Assessing the Impacts of Student Transportation on Public Transit

Final Report

Yingling Fan
Associate Professor
Humphrey School of Public Affairs
University of Minnesota
yingling@umn.edu

Kirti Das
Research Fellow
Humphrey School of Public Affairs
University of Minnesota

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Executive Summary

This study examines the impacts of the Student Pass program in Minneapolis, MN that enables high school students to take unlimited rides on regular-route buses and light rail from 5 a.m. to 10 p.m. daily during the school year (i.e., excluding summer break). The study finds that the Student Pass program has been successful in providing a number educational, economic, and societal benefits. These include: benefits for students at and away from school, financial savings for Minneapolis Public Schools (MPS), time savings for families, reduced traffic congestion, reduced vehicle emissions, promoting positive attitudes towards transit and equity benefits for students from under-resourced[1] families. The study and its findings are discussed in greater detail below.

The Student Pass program was initiated through a pilot between 2009 and 2012, implemented at six MPS high schools in 2012-2013 and expanded to include all MPS high schools in 2013-2014. The Student Pass program can be expected to have educational, economic, and societal impacts as described below:

- **Educational:** Transportation on public transit provides students with more flexibility in travel times, expanding learning opportunities beyond school and school hours. In addition, it give students more options to get to school compared to yellow buses where if students missed the bus they would be unable to attend school in the absence of other transportation options.
- **Economic:** The Student Pass program is expected to increase operational efficiencies for both Metro Transit and MPS. For Metro Transit, the program is expected to generate ridership gains and for MPS, it is expected to generate cost savings from reduced expenditure on yellow bus contracting and/or operation of its own fleet.
- **Societal:** The program is also expected to have a number of societal impacts including shaping people's opinions towards transit, environmental impacts (related to vehicle emissions), time savings for parents who don't have to drive their children to/from school and other activities, reduced traffic congestion due to fewer buses on the roads and more efficient routing, and expanding transportation opportunities for students from under-resourced families.

To examine the expected impacts above, three types of data are collected:

- **Focus Groups:** To gain a better understanding of the program, focus groups were conducted with five stakeholder groups: MPS high school students, Check and Connect MPS (staff that manages the Student Pass program for MPS), Metro Transit staff, Metro Transit police and MPS after-school program coordinators.
- **Surveys:** Two surveys were conducted for the study, a student survey and a parent survey. The student survey was an in-class survey conducted at MPS high schools between May 12 and June 5, 2015. Of the 8,228 students enrolled in MPS high schools in Spring 2015, 2,453 (30 percent) students participated in the survey. The parent survey was conducted between May 12 and July 15, 2015. At closing, 497 parent surveys were completed with only 238 surveys where both student and parent had participated in the study.
- **Existing data from MPS and Metro Transit:** For all students who participated in the survey, MPS provided existing student demographic, academic and attendance data across four semesters from

[1] Under-resourced here refers to students from certain socio-economic groups that have traditionally been considered disadvantaged compared to others. For example, low-income families, minority groups, single parent households, etc.

Spring 2013 to Fall 2014. Similarly, for all study participants, Metro Transit provided ridership data across five semesters from Spring 2013 to Spring 2015. In addition, both MPS and Metro Transit provided financial information related to the cost and benefits of the program and routing information related to student transportation.

A wide range of analyses are used for each of the three main impact areas, including mean comparisons, percentage distribution comparisons, Wilcoxon signed-rank tests, and regression models. Educational impacts are explored by analyzing how the Student Pass program affects student GPA, attendance, after-school program participation, and extra-curricular activity participation using mean comparisons, percentage distribution comparisons, and regression models. Economic impacts are explored by conducting a cost-benefit analysis for Metro Transit by comparing various costs attributable to the program with program revenue from the Pass sales. Similarly, for MPS this is done by comparing various costs attributable to the program with savings due to discontinuation of yellow buses. Societal impacts are explored by analyzing how the Student Pass program affects transit attitudes, equity (through usage), transit ridership, the environment (through emissions), driving time for parents, and traffic congestion.

The study finds that the Student Pass program has multiple benefits for students and families in terms of improved educational outcomes, increased access to social and recreational opportunities, travel time savings and reduced concerns toward transit use. The study also finds financial benefits for MPS, as well as benefits for the Metro Transit including reduced financial deficits due to more efficient extra service provision, significant ridership gains (including potential future ridership), and more positive perceptions toward transit. The program also has broader societal impacts, including positive impacts on social equity, the environment, and traffic conditions. Specific impacts and policy implications are described below:

- **Educational:** The Pass not only helps students attend school more regularly (23% lower absenteeism for Pass users) but also provides them the opportunity to access after-school learning opportunities at and away from school that may improve their academic performance (GPA scores of those who attended such activities using the Pass was 0.28 higher than those who did not). In terms of educational outcomes, these findings have an important implication for MPS as it seeks to improve overall student academic performance. Limiting eligibility for the Go-To Student Pass may limit the ability of students to access its educational benefits that go beyond just getting to and from school. While expanding the program will depend on budgeting priorities and the available financial resources, we recommend that MPS make the program available to all students given the significant and positive impact of the program on students' educational outcomes.
- **Economic:** For Metro Transit, deficits related to the Student Pass program decreased from $468,022 in 2012-2013 to $157,828 in 2013-2014. This reduction can be attributed to service level adjustments by Metro Transit between the two years. Throughout the first year of operation (2012-2013) Metro Transit reduced the number of extra service trips operated based on demonstrated ridership. In 2013-2014, when South and Southwest high schools were added to the program, Metro Transit assumed only 75% ridership (compared to a 100% in the first year) which was a more accurate match based on their experience and resulted in reduced deficits. Important considerations for expanding the program further in the future should include existing service coverage as higher extra trips will lead to higher costs, and potential costs related to increasing the fleet size to meet expansion needs. For MPS, contingent on budgeting priorities, financial

benefits ($1,550,412 in 2013-2014) may point towards a potential revenue source for expanding the program to include all high school students.

- **Societal:** Societal impacts are multi-dimensional in nature, including perceptions towards transit, safety concerns, environment and traffic conditions, and equity.
    a. Pass users and their parents were found to have more positive perceptions of various aspects of transit service compared to non-Pass users. Of the Pass users, 81 percent reported being "Satisfied" or "Very Satisfied" with the Pass and 93 percent reported benefiting from the Pass. Similarly, 80 percent of the parents whose children used the Pass reported being "Satisfied" or "Very satisfied" with the Pass and 85 percent reported that the Pass had benefits for their family. These findings indicate a high level of appreciation for the Pass and its related benefits amongst Pass users and their parents.
    b. Students using the Go-To Student Pass to access other learning opportunities (after-school programs and extra-curricular activities) and to get to and from school were found to be more likely to report that they would use transit after graduating from high school. This suggests that the Student Pass program enables Metro Transit to tap into a young rider base and acclimatize them to transit use, increasing their chances of being transit users as adults.
    c. A higher percentage of female students reported negative perceptions related to safety while waiting for buses/trains at stops, walking to/from bus/train stops and traveling on bus/trains compared to male students. In addition, the odds of female respondents strongly agreeing that transit is safe to use was 0.53 times lower compared to male respondents. For both, Metro Transit and MPS, this is an issue that deserves further attention. Working with other stakeholders such as the City of Minneapolis, the Minneapolis Police Department and local organizations such as the Minneapolis Youth Coordinating Board, MPS and Metro Transit could explore ways to create an environment on and around transit where female students can feel safe. This could be through additional presence in identified problem areas such as downtown Minneapolis after dark or through provision of more information regarding transit safety tailored to female student riders.
    d. Transportation of students on transit was found to be linked with significant annual emission reductions (93 percent for NOx emissions, 89 percent for PM emissions and 59 percent for CO) and vehicle miles traveled savings (158,400 miles from buses and 2,038,784 from personal vehicles). For both, environment and transportation policy makers at the federal, state, regional and local level, implementation of similar programs could be a new tool for targeting and reducing vehicle emissions and vehicle miles traveled in urban areas. In addition, policy makers working on establishing similar programs could leverage the broader environmental and transportation benefits of the program to gain support for it.
    e. Reported benefits of the program and intensity of ridership was most pronounced for students that were eligible for free/reduced lunch, Black, foreign-born or belonged to single parent families. For policy makers focusing on strategies to promote equity, these findings point to the potential of the Go-To Student Pass in providing under-resourced students with opportunities to access additional learning opportunities and expanded transportation options for school and beyond. On the flip side, the study found that the reported benefits and intensity of use of transit was lower for certain student groups such as American Indian, Asian and Hispanic. For Metro Transit and MPS, it is important to work with these specific student groups to identify potential reasons why they do not

report that transit benefits them to the same extent as other students and what potential strategies could possibly be used to maximize the benefits of transit and increase ridership.

In conclusion, the study looked at the educational, economic and societal impacts of the Student Pass program and found that the program has been successful in providing benefits to students, their families, Metro Transit, MPS and society, in general. The program demonstrates how public agencies can create mutually beneficial partnerships to deal with the complex issue of student transportation.

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Section 1. Introduction

This study is a collaborative effort between the University of Minnesota, Metro Transit and Minneapolis Public Schools (MPS) to look at the impacts of the Student Pass program. In 2009, MPS amended its school attendance policy to require students to attend a high school close to their homes[2]. At the time of the decision, students already attending high schools were permitted to stay at the school they were attending regardless of its proximity to their homes (referred to as grandfathered students). A partnership was established between MPS and Metro Transit to provide grandfathered students and students attending citywide programs (programs based on special student needs)[3] at Edison, Roosevelt and Wellstone high schools with passes for transportation. All other MPS high school students continued to use yellow buses during this time. This partnership between MPS and Metro Transit acted as a pilot for the Student Pass program and lasted from 2009 to 2012. Between 2011 and 2012, the last year of the pilot program, approximately 1,000 high school students were included in the pilot.

The pilot program was replaced by the official Student Pass program in 2012 which was offered at six MPS high schools (Edison, Patrick Henry, Roosevelt, Washburn, North and Wellstone) with approximately 3,828 Go-To Student Passes in use between 2012 and 2013. Under the program, eligible high school students (eligibility criteria described in the next section) were offered unlimited rides on regular route bus and light rail from 5 a.m. to 10 p.m. daily during the school year (i.e., excluding summer break). The program was expanded further in August 2013 to include all MPS high schools in the program, increasing the number of enrolled students to approximately 6,484. As the program's coverage expanded so has its ridership. In the 2012-2013 academic year, around 1.9 million rides were taken with a Go-To Student Pass. By 2013-2014, that number had grown to more than 3.5 million.

Given the increase in number of students enrolled in the program and the discontinuation of the traditional yellow buses for student transportation, both Metro Transit and MPS are interested in assessing the benefits of their student transportation partnership. Similar approaches have been implemented in several other cities including Boston, MA; Seattle, WA; Portland, OR; Oakland, CA; Lakeland, FL; Washington, DC; Baltimore, MA; Philadelphia, PA; and Columbus, OH. Anecdotal evidence in these cities suggests that this cross-sector approach is associated with new operational efficiencies, effective use of limited public resources, and expanded regional transportation access for students[4]. However, this anecdotal evidence has not been tested by empirical research. This research is a direct response to the local and national need for rigorous empirical examination of the various impacts of student transportation using public transit. Using a mixed-method approach that incorporates both quantitative and qualitative analyses, the research provides insights into the educational, economic, and societal impacts of the Minneapolis Student Pass program.

[2] Minneapolis Public schools Board of Education. September 22, 2009. Meeting Resolution - Changing School Options. Accessible at: http://www.mpls.k12.mn.us/uploads/cso_resolution.pdf

[3] Citywide programs include: North Specialty School (Science, Technology, Engineering & Math/Digital Arts); All Nations and Open at South; English Language Learners (ELL) Newcomer Centers at Edison and Roosevelt; Wellstone International at Roosevelt; Citywide Special Ed Programs

[4] Vincent, Jeffrey M., Carrie Makarewicz, Ruth Miller, Julia Ehrman and Deborah L. McKoy. 2014. Beyond the Yellow Bus: Promising Practices for Maximizing Access to Opportunity Through Innovations in Student Transportation. http://citiesandschools.berkeley.edu/reports/Beyond_the_Yellow_Bus.pdf

How the Program Works

All transportation-eligible students and specific groups of students attending MPS high schools qualify to receive a Go-To Student Pass. To be eligible for the Student Pass program, students need to fall into one of the following categories:

1. Transportation-eligible: All students that live within a school's attendance area and outside the school walk zone (two miles from the school).
2. Free/reduced lunch eligible students who live within the school walk zone (i.e., are not transportation eligible).
3. All students enrolled in a city-wide program. These programs are tailored to specific students and include: North Specialty School (Science, Technology, Engineering & Math/Digital Arts); All Nations and Open at South; English Language Learners (ELL) Newcomer Centers at Edison and Roosevelt; Wellstone International at Roosevelt; Citywide Special Ed Programs.

Go-To Student Passes are purchased by MPS for eligible students either for the whole year ($300) or by quarter ($75) per student. Students are notified in advance about the Pass and can pick up it up a week before school starts. Students who are not eligible for the program have the option of purchasing the Go-To Student Passes at the same rate at their own cost. To make the Passes more convenient to use and to protect them from loss, Go-To Student Passes are combined with student identification cards.

MPS manages the Student Pass program through an existing department called Check and Connect. Check and Connect's primary purpose is to monitor student attendance and truancy. Check and Connect manages day-to-day support activities for the Go-To Student Pass such as distribution of Passes, replacing lost Passes, addressing student and parent concerns about the program and coordination with Metro Transit. One full-time position (MPS Go-To Student Pass Coordinator) is responsible for the overall management of the program and eight other Check and Connect employees provide part-time administrative support for the program.

Although there are no dedicated full-time employees for the Student Pass program at Metro Transit, there are dozens of employees across several departments that dedicate a portion of their job to supporting the program. Also, given the expansion of the program and growing ridership, Metro Transit has adjusted its services and added additional bus trips to accommodate the growing ridership. These additional trips typically involve increasing the frequency of services over certain portion of regular routes during mornings and afternoons when students are travelling to and back from school. In March 2013, Metro Transit was operating 76 additional bus trips due to the program and by March 2014 that number had increased to 103.

Existing Research

The Student Pass program itself is not a novel concept and similar programs have been implemented across the country as school districts struggle to meet the challenges of increasingly complicated and expensive student transportation. Some of these challenges include: complex routing logistics to accommodate expanded school choices and open enrollment policies; rising contracting and fuel costs; safety and emission regulations for buses; and state and federal mandates for student transportation, to name a few [5,6,7]. To address these complex

[5] Agency Council on Coordinated Transportation. Building a Community Bus: Guide to Coordinating Pupil and Public Transportation. Washington State Department of Transportation, 2004. http://www.wsdot.wa.gov/acct/library/community_bus.pdf. Accessed on April 7, 2015.

challenges, collaboration between school districts and transit providers to provide student transportation via public transit services has been widely acknowledged as a promising and innovative solution. Suggested benefits of this approach include; financial benefits generated for school districts due to savings in operation and maintenance of their own yellow bus fleet or contracted fleet and increased ridership for transit providers; transportation savings for families due to increased student mobility options, reduced emissions, reduced traffic, etc. Students from under-resourced families benefit because they have the ability to access learning and social opportunities after school which may have not been previously possible due to lack of a car or an inability to afford transit fares[4,8].

In addition to the benefits mentioned above, it has been suggested that such collaborations also provides students with scheduling flexibility as they do not have to rely on fixed yellow bus times to get to and back from school. Students have the opportunity to attend school more regularly as unlike yellow buses, if students miss a city bus they still have the ability to catch another one and make it to school. They also have the opportunity to attend after-school programs at and away from school without having to own a car or depending on their parents for a ride. It has been suggested that these factors could lead to improvements in attendance and student academic performance[9,10].

However, despite the implementation of such programs across the country as well as their potential benefits to students, school boards and transit providers, evaluation of these programs have been limited and anecdotal [4,8,10]. Appendix A provides an overview of existing studies on similar programs. In our review of literature we found that only one study from the San Francisco Bay Area [10] included detailed empirical evaluation of a student transportation program. The study evaluated a free bus pass program serving low income (based on free/reduced lunch eligibility) middle and high school students in the West Contra Costa school district in the San Francisco Bay Area[11]. More specifically, the study's examination was limited to the impacts of the student transportation program on attendance, achievement -measured by the student's grade point average[12] (GPA) and after-school participation. Using before- and after-travel activity surveys as well as in-depth focus groups, they conducted analysis incorporating attendance data and found that the program did not increase school attendance. In their more detailed evaluation report they also looked at GPA scores and after-school participation for students and found no change[11].

To summarize, there is a dire need for rigorous empirical examination of such programs. In this study, we use survey data collected at MPS high schools and existing student data from MPS and Metro Transit to empirically examine the various impacts of the program. Our research extends beyond impact measures previously used

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[6] Price, M., S. Herzenberg, S. Brandon, and T. Herzenberg. Runaway Spending: Private Contractors Increase the Cost of School Student Transportation Services in Pennsylvania. Keystone Research Center, 2012.

[7] Wilson, E. J., J. Marshall, R. Wilson, and K.J. Krizek, (2010). By Foot, Bus or Car: Children's School Travel and School Choice Policy. Environment and Planning A. Vol. 42, No. 9, 2010, pp. 2168.

[8] Gase, L. N., T. Kuo, S. Teutsch, and J.E. Fielding. Estimating the Costs and Benefits of Providing Free Public Transit Passes to Students in Los Angeles County: Lessons Learned in Applying a Health Lens to Decision-Making. International Journal of Environmental Research and Public Health, Vol. 11, No.11, 2014, pp. 11384-11397

[9] Gase, L. N., T. Kuo, S. Teutsch, and J.E. Fielding. Estimating the Costs and Benefits of Providing Free Public Transit Passes to Students in Los Angeles County: Lessons Learned in Applying a Health Lens to Decision-Making. International Journal of Environmental Research and Public Health, Vol. 11, No.11, 2014, pp. 11384-11397.

[10] McDonald, N., S. Librera, E. Deakin, and M. Wachs, M. Low-Income Student Bus Pass Pilot Project Evaluation: Final Report. Institute of Transportation Studies, 2003.

[11] McDonald, N., S. Librera, and E. Deakin. Free Transit for Low-Income Youth: Experience in San Francisco Bay Area, California. Transportation Research Record: Journal of the Transportation Research Board, Vol. 1887, 2004, pp. 153-160

[12] A grade point average (GPA) is a calculated average of the letter grades earned by a student in school following a 0 to 4.0 scale.

such as, fiscal impacts, GPA, attendance, etc., to incorporate perceptions (of students and their parents). Perceptions are studied to gain a better understanding of various facets of the program: what works and what doesn't, what the main benefits are perceived to be, and how the program has changed people's views regarding transit. Evidence from the study expands the knowledge base on the subject and can potentially be used by policy makers in other cities to expand transportation options for students.

Research Objectives and Proposed Measures

This research examines the impacts of the Student Pass program in three dimensions: educational, economic, and societal. How the Student Pass program is expected to impact each of the three dimensions is described below:

- Educational: Student access to public transit provides flexibility for students to pursue learning outside of the classroom. Examples include visiting libraries, cultural activities, theaters, concerts, tutoring, post-secondary-option classes, employment, or by taking advantage of school/recreation center-based clubs and sports before-and after-school. In addition, access to public transit may influence school attendance because public transit gives students several options to get to school, rather than a single yellow bus trip. For this study, we conduct focus groups and survey research to assess the impact of the Go-To Student Pass on school attendance rates, academic performance (GPA), and student engagement in educational activities other than school.

- Economic: The Student Pass program is expected to increase operational efficiencies for both Metro Transit and MPS. First, the program is expected to generate significant ridership increases for Metro Transit. When compared to yellow buses, the Passes reach a broader audience - including both, transportation-eligible students and students who are enrolled in the free/reduced lunch program. Also, the Passes most likely encourage trips beyond trips to and from school. Second, the program is expected to generate cost savings for MPS from reduced expenditure on bus contracting and/or operation of its own fleet. For this study we conduct a detailed cost-benefit analysis to assess the fiscal impact of the Student Pass program for Metro Transit and MPS.

- Societal: Besides educational and economic impacts, the Student Pass program could have broader, societal-level impacts in multiple dimensions including shaping people's attitudes towards public transit, generating time savings for parents and improving quality of life, reducing vehicles emissions due to the use of environment friendly transit buses, impacting transit use patterns for students, and expanding opportunities for disadvantaged families. For this study we conduct focus groups and survey research, and use existing community data to assess the societal impact of student passes from multiple perspectives.

Table 1 summarizes the proposed measures associated with each of the three impact dimensions. Data mainly comes from three sources: (1) primary self-collected data from focus groups and surveys; (2) secondary student data from MPS; (3) secondary card transaction data from Metro Transit.

Table 1. Study Plan

Impact Dimensions	Sub-dimensions	Proposed Measures	Proposed Data Source
Educational	Benefits at school	School attendance and GPA	MPS student data
		After-school program enrollment	Study Student Survey
	Benefits away from School	Non-school extracurricular activities	Study Student Survey
Economic	Impact on Metro Transit	Program costs (implementation, operation and extra service) vs. Ridership gains (fares)	Financial data from Metro Transit
	Impact on Minneapolis Public Schools	Program costs (implementation and operation) vs. Cost savings compared to yellow bus use	Financial data from MPS
Societal	Transit attitudes	Perceptions towards transit	Study Student and Parent Surveys
	Saved time	Time savings for parents who used to drive children to and from school in the past	Study Parent Survey
	Traffic congestion	Traffic volumes along previous yellow bus routes and around schools	MPS/ MnDOT (Traffic Forecasting & Analysis)
		Students driving or being driven to school	Study Student Survey, routing data from MPS and Metro Transit
	Environment	Emissions due to shift from yellow buses to hybrid transit buses	Routing data from MPS and Metro Transit
	Transit use	Transit use patterns for students	Study Student Survey and Metro Transit ridership data
	Equity benefits	Benefits for disadvantaged families	Study Student Survey and Metro Transit ridership data

Project Advisory Group

As the first step to initiate the study, and with assistance from the Center for Transportation Studies (University of Minnesota), Metro Transit, and MPS, the research team identified local experts on student transportation to serve as project advisors. The advisory group was comprised of practitioners from MPS, St. Paul Public Schools, and Metro Transit. Three formal meetings were held with the project advisory group where they played a key role in guiding the design of the study, formulating implementation strategies, and providing feedback on the study questionnaires. In between the three meetings, members from MPS and Metro Transit were involved with the project through email/phone updates and one-on-one communications. Members of the project advisory group include the following:

From MPS:

- Mark Bollinger - Deputy Chief Operating Officer
- Jon Ledeboer - Go-To Pass Coordinator
- Colleen Kaibel - Student Retention & Recovery Director

From St. Paul Public Schools:

- Tom Burr - Director of Transportation

- William Ison - Assistant Director of Transportation
- Rene Gervais - Program Manager, Operations & Logistics

From Metro Transit:

- Robert Gibbons - Retired Director of Customer Services and PR
- Rachel Dungca - Project Manager, Strategic Initiatives

Structure of the Report

The remainder of the report is organized as follows:

- **Section 2. Data Collection:** This section describes data collection efforts, including primary data collected using focus groups, and student and parent surveys conducted by the research team, as well as secondary data collected from MPS and Metro Transit.
- **Section 3. Educational Impact Analysis:** This section examines the educational impacts of the program in two areas. First, it examines the impact of the program on student attendance and GPA. Second, it examines the impact of the program on educational activities outside school hours i.e. after-school programs and extracurricular activities away from school.
- **Section 4. Economic Impact Analysis:** This section examines economic impacts of the program using budgeting and financial information from Metro Transit and MPS.
- **Section 5. Societal Impact Analysis:** This section of the report examines the societal impacts of the program in a number of areas including: transit attitudes, time savings, transit use and traffic impacts. In addition, this section examines the environmental impacts of the program based on changes in emissions due to shift from yellow buses to transit buses.
- **Section 6. Key Findings and Policy Implications:** This sections draws from the previous three sections to summarize key findings of the study and discuss their policy implications.

Section 2. Data Collection

Data for the study was collected in three stages. First, the research team conducted focus groups with stakeholders to gain a better understanding of the program and its impacts. Second, using information from the focus groups, the study team formulated and conducted two surveys, one focusing on students and another focusing on parents. Finally, existing data from MPS and Metro Transit was collected. In this section we lay out the details of data collection for the study.

Focus groups

The focus groups were designed to fulfill two primary goals. First, they were intended to give the researchers a better understanding of the program from the perspectives of users and stakeholders. Secondly, findings from the focus group helped us formulate more comprehensive and appropriate questions and answer categories when designing the student and parent surveys. Based on feedback from the project advisory group, the research team identified the need to conduct focus groups with the following stakeholder groups:

1. MPS high school students
2. Parents
3. Check and Connect MPS (staff that runs day-to-day operations of the Go-To Student Pass for MPS)
4. Metro Transit staff
5. Metro Transit police
6. After-school program coordinators

All focus groups were conducted between February and May of 2015. While the focus groups were designed to be free flowing and informal, a discussion guide was designed to guide the conversation to touch on pertinent topics. The discussion guide can be found in Appendix B.

Analysis strategy for the focus group transcripts varied based on the number of participants in each focus group. The student focus groups had 48 participants and therefore the quantity of transcribed text was sufficient to identify themes within the transcribed text. For example, themes such as safety, benefits, improvements, etc. were identified. Then within these themes, the software NVivio 10[13] was used to run a word frequency analysis identifying words that were mentioned the most. For other focus groups, where the number of participants ranged between one and seven, a word frequency analysis was not conducted due to limited transcribed text available for analysis. Instead, these focus groups were summarized by reading transcripts and identifying frequently discussed topics. Key findings from each focus group are given below.

Student Focus Groups

Based on demographic composition and representativeness, four schools were selected as sites for the student focus groups. They were Patrick Henry, South, Southwest and Edison. In addition, a focus group was conducted with members of the Minneapolis Youth Council. Participation in the focus groups was voluntary and students were recruited by MPS staff via in-class announcements. Participants from the Minneapolis Youth Council were

[13] NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 10, 2012

recruited through the program coordinator. A total of 48 students participated in the focus groups which included 18 female and 30 male students. It is important to point out that due to the voluntary nature of the focus groups there may be a bias in the opinion of students as only those significantly impacted by the program may have had the inclination to participate.

The number of participants by school is given below:

- Southwest High School: 15 participants
- South High School: 8 participants
- Henry High School: 16 participants
- Edison High School: 5 participants
- Minneapolis Youth Council: 4 participants

Key Findings:

Program Benefits: In all focus groups, there was unanimous support for the Go-To Student Pass with students reporting benefits for themselves and their families. Benefits for the students included more flexibility in travel times, having transportation options after school, access to transportation for work, not having to pay for transportation, increased familiarity with the city, and reduced dependence on their parents. Students also mentioned a degree of dependence on the Pass. For their families, main benefits reported by students were reduced disruptions to parent's work, less driving, and financial and time savings. The word cloud for program benefits is shown in Figure 1.

Figure 1. Student Focus Group: Program Benefits

Safety Concerns: Almost all students reported that they and their parents had safety concerns regarding riding transit. These concerns for both student and their parents were greater after dark and in specific areas such as downtown Minneapolis. The safety concerns were related to non-student riders. In almost all focus groups, safety was reported as a bigger concern for female students. The world cloud for program safety concerns is shown in Figure 2.

