

UC Berkeley

Research Reports

Title

Low-Income Student Bus Pass Pilot Project Evaluation: Final Report

Permalink

<https://escholarship.org/uc/item/6bb0b571>

Authors

McDonald, Noreen
Librera, Sally
Deakin, Elizabeth
[et al.](#)

Publication Date

2003-11-01

Institute of Transportation Studies
University of California at Berkeley

**Low-Income Student Bus Pass Pilot Project Evaluation:
Final Report**

**Noreen McDonald, Sally Librera, Elizabeth Deakin, and Martin
Wachs**

RESEARCH REPORT
UCB-ITS-RR-2004-2

November 2003
ISSN 0192 4095

**Low-Income Student Bus Pass
Pilot Project Evaluation:**

Final Report

November 2003

Noreen McDonald
Sally Librera
Elizabeth Deakin
Martin Wachs

Institute of Transportation Studies
University of California, Berkeley

Table of Contents

| | |
|---------------------------------------------------------------------------|----|
| Executive Summary | 1 |
| I. Program Background and Methodology..... | 6 |
| II. Student Attendance and Achievement | 9 |
| III. After-school Participation..... | 18 |
| IV. Youth Travel Patterns | 25 |
| V. Program Implementation..... | 39 |
| VI. Impacts of the Bus Pass Program on AC Transit | 47 |
| References | 52 |
| Appendix A: School Travel Survey..... | 53 |
| Appendix B: Comparison of sample and actual populations for surveys | 58 |
| Appendix C: Survey Methodology | 60 |
| Appendix D: Margin of Error | 64 |

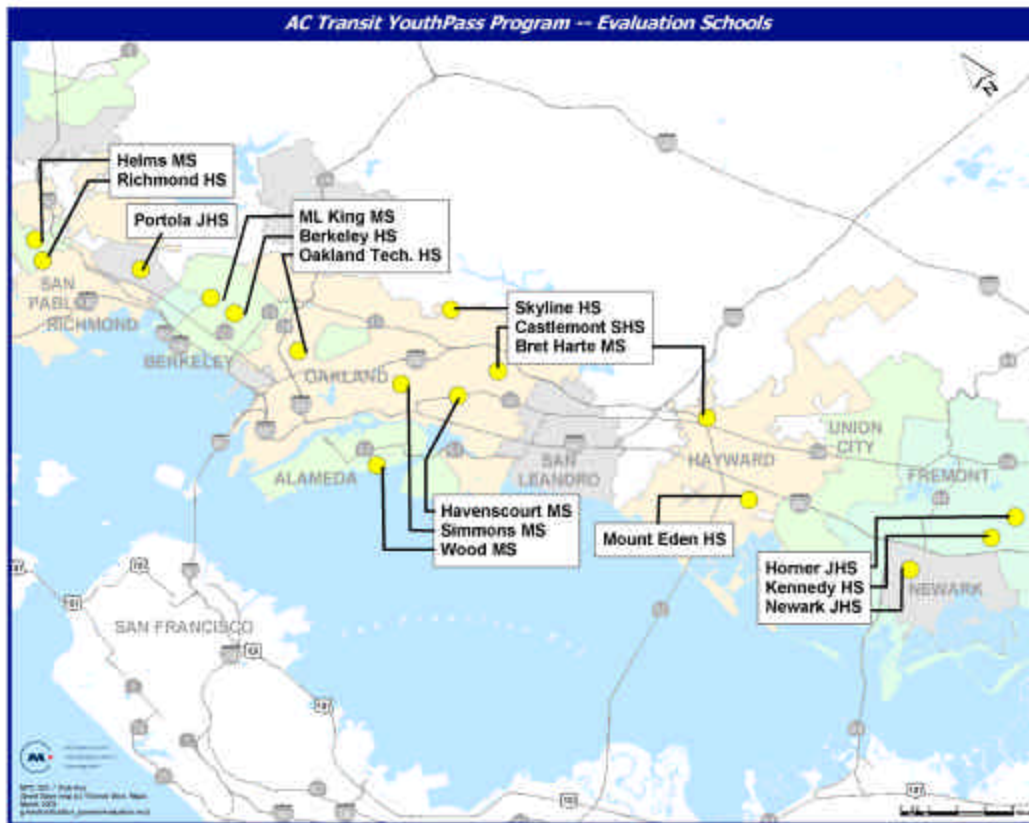
Executive Summary

In August 2002, AC Transit began offering free bus passes to low-income middle and high school students. At the same time, the agency reduced the cost of its monthly youth pass from \$27 to \$15. This dramatic reduction in costs for student riders resulted from a grassroots advocacy campaign that successfully focused local political attention on school transportation in an area where school busing had largely been eliminated for middle school and high school students. The creation of the program drew together state and local elected officials, youth advocates, schools, and transportation agencies. Across these diverse groups, there was a wide range of goals. Some of the primary goals for the program were improving social equity by lessening the financial burden on low-income families and increasing opportunities for low-income students, improving school attendance rates, increasing participation in after-school and weekend enrichment programs, and improving bus operations by converting students to passes.

The two-year demonstration project began in fall 2002 with funding from the Metropolitan Transportation Commission (MTC) Low Income Flexible Transportation (LIFT) program as well as from the transit operator and several nonprofit organizations. Financial shortfalls in the AC Transit budget led to a mid-course restructuring of the program. At the end of the first year, the AC Transit Board eliminated the free bus pass for low-income students; the remaining LIFT funds will be used to support a \$15 monthly pass for all youth.

MTC contracted with the Institute of Transportation Studies (ITS) at UC Berkeley to evaluate the impacts of the program on youth, families, schools, and transit providers. Research focused on five areas: attendance, after-school participation, youth travel patterns, program implementation, and impacts on AC Transit. The remainder of this section summarizes the research findings in each of those areas. The remainder of the report contains detailed results for each topic.

The study design used multiple methods to assess the impacts of the program including: attendance and grade data from school districts, surveys of over 1,000 students; interviews with school administrators, bus pass program coordinators, truancy officers, and after-school program coordinators; focus groups with students and parents; and financial and operational information from AC Transit. Resources did not permit us to survey all participating schools and students, a set of evaluation schools representative of the geographic, ethnic, and economic diversity of the AC Transit service district were chosen (see figure 1).

Figure 1: Map of Bus Pass Program Service Area

Previous research suggests that one year is too short a time period to assess the impacts of this program on travel patterns, school attendance, and achievement. Each is affected by many variables, only one of which is cost. It is therefore unlikely that we can fully determine how free transit impacts students. For example, attendance patterns develop over time; a free bus pass may not change the attendance patterns of a high school senior but it might prevent a 7th grader from developing poor attendance habits. To see the full effects of the pass on attendance, it would be necessary to monitor students over many years. Long term monitoring was not possible with this program.

Program Statistics

Across the AC Transit service area nearly 25,000 free bus passes were distributed. At the evaluation schools, the percentage of students receiving the free bus pass varied from 2 to 61 percent (see table 1). Overall this equates to nearly two-thirds of the students enrolled in free or reduced lunch receiving a free bus pass.

Table 1: Free Pass Distribution, 2002-03 School Year

| District | School | Grade | Enrollment | % Free Bus Pass | % Free Reduced Lunch |
|----------|----------------------|-------|------------|-----------------|----------------------|
| Alameda | Wood (Will C.) MS | 6-8 | 785 | 26%* | 36% |
| Berkeley | Berkeley HS | 9-12 | 3,221 | 16% | 17% |
| | King MS | 6-8 | 805 | 20% | 33% |
| Fremont | Horner (John M.) JHS | 7-8 | 959 | 2% | 12% |
| | Kennedy (John F.) HS | 9-12 | 1,314 | 2% | 18% |
| Hayward | Bret Harte MS | 7-8 | 614 | 20%* | 29% |
| | Mt. Eden HS | 9-12 | 2,334 | 4% | 29% |
| Newark | Newark JHS | 7-8 | 1,078 | 10% | 25% |
| Oakland | Castlemont Sr. HS | 9-12 | 1,723 | 39% | 64% |
| | Havenscourt MS | 6-8 | 738 | 61% | 78% |
| | Oakland Tech HS | 9-12 | 1,818 | 50% | 53% |
| | Simmons (Calvin) MS | 6-8 | 1,036 | 53%* | 81% |
| | Skyline HS | 9-12 | 2,226 | 47% | 44% |
| West | Helms MS | 6-8 | 1,405 | 60% | 77% |
| Contra | Portola JHS | 6-8 | 1,049 | 40% | 51% |
| Costa | Richmond HS | 9-12 | 1,833 | 23% | 59% |

Source: California Dept of Education, AC Transit

* estimated by AC Transit (i.e. not reported by school)

Findings

Attendance and Achievement

Neither attendance nor students' grades significantly changed with the implementation of the free bus pass. These findings are not surprising given the body of research showing student attendance develops over many years and in response to a variety of factors. A single-focus policy therefore faces great difficulty in changing student behavior, particularly over a short period of time. The attendance data do show that students who received a pass were not absent more than their peers prior to program implementation. These data suggest that the program may not have effectively reached the audience it intended to serve.

After-school participation

After-school program coordinators reported increasing participation by students during the year of program implementation. While they were unable to directly attribute this to the free bus pass program, nearly all coordinators reported that a fair share of students ride the bus home from after-school activities, and describe a significant proportion of participants as eligible for the free pass. Many coordinators reported safety concerns about the bus stops closest to their sites, particularly after dark. These concerns reinforce that cost is not the only critical factor in encouraging low-income students' participation in after-school programs. Nevertheless coordinators unanimously recognized that transportation is one of the most important factors in building a successful program.

Youth travel patterns

Surveys and discussions with students and parents suggest that the overall proportion of children riding public buses to and from school and after-school activities has remained relatively constant since the introduction of the free bus pass program. While the overall proportion of students riding buses has remained constant, certain populations have changed their behavior.

- Students receiving the free bus pass report using the bus more for school trips in 2003 than 2002.
- Low-income students are making more weekend trips on the bus.
- High school students with the bus pass are using on the bus to get better after-school jobs.

Research also showed that there are three different segments of student riders, each with different knowledge about AC Transit and different travel needs. The first group relies on AC Transit to get to school and other destinations. They are some of the heaviest users of the free bus passes. The second segment uses AC Transit occasionally and sees the bus as an important backup system. Even with the free bus pass many of these students do not use the bus regularly. Instead their parents report being happy that their children always have a way to get home, particularly if they cannot pick them up. The third group does not use the bus and is unfamiliar with the system. Discussions with parents showed that safety concerns were a reason that some students are not allowed to ride the bus or only allowed to do so under certain circumstances, e.g. daylight hours with friends.

Program implementation

Distribution of free bus passes varied greatly from school to school. Some schools were able to distribute passes in September; others did not issue their first passes until January. This variation reflects the need for school personnel to review applications to qualify students for the program. At schools with large populations of low-income students, this was time consuming. It is also indicative of varying levels of familiarity with the program. Some districts notified parents about the program before the school year started. Other districts took longer to assign responsibility for the program to school staff and to notify parents. It also proved problematic to rely on school IDs as the pass medium. Many schools, particularly middle schools, issued IDs in the late fall and many had trouble replacing lost IDs. Future implementation of a program like this should:

- Develop clear, standardized materials to notify students, schools, and parents about the program and how it works;
- Not rely on school IDs as the pass medium; and
- Link the bus pass program to the FRL program to reduce administrative burden and paperwork (this will require a legal opinion on school's ability to share FRL information within the district).

Impacts on AC Transit

When the free bus pass program began, it was unclear how it would affect bus ridership and revenues for AC Transit. Using data provided by AC Transit, it appears that bus ridership and route operations were not strongly affected by the free pass program. However, several AC staff were involved with the implementation of the program and devoted significant time to the program. AC financial data shows a decline in revenues from youth fares which is the result of the introduction of the free pass *and* the decrease in the price of the monthly youth pass from \$27 to \$15. Because these two programs were introduced simultaneously, it is difficult to untangle their effects. Beyond transit operations and revenues, it is possible that the most important impact on AC Transit will be improved lines of communication with the school districts which will allow them to be more efficient in serving schools and work jointly to develop creative solutions to youth travel problems.

Conclusion

Increases in discretionary and non-discretionary bus ridership among pass holders, as well as reported increases in after-school participation among all students, support the claim that AC Transit's bus pass project broadened academic and cultural opportunities for low-income students in the service area. However, our findings after one year of program implementation indicate that the bus pass program has not uniformly affected bus ridership, attendance or program participation for pass holders. Rather, varying changes in ridership among pass holders indicate that the effect of the bus pass program significantly depends on its interaction with other demographic or cultural factors. Ridership after school among pass holders residing in the denser, more transit-accessible northern portion of the AC Transit service area rose significantly with the introduction of the pass. Yet low-income students in the southern school districts decreased bus ridership after school hours. Similarly, ridership patterns varied across low-income students of different racial and ethnic groups, suggesting that bus ridership extends beyond the issue of cost and incorporates larger cultural interpretations of safety and independence.

Just as ridership is affected by the interaction of many factors, interview findings and attendance analysis support previous findings that student attendance is a complex issue demanding comprehensive, long-term policies to affect significant change. After-school coordinators repeatedly mentioned that transportation is crucial to after-school participation, but neighborhood safety is an obstacle for bus ridership that is not addressed by the availability of a free pass. Truancy prevention coordinators stressed the multitude of factors contributing to chronic absenteeism, and the need for transportation elements in a broader attendance policy.

It is clear from this analysis and previous research that a multi-year research design is needed to understand the full impacts of this program, and that these results will vary considerably given the broader cultural, environmental and academic factors in place.

I. Program Background and Methodology

Program Origin

The bus pass program arose from two different sources. The first root of the program lies with community groups and politicians; while the second is in the transportation world. The roots from the community are somewhat older and will be discussed first. Concerns in the West Contra Costa school district that some middle school students routinely missed school at the end of the month when household funds could not cover the cost of bus fare drove early work on this issue. The problem may have arisen first in West Contra Costa because the middle schools are not located near where most students live, thereby necessitating motorized transport for many students to reach school.

The idea of addressing this problem by subsidizing public transit arose from the grassroots. For example at Portola Middle School, an office worker began to fundraise to purchase bus tickets that she would then distribute to needy students. This process became more formal after the district received a grant in the late 1990s to purchase bus tickets and distribute them at some middle schools. After grant funding ended, the West Contra Costa Transportation Advisory Committee (WCCTAC) allocated Measure C funds during Spring 2002 to purchase AC Transit and WestCAT tickets and distribute them to all middle and high schools in the district (Brenner, personal communication). Other districts have also had programs in place to address extreme problems with paying the cost of transport to school. Schools purchased bus tickets and gave them out to students as needed. This service was not advertised widely and focused on students with severe problems such as homelessness.

This situation, in particular the issues in West Contra Costa, began to gain attention from local elected officials in the late 90s. In 1999, Assembly Member Dion Aroner sponsored AB 537 which would have created an “alternative formula for funding home-to-school transportation in the West Contra Costa Unified School District.” The bill would have had the effect of increasing the district’s transportation funding to a “level equal to the subsidies received by school districts which operate their own school bus fleets” (Price 1999). However, the bill did not move forward due to potential impacts on funding formulas in other large urban school districts (Jewel, personal communication).

The second impetus for the program was AC Transit’s restructuring of their fares. Pacific Transit Management (PTM) working in conjunction with AC Transit staff found that a large portion of run time on trunk lines was spent waiting for passengers to enter and exit. To improve operations, they suggested creating a fare structure that would encourage passengers to purchase passes. Initial evaluation showed that students would be one the easiest groups to target, and were currently underutilizing monthly youth passes. The proposal was to create a \$100 annual pass and make the single ride fare for middle and high school students the same as the adult fare. The program was designed to be revenue neutral.

Concern about the ability of low-income families to afford the upfront cost of a bus pass led to discussions of creating a pilot project to offer free bus passes to this group. Realizing that such a project would require outside funding, contacts were made with local elected officials. A group of politicians, including Assembly Member Aroner, Supervisor Keith Carson, and Supervisor John Gioia, and community groups began to work together with AC Transit to structure and fund a low-income bus pass program in the East Bay. The group approached the Metropolitan Transportation Commission (MTC) for funding. Three months of sometimes difficult negotiations resulted in an agreement to fund a two-year pilot project for low-income bus passes within the AC Transit service area. The final program structure included a \$150 annual pass and a monthly student bus pass at a reduced rate of \$15 (as opposed to \$27).

Program Structure

The initial vision of the free bus pass program imagined the bus pass integrated into the free lunch program; all students qualifying for free or reduced price lunch would also qualify for the bus pass. The goals for the program ranged from improving school attendance and participation in after-school programs to creating bus riders and helping students access social services and other opportunities. AC Transit looked for operational improvements from reduced dwell times.

Linking the bus pass program to the FRL program was attractive to AC Transit because it eliminated the need for applications. It was also attractive to the schools because there was a hope that the bus pass would encourage more students to apply for FRL. Historically, as students get older they are less likely to apply for FRL even if they qualify. This adversely impacts school funding because Title I monies for disadvantaged students are allocated based on the number of students enrolled in the FRL program. However, there are strict confidentiality requirements in the FRL program. Concerns about and differing interpretations of the regulations caused program architects to create a separate application for the bus pass program using the same eligibility requirements as the FRL program. This decision increased the administrative burden of the program and eliminated the possibility of increasing FRL applications by linking to the bus pass. It is important to note that school districts have different interpretations of their ability to share information about FRL recipients within the school district. Some districts reported that it would be impossible for anyone outside of food services to see the list of eligible students; others felt it was possible to share the list in a limited manner within the school. There was clear agreement that the list could not be directly shared with AC Transit. The lack of clarity on these points had an impact on the costs and complexity of the program.

