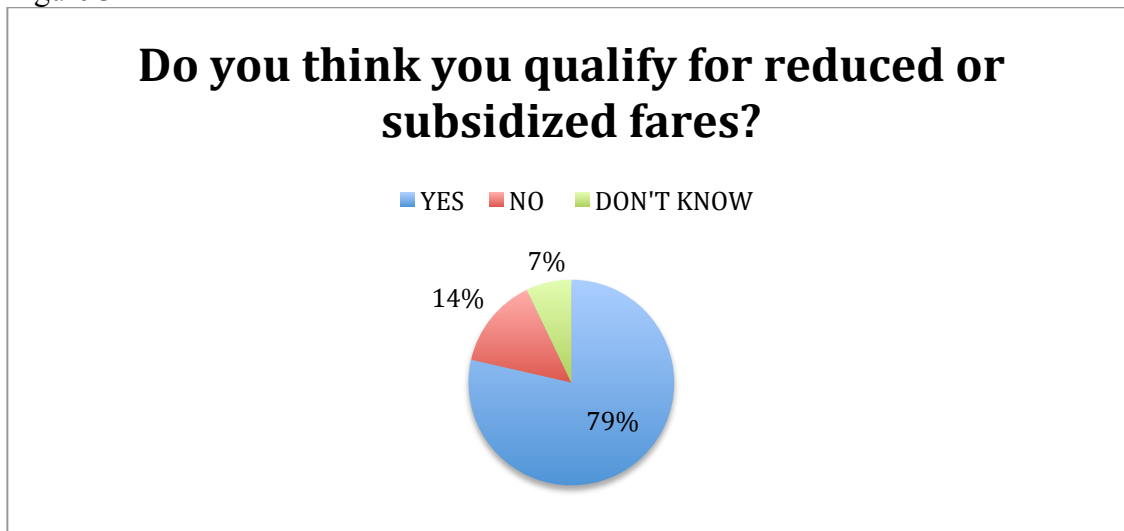


Figure 32

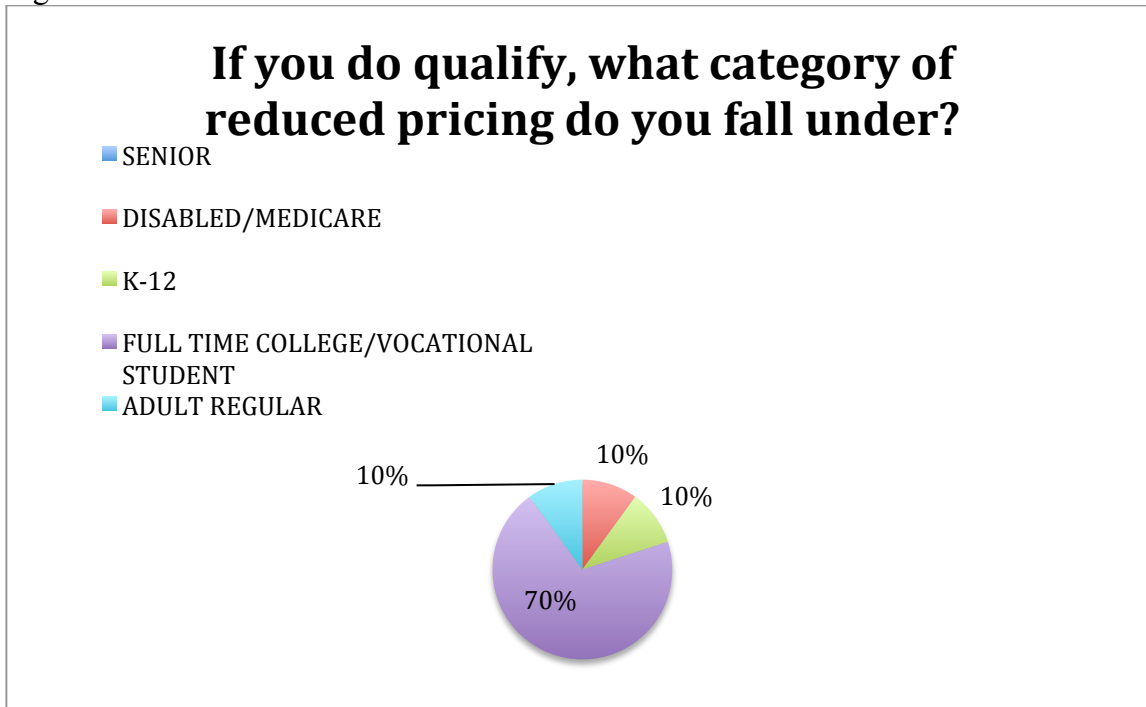


Figure 33

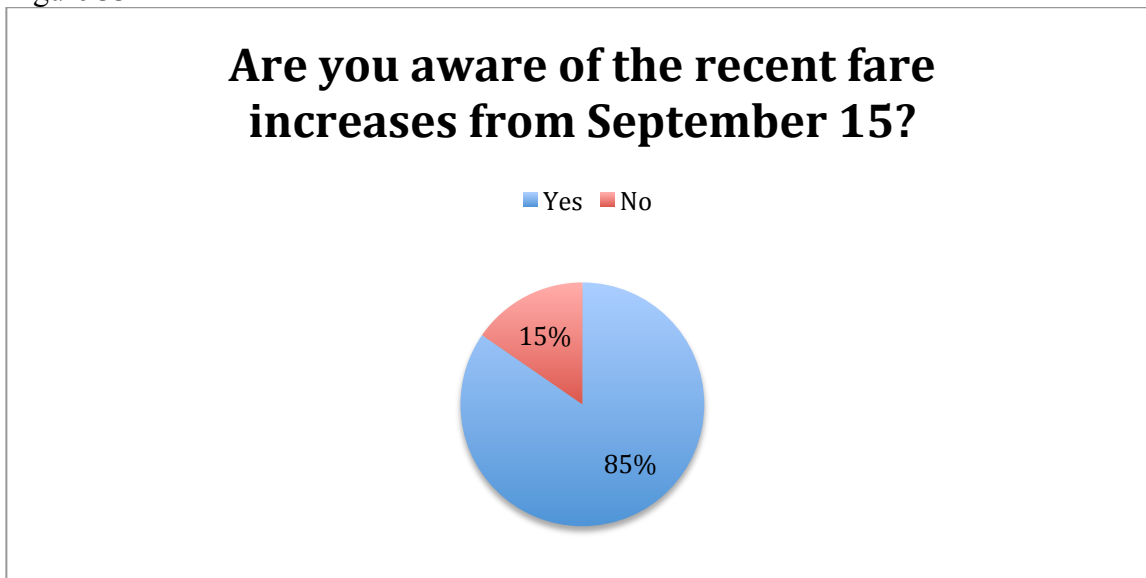


Figure 34

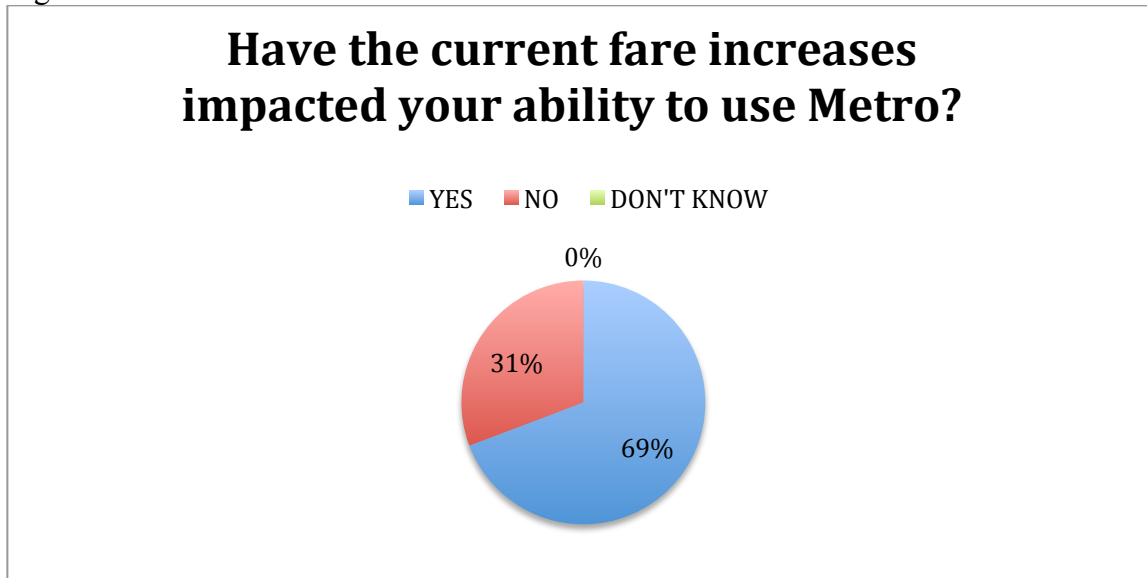


Figure 35

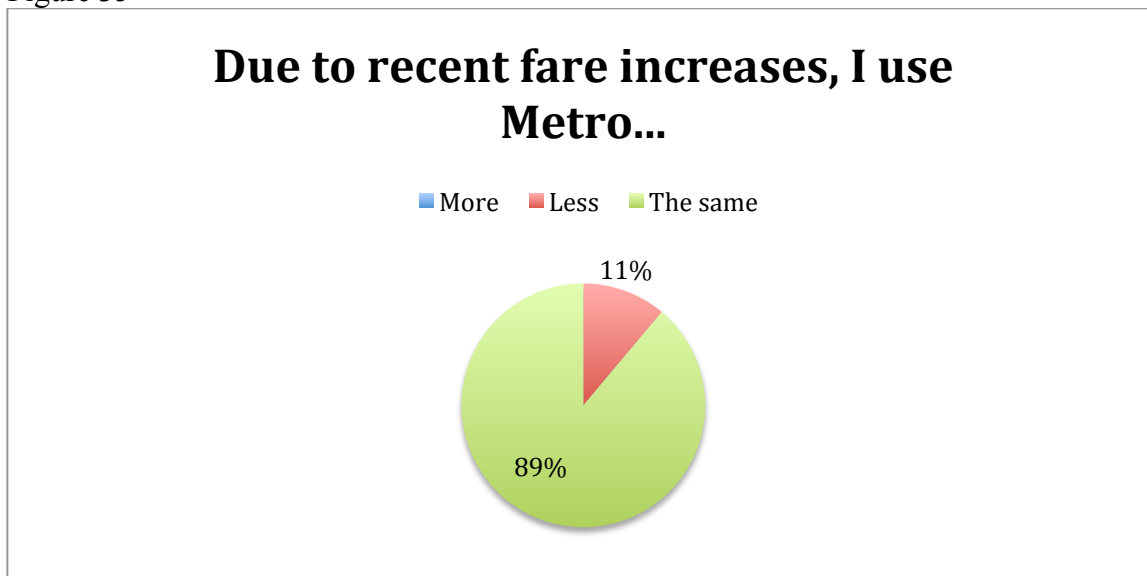


Figure 36