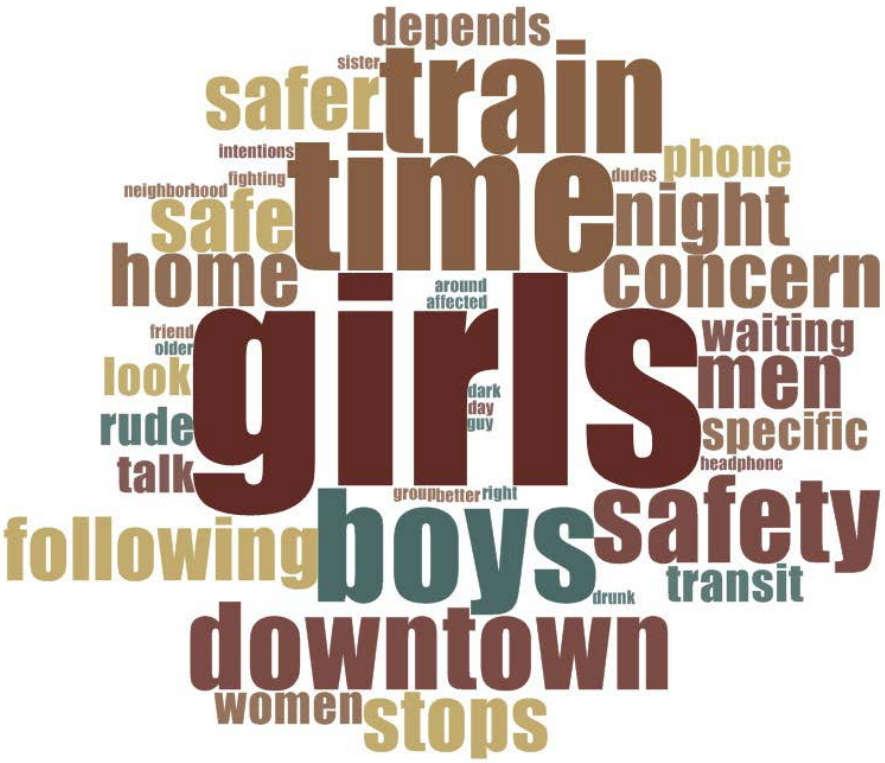

Figure 2. Student Focus Group: Safety Concerns

Program Improvements: The students suggested various improvements to the Student Pass program. Students reported issues with the Pass cutting off at 10 p.m. Most of the suggestions came from students who participated in sports and reported not being able to use transit to get home after games. Ten-thirty p.m. was often suggested as an alternative. A majority of the students mentioned friends who lived within two miles of the school who did not qualify for Passes. This was a burden especially during winter and limited social opportunities for them. Some students mentioned bus stop arrival times being more reliable as important. However, others mentioned understanding that slight delays were unavoidable. Opinions on the information available through the Metro Transit website were mixed with some suggesting that the information was accurate and helpful and the others not. Third party applications such as Twin Cities Metro Transit, Transit App: Real Time Tracker, and Next Bus were frequently used by the participants to track arrival times. Calling customer service for help was also common. All students who reported calling customer service were very happy with the service. The world cloud for suggested program improvement areas is shown in Figure 3.

Figure 3. Student Focus Group: Program Improvements

Mode Preference: In comparison to other modes of transportation, students reported transit being a better option than yellow buses primarily due to increased hours of access and more flexibility (i.e., unlike the yellow bus if you missed one you could always catch the next bus/train). Most students reported transit being a preferred mode for transportation compared to driving. Saving money on gas and parking was frequently mentioned. However, cars were preferred in winters due to waiting out in the cold for transit. For mode preference, a word frequency analysis was not conducted due to limited transcribed text available for analysis.

Parent Focus Groups

The research team worked with MPS and tried to develop a number of strategies to recruit parents for focus groups. The efforts included trying to find time at pre-arranged meetings, contacting parents via email, phone calls and social media. However, none of these attempts were successful and the team was unable to conduct a focus group with parents.

Check and Connect Focus Group

Check and Connect is the program that runs day-to-day operations of the Go-To Student Pass for MPS with dedicated staff at every school. The focus group included six Check and Connect staff from various MPS high schools.

Key Findings:

Program Benefits: The participants pointed out a number of benefits for students. Schedule flexibility was mentioned; if students missed one bus they had the opportunity to catch the next and get to school. It was mentioned that the program helped students attend after-school programs such as tutoring.

Safety Concerns: It was reported that parents hesitated to enroll students in the program primarily due to safety concerns. The concerns were reported to be highest for parents of new high school students (9th graders) and it was mentioned that these concerns reduce significantly after the first quarter once the students have used the Pass for some time.

User Complaints: The staff reported getting a number of complaints from parents whose children did not qualify for the Pass. They identified a need for better communication regarding Pass qualification with parents. In particular, they identified a need to do this during the process of high school selection by students as most of the parents presume they qualify for transportation, resulting in complaints once they find out their student does not qualify. Another complaint commonly reported was the $15 charge for replacing lost Passes.

Student Dependence: The staff also indicated an overdependence on the Pass by students. Students see the Pass as a right rather than a privilege. When Passes are lost, students report not being able to get to work or being able to socialize with their friends as primary drawbacks of not having the Pass replaced immediately. The staff constantly needed to explain to students that the main purpose of the Pass is to get them to and from school.

Metro Transit Staff Focus Group

A focus group was conducted with Metro Transit staff which included representatives that were able to provide varied views on the program from the perspective of the drivers, program outreach staff, customer service (that receives complaints), and overall service provision. The focus group included four Metro Transit staff from various departments.

Key Findings:

Program Benefits: The staff reported a number of benefits for both students and parents based on their interaction with them during the outreach process for the program. The students and parents see great advantage in the flexibility the Pass offers them. Parents, in particular, benefit from the ability of their children to access after-school programs using the Pass. It was mentioned that the Pass makes the students more responsible and independent, and gives them an opportunity to interact with adults.

Concerns: Students making transfers in the morning was reported as a significant concern by parents because students could be late for school or get lost. It was suggested that most concerns related to Pass-use and transit use in general were due to misconceptions related to who rides transit and how safe it is. Most of these concerns would be addressed with better information provided to parents. Therefore, for parents who do attend information sessions with Metro Transit staff these concerns can be addressed. However, for others there is a need for better dissemination of information. In terms of phone calls received from students, there were no identifiable patterns.

Complaints: From the non-student users' perspective there are a number of complaints related to boisterous behavior by students on transit. However, the participants suggested that this has more to do with the sheer number of riders (increased now that students are included) during peak periods.

Staff Experience: The staff reported a learning curve for the bus drivers as they get used to interacting with students on buses. Metro Transit drivers, unlike yellow bus drivers, do not receive specialized training on how to interact and deescalate situations with students. There were a number of things about the program that came

as a surprise to the staff, such as the lack of complaints that were received from students and parents after program implementation and the number of students that already knew how to use transit.

Metro Transit Police Focus Group

While efforts were made to include multiple members of the Metro Transit Police, scheduling issues restricted the team to just one interview with a senior member of the Metro Transit Police.

Key Findings:

Complaints: Very few complaints were received by Metro Transit Police or forwarded to them from Metro Transit Customer Relations. Even when the program expanded significantly in 2013-2014, the number of complaints did not go up proportionately. The interviewee was not aware of any specific patterns in complaints as Metro Transit has not analyzed the complaints made by gender or age. Students seem to get more comfortable with using the Pass over time. There are occasional complaints from non-student riders about boisterous behavior by students. Once again this was attributed to a higher number of riders and concentration of students.

Safety: Safety issues (in terms of complaints) are mostly in areas with a high concentration of students, especially after school ends. These include the Lake Street, 38th Street, Franklin Ave. and Cedar Riverside light rail stations. Also, a number of students travel to Nicollet Mall after school either to make a transfer or socialize which leads to a high concentration of students and complaints.

After-school Program Coordinators Focus Group

The research team worked with MPS staff to organize a focus group with after-school program coordinators with little success. It was suggested by MPS staff that the focus group be conducted instead with school Athletic Directors as they oversaw programs that required students to stay back after school. Heeding this suggestion, a focus group was conducted with 7 Athletic Directors from various schools in MPS.

Key Findings:

Program Benefits: The participants indicated that the Passes were beneficial for students as it gave them an opportunity to stay after school without relying on their parents for transportation. It was also suggested that the Passes were useful in helping students attend school more regularly due to increased flexibility in terms of the options they had to get there.

Program Improvements: The participants reported an issue with restricting Pass use after 10 p.m. They mentioned that it was a significant issue for students on game day as most games went beyond 10 p.m. In many cases the participants reported having to step in and drive students themselves or try and make other transportation arrangements for them. Restricting Pass use after 11 p.m. was suggested as a better option to help deal with this issue. Providing students with Go-To Student Pass over the summer months in addition to academic semesters was suggested by a number of the participants.

The focus groups conducted for the study provided great insights into the workings of the Student Pass program and varied perspectives on the program. They contributed significantly in formulating the survey questionnaires designed for the study.

Student and Parent Surveys

Using information collected through the focus groups, a review of existing literature and suggestions from the project advisory group, surveys were formulated in late April 2015. As part of this study, two surveys were conducted, a student survey at all MPS high schools and a parent survey where parents of all participating MPS students were invited to participate. Copies of the survey can be found in Appendix C and Appendix D. The data collection effort was approved and monitored by the University of Minnesota Institutional Review Board and the Research, Evaluation and Assessment (REA) department at MPS.

Student Survey

The student survey was an in-class survey conducted at MPS high schools between May 12 and June 5, 2015. Of the 8,228 students enrolled in MPS high schools in Spring 2015, 2,453 (30 percent) students participated in the survey. The survey was implemented using the web-based survey tool Qualtrics[14]. These surveys were self-administered, available only in English, and completed in-class using laptop computers, tablets or smartphones. Based on the availability of devices to access the online survey, most surveys were conducted in Social Studies classes (every Social Studies class at MPS has iPads, Chromebooks, or laptops available for students). The surveys were completed during school and at varied times to minimize disruptions to events such as tests. A small proportion of surveys at North High School (1%) were completed on paper as online survey completion was not a possibility.

Questions in the student surveys covered a wide range of aspects related to educational and societal impacts of Go-To Student Passes, including changes in travel behavior and after-school activities, changes in attitudes and perceptions towards transit, potential benefits of the Passes, frequency of Pass use, demographic and family structure variables, etc.

Sample Descriptives

The final student survey had 2,453 participants who completed the survey. In terms of representativeness, Figure 4 shows the percentage of students in the survey sample compared to total enrollment in MPS high schools in Fall 2014[15] for all participating schools. While the proportion of students between survey participants and enrolled students were comparable for all schools, they were most varied for South, Roosevelt and Wellstone High.

[14] Qualtrics Survey Software. Qualtrics Labs, Inc., Provo, UT. Version 2009

[15] Minneapolis Public Schools- Reports and Data. http://www.mpls.k12.mn.us/reports_and_data

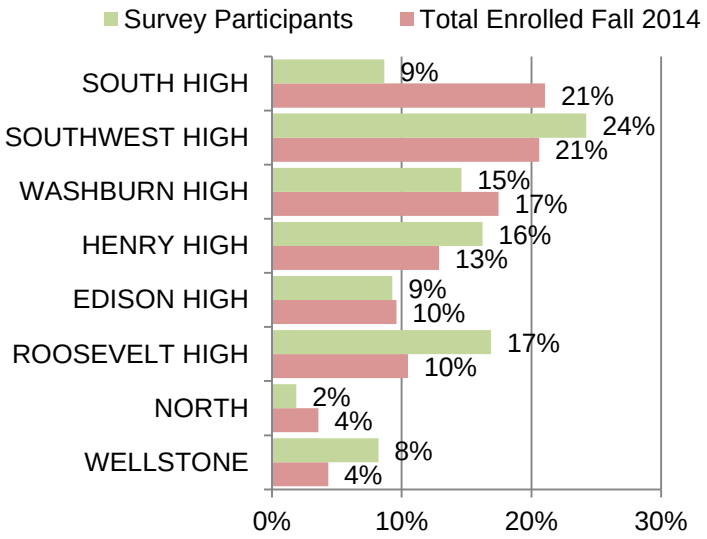

Figure 4. Enrolled Students vs. Survey Participants

Figure 5 shows the percentage of students in the survey sample compared to total enrollment in MPS high schools in Fall 2014[10] for free/reduced lunch eligibility and race/ethnicity. As shown in the figure, with the exception of a slight difference for the African Americans and Asian students the survey sample was comparable to enrolled students. In addition, the average age of participating students was 16.5 years and 49 percent (N=1,128) of the participants were male.

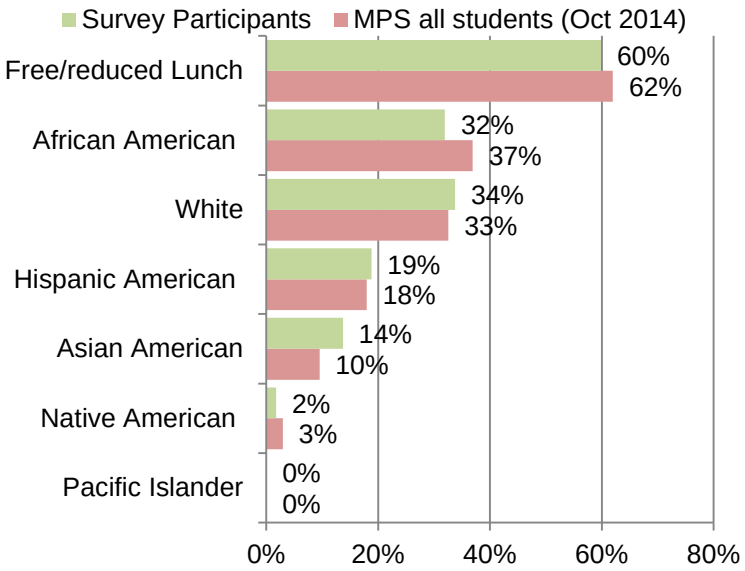

Figure 5. Free/reduced Lunch and Race/ethnicity

Of the 2,453 survey participants, 27 percent (N=664) were not Go-To Student Pass users while the remaining 73 percent (N=1789) were. Figure 6 compares the demographics of Pass users and non-users in the survey sample. As indicated in the figure a higher percentage of Pass users were African American, Hispanic and Asian. Also, a

higher percentage of Pass users were free/reduced lunch eligible which is expected as it is one of the qualification criteria for receiving a Go-To Student Pass from MPS.

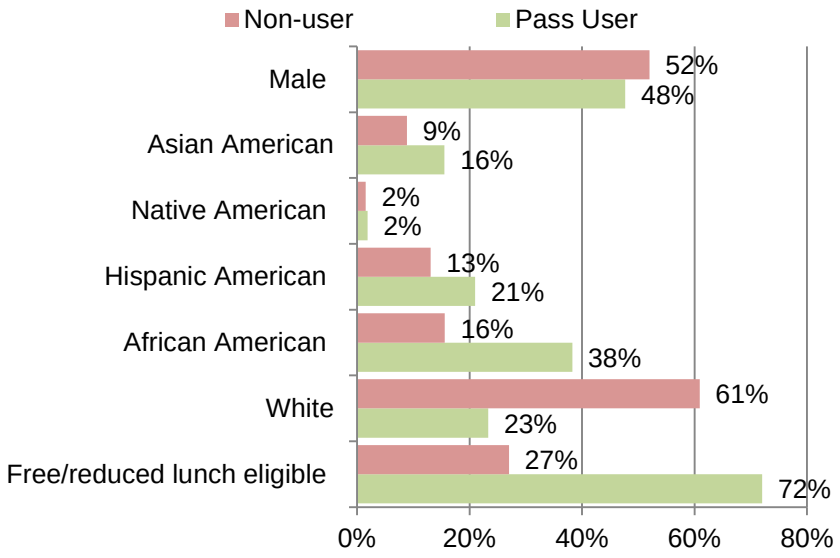

Figure 6. Pass users Vs. Non-users demographics

Students that reported using the Go-To Student Pass were asked how long they had been using the Pass. Figure 7 shows that of the survey sample, a majority of students (51 percent) were new users of the Go-To Student Pass reporting that they had been Pass users for less than one year. Only 16 percent reported having the Pass for two years or more.

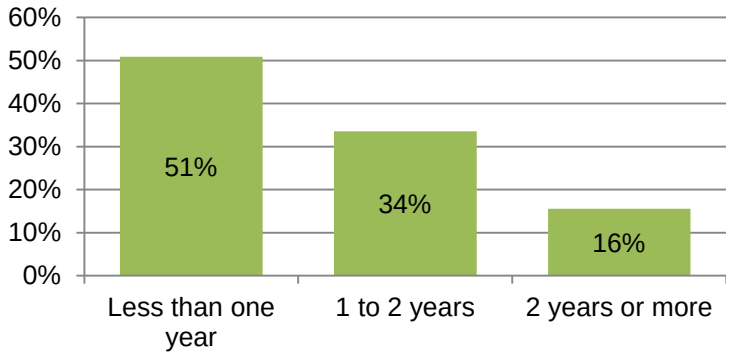

Figure 7. Period of pass use (N=1780)

Parent Survey

The parent survey was originally planned to be conducted concurrently with the student survey. However, due to significantly low participation rates, the parent survey was conducted in two separate stages: a first stage that focused on parents of the students who participated in the in-class student survey, and a second stage that utilized social media and an email campaign to reach out to all parents of MPS students regardless of whether the students participated in the in-class student survey.

More specifically, in the first stage, all students participating in the survey from the eight MPS schools were given a take-home sheet with a personal survey code and an online link to the parent survey. The online parent survey, which was also implemented using the web-based survey tool Qualtrics, was self-administered, available in four languages i.e. English, Somali, Spanish and Hmong, and could be completed using laptops, computers, tablets or smartphones. In addition, the research team recognized that many parents would not have access to technology required to complete the survey. To avoid associated response bias, the research team selected four schools (Edison, Henry, Roosevelt and Wellstone) to provide parents both the online option and the paper survey option. Students in these four schools who participated in the student survey took home not only the sheet with the online parent survey link but also a packet including a printed copy of the parent survey and a pre-paid return envelope. The paper version surveys were self-administered and available only in English. The research team's intention was to link the parent surveys with student surveys using a personal survey code (or student ID numbers if available). However, at this stage, parent participation was very limited. As of June 5, 2015 (the last day of the student survey), for the 2,453 students that participated in the student survey, only 178 parent surveys were completed.

The failed efforts in the first stage lead to the second stage in which the research team worked with Metro Transit and MPS to identify additional strategies to boost parent participation in the survey. This second stage recruited parents regardless of whether their child participated in the student survey or not. The recruitment included social media promotions on May 26, 2015 and June 9, 2015 using the MPS Facebook page. In addition, an email was sent out to all (based on email availability at MPS) parents of all MPS high school students on June 30, 2015. At the closing of the survey on July 15, 2015, 497 parent surveys were completed with only 238 surveys where both student and parent had participated in the study.

Sample Descriptives

The final parent survey had 497 participants that completed the survey. Of the participants, 72 percent (N=358) were parents of Pass users and 28 percent (N=139) of non-users. Figure 8 shows the demographics of the participants based on their child's use of the Go-To Student Pass. As shown in the table, a higher percentage of parents of non-users reported a spouse in the household that was employed full-time. Parents of non-users also reported higher household income levels; this is expected partially due to the eligibility requirements of the student pass.

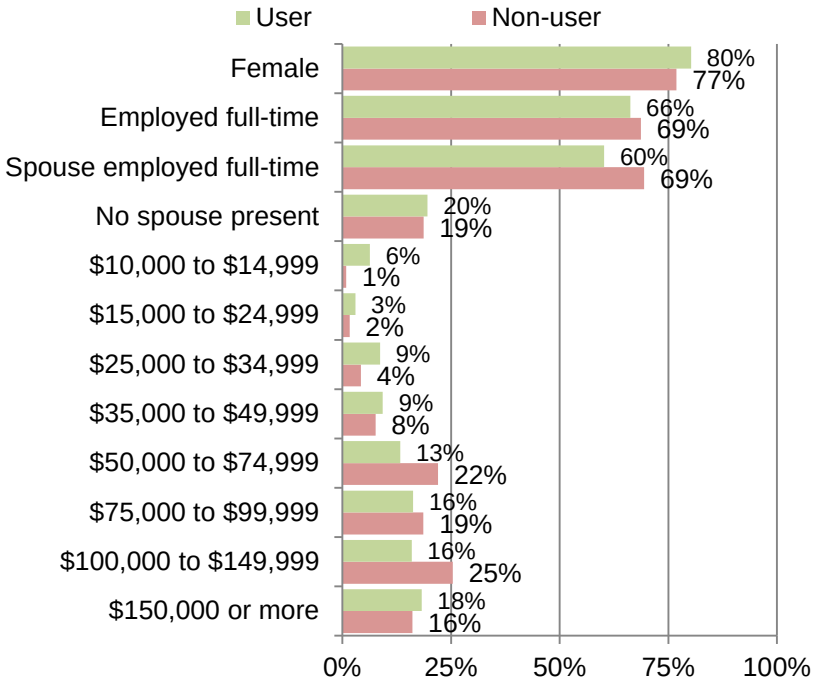

Figure 8. Parent survey demographics (parents of users vs. non-users: N=497)

Existing Data from Metro Transit and MPS

Metro Transit and MPS provided existing program and student data that was used for analysis along with the survey data collected for the study. Secondary data provided from MPS and Metro Transit for each analysis impact area is described below:

Educational Impact: Once the student survey was complete, the research team provided MPS with the student identification numbers of participants. Using the student identification numbers, MPS provided existing student demographic, academic, and attendance data. Demographic data include gender, grade, race/ethnicity and free/reduced lunch eligibility. Academic data include GPA for all survey participants across four semesters from Spring 2013 to Fall 2014. Finally, attendance data included total enrolled days, total days present and absent days across four semesters from Spring 2013 to Fall 2014.

Economic Impacts: Both Metro Transit and MPS provided information about costs and savings related to the program. Metro transit provided information on annual costs for program management, cost of operating extra trips for the program, and payments from MPS for Passes. Similarly, MPS provided information on annual costs for program management, cost savings from discontinuation of yellow buses, and Pass costs incurred.

Societal Impact: Based on the Go-To Student Pass numbers collected in the survey and with informed student consent, Metro Transit provided the research team with student ridership data for each survey participant. Ridership data provided was for five semesters from Spring 2013 to Spring 2015. Ridership data recorded provided information on each trip taken by a student including date, time and transit mode (bus, train etc.). In addition both Metro Transit and MPS provided information regarding their bus fleet and active miles to enable emission calculations.

Section 3. Educational Impact Analysis

This section of the analysis looks at the educational impacts of the Student Pass program. The section is divided into two parts. First, we look at the impacts of the program on student attendance and GPA. Second, we look at impacts on other educational activities outside normal school hours i.e. after-school programs and extra-curricular activities away from school.

Attendance and GPA

To analyze the impact of the Student Pass program on student attendance and GPA, student surveys were combined with student demographic and academic data provided by MPS. Total number of absent days and GPA used in the analysis are from the Fall 2014 MPS semester - the most recent semester with GPA and absence data available. Figure 9 and Figure 10 shows average GPA and average total absent days across different student groups based upon Pass use patterns.

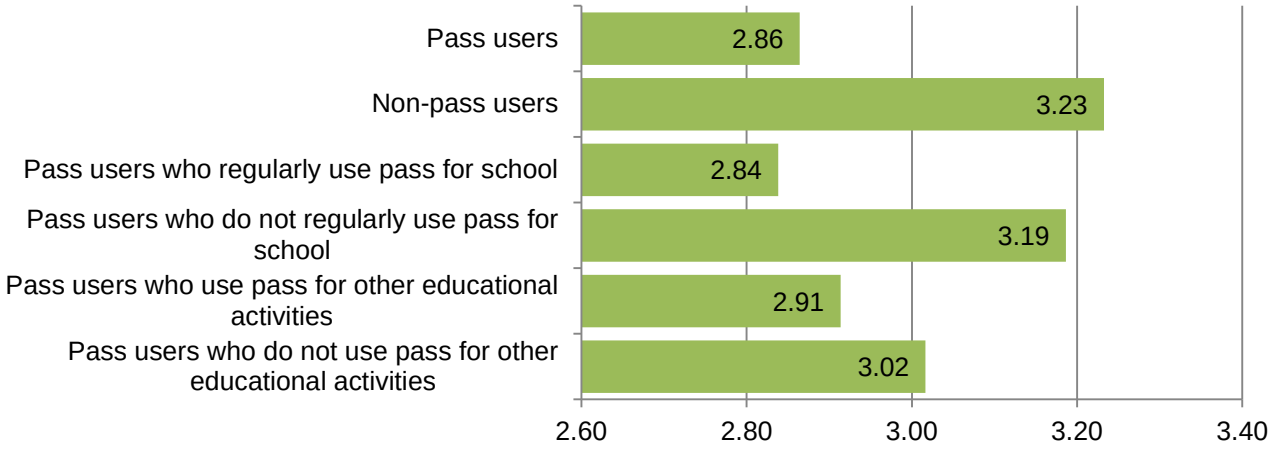

Figure 9. Average GPA Fall 2014 for all survey participants (N=2453)

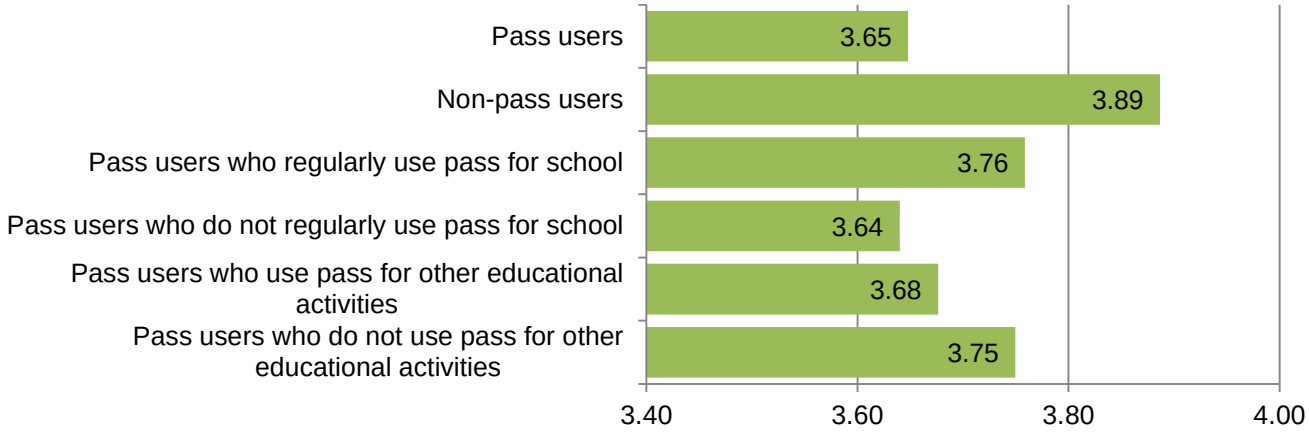

Figure 10. Average days absent Fall 2014 for all survey participants (N=2453)

As shown in Figure 9, average GPA was higher for non-Pass users, Pass users who do not regularly use Pass for school, and Pass users who do not use Pass for other educational activities compared to their counterparts. As

shown in Figure 10, average absent days were higher for non-Pass users, Pass users who regularly use Pass for school, and Pass users who do not use Pass for other educational activities compared to their counterparts. While informative, direct comparisons of attendance and GPA values by Pass use patterns could be misleading without controlling for socio-demographic factors that influence student attendance and academic performance. For example, Pass users may generally have lower household income than non-Pass users and thereby have lower GPA. Regression models controlling for socio-demographic factors are more important to understand the impact of the Student Pass program on student attendance and GPA.

In this study, two regression models were used to estimate the impact of the program on student attendance (measured by total number of absent days) and GPA. Key explanatory variables for both models include whether or not the student was a Go-To Student Pass user, if the student regularly used the Pass to get to and back from school, and if the student used the Pass to access other educational opportunities (i.e. after-school programs and extra-curricular activities away from school). In addition, to accommodate for other factors that may impact student attendance and GPA, a number of control variables were included in the analysis which included: gender, eligibility for free/reduced lunch, frequency of transit use before using the Go-To Student Pass, if the student had the Pass for more than a year, having a job, race and ethnicity, family structure (dual parent households, presence of grandparents, presence of siblings and presence of younger siblings), immigration status (if student or either parent was foreign born), grade of the student (i.e. freshman, sophomore, etc.) and the school that the student attended.

Based on the nature of the dependent variables, the model for student attendance was estimated using Negative Binomial Regression and the model for student GPA was estimated using Truncated Regression. Results for the model on student attendance are interpreted using incident rate ratio (IRR). An IRR less than 1 indicates that the occurrence of incident under study is lower in the focal group than the reference group. Similarly, an IRR greater than 1 indicates that the occurrence of incident under study is higher in the focal group than the reference group.

Results of the two regression models are shown in Table 2. As shown in the table, after controlling for socio-demographics variables, total number of absent days were found to be 23 percent (IRR=.77, $p<0.01$) lower for students enrolled in Student Pass program. For the other key explanatory variables, i.e., if the student regularly used the pass to get to and back from school, and if the student used the Pass to access other educational opportunities, no significant association was found with the total number of absent days. In the GPA model, neither being enrolled in the Student Pass program nor using the Pass to get to and back from school regularly were found to be associated with GPA. However, there was a positive association between using the Pass to access other educational opportunities and student GPA. In the data analyzed, students using the Go-To Student Pass to access after-school programs and extra-curricular activities had GPA scores 0.28 points ($b=0.2817$, $p<0.05$) higher than students that did not.