Program Funding

The project was set up as a two year demonstration program during which the effects of the program would be monitored and during which the program could become self-sufficient. Initial estimates of the costs of the program were \$3.75 million per year (including only the cost of subsidy and not administration) (Pacific Transit Management 2001). However without reliable data on the true size of the low-income student bus rider population, the estimates were very rough. Funding came from MTC's Low Income Flexible Transportation Fund (LIFT) (\$1M per year for 2 years), the Alameda

County Congestion Management Agency (\$0.5M), AC Transit (\$0.4M), Contra Costa County Social Services (\$0.1M per year for 2 years), Alameda County Social Services (\$0.06M), Kaiser Permanente (\$0.05M per year for 2 years), the Women’s Foundation (\$0.02M), and the State Street California Foundation (\$0.0095M). At the end of the two year demonstration period, it was hoped that the program costs would be covered by other fare revenue.

Methodology

The low-income bus pass program began at the start of the 2002-2003 school year at all middle and high schools in the AC Transit service area. This area stretches from Fremont in the south to Richmond in the north, and includes over 80 public middle and high schools. To study the effects of the bus pass program, the evaluation team selected a subset of schools in the program area. These schools were selected to match the geographic, racial, and ethnic diversity of the region. Schools with transit bus service and high levels of Free and Reduced Lunch Program (FRL) enrollment, a commonly used proxy for family income, were oversampled since these are the areas where the program is targeted. Table 1 lists the evaluation schools and basic descriptive information; figure 1 shows the location of the schools in the region. Multiple methods were used to investigate the five research areas including attendance and grade data from school districts, surveys of over 1,000 students; interviews with school administrators, bus pass program coordinators, truancy officers, and after-school program coordinators; focus groups with students and parents; and financial and operational information from AC Transit.

Table 1: Demographic Profile of Evaluation Schools, 2001-02 School Year

| District | School | Grade | Enroll ment | % Black | % Asian | % Hisp. | % White | % FRL |
|----------|----------------------------------------------|-------|----------------|------------|------------|------------|------------|----------|
| Alameda | Wood (Will C.) MS | 6-8 | 783 | 9% | 38% | 15% | 31% | 35% |
| Berkeley | Berkeley HS | 9-12 | 3,386 | 33% | 8% | 11% | 37% | 12% |
| | King MS | 6-8 | 802 | 30% | 7% | 20% | 29% | 31% |
| Fremont | Horner (John M.) JHS | 7-8 | 984 | 4% | 38% | 15% | 42% | 15% |
| | Kennedy (John F.) HS | 9-12 | 1,355 | 5% | 34% | 22% | 38% | 24% |
| Hayward | Bret Harte MS | 7-8 | 669 | 31% | 12% | 27% | 30% | 33% |
| | Mt. Eden HS | 9-12 | 2,251 | 12% | 51% | 18% | 13% | 30% |
| Newark | Newark JHS | 7-8 | 1,076 | 7% | 24% | 37% | 32% | 31% |
| Oakland | Castlemont Sr. HS | 9-12 | 1,768 | 56% | 7% | 37% | 0% | 38% |
| | Havenscourt MS | 6-8 | 744 | 37% | 10% | 52% | 1% | 55% |
| | Oakland Tech HS | 9-12 | 1,741 | 60% | 21% | 12% | 6% | 33% |
| | Simmons (Calvin) MS | 6-8 | 1,205 | 25% | 18% | 53% | 2% | 60% |
| | Skyline HS | 9-12 | 2,313 | 46% | 25% | 16% | 11% | 22% |
| West | Helms MS | 6-8 | 1,346 | 23% | 13% | 52% | 2% | 85% |
| Contra | Portola JHS | 6-8 | 1,030 | 50% | 16% | 17% | 16% | 57% |
| Costa | Richmond HS | 9-12 | 1,794 | 20% | 14% | 63% | 3% | 72% |
| | Sample Totals | | 22,210 | 31% | 18% | 30% | 19% | 38% |
| | Entire Service Area (includes all grades) | | 204,954 | 24% | 25% | 28% | 21% | |

II. Student Attendance and Achievement

The AC Transit bus pass program developed in response to community and political leaders' concern that school transportation costs were a burden to low-income students, in severe cases leading to student absenteeism as household funds ran out at the end of the month. In order to assess the impact of the pass program on school attendance, spring 2002 and spring 2003 attendance records were collected for each student at evaluation schools in four school districts. Absence rates before and after program implementation were analyzed for nearly 10,000 students, including 2,941 students who received a free bus pass for the first time in fall 2002. Grade point averages before and after implementation also were analyzed, since research indicates that student attendance directly influences academic performance.

The before-after data show that neither attendance nor grade point averages increased for students who received a free bus pass. This lack of positive change is not surprising; education research makes it clear that both attendance and school performance are influenced by the long-term interaction of diverse family, academic, social and individual factors. A single-focus policy would therefore face great difficulty in changing student attendance or grades after only one year of implementation.

Relevant Literature

Previous research supports a strong association between attendance and school achievement, indicating that policies successfully improving attendance will contribute to higher student performance. (NY Board of Education 2000, Lamdin 1996, Caldas 1993) Yet research shows that improving attendance is a difficult task, because many factors affect student attendance and students develop attendance habits over many years. (McCarthy 2000, Alexander et al 2001) In order to provide a framework for evaluating program outcomes and success, key findings from the literature on school attendance are presented to highlight the many factors found to influence students' participation in school.

Achievement and Attendance

Research shows students' academic performance is significantly affected by their presence in school. The Division of Assessment & Accountability of the New York City Board of Education concluded that attendance and performance are not only strongly associated, but that student attendance is a strong predictor of student achievement in reading and math. After controlling for student demographics, "student attendance explained as much as 13.9 percent of variation in students' reading and mathematics test scores" for elementary and middle school students in New York City. (NY Board of Education 2000)

NYC Board of Education findings support the conclusions of previous studies linking attendance and student achievement. Lamdin (1996) included school attendance as a predictor in production function and regression models designed to explain student achievement in Baltimore public schools and found that attendance has a strong, positive effect on student performance on standardized exams. Caldas (1993) reported similar

findings after running input-output analyses with Louisiana public school data. Caldas found student attendance significantly affected academic performance on standardized exams, and that this effect was greater in urban areas.

Factors Influencing School Attendance

Education literature describes a range of factors affecting school attendance, suggesting there is no clear recipe for improving students' academic participation. Research emphasizes a significant relationship between income level and absenteeism in public high schools. McCarthy (2000) analyzed the attendance and achievement of 19,543 public high school students in Colorado and reported that students' absences generally increased as their income decreased, as measured by the amount of lunch support they received. Despite this relationship between income and attendance, McCarthy reports that students who participate in school-based activities, during and after school hours, demonstrate significantly lower levels of absenteeism, and these results are consistent across gender, ethnicity and income level.

Alexander, Entwisle and Kabbani (2001) describe dropping out of middle or high school as the culmination of a long process of withdrawal from school. They began tracking Baltimore public school students as first graders in 1982 and continued monitoring their progress until 1994. The authors conclude that students who perform well in elementary grades and are consistently engaged in school activities are more likely to graduate from high school. Students' early performance and academic participation, however, are largely affected by students' demographic characteristics and parental support for academics. This study finds that income level is the demographic characteristic most strongly correlated with high school completion, but drop out risk decreases when children are born to non-teenage mothers, live with two parents, and have working mothers. Despite the influence of income level, the authors note that strong performance in the elementary years is associated with higher levels of high school completion for all students.

Improving Attendance

The California Department of Education's Handbook for Improving Attendance (CDEHIA 2000) emphasizes the need for close collaboration among school districts, parents and community members in improving attendance and reducing truancy in California. (California DOE 2000) The committee encourages schools to promote strong attendance by augmenting school resource staff, enhancing parent involvement through outreach programs, and incorporating community organizations through work-study and independent research projects.

The handbook highlights the efforts of Sacramento City Unified, a school district that has successfully reduced its dropout and truancy rates through the implementation of a multi-faceted prevention program. The district established school attendance review boards, issued student bus passes, and created dropout prevention and student buddy programs. Sacramento also works closely with local community organizations and law enforcement agencies to keep students in school. The Regional Transit Authority in Sacramento issues passes to middle and high school students demonstrating financial need, attendance problems and positive behavior in school. The RTA also performs random truancy

checks at light rail stations throughout the city, and will transport chronically truant students to Truancy Receiving Centers. (Sacramento City USD: Truancy Reduction and Dropout Prevention Program, www.scusd.edu/sfss/standards_of_behavior/trdp_3.htm)

The CDEHIA encourages schools to keep students in school by offering a diverse and challenging curriculum. The Handbook speaks to the success of Hoover Middle School in San Francisco, a 1300-student public school reporting 99 percent average daily attendance. Students at Hoover are placed in classes based on their interests and skills, rather than their age. Hoover offers a variety of electives and programs, so that students will tailor their studies and activities to their interests. Hoover also reports the participation of 100 parent volunteers each week, many of whom are directly involved in program design and implementation.

Research shows that improving student attendance will lead to greater student achievement, but that attendance is a complex issue with many inter-related factors. Among significant demographic characteristics, authors consistently conclude that income level negatively affects student attendance, yet findings also suggest participation in after-school activities and success in school may overpower these influences. Research and policy show that schools offering diverse programs and providing consistent opportunities for success will be more likely to improve attendance.

Methodology

The evaluation schools selected for the program assessment were chosen to represent the ethnic, geographic and income diversity of the AC Transit service area. We requested attendance data from each of the districts containing evaluation schools: Alameda Unified, Berkeley Unified, Fremont Unified, Hayward Unified, Newark Unified, Oakland Unified and West Contra Costa Unified. The data request involved creating a field in the district attendance database and manually flagging students who received the bus pass at each of the evaluation schools. Due to the time and resources needed to coordinate and implement this task, only 4 of the 7 school districts, Oakland, West Contra Costa, Alameda and Newark, agreed to provide the necessary data. However, as Table 1 shows, these four districts account for 85% of all passes distributed in fall 2002. More than half of all free passes were given to Oakland students and more than three-quarters of passes were distributed in Oakland or West Contra Costa.

The attendance analysis draws from ten evaluation schools in the four districts: five in Oakland, three in West Contra Costa, one in Alameda, and one in Newark. Oakland provided the majority of the data analyzed in the attendance evaluation (56%), and West Contra Costa contributed 33%. Because of the higher number of passes distributed in these districts, 97% of the pass holders examined in this report were Oakland or West Contra Costa students. Alameda and Newark each provided information from one evaluation middle school; together they contributed 11% of the student records, but only 2% of the pass holder records.

Table 1: Distribution of Student Passes and Attendance Records Across Districts in AC Transit Service Area

| District | # of pass distributed ¹ | % of total passes distributed in AC Transit district | # of students in attendance evaluation | % of students in attendance evaluation | # of pass holders in attendance data | % of pass holders in attendance data |
|--------------------|------------------------------------|------------------------------------------------------|----------------------------------------|----------------------------------------|--------------------------------------|--------------------------------------|
| Oakland | 13,659 | 57% | 5,519 | 56% | 2,101 | 71% |
| W. Contra Costa | 5,234 | 22% | 3,232 | 33% | 765 | 26% |
| Alameda | 1,250 | 5% | 410 | 4% | 35 | 1% |
| Newark | 261 | 1% | 703 | 7% | 40 | 1% |
| All other schools | 3,642 | 15% | 0 | 0% | -- | -- |
| Total ² | 24,046 | 100% | 9,864 | 100% | 2,941 | 100% |

¹ Represents the approximate distribution of free bus passes reported by districts.

² May not sum to 100% due to rounding.

Districts provided gender, age and ethnicity data for each student in their evaluation schools in 2002-2003. In addition, total days absent and cumulative grade point average (GPA) were reported for spring 2003 and spring 2002. We limited our analysis to the spring semester because students at different schools received passes at varying times during the fall semester. While each of the four districts provided attendance data, GPA data from West Contra Costa was limited. West Contra Costa provided GPA data for spring 2003, but was unable to produce 2002 GPA reports. The analysis of change in GPA was therefore limited to the students in Alameda, Oakland and Newark districts. Only students enrolled in both spring 2002 and spring 2003 were included in the analysis.

In order to evaluate changes in attendance, absence rates for each student in each school year were calculated. The absence rate reflects the number of days a student missed as a percentage of the number of days he was enrolled in school. For example, a student who is enrolled for 100 days in a semester and misses 10 would have a 10% absence rate, whereas a student with perfect attendance would have a 0% absence rate. A student who is attending more school this year than last would have a negative change in absence rate, meaning he is present for more days in 2003 than 2002. The length of spring semesters ranged from 86 to 91 school days between districts and school years. A +1% change in absence rate therefore means a students' total number of absences increased by about one day (.86-.91) between 2002 and 2003.

In addition, we interviewed truancy prevention officers at several districts to understand how the pass affected students with the most severe attendance problems.

Findings

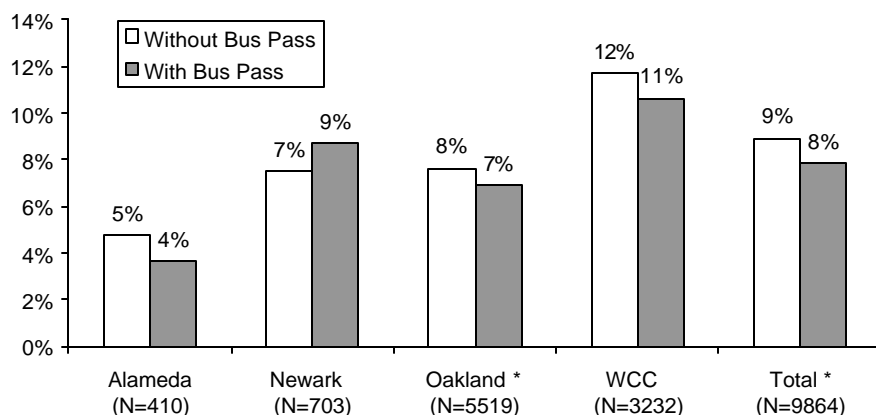
The following analysis compares the attendance and grades of students who participated in the program versus those who did not. Pass holders are students who received a free bus pass in the 2002-2003 school year. The 2002 data for pass holders represents these same students in the spring semester prior to program implementation, i.e. before they had a pass. Attendance and grades are compared between spring 2002 (before program

implementation) and spring 2003 (after implementation) for these students, as well as for those who did not receive a free pass.

Pass Recipients

Students receiving the free bus passes actually had better attendance before the start of the program than students who did not receive the pass. This is surprising because the program attempted to target students with attendance problems. Figure 1 shows the absence rates prior to the start of the program, and shows that overall students who received the pass attended about one more day of school the previous spring.

FIGURE 1: Absence Rates Prior to Free Pass Distribution (Spring 2002)



* Indicates statistically significant differences at the 95% level

One possible explanation is that the program application process may have systematically excluded students with severe attendance deficits. Many schools distributed applications during orientation, when parents of students with attendance problems, as well as these students themselves, are less likely to be present. As a result, they may have missed registration for the bus pass program. Another potential explanation is that the program did effectively include students with significant transportation needs, but that the program also included many students whose attendance was not affected by transportation costs.

Impact on Attendance

Overall, students were absent more in spring 2003 compared with spring 2002. In three districts – Alameda, Oakland, and WCC – students with the bus pass had larger increases in absence rates than their peers who did not receive the pass (see Table 2). However, none of these changes is statistically significant. Therefore we cannot conclude that the bus pass influenced school attendance in its first year. This finding is not unexpected given the complex factors that influence school attendance and the short period of study.

TABLE 2: 2002 and 2003 Mean Absence Rates

| District | Absence Rates (Spring 2002) | | Absence Rates (Spring 2003) | | Change in Absence Rates (Spring 2003 – Spring 2002) | |
|----------|--------------------------------|-------------------------|--------------------------------|-------------------------|--------------------------------------------------------|-------------------------|
| | <i>without</i> Bus Pass | <i>with</i> Bus Pass | <i>without</i> Bus Pass | <i>with</i> Bus Pass | <i>without</i> Bus Pass | <i>with</i> Bus Pass |
| Alameda | 4.8% | 3.6% | 4.8% | 5.4% | 0.1% | 1.7% |
| Newark | 7.5% | 8.7% | 7.7% | 7.9% | 0.2% | -0.8% |
| Oakland | 7.6% | 6.9% | 9.9% | 9.5% | 2.3% | 2.6% |
| WCC | 11.7% | 10.6% | 12.2% | 12.6% | 0.5% | 1.9% |

+1% = approximately 1 additional day absent

* Indicates statistically significant differences at the 95% level

Numbers may not sum due to rounding

Attendance rates are impacted by multiple factors; these factors – including weather, student population, and exposure to illness – are probably best controlled for by looking at changes at the school level. However, our sample size does not allow us to do this. Therefore we have chosen to analyze the data at the district level where attendance policies should be consistent and where information about the free bus pass should be similar. Each district had different proportions of students receiving the free pass, different truancy programs during the study period, and different socioeconomic makeups; therefore it is not meaningful to compare an Alameda student without the bus pass to an Oakland student with the pass.

Attendance analysis speaks to the need for a longer period for evaluation. While there is some evidence that students' absences increased between 2002 and 2003 and varied between districts, it would be a mistake to attribute changes in attendance to the bus pass without considering other factors that could affect attendance year to year. For example, a truancy coordinator in Oakland reported his expectation that protests surrounding the war in Iraq would adversely affect student attendance in spring of 2003. Students in Oakland were undoubtedly affected by the state takeover of their district this past spring, and high profile student shootings in West Contra Costa likely affected student attendance this year as well. Because a 1% change in attendance is equivalent to about one day of school, attendance differences of a few percentage points could be caused, for example, by a bad flu season, severe weather, etc.

Attendance by School Level

Although students' absence rates increased overall, separation into middle and high school levels shows that while high school students' average absence rate increased 3%, middle school absences declined by nearly 1%. High school students with a bus pass increased absences by 3.8% and students without the pass increased by 3.1%. There is no statistical difference in the change in absence rates between students with the pass and those without. (see table 3) Without further research, it is difficult to explain the differing rates between high school and middle school findings. It may be that the freedom students find in high school leads to increased absence.

