

TRANSLINK FOR TRANSIT ORIENTED DEVELOPMENT

Pilot Project Evaluation and Recommendations for Future Implementation



prepared for

The Metropolitan Transportation Commission

Valerie Knepper, Project Manager



prepared by

Cambridge Systematics, Inc.



with

Corey, Canapary & Galanis



June 2010

CAMBRIDGE
SYSTEMATICS

final report

TransLink for TOD Pilot Project

Evaluation and Lessons Learned

prepared for

Valerie Knepper, Metropolitan Transportation Commission

prepared by

Cambridge Systematics, Inc.
555 12th Street, Suite 1600
Oakland, CA 94607

with

Corey, Canapary & Galanis Research

date

June 2010

Table of Contents

Executive Summary	ES-1
1.0 Introduction	1-1
1.1 Project Background	1-1
1.2 Report Organization.....	1-2
1.3 Data Sources	1-3
2.0 T4T Program Overview	2-1
2.1 Distribution of Transit Passes	2-1
2.2 Participating Developments.....	2-4
2.3 Characteristics of Site Residents and TransLink® for TOD Participants	2-9
3.0 Project Impact: Participant Travel Behavior	3-1
3.1 Transit Usage.....	3-1
3.2 Automobile Trip and Greenhouse Gas Impacts.....	3-6
4.0 Mobility for Low-Income Populations	4-1
4.1 Cost Savings	4-1
4.2 Additional Trips by Trip Type.....	4-2
4.3 Visiting New Destinations.....	4-3
5.0 Participation and Satisfaction	5-1
5.1 Registration Rates	5-1
5.2 Activation Rates	5-4
5.3 Participant Satisfaction	5-4
5.4 Technical Problems Encountered	5-5
5.5 Continuation of TransLink Use	5-6
6.0 Program Expansion and Implementation Options.....	6-1
6.1 Options for Structuring Residential Transit Subsidy Programs	6-1
6.2 Implementing Transit Pass Programs.....	6-2
6.3 Additional Considerations in Program Implementation.....	6-8

7.0	Summary and Recommendations	7-1
7.1	Summary	7-1
7.2	Recommendations	7-3
7.3	Conclusion	7-6
A.	Background Research and Case Studies of Residential Transit Pass Programs	A-1
A.1	Free Transit Pass Programs and Trip Reduction.....	A-1
A.2	Case Studies of Residential Transit Pass Programs	A-2
B.	Demographic Characteristics of Participating Developments	B-1
C.	T4T Program Evaluation Questionnaire	C-1
D.	AC Transit Residential Pass Pricing Brochure	D-1

List of Tables

Table 1.1	Data Sources	1-3
Table 2.1	Participating Transit-Oriented Developments.....	2-6
Table 3.1	Respondent-Specified Automobile Trips Diverted to AC Transit per Week	3-9
Table 3.2	Estimated Automobile Trips Diverted to AC Transit per Week.....	3-10
Table 3.3	Average Trip Lengths for the San Francisco Bay Area	3-10
Table 3.4	San Francisco Bay Area CO ₂ Emission Rates	3-11
Table 3.5	Estimated Weekly GHG Savings from T4T Pilot Project.....	3-12
Table 3.6	Estimated Total GHG Savings from T4T Pilot Project.....	3-12
Table 3.7	Estimated Forfeited AC Transit Revenue during T4T Program.....	3-13
Table 3.8	Comparison of Cost-Effectiveness in Greenhouse Gas Reduction	3-14
Table 4.1	Avoided AC Transit Expenses for Low-Income Participants.....	4-1
Table A.1	Mode Shifts Attributed to Free Transit Pass Programs	A-2