Table 2. Regression Results GPA and Student Attendance[16]

	Negative Binomial Regression on Absent Days	Truncated Regression on GPA
Key explanatory variables		
Go-To Student Pass user	0.7687**	-0.1774
Regular Pass use for school	1.2075	-0.2502
Pass use for other educational opportunities	0.9886	0.2779*
Control Variables		
Female	1.0213	0.8307***
Free/reduced lunch eligible	1.1706***	-0.9332***
Occasional transit use prior to the Go-To Student Pass	1.0286	-0.0608
Frequent transit use prior to the Go-To Student Pass	1.1492**	-0.3684***
Pass user for more than one year	0.8703	0.0800
Having job(s)	1.0577	0.0080
Race and ethnicity		
American Indian	2.3088***	-1.9898***
Black	1.1432	-1.2901***
Asian	0.7442	0.1553
Hispanic	1.3353	-1.3861***
Family structure		
Dual parents present in the household	0.7961***	0.4641***
Grandparent(s) present in the household	1.0940	-0.1824
No sibling	0.9139*	-0.1468
Younger sibling(s) present in the household	0.9262	0.1320
Immigrant status		
Being foreign born	0.9229	0.1856
Foreign born mother	0.9991	-0.1257
Foreign born father	0.9068	0.1674
Grade Indicators		
Grade10	1.1953*	0.0220
Grade11	1.2189*	-0.1099
Grade12	1.7546**	-0.4151
School indicators		
Edison	1.1395***	-0.1149
Henry	0.9709	-0.1265
North	1.0229	0.1264
Roosevelt	1.1330***	-0.1603
South	1.0379	0.2318***
Washburn	1.0857***	0.0496*
Wellstone	1.1873*	1.0430***
Constant	0.0399***	4.7034***
Statistics		
N	2111	2114
lnalpha	-0.2796***	
sigma		1.1277***

legend: * p<.05; ** p<.01; *** p<.001

[16] Attendance model results are interpreted using incident rate ratio (IRR). An IRR less than 1 indicates that the occurrence of incident under study is lower in the focal group than the reference group. Similarly, an IRR greater than 1 indicates that the occurrence of incident under study is higher in the focal group than the reference group. The GPA model results are interpreted using standard regression coefficients.

After School Programs and Extracurricular Activities

To analyze the impacts of the of the Student Pass program on after-school programs and extra-curricular activities we use data from the student and parent surveys in combination with ridership data provided by Metro Transit for Spring 2015. The program can be expected to increase the ability to participate in both due to increased scheduling flexibility provided by the Pass. Given that the Passes can be used by students after school hours (until 10:00 pm), they have the ability to stay in school for after-school programs or travel to attend extra-curricular activities without depending on the availability of personal vehicles or their parents for transportation.

In the student survey, respondents were asked to identify whether or not they used the Go-To Student Pass for extra-curricular activities and after-school programs. The results are shown in Figure 11. As shown in the figure, 60 percent of all Pass users in the survey reported using the Pass for after-school programs and 45 percent reported using the Pass for extra-curricular activities.

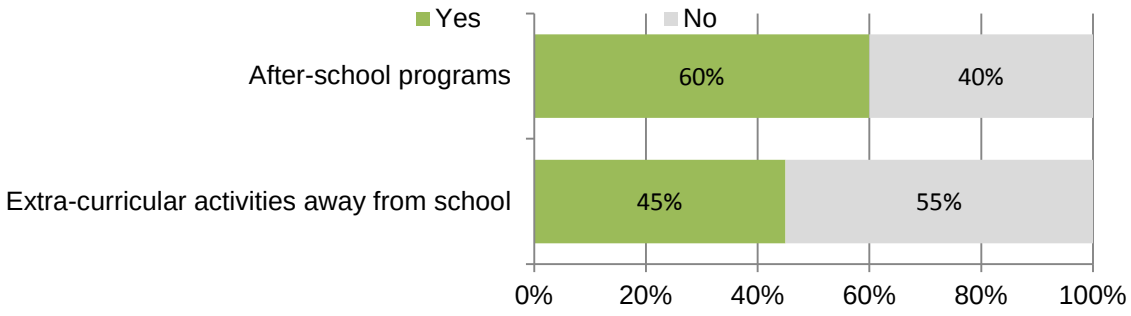

Figure 11. Go-To Student Pass used to attend extra-curricular activities and after-school programs (N=1708)

Respondents in the student survey were also asked whether or not the Go-To Student Pass gave them the ability to participate in more after-school programs and extra-curricular activities than before. The results are shown in Figure 12. As shown in the figure, 54 percent of the respondents reported that the Student Pass program enabled them to participate in more after-school programs and 45 percent reported the same for extra-curricular activities.

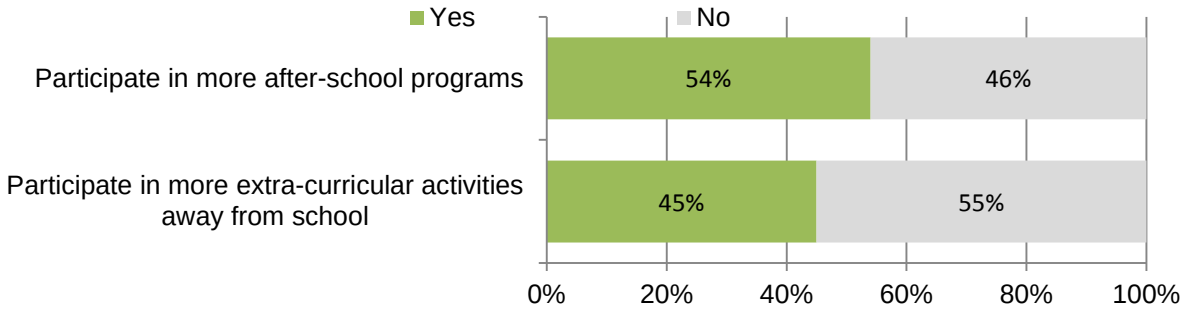

Figure 12. Go-To Student Pass providing the ability to participate in more extra-curricular activities and after-school programs than before– Student Survey (N=1561)

Although both Figure 11 and Figure 12 may indicate participation benefits based on the program, they can be misleading. For example, a student using the Pass for after-school programs does not necessarily mean that he/she can access more programs because of the Pass. The student could also have the ability to access the programs in the absence of the Go-To Student Pass by either driving themselves or being driven by their parents. Similarly, a student reporting that the Student Pass program gives them the ability to participate in more after school programs doesn't necessarily mean that they use the passes to attend them. To get a more accurate measure of Pass benefits we look specifically at students who use the pass for after-school programs and whether the Go-To Student Pass increases their ability to participate in these programs or not. The same is done for extra-curricular activities. Results are shown in Figure 13. Of the 945 Go-To Student Pass users that reported using the Pass for after-school programs, 72 percent reported that the Pass gave them the ability to attend more programs than before. Similarly, of the 732 Pass users that reported using the Pass for extra-curricular activities, 70 percent reported that the Pass gave them the ability to attend more programs than before. These finding suggest that the Go-To Student Pass has increased access to after-school learning opportunities for students.

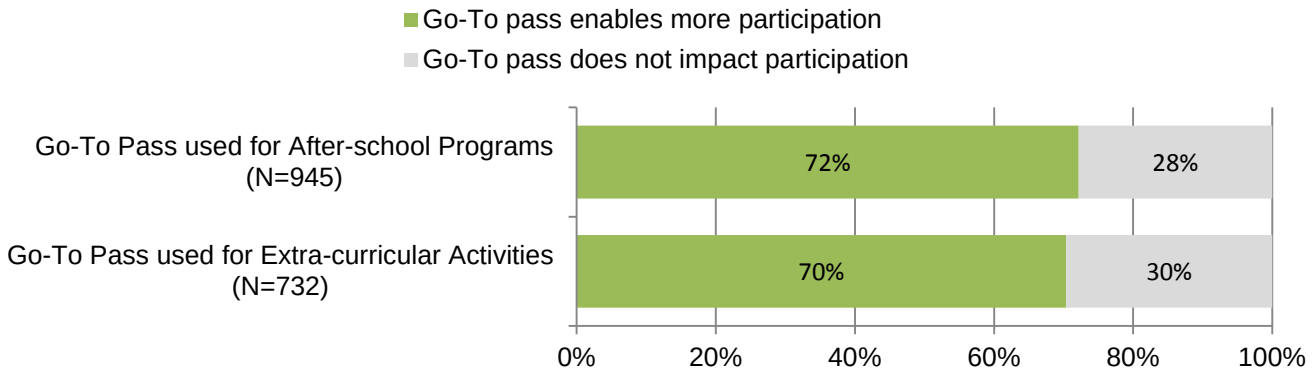

Figure 13. Go-To Student Pass use and benefits in terms of accessing after-school programs and extra-curricular activities

Further insights into the use of the Go-To Student Pass by students to access after-school programs and extra-curricular activities can be gained using the Metro Transit ridership data. Based on the question in the student survey that identified whether or not the student used the Go-To Student Pass for extra-curricular activities and after-school programs, we categorized Pass users into two groups. The first was Go-To Student Pass users that reported using the Pass for extra-curricular activities or after-school programs and the second was students that did not use the Pass for either. The two groups were used to compare after-school ridership from Spring 2015. Dismissal bell times at MPS high schools in 2015 were typically 3:00 p.m.[17] Therefore it is safe to assume that most rides made after 4:00 p.m. on weekdays can be considered trips other than those made to get to and back from school. While all trips made after 4:00 p.m. are not necessarily for extra-curricular activities and after-school programs (they could be other purposes such as for jobs, social, family activities, etc.) we assume that

[17] Washburn bell schedule: http://washburn.mpls.k12.mn.us/bell_schedule
South bell schedule: http://south.mpls.k12.mn.us/bell_schedules
Roosevelt bell schedule: http://roosevelt.mpls.k12.mn.us/uploads/2015-16bell_schedule_2.pdf
Southwest bell schedule: http://southwest.mpls.k12.mn.us/bell_schedule_2
Patrick Henry bell schedule: http://henry.mpls.k12.mn.us/bell_schedule
North bell schedule: http://north.mpls.k12.mn.us/uploads/bell_schedule.pdf
Edison bell schedule: http://edison.mpls.k12.mn.us/uploads/edison_high_school_2013-2014_bell_schedule.pdf

actual trips made for other purposes would be somewhat comparable between the two groups. The distribution of trips made after 4:00 p.m. on weekdays by the two groups are shown in Figure 14. Of the 55,488 trips, 77 percent were made by students who reported using the Pass for extra-curricular activities or after-school programs. This suggests that the Go-To Student Pass is being used to make a significant number of trips to access after-school learning opportunities by students.

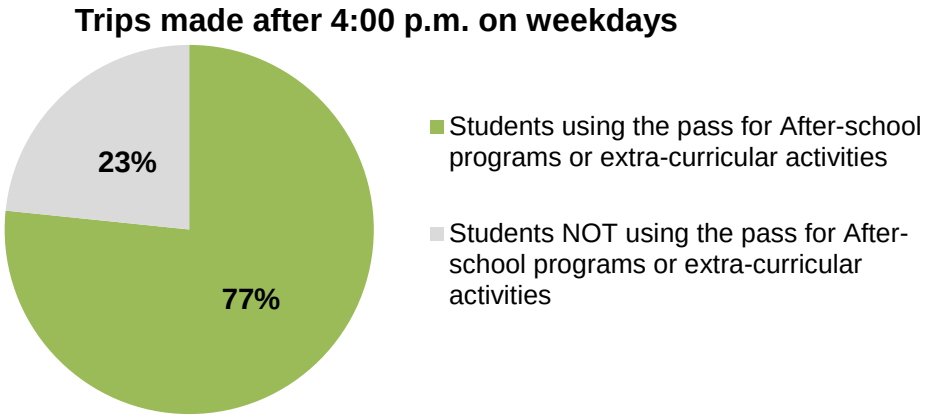

Figure 14. Go-To Student Pass use after school hours (N=1316)

Finally, we look at information collected in the parent survey where parents were asked if the Go-To Student Pass gave their children the ability to participate in more after-school programs or extra-curricular activities than before. The results are shown in Figure 15. As shown, 68 percent of the parents of Go-To Student Pass users that answered the question reported that the Pass enabled their children to participate in more after-school programs and 55 percent reported the same for extra-curricular activities.

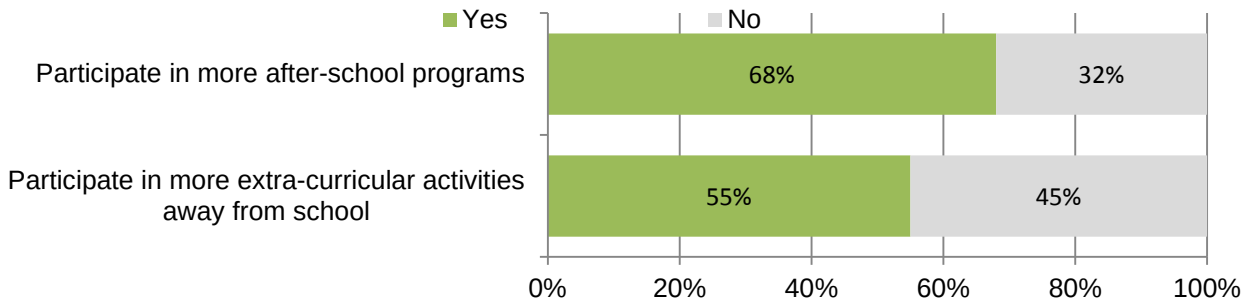

Figure 15. Go-To Student Pass provides the ability participate in more extra-curricular activities and after-school programs – Parent Survey (N=294)

Section 4. Economic Impact Analysis

The Student Pass program partnership is expected to have significant economic impacts on both Metro Transit and MPS. The program is expected to increase operational efficiencies for both partners. For Metro Transit, the program is expected to create a significant increase in ridership due to the transportation of all program eligible high school students for school and other purposes. For MPS, the program is expected to generate operation and maintenance cost savings due to the discontinuation of yellow bus service provided by their own and contracted fleet. There are also associated costs for both partners. For Metro Transit, these include the administrative and management costs of the program and costs associated with extra service (trips) operated to meet student transportation needs. For MPS, costs include payments made to Metro Transit for Go-To Student Passes, as well as administrative and management costs for running the program. In this section of the report we conduct a cost-benefit analysis to assess the fiscal impact of the student Pass program on Metro Transit and MPS.

For the analysis, both Metro Transit and MPS provided information about costs and benefits attributable to the program. Metro Transit provided information on annual costs for program management, cost of operating extra trips for the program and payments from MPS for Passes. Similarly, MPS provided information on annual costs for program management, cost savings from discontinuation of yellow buses and Pass costs incurred. For Metro Transit the analysis is conducted based on information from calendar years 2012-2013 and 2013-2014. This enables us to compare the two years, 2012-2013 when the Go-To Student Pass was available at all MPS high schools except South and Southwest[18], and 2013-2014 when all MPS high schools were included in the program, to understand the fiscal impacts of increasing ridership. For MPS, the analysis is conducted based on pre-(2008-2009) and post-(2013-2014) program implementation information.

Impact on Metro Transit

Here we look at the fiscal costs and benefits incurred by Metro Transit and compare the two to look at the overall impact of the program and how it has changed between calendar years 2012-2013 and 2013-2014.

Administrative and Management Costs

Metro Transit provided average annual costs based on staff time used and other costs, which included marketing costs, costs for printing Passes, and miscellaneous costs. Although there are no dedicated full-time employees for the Student Pass program at Metro Transit, there are dozens of employees across several departments that dedicate a portion of their job to supporting the program. Metro Transit was able to provide an average of staffing time costs based on employees spending a varied percentage of their time on Go-To Student Pass related activities. Staffing costs were estimated for staff including, administrative, service development, street operations, Metro Transit Police Department, customer relations and marketing. Total staffing cost related to the program was estimated at $522,688. Marketing and promotion costs were estimated at $4,554. Pass production costs were estimated at $15,000. Total costs were $542,242 per year ($522,688+ $4,554 + $15,000).

[18] In 2014-2015 South and Southwest high school had the highest and the second highest high school enrollment amongst all MPS high schools. Minneapolis Public Schools enrollment data. Accessible at :http://studentaccounting.mpls.k12.mn.us/Period_Enrollment.html

Extra Service Operation Costs

Given the expansion of the program, Metro Transit has had to add additional bus trips to accommodate increased demand from students. These additional trips typically involve increasing the frequency of services over certain portion of regular routes at certain times (mornings and afternoons when students are travelling to and back from school). In March 2013, Metro Transit was operating 76 additional bus trips to accommodate increased demand from students and by March 2014 the number had increased to 103 per day.

To calculate costs of extra service, trips on a typical day of extra service for 2012-2013 and 2013-2014[19] were selected. Total in-service hours (hours spent transporting passengers) for these days were calculated. Next, total service hours were multiplied by the direct costs of transit operation per hour ($88.32 per hour)[20] to get total cost of operation on a typical day. Finally, cost on a typical day was multiplied by the total student instructional days to get annual estimates. Total costs are shown in Table 3. As shown in the table total annual cost for operating extra service for Metro Transit was $1,110,960 for 2012-2013 and $1,558,209 for 2013-2014.

Table 3. Cost of extra service operation

Year	Extra Service Hours	Operation Cost per Hour	Student Instructional Days	Total Annual Costs
2012-2013	71.1	$88.32	177	$1,110,959.62
2013-2014	99.1	$88.32	178	$1,558,209.15

Benefits from Go-To Student Pass Sales (Ridership)

For the Go-To Student Passes provided to the students, MPS purchases Passes from Metro Transit at the unit cost of $300 for an academic year or $75 for a quarter. The total payments received by Metro Transit for calendar years 2012-2013 and 2013-2014 are shown in Table 4.

Table 4. Go-To Student Pass sales

Year	# of Passes in use	Invoices/credits*
2012-2013	3828	$ 1,185,180.00
2013-2014	6484	$1,942,623.00

* includes payments for lost Passes

Cost-benefit Comparison Metro Transit

A comparison of fiscal costs and benefits for Metro Transit is shown in Table 5. As shown in the table, in 2012-2013 the program led to a deficit of $468,022. However, in 2013-2014, this deficit was reduced to $157,828**.** While this may seem to suggest that the addition of extra Pass users from South and Southwest high schools in 2013-2014 resulted in reduced deficits, the reduction is more related to service level adjustments. In 2012-2013, before the addition of South and Southwest high schools to the program, Metro Transit extra service was provided based on the assumption that every eligible student would use the Go-To Student Pass. Throughout

[19] Typical day information for 2012-2013 from March 2013 and for 2013-2014 from March 2014.
[20] Provided by Metro Transit.

the first year of operation (2012-2013) Metro Transit adjusted and reduced the number of extra service trips operated based on demonstrated ridership. In 2013-2014, when South and Southwest high schools were added to the program, Metro Transit assumed only 75% ridership which was a more accurate match based on their experience and resulted in reduced deficits.

It is also important to point out that a comparison between benefits from 2012-2013 and 2013-2014 does not necessarily mean that adding new students (like the addition of South and Southwest high schools) to the program could lead to financial benefits. Benefits also depend on the cost of extra service needed to accommodate student's needs. For example, extending the program to areas where existing service coverage is not extensive will result in a greater need to add extra trips which would minimize benefits. In addition, it is important to note that for MPS high school students Metro Transit was able to add the extra trips without increasing their fleet size (i.e. having to buy buses or use more garage space). Finally, there may be additional potential ridership gains for Metro Transit that is not analyzed here. For example, extra service operated by Metro Transit is open to all users (students and non-students) which may attract new users.

Table 5. Cost-benefit comparison Metro Transit

	Metro Transit Costs		Metro Transit Benefits	Net Impact on Metro Transit
Year	Staffing Costs	Extra Service Operation Costs	Pass Sales	(Benefits – Costs)
2012-2013	$542,242	$1,110,959.62	$1,185,180.00	-$468,022
2013-2014	$542,242	$1,558,209.15	$1,942,623.00	-$157,828

Impact on MPS

Here we look at the fiscal costs and benefits incurred by MPS and compare the two to look at the overall impact of the program.

Administrative and Management Costs

At MPS, the Go-To Student Pass program is managed by Check and Connect, an MPS department that also monitors student attendance and truancy. Since service is operated by Metro Transit, program management primarily consists of day-to-day management of Passes (i.e., distribution of Passes, replacing lost Passes, addressing student and parent issues, coordination with Metro Transit, etc.). One full-time position (MPS Go-To Pass Coordinator) is responsible for the overall management of the program and eight other Check and Connect employees provide part-time administrative support for the program. MPS was able to provide information on average staffing costs which were $240,000 per year, and other costs (marketing, outreach and miscellaneous costs) which were estimated at $40,000 per year. Total costs were $280,000 per year ($240,000+$40,000).

Go-To Student Pass Costs

As mentioned earlier, MPS pays Metro Transit for Go-To Student Passes. The numbers presented here are the same as those mentioned under 'Go-To Student Pass Sales' (Table 4). Total payments made for Passes by MPS to Metro Transit for 2013-2014 were $1,942,623.

Cost Savings from Discontinuing Yellow Buses

Cost savings were calculated based on the total cost of student transportation on yellow buses (MPS fleet and contracted fleet) before the implementation of Student Pass program (i.e., 2008-2009). From information provided by MPS, on a typical day, yellow buses made 207 trips with a total of 1,522.5 live miles traveled for high school student transportation. Live miles are the miles of a trip when the bus is in service (i.e., passengers are on board). Full implementation of the Student Pass program in 2013-2014 effectively eliminated all these trips. MPS provided information on the total costs of yellow bus operation, maintenance and management which was $3,419,233. Since this cost was provided for 2008-2009 it was adjusted for inflation using inflation data from the Consumer Price Index (Bureau of Labor Statistics)[21] to be comparable to 2013-2014 data. The inflation adjusted cost savings were $3,773,034.69.

Cost-benefit Comparison MPS

A comparison of fiscal costs and benefits for MPS is shown in Table 6. As shown in the table, comparing pre-program yellow bus cost savings and post-full program implementation costs, MPS saw a net benefit of **$1,550,412.**

Table 6. Cost-benefit comparison MPS

Year	MPS Transit Costs		MPS Benefits	Net Impact on MPS
	Administrative and Management Costs	Go-To Student Pass Costs	Cost Savings from Discontinuing Yellow Buses	(Benefits – Costs)
2013-2014	$280,000	$1,942,623	$3,773,034.69	$1,550,411.69

[21] Consumer Price Index (Bureau of Labor Statistics). Accessible at: http://www.bls.gov/data/inflation_calculator.htm

Section 5. Societal Impacts Analysis

This section of the analysis looks at the societal impacts of the Student Pass program. These are categorized based on distinct areas where the program is expected to have an impact and include: transit attitudes, time savings, transit use and traffic impacts. In addition to the areas mentioned, this section also examines the environmental impacts of the program based on changes in emissions due to shift from yellow buses to transit buses. Data used for analysis in this section include data from the student and parent surveys, student data provided by MPS and student ridership data from Metro Transit.

Transit Attitudes

The impacts of the Student Pass program on transit attitudes can be explored further by examining a number of student and parent perceptions. Here we look at general perceptions towards transit, perceived benefits of the program, changes in perceptions towards transit attributable to the program, perceptions regarding user experience with the program, parental concerns about the program, and perceptions related to gender and safety.

General Perceptions towards Transit

In the student survey, both Pass users and non-Pass users were asked about their general perception of transit based on 14 aspects of transit service. Figure 16 shows the differences in general perceptions towards transit between Pass users and non-users. Pass users had more positive perceptions (statistically significant[22]) than non-users for a number of categories. These included:

1. Waiting areas at stops are attractive and pleasant
2. I can get everywhere I need to using transit
3. I can get around quickly by transit
4. Service is frequent at times I travel
5. It's easy to find out where routes go and at what times
6. Transit is good value for the fare paid
7. Other passengers are courteous
8. Transit costs less than driving

These differences in perceptions may suggest that, as mentioned by Metro Transit outreach staff, there may be a significant lack of information or misconceptions related to transit when it comes to non-users. For example, more information regarding cost savings, time efficiency of transit, and other riders being courteous may encourage more non-users to use transit. There were also categories for which users had negative perceptions (statistically significant) compared to non-users. These included:

1. Stops are close to my home and destinations
2. Buses and/or trains are almost always on time

[22] ★ indicates statistical significance at p<.05

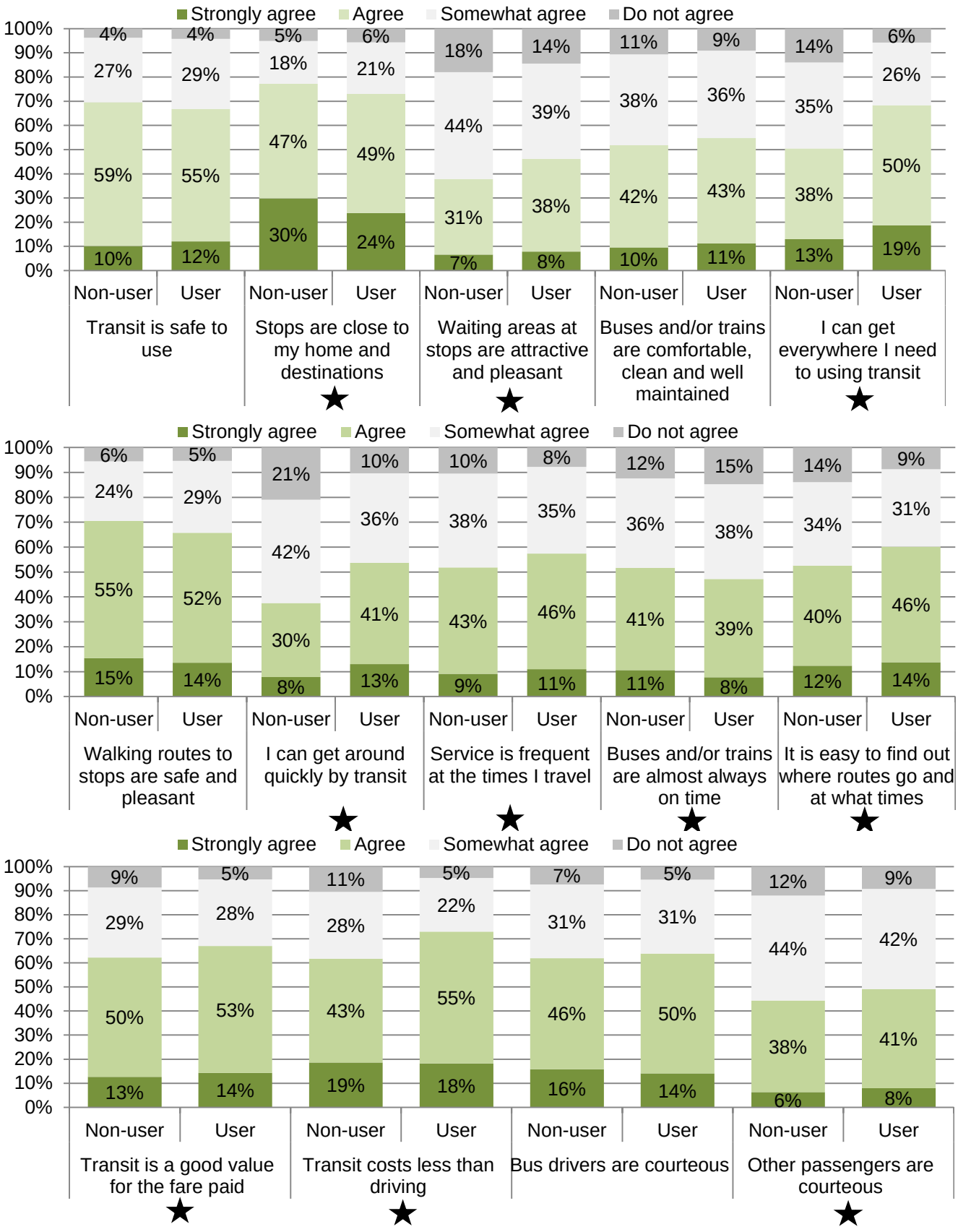

Figure 16. General perceptions of transit service user vs. non-user (N=2177)

In the student survey, both Pass users and non-Pass users were asked about their overall experience with Metro Transit and their potential use of transit after graduating from high school. As shown in Figure 17, a majority of both Pass users and non-users reported positive (Very good or Good) experiences using Metro Transit. More importantly only three percent of Pass users and five percent of non-users reported negative experiences (Poor or Very poor) with Metro Transit. The difference in opinions between the two groups was not found to be statistically significant. As shown in Figure 18, when asked how likely they were to use transit after graduating from high school, a higher percentage of Pass users, 61 percent, reported that they were likely to use transit after high school. The difference in the likelihood of using transit after graduation between Pass users and non-Pass users is statistically significant.