TABLE 3: Changes in Absence Rates by School Level

| Level | Change in Absence Rates (Spring 2003 – Spring 2002) | | |
|---------------|--------------------------------------------------------|-------------------------|--------------|
| | <i>without</i> Bus Pass | <i>with</i> Bus Pass | All Students |
| Middle School | -1.0% | -0.8% | -0.9% |
| High School | 3.1% | 3.8% | 3.4% |

+1% = approximately 1 additional day absent

Changes in Grade Point Average

Education literature emphasizes the significant relationship between student attendance and student performance, as well as the need for long-term policies to effectively change students' attendance behavior. Just as it is improbable that attendance rates will significantly change after one year in response to a transit policy, it is unlikely that grades will significantly increase after one year of the bus pass program. The data confirm this expectation. Similar to absenteeism, the student records indicate grade point averages did not improve from 2002 to 2003.

The GPA data is limited to the student grade records from Oakland Unified, Newark Unified and Alameda Unified. Students from West Contra Costa are excluded from this analysis because GPA records for 2001 were unavailable. In addition, only students enrolled for the entire study period and those with reported GPAs above zero are included. Due to the high proportion of Oakland students in this dataset (86%), these GPA trends essentially describe Oakland students.

Table 4 shows the rate of change for students' average GPA in spring 2002 and spring 2003. The average GPA for all students fell over the past year, yet these numbers represent minor changes in average GPA. The differences between groups and years are small and statistically insignificant. Nonetheless, it is clear that students' GPA did not increase with participation in the bus pass program.

Table 4: Average GPA 2002 and 2003, Students with and without a bus pass in 2003

| | GPA Spring 2002 | GPA Spring 2003 | Change in GPA |
|------------------------|--------------------|--------------------|------------------|
| With Pass (N=1,934) | 2.47 | 2.31 | -0.16 |
| Without Pass (N=3,673) | 2.50 | 2.35 | -0.14 |
| All Students (N=5,607) | 2.49 | 2.34 | -0.15 |

Interviews with Truancy Prevention Officers

Conversations with nine Truancy Prevention Officers at the school and district levels during the spring of 2003 reinforced the complexity of student attendance discussed in the literature. Prevention coordinators indicated that a significant proportion of truant students use the bus to get to school when they attend, and that transportation is a key element in truancy reduction. All coordinators estimated that the pass has had some effect on the behavior of chronically truant students in their district or school. Yet common consensus among those interviewed was that truancy prevention demands more than free transportation. Several coordinators believe the bus pass had a more substantial

impact on student attendance at the middle school level, where attendance habits may be easier to change because they have developed over a shorter period of time.

Conclusion

The AC Transit bus pass program was designed to remove the burden of school transportation costs from poor families and in particular to improve attendance for low-income students. These findings show that neither attendance nor grade point averages improved for pass holders during the first year of program implementation. Given previous research emphasizing the complexity of student attendance and the difficulty of affecting meaningful change over a short period of time, these findings are not surprising. Perhaps more interesting is the fact that students in the bus pass program were not absent more than their peers prior to the program, and there is evidence that pass holders had higher attendance than students without a pass in spring 2002. Although the design of the bus pass program targeted youth with severe attendance deficits, the program may not have effectively included, or exclusively served, these students.

It is risky to judge the effectiveness of the bus pass program on its ability to increase student attendance after one year. Attendance is habitual and develops over many years. Evaluation of an attendance program therefore demands a longer time horizon to effectively detect and describe changing behavior.

Based on the above findings, any isolated strategy faces great difficulty in improving student attendance. Schools have a greater chance of improving attendance when they adopt a variety of strategies that can address the various individual, social, cultural and academic factors that influence student participation. The free bus pass is therefore more likely to significantly affect student attendance as a component of a long-term comprehensive attendance policy than create change single-handedly in one year.

Appendix 2.1: Truancy Prevention Officer Interviews

Alan Del Simone, WCCUSD Truancy Prevention Coordinator
Officer Larry Lewis, WCC Truancy Enforcement Program
Ralph McCoy, WCC Student Welfare and Attendance Team (SWAT)
Patti Min Jou, Community in Schools Director, Richmond High School
Karina Parker, works with Truancy Prevention at 2 WCC middle schools
Steven Alvarado, Oakland Unified Truancy Prevention Coordinator
Tami Bell, Assistant Principal of McClymonds HS, Oakland
Kenny Pursor, Truancy Prevention Coordinator, Berkeley High School

III. After-school Participation

Interviews with program coordinators provided insight into the degree of after-school program participation in Alameda and Contra Costa counties, as well as the nature and extent of transportation needs after school. Coordinators report that bus ridership after school increases with age, and high school students are more likely than middle school students to ride a bus to or from an after-school program. Most after-school program organizers describe at least half of their students riding the bus to or from their program. Many coordinators, especially those working with younger students, cite bus stop safety as a major issue and obstacle for bus ridership after school. Coordinators explained many factors that influence after-school participation, yet most organizers emphasize transportation as a key component. Despite many challenges, coordinators overwhelmingly reported growing participation during the 2002-2003 school year. Interview findings were consistent with focus group input regarding ridership after school and concerns about safety.

Surveys of students did not show an increase in the proportion of students participating in after-school programs. However, because other factors such as funding for after-school programs and availability of programs also changed, it is difficult to interpret the survey data. The remainder of this section describes the methodology and detailed findings on after-school participation.

Methodology

The after-school program interviews consisted of fourteen conversations with program coordinators, seven of whom organize programs for middle school students and seven of whom run activities for high school students. Because middle schools were more likely to have a single coordinator for after-school or extended day programs, information about middle school student involvement was easily obtained from conversations with school staff. Each of the middle school coordinators interviewed currently runs a school-based program in Alameda, Berkeley, Fremont, Oakland or West Contra Costa school districts. The nature of high school after-school activities made it more difficult to find one coordinator at a school site familiar with overall after-school activity as well as students' transportation behavior. We therefore interviewed specific program coordinators at school sites in Oakland, Fremont and West Contra Costa school districts. We supplemented these conversations with interviews of community-based program leaders working with high school students from West Contra Costa, Oakland and Berkeley schools after school and on weekends.

Although most program coordinators described the overall demographic characteristics and travel behavior of their students, few respondents knew which students actually had the bus pass or were using it to get to or from a program. Therefore, the data needed to analyze bus pass recipients' participation separately from students not using the pass is largely unavailable at the after-school program level.

After school participation and bus ridership were also discussed in parent and student focus group meetings. Four of the evaluation schools were chosen as sites for focus groups: Oakland Technical High School, Kennedy High School (Fremont), Helms Middle School (West Contra Costa), and King Middle School (Berkeley). These schools were chosen to reflect the geographic and socio-demographic diversity of the AC Transit service district. Focus groups ranged in size from six to fourteen students or parents.

Surveys of over 1,000 students were conducted at the evaluation schools in May 2002 and May 2003. One set of questions focused on students' participation in after-school activities. Appendices A, B, and C detail the survey methodology.

Findings

AC Transit YouthPass and Program Participation

Students were surveyed about their participation in after-school activities. Activities were broadly defined to include formal after-school programs, working, sports, and socializing. In 2002, 72% of students participated in some after-school activity; in 2003 the proportion declined to 66%. However, this decline may be more reflective of decreased funding for after-school programs leading to fewer programs available to youth and a worsening economy which made it more difficult for students to find after-school jobs. Figure 1 shows that middle school participation was constant, but high school participation saw a statistically significant drop of 9%. Figure 2 shows participation by low-income students decreasing at a significantly faster rate than non low-income students, -8% and -2% respectively. Low-income students were identified as those who received free or reduced lunch (FRL) this year or in previous years. Since these students would have been eligible to receive a free pass in 2002, FRL is the best proxy for comparisons of the free pass holders between 2002 and 2003.

Figure 1: Participation in After-school Activities, High School vs. Middle School

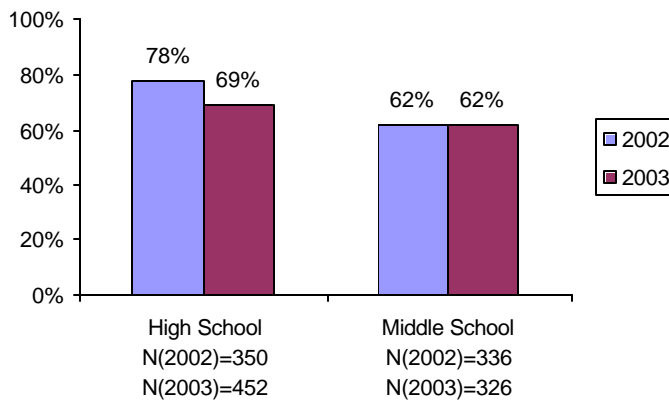
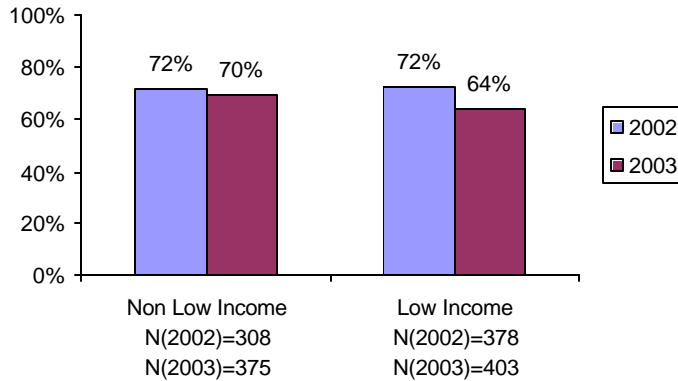


Figure 2: Participation in After-school Activities, Non Low-Income vs. Low-Income



After-school activities were grouped into one of three categories: programs, work and social. Table 1 gives a breakdown of how participation changed within these categories between 2002 and 2003. Participation in after-school programs dropped significantly (-15%), almost entirely in programs away from school. This drop may reflect decreased availability of programs, rather than a decline in student interest. The percentage going to after-school jobs also decreased significantly (-8%) from the previous year, which may be partly attributed to the worsening economy.

Table 1: Percent of Students Participating in After-school Activities

| | All Students | | |
|-----------------|-----------------|-----------------|--------------|
| | 2002 (N=701) | 2003 (N=782) | Change |
| Programs | 52% | 37% | -15%* |
| At School | 21% | 19% | -1% |
| Away | 31% | 17% | -14%* |
| Work | 17% | 9% | -8%* |

Because the survey does not take into account the potentially decreased availability of after-school activities, it is more useful to look at how after-school program coordinators felt about the free bus pass program. The majority of after-school program coordinators we interviewed (65 percent) were familiar with the AC Transit bus pass program. Middle school coordinators were more likely than high school program organizers to have heard of the program (85 percent of middle school contacts versus 43 percent of high school program organizers). Several coordinators mentioned a need for increased awareness of the program among teachers and school staff, and concern that students who qualify for the pass are either unaware of the program, not sure of how to apply for the program or confused about replacing a lost sticker. These coordinators also mentioned that schools should make bus schedules more readily available for students and staff. The coordinators who had not heard of the program each expressed interest in learning more about the passes, and obtaining the name of their site’s contact person for pass dissemination.

Most coordinators were unaware of the proportion of students involved in their program who had a bus pass. Of the fourteen coordinators surveyed, four had a sense of who had the bus pass, and these figures ranged from one-third to 100 percent of students. Although coordinators were largely unable to report bus pass program participation, most coordinators described the majority of their students as qualifying for Free and Reduced Lunch, and therefore eligible for the free pass.

Bus Ridership

Coordinators reported wide variation in the proportion of students riding the bus home from after-school activities, yet the majority of respondents indicated at least half of their students rode the bus after school. According to our conversations, the proportion of students riding the bus to or from an after-school activity increases with age. Two-thirds of middle school coordinators indicated at least 25 percent of program participants walked or took the bus home, and one-third of middle school site leaders reported the majority of middle school students traveling by bus or walking. Most middle school coordinators reported that older students were more likely than younger students to ride the bus. Middle school respondents reporting low ridership indicated that wide school boundaries and unsafe conditions in the immediate neighborhood make transit a less feasible travel option for students participating in after-school activities. High school coordinators cite a higher proportion of students riding the bus. More than two-thirds of the high school program coordinators reported the majority of students are using the bus to get to or from after-school activities.

Overall, program coordinators reported that bus riding is a relatively easy option for students after school. At each site, the closest bus stop is located either on or adjacent to the school or center premises. Most coordinators described bus service as consistent, with the exception of two site coordinators in the Alameda and Oakland districts who indicated middle school students face irregular bus service later in the afternoon. Two school-based coordinators in the Fremont and West Contra Costa districts reported large geographic boundaries, and cited lengthy trips or inconvenient transfers as obstacles for bus ridership after school.

Safety After School

Safety concerns were a common sentiment among program organizers, especially those working with younger students. About half of middle school coordinators described the bus stop closest to their site as unsafe after dark, and some reported concerns about safety during light hours as well. One coordinator in Berkeley ends her program earlier in the winter months so students can avoid walking and riding the bus home in the dark. Several coordinators mentioned they know parents who do not allow their children to stay after school for activities when they cannot pick them up after the program. High school coordinators were less likely to report concerns about safety at the bus stop, yet several leaders described the closest bus stop as unsafe, especially after dark. One coordinator mentioned more security is needed on the bus, where students are likely to interact with kids from other schools.

Factors Influencing After-school Program Growth

Excluding two programs that recently faced major budget cuts and one program that began in May 2003, program coordinators overwhelmingly reported growing participation in after-school programs, and unanimously reported that this year's attendance exceeded that of last year. Yet coordinators cite many challenges in building and maintaining a consistent, engaging after-school program—primarily transportation and funding. Program organizers also stressed that social pressure at the middle and high school level, as well as students' competing responsibilities, further challenge after-school participation.

Coordinators emphasized that transportation can serve as both an obstacle in building an after-school program and a key ingredient in a strong and consistent program. High school coordinators were more likely to mention transportation as a top priority, particularly because many high school programs are not school-based. Even though the coordinators could not speak conclusively about the effect the bus pass program has had on participation, several mentioned the program makes participation easier. Middle school coordinators mentioned students are more likely to stay after school if they do not have to plan ahead in order to do so. High school program coordinators indicated the pass was an incentive for students to participate in programs or work off campus after school.

Several program coordinators mentioned their program participation had been reduced with after-school funding cuts, limiting the number of programs and staff members they can support. One Berkeley coordinator mentioned that funding for her private after-school bus had been eliminated and the bus pass program was helping the program fill the void. Another coordinator in Oakland mentioned her staff is considering using limited grant money to purchase a van and transport students whose parents are concerned about safety and are uncomfortable with their children riding or waiting for the public bus.

Middle and high school coordinators consistently reported that participation after school wanes as students get older, and 6th or 9th graders represent a large share of participants after school hours. Respondents described social pressures and desire for independence as growing with age; older students commonly perceive after-school programs as "babysitting." Coordinators at the middle and high school level also report that student responsibilities detract from their participation in after-school activities. These tasks may include babysitting, picking up a sibling after school, playing for a recreational sports team, home chores, or an after-school job.

Consistency with Focus Group findings

Many of the themes mentioned above were repeated in focus group meetings at evaluation middle and high schools. These discussions with students and parents highlighted the role of the public bus in allowing students to attend after-school programs and work. Older students used the bus to access jobs, both after school and on the weekends. Nearly all seniors interviewed at Oakland Tech had after-school jobs and the majority used the bus to get to those jobs. Younger students were less likely to use the

bus after school. Some students said their parents were concerned about safety, particularly in the winter when students would have to wait at a bus stop in the dark.

In our discussions with middle school parents, many indicated that they were unwilling to have their children use the bus at later hours. Nevertheless, even those middle school students who did not regularly use the bus to return home from after-school activities indicated that the bus pass provided them with an important 'back-up' measure when parents were not able to pick them up. Students also indicated that having the bus pass gave them flexibility with their after-school plans. If they wanted to stay after school, they did not have to worry about arranging a ride home on short notice.

Conclusion

Input from after-school program coordinators, as well as students and parents, show that a strong after-school program faces many challenges, ranging from program funding to peer pressure to competing individual responsibilities. Yet transportation remains at the top of the list when program coordinators describe the most important factors in building a solid program. Although the direct effect of the bus pass program on after-school programs is unclear, coordinators in Alameda and Contra Costa counties report increasing after-school participation in the 2002-2003 school year and significant bus ridership after school. Neighborhood and bus safety are critical issues for after-school program participation, as programs end close to dark during the winter months, and staff and parents cite safety concerns as reasons students do not participate in after-school programs.

Appendix 3.1: After-school program interviews

| <u>School/Center</u> | <u>Contact</u> | <u>District/City</u> |
|-------------------------------|-------------------------------------|----------------------|
| Helms Middle | Lanya Samuelson | WCC |
| Wood (William C.) Middle | Priscilla Franklin | Alameda |
| Bret Harte Middle | Deborah Israel | Oakland |
| Horner Junior High | Jason Law | Fremont |
| King Estates Middle | Alan Trimble | Oakland |
| King Middle | Tamara Harendeen | Berkeley |
| Longfellow Middle | Tina Lewis | Berkeley |
| El Cerrito High | Brent Daniels | WCC |
| Fremont High | Danny Marenco | Oakland |
| Skyline High | Pablo Soto | Oakland |
| Kennedy High | John Webb | Fremont |
| East Oakland Teen Center YMCA | Tavi Baker & Christopher Chatmon | Oakland |
| KidsFirst | Kim Myoshi | Oakland |
| Upward Bound | Joe Omega | Berkeley |

IV. Youth Travel Patterns

Surveys and discussions with students and parents suggest that the overall proportion of children riding the public bus to and from school and after-school activities has remained relatively constant since the introduction of the free bus pass program. While the overall proportion of students riding the bus has remained constant, certain populations have changed their behavior.

- Students receiving the free bus pass report using the bus more for school trips in 2003 than 2002.
- Low-income students are making more weekend trips on the bus.
- High school students with the bus pass are using on the bus to get better after-school jobs.