List of Figures

Figure 2.1	Photo: Pass Promotional Event	2-1
Figure 2.2	Photo: Site Resident Receiving Customized Transit Information	2-2
Figure 2.3	Example Customized AC Transit Map	2-3
Figure 2.4	Map of Pilot Project Locations.....	2-5
Figure 2.5	Participating Development Summary Statistics	2-7
Figure 2.6	The Uptown development in Oakland	2-8
Figure 2.7	T4T Survey Respondent Household Size by Development Type	2-9
Figure 2.8	T4T Survey Respondent Age by Development Type	2-10
Figure 2.9	Vehicle Ownership among T4T Participants	2-11
Figure 2.10	Percent of T4T Survey Respondents Using AC Transit Five or More Times a Week (before T4T Program)	2-12
Figure 2.11	Ethnicity of T4T Survey Respondents by Development Type.....	2-13
Figure 2.12	Ethnicity of T4T Survey Respondents Compared to Bay Area	2-13
Figure 3.1	AC Transit Use during the Free Pass Program Compared with before the Program	3-2
Figure 3.2	Respondents Using AC Transit Five or More Days per Week before and during T4T Program by Development Type.....	3-3
Figure 3.3	Respondents Reporting Never Using AC Transit before and during the T4T Program by Development Type	3-3
Figure 3.4	Use of Public Transit after T4T Program Compared to before by Average Vehicle Ownership.....	3-4
Figure 3.5	Reasons Cited for Taking Transit More after the T4T Program	3-5
Figure 4.1	Share of Induced Trips by Purpose and Development Type.....	4-2
Figure 5.1	Resident Registration Rates	5-2
Figure 5.2	Registration Rates by Development Size and Affordability	5-3
Figure 5.3	Registration Rates by Automobile Ownership	5-3
Figure 5.4	Rated Experience with Free TransLink Program	5-4
Figure 5.5	Frequency and Types of Problems Encountered.....	5-5
Figure 5.6	Action Taken after Encountering Technical Problem	5-6

Figure 5.7 Top Ten Reasons Cited for Continued Use of TransLink5-7

Figure 5.8 Top Ten Reasons Cited for Not Continuing Use of TransLink5-7

Figure B.1 Average TOD Household Size B-2

Figure B.2 TOD Automobile Ownership B-3

Figure B.3 Frequency of Each Mode Choice before the T4T Program..... B-4

Figure B.4 TOD Free Parking Availability B-5

Figure B.5 TOD Participation in Car-Sharing Programs B-6

Executive Summary

In a pilot project beginning in June 2008, the Metropolitan Transportation Commission (MTC) partnered with the Alameda-Contra Costa Transit District (AC Transit) to provide free electronic transit passes to residents of select transit-oriented development (TOD) communities in the East Bay. About 1,500 residents received free, personalized TransLink® cards, allowing unlimited free access on the AC Transit bus system for six months to one year. Participants also received customized information about transit services in their area.

MTC intended the TransLink for TOD (T4T) pilot project to serve as “proof of concept” to promote further implementation of transit pass programs at transit-oriented developments in the region. This report assesses program impacts on:

- Automobile trips and greenhouse gases;
- Mobility or quality of life of low-income households; and
- Customer satisfaction with the TransLink electronic pass.

Program results are based on a survey of about 500 program participants. Key findings include:

- **T4T affected the travel behavior of about one-half of respondents.** About one-half of survey respondents reported using AC Transit more during the free pass period than they had before.
- **T4T reduced automobile trips.** The T4T program reduced automobile trips among respondents by approximately one trip per person per week.
- **T4T introduced new participants to transit.** Among survey respondents in market rate developments, there was a 23 percent increase in people who had tried AC Transit.
- **T4T resulted in greater public transit use after the free pass period ended.** One of the top reasons cited for higher public transit usage was convenience and a greater level of familiarity with AC Transit’s routes and schedules.
- **T4T reduced greenhouse gases.** T4T reduced an estimated five to 13 pounds of CO₂ per week per participant, equating to approximately 47 cents per pound of CO₂ reduced, which is in the middle range of cost-effectiveness based on comparison to a selection of strategies included in national studies.
- **Overall satisfaction rates with the program were high** – 73 percent of respondents rated satisfaction with the program as very high or excellent.
- **A significant share of respondents indicated purchasing their own TransLink passes.** About 23 percent of participants in market-rate developments added their own funds to the TransLink card after the expiration of the

free program. These individuals cited the convenience of using an electronic pass rather than having to have exact change.

Key suggestions to support future implementation of similar programs include:

Overall

- Cities and other agencies seeking to maximize reductions of greenhouse gasses should focus the program on vehicle owners.
- Consider using short-term pass promotions as a marketing tool.
- Consider targeting “priority development areas” with unused transit capacity.
- Ensure programs are priced appropriately.

For MTC

- Consider developing a monitoring and analysis program to support implementation of transit pass programs in the Bay Area.
- Consider opportunities to offer transit pass promotions in conjunction with Clipper card distribution.

For Cities, Developers, and Educational Institutions

- Transit agencies can consider developing and marketing standardized pricing schemes for universal pass programs.
- Cities and developers can work together to implement pass programs.
- Congestion management agencies can consider working with multiple jurisdictions to implement transit pass programs along a corridor.
- Educational institutions can consider implementation of universal transit pass programs along with complementary travel demand management strategies.