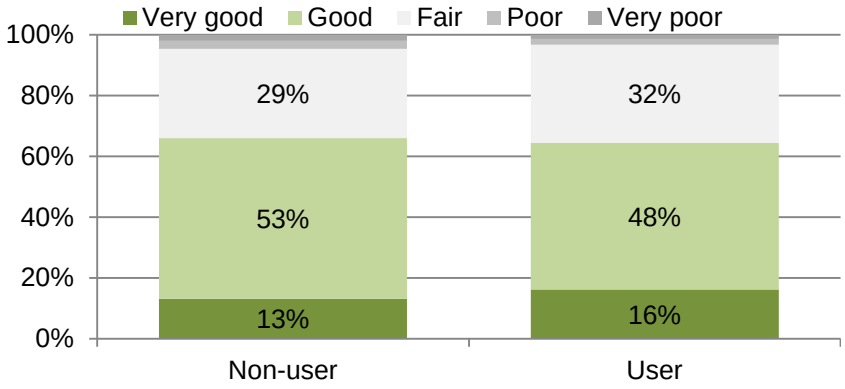

Figure 17. Students - overall experience with Metro Transit (N=1933)

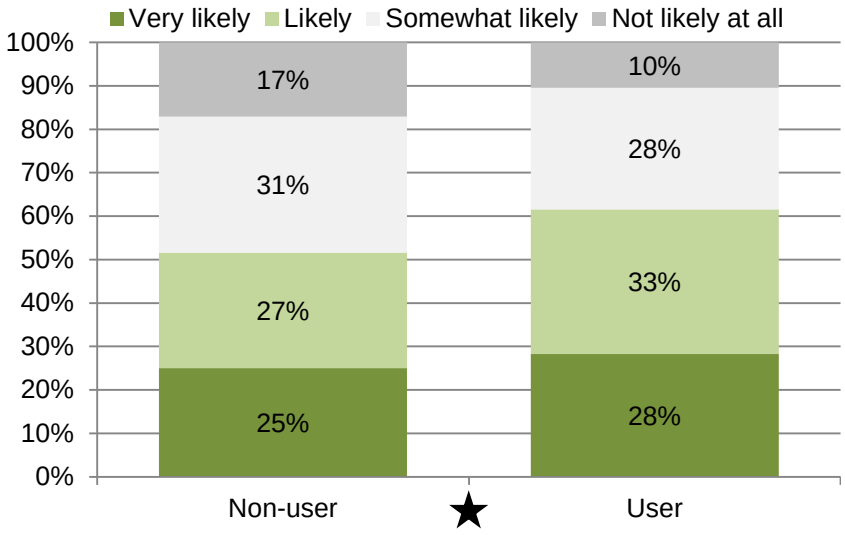

Figure 18. How likely are you to use transit after you graduate from high school? [23] (N=2063)

In addition to looking at the distribution of survey responses regarding the students' general perceptions towards transit, three regression models were estimated to better understand the impact of the Go-To Student Pass on student perceptions and differences in perceptions between Pass users and non-Pass users. The dependent variables of the three models are: the perception that transit is safe to use (due to the attention

[23] ★ indicates statistical significance at p<.05

focused on safety during focus group discussions), the overall perception of Metro Transit, and how likely students are to use transit after they graduated from high school as indicated by survey respondents. Key explanatory variables for all three models include whether or not the student was a Go-To Student Pass user, if the student regularly used the Pass to get to and back from school, and if the student used the Pass to access other educational opportunities (i.e., after-school programs and extra-curricular activities away from school). In addition, to accommodate for other factors that may impact student perceptions, a number of control variables were included in the analysis which included: gender, eligibility for free/reduced lunch, frequency of transit use before using the Go-To Student Pass, having a job, race and ethnicity, family structure (dual parent households, presence of grandparents, presence of siblings and presence of younger siblings), immigration status (if student or either parent was foreign born), grade of the student and the school the student attended. Given the ordinal nature of the dependent variables all three models were estimated using Ordered Logistic Regression and interpreted using Odds Ratio (OR). An odds ratio of 1 indicates that the condition or event under study is equally likely to occur in the focal and reference groups. An odds ratio greater than 1 indicates that the condition or event is more likely to occur in the focal group and an odds ratio less than 1 indicates that the condition or event is less likely to occur in the focal group.

Results from the analysis are shown in Table 7. As shown in the table, after controlling for socio-demographics variables, no associations were found between transit being safe to use and the key explanatory variables. For overall perception of transit, after controlling for socio-demographics variables, the odds of Go-To Student Pass users reporting that their experience with transit was very good were 0.67 times ($OR=0.67$, $p<0.05$) lower than non-users. For students regularly using the Pass to get to and back from school the odds were 1.41 times ($OR=1.41$, $p<0.05$) higher compared to those who did not. For students that used the Pass to access other educational opportunities the odds were 1.33 times ($OR=1.33$, $p<0.05$) higher compared to those who did not. Similarly, after controlling for socio-demographics variables, for students regularly using the Pass to get to and back from school, the odds of reporting that they were very likely to use transit once they graduated were 1.41 times greater ($OR=1.41$, $p<0.05$) compared to those who did not. For students that used the Pass to access other educational opportunities the odds of reporting that they were very likely to use transit once they graduated were 1.43 times greater ($OR=1.43$, $p<0.05$) compared to those who did not.

These findings suggest that when it comes to perceptions related to transit experience and the likelihood of using transit after graduating, simply being a Go-To Student Pass holder does not have any impact. However, the nature of the use of the Pass, like using them regularly for school or to access other educational opportunities, does lead to more positive perceptions.

Table 7. Regression Results Selected Student Perceptions[24]

	Transit is Safe to Use	Overall Perception of Transit	Use Transit After Graduation
Key explanatory variables			
Go-To Student Pass user	1.2304	0.6674*	0.8223
Regular Pass use for school	1.0547	1.4056*	1.4091*
Pass use for other educational opportunities	0.9719	1.3304*	1.4287**
Control Variables			
Female	0.5318***	0.8508	1.2839**
Free/reduced lunch eligible	0.8337	1.0917	0.8157
Occasional transit use prior to the Go-To Student Pass	1.2652*	1.3817**	1.7809***
Frequent transit use prior to the Go-To Student Pass	1.2360	1.0851	1.9257***
Having job(s)	0.9148	0.9318	0.7944*
Race and ethnicity			
American Indian	0.7889	0.5725	0.8186
Black	0.6778**	0.8581	0.5572***
Asian	0.5042***	0.8145	0.5755**
Hispanic	0.6655*	0.8770	0.7219*
Family structure			
Dual parents present in the household	1.1294	1.1184	1.0010
Grandparent(s) present in the household	0.7635	0.8795	1.0980
No sibling	1.1889	1.0586	1.0743
Younger sibling(s) present in the household	1.1129	1.1194	1.0583
Immigrant status			
Being foreign born	1.2288	1.5477***	1.3809**
Foreign born mother	1.0960	0.8415	0.9388
Foreign born father	0.8391	1.0139	0.8254
Grade Indicators			
Grade10	0.6714***	0.8681	1.0269
Grade11	0.8631	0.8859	1.3785**
Grade12	0.7516	0.6421**	1.4038*
School indicators			
Edison	0.7099	0.8275	1.4997*
Henry	0.4261***	0.5078***	1.1328
North	0.3945**	0.3837**	1.0887
Roosevelt	0.8237	0.8691	1.2939
South	0.4804***	0.6911*	1.6174**
Washburn	0.9890	1.3066	1.4682**
Wellstone	1.0198	1.6042*	1.4709
Constant 1	-4.2206***	-4.6446***	-1.6338***
Constant 2	-1.5568***	-3.6782***	0.0911
Constant 3	1.3935***	-0.7225***	1.5111***
Constant 4		1.7007***	
Statistics	1.2304	0.6674*	0.8223
N	2038	1766	1900

legend: * p<.05; ** p<.01; *** p<.001

[24] All models are interpreted using Odds Ratio (OR). An odds ratio of 1 indicates that the condition or event under study is equally likely to occur in the focal and reference groups. An odds ratio greater than 1 indicates that the condition or event is more likely to occur in the focal group and an odds ratio less than 1 indicates that the condition or event is less likely to occur in the focal group.

Similar to the question in the student survey, parents of students who were both Pass users and non-Pass users were asked about their general perception of transit based on 14 aspects of transit service. For a majority of categories, as shown in Figure 19[25], the percentage of parents of both, Pass users and non-users who "Strongly agreed" or "Agreed" were comparable and not statistically significant. However, for five of the 14 categories, a statistically significant higher percentage of parents of Pass users "Strongly agreed" or "Agreed" compared to parents of non-users. These included:

1. I can get everywhere I need to using transit
2. I can get around quickly by transit
3. Service is frequent at the times I travel
4. Transit is a good value for the fare paid
5. Transit costs less than driving

[25] ★ indicates statistical significance at p<.05

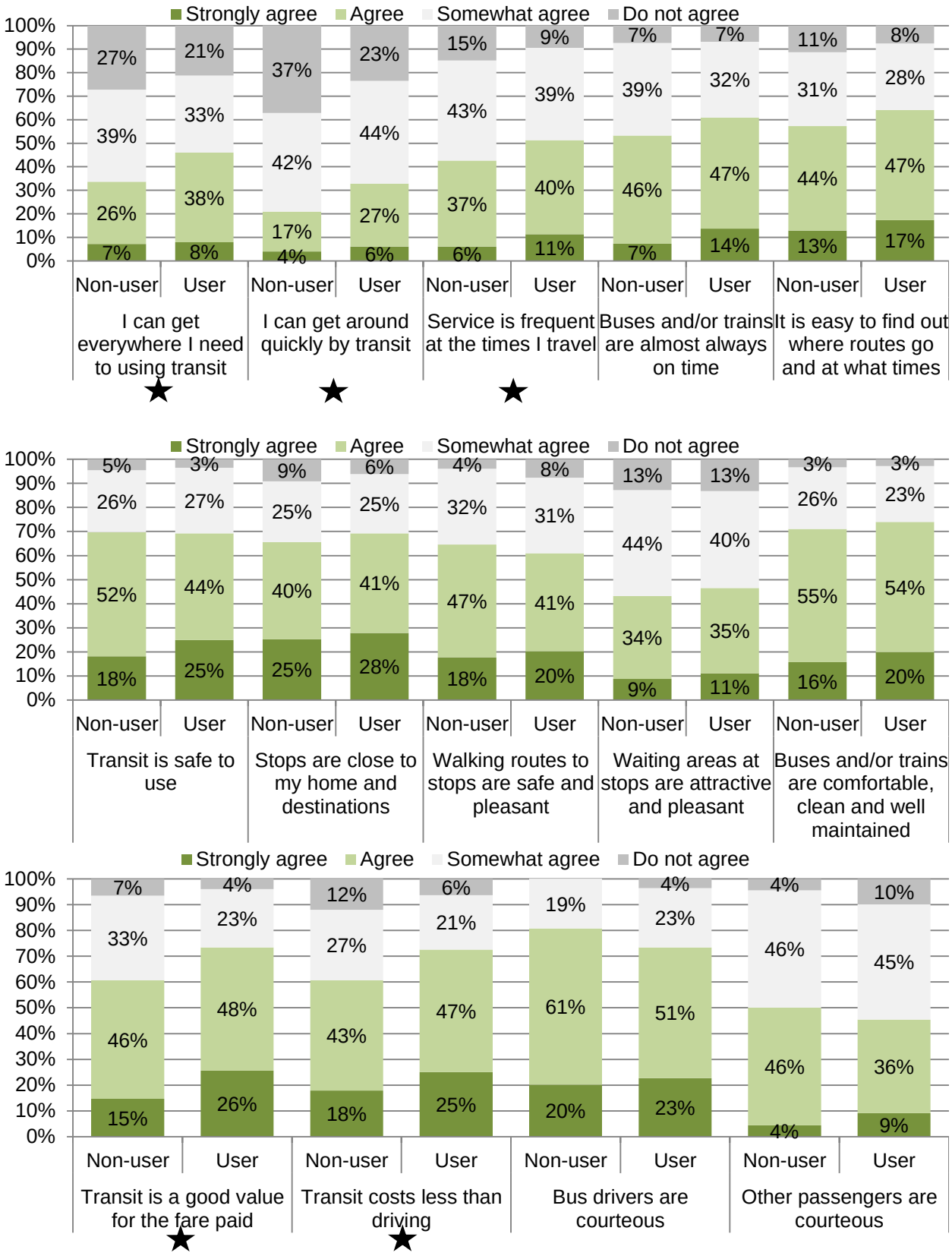

Figure 19. General Perceptions of Transit Service parents of user vs. non-user (N=477)

Parents of both Pass users and non-users were asked about their overall experience with Metro Transit. As shown in Figure 20 a statistically significant higher percentage of parents of Pass users (79 percent compared to 75 percent) reported "Very good" or "Good" overall experience with Metro Transit.

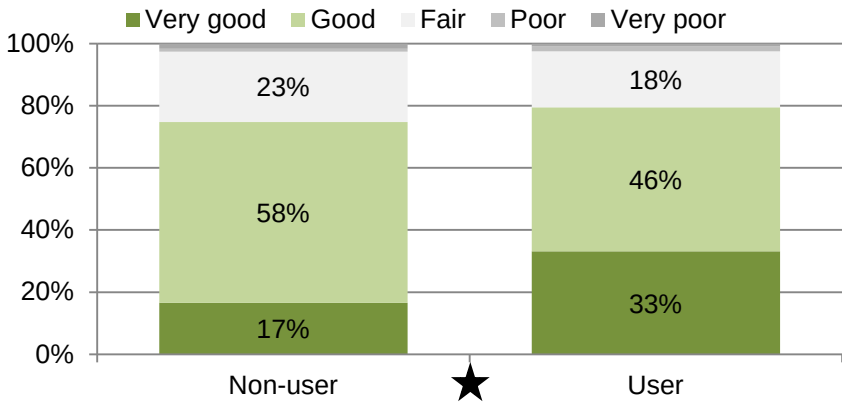

Figure 20. Parents - overall experience with Metro Transit (N=488)[26]

Perceived Benefits of the Go-To Student Pass

In the student survey, Pass users were asked about the benefits of the Pass. Figure 21 shows the results. Of the Pass users, 93 percent (N=1,579) reported benefiting from the Pass. With the exception of accessing more work opportunities and participating in more extra-curricular activities away from school, 50 percent or more of Pass users agreed that Pass use benefited them for all categories. Flexibility in travel times, savings on car-related expenses, and attending school more regularly being identified as key benefits.

[26] ★ indicates statistical significance at p<.05

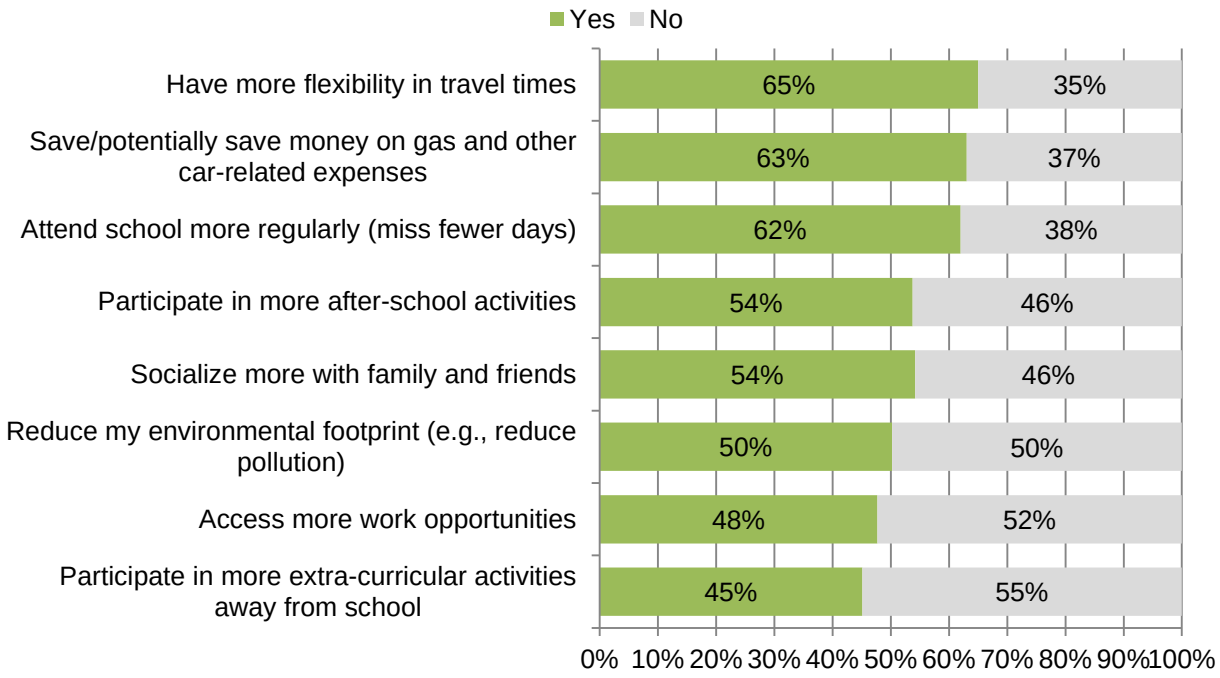

Figure 21. Benefits of the Go-To Student Pass (N=1,579)

In the parent survey, parents of Go-To Student Pass users were asked about benefits of the Pass for their family (Figure 22) and for their child (Figure 23). Eighty-five percent (N=303) of parents whose children used the Pass reported that the Pass had benefits for the family. When asked about these benefits, a majority (54 percent or more) reported benefits for all categories. The most commonly reported benefits were reduced conflicts with work for adults and more flexibility in travel times for the family. Fifty-four percent of the parents reported travel time savings created due to the Pass.

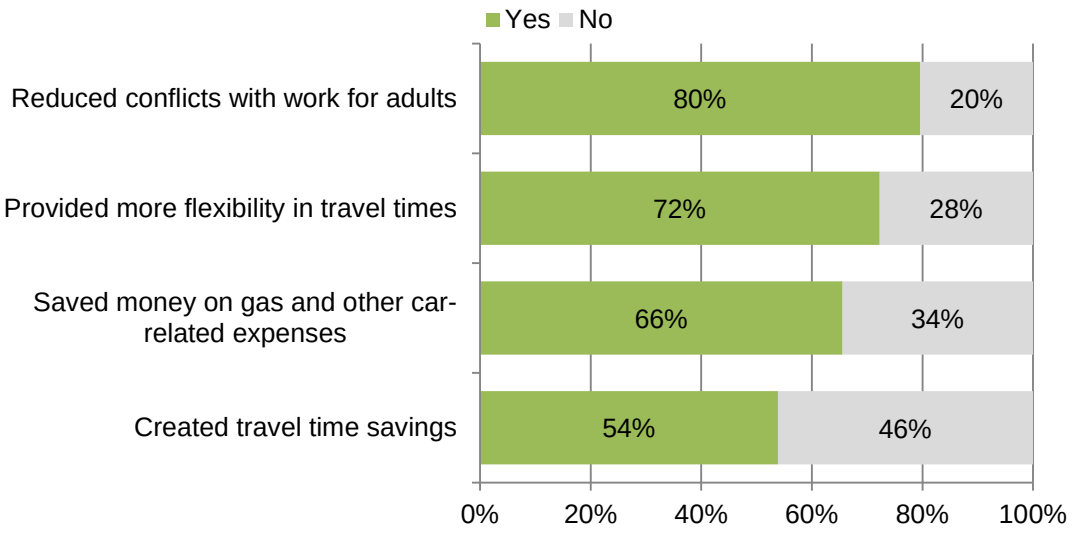

Figure 22. Benefits of the Go-To Student Pass for the family (N=303)

Eighty-two percent (N=294) of parents whose children used the Pass reported that the Pass had benefits for their children. The most commonly reported benefits were socializing with family and friends, and participating

in more after-school activities. Only 34 percent of the parents reported that the Pass helped their child attend school more regularly.

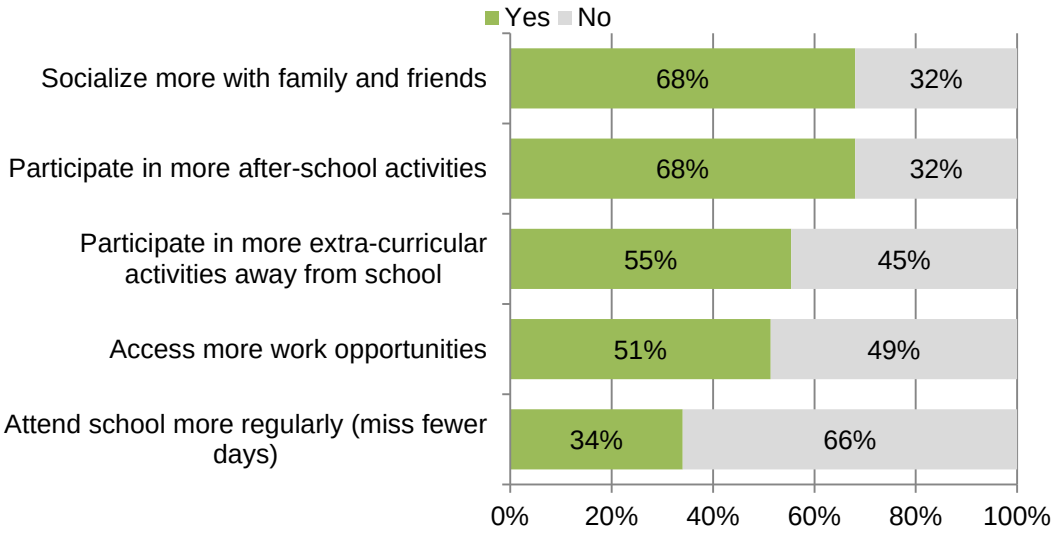

Figure 23. Benefits of the Go-To Student Pass for the student – Parent perception (N=294)

Changes in Perception due to the Student Pass program

In the student survey, Go-To Student Pass users were asked about changes in their perceptions towards transit after using the Pass. Of all Pass users (1,780) 65 percent (1,157) reported that use of the Pass had changed their perception towards transit. Figure 24 shows the results for the changes in perceptions. For most categories, a majority of the students reported positive perceptions towards transit. The percentage reporting a positive change was particularly high for ease of use (85 percent) and feeling more independent (76 percent). Change in perceptions related to safety was more divided with 53 percent reporting no change. In contrast to the focus groups where students indicated that the transit was their preferred mode of transit only 42 percent of the respondents indicated that they felt that way. Overall, the change in perceptions suggests that using transit can significantly alter opinions and perceptions related to it. This is in line with the conversation with Metro Transit outreach staff where it was suggested that many concerns related to the use of transit are due to misconceptions and a lack of information.

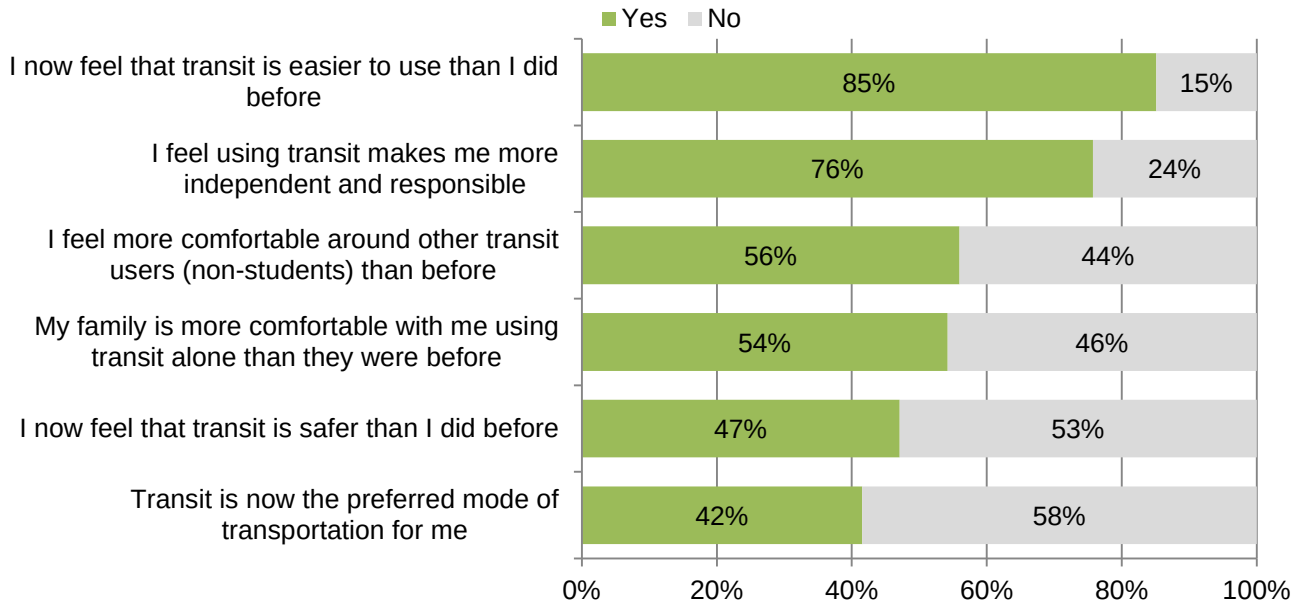

Figure 24. Changes in student perceptions towards transit (N=1157)

Similarly, in the parent survey, parents of Go-To Student Pass users were asked if their perceptions towards transit had changed after their child's use of the Pass. Forty-eight percent (N=171) of parents whose children used the Pass reported that their children's use of the Pass had changed their perceptions regarding transit. As shown in Figure 25, the perceptions that changed for the highest percentage of parents were, feeling that the Pass made their child more independent and responsible and that transit was easy to use. Fifty-two percent of parents reported they felt that transit was safer for their child to use than they originally did. Transit being the preferred mode of transportation changed for the lowest percentage (44 percent) of parents.

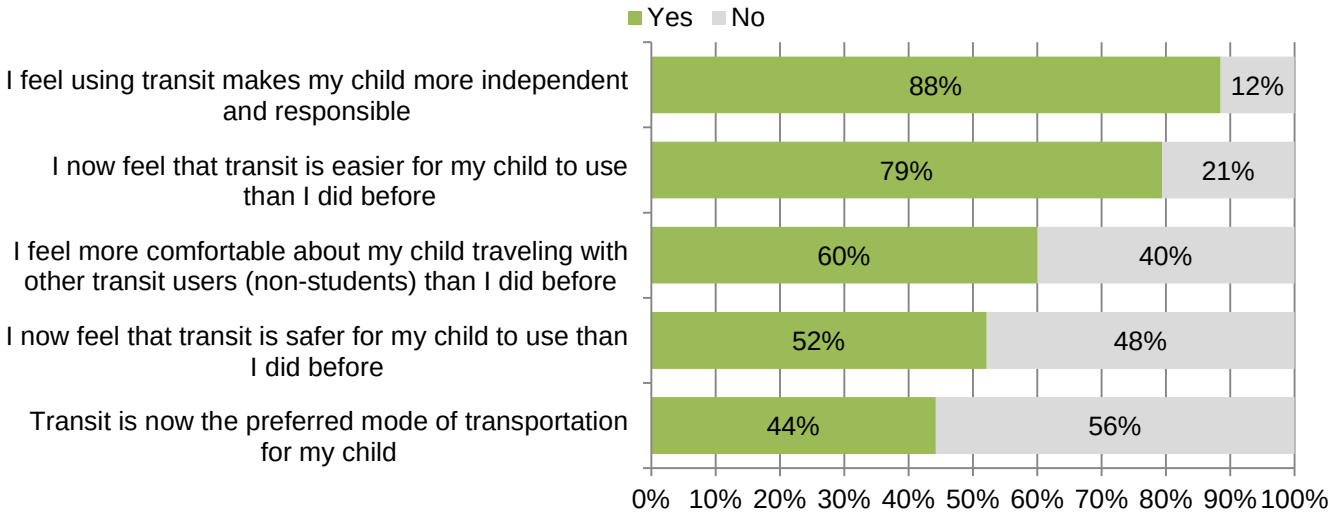

Figure 25. Changes in parent perception towards transit (N=358)

Pass Use Experience

In the student survey, Go-To Student Pass users were asked about their perceptions towards transit use related to the Pass and the results are shown in Figure 26. With exception of seats always being available, a majority of Pass users (60 percent or more) had positive (Strongly agree or Agree) perceptions for all categories. Relating to the availability of seats, it is important to point out that most students ride the busiest local routes during rush hours and that Metro Transit's loading standards permit standees in these circumstances. For questions related to safety on transit, walking to and from stops and at stops, 63 percent of the Pass users had positive perceptions. In addition, 68 percent of Pass users indicated that total traveling time to and from school was reasonable. Sixty percent of the users also agreed that the Pass provides them with flexibility in travel times while traveling to/from school.