Research also showed that there are three different segments of student riders, each with different knowledge about AC Transit and different travel needs. The first group relies on AC Transit to get to school and other destinations. They are some of the heaviest users of the free bus passes. The second segment uses AC Transit occasionally and sees the bus as an important backup system. Even with the free bus pass many of these students do not use the bus regularly. Instead their parents report being happy that their children always have a way to get home, particularly if they cannot pick them up. The third group does not use the bus and is unfamiliar with the system. Discussions with parents showed that safety concerns were a reason that some students are not allowed to ride the bus or only allowed to do so under certain circumstances, e.g. daylight hours with friends.

Methodology

Student surveys and focus groups with parents and students were the primary methods of studying the impact of the free bus pass on student travel patterns. In May 2002, before implementation of the bus pass program, UC Berkeley along with AC Transit and MTC conducted a survey of over 1,000 students across the AC Transit service district. A companion survey of 1,200 students was undertaken in May 2003 near the end of the first year of the program. Both surveys focused on how students get to and from school and after-school activities, weekend bus ridership, and bus payment methods. Appendix A contains copies of both surveys.

Table 1 presents a comparison of the 2002 and 2003 data across several demographic variables. The samples are very similar across these variables.

Table 1: Comparison of 2002 and 2003 survey samples

| | 2002 | 2003 |
|------------------------|-------|-------|
| # of Students Surveyed | 1,029 | 1,230 |
| % with Free Bus Passes | NA | 26% |
| % in Middle School | 35% | 37% |
| % in High School | 65% | 63% |
| % Free/Reduced Lunch | 30% | 31% |
| % Low-Income* | 57% | 55% |
| Household Size | 5.1 | 4.7 |
| Number of Cars | 2.4 | 2.4 |
| Age | 14.8 | 14.8 |

* Low-income is defined as either currently receiving or having previously received Free and Reduced Lunch (FRL).

For survey results to be useful, the sample must be representative of the population. To ensure this, we compared the racial distribution of surveyed students to state-reported population figures. The sample approximates the racial composition of all students in the AC Transit service area. (See Appendix B). To further ensure that survey results are representative, we weighted each student’s response to match the population distribution of students across schools and grades. Appendix C provides a detailed description of the weighting methodology.

Every survey has a margin of error. For both years, the margin of error on statistics, e.g. the proportion of students riding the bus in 2003, is $\pm 3\%$. The margin of error for analyzing changes between 2002 and 2003 is $\pm 4\%$. Appendix D provides a detailed review of this calculation. Statistically significant differences are noted throughout the report.

Focus groups were conducted at four evaluation schools: Oakland Technical High School, Kennedy High School (Fremont), Helms Middle School (West Contra Costa), and King Middle School (Berkeley). These schools were chosen to reflect the geographic and socio-demographic diversity of the AC Transit service district. At each of these schools, we attempted to arrange separate meetings with groups of parents and students. Recruiting for the focus groups proved very challenging with both groups. At the high schools, we were forced to work with specific classes and teachers because a general recruitment produced a very small number of volunteers. At middle schools, we were able to select randomly from students whose parents had previously approved their participation in the research project. To recruit parents, we worked with schools and PTSA organizations. These methods were successful at all schools except Oakland Tech where we were unable to schedule a meeting with parents. At King Middle School, we had very low response from parents and were ultimately only able to conduct interviews with two individuals.

Focus groups ranged in size from six to fourteen participants. Each group was instructed that the conversations were to be kept confidential and that it was important for everyone to participate. Discussion moderators focused on many issues including the current choice of transportation to school, thoughts on the YouthPass program and riding AC

Transit, loss and fraud associated with the YouthPass, effects on after-school participation and attendance, and popular places to go on the bus.

It is important to point out that self-selection bias may prevent focus groups from including students and parents who most need this program. Due to human subjects protocols, we could only meet with students whose parents signed a waiver form. It is possible that students and families facing the most difficult economic circumstances may be somewhat less likely to fill out such forms. However, in all student focus groups (except at Kennedy High School) over fifty percent of students did have the free bus pass. Similarly, extremely low-income parents may not be able to attend focus groups due to either their need to work or lack of child care (although we allowed parents with children to participate in the focus groups). To accommodate as many people as possible, translators were also used at Helms Middle School to allow Spanish speaking parents to participate fully.

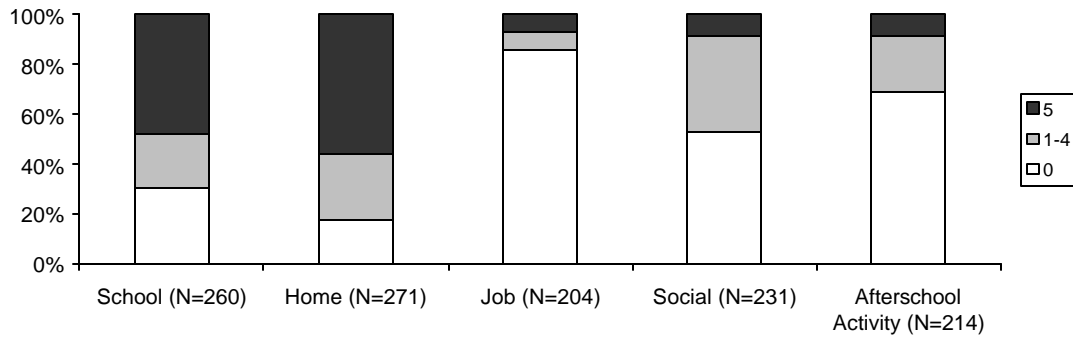
Findings

Pass Use

Focus group discussions revealed three segments of student bus riders: those who rely almost entirely on the bus for their mobility needs, students who see the bus as an important ‘back-up’ system, and those who never ride the bus. Students with the pass were represented among all three groups, although they were much more likely to be regular bus riders.

Survey results bear out the focus group findings. Students were asked how many times per week they use the bus for five types of trips: trips to school, home, after-school activities, jobs and social activities. Analysis of this data revealed three segments of users: heavy users (5 times per week), occasional users (1-4 times per week) and non-users (0 times per week). Figure 1 shows the distribution of use by free pass holders across various activities. Over half of all free pass holders are heavy users who rely on the bus for all trips to and from school. Occasional users mostly ride the bus to social/after-school activities or home. The pass may serve as an important “backup” transportation system for this segment of pass holders.

Figure 1: Number of Trips per Week by Free Bus Pass Holders, 2003



On average, students made two trips to school per week on the bus. Table 2 shows average weekly bus usage for middle and high school students by pass type. On average, high school students used the bus more often than middle school students. As expected, students with passes rode the bus more often than those without a pass. Trips to school and home were the most common. Students with passes averaged three bus trips to school and home per week, while those without passes averaged only one.

Table 2: Average Number of Trips by Purpose, 2003

| | High School | | | | Middle School | | | |
|------------------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|
| | Free Pass | Monthly Pass | None | Total | Free Pass | Monthly Pass | None | Total |
| To School | 3.3 (N=166) | 3.3 (N=109) | 1.5 (N=383) | 2.3 (N=658) | 3.0 (N=136) | 3.1 (N=43) | 1.5 (N=365) | 2.0 (N=544) |
| Home | 3.7 (N=158) | 3.9 (N=102) | 1.0 (N=308) | 2.3 (N=568) | 3.0 (N=113) | 4.0 (N=39) | 0.6 (N=299) | 1.5 (N=544) |
| Work | 0.7 (N=122) | 0.5 (N=72) | 0.2 (N=288) | 0.4 (N=482) | 0.1 (N=82) | 0.3 (N=25) | 0.0 (N=273) | 0.1 (N=380) |
| Social | 1.2 (N=133) | 1.4 (N=83) | 0.5 (N=309) | 0.9 (N=525) | 1.3 (N=98) | 1.2 (N=27) | 0.4 (N=286) | 0.7 (N=411) |
| After-school Activity | 0.9 (N=128) | 0.9 (N=79) | 0.3 (N=291) | 0.6 (N=498) | 0.7 (N=86) | 0.4 (N=27) | 0.1 (N=278) | 0.2 (N=391) |

Reasons for Riding the Bus

Focus groups helped answer questions about why students choose to ride or not ride the bus. Some students indicated a preference for riding the bus when they used a route that their friends also rode. As a King Middle School student said “we can have more fun because our friends are on the bus.” The social aspects of the trip to school were important enough to students at King Middle School that many of them indicated they would prefer to take the bus even if a ride were available. At Helms Middle School this was not the case. Students indicated a preference for being driven to school and noted that if they rode the bus, it was unlikely they would be on with their friends.

In addition, parental availability to drive students to school was an important factor. When available, parents and students reported that the family car was much faster than

the bus. One Berkeley parent reported that her son could sleep for an extra hour if she drove him to school. A Berkeley middle school student reported a much easier trip once her family got a car and she was driven to school (she was an inter-district transfer from Richmond).

Parents and students appreciated the YouthPass but its availability was not necessarily a deciding factor in the choice of travel modes. Families recognized and appreciated the money savings associated with the YouthPass. Many students liked the convenience of having a pass. It eliminated the need for them to have cash when they rode the bus and was easier to remember than a pass or tickets. Some students also reported that their parents were relieved to not have to drive them everywhere and had started insisting that they take the bus to get where they needed to go. One exception to this positive review were parents at Helms Middle School that voiced concerns about students using the pass to go places other than school particularly during school hours. These people wished there was a way to limit the pass to only school hours and to make sure that students only went to school and not other destinations.

Reasons for Not Riding Transit

After examining the reasons why students use the bus pass and AC Transit, it is also important to highlight reasons why students choose not to use public transit. The above discussion hinted at many of the primary reasons including: extra travel time required on transit, parental safety concerns, lack of knowledge of schedules and stops, and easy availability of rides from friends or family. The extra travel time required was discussed above and is a relatively straightforward concern.

Parental safety concerns varied greatly with the age of the child and also cultural background. In general, parents expressed more hesitation about allowing middle school children to ride the bus alone. In many cases, students were only allowed to ride the bus to and from school when they would be traveling with friends. One parent indicated that she would never let her daughter take the bus by herself from an after-school program. Instead, she would meet the daughter at school and they would take the bus or drive home together. Another middle school parent stated that she would never let her son ride the bus when he was carrying his saxophone because she was certain it would be stolen. Some parents of middle school students indicated that their children did not feel safe on the bus or at the bus stop because other students picked on them.

The age at which parents allow their children to use the bus by themselves is also highly variable. One King Middle School student reported that her mother taught her how to ride the bus by herself to her grandmother's house at age six. In contrast, an Oakland Tech senior indicated that her parents did not allow her to take the bus because they felt it was unsafe. Instead, they would pick her up or let her drive herself. In some cases, the restrictions on student's independent travel seemed related to cultural background. Generally speaking, Latinos and Asians, particularly girls, appeared to have more limited travel freedom.

Lack of knowledge of the AC Transit system was a primary reason that Fremont students gave for not riding the bus. One sophomore said that he never knew where exactly to get

on or off the bus. This confusion, combined with the easy availability of rides from classmates and family members, dissuaded him from riding transit.

As the above paragraph hinted, most students will take car rides over transit when they are available. Students in Fremont seemed to have the most access to rides because their parents were able to drive them and because many of the high school students have cars. As one freshman reported, “carpooling is big in Fremont.” Interviews with Kennedy High School (Fremont) parents showed that these parents generally did not find it a burden to drop their children off at school, the trip was short and relatively convenient. However, parents in other areas indicated that driving their children to school was a huge time burden albeit one that they still undertook. In fact, a Berkeley parent stated that if she could have one type of household help it would be a chauffeur since she spent such large amounts of time driving her children around.

Students’ access to cars also varied a great deal across the districts. As mentioned above, many Fremont students drive. This was much less true in Berkeley and Oakland. A Berkeley High School parent said that parking was so problematic for students in Berkeley that her son did not drive even though he had access to a car. In Oakland, parking was not as much of a constraint. However, a relatively small number of focus group participants had cars.

Modeshare

The survey asked students about their mode of travel to school, after-school activities, and home. Student responses were compared to last year’s results to identify changes in modeshare. Results indicate that the free passes had little impact on the overall proportion of students riding the bus for non-discretionary travel. One apparent change from last year is that walking and biking trips have been largely replaced by driving, particularly among middle schoolers. This change is statistically significant and may be attributable to heightened concern for child safety following a number of high-profile child abductions in the past year.

Table 3 compares the travel mode to school between 2002 and 2003 for high school and middle school students. Overall, bus ridership to school showed no change. There was a 10% increase in driving to school, pushing its modeshare over 50% for both groups in 2003. Modeshare for travel home in Table 4 shows similar behavior. Although bus ridership home increased slightly (4% in middle schools and 1.5% in high schools), driving increased 11% among high schoolers and 6% among middle schoolers. Table 5 shows modeshare for students going to their first after-school activity. Overall, after-school modeshare showed little change between 2002 and 2003, but showed different trends between age groups. In 2003, more middle school students, but fewer high school students, rode the bus to after-school activities than in the previous year. Walking/biking to after-school activities increased 7% for high school students, but decreased 7% for middle school. More middle school students were driven to after-school activities, while fewer high school students drove to their programs.

Table 3: Modeshare to School

| | High School | | | Middle School | | | Overall | | |
|---------------------|---------------|---------------|--------|---------------|---------------|--------|---------------|----------------|--------|
| | 2002 | 2003 | Change | 2002 | 2003 | Change | 2002 | 2003 | Change |
| Bus** | 33% | 33% | 0% | 21% | 20% | -1% | 29% | 28% | 0% |
| Car | 45% | 53% | 8%* | 43% | 55% | 12%* | 44% | 54% | 10%* |
| BART | 8% | 2% | -6% | 1% | 0% | -1% | 6% | 1% | -4% |
| Walked/Biked | 14% | 12% | -2% | 35% | 25% | -11%* | 22% | 17% | -5%* |
| Total | 100% N=462 | 100% N=660 | | 100% N=517 | 100% N=542 | | 100% N=979 | 100% N=1202 | |

* Denotes statistical significance within a 95% confidence interval.

**Bus includes public bus and school bus.

Table 4: Modeshare going Home

| | High School | | | Middle School | | | Overall | | |
|---------------------|---------------|---------------|--------|---------------|---------------|--------|---------------|----------------|--------|
| | 2002 | 2003 | Change | 2002 | 2003 | Change | 2002 | 2003 | Change |
| Bus** | 37% | 38% | 1% | 21% | 25% | 4% | 31% | 33% | 2% |
| Car | 34% | 45% | 11%* | 34% | 40% | 6% | 34% | 43% | 9%* |
| BART | 9% | 2% | -8%* | 1% | 0% | 0% | 6% | 1% | -5%* |
| Walked/Biked | 20% | 15% | -5% | 45% | 35% | -10%* | 29% | 23% | -6%* |
| Total | 100% N=407 | 100% N=656 | | 100% N=474 | 100% N=538 | | 100% N=881 | 100% N=1194 | |

* Denotes statistical significance within a 95% confidence interval.

**Bus includes public bus and school bus.

Table 5: Modeshare to After-school Activities

| | High School | | | Middle School | | | Overall | | |
|---------------------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|
| | 2002 | 2003 | Change | 2002 | 2003 | Change | 2002 | 2003 | Change |
| Bus** | 33% | 29% | -3% | 20% | 22% | 3% | 28% | 27% | -1% |
| Car | 37% | 37% | -1% | 35% | 40% | 6% | 36% | 38% | 1% |
| BART | 5% | 1% | -4% | 2% | 1% | -1% | 4% | 1% | -3% |
| Walked/Biked | 25% | 33% | 7%* | 44% | 37% | -7%* | 31% | 34% | 2% |
| Total | 100% N=236 | 100% N=400 | | 100% N=227 | 100% N=253 | | 100% N=463 | 100% N=653 | |

* Denotes statistical significance within a 95% confidence interval.

**Bus includes public bus and school bus.

Focus group discussions with students highlighted the role of the public bus in allowing students to attend after-school programs and work. Older students used the bus to access jobs, both after-school and on the weekends. This ability to get to jobs seemed very important. Nearly all seniors interviewed at Oakland Tech had after-school jobs and the majority used the bus to get to those jobs. Younger students were less likely to use the bus after-school. This may be because many parents are concerned about safety, particularly when children stay after-school in the winter and have to wait at a bus stop in the dark. In our discussions with middle school parents, many indicated that they were unwilling to have their children use the bus at later hours. Nevertheless, even those middle school students that did not regularly use the bus to return home from after-school activities indicated that the bus pass provided them with an important ‘back-up’ measure when parents were not able to pick them up. Students also indicated that having the bus

pass gave them flexibility with their after-school plans. If they wanted to stay after-school, they did not have to worry about having already coordinated travel arrangements

Effect on Free Bus Pass Holders

Although bus modeshares did not vary significantly across the population of students in the AC Transit service district, it appears that students receiving the free bus pass have increased their use of the public bus. The 2003 survey asked students to report their mode to school on the survey day as well as their usual mode to school the previous year. Given variation in how students travel to school, i.e. they ride the bus four days per week but get dropped off one day per week, it is expected that survey respondents would report higher bus usage in 2002 (their ‘usual’ mode) versus 2003 (their mode on the survey day). We would expect this to be true even if there was absolutely no change in how students were traveling from year to year. It turns out that this is true for the overall population – 32% report using the public bus last year while 27% report riding the bus in 2003. However, students with the free bus pass indicated higher usage of the bus in 2003 (53%) compared to 2002 (48%). (See Figures 2 and 3). This suggests that while overall bus ridership has been flat, students receiving the pass are using the bus more and students without the pass are using the bus less.