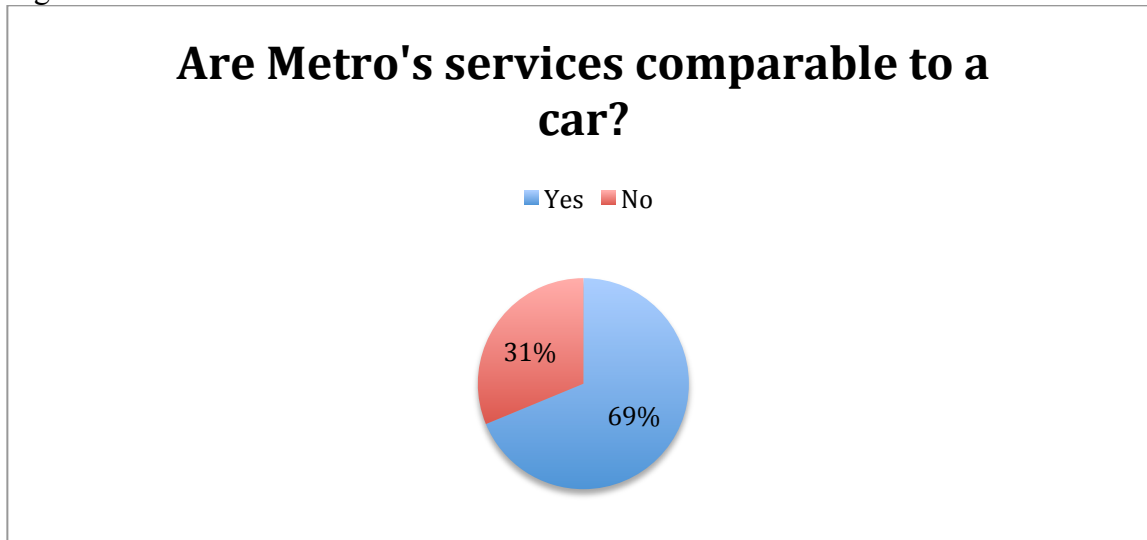
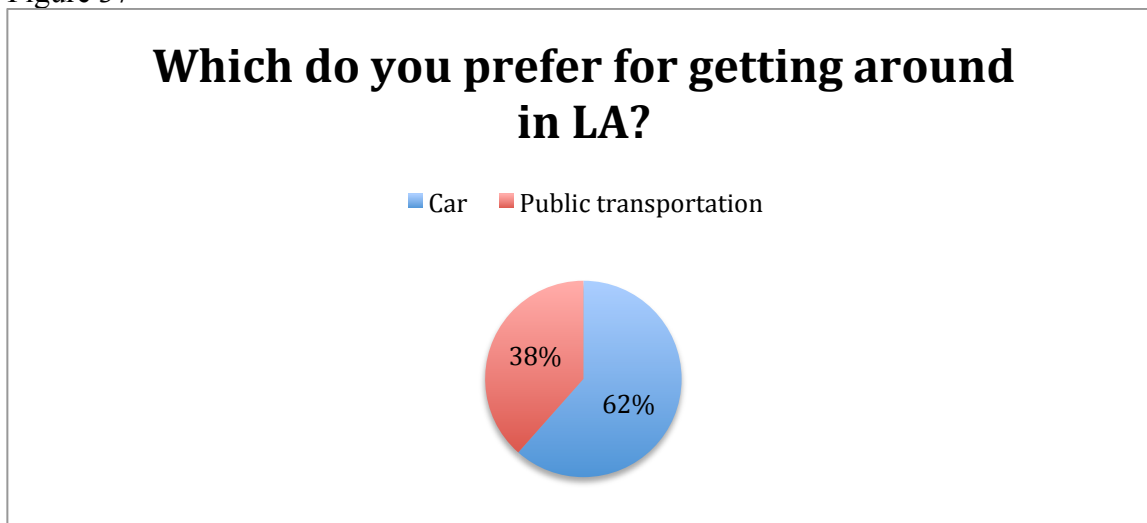


Figure 37



Appendix D

This section contains the list of the goals that Metro aims at accomplishing through the services that it provides throughout Los Angeles County.

Core Business Goals ¹

1. Improve Transit Services
2. Deliver quality capital projects on time and within budget
3. Exercise fiscal responsibility
4. Provide leadership for the region's mobility agenda
5. Develop and effective and efficient workforce
6. Secure local, state, and federal funding
7. Maintain lines of open communication
8. Enhance a safety-conscious culture with employees, contractors, and customers
9. Sustain the environment with energy efficiency and reduce greenhouse gases

¹ "Overview." Metro. 25 Feb. 2015. Web. 6 Apr. 2015.