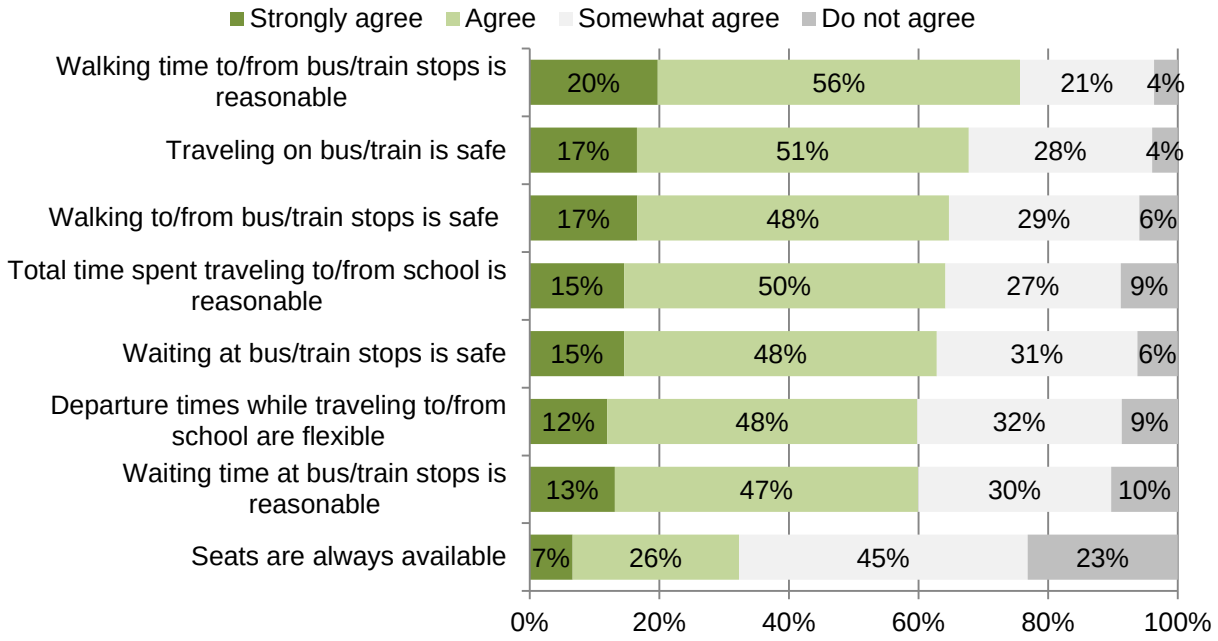

Figure 26. Pass user's perceptions about using the Pass to get to/back from school (N=1,780)

Pass users were also asked about their overall satisfaction with Student Pass program. As shown in Figure 27 and in line with student conversations in focus groups, students indicated a high level of satisfaction with the program with 81 percent reporting being "Satisfied" or "Very Satisfied" with the Pass.

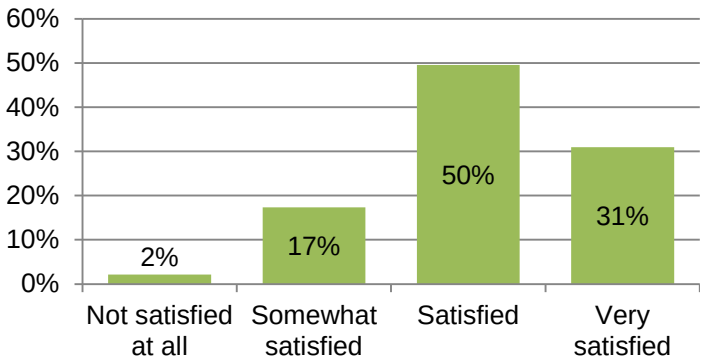

Figure 27.Satisfaction (students) with the Go-To Student Pass (N=1780)

Pass users were asked about how using the Pass compared to using yellow buses for school transportation. As shown in Figure 28 and in line with student conversations in focus groups, a majority of the Pass users (59 percent) reported that using the Pass on transit was “Better” or “Much better” than yellow buses. Only 11 percent of Pass users reported that using the Go-To Student Pass on transit was worse than using yellow buses.

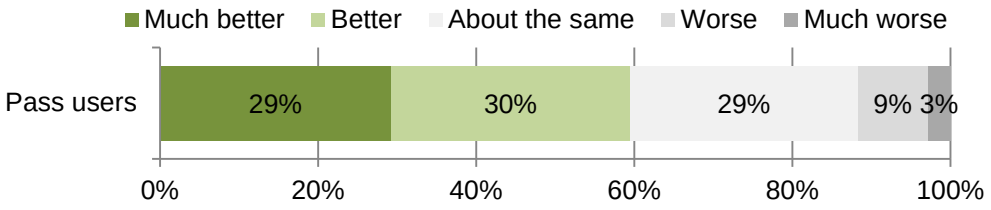

Figure 28. Students - How is transit in comparison to yellow buses? (N=1780)

In the parent survey, parents of the Go-To Student Pass users were asked about their satisfaction with the Pass. As shown in Figure 29, 80 percent of the parents reported being “Satisfied” or “Very satisfied” with the Pass.

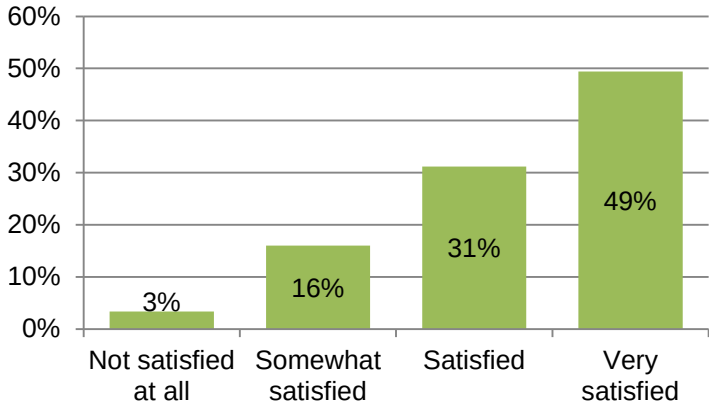

Figure 29. Satisfaction (parents) with the Go-To Student Pass (N=358)

In addition, parents of both Pass users and non-users were asked how the Go-To Student Pass compared with yellow buses. As shown in Figure 30, a higher percentage (statistically significant) of parents of Pass users (61 percent compared to 38 percent) thought using the Pass to access transit was “Much better” or “Better” than yellow buses.

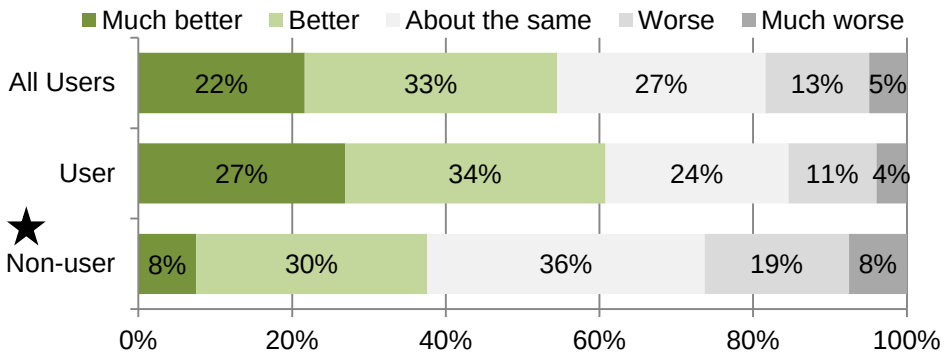

Figure 30. Parents - How does the Go-To Student Pass compare with yellow buses? [27] (N=497)

Parental Concerns about Pass Use

In the parent survey parents of both Pass users and non-users were asked how concerned they were about 15 items if their child did or was to use the Go-To Student Pass to use transit. As shown in Figure 31, for 12 of the 15 items, a statistically significant higher percentage of parents whose children were Pass users reported being "Not concerned" compared to parents of non-users. These included:

1. Behavior of other passengers (non-students)
2. Child getting lost
3. Child's safety when walking to/from bus/train stop
4. Child's safety when waiting at bus/train stop
5. Bus/train stops not being close to home/school
6. Wait time at bus/train stop being long
7. Total length of trip being long
8. Service being unreliable
9. Routes and schedules being difficult to understand
10. Quality of vehicles being poor
11. Bus drivers not being courteous to your child

[27] ★ indicates statistical significance at p<.05

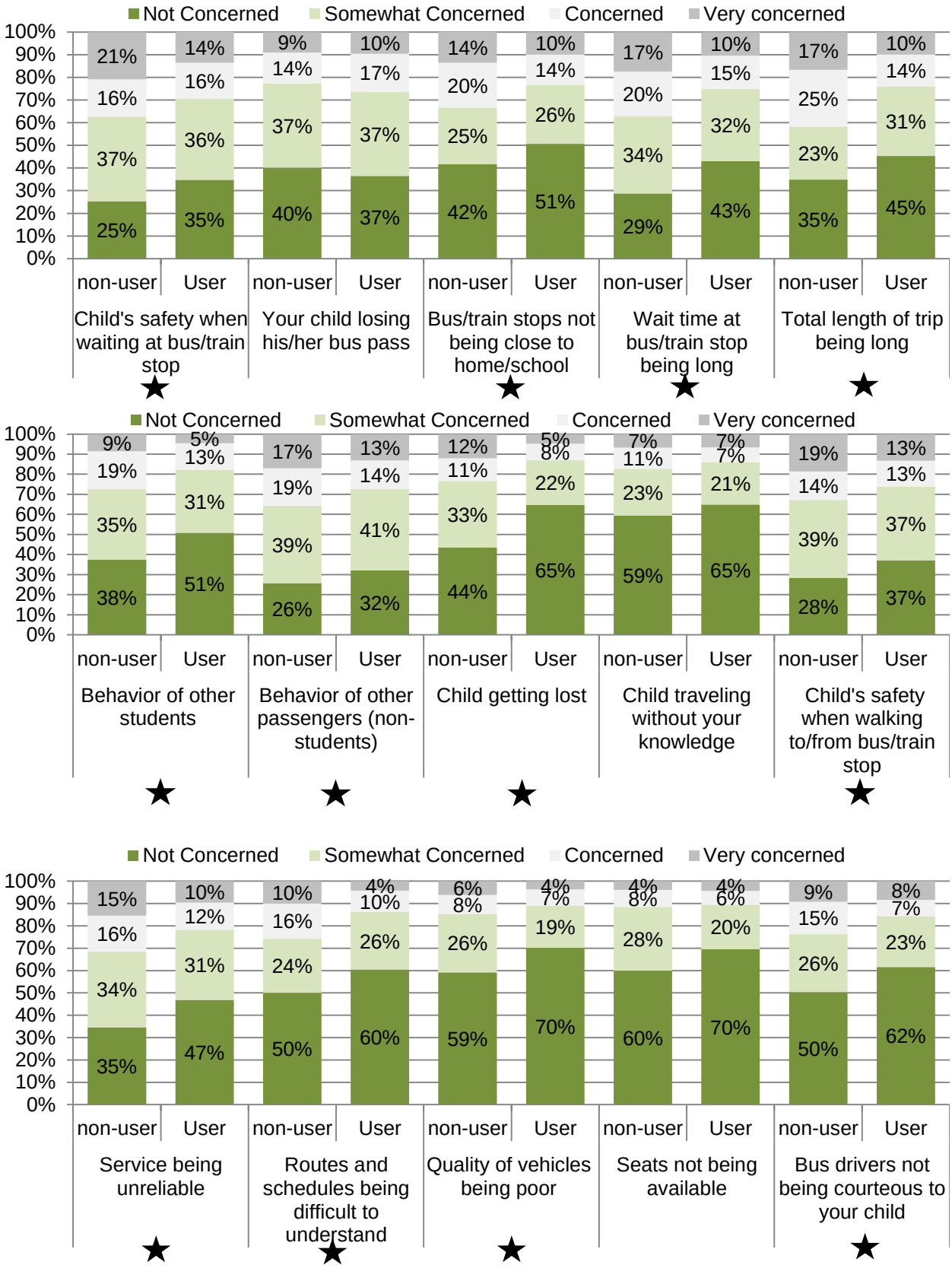

Figure 31. Parental Concerns Regarding their Child Using Transit (N=488)

Safety and Gender

Based on conversations during the focus groups the research team decided to delve deeper into gender differences in perceptions of safety. Referring back to the transit safety regression model results in Table 7 (where responses from both Pass users and non-Pass users were analyzed), it was found that the odds of female respondents strongly agreeing that transit is safe to use was 0.53 times lower (OR=0.53, p<0.001) compared to male respondents.

Focusing only on Go-To Student Pass users, the responses to the three safety perception questions (safety on transit, walking to/from stops, and at stops) was compared between male and female students. Figure 32 shows a comparison between the two groups. The figure indicates that female students do perceive safety as a larger concern than their male counterparts for all three safety categories. The difference in opinion between the two groups was statistically significant for all three categories. The percentage of non-positive perceptions (Somewhat agree or Do not agree) for female students were highest (44 percent) for safety while walking to/from stops and at stops.

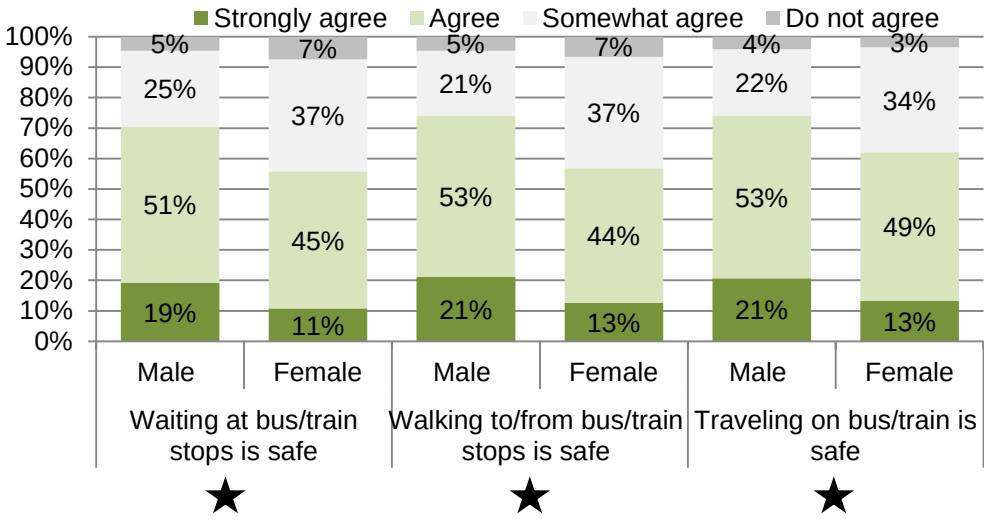

Figure 32. Go-To Student Pass users safety perceptions male vs. female participants[28] (N=1780)

Environment Impacts

Another societal impact of the Student Pass Program is the potential reduction in exhaust emissions as student transportation shifted from traditional diesel yellow buses to a more environmentally friendly Metro Transit fleet. Hybrid buses were introduced to the Metro Transit fleet in 2002 and now comprise approximately 15 percent of the fleet. In addition, accommodating student riders in existing transit service with limited extra service to meet increased ridership can also be expected to reduce emissions.

Air pollution is a serious environmental problem that impacts the health of individuals. Vehicles exhausts in particular have been associated with a number of health issues. Exposure to oxides of nitrogen (NOx), and carbon monoxide (CO) has been found to be associated with elevated risk for development of asthma and

[28] ★ indicates statistical significance at p<.05

chronic respiratory symptoms [29]. Particulate matter (PM) has been found to be associated with higher risks of cardiac and pulmonary mortality[30,31]. PM studied here refers to particles with a mean diameter of less than 2.5 microns, known as PM2.5 as defined by the US Environmental Protection Agency (EPA).The danger from air pollutants is of great concern as exposure to them is largely out of the control of individuals.

The environmental analysis for this study looks at changes in NOx, CO and PM emissions due to a shift of high school student transportation from yellow buses to Metro Transit buses. Emissions were estimated for MPS yellow bus service using school trip information from a typical day in the 2008-2009 academic year (pre Student Pass Program). Similarly, for the Metro Transit fleet emissions were estimated using extra service trips attributable to student transportation on a typical day in the 2013-2014 academic year (post implementation of the Student Pass Program). For these days both MPS and Metro Transit provided a list of all routes run with live miles of transportation. For MPS, this was all trips made by yellow buses (MPS and contracted fleet) to transport students to and from all MPS high schools which included 207 trips with a total of 1522.47 live miles traveled. For Metro Transit, this was all extra service trips run that are attributable to accommodating the transportation needs of Go-To Student Pass users which included 103 trips with a total of 622.86 live miles traveled. In addition, details including year of manufacture and model of buses used by MPS and Metro Transit were provided to the study team. This information was combined with emission standards issued by the US EPA[32,33]. Based on the date of manufacture of buses included in the analysis and emission groups as defined by the US EPA based on changes in emissions standards Table 8 shows the emission standards used in the analysis.

Table 8. Emission Standards

	Units in g/BHP-Hr			Units in grams/mile		
Years	Nox	PM	CO	Nox	PM	CO
1998-2002	4	0.1	15.5	17.2	0.79	164.3
2003-2006	2.4	0.1	15.5	10.32	0.79	164.3
2007-2009	1.2	0.01	15.5	5.16	0.079	164.3
2010 +	0.2	0.01	15.5	0.86	0.079	164.3

Emission standards are reported by the EPA in grams of pollutant per brake horsepower hour (g/bhp-hr). For the analysis these were converted to grams/miles (Table 8) using EPA conversion factors[34]. Based on year of manufacture of buses in the fleet, average emissions (grams/mile) for the MPS (MPS and contracted fleet) and

[29] Brugge, D., Durant, J. L., & Rioux, C. (2007). Near-highway pollutants in motor vehicle exhaust: a review of epidemiologic evidence of cardiac and pulmonary health risks. Environmental Health, 6(1), 23.

[30] Van Vliet, P., Knape, M., de Hartog, J., Janssen, N., Harssema, H., & Brunekreef, B. (1997). Motor vehicle exhaust and chronic respiratory symptoms in children living near freeways. Environmental research, 74(2), 122-132.

[31] EMBARQ – Exhaust emission of transit buses: Sustainable Urban Transportation Fuels and Vehicles. Accessible at: http://www.wricities.org/sites/default/files/Exhaust-Emissions-Transit-Buses-EMBARQ.pdf

[32] US EPA Modeling and Inventories. Exhaust Emission Rates for Heavy-Duty On-road Vehicles in MOVES2014. Accessible at: http://www3.epa.gov/otaq/models/moves/moves-reports.htm

[33] US EPA Emission Standards Reference Guide Accessible at http://www3.epa.gov/otaq/standards/heavy-duty/hdci-exhaust.htm

[34] US EPA: National Service Center for Environmental Publications (NSCEP) Conversion Factors. Accessible at: http://nepis.epa.gov/Exe/ZyNET.exe/9100UO2L.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C91thru94%5CTxt%5C00000026%5C9100UO2L.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

Metro Transit fleets were calculated. Next, to get emission estimates for a typical day, average emissions were multiplied by live miles traveled for the 103 Metro Transit and 207 MPS trips made for high school student transportation.

To get annual estimates of changes in emissions, the typical day emissions were multiplied by the total student instructional days in 2013-2014, which were 178. Results are shown in Table 9. The shift of student transportation from traditional yellow buses to Metro Transit caused an estimated annual decrease of 1,328,829 grams (2,930lb) of NOx, 70,916 grams (156lb) of PM and 26,309,425 grams (58,002lb) of CO. In other words, an estimated annual reduction of: 93% for NOx emissions, 89% for PM emissions and 59% for CO emissions. It is important to keep in mind that the switch from yellow buses to transit resulted in the reduction of total trips made to transport high school students to approximately half (due to existing transit service) and a reduction of approximately 900 live miles on any given day. It is also important to note that the yearly emission of pollutants put out by yellow school buses per mile traveled will go down each year for several years in the future as older buses are retired and replaced by lower emission models.

Table 9. Emission Calculations

	Metro Transit		MPS			
Emission Component	**Typical Day - 2014 (1)**	**Emission Total for 178 days (2)**	**Typical Day -2014 (3)**	**Emission Total for 178 days (4)**	**Annual Emission Reduction = (4) – (2)**	**% Annual Emission Reduction = [(4)– (2)]/(4)**
NOx in grams	536 (1.18 lb)	95,348 (210.21 lb)	8,001 (17.64 lb)	1,424,176 (3,139.77 lb)	1,328,829 (2,929.57 lb)	93%
PM in grams	49 (0.11 lb)	8,759 (19.31 lb)	448 (0.99 lb)	79,675 (175.65 lb)	70,916 (156.34 lb)	89%
CO in grams	102,336 (225.61 lb)	18,215,819 (40,159.01 lb)	250,142 (551.47 lb)	44,525,244 (98,161.36 lb)	26,309,425 (58,002.35 lb)	59%

Transit Use

Another potential societal benefit of the Go-To Student Pass is the increased use of transit by students. To analyze patterns of use we look at data from the student survey and Metro Transit ridership data from Spring 2015 (January 20, 2015 - June 6, 2015).

In the student survey we asked students how often they used the Go-To Student Pass to meet their school and other transportation needs. Results are shown in Figure 33. In terms of Pass use we look at the 73 percent (N=1789) of student survey participants that reported being Pass users. As shown in Figure 33, 77 percent of the students reported using the Pass 3-5 days a week or more.

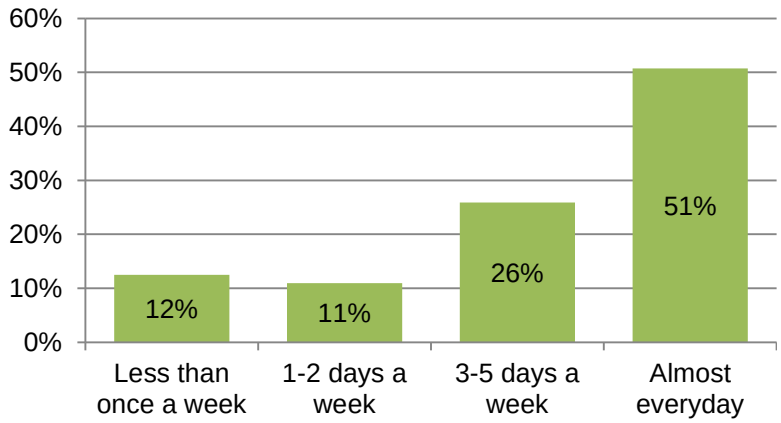

Figure 33. Frequency of Go-To Student Pass use (N=1780)

In the student survey students were also asked to identify activities facilitated through the use of the Go-To Student Pass. The results are shown in Figure 34. The most common use of the Pass was for social and entertainment purposes with 61 percent of users reporting they used the Pass for these purposes. Sixty percent and 45 percent of the Pass users indicated using it for after-school programs and extra-curricular activities (away from school) respectively. Forty-two percent of the students also reported using the Pass for accessing jobs or job-related activities. The results show that the Pass, apart from providing school and education-related transportation benefits also gives students access to a host of other opportunities.

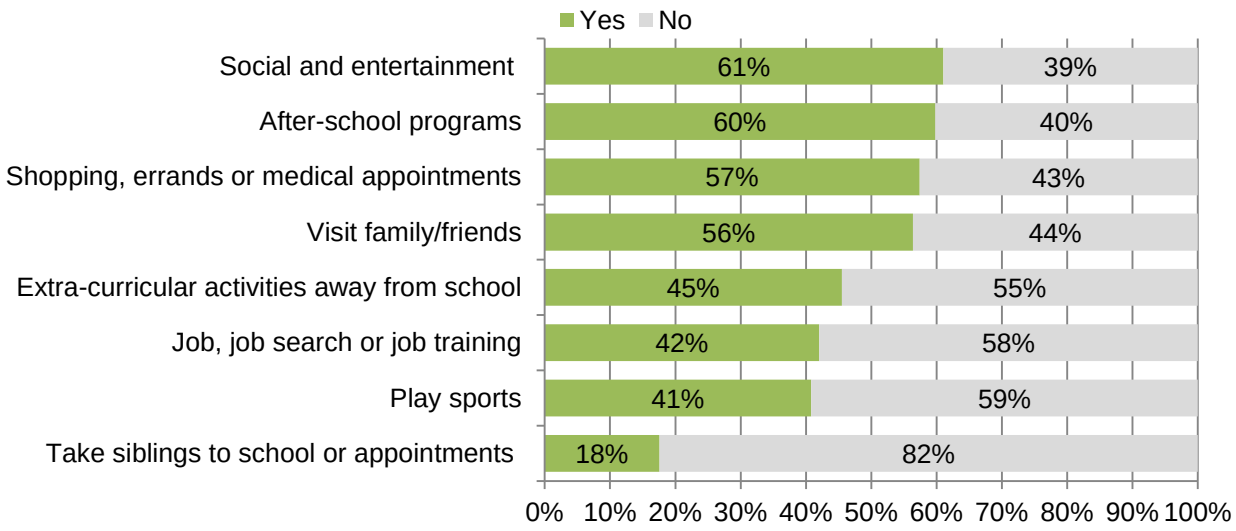

Figure 34. Pass activities other than going to and coming back from school (N=1780)

To better understand how the Pass is being utilized by students, ridership data from Metro Transit can provide great insights. Here ridership patterns are presented for students using ridership data from Metro Transit for Spring 2015. In the student survey 1,789 respondents reported being Go-To Student Pass users. Based on ridership data release requirements at Metro Transit, students were asked to provide their Go-To Student Pass numbers only if they consented to share private ridership information with the study team. Of the 1,789 Pass users, 399 students did not provide their Go-To Student Pass numbers limiting the sample to 1,390. Of the Pass numbers provided, 18 were invalid numbers for which ridership data could not be returned. Therefore, for the analysis, ridership data was available for 1,372 student survey participants. Figure 35 shows patterns of Pass use on week and weekend days based on the time of use. Please note that figure shows percentages of trips taken at a given hour of the day to illustrate patterns of use and does not indicate differences in magnitude between weekday and weekend trips. For example, percentages for weekday trips are calculated by dividing the number of trips taken at a given hour by the total number of weekday trips.

For weekday rides, as would be expected, a majority of the trips were made to get to or back from school i.e., between 7 a.m. to 8 a.m. and 3 p.m. to 4 p.m. These rides to and back from school accounted for close to 63 percent of total weekday rides. In addition, 17 percent of the rides were made after school hours i.e., between 4 p.m. to 6 p.m. Weekend rides were more evenly distributed over the day with 63 percent of the rides being made between Noon to 6 p.m.

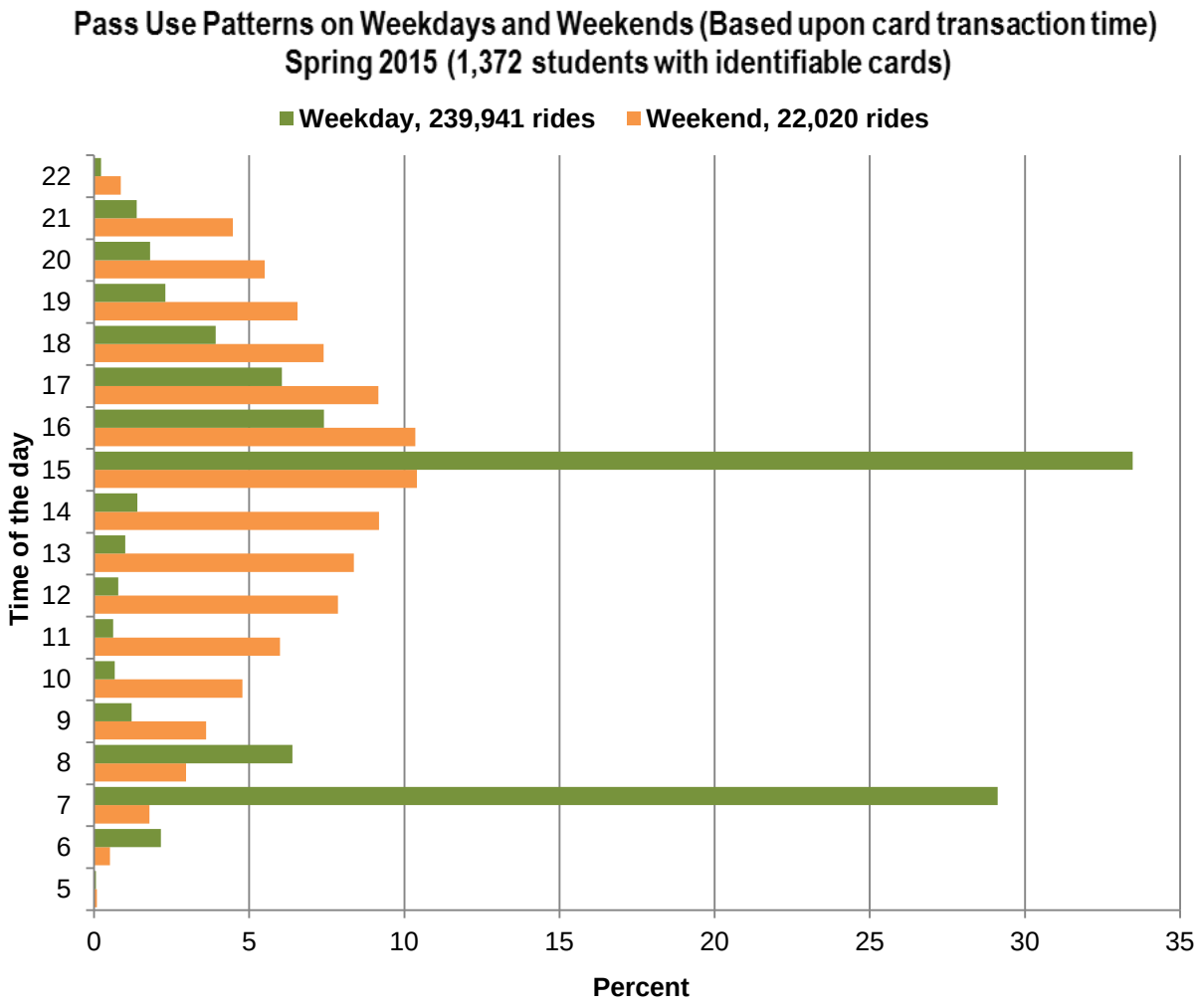

Figure 35. Pass use patterns on weekdays and weekends -based upon card transaction time in Spring 2015 (N=1,372)[35]

To delve deeper into ridership patterns, weekday rides were divided into two categories, for school use (weekday trips before 4 p.m.) and after school after (weekday trips after 4 p.m.). Dismissal bell time at MPS high schools in 2015 was 3:00 p.m.[36] Therefore it is safe to assume that most rides made after 4:00 p.m. on weekdays can be considered trips other than those made to get to and back from school. Figure 36 shows the average number of rides for a Go-To Student Pass user based on the two weekday categories mentioned above and on weekends. As shown the average total rides per Pass user in Spring 2015 was 191. The average rides per Pass user on weekdays before 4 p.m. was 134, after 4 p.m. on weekdays was 16 and on weekends was 40.