Figure 2: Modeshare to School for Free Bus Pass Holders, 2002 and 2003

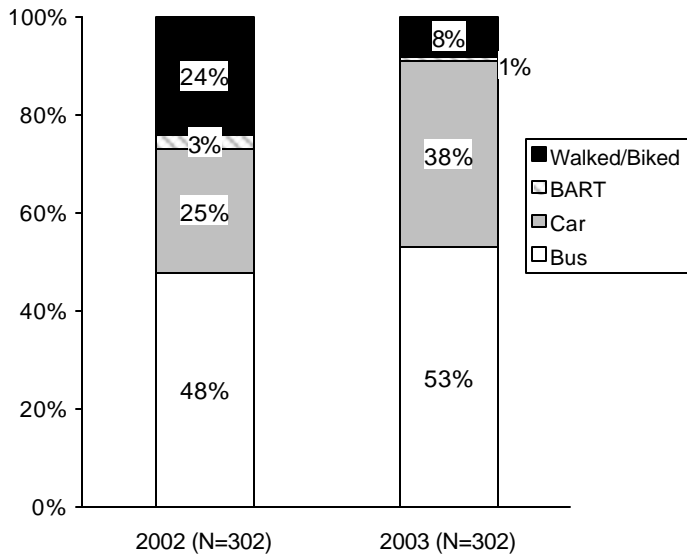
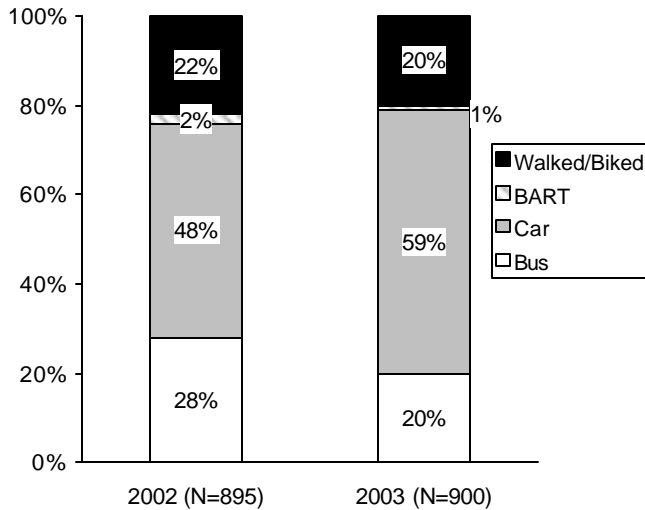


Figure 3: Modeshare to School for Non Bus Pass Holders, 2002 and 2003



Geographic Differences in Bus Use

There are important differences across the AC Transit service area in land use and levels of bus service. In general, the northern areas of the district are denser and more supportive of public transit use. The northern areas also account for the great majority of free bus passes distributed to students. This analysis compares the northern area (Oakland, Berkeley, West Contra Costa) to the southern (Alameda, Hayward, Newark, Fremont). Because middle and high school students exhibit different mode usage patterns, they are compared separately.

The choice of mode to school is different in the northern and southern areas of the district, but has not changed significantly with the introduction of the bus pass. However, the introduction of the bus pass appears to have affected bus ridership for after-school and trips home. For example, middle school students in the northern portion of the service area experienced a 13% increase in bus ridership to after-school activities. This increase in bus ridership appears to have come from walking and biking which experienced a corresponding 13% decrease (See Table 6). For trips home, high school students in the north experienced an 8% increase in bus ridership; high school students in the southern area decreased bus ridership by 20% (See Table 7).

Table 6: Modeshare to After-school Activities by Geographic Area, Middle School Students Only

| | Northern Areas | | | Southern Areas | | |
|---------------------|----------------|---------------|--------|----------------|---------------|--------|
| | 2002 | 2003 | Change | 2002 | 2003 | Change |
| Bus** | 21% | 34% | 13%* | 20% | 15% | -5% |
| Car | 30% | 32% | 2% | 41% | 50% | 9% |
| BART | 2% | 1% | -2% | 0% | 0% | 0% |
| Walked/Biked | 44% | 34% | -13%* | 39% | 36% | -4% |
| Total | 100% N=158 | 100% N=157 | | 100% N=110 | 100% N=151 | |

* Denotes statistical significance within a 95% confidence interval.

**Bus includes public bus and school bus.

Table 7: Modeshare to Home by Geographic Area, High School Students Only

| | Northern Areas | | | Southern Areas | | |
|---------------------|----------------|---------------|--------|----------------|---------------|--------|
| | 2002 | 2003 | Change | 2002 | 2003 | Change |
| Bus** | 36% | 45% | 8%* | 39% | 19% | -20%* |
| Car | 30% | 39% | 9%* | 49% | 64% | 15%* |
| BART | 12% | 2% | -10%* | 1% | 0% | -1% |
| Walked/Biked | 22% | 14% | -8%* | 11% | 17% | 7%* |
| Total | 100% N=301 | 100% N=471 | | 100% N=110 | 100% N=189 | |

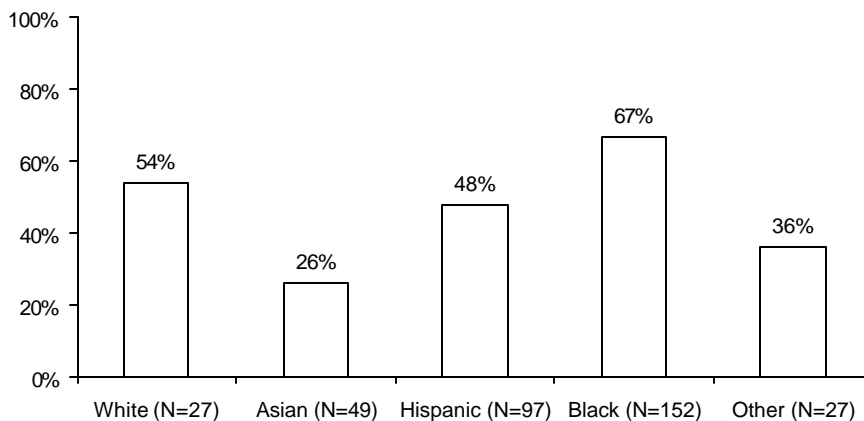
* Denotes statistical significance within a 95% confidence interval.

**Bus includes public bus and school bus.

Racial and Ethnic Differences in Bus Pass Use

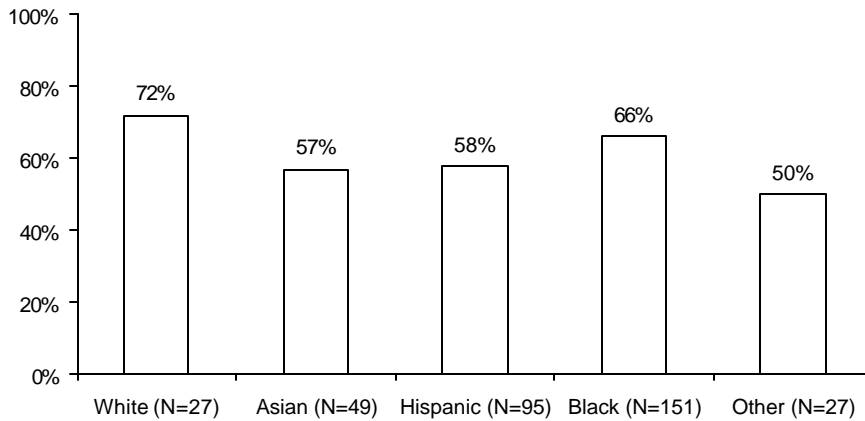
Focus group discussions with students suggested that bus usage patterns vary with race and ethnicity. This appears to derive from different beliefs about when it is appropriate for children to ride the public bus by themselves. Analysis of the 2003 survey confirms the qualitative evidence from group discussions. For example, the proportion of free bus pass holders that ride the bus to school in the mornings varies from 26% for Asians to 67% for Black students (See Figure 4). Considering that this variation occurs among students of similar economic backgrounds, it is quite impressive.

Figure 4: Bus Modeshare to School for Bus Pass Holders 2003



However, when considering the trip home from school there is much less racial variation in bus modeshares (See Figure 5). This suggests that the ability of students to coordinate morning trips with parents may be higher for Asian and Hispanic students. It is not immediately clear what the explanation for this is. However parental work schedules and car availability are likely to be important factors. For example, Asian and Hispanic students receiving the free bus pass report higher household auto ownership (2.3 vehicles per household) compared with other students receiving the bus pass (1.8 vehicles per household). This difference is statistically significant at a 95% confidence level.

Figure 5: Bus Modeshare to Home for Bus Pass Holders 2003



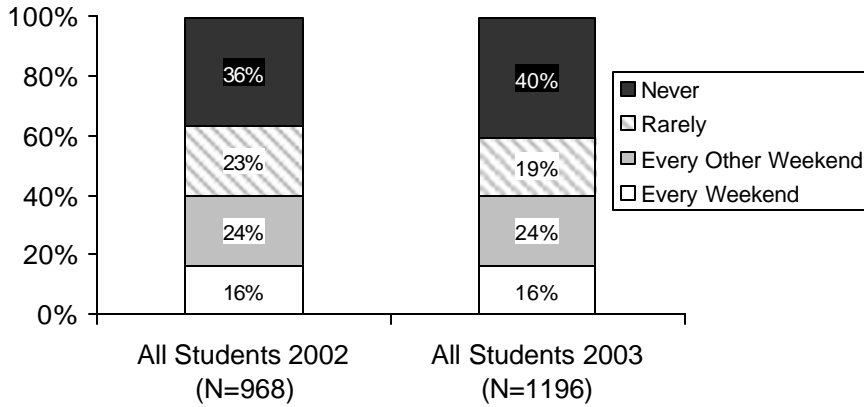
Weekend Ridership

The 2002 and 2003 surveys each asked students about their frequency of bus ridership on the weekends. While the survey results indicated that weekday modeshares were largely consistent between 2002 and 2003, the responses suggest bus ridership on weekends did increase for low-income students, or those eligible for the YouthPass. These students appear more likely to report frequent bus ridership on weekends in 2003 than 2002, suggesting a relationship between the bus pass and discretionary travel. In addition, pass holders in 2003 were more likely to ride the bus on weekends than students without a pass, and this trend is consistent across various types of weekend activities.

Focus groups showed that the most popular non-school and weekend trips were social trips to the mall or movies. For example, seven out of eight students at one King Middle School discussion indicated that they use their bus pass on the weekends to go to Hilltop Mall, the movies and to other activities like synagogue and swimming. Some used it to access enrichment programs such as Saturday Academy. Students reported that they had not realized they could use their bus passes on the weekend at first, but had figured it out by trying it. One Oakland Tech senior, who was a self-proclaimed bus expert riding “since age two,” reported that she would even take the bus to school functions including the prom. However, weekend bus ridership seems highly variable. Students at Helms Middle School, Kennedy High School, and Oakland Tech indicated much lower rates of weekend bus use than those at King Middle School.

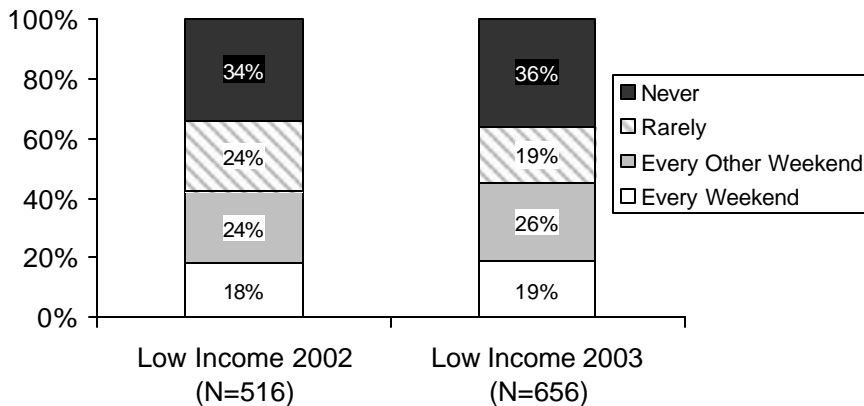
Figure 6 shows the frequency of weekend ridership for all students surveyed in 2002 and 2003. About 40% of students reported riding often or sometimes in 2002, and this figure is constant over the two years.

Figure 6: Weekend Ridership, 2003



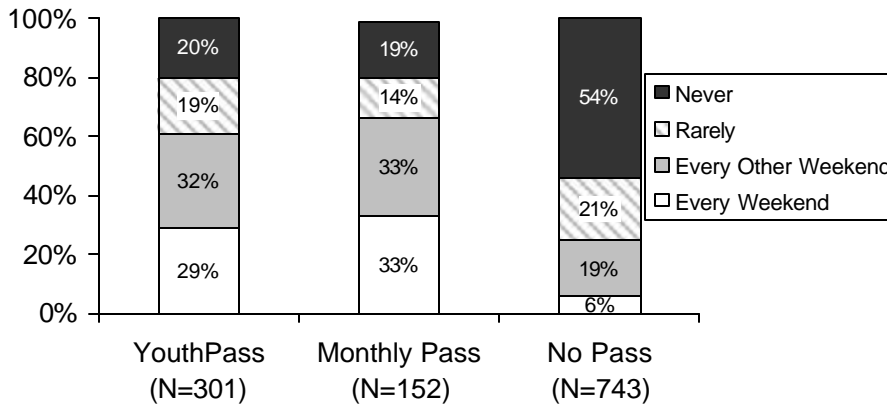
Weekend ridership figures for low-income students in the AC Transit service area did increase between 2002 and 2003. Figure 7 shows the frequency of use these students reported in 2002 and 2003. The percent of students reporting frequent ridership (at least once per month) increased from 42 in 2001 to 45 in 2003. Although this increase suggests low-income students are riding more on weekends in 2003, it is not a statistically significant change.

Figure 7: Weekend Ridership among Low-Income Students, 2003



Students with a bus pass were significantly more likely to report riding the bus on weekends than students without a bus pass. This pattern was consistent for students with the free and monthly passes. Figure 8 shows that more than 60% of each group indicated they ride often or sometimes on the weekends.

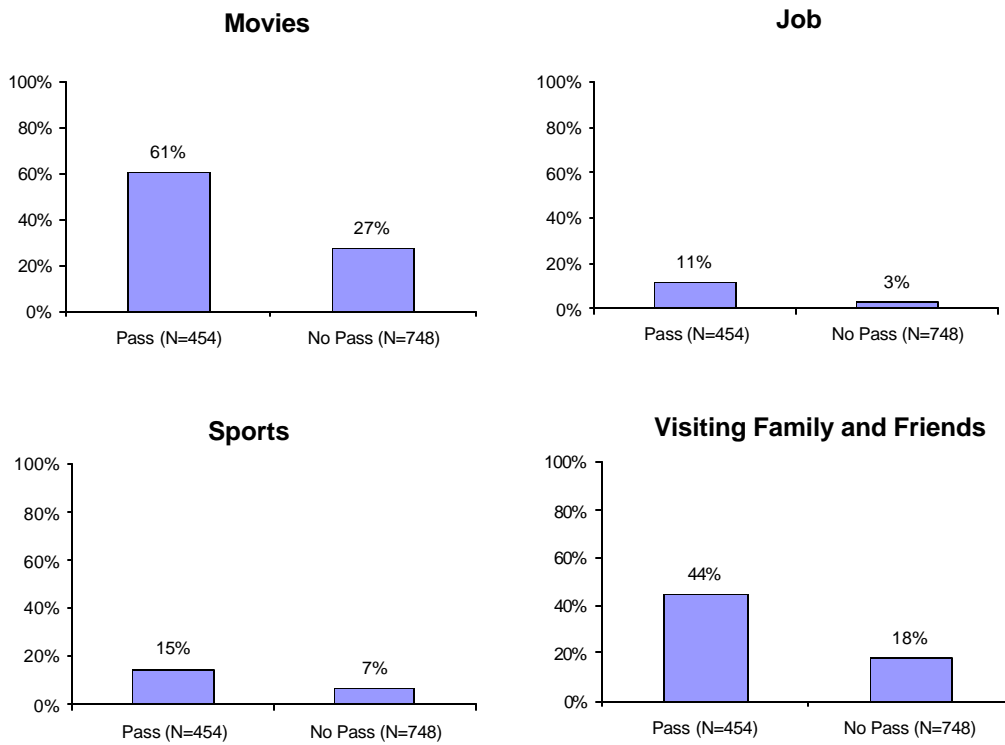
Figure 8: Weekend Ridership by Pass Type and Frequency of Use, 2003



Even though the bus pass may influence students' weekend travel patterns, it is unlikely that the bus pass is the only factor contributing to higher weekend ridership. The higher proportion of pass holders reporting riding on weekend figures may reflect the travel characteristics of people with fewer financial resources, mainly higher bus ridership. However, only 35% of students with a monthly bus pass who completed the survey were low-income, suggesting that weekend ridership extends beyond the travel characteristics associated with a lower-income population. Rather, the significant ridership reported by both the YouthPass and monthly pass holders suggests that owning a bus pass influences ridership for discretionary travel, and students with a pass are more likely to ride the bus on weekends.

The 2003 survey asked students to indicate the activities for which they use the bus on the weekend. Figure 9 compares the responses for students with a bus pass, including annual and monthly pass holders, to the ridership reported by students without an AC Transit pass. Figure 9 shows that students with a pass were significantly more likely than students without a pass to report riding a bus to or from each activity mentioned in the survey. Students with a pass were most likely to report using the pass to go to the movies or visit friends and family on the weekend. Although students without a pass were also most likely to report using the bus for these activities, their share of bus ridership was significantly lower than that of the bus pass holders.

Figure 9: Weekend Ridership by Activity, Pass vs. No Pass



V. Program Implementation

This section provides detailed findings about the implementation of the bus pass program during fall 2002. Reactions to the program from parents and administrators, application procedures, as well as loss and fraud experience are the focus. Before presenting the detailed results of our study, it is useful to look at the status of the program at the evaluation schools as of January 2003. Table 1 shows the number of passes distributed to students at each school. Participation rates vary widely; interviews with school site coordinators point to extent of program marketing within the school and student interest as the reasons for the variations.

Table 1: Pass Disbursement

| District | School | Passes Issued (Jan 03)* | Passes as % of 01-02 Enrollment | Passes as % of 01-02 FRL |
|----------|-------------------------------------|-------------------------|---------------------------------|--------------------------|
| Alameda | Wood (Will C.) Middle School | 57 | 7% | 21% |
| Berkeley | Berkeley High School | 350 | 10% | 88% |
| | King Middle School | 100 | 12% | 41% |
| Fremont | Horner (John M.) Junior High School | 12 | 1% | 8% |
| | Kennedy (John F.) High School | 25 | 2% | 8% |
| Hayward | Bret Harte Middle School | 87 | 13% | 40% |
| | Mt. Eden High School | 100 | 4% | 14% |
| Newark | Newark Junior High School | 75 | 7% | 23% |
| Oakland | Castlemont Sr. High School | 600 | 34% | 89% |
| | Havenscourt Middle School | 200 | 27% | 49% |
| | Oakland Tech High School | 925 | 53% | 160% |
| | Simmons (Calvin) Middle School | 400 | 33% | 55% |
| | Skyline High School | 900 | 39% | 179% |
| West | Helms Middle School | 660 | 49% | 58% |
| Contra | Portola Junior High School | | | |
| Costa | Richmond High School | 462 | 26% | 36% |

*Passes Issued were reported by the school site coordinator and may be approximations.

Reaction to Program

Interviews with school site and district coordinators revealed consistent reactions to the bus pass program. Most reported that students and parents were thrilled with the program. One school site coordinator reported parents telling her “imagine how this is helping me save money;” this sentiment was common across all evaluation schools.

Administrators had a more nuanced response to the program. In general, the reaction to the program was positive although the level of enthusiasm varied. The sentiment stated by several people was “I don’t mind [doing paperwork] because it helps the kids.” However, there was nearly universal concern about the unfunded administrative burden placed on schools by this program. The only schools without such concerns had very few students sign up for the program.

In districts in which large numbers of students took advantage of the program, there was a great deal of appreciation for the program. This appreciation was both human and financial. School officials were very compassionate about the plight of families for whom transport to school is too costly. Financially, many schools were relieved to no longer have to buy and distribute bus passes themselves to very needy students. An Oakland administrator pointed out that the bus pass program might provide districts with substantial cost savings in meeting the new, federal education bill (Leave No Child Behind) which requires that districts provide access to supplementary services when students are lower achieving. While not clear, this language could be interpreted to include transportation services to supplemental activities.

Some district coordinators voiced concern about the unintended consequences of giving students bus passes. One coordinator was surprised at the extremely positive reaction from parents, because she personally would be uncomfortable having her middle school student on the public bus. There was also some concern that while the passes could enable students to get to school, they could just as easily be used to get to destinations other than school – potentially having an adverse impact on attendance.

Application Procedures and Processing

Major changes occurred in the application procedures during summer 2002. As noted above, the original plan was for AC Transit to be responsible for qualifying students for the program. After evaluating the time that this task would require, AC Transit staff became concerned and brought those concerns to their board. At that time, the board directed staff to proceed with full implementation of the program. The decision was then made to move responsibility for processing applications from AC Transit to the schools. This change was made near the start of the summer which made it difficult for many schools to fully prepare for the program. One district coordinator reported feeling that the program they had agreed to implement was not the one they were ultimately presented with. Nevertheless, all districts did assume responsibility for processing and proceeded with the program.

The change in administrative procedures was the biggest source of complaint among interviewees. In all schools, the coordinator was asked to administer this program on top of other duties. Most reported this task to be “time consuming,” particularly where large numbers of students took advantage of the program. The Alameda district coordinator also reported that staff responsible for implementing the program (generally office managers) asked for additional money for the work they were required to do. In the end, they agreed to do it without pay increases in order to ensure that the students had access to the program. However as schools face the uncertain budget environment ahead, many were concerned about the burden that this program places on staff time and resources.

Application procedures were nearly identical at all schools. The only significant differences were in how students and parents were notified about the program and whether the applications were processed centrally or at the school. The following reviews each part of the application process.

Notification: Schools used registration, letters home, and daily school bulletin announcements to alert students and parents to the program. AC Transit also promoted the free bus pass and new \$15 youth fare with posters in buses and flyers that were provided to the schools. At districts with a required registration day before the start of the school year; e.g. Oakland, West Contra Costa; the bus pass applications were put at the FRL “station” (parents were required to go to several tables). One problem with this system was that the bus pass applications were not well marked at all schools observed and there was usually no one familiar with the program available to answer questions. Oakland provided training on the bus pass to food service workers who would be at the registration table. This was helpful, but at observed sites the food service workers were kept busy dealing with the lunch program. These difficulties led many parents to miss the bus pass applications or to have trouble getting their questions answered.

Other districts opted to put announcements of the program and, in some cases, applications, in letters to home. These letters were evenly split between special mailings and inclusion in the general back to school information packet. The Alameda school district chose to send letters about the program only to those families that had already qualified for FRL; the program was not widely advertised beyond this. This is an example of districts having different interpretations of the FRL confidentiality requirements. Alameda felt comfortable giving the school site bus pass coordinator access to the FRL list. Other districts had said it would be impossible to share the list with anyone outside the food services department.

Nearly all districts reported that the most effective notification system was word of mouth. After one child received the pass, her friends would come to ask about the program. While this proved an effective means of marketing the program, it meant that school staff had to deal with many requests over the first several months of the school year.

AC Transit provided a master application form to each district that could be modified if necessary. One problem was that the sample application form proved moderately difficult for many parents to fill out; many forms were incomplete because the household size was not filled in. In addition, the bus pass application did not match the layout of the FRL form and had different requirements, i.e. FRL requires one application per *family* while the bus pass required one application per *student*. One district reported that the administrative effort could have been lessened if AC Transit had provided very simple and clear directions for school site coordinators and parents. While this specific comment was not echoed by other districts, it would be advisable to use this year’s experience to prepare very clear materials for next year’s implementation.

Qualification: School staff were responsible for reviewing applications according to the eligibility guidelines (see Table 2). Oakland and West Contra Costa opted to review the applications from registration centrally. Due to the high volumes of applications in Oakland, central processing proved unwieldy. Many applications were lost in transit between the schools and district office. More importantly, schools were being asked questions by parents about the status of their applications, but the schools had no access to or information about the applications. One Oakland school site coordinator called it a

“waste of time” to have the applications processed centrally. These problems led Oakland to switch to a model in which a school site coordinator had the authority to approve applications and issue passes. This was the system used by all other districts as well.

Table 2: Eligibility Guidelines

| Household Size | Annual Income |
|----------------------------|---------------|
| 1 | \$16,391 |
| 2 | 22,089 |
| 3 | 27,787 |
| 4 | 33,485 |
| 5 | 39,183 |
| For each addt'l person add | 5,698 |

Source: AC Transit

At schools with high volumes of applications, current staff may not be able to efficiently process all applications at the beginning of the school year. In these cases, it may be necessary to hire temporary workers. The other, and probably preferable, option for improving application and qualification procedures is to work with school lawyers to craft a method for using the FRL eligibility to issue bus passes.

Pass Issuance: Once the applicant was deemed eligible, the school coordinator issued the student a pass by attaching the bus pass sticker to the student’s ID card. At the same time, the student’s name was recorded in a log; many of the districts opted to keep the original application as well. While this part of the system seems straightforward, it was actually the cause of the most delays. Many schools, particularly middle schools, did not have school IDs available until October or November. This occurred due to a lack of coordination between the bus pass program and school administrators, and an inability for schools to reschedule previously negotiated photography dates. The delay due to IDs also caused problems for the school staff responsible for the program. Many reported irate phone calls during this period as parents questioned why their students had not yet received bus passes.

Loss and Fraud

One of the unknowns at the start of this program was what the loss rate would be and whether fraud would be a problem. Because the passes have a retail value of \$150, there is potential for a secondary market to emerge. Results from the first six months of the program show that while loss and fraud have occurred, the level is not high. There is considerable variability in the loss percentage from almost none to 22 percent (see Table 3). Official AC Transit policy is that the first replacement bus pass is free (although most schools require that students pay for a new ID) and the second replacement is \$20. However many schools reported somewhat different procedures.

Table 3: Pass Loss as of January 2003

| District | School | Lost Passes | Lost Passes as % of Total Passes |
|----------|-------------------------------------|-------------|----------------------------------|
| Alameda | Wood (Will C.) Middle School | 4 | 7% |
| Berkeley | Berkeley High School | 15 | 4% |
| | King Middle School | 22* | 22%** |
| Fremont | Horner (John M.) Junior High School | 0 | 0% |
| | Kennedy (John F.) High School | 1-2 | 6% |
| Hayward | Bret Harte Middle School | 2 | 2% |
| | Mt. Eden High School | 2 | 2% |
| Newark | Newark Junior High School | 1 | 1% |
| Oakland | Castlemont Sr. High School | 11 | 2% |
| | Havenscourt Middle School | 15 | 8% |
| | Oakland Tech High School | 20 | 2% |
| | Simmons (Calvin) Middle School | 2 | 1% |
| | Skyline High School | 30 | 3% |
| West | Helms Middle School | 50-75 | 9% |
| Contra | Portola Junior High School | 50-60 | |
| Costa | Richmond High School | 6 | 1% |

*Only 12 passes were replaced because the school is unable to get replacement IDs for the others.

**High percentage because number of passes issued was small (~100).

Some of that variation in loss rates may be attributable to what school officials tell students about the loss policy. Several schools reported that when they initially issue the first bus pass, they emphasize that the bus pass is a privilege which can be revoked if it is not used properly. In addition, they tell students that the first replacement pass will be \$20. Officials at these schools felt that it encouraged carelessness and fraud to have the first replacement be free.

It is important to note that there are different kinds of loss. The first is simple wear and tear. Many schools have complained that the bus pass stickers are not up to the daily rigors of teenage life. The second type of loss occurs when the pass has been removed. Although the passes are not supposed to peel off (in order to prevent fraud), several schools reported that the students have been able to peel them off in one piece. Third is when the student's ID has been stolen.

The latter two types are related to theft and fraud. School officials reported that they are aware of students peeling off the sticker to give or sell to friends. One official even reported that a parent had instructed her child to report her ID stolen in order to get a second bus pass. Two school coordinators reported that they were also suspicious of some of the applications that parents had turned in. A coordinator at a high school reported that as the program and eligibility requirements became better known, she received more and more applications with household sizes of seven. She believed these were false and recommended that the application require proof of household size or income. However, it is important to emphasize that these anecdotes seem to be very

much the exception rather than the rule. The low level of bus pass replacement at most schools indicates that loss and fraud are not large problems with this program.

Lessons Learned and Recommendations

This section summarizes the key lessons from the implementation of the bus pass program and makes recommendations for improving the program in future years.

Lesson #1: Consequences for loss and fraud are essential.

Recommendation #1: Charge for the first replacement bus pass and consider either an escalating cost for further replacements or do not allow them.

Lesson #2: Bus passes need to be durable

Recommendation #2: Find a better quality sticker or other medium. If this is not done, it will be necessary to amend the loss policy to allow for replacements of passes destroyed due to wear and tear.

Lesson #3: Relying on school IDs as the pass medium can cause delays.

Recommendation #3: Work with schools to schedule earlier photography dates and to simplify procedures for getting replacement IDs OR switch to a system that doesn't require an ID, e.g. small laminated cards that can be deactivated when reported missing.

Lesson #4: Centralized application processing is not effective.

Recommendation #4: Locate the entire application process at the school site to make it easier for school staff and parents and consider hiring temps to assist at schools with high application volumes.

Lesson #5: There is a great deal of confusion over the links between this program and the FRL program. The duplicate application process creates an undue processing burden for schools and parents.

Recommendation #5: Consider automatically giving FRL students a bus pass or allowing them to show proof that they are enrolled in FRL to receive a bus pass. Applications could still be available for those students who do not sign up for FRL. This system would require clarification of the FRL confidentiality provisions for sharing information within the school. If this were done, it would be inappropriate to share the student names with anyone outside the school including AC Transit.

Lesson #6: Clear, standardized materials would improve outreach efforts to schools and parents.

Recommendation #6: Using the most effective materials from this year's implementation, craft a set of program announcements, application form, and step by step instructions for district coordinators, school coordinators, and parents.

Conclusion

The AC Transit low-income bus pass program presents a model for dealing with the new reality of school transport. The administrative and institutional issues are quite complex but it shows how different elements of the public sector can work together to craft new policy options. Such policy options will become more common as more school districts opt to rely on public transit rather than provide their own transport services. Continued study of this phenomenon will provide insights into the best practices for structuring such programs and the effects of the passes on the behavior of students and families.

Appendix 4.1: School Data Sources

| District | District coordinator | Position | Interview Date |
|----------------------|---------------------------------|-------------------------------------|-----------------------|
| Alameda | Stan Rose | Chief Personnel Officer | 1/16 |
| Berkeley | Julie Sinai | Manager, School- linked Programs | 11/1 |
| Fremont | Marty Marshall | Dir. of Child Nutrition Services | 12/13 |
| Fremont | Linda Gabarino | Dir. of Educational Resources | 1/7 |
| Oakland | Alicia Perez | Legislative Liaison | 10/23 |
| West Contra Costa | Rosa Moreno | Transportation Specialist | 10/29 |

| School | School Coordinator | Position | Interview Date |
|-------------------------------|-------------------------------|----------------------------------|---------------------------|
| Will C. Wood Middle School | Mona Banks | Office Manager | 1/22 |
| Berkeley High | Mrs. Parker | Director Parent Resource Ctr. | 1/22 |
| M.L. King Middle School | Marsha Montgomery | Home school liaison | 1/9 |
| Horner Jr. High School | Sal Herrera | Vice Principal | 1/7 |
| Kennedy High | Nina Story | Office Manager | 1/8 |
| Bret Harte Middle | Mariana Grant | Office Manager | 1/8 |
| Mt. Eden High | Connie Spinato | Vice Principal | 1/8 |
| Newark Jr High | Dr. Carolyn Scott | Assistant Principal | 1/9 |
| Newark Jr High | Roseanne Castillo | | 1/9 |
| Castlemont High | Ms. Chase | Secretary | 1/7 |
| Havenscourt Middle School | David Chambliss | Asst Principal | 11/7, 1/24 |
| Oakland Tech | Julius Greene, 879-3050 | Asst Principal | 10/29, 1/23 |
| Simmons Middle School | Ms. Hernandez | Vice-Principal | 1/23 |
| Skyline | Lisa Smith | Office Manager | 10/25 |
| Helms Middle School | Mary Jones | Office Manager | 1/7 |
| Portola Middle School | Mr. Swift | | 1/7 |
| Richmond High | Chris McDonald | | 1/8 |

VI. Impacts of the Bus Pass Program on AC Transit

When the free bus pass program began, it was unclear how it would affect operations and revenues for AC Transit. Using data provided by AC Transit, it appears that bus ridership was not strongly affected by the free pass program. AC financial data shows a decline in revenues from youth fares which is the result of the introduction of the free pass *and* the decrease in the price of the monthly youth pass from \$27 to \$15. Because these two programs were introduced simultaneously, it is difficult to untangle their effects.

The free bus pass program also had a somewhat unintended impact on AC Transit. It opened and extended lines of communication between the school districts and the agency. The interaction between these institutions may make it possible to institute creative solutions to student transport problems.

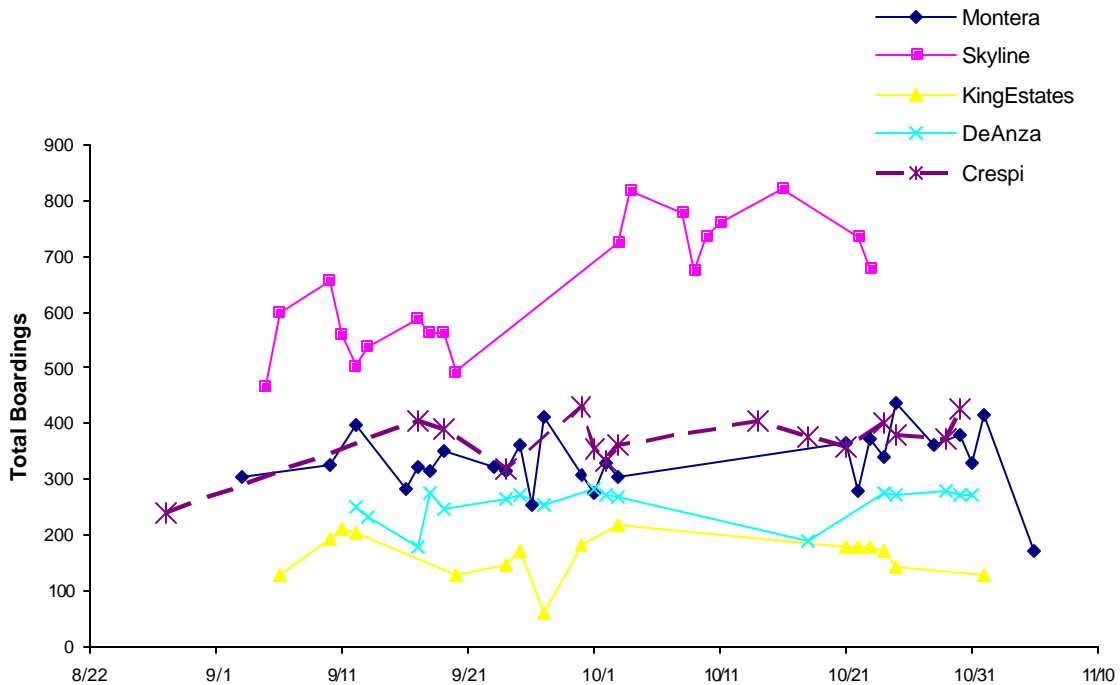
Operational Impacts

To evaluate the effects of the bus pass program on operations, researchers looked at counts of boardings at school sites, interviews with AC Transit staff, and student surveys. All data except the surveys were provided by AC Transit. Unfortunately, there are problems with nearly all the data available to evaluate this topic. For example, no boarding data is available from the 2001-02 school year. This means there is no reliable 'before' data. Instead, we have counts from September and October 2002 at several schools. Because the passes were distributed on a rolling basis, it is difficult to determine clear 'before' and 'after' periods. Additionally, student travel patterns fluctuate during the first month of school as students and parents become familiar with the options available. This makes it even more difficult to assign any trends we see in the boarding data to the introduction of the free bus pass.