[35] A small proportion of trips were reported outside the 5 am – 10 pm Go-To pass ridership hours (.16 % for weekend trips and .03 % for weekday trips). These trips are not included in the graph for illustration purposes.
[36] Washburn bell schedule: http://washburn.mpls.k12.mn.us/bell_schedule
South bell schedule: http://south.mpls.k12.mn.us/bell_schedules
Roosevelt bell schedule: http://roosevelt.mpls.k12.mn.us/uploads/2015-16bell_schedule_2.pdf
Southwest bell schedule: http://southwest.mpls.k12.mn.us/bell_schedule_2
Patrick Henry bell schedule: http://henry.mpls.k12.mn.us/bell_schedule
North bell schedule: http://north.mpls.k12.mn.us/uploads/bell_schedule.pdf
Edison bell schedule: http://edison.mpls.k12.mn.us/uploads/edison_high_school_2013-2014_bell_schedule.pdf

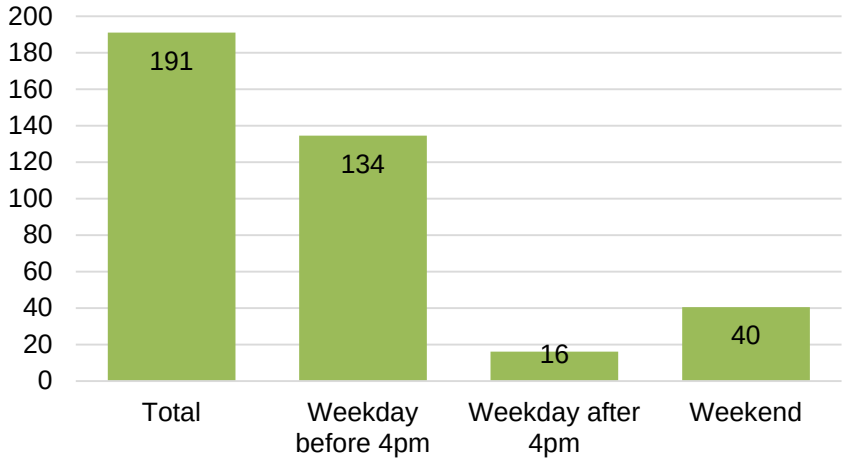

Figure 36. Average number of rides per Go-To Student Pass user in Spring 2015

To explore potential determinants of Pass use, regression models were estimated for rides taken on weekdays before 4 p.m., weekdays after 4 p.m., and on weekends. Dependent variables in the models were total number of rides taken during the three time periods in Spring 2015. Explanatory variables included in the analysis were, gender, eligibility for free/reduced lunch, self-reported frequency of transit use before using the Go-To Student Pass, having a job, race and ethnicity, family structure (dual parent households, presence of grandparents, presence of siblings and presence of younger siblings), immigration status (if student or either parent was foreign born) and grade of the student. All models were controlled for the school that the student attended. Based on the nature of the dependent variables, the models were estimated using Negative Binomial Regression and interpreted using incident rate ratios (IRR). Results are shown in Table 10.

Weekday rides before 4 p.m.

Weekday rides before 4 p.m. were found to be associated with students' use of transit before the Go-To Student Pass. Rides taken were 14 percent (IRR=1.14, $p<0.05$) higher for occasional transit riders (1-2 days a week or less) before the program and 24 percent (IRR=1.24, $p<0.05$) higher for frequent transit (3-5 day a week or more) riders before the program compared to students that had not used transit before. Rides taken by students with jobs were 27 percent lower (IRR=0.83, $p<0.10$) compared to students that didn't have jobs. The number of transfers made to get to and back from school did not seem to deter students from using transit as rides for students reporting three or more transfers were 33 percent higher (IRR=1.33, $p<0.01$) than others. In terms of race and ethnicity, the number of rides taken by Black students were 27 percent (IRR=1.27, $p<0.05$) higher than their White counterparts. Finally, students from dual parent families took 20 percent (IRR=.80, $p<0.10$) fewer rides than students from single parent families.

Weekday rides after 4 p.m.

Weekday rides after 4 p.m. were also found to be associated with students' use of transit before the Go-To Student Pass. Rides taken were 44 percent (IRR=1.44, $p<0.05$) higher for occasional transit before the program and 103 percent (IRR=2.03, $p<0.01$) higher for frequent transit riders before the program compared to students that had not used transit before. Once again, the number of transfers made to get to and back from school did

not seem to deter students from using transit as rides for students reporting 3 or more transfers were 34 percent higher (IRR=1.34, p<0.01) than others. In terms of Race and Ethnicity, the number of rides taken by Black students were 108 percent (IRR=2.08, p<0.01) higher than their White counterparts. Students from dual parent families took 27 percent (IRR=.63, p<0.01) fewer rides than students from single parent families. Trips taken by foreign born students were 12 percent (IRR=1.12, p<0.01) higher than non-foreign born students. Finally, being older (in a higher grade) was found to be associated with weekday rides after 4 p.m. The rides for students in the 11th grade were 44 percent (IRR=1.44, p<0.10) higher and rides for students in the 12th grade were also 44 percent (IRR=1.44, p<0.01) higher compared to students in the 9th grade.

Weekend rides

Weekend rides taken by students eligible for free/reduced lunch were 47 percent (IRR=1.47, p<0.05) higher than non-eligible students. As with the other categories, rides were found to be associated with student's use of transit before the Go-To Student Pass. Rides taken were 64 percent (IRR=1.64, p<0.01) higher for occasional transit before the program and 213 percent (IRR=3.13, p<0.01) higher for frequent transit riders before the program compared to students that had not used transit before. The number of rides taken by Black students were 136 percent (IRR=2.36, p<0.01) higher than their White counterparts. Students from dual parent families took 50 percent (IRR=.50, p<0.01) fewer rides than students from single parent families. Finally, being older (in a higher grade) was found to be associated with weekend rides. The rides for students in the 11th grade were 52 percent (IRR=1.52, p<0.01) higher and rides for students in the 12th grade were 58 percent (IRR=1.58, p<0.05) higher compared to students in the 9th grade.

Table 10. Regression Results Ridership[37]

	Weekday rides before 4pm	Weekday rides after 4pm	Weekend rides
Explanatory variables			
Female	0.9410	0.8946	1.0062
Free/reduced lunch eligible	1.0030	1.0210	1.4661**
Occasional transit use prior to the Go-To Student Pass	1.1413**	1.4354**	1.6346***
Frequent transit use prior to the Go-To Student Pass	1.2420**	2.0336***	3.1251***
Having job(s)	0.8343*	0.9861	1.2195
Transfers made during trip to/from school	1.3253***	1.3383***	
American Indian	1.0679	1.1869	1.358
Black	1.2661**	2.0824***	2.3631***
Asian	0.9246	1.1407	0.8736
Hispanic	1.0866	1.0581	1.2815
Dual parents present in the household	0.8013*	0.6246***	0.4973***
Grandparent(s) present in the household	1.0827	0.9836	1.0728
No sibling	1.0809	0.9865	0.9593
Younger sibling(s) present in the household	1.1281	1.0218	0.8666
Being foreign born	1.0497	1.1200***	1.0385
Foreign born mother	0.9247776	1.0789	1.0789
Foreign born father	1.0579	1.1880	1.0498
Grade10	0.8424	1.1441	1.1028
Grade11	0.9423	1.4400*	1.5172***
Grade12	0.8670	1.4413***	1.5831**
School indicators			
Edison	0.7110***	1.2492***	1.0794
Henry	0.9952	1.3634***	0.9100
North	0.8519***	1.1593*	1.1657
Roosevelt	0.8528***	1.2551***	1.0408
South	0.7958***	1.0405	0.8795
Washburn	0.8963*	0.8484***	0.7232***
Wellstone	6.4642***	9.7869***	9.0817***
Constant	1.2575	0.1486***	0.0635***
lnalpha	-0.1853*	0.3478***	0.9143***
Statistics			
N	1162	1162	1162

legend: * p<.05; ** p<.01; *** p<.001

[37] All models are interpreted using incident rate ratio (IRR). An IRR less than 1 indicates that the occurrence of incident under study is lower in the focal group than the reference group. Similarly, an IRR greater than 1 indicates that the occurrence of incident under study is higher in the focal group than the reference group.

Saved Time and Traffic Congestion

The Student Pass Program is expected to impact driving patterns for parents who previously had to drive students to and from school and other activities. In addition, the program is expected to impact traffic congestion by eliminating yellow bus trips and vehicle trips. Here we first look at the impact of the program on driving patterns of parents of Go-To Student Pass users and then evaluate the larger traffic impacts of the program.

It is important to point out that the level of detail the study team hoped to provide in this section was significantly reduced due to data limitations. First, poor participation in the parent survey limited the study team's ability to link student parent survey data to provide a more detailed analysis of changes in parent driving patterns due to the program. Therefore, data presented here is only unlinked data from the parent survey. Second, changes in traffic congestion along previous yellow bus routes and around schools was not possible due to limitations of Annual Average Daily Traffic (AADT) data, as comparable annual data for segments being studied was not available. Congestion analysis presented here relies on study surveys and data provided by Metro Transit and MPS.

Time Saved

In the parent survey, parents of Pass users were asked if their child's use of the Pass resulted in less driving for them on a typical weekday or weekend day. Of the parents that responded to the question, 84 percent (N=256) reported that the Pass did result in less driving for them. As shown in Table 11, on average, parents of Pass users reported saving 37 and 26 minutes on driving time on weekdays and weekend days, respectively due to the Pass.

Table 11. Reduced driving time due to Go-To Student Pass (N=231)

	Average
Minutes of driving saved on a typical weekday	37 minutes
Minutes of driving saved on a typical weekend day	26 minutes

Traffic Congestion

Traffic congestion impacts of the program can be explored based on data provided by Metro Transit and MPS on service runs for student transportation and data from the study survey. The program is expected to impact traffic congestion by reducing Vehicle Miles Traveled (VMT) on two fronts. First, by reducing the VMT to transport students by yellow buses as transit uses a combination of existing service and extra trips to accommodate student transportation needs. Second, by reducing the VMT by personal vehicles for students who would either drive or be driven to school in absence of the Pass.

For MPS, discontinuation of yellow buses for high school transportation meant the elimination of 207 trips and a reduction of 1522.47 live miles traveled each day[38]. To meet the demand for high school student transportation on transit, in addition to accommodating students on existing routes Metro Transit has had to add extra service.

[38] Based on pre Go-To pass (2008-2009) daily run data provided by MPS.

In March 2014 this extra service included 103 trips with a total of 622.86 live miles traveled daily. The switch from yellow buses to transit resulted in the reduction of total trips made to transport high school students to approximately half (due to existing transit service) and a reduction of approximately 900 live miles on any given day. These daily trips and VMT for both yellow buses and transit are run only on student instructional days. The total student instructional days in 2014-2015 were 176[39]. Table 12 shows an estimate of the annual savings in terms of trips and miles traveled due to high school student transportation using the Go-To Student Pass. As shown in the table, there is an estimated annual saving of 18,304 trips and 158,400 vehicle miles traveled.

Table 12. Estimated yellow bus trip and vehicle miles traveled savings for 2014-2015 due to the Student Pass program

Savings Component	MPS Typical Day Yellow Buses 2008-2009 (Pre Go-To Program) (1)	Metro Transit Typical Day 2014 (2)	Savings Typical Day 2014 (3)= (1)-(2)	Instructional Days 2014-2015 (4)	Annual Savings (3)*(4)
Trips	207	103	104	176	18,304
Vehicle miles traveled	1,523	623	900	176	158,400

Next, student survey data is used to create an assumption model to estimate the reduction in driving attributable to the program. To build the model we look at distribution of Pass users in the survey and apply it to the overall MPS high school student population.

Of the 2,453 students that participated in the survey 1,789 or 73 percent reported being Pass users. Of the 1,789 Pass users 1,565 students or 88 percent reported typically using the Go-To Student Pass to get to and back from school (see Figure 37). Therefore, of the total 2,453 survey participants, 1,565 or 64 percent of the students reported typically using the Go-To Student Pass to get to and back from school. Before the Go-To Student Pass these students would either drive, be driven or use the yellow bus to get to school. In the student survey 65 percent of Go-To Student Pass users indicated having been yellow bus riders. Hence, it would be reasonable to assume that the remaining 35 percent would either drive or be driven to school. So, of the 1,565 (64 percent of the total survey participants) students currently using the Go-To Student Pass to get to and back from school, 1,017 or 65 percent would be using yellow buses and 548 or 35 percent would either drive or be driven to school in the absence of the program. Therefore, approximately 22 percent of all survey participants (548/2,453*100) are not driving to or being driven to school due to the Student Pass program. To create an estimate of total number of trips saved by the Go-To Student Pass across MPS high schools we apply our model to the entire MPS high school population. Based on enrollment data from MPS in Spring 2015, 8228 students were enrolled in MPS high schools[40].

Based on our model, 1,810 students or 22 percent of the 8,228 students enrolled in MPS high schools are not driving to or being driven to school due to the Go-To Student Pass program. Counting two trips per student (one

[39] Minneapolis Public Schools Calendar 2014-2015. Accessible at: http://www.mpls.k12.mn.us/uploads/2014_2015_calendar.pdf

[40] MPS enrollment data -March 2, 2015. Regular and Alternative high school totals. Accessible at: http://studentaccounting.mpls.k12.mn.us/uploads/period6_enrollment_march_2_2015.pdf

to school and one back) the program has resulted in the reduction of an estimated 3,620 car trips on any given day.

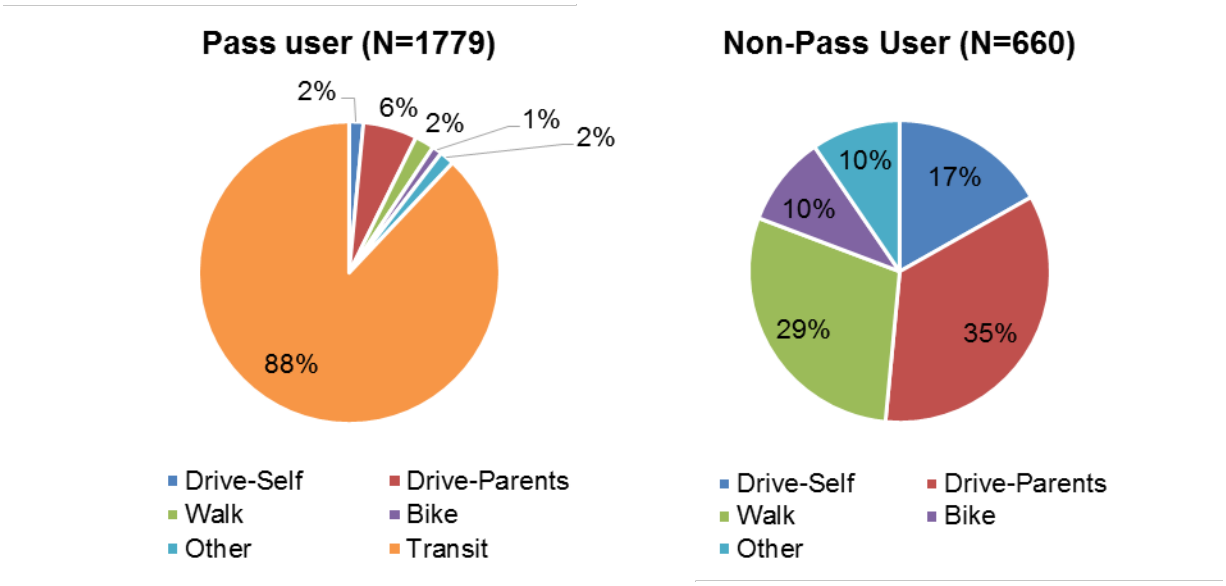

Figure 37. Typical Commute mode used to get to/from school

Next, to estimate reduction in vehicle miles traveled attributable to the program we look at the reported distance from home to school for students who typically use the Go-To Student Pass to get to/from school in the student survey (see Figure 38). In other words, this would be the distance 1,810 Pass users (22 percent of the 8228 students enrolled in MPS high schools) would be driving or be driven, one-way, in the absence of the Student Pass program each day. To generate a conservative estimate of the savings in vehicle miles traveled, we use the median value of distances reported (3.2 miles) rather than the mean (5.7 miles). The final calculation for saved vehicle miles traveled on a given day is shown below:

1810 (students) X 2 (trips to/back from school) X 3.2 (distance from home to school) = 11,584 Miles

To get an annual estimate of VMT savings we multiply savings on any given day by the total student instructional days in 2014-2015 which was 176.

Estimated annual vehicle miles traveled saved = 11,584 X 176 = 2,038,784 Miles

In total, the Student Pass program resulted in an annual saving of 170,544 VMT for yellow buses and 2,038,784 VMT for personal vehicles.

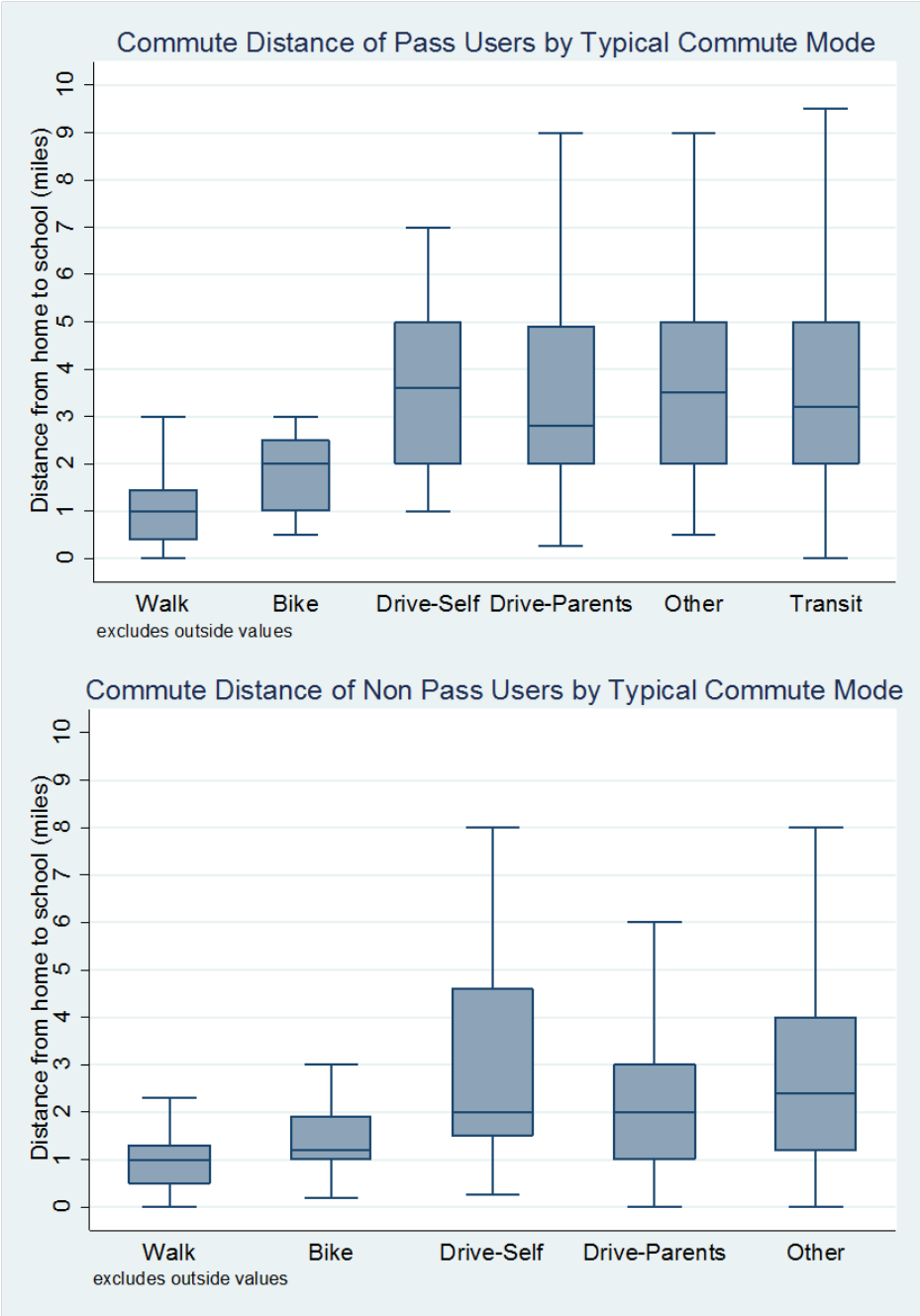

Figure 38. Commute distance of Pass users and non-Pass users by typical commute mode[41]

[41] A box plot divides the data into quartiles. The bottom of the box represents the first quartile and the top represents the third. The horizontal line within the box represents the second quartile, which is also the median value. The vertical lines extending out of the box end at the smallest non-outlier in the data set at the bottom and the largest non-outlier on top.

Equity Benefits

To understand the equity impacts of the Student Pass program, reported benefits for Pass users that are eligible for free/reduced lunch, identify belonging to a race and ethnicity other than White, are foreign born or belong to a single parent household are compared to other Pass users that do not identify in those categories.

Participants of the student survey were asked about the benefits the Pass affords them. We look at these reported benefits by groups to explore potential equity impacts. Data used includes only 1,789 students who identified themselves as Go-To Student Pass users in the student survey. Statistically significant results are discussed here.

Reported benefits based on eligibility for free/reduced lunch are shown in Figure 39. For four benefit questions, a higher percentage of students eligible for free/reduced lunches reported that the Go-To Student Pass benefits them. These included:

1. Ability to participate in more extra-curricular activities (48% compared to 39% of students not eligible for free/reduced lunch)
2. Ability to participate in more after-school activities (59% compared to 43% of students not eligible for free/reduced lunch)
3. Attend school more regularly (70% compared to 41% of students not eligible for free/reduced lunch)
4. Access more work opportunities (53% compared to 37% of students not eligible for free/reduced lunch)

For one benefit question, a lower percentage of students eligible for free/reduced lunches reported that the Go-To Student Pass benefited them. This was in helping them to reduce their environmental footprint where only 46% of students eligible for free/reduced lunches reported that the Go-To Student Pass benefits them compared to 63% of students not eligible for free/reduced lunch.

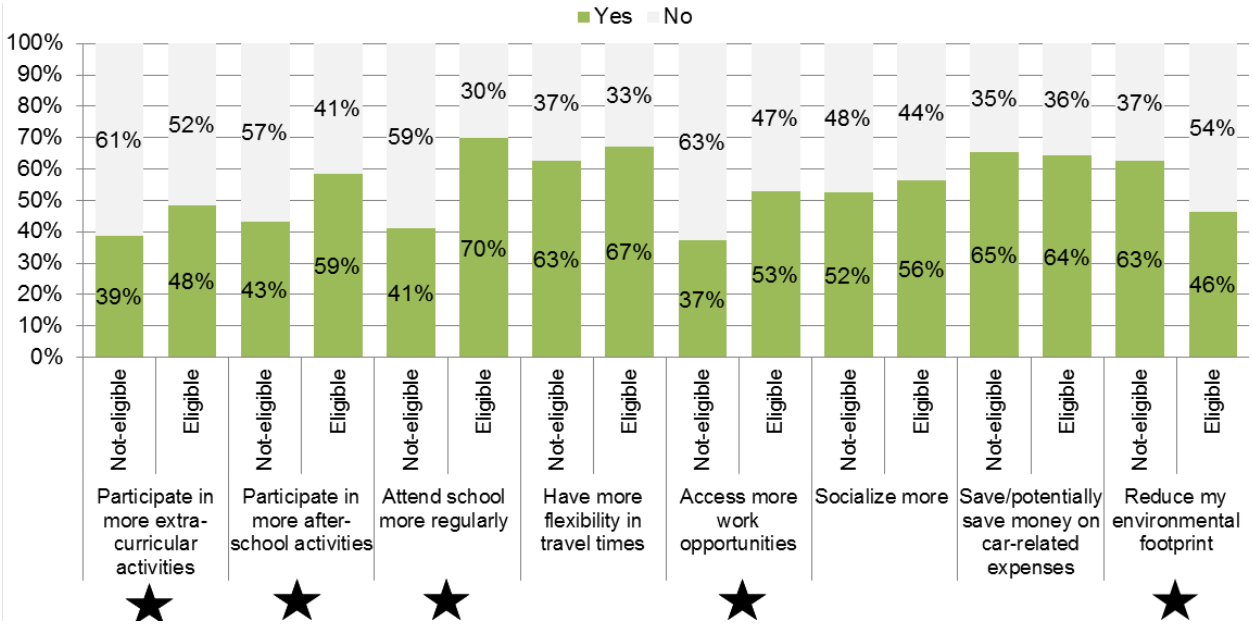

Figure 39. Benefits of the Go-To Student Pass (Free/reduced lunch eligible) [42]

[42] ★ indicates statistical significance at p<.05

Reported benefits based on being American Indian are shown in Figure 40. No statistically significant differences between American Indian students and Non-American Indian students were found for any of the eight benefit questions.

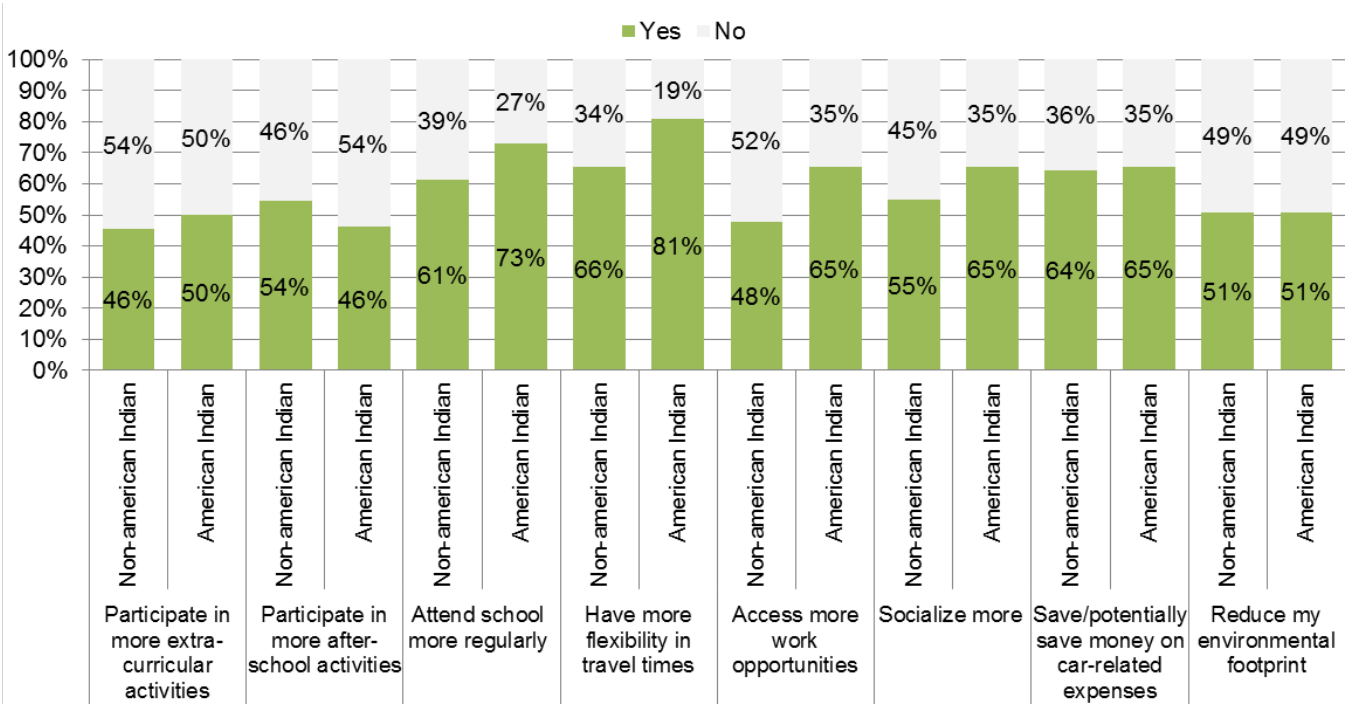

Figure 40. Benefits of the Go-To Student Pass (American Indian)

Reported benefits based on being Black are shown in Figure 41. For five benefit questions, a higher percentage of Black students reported that the Go-To Student Pass benefits them. These included:

1. Ability to participate in more extra-curricular activities (53% compared to 41% of Non-Black students)
2. Ability to participate in more after-school activities (62% compared to 50% of Non-Black students)
3. Attend school more regularly (73% compared to 55% of Non-Black students)
4. Access more work opportunities (58% compared to 43% of Non-Black students)
5. Socialize more with family and friends (60% compared to 52% of Non-Black students)

For two benefit questions, a lower percentage of Black students reported that the Go-To Student Pass benefited them. These were, in helping them save money on gas and other car related expenses, where 61% reported benefits compared to 67% of Non-Black students; and in helping them to reduce their environmental footprint where only 43% reported benefits compared to 55% of Non-Black students.

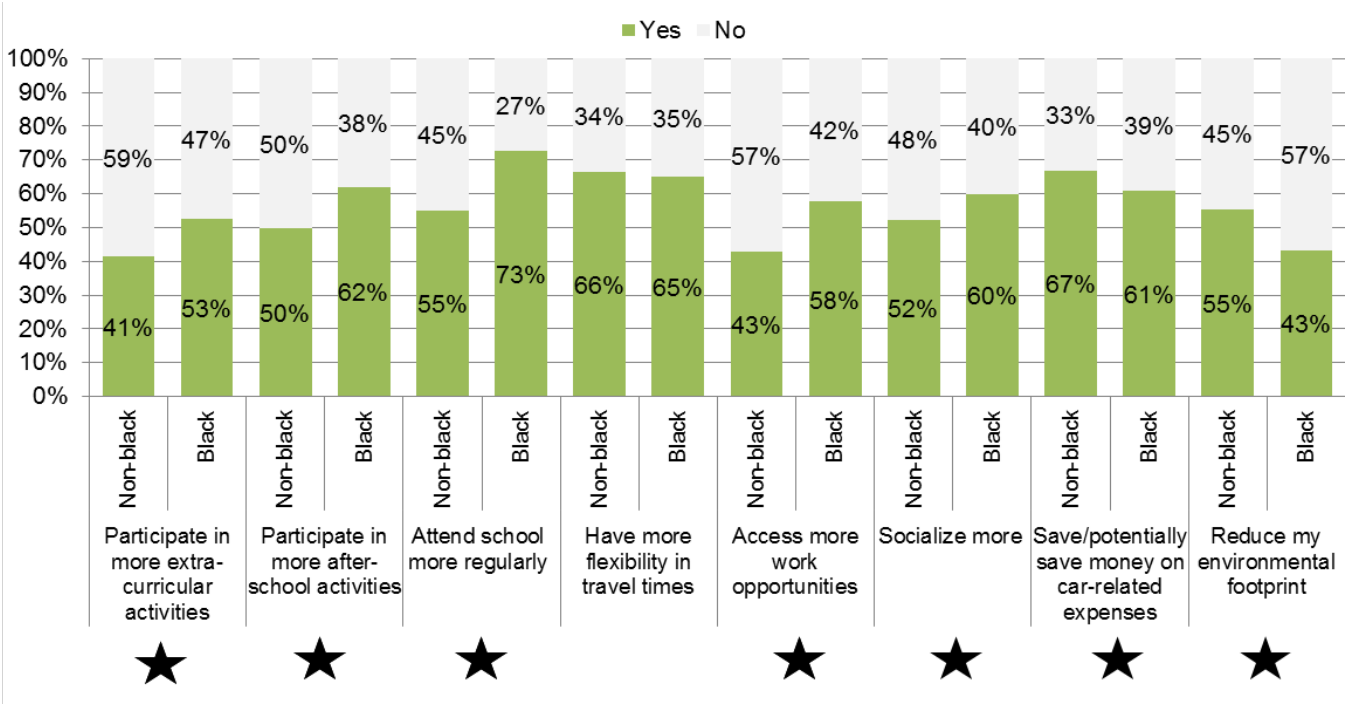

Figure 41. Benefits of the Go-To Student Pass (Black) [43]

Reported benefits based on being Asian are shown in Figure 42. For two benefit questions, a higher percentage of Asian students reported that the Go-To Student Pass benefits them. These included:

1. Having more flexibility in travel times (74% compared to 64% of Non-Asian students)
2. Helping them save money on gas and other car related expenses (70% compared to 63% of Non-Asian students)

For one benefit question, a lower percentage of Asian students reported that the Go-To Student Pass benefited them. This was accessing more work opportunities where only 42% reported that the Go-To Student Pass benefits them compared to 49% of Non-Asian students.

[43] ★ indicates statistical significance at p<.05

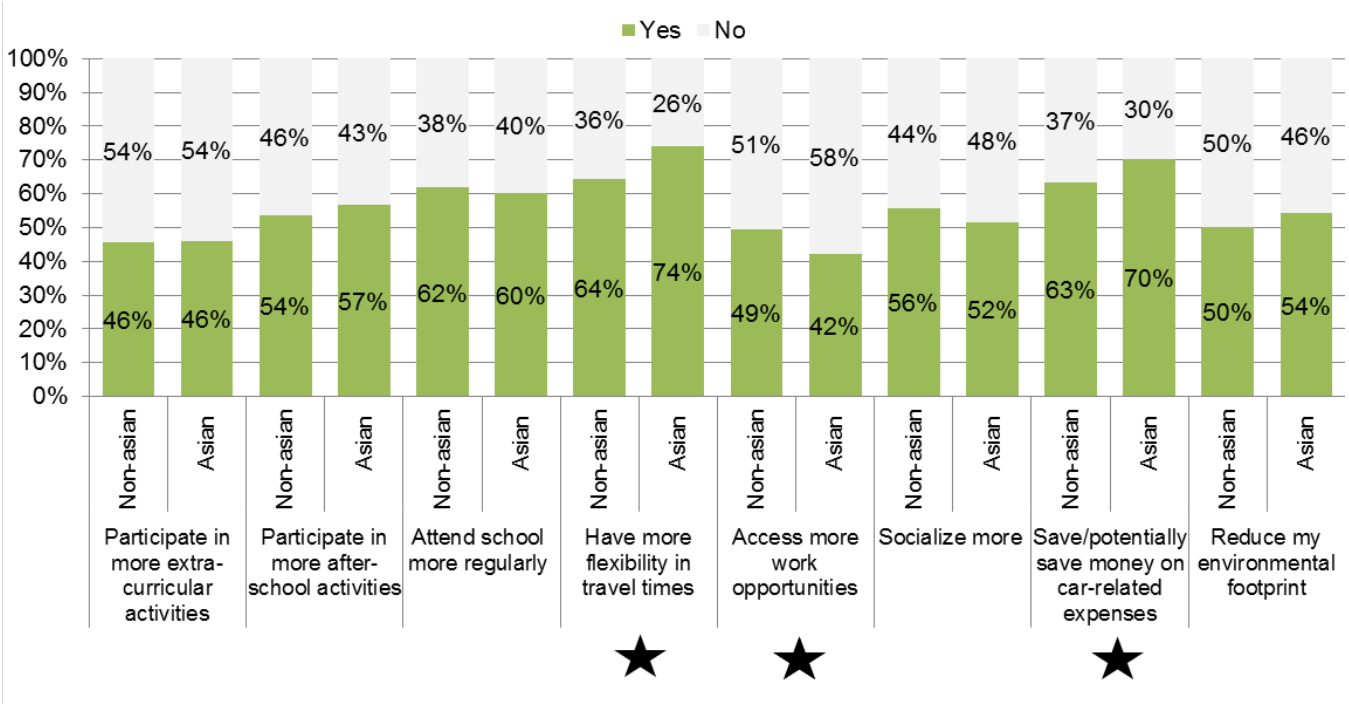

Figure 42. Benefits of the Go-To Student Pass (Asian) [44]

Reported benefits based on being Hispanic are shown in Figure 43. A higher percentage of Hispanic students (69%) reported that the Go-To Student Pass helped them attend school more regularly compared to Non-Hispanic students (60%). For one benefit question, a lower percentage of Hispanic students reported that the Go-To Student Pass benefited them. This was in helping them to reduce their environmental footprint where only 42% reported that the Go-To Student Pass benefits them compared to 53% of Non-Hispanic students.

[44] ★ indicates statistical significance at p<.05

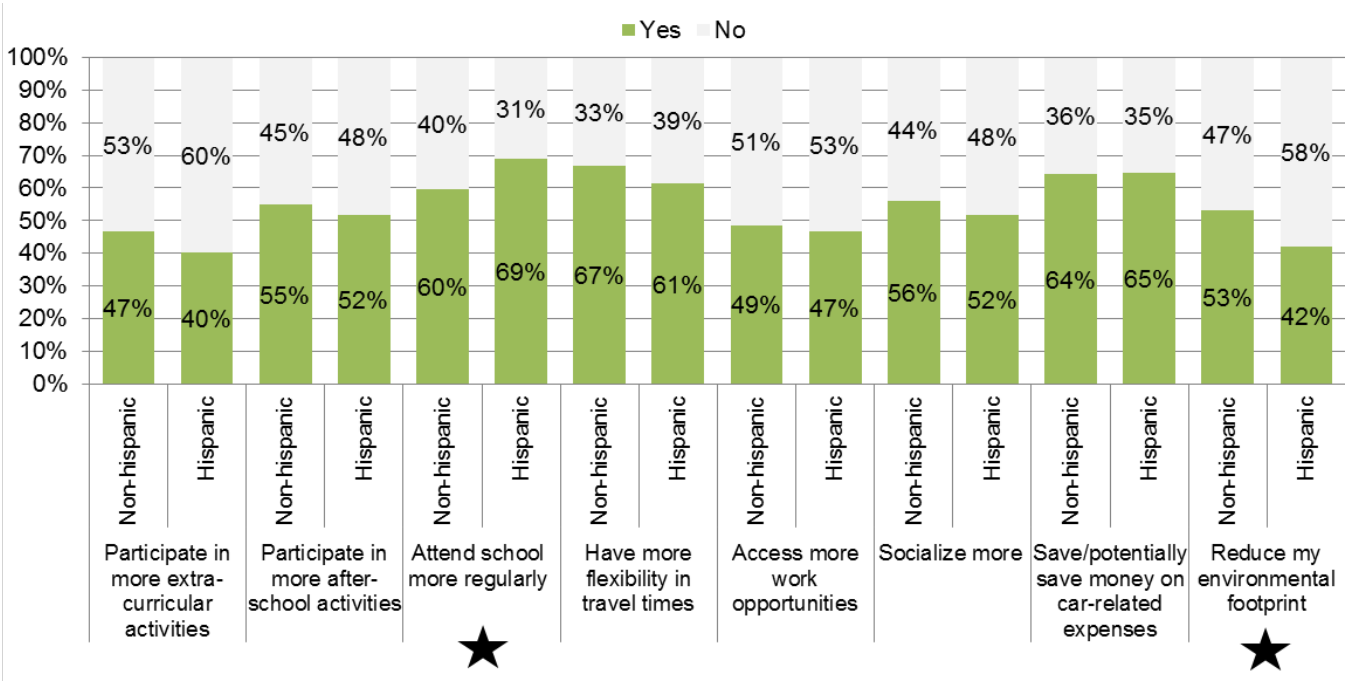

Figure 43. Benefits of the Go-To Student Pass (Hispanic) [45]

Reported benefits for students from single parent households are shown in Figure 44. For two benefit questions, a higher percentage of students from single parent households reported that the Go-To Student Pass benefits them. These included:

1. Attend school more regularly (69% compared to 57% of students from dual-parent households)
2. Access more work opportunities (54% compared to 44% of students from dual-parent households)

For one benefit question, a lower percentage of students from single parent households reported that the Go-To Student Pass benefited them. This was in helping them to reduce their environmental footprint where only 46% reported that the Go-To Student Pass benefits them compared to 54% of students from dual-parent households.

[45] ★ indicates statistical significance at p<.05

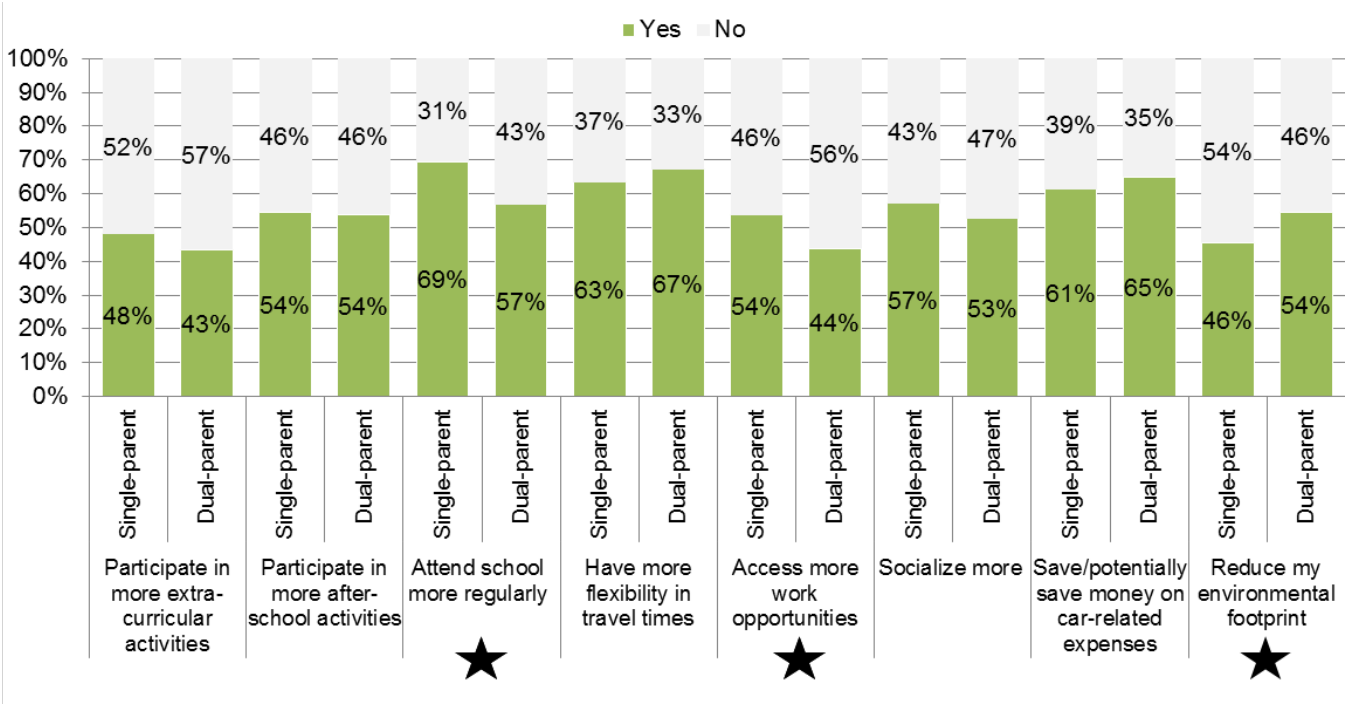

Figure 44.Benefits of the Go-To Student Pass (Single Parent) [46]

Reported benefits for foreign-born students are shown in Figure 45. For two benefit questions, a higher percentage of foreign-born students reported that the Go-To Student Pass benefits them. These included:

1. Ability to participate in more extra-curricular activities (61% compared to 52% of native born students)
2. Attend school more regularly (68% compared to 57% of native born students)

For one benefit question, a lower percentage of foreign-born students reported that the Go-To Student Pass benefited them. This was for accessing more work opportunities where 45% reported that the Go-To Student Pass benefits them compared to 51% of native born students.

[46] ★ indicates statistical significance at p<.05

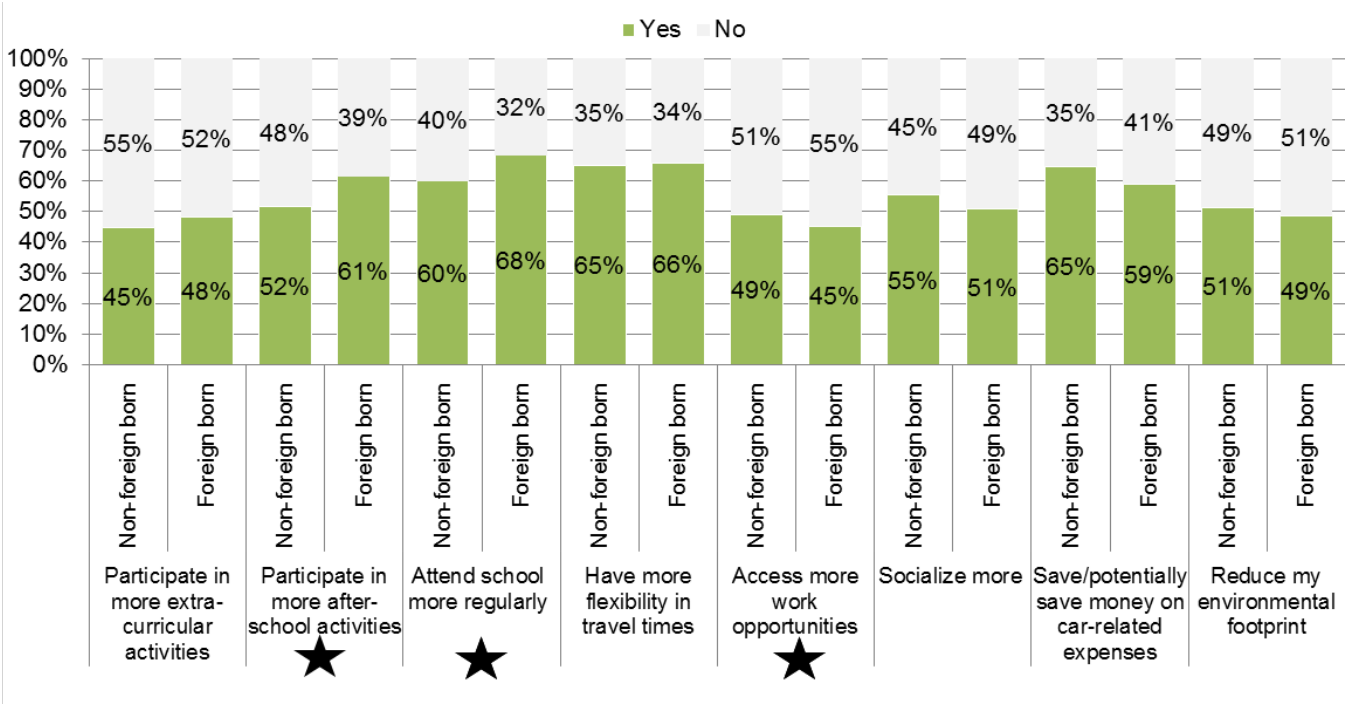

Figure 45. Benefits of the Go-To Student Pass (Foreign-born student) [47]

Analysis of benefits of the Student Pass program reported by students suggests that the program does reduce barriers to opportunities for under-resourced students. A higher percentage of students that were eligible for free/reduced lunches, Black, Hispanic, foreign-born and from single parent families reported that the Pass helps them attend school more regularly. A higher percentage of students that were eligible for free/reduced lunches, Black and foreign-born reported that the Pass helps them, attend more after-school programs. Access to more work opportunities was also reported as benefit by a higher percentage of students that were eligible for free/reduced lunches, Black and from single parent families.

In addition to the survey questions, ridership data from Metro Transit can also provide equity-related insights by showing us who is using the Pass and to what extent. This can be explored further using the regression models in Table 10. Data used includes only 1,372 Go-To Student Pass users from the student survey for whom ridership data was available. The models were estimated to explore potential determinants of ridership. Regression models were estimated for rides taken on weekdays before 4 p.m., weekdays after 4 p.m. and on weekends. Dependent variables in the models were total number of rides taken during the 3 time periods in Spring 2015. Results based on eligibility for free/reduced lunch, race and ethnicity, being foreign born and by family structure are discussed below.

Weekday rides before 4 p.m.

Weekday rides before 4 p.m. were found to be associated with being Black and family structure. The number of rides taken by Black students was 27 percent (IRR=1.27, $p<0.05$) higher than their White counterparts. Students from dual parent families took 20 percent (IRR=.80, $p<0.10$) fewer rides than students from single parent families. This suggests that students from single parent families, where one parent has to deal with all the

[47] ★ indicates statistical significance at p<.05

pressures of running a household and therefore may be pressed for time, have more freedom and flexibility to travel with the Student Pass program.

Weekday rides after 4 p.m.

Weekday rides after 4 p.m. were found to be associated with being Black, family structure and being foreign-born. The number of rides taken by Black students were 108 percent (IRR=2.08, $p<0.01$) higher than their White counterparts. Students from dual parent families took 27 percent (IRR=.63, $p<0.01$) fewer rides than students from single parent families. Trips taken by foreign born students were 12 percent (IRR=1.12, $p<0.01$) higher than non-foreign born students.

Weekend rides

Weekend rides were found to be associated with being eligible for free/reduced lunch eligible, Black and family structure. Weekend rides taken by students eligible for free/reduced lunch were 47 percent (IRR=1.47, $p<0.05$) higher than non-eligible students. The number of rides taken by Black students were 136 percent (IRR=2.36, $p<0.01$) higher than their White counterparts. Students from dual parent families took 50 percent (IRR=.50, $p<0.01$) fewer rides than students from single parent families. These findings suggest that for many student groups, the Go-To Student Pass goes beyond being a means to access school and learning opportunities on weekdays and is also a means for them to meet their day-to-day transportation needs.

Once again, like the student survey data, analysis of ridership data suggests that certain groups of students may get more benefits from the program, especially students that are Black and from single parent families.

Section 6. Key Findings and Policy Implications

In this section we look at key findings from the study and their policy implications. Implications discussed involve Metro Transit, MPS, local project partners and policy makers that intend to implement similar programs across the country. Key findings and policy implications are arranged by impact dimensions: educational, economic, and societal.

Educational

The study found that total number of absent days was 23% lower for Pass users and that GPA scores for students using the Pass to access after-school programs and extra-curricular activities were 0.28 higher compared to students that did not. This suggests that the Pass not only helps students attend school more regularly but also provides them the opportunity to access after-school learning opportunities at and away from school that may improve their academic performance. It was also found that a majority of the Pass users reported that they are able to access more after-school learning opportunities at and away from school using the Pass than they would be able to in its absence. In terms of educational outcomes, these findings have an important implication for MPS. Students currently not eligible for the program may be at a disadvantage as they are not able to access the educational benefits of the Go-To Student Pass that go beyond just getting to and from school. As MPS seeks to improve overall student academic performance and attendance rates, considering this transportation-related strategy may be of merit. While expanding the program will obviously depend heavily on budgeting priorities and the availability of finances, it should be done in light of the potential educational benefits it can afford the students.

Economic

The cost-benefit analysis for assessing economic impacts saw increased operational efficiencies for both Metro Transit and MPS. In particular, for Metro Transit, the addition of South and Southwest high school students to the program and more importantly, service level adjustments between the first and second year of the program saw deficits decreasing from $468,022 in 2012-2013 to $157,828 in 2013-2014. Important considerations for expanding the program further in the future should include existing service coverage in expansion areas and potential costs related to increasing the fleet size to meet expansion needs. Extending the program to areas where existing service coverage is not extensive will result in a greater need to add extra trips which would minimize benefits. It is important to note that for MPS high school students, Metro Transit was able to add the extra trips without increasing their fleet size (i.e. having to buy buses or use more garage space). If expansion of the program requires increasing the fleet size it could have significant financial impacts. For MPS, contingent on budgeting priorities, benefits may point towards a potential revenue source for expanding the program to include all high school students.

Societal

Discussions from the focus group and survey data analysis indicate that the Student Pass program does play a role in shaping the perceptions of users. Pass users and their parents were found to have more positive perceptions of various aspects of transit service. They also indicated that use of the Pass had positively changed their perceptions towards transit. In addition, staff managing the Student Pass program both at MPS and Metro transit indicated that while there were concerns regarding the Pass, these concerns reduced as the students

used the Pass over time. This is an important finding for transit agencies and school districts across the country that are trying to implement similar programs but are often deterred by concerns related to the programs by parents and students. While these concerns will remain, the evaluation of the Student Pass program suggests that they can be mitigated with better information about transit use (schematics and its associated benefits for students) and decrease over time with transit use. Providing free transit passes to students and their parents to experience transit and form perceptions based on use rather than hearsay may lead to more buy-in for such programs. The findings also point to potential future ridership benefits for Metro Transit and other transit agencies. Students using the Go-To Student Pass to access other learning opportunities (after-school programs and extra-curricular activities) and to get to and from school were found to be more likely to report that they would use transit after graduating from high school compared to those who did not. This indicates that the program gives transit agencies the ability to tap into a rider base and acclimatize them to transit use at a young age, thereby increasing their chances of being transit users once they are adults, which would not be possible in the absence of such a program.

The issue of gender and safety was highlighted in both, the focus groups and study survey. In the focus groups, students, both male and female, repeatedly mentioned that safety was a bigger issue for female students compared to their male counterparts. Issues mentioned in the focus groups included being harassed on the bus and at bus/train stops. Analysis of data from the student survey confirmed this perception of safety. The odds of female respondents strongly agreeing that transit is safe to use was 0.53 times lower compared to male respondents. In addition, a higher percentage of female students reported negative perceptions related to safety while waiting for buses/trains at stops, walking to/from bus/train stops and traveling on buses/trains compared to male students. For both Metro Transit and MPS, this is an issue that deserves further attention. Working with other stakeholders such as the City of Minneapolis, the Minneapolis Police Department and local organizations such as the Minneapolis Youth Coordinating Board, MPS and Metro Transit could explore strategies to create an environment on and around transit where female students can feel safe. This could be through additional presence in identified problem areas such as downtown Minneapolis after dark or through provision of more information regarding transit safety tailored to female student riders. Due to a lack of existing analysis on student safety and gender, Metro Transit Police Department and customer support staff at Metro Transit were not able to identify any patterns of female students having more safety issues on transit based on reported incidents and complaints. Additional analysis would help determine if the safety concerns are a perception issue and could potentially be dealt with through informational channels or if they are based on actual incidents and need more direct intervention.

Transportation of students on transit was found to be linked with emission reduction and VMT savings. The shift of student transportation from traditional yellow buses to Metro Transit caused an estimated annual decrease of 93 percent for NOx emissions, 89 percent for PM emissions and 59 percent for CO emissions. Reduction in emissions are attributable to the use of newer and more environmentally friendly hybrid buses by Metro Transit and a significant reduction in the number of trips and VMT to transport students by accommodating them on existing service and running limited extra service to meet ridership needs. For both, environment and transportation policy makers at the federal, state, regional and local level, implementation of similar programs could be a new tool for targeting and reducing vehicle emissions in urban areas. The study also found that the program resulted in an estimated annual saving of 18,304 trips and 158,400 VMT by replacing yellow buses and in an estimated annual saving of 2,038,784 VMT from personal vehicles. The traffic mitigation impacts of the

program are substantial. Policy makers working on establishing similar programs could leverage the broader environmental and transportation benefits of the program to gain support for it.