Interviews with AC Transit school site supervisors and AC Transit staff suggest that the introduction of the bus pass program has not significantly affected bus ridership. AC did not need to deploy more buses on school routes (600 service) to handle increased loads. However, this does not account for impacts to trunk line routes, some of which, e.g. 51, carry heavy student loads. Survey findings discussed in separate sections of this report suggest that bus mode shares for the school trip did not change significantly with introduction of the pass. This reinforces the finding that the pass did not have a large effect on bus ridership.

AC Transit staff collected afternoon boarding data at selected schools with 600 service (see Figure 1). Only Skyline High shows an increase in ridership over the observed time period and even this trend is difficult to interpret since pass distribution began during the first week of September, i.e. there is no before period. This supports the finding that bus ridership did not increase dramatically with the introduction of the bus pass, but there are several important caveats. First, this data only represents school service, not trunk line routes. Second, bus passes were distributed on a rolling basis making it difficult to find clean before and after periods.

Figure 1: Afternoon Boardings at Selected Schools, 2002



Beyond the ridership impacts, the free bus pass program required AC Transit staff to devote time to managing the program. Jason Hodge, the primary AC Transit contact for the program, estimated that 95% of his time was spent working on the program and that a Treasury Department manager devoted 5% of his time. More senior staff were also involved in the program, particularly at the start of the program and when decisions about the second year of the program were made.

Financial Impacts

The debate over the future of the bus pass program centered around the financial impacts of the free pass on AC Transit. Given the importance of this issue, it has been difficult to fully quantify the financial impact of the program. The introduction of the free pass at the same time as monthly youth pass prices decreased (from \$27 to \$15) makes it difficult to untangle the effects of these two changes. Comparisons of AC sales data combined with survey questions about payment methods provide the best way to tackle the issue.

As a first step, it is useful to look at the distribution of AC Transit passes and associated revenue. One caveat is that because AC Transit sells monthly and 10 ride passes through vendors, e.g. Safeway, Albertson’s, Walgreens, they do not know how many people have purchased passes in any given month. Therefore the best way to compare the effects of the pass on sales is to look at the period in aggregate rather than month by month. Figures 2 and 3 compare revenue and unit sales before and after introduction of the free

and reduced price pass. Figure 4 shows the distribution by school district of the free pass. In total nearly 25,000 free passes were distributed to students.

Figure 2: Sales in Dollars

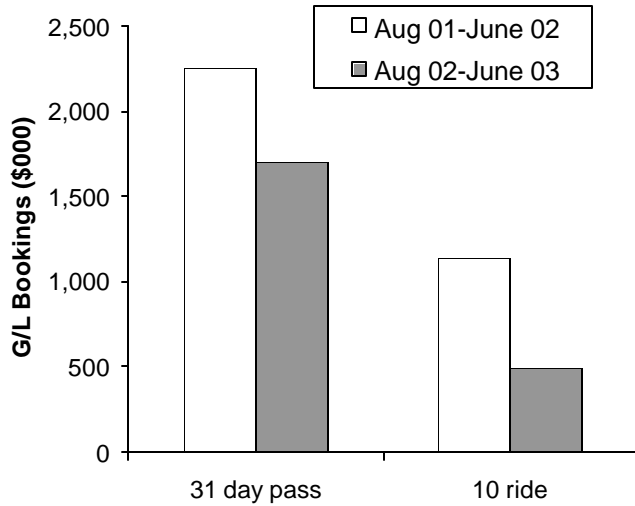


Figure 3: Sales in Units

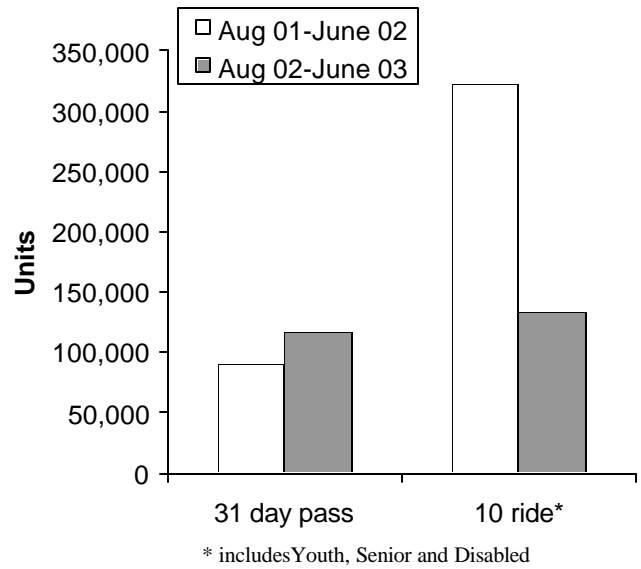
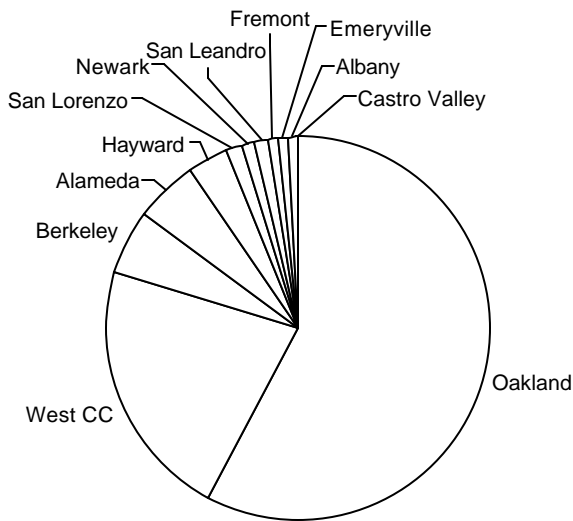


Figure 4: Free pass distribution by district



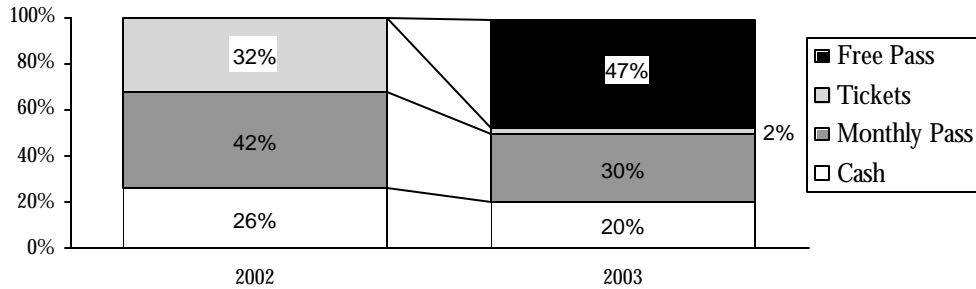
Note: Total = 24,046, data as of 5/31/03

The new fare structures had a large impact on 10 ride pass sales; reducing the unit volume by 68% and revenue by 51%. This finding is not that surprising and was a goal of AC’s new fare policy which aimed to eliminate cash and ticket fares. Focus groups revealed that 10 ride passes were purchased by occasional riders and parents who wanted a ‘backup’ system for their child’s transport. The large reduction in the price of the monthly pass made it more cost effective for occasional riders to purchase monthly passes and many students reported using the free bus pass as a backup system.

The price decrease in 31 day passes encouraged a 32% increase in the number sold. This highlights the price sensitivity of student transit riders and is even more dramatic when considering that nearly 25,000 passes were distributed at the same time. By decreasing prices, AC Transit went from 9,000 monthly pass holders per month in 2001-02 to 37,000 (25,000 free passes+12,000 31 day passes) in 2002-03. However, because of the decrease in cost of the pass this resulted in a 22% decrease (~\$400,000) in revenue for AC Transit.

Results of the student survey bear out the revenue picture. In 2003, only 2% paid with tickets versus 32% in 2002. Free passes were the payment method for 47% of students that rode the bus on the survey day. (See Figure 5). It is also interesting to look at how students with the free bus pass paid when they used the bus in previous years. Table 1 shows that 26% of free bus pass holders used to buy monthly passes.

Figure 5: Payment Methods for Bus Riders, 2002 vs. 2003



Note: May not sum to 100% due to rounding.

Table 1: 2001-02 School Year Payment Methods for Current Free Bus Pass Holders

| Payment Method in 2001-02 | All Students with Free Bus Pass |
|---------------------------|---------------------------------|
| Monthly Pass | 26% |
| Cash | 23% |
| Tickets | 16% |
| Did not ride AC Transit | 34% |
| Total | 100% |
| | (N=298) |

Quantifying the cost of the free bus passes was central to the debate over the future of the free bus pass program. There are several ways of looking at this question, although all are complicated by the fact that the free and reduced price pass were introduced at the same time. First is to look at the cost of providing service for students riding with the free pass. The researchers have not quantified this cost except to note that to the extent students are taking seats that would otherwise go empty there is no cost associated with the program.

A second way of looking at the cost of free bus passes is to consider revenue lost. As mentioned above, this is very difficult to do because of the simultaneous decrease in the price of the monthly pass. However, the student survey contained questions on payment methods this year and last year. Twenty-five percent of students with the free bus pass indicated that they purchased monthly passes in the previous year. Given that they were purchasing the more expensive \$27 pass it seems reasonable to assume that they would have bought passes if the free pass were not available. This represents a hypothetical revenue loss of nearly \$1 million if we assume the students would have purchased the \$15 pass for 10 months.

Another method of valuing the revenue loss associated with the program is to make the simplistic assumption that all students who *used* their free bus passes would have purchased a \$15 monthly pass (this is obviously untrue, basic economics tells us that fewer would purchase the pass). Nevertheless, this method places an upper bound on the estimate of revenue loss associated with the program. 87% of free bus pass holders actually rode the bus. If all of these students had purchased a \$15 pass every month for 10 months that would generate \$3.15 million in revenue. This is an unattainable upper bound because not all students will purchase the pass and some will stop riding the bus if they need to pay. However, it suggests that the revenue lost due to this free bus pass is \$1-3 million.

Communication

The creation of a stakeholder group to promote the free bus pass program and school district involvement in discussions over the future of the program may mean that the most lasting legacy of this experiment in free transit is improved communication between the schools and transit agencies. For example, during discussions over the program's future it was suggested that school districts could work more closely with AC Transit on coordinating their bell schedules with transit service. Better coordination could reduce AC's costs and provide more reliable service to the schools.

Conclusion

The free and reduced pass programs have not had a significant impact on AC Transit ridership but have decreased revenues. It is difficult to precisely estimate the revenue effects of the free pass program removed from the decrease in the cost of monthly passes. However, it is possible that the most lasting impact on AC Transit is improved communication with school districts around student transportation.

References

- Alexander, K.L., Entwisle, D.R., Kabbani, N. The Dropout Process in Life Course Perspective: Early Risk Factors at Home and School. *Teachers College Record*, Vol. 103, No. 3, October 2001, pp. 760-822.
- Caldas, S.J. Reexamination of Input and Process Factor Effects on Public School Achievement. *Journal of Educational Research*, Vol. 86, No. 4, March-April 1993, pp. 206-214.
- Lamdin, D.J. Evidence of Student Attendance as an Independent Variable in Education Production Functions. *Journal of Education Research*, Vol. 89, No. 3, January-February 1996, pp. 155-162.
- McCarthy, K.J. The Effects of Student Activity Participation, Gender, Ethnicity and Socio-Economic Level on High School Student Grade Point Averages and Attendance. National Association of African American Studies & National Association of Hispanic and Latino Studies 2000 Literature Monograph Series. February 2000.
- New York City Board of Education, Division of Assessment and Accountability. *Impact of Student Attendance, Teacher Certification and Teacher Absence on Reading and Mathematics Performance in Elementary and Middle Schools in New York City*. Flash Research Report #3. 2000
- Pacific Transit Management. 2001. *AC Transit Fare Policy Study*. September 2001.
- Price, Glen. 1999. Memo on 'The Case for Transit Subsidy'. Feb. 22, 1999.

Appendix A: 2002 School Travel Survey

Please help AC Transit plan bus services for students by answering the following questions. Your responses will be completely anonymous. Please answer each question by checking the appropriate box or writing in your answer.

Your Trip TO School TODAY

A. How did you travel to school today? (Check all used)

- Walk
 Bike
 Bus: Route(s) # _____
 BART
 Driven/Dropped off
 Drove self
 Other: _____

B. If you took bus or BART to school today, how did you get to the bus stop or BART station?

- Walk
 Drive

C. If you took the bus, how did you pay?

- Monthly pass Tickets Cash

D. How close is the nearest bus stop to your home?

- 1/2 block
 1 block
 2-5 blocks
 5+ blocks
 Don't know

E. What zipcode did your trip begin in today?.... _____

F. What time did you leave for school?.....:_____am

G. How long did it take you to get to school?....._____ minutes

Your Trip FROM School YESTERDAY

H. Did you do any of the following after school yesterday? (Check all that apply)

- Work at a job
 Shopping/Socializing
 Afterschool activities/Sports here **at school**
 Afterschool activities/Sports **at another location**

If your main activity was NOT at school, ANSWER the next 3 questions. Otherwise skip to Question L.

I. How did you get to your first afterschool activity?

- Walk
 Bike
 Bus: Route(s) # _____
 BART
 Driven/Dropped off
 Drove self
 Other: _____

J. How long did it take to get there?....._____ minutes

K. If you took the bus, how did you pay?

- Monthly pass Tickets Cash

L. How did you get home? (Check all used)

- Walk
 Bike
 Bus: Route(s) # _____
 BART
 Driven/Dropped off
 Drove self
 Other: _____

M. What time did you get home? _____:_____pm

N. If you took the bus, how did you pay?

- Monthly pass Tickets Cash

Now, we'd like to know a little bit more about you. Please answer each question by checking the appropriate box or writing in your answer.

1. How old are you?....._____years old
2. What grade are you in?_____ grade
3. What is your gender?
 Female Male
4. What race are you? (please check all that apply)
 White
 Asian/Pacific Islander
 Hispanic
 Black
 Other
5. Do you have a driver's license or learner's permit?
 Yes No
6. Do you now receive free or reduced price lunches at school?
 Yes No
7. Did you receive free or reduced price lunch in elementary or middle school?
 Yes No Don't Know
8. Do you have an AC Transit monthly bus pass?
 Yes No
 If yes, who pays for your pass?
 Parent Self Other
9. How many people 19 and over live in your home? _____
10. How many people under 19 live in your home (including yourself)?....._____
11. How many cars in running condition does your household have?....._____cars
12. How many people in your home have a driver's license?
_____
13. How often do you ride the bus on the weekends?
 Never
 Rarely (every few months)
 Sometimes (every other weekend)
 Often (every weekend)
14. How many trips did you make in total on the bus last Saturday?_____trips

Thanks for your help.

2003 School Travel Survey

Please help us understand school transportation better by answering the following questions. Your responses will be completely anonymous. Please answer each question by checking the appropriate box or writing in your answer.

Your Trip TO School TODAY

1. Do you have an AC Transit bus pass?
 - Monthly Pass
 - Annual Sticker on ID
 - None
2. How did you travel to school **today**? (Check primary)
 - Bus BART
 - School Bus Walked/Biked all the way
 - Car
3. If you took AC Transit to school, how did you pay?
 - Monthly Pass Annual Sticker on ID
 - Ticket Cash
 - I didn't take AC Transit
4. How did you usually get to school **last year**?
 - Bus BART
 - School Bus Walked/Biked all the way
 - Car
5. If you rode AC Transit last year, how did you usually pay?
 - Monthly Pass Cash
 - Tickets Did not ride AC Transit
6. How long did it take you to get to school today?
 - minutes
7. What is your home zip code?

Your Trips YESTERDAY

8. Did you participate in any of the following after school **yesterday**? (Check all that apply)
 - After school job
 - Sports/clubs/programs **at school**
 - Sports/clubs/programs **away from school**
 - Visited friend's house
 - Hang out with friends **at school**
 - Hang out with friends **away from school**
 - Went shopping
 - Went straight home
 - Other: _____
9. How did you get to your first afterschool activity **yesterday**? (Check primary)
 - Bus BART
 - School Bus Walked/Biked all the way
 - Car Went straight home
10. How did you get **home yesterday**? (Check primary)
 - Bus BART
 - School Bus Walked/Biked all the way
 - Car
11. **Last week**, how many times did you use the bus to:
 - A. get to school..... times
 - B. get home..... times
 - C. get to work/job..... times
 - D. go see a movie, visit friends, etc..... times
 - E. go to an afterschool activity/program times

Now, we'd like to know a little bit more about you. Please answer each question by checking the appropriate box or writing in your answer.

12. How old are you?....._____ years old

13. What grade are you in?....._____ grade

14. What is your gender?
 Female Male

15. What is your race? (please check all that apply)
 White
 Asian / Pacific Islander
 Hispanic
 Black
 Other

16. Do you have a driver's license or learner's permit?
 Yes No

17. Do you now receive free or reduced price lunches at school?
 Yes No

18. Did you receive free or reduced price lunch in elementary or middle school?
 Yes No Don't Know

19. How many people live in your home (including yourself)?..... _____ people

20. How many cars in running condition does your household have? _____ cars

21. How often do you ride the bus on the weekends?
 Never
 Rarely (every few months)
 Sometimes (once or twice a month)
 Often (every weekend)

22. Why do you use the bus on the weekend?
 Go to movies/shopping
 Visit family/friends
 Play sports
 Go to job
 Other: _____
 Never use bus on weekend

23. How many trips did you make in total on the bus **last Saturday**?
_____trips

24. Where would you prefer to get an AC Transit pass?
 Safeway/Albertson's/Other grocery/Drugstore
 School
 Other: _____

25. Would you purchase a bus pass if it cost: Yes No
 A. \$5 for a 15 day pass
 B. \$10 for a 15 day pass
 C. \$15 for a 15 day pass

Thanks for your help.