Finally, the study found that the Go-To Student Pass promotes equity based on the benefits it provides specific student groups and also in terms of ridership. The reported benefits of the program and intensity of ridership was pronounced for students that were eligible for free/reduced lunch, Black, foreign born and belonged to single parent families. For policy makers focusing on strategies to promote equity, these findings point to the potential of the Go-To Student Pass in providing under-resourced students with opportunities to access additional learning opportunities and expanded transportation options for school and beyond. For under-resourced students the program goes beyond just providing a means to get to and back from school. The higher intensity of use after school hours (after 4 p.m.) and on weekends shows that the program, in addition to promoting learning opportunities, provides under-resourced students with a means of transportation for day-to-day activities such as traveling to meet family, accessing work opportunities and fulfill family obligations such as caring for their siblings. On the flip side, the study found that the reported benefits and intensity of use of transit was lower for certain student groups such as American Indian, Asian and Hispanic. For Metro Transit and MPS it is important to work with these specific student groups to identify potential reasons why they do not report that transit benefits them to the same extent as other students and what potential strategies could possibly be used to maximize the benefits of transit and increase their ridership.

In conclusion, the study looked at the educational, economic, and societal impacts of the Student Pass program and found that the program has been successful in providing benefits to students, their families, Metro Transit, MPS, and society in general (through traffic and emission mitigation). The Student Pass program provides a dynamic model to help resolve the complex issue of student transportation by leveraging local, public agencies to create innovative solutions that result in long-term mutually beneficial partnerships. The success of this program largely depended on a few different factors – number of students transported, extra service needed based on coverage of existing transit network, cost of existing student transportation, and transportation needs of specific student groups, to name a few. Future programs should pay special attention to these factors at the initial stage of plan design to ensure the program is thoroughly formulated to help increase its probability of success.

Appendices

Appendix A. Existing research on student transportation on transit

Location	Program Name	Year started	Who is served	Description	Cost of funding	Program results (if any information was available)
Portland, OR[48]	Youth pass program	2008	12,500 high school students with passes every year.	Free passes to all high school students regardless of income.	3 million dollar cost shared between PPS, Trimet and the City of Portland. State reimburses TriMet through PPS (approx. 70%).	1.9 million $ revenue loss for TriMet which it would get from reduced fare monthly passes to high school students. 10 percent of students never use passes. Average of 60 trips a month per student after program.
Nashville, TN[49]	StrIDe	2013-2014	All MNPS students and MNPS Charter schools students enrolled in grades 9 through 12	Free passes to all students with school ID. Year round access including Summer.	No information available	No information available
Seattle, WA[50]	ORCA card (Bellevue School District)	No information available	Students living outside the school's walk boundary and not receiving a parking pass are be eligible to receive an ORCA/METRO Card and bus pass. Eligibility is not based on financial ability.	Any fare cost over a $.75 value paid by the student. ORCA cards are not provided for transportation to internships or to classes being attended at companies/businesses.	No information available	No information available
Oakland, CA[14]	Youth Clipper card	2010	Youth 5-18 years of age with a gross annual family income at or below 100 percent of the Bay Area Median Income level	$20 per month discounted card. Supplemental lines run along school routes.	Funded by voter-approved measure	23% of daily riders are between 13-17 years of age.
Lakeland, FL[14]	COLTS	Fall 2013	All 25,000 Polk County high school students.	$2.14 annual fee for free rides. Most schools already on route.	School district cost of $ 46,000 p/m (based on number of eligible students) from district general fund.	50 percent of eligible students enrolled.
Washington, DC[14]	Student Transit Subsidy program	Act passed in 1978	Students qualify based on where they live, age, enrollment and transportation needs. Free for students with disabilities.	Reduced-fare passes. $30 a month	City's general revenue fund.	No information available
	Ride Free on Bus program	Fall 2013	Everyone with a DC One student id card	Free ride for students between 5:30 and 9 am and 2 to 8 pm.	DC one cards ($7) provided by DC Public Schools	No information available
Baltimore, MD[14]	Baltimore Students Attendance Campaign	No information available	Middle and high school students living more than 1.5 miles from their school	Reduced fares ($ 0.55 instead of $1.60) with school ID	No information available	Baltimore middle school absences cut to half (no evidence to attribute it to the program)
San Francisco Bay Area, CA[51]	Youth pass program	2002 (2 year pilot)	Youth pass for all young riders. Free bus pass limited to low income middle and high school students.	Free for low-income students and subsidized youth pass ($15 instead of $27).	Major contributor Metropolitan Transportation Commission ($2 million). Many other local contributors.	Free bus pass discontinued due to funding after first year. Youth pass still used ($20). No changes in attendance but reported increase in afterschool program enrolment. Variation in pass use based on location of residence and race.

[48] Vincent, Jeffrey M., C. Makarewicz, R. Miller, J. Ehrman, and D. L. McKoy. Beyond the Yellow Bus: Promising Practices for Maximizing Access to Opportunity Through Innovations in Student Transportation. Center for Cities + Schools, University of California, 2014.

[49] Nashville MTA StrIDe Youth Mobility Program - StrIDe FAQs, Frequently Asked Questions. 2013. http://www.nashvillemta.org/Nashville-MTA-Stride-Program.asp Accessed July 31, 2015.

[50] ORCA CARD / METRO BUS PASS Student Transportation Program. 2013. https://www.orcacard.com/ERG-Seattle/p1_001.do Accessed July 31, 2015.

[51] McDonald, N., S. Librera, and E. Deakin. Free Transit for Low-Income Youth: Experience in San Francisco Bay Area, California. Transportation Research Record: Journal of the Transportation Research Board, Vol. 1887, 2004, pp. 153-160.

Appendix B. Focus Group Discussion Guide (Guiding Questions)

<table>
<tr><th rowspan="2">Stakeholder Groups ↓</th><th colspan="2">Individual Benefits</th><th colspan="2">Societal Benefits</th><th rowspan="2">General Questions</th></tr>
<tr><th>Student Benefits</th><th>Family Benefits</th><th>Perceptions Towards Transit</th><th>Equity Benefits</th></tr>
<tr><td>Transit Providers</td><td colspan="2">What are the benefits of the program for users?</td><td>How do users and non-users of the passes perceive the program?</td><td>Who does the program benefit the most?</td><td rowspan="4">What are some of the other benefits, issues and unintentional impacts of the program?</td></tr>
<tr><td>Minneapolis and St. Paul Public Schools</td><td>How does the program impact student activities at and away from school?</td><td>How does the program impact the rest of the family?</td><td>How do students feel about using public transit in general?</td><td>Does the program benefit all students equally?</td></tr>
<tr><td>Student and Youth Groups</td><td>What are the advantages of having a student pass?</td><td>Does the program benefit the rest of your family? How?</td><td>How is the experience of using public transit for you?</td><td>Does everyone who qualifies for the student pass use it?</td></tr>
<tr><td>Parent Groups</td><td>What additional opportunities does the student pass provide your children?</td><td>Does the program impact you as a family? How?</td><td>What are your views or concerns about your children using public transit?</td><td>Do your children have the same access to the program as others?</td></tr>
<tr><td>Safety/ Law enforcement</td><td colspan="4">N/A</td><td>How has the program impacted safety and crime?</td></tr>
</table>

Appendix C. Student Survey

Student Survey - 10000

Instructions:

1. To select an answer, please check the desired option by marking it with an Ⓧ or Ⓥ

2. Questions may be single response or multiple choice. This is indicated after every question in parenthesis (e.g., Check one answer for each row, Check one option, Check all that apply, etc.)

3. Based on your answer choice you may be asked to skip some questions. Instructions to do so will be next to answer choices. If you are not asked to skip please continue to the next question.

Let's get started!

Q1 No response required for paper surveys. Please skip to Q2 (next question).

Q2 Do you currently use a Go-To Student Pass, provided by your school or purchased at your own expense?

- O No **(Skip To Q29 in SECTION 1(b) on Page 9)**
- O Yes

SECTION 1(a): Pass use information

Q3 Enter your 16-digit Go-To Student Pass number located at the bottom right of the card in the space below.

By entering my 16-digit Go-To Student Pass card number below, I am giving Metro Transit permission to provide the University of Minnesota with information about how and when I have used Student Pass

cards issued to me. Information about my Student Pass card use may include the date and time I used a card, whether I rode a city bus or train, and information about the date and time my Student Pass card was issued/purchased. The University will use information about how I used my Student Pass card only to study the impacts of the Student Pass program. When the University completes its study, the University will destroy all of my Student Pass card information. The University's report on the study will not identify me. I understand I can choose not to provide my 16-digit Student Pass card number and I am not required to participate in the University's study. I also understand there are no penalties if I do not give Metro Transit permission to share my Student Pass card information with the University.

(Please enter your number without spaces or -)

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Q4 Enter your Minneapolis Public School student ID in the space below. (Please enter your number without spaces or -)

☐☐☐☐☐☐

Q5 How long have you had the Go-To Student Pass? (Check one option)

- O Less than 1 year
- O 1 to 2 years
- O 2 years or more

Q6 How did get your Go-To Student Pass? (Check one option)

- O Provided by my school
- O Purchased at my own expense from my school
- O Other _____

Q7 Did you use transit BEFORE you had the Go-To Student Pass? (Check one option)

- O No **(Skip To Q9 on Page 3)**
- O Yes

Q8 How often did you use transit BEFORE you had the Go-To Student Pass? (Check one option)

- O Less than once a week
- O 1-2 days a week
- O 3-5 days a week
- O Almost everyday

Q9 How often do you use transit AFTER you started using the Go-To Student Pass? (Check one option)

- O Less than once a week
- O 1-2 days a week
- O 3-5 days a week
- O Almost everyday

Q10 Do you typically use the Go-To Student Pass TO TRAVEL TO/FROM SCHOOL? (Check one option)

- O No
- O Yes **(Skip To Q13 on Page 4)**

Q11 How do you typically TRAVEL TO/FROM SCHOOL? (Check one option)

- O Walk
- O Bicycle
- O Motorcycle/scooter
- O Car- DRIVE YOURSELF
- O Car -DRIVEN BY PARENT, GUARDIAN, ETC.
- O Other _____

Q12 How much do you agree with each of the following statements about traveling TO/FROM SCHOOL USING THE MODE YOU INDICATED IN LAST QUESTION? (Check one answer for each row)

	Do not agree	Somewhat agree	Agree	Strongly agree	Don't know
Traveling to/from school is safe	O	O	O	O	O
Travel times (total time spent traveling to/from school) are reasonable	O	O	O	O	O
Departure times while traveling to/from school are flexible	O	O	O	O	O

(Skip To Q17 on Page 5)

Q13 On a typical day, DURING YOUR TRANSIT TRIP TO/FROM SCHOOL do you have other students with you at any of the following times? (Check all that apply)

- O Walking to/from bus/train stops
- O Waiting for bus/train at stops
- O On bus/train (while riding the bus/train)

Q14 On a typical day, how many minutes does it take you to complete the following parts of YOUR ONE-WAY TRANSIT TRIP TO SCHOOL? (Enter time in minutes)

	Enter time in minutes ↓
Walking time to/from bus/train stops	_____
Waiting for bus/train at stops	_____
Travel time on bus/train (time spent riding the bus/train)	_____

Q15 How many transfers between buses and/or trains do you typically make to complete a ONE-WAY TRANSIT TRIP TO/FROM SCHOOL? (Check one option)

- O 0
- O 1
- O 2
- O 3 or more

Q16 How much do you agree with each of the following statements about using your GO-TO STUDENT PASS TO TRAVEL TO/FROM SCHOOL? (Check one answer for each row)

	Do not agree	Somewhat agree	Agree	Strongly agree	Don't know
Traveling on bus/train is safe	O	O	O	O	O
Walking to/from bus/train stops is safe	O	O	O	O	O
Waiting at bus/train stops is safe	O	O	O	O	O
Walking time to/from bus/train stops is reasonable	O	O	O	O	O
Waiting time at bus/train stops is reasonable	O	O	O	O	O
Total time spent traveling to/from school (including wait time, walk time and time on bus/train) is reasonable	O	O	O	O	O
Departure times while traveling to/from school are flexible	O	O	O	O	O
Seats are always available	O	O	O	O	O

Q17 Have you ever used your Go-To Student Pass to get to the following activities? (Check all that apply)

- O After-school programs
- O Extra-curricular activities away from school
- O Job, job search or job training
- O Shopping, errands or medical appointments
- O Visit family/friends
- O Social and entertainment (e.g. go to the movies, mall, concerts, special events, etc.)
- O Take siblings to school or appointments
- O Play sports
- O Other _____

Q18 Has YOUR USE OF THE GO-TO STUDENT PASS changed your perceptions towards transit? (Check one option)

- O No **(Skip To Q20 on Page 6)**
- O Yes

Q19 Check all the statements you agree with about changes in your perceptions towards transit AFTER YOU STARTED USING THE GO-TO STUDENT PASS? (Check all that apply)

- O I now feel that transit is safer than I did before
- O I now feel that transit is easier to use than I did before
- O I feel more comfortable around other transit users (non-students) than before
- O Transit is now the preferred mode of transportation for me
- O I feel using transit makes me more independent and responsible
- O My family is more comfortable with me using transit alone than they were before

Q20 Has YOUR USE OF THE GO-TO STUDENT PASS benefited YOU? (Check one option)

- O No **(Skip To Q22 on Page 6)**
- O Yes

Q21 Check all the statements you agree with about how the GO-TO STUDENT PASS BENEFITS YOU.

THE PASS ENABLES ME TO: (Check all that apply)

- O Attend school more regularly (miss fewer days)
- O Participate in more after-school activities
- O Participate in more extra-curricular activities away from school
- O Access more work opportunities
- O Save/potentially save money on gas and other car-related expenses
- O Have more flexibility in travel times as I don't have to wait for others to give me a ride
- O Reduce my environmental footprint (e.g., reduce pollution and gas consumption by not driving)
- O Socialize more with family and friends

Q22 How much do you agree with the statement that the Go-To Student Pass hours of operation (5 a.m. to 10 p.m.) meet all your travel needs?

- O Do Not Agree
- O Somewhat Agree
- O Agree
- O Strongly Agree
- O Don't know

Q23 Overall, how satisfied are you with the GO-TO STUDENT PASS? (Check one option)

- O Not Satisfied at All
- O Somewhat Satisfied
- O Satisfied
- O Very Satisfied

Q24 Have you ever used a yellow bus to get to/from school? (Check one option)

- O No **(Skip To Q26 in SECTION 2(a) on Page 7)**
- O Yes

Q25 In your opinion, overall, how does using TRANSIT COMPARE WITH YELLOW BUSES?

TRANSIT IS: (Check one option)

- O Much Worse
- O Worse
- O About the Same
- O Better
- O Much Better

SECTION 2 (a): General transit service evaluation

Q26 How much do you agree with each of the following statements about your GENERAL EXPERIENCE/PERCEPTIONS RELATED TO METRO TRANSIT? (Check one answer for each row)

	Do not agree	Somewhat agree	Agree	Strongly agree	Don't know
Transit is safe to use	O	O	O	O	O
Stops are close to my home and destinations	O	O	O	O	O
Walking routes to stops are safe and pleasant	O	O	O	O	O
Waiting areas at stops are attractive and pleasant	O	O	O	O	O
Buses and/or trains are comfortable, clean and well maintained	O	O	O	O	O
I can get everywhere I need to using transit	O	O	O	O	O
I can get around quickly by transit	O	O	O	O	O
Service is frequent at the times I travel	O	O	O	O	O
Buses and/or trains are almost always on time	O	O	O	O	O
It is easy to find out where routes go and at what times	O	O	O	O	O
Transit is a good value for the fare paid	O	O	O	O	O
Transit costs less than driving	O	O	O	O	O
Bus drivers are courteous	O	O	O	O	O
Other passengers (non-students) are courteous	O	O	O	O	O

Q27 Overall, how would you rate your experience with METRO TRANSIT? (Check one option)

- O Very Poor
- O Poor
- O Fair
- O Good
- O Very Good

Q28 How likely is it that you will use transit after you graduate from high school? (Check one option)

- O Not likely at all
- O Somewhat likely
- O Likely
- O Very likely
- O Don't know

(Skip To Q38 in Section 3 on Page 11)

SECTION 1(b): Transit use information

Q29 Enter your Minneapolis Public School student ID in the space below. (Please enter your number without spaces or -)

Q30 Indicate the reason why you do not have a Go-To Student Pass (either provided by your school or purchased at your own expense from the school)? (Check one option)

- O I do not qualify for a pass provided by my school and/or I didn't find the Go-To Student Pass to be a good value
- O I am not interested in using transit
- O My parent(s) does not want me using transit
- O Other _____

Q31 How do you typically TRAVEL TO/FROM SCHOOL? (Check one option)

- O Walk
- O Bicycle
- O Motorcycle/scooter
- O Car- DRIVE YOURSELF
- O Car -DRIVEN BY PARENT, GUARDIAN, ETC.
- O Other _____

Q32 How much do you agree with each of the following statements about traveling TO/FROM SCHOOL USING THE MODE YOU INDICATED IN LAST QUESTION? (Check one answer for each row)

	Do not agree	Somewhat agree	Agree	Strongly agree	Don't know
Traveling to/from school is safe	O	O	O	O	O
Travel times (total time spent traveling to/from school) are reasonable	O	O	O	O	O
Departure times while traveling to/from school are flexible	O	O	O	O	O

Q33 Do you use transit for any of your transportation needs? (Check one option)

- O No **(Skip To Q36 on Page 10)**
- O Yes

Q34 How often do YOU use transit? (Check one option)

- O Less than once a week
- O 1-2 days a week
- O 3-5 days a week
- O Almost everyday

Q35 Overall, how would you rate your experience with METRO TRANSIT? (Check one option)

- O Very Poor
- O Poor
- O Fair
- O Good
- O Very Good

Q36 How likely is it that you will use transit after you graduate from high school? (Check one option)

- O Not likely at all
- O Somewhat likely
- O Likely
- O Very likely
- O Don't know

SECTION 2(b): General transit service assessment

Q37 How much do you agree with each of the following statements about your GENERAL EXPERIENCE/PERCEPTIONS RELATED TO METRO TRANSIT? (Check one answer for each row)

	Do not agree	Somewhat agree	Agree	Strongly agree	Don't know
Transit is safe to use	O	O	O	O	O
Stops are close to my home and destinations	O	O	O	O	O
Walking routes to stops are safe and pleasant	O	O	O	O	O
Waiting areas at stops are attractive and pleasant	O	O	O	O	O
Buses and/or trains are comfortable, clean and well maintained	O	O	O	O	O
I can get everywhere I need to using transit	O	O	O	O	O
I can get around quickly by transit	O	O	O	O	O
Service is frequent at the times I travel	O	O	O	O	O
Buses and/or trains are almost always on time	O	O	O	O	O
It is easy to find out where routes go and at what times	O	O	O	O	O
Transit is a good value for the fare paid	O	O	O	O	O
Transit costs less than driving	O	O	O	O	O
Bus drivers are courteous	O	O	O	O	O
Other passengers (non-students) are courteous	O	O	O	O	O

SECTION 3: Individual information

Q38 How far, in MILES, do you live from your school? (Please enter a numeric value, e.g., 4.5, in the space below)

_____

Q39 Do you have a driver's license? (Check one option)

- O No **(Skip To Q41 on Page 11)**
- O Yes

Q40 Do you have access to a working car when needed? (Check one option)

- O No
- O Yes

Q41 Were you or either of your parents born outside the United States? IF YES, CHECK THE BOX NEXT TO THE ANSWER CHOICE (Check all that apply)

- O You
- O Your mother
- O Your father

Q42 Do any of the following live with you in your household? IF YES, CHECK THE BOX NEXT TO THE ANSWER CHOICE (Check all that apply)

- O Mother
- O Father
- O Sibling(s)
- O Grandmother
- O Grandfather
- O Other relative
- O Other male guardian
- O Other female guardian
- O Other non-relative

Q43 Including yourself, how many people living in your home are UNDER THE AGE OF 18? (Check one option)

- O 1 **(Skip To Q45 on Page 12)**
- O 2
- O 3
- O 4
- O 5
- O 6 or more

Q44 Of the children UNDER THE AGE OF 18 who live in your home, HOW MANY ARE YOUNGER THAN YOU? (Check one option)

- O 1
- O 2
- O 3
- O 4
- O 5
- O 6 or more

Q45 Do you have a job(s)? (Check one option)

- O No **(Skip To Q47 on Page 12)**
- O Yes

Q46 How many hours a week do you work at your job(s)? (Check one option)

- O Less than 10
- O Between 10 and 20
- O Between 20 and 30
- O Between 30 and 40
- O More than 40

Q47 In what year were you born? (e.g., 1998)

___ ___ ___ ___

Thank you for participating in this study survey. We appreciate your time!

Appendix D. Parent Survey

Parent Survey - 10000

Instructions:

1. To select an answer, please check the desired option by marking it with an X or ✓

2. Questions may be single response or multiple choice. This is indicated after every question in parenthesis (e.g., Check one answer for each row, Check one option, Check all that apply, etc.)

3. Based on your answer choice you may be asked to skip some questions. Instructions to do so will be next to answer choices. If you are not asked to skip please continue to the next question.

Let's get started!

Q1 No response required for paper surveys. Please skip to Q2 in Section 1 (next question).

SECTION 1: Perceptions towards using transit to TRAVEL TO/FROM SCHOOL

Q2 When your high school child uses transit (or if he/she were to use transit) TO TRAVEL TO/FROM SCHOOL, how concerned are you about the following? (Check one answer for each row)

	Not concerned at all	Somewhat concerned	Concerned	Very concerned	Don't know
Behavior of other students using bus/train towards your child	O	O	O	O	O
Behavior of other passengers (non-students) using bus/train towards your child	O	O	O	O	O
Child getting lost (e.g., taking the wrong bus/train)	O	O	O	O	O
Child traveling without your knowledge	O	O	O	O	O
Child's safety when walking to/from bus/train stop	O	O	O	O	O
Child's safety when waiting at bus/train stop	O	O	O	O	O
Your child losing his/her bus pass	O	O	O	O	O

Q3 When your high school child uses transit (or if he/she were to use transit) TO TRAVEL TO/FROM SCHOOL, how concerned are you about the following ELEMENTS OF TRANSIT SERVICE? (Check one answer for each row)

	Not concerned at all	Somewhat concerned	Concerned	Very concerned	Don't know
Bus/train stops not being close to home/school	O	O	O	O	O
Wait time at bus/train stop being long	O	O	O	O	O
Total length of trip being long (including wait time, walk time and time on bus/train)	O	O	O	O	O
Service being unreliable (not being on time)	O	O	O	O	O
Routes and schedules being difficult to understand	O	O	O	O	O
Quality of vehicles being poor (not comfortable, clean and well-maintained)	O	O	O	O	O
Seats not being available	O	O	O	O	O
Bus drivers not being courteous to your child	O	O	O	O	O

Q4 In your opinion, overall, how does using TRANSIT COMPARE WITH YELLOW BUSES? TRANSIT IS: (Check one option)

- O Much Worse
- O Worse
- O About the Same
- O Better
- O Much Better

Q5 Does your high school child currently use a Go-To Student Pass? (Check one option)

- O No **(Skip To Q15 in SECTION 2 on Page 5)**
- O Yes

Q6 Overall, how satisfied are you with the GO-TO STUDENT PASS? (Check one option)

- O Not Satisfied at All
- O Somewhat Satisfied
- O Satisfied
- O Very Satisfied

Q7 Has YOUR CHILD'S USE OF THE GO-TO STUDENT PASS changed YOUR PERCEPTIONS towards transit? (Check one option)

- O No **(Skip To Q9 on Page 3)**
- O Yes

Q8 Check all the statements you agree with about changes in your perceptions towards transit AFTER YOUR CHILD STARTED USING THE GO-TO STUDENT PASS (Check all that apply)

- O I now feel that transit is safer for my child to use than I did before
- O I now feel that transit is easier for my child to use than I did before
- O I feel more comfortable about my child traveling with other transit users (non-students) than I did before
- O I feel using transit makes my child more independent and responsible
- O Transit is now the preferred mode of transportation for my child

Q9 Has YOUR CHILD'S USE OF THE GO-TO STUDENT PASS benefited YOUR FAMILY? (Check one option)

- O No **(Skip To Q14 on Page 4)**
- O Yes

Q10 Check all the statements you agree with about the BENEFITS OF USING THE GO-TO STUDENT PASS FOR YOUR FAMILY (Check all that apply)

- O Created travel time savings
- O Reduced conflicts with work for adults (e.g., being late to accommodate your child's travel needs)
- O Saved money on gas and other car-related expenses
- O Provided more flexibility in travel times

Q11 More specifically, has YOUR CHILD'S USE OF THE GO-TO STUDENT PASS resulted in LESS DRIVING FOR THE FAMILY? (Check one option)

- O No **(Skip To Q14 on Page 4)**
- O Yes
- O Not applicable (don't drive or own a car) **(Skip To Q14 on Page 4)**

Q12 Give an estimate of changes in driving TIME attributable to your child's use of the Go-to Student Pass. (Enter time in minutes)

	Enter time in minutes ↓
On a typical weekday, how many minutes in driving time does YOUR FAMILY save? (e.g., 35)	_____
On a typical weekend day, how many minutes in driving time does YOUR FAMILY save? (e.g., 35)	_____

Q13 Give an estimate of changes in driving DISTANCE attributable to your child's use of the Go-to Student Pass. (Enter distance in miles)

	Enter distance in miles ↓
On a typical weekday, how many fewer miles does YOUR FAMILY drive? (e.g., 1.4)	_____
On a typical weekend day, how many fewer miles does YOUR FAMILY drive? (e.g., 1.4)	_____

Q14 Check all the statements you agree with about how the GO-TO STUDENT PASS BENEFITS YOUR CHILD. THE PASS ENABLES MY CHILD TO: (Check all that apply)

- O Attend school more regularly (miss fewer days)
- O Participate in more after-school activities
- O Participate in more extra-curricular activities away from school
- O Access more work opportunities
- O Socialize more with family and friends

Continue to Section 2 on the next page (pg. 5)

SECTION 2: General transit service evaluation

Q15 How often do YOU use transit for your daily trips? (Check one option)

- O Never
- O Less than once a week
- O 1-2 days a week
- O 3-5 days a week
- O Almost everyday

Q16 How much do you agree with each of the following statements about your GENERAL EXPERIENCE/PERCEPTIONS RELATED TO METRO TRANSIT? (Check one answer for each row)

	Do not agree	Somewhat agree	Agree	Strongly agree	Don't know
Transit is safe to use	O	O	O	O	O
Stops are close to my home and destinations	O	O	O	O	O
Walking routes to stops are safe and pleasant	O	O	O	O	O
Waiting areas at stops are attractive and pleasant	O	O	O	O	O
Buses and/or trains are comfortable, clean and well maintained	O	O	O	O	O
I can get everywhere I need to using transit	O	O	O	O	O
I can get around quickly by transit	O	O	O	O	O
Service is frequent at the times I travel	O	O	O	O	O
Buses and/or trains are almost always on time	O	O	O	O	O
It is easy to find out where routes go and at what times	O	O	O	O	O
Transit is a good value for the fare paid	O	O	O	O	O
Transit costs less than driving	O	O	O	O	O
Bus drivers are courteous	O	O	O	O	O
Other passengers are courteous	O	O	O	O	O

Q17 Overall, how would you rate your experience with METRO TRANSIT? (Check one option)

- O Very Poor
- O Poor
- O Fair
- O Good
- O Very Good
- O Not applicable/don't use transit

Continue to Section 3 on the next page (pg. 7)

SECTION 3: Individual information

Q18 What is your 5 digit residential zip code? (Please enter a numeric value in the space below) e.g., 55416

____ ____ ____ ____ ____

Q19 Do you have a driver's license? (Check one option)

- O No
- O Yes

Q20 How many working cars are available to your household for use? (Check one option)

- O 0
- O 1
- O 2
- O 3
- O 4
- O 5 or more

Q21 What is your gender? (Check one option)

- O Male
- O Female

Q22 Which of the following best describes your employment status? (Check one option)

- O Employed full-time
- O Employed part-time
- O Unemployed or not in labor force
- O Other _____

Q23 Which of the following best describes your spouse/partner's employment status? (Check one option)

- O Employed full-time
- O Employed part-time
- O Unemployed or not in labor force
- O Not applicable (no spouse or partner in the household)
- O Other _____

Q24 Approximately, what was your total household income in 2014 before taxes? (Check one option)

- O Less than $10,000
- O $10,000 to $14,999
- O $15,000 to $24,999
- O $25,000 to $34,999
- O $35,000 to $49,999
- O $50,000 to $74,999
- O $75,000 to $99,999
- O $100,000 to $149,999
- O $150,000 or more
- O Don't know/not comfortable answering

Q25 In what year were you born? (e.g., 1998)

____ ____ ____ ____

Thank you for participating in this study survey. We appreciate your time!

Please mail this survey back to us using the pre-paid reply envelope provided in the survey packet.