Appendix B: Comparison of sample and actual populations for 2002 survey

| District | School | Official Enrollment | Survey Sample | Sample Percent | Department of Education | | | | | Sample: Allows Multiple Responses | | | | | State FRL | Sample FRL |
|-------------------|-------------------------------|---------------------|---------------|----------------|-------------------------|-------------------|----------------|----------------|-------|-----------------------------------|-------|------|-------|-------|-----------|------------|
| | | | | | African Amer. not Hisp | Asian/Pacific Isl | Hisp or Latino | White not Hisp | Other | Black | Asian | Hisp | White | Other | | |
| Alameda | WOOD (WILL C.) MIDDLE | 783 | 69 | 8.812% | 9% | 38% | 15% | 31% | 8% | 7% | 37% | 24% | 30% | 11% | 35% | 49% |
| Berkeley | BERKELEY HIGH | 3,386 | 105 | 3.160% | 33% | 8% | 11% | 37% | 11% | 34% | 21% | 14% | 47% | 13% | 12% | 5% |
| Fremont | HORNER (JOHN M.) JUNIOR HIGH | 984 | 83 | 8.435% | 4% | 38% | 15% | 42% | 1% | 3% | 56% | 16% | 39% | 14% | 15% | 15% |
| | KENNEDY (JOHN F.) HIGH | 1,355 | 88 | 6.494% | 5% | 34% | 22% | 38% | 1% | 7% | 38% | 30% | 26% | 15% | 24% | 16% |
| Hayward | BRET HARTE MIDDLE | 669 | 18 | 2.691% | 31% | 12% | 27% | 30% | 0% | 38% | 13% | 25% | 25% | 13% | 33% | 50% |
| | HAYWARD HIGH | 2,016 | 41 | 2.034% | 22% | 11% | 38% | 29% | 1% | 29% | 24% | 46% | 12% | 2% | 25% | 20% |
| Newark | NEWARK JUNIOR HIGH | 1,076 | 98 | 9.108% | 7% | 24% | 37% | 32% | 1% | 3% | 38% | 38% | 30% | 9% | 31% | 17% |
| Oakland | CASTLEMONT SENIOR HIGH | 1,768 | 41 | 2.319% | 56% | 7% | 37% | 0% | 0% | 72% | 18% | 18% | 5% | 10% | 38% | 35% |
| | HAVENSCOURT MIDDLE | 744 | 83 | 11.156% | 37% | 10% | 52% | 1% | 1% | 55% | 8% | 36% | 1% | 9% | 55% | 59% |
| | OAKLAND TECHNICAL SENIOR HIGH | 1,741 | 67 | 3.848% | 60% | 21% | 12% | 6% | 0% | 66% | 14% | 22% | 6% | 9% | 33% | 17% |
| | SIMMONS (Calvin) MIDDLE | 1,205 | 56 | 4.647% | 25% | 18% | 53% | 2% | 1% | 22% | 13% | 56% | 2% | 13% | 60% | 39% |
| | SKYLINE HIGH | 2,313 | 50 | 2.162% | 46% | 25% | 16% | 11% | 1% | 66% | 17% | 23% | 6% | 9% | 22% | 14% |
| West Contra Costa | HELMS MIDDLE | 1,346 | 78 | 5.795% | 23% | 13% | 52% | 2% | 10% | 20% | 28% | 47% | 4% | 8% | 85% | 64% |
| | PORTOLA JUNIOR HIGH | 1,030 | 64 | 6.214% | 50% | 16% | 17% | 16% | 1% | 57% | 18% | 18% | 15% | 22% | 57% | 59% |
| | RICHMOND HIGH | 1,794 | 88 | 4.905% | 20% | 14% | 63% | 3% | 0% | 17% | 13% | 65% | 5% | 2% | 72% | 56% |
| | Overall | 22,210 | 1,029 | 4.642% | 31% | 18% | 30% | 19% | 3% | 30% | 25% | 32% | 19% | 11% | 36% | 32% |

Comparison of sample and actual populations for 2003 survey

| District | School | Official Enrollment | Survey Sample | Sample Percent | Department of Education | | | | | Sample: Allows Multiple Responses | | | | | State FRL | Sample FRL |
|-------------------|-------------------------------|---------------------|---------------|----------------|-------------------------|-------------------|----------------|----------------|-------|-----------------------------------|-------|------|-------|-------|-----------|------------|
| | | | | | African Amer. not Hisp | Asian/Pacific Isl | Hisp or Latino | White not Hisp | Other | Black | Asian | Hisp | White | Other | | |
| Alameda | WOOD (WILL C.) MIDDLE | 785 | 56 | 7.134% | 12% | 41% | 13% | 29% | 6% | 5% | 33% | 20% | 40% | 22% | 36% | 23% |
| | Berkeley | BERKELEY HIGH | 3,221 | 148 | 4.595% | 32% | 8% | 12% | 36% | 12% | 34% | 18% | 15% | 50% | 8% | 19% |
| | KING MIDDLE | 805 | 49 | 6.087% | 29% | 8% | 18% | 29% | 17% | 37% | 12% | 24% | 41% | 14% | 33% | 25% |
| Fremont | HORNER (JOHN M.) JUNIOR HIGH | 959 | 56 | 5.839% | 5% | 37% | 16% | 37% | 4% | 2% | 59% | 13% | 25% | 14% | 12% | 8% |
| | KENNEDY (JOHN F.) HIGH | 1,314 | 94 | 7.154% | 5% | 32% | 25% | 37% | 1% | 6% | 39% | 24% | 19% | 20% | 17% | 12% |
| Hayward | BRET HARTE MIDDLE | 613 | 58 | 9.462% | 33% | 12% | 27% | 28% | 1% | 47% | 14% | 33% | 14% | 28% | 29% | 37% |
| | HAYWARD HIGH | 2,053 | 97 | 4.725% | 23% | 11% | 39% | 27% | 1% | 23% | 20% | 35% | 24% | 10% | 24% | 23% |
| Newark | NEWARK JUNIOR HIGH | 1,078 | 67 | 6.215% | 7% | 25% | 35% | 32% | 1% | 16% | 33% | 31% | 30% | 21% | 25% | 20% |
| Oakland | CASTLEMONT SENIOR HIGH | 1,723 | 102 | 9.846% | 26% | 18% | 53% | 2% | 1% | 31% | 20% | 37% | 5% | 15% | 64% | 45% |
| | HAVENSCOURT MIDDLE | 738 | 42 | 2.438% | 53% | 4% | 41% | 1% | 0% | 55% | 7% | 39% | 0% | 5% | 79% | 35% |
| | OAKLAND TECHNICAL SENIOR HIGH | 1,818 | 70 | 9.485% | 39% | 7% | 54% | 0% | 0% | 61% | 2% | 34% | 2% | 7% | 59% | 43% |
| | SIMMONS (Calvin) MIDDLE | 1,036 | 75 | 4.125% | 63% | 20% | 11% | 6% | 1% | 76% | 13% | 12% | 7% | 3% | 81% | 23% |
| | SKYLINE HIGH | 2,226 | 78 | 3.504% | 45% | 26% | 17% | 10% | 1% | 41% | 34% | 17% | 11% | 11% | 45% | 42% |
| West Contra Costa | HELMS MIDDLE | 1,405 | 74 | 5.267% | 21% | 13% | 63% | 3% | 0% | 14% | 16% | 66% | 5% | 11% | 77% | 73% |
| | PORTOLA JUNIOR HIGH | 1,049 | 72 | 6.864% | 49% | 16% | 20% | 14% | 1% | 54% | 25% | 15% | 25% | 15% | 51% | 41% |
| | RICHMOND HIGH | 1,833 | 92 | 5.019% | 17% | 18% | 61% | 3% | 1% | 22% | 17% | 59% | 5% | 7% | 59% | 59% |
| | Overall | 22,656 | 1,230 | 5.429% | 31% | 17% | 30% | 18% | 3% | 32% | 23% | 30% | 20% | 13% | 43% | 31% |

Appendix C: Survey Methodology

Researchers, along with AC Transit and MTC staff, developed and administered surveys to middle and high school students within the AC Transit service area before the YouthPass program began (May 2002) and after its first year of implementation (May 2003). The following provides information on how students and schools were selected to participate in the survey and how responses were weighted.

Sampling Methodology

Both surveys were conducted during a two-week period immediately following statewide testing and before the Memorial Day holiday. The surveys were administered by AC Transit and MTC staff at a selected group of schools throughout the AC Transit service area. Schools were selected to be representative of the economic, geographic and ethnic diversity of the region. The majority of surveyed schools are also 'evaluation schools' and have been studied in other facets of the project.

Two different sampling methods were used in 2002 and 2003. In 2002, surveyors attempted to collect 100 surveys per school. This led to very uneven sampling percentages across the schools. In 2003, surveyors were instructed to collect a 5% sample at each school. This resulted in a much more even sampling across schools. Appendix B compare the sample demographics to population demographics as reported by the state in 2002 and 2003.

Survey administrators worked with school officials to schedule the surveys. Surveyors were instructed to administer the surveys to English or Social Studies classes, which were expected to be representative of the student body, and avoid advanced or remedial classes. Classes were to be chosen across the grade range of the school.

Data Entry

UC Berkeley staff coded all surveys into an electronic format (Microsoft Access); data entry for each survey was checked by another staff member.

Weighting Methodology

In order to ensure fair representation of each school, district and grade level, student surveys were weighted by school and by grade. The number of students completing surveys represented 4.6% of the total student body at the evaluation schools in 2002 and 5.4% of all students in 2003. We therefore created weights to match a 5% sample of the student population for each grade and school combination, and adjusted final weights where significant gaps in data were evident.

5% Weighting by School and Grade

Weights were primarily assigned by school and by grade. For example, if School A has 100 9th graders, weighting would adjust the number of surveys received such that they represent 5 students. The following calculation was used:

$$\text{Weight} = \frac{.05 * \text{Total \# of Students in School and Grade}}{\text{\# Students Sampled in School and Grade}}$$

so that

Weight*(# Students Sampled in School and Grade) = .05*Total # of Students in School and Grade

Tables 13 and 14 at the end of this document show the weightings used in each year.

Adjustments to Account for Missing Data

Many schools did not survey any students from a particular grade level, and such a data gap could result in an under-representation of a school compared to others with completed surveys for each grade level, or an under-representation of a grade level compared to a different grade level that was surveyed at all sites. The weighting adjustments corrected school representation, rather than grade, because the evaluation team believes geographic factors, i.e. school-based factors is a critical influence on transportation choices. In addition, many of the missing grades were at middle schools where there is less variation in travel behavior across grades.

Although school representation was prioritized, maintaining grade differentiation in the data was critical for age-specific analysis. Giving all of the schools with a data gap an overall school weight would substantially diminish the grade representation in the weighted data. In order to identify schools that were significantly under-represented because of these data gaps, we calculated the percent difference between the following proportions: 1) School X's students as a percent of total evaluation school students and 2) School X's *weighted* students as a percent of total *weighted* evaluation school students. The percent change between the actual percent and weighted percent was then used to identify the extent of School X's over- or under-representation in the weighted data. Schools where the absolute value of changes exceeded 10% were identified as significantly over- or under- represented. Data from these schools was then adjusted so that the total number of students surveyed represented 5% of the entire student body, thus eliminating the grade-specific weights for these cases, and ensuring fair representation of each school in the evaluation. Three schools were adjusted for 2001-2002: Berkeley High, Helms Middle and Portola Middle, and three schools were adjusted for 2002-2003: King Middle, Wood Middle and Skyline High School.

Table 13: 2001-02 Weights for 5% Sample

| District | School | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Weighting by School |
|----------|-------------------------------|----------|----------|----------|-----------|-----------|----------|----------|---------------------|
| Alameda | WOOD (WILL C.) MIDDLE | 0.465517 | 0.547727 | 1.764286 | | | | | |
| Berkeley | BERKELEY HIGH | | | | | | | | 1.612381 |
| Fremont | HORNER (JOHN M.) JUNIOR HIGH | 0.000000 | 1.085714 | 0.432787 | | | | | |
| | KENNEDY (JOHN F.) HIGH | | | | 0.426829 | 0.826087 | 0.947059 | 2.525000 | |
| Hayward | BRET HARTE MIDDLE | 0.000000 | 2.471429 | 2.508333 | | | | | |
| | HAYWARD HIGH | | | | 37.000000 | 10.225000 | 0.716071 | 2.177778 | |
| Newark | NEWARK JUNIOR HIGH | | 0.558511 | 0.551000 | | | | | |
| Oakland | CASTLEMONT SENIOR HIGH | | | | 1.871429 | 2.075000 | 2.178571 | 8.950000 | |
| | HAVENSCOURT MIDDLE | 0.647826 | 0.451667 | 0.291667 | | | | | |
| | OAKLAND TECHNICAL SENIOR HIGH | | | | 30.850000 | 2.375000 | 0.751923 | 0.430000 | |
| | SIMMONS (Calvin) MIDDLE | 1.175000 | 1.277778 | 0.878571 | | | | | |
| | SKYLINE HIGH | | | | 3.079167 | 2.142857 | 1.452778 | 4.510000 | |
| West | HELMS MIDDLE | | | | | | | | 0.874026 |
| Contra | PORTOLA JUNIOR HIGH | | | | | | | | 0.817460 |
| Costa | RICHMOND HIGH | | | | 0.781250 | 0.745313 | 1.600000 | 2.164286 | |

Note: Shading indicates that responses from all grades in a school were weighted equally.

Table 14: 2002-03 Weights for 5% Sample

| District | School | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Weighting by School |
|----------|----------------------------------|----------|-----------|----------|----------|----------|----------|----------|------------------------|
| Alameda | WOOD (WILL C.) MIDDLE | | | | | | | | 0.713636 |
| Berkeley | BERKELEY HIGH | | | | 1.322414 | 1.770833 | 0.710169 | 1.235484 | |
| | M.L. KING MIDDLE | | | | | | | | 0.821429 |
| Fremont | HORNER (JOHN M.) JUNIOR HIGH | | 0.894643 | 0.817857 | | | | | |
| | KENNEDY (JOHN F.) HIGH | | | | 0.467073 | 1.020588 | 3.220000 | 0.422581 | |
| Hayward | BRET HARTE MIDDLE | | 0.557407 | 0.503226 | | | | | |
| | HAYWARD HIGH | | | | 1.352500 | 0.956667 | 0.868966 | 1.276471 | |
| Newark | NEWARK JUNIOR HIGH | | 0.670238 | 1.030000 | | | | | |
| Oakland | CASTLEMONT SENIOR HIGH | | | | 1.971875 | 0.551000 | 0.750000 | 0.816667 | |
| | HAVENSCOURT MIDDLE | 0.787500 | 11.600000 | 0.477500 | | | | | |
| | OAKLAND TECHNICAL SENIOR HIGH | | | | 1.613158 | 1.532353 | 1.240000 | 0.975000 | |
| | SIMMONS (Calvin) MIDDLE | 0.553125 | 0.713043 | 0.885000 | | | | | |
| | SKYLINE HIGH | | | | | | | | 1.464474 |
| West | HELMS MIDDLE | 0.483871 | 1.153846 | 1.279412 | | | | | |
| Contra | PORTOLA JUNIOR HIGH | 0.248333 | 0.850000 | 1.185294 | | | | | |
| Costa | RICHMOND HIGH | | | | 1.261905 | 0.888000 | 1.293750 | 0.696000 | |

Note: Shading indicates that responses from all grades in a school were weighted equally.

Appendix D: Margin of Error

Statistics and sampling theory rely on the idea that as successive samples are drawn from a population, researchers will be able to estimate population parameters with more precision. With surveys, we are largely concerned with the ‘margin of error.’ A survey’s margin of error tells us within what range we would expect a population estimate to fall if we surveyed over and over again. For example, if researchers report a margin of error of 2% and announce that the number of people that will vote for a ballot proposition is 29%, we can say that if surveys were done over and over 95% of the time we would find that between 27 and 31% of voters support the proposition.

To calculate the margin of error, the researcher must choose a confidence interval. We have chosen a 95% confidence interval. This is a standard choice and involves a tradeoff between Type I (rejecting the null hypothesis when it is true) and Type II (accepting null hypothesis when it is false) errors. Calculating the margin of error also requires knowledge of the standard deviation of the estimated parameter, the form for this is known. To calculate the standard deviation, we need to estimate the proportion. However, it is simple to assume that 50% of the population will answer the question. This assumption maximizes our margin of error. The resulting formula is:

$$\text{Margin of error} = z_{\alpha/2} \sqrt{\frac{p(1-p)}{n}}, \text{ where } z_{\alpha/2} = 1.96 \text{ and } p = 0.5$$

Substituting into that formula for the 2002 and 2003 survey yields a margin of error of $\pm 3\%$ in each year. For example, we report that the proportion taking the bus to school in 2002 is 29%. This means that we can say that the true population value lies between 26 and 32%.

Because we are also very interested in comparing the 2002 and 2003 surveys, we must also consider the margin of error for differences in proportions. The logic behind this calculation is very similar to what is presented above. The formula for margin of error in this case is:

$$\text{Margin of error} = \pm z_{\alpha/2} \sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}, \text{ where } z_{\alpha/2} = 1.96 \text{ and } p_1 = p_2 = 0.5$$

This suggests that the margin of error for differences in proportions is $\pm 4\%$. For example, our survey shows a 2% increase between 2003 and 2002 in bus ridership for the trip home. Given our margin of error, we cannot conclude that this increase is significantly different from zero. Instead, we can say that the true population value for the change in afternoon bus ridership is between -2 and 6%.

It is important to remember that the survey’s margin of error is entirely dependent on the sample population being considered. The figures presented above reflect the entire sample. However, for certain analyses we restricted the sample, i.e. to include only bus pass holders or only low-income students. In those cases, the margin of error will be higher. The following table notes the margin of error for differences in proportion for different population groups.

| Population Group | Margin of Error for Changes between 2002 & 2003 |
|---------------------------|-------------------------------------------------|
| All Students | ±4% |
| Middle School Students | ±6% |
| High School Students | ±6% |
| Low-Income Students | ±6% |
| Non-Low Income Students | ±6% |
| Free Bus Pass Holders | ±8% |
| Non Free Bus Pass Holders | ±5% |