Conclusion

The TransLink® for Transit-Oriented Development pilot project has demonstrated that a combination of free convenient transit passes and custom marketing has positive short- and longer-term impacts on travel behavior. A number of specific strategies can be pursued to build on this pilot project, engaging the efforts of various public and private sector entities, including the regional agencies, transit agencies, cities, developers, employers, and schools. When implemented in the right places with the right policies and procedures, a refined program of this nature can be a useful tool in the campaign for higher use of transit and reduced vehicle miles traveled and greenhouse gases.

1.0 Introduction

1.1 PROJECT BACKGROUND

In a pilot project beginning in June 2008, the Metropolitan Transportation Commission (MTC) partnered with the Alameda-Contra Costa Transit District (AC Transit) to provide free electronic transit passes to residents of select transit-oriented development (TOD) communities in the East Bay. Participants received free, personalized TransLink® cards, allowing unlimited free access on the AC Transit bus system for six months to one year. Passes were issued to participants in several phases beginning in June 2008 and ending between April and November 2009.

MTC intended the TransLink for TOD (T4T) pilot project to serve as “proof of concept” to promote further implementation of transit pass programs at transit-oriented developments in the region. This report assesses program impacts on:

- **Automobile trips and greenhouse gases.** Almost all cities currently require developers to provide a standard amount of parking for new developments without attention to the possibility of lower-cost strategies, such as provision of free transit passes to reduce parking demand. This evaluation quantifies the impact of the free pass program on automobile trips at participating developments. The results may be used to support arrangements whereby developers of future TOD projects could qualify for waivers of some parking requirements in exchange for covering the costs of discounted passes.
- **Mobility or quality of life of low-income households.** The free pass program has the potential to increase the mobility of low-income populations. This evaluation quantifies the impact of the program on mobility at the participating developments.
- **Customer satisfaction with the TransLink electronic pass.** This evaluation identifies reactions to the electronic TransLink card and explores technical issues with the pass that arose during the free pass pilot program.

Transit Passes as a Tool to Reduce Greenhouse Gas Impacts

Recent legislation in California (SB 375 and AB 32) set ambitious goals for greenhouse gas reduction.

To help achieve these goals, many communities in the Bay Area are seeking effective methods of reducing greenhouse gas emissions from transportation. This document explores the effectiveness of transit pass programs as a means of reducing vehicle trips and greenhouse gases, and provides suggestions for implementation.

Additionally, this evaluation considers possibilities for expanding the T4T program throughout the Bay Area and provides recommendations for program expansion. MTC is particularly interested in developing a program that would be implemented between local cities and developers.

1.2 REPORT ORGANIZATION

This report is report is organized as follows:

- **Section 2.0, Program Participants** identifies the TOD communities that MTC selected to participate in the project and describes the socioeconomic characteristics of program registrants.
- **Section 3.0, Participant Travel Behavior** describes the effects of the T4T program on transit use, private vehicle use, and associated greenhouse gas impacts as indicated by follow-up survey respondents.
- **Section 4.0, Mobility for Low-Income Populations** describes the effect of the T4T program in terms of mobility and cost savings for low-income groups.
- **Section 5.0, Participation and Satisfaction** analyzes the characteristics of T4T program participants and reports their satisfaction with the program as well as technical issues encountered with the TransLink cards.
- **Section 6.0, Implementation Options** describes possible roles cities, transit agencies, congestion management agencies, educational institutions, and developers can play in implementing future universal pass programs, along with relevant research and case studies.
- **Section 7.0, Summary and Recommendations** summarizes program findings and provides recommendations for improving the program in the future.
- **Appendix A** provides case studies of the effects of comparable free transit pass programs.
- **Appendix B** provides additional analysis of the demographic characteristics of residents of T4T developments.
- **Appendix C** provides a copy of the follow-up survey used to gauge program effectiveness.
- **Appendix D** provides a copy of AC Transit's marketing materials for its residential transit pass program.

1.3 DATA SOURCES

Data presented in this report comes from several sources, shown in Table 1.1. All information about the effects of the program on travel behavior comes from the post-survey, and relies on participants' recollection of their trip-making patterns before, during, and after the free pass period. The pre-survey asked participants about their frequency of transit usage, but since it was administered to all site residents, it is not directly comparable to the post-survey, which was only administered to program participants.

Table 1.1 Data Sources

Data Source	Population	Data Collected	Method
Pre-survey	Residents of participating developments	Demographic characteristics (vehicle ownership, transit usage, household size)	On-site surveys (administered by MTC and Corey, Canapary & Galanis)
Post-survey	T4T Card Users	Demographic characteristics; before-and-after transit and auto usage	Telephone survey (administered by Corey, Canapary, and Galanis)
Usage patterns	T4T Card Users	Number of trips per month per user at participating developments	Card data reported by AC Transit

2.0 T4T Program Overview

2.1 DISTRIBUTION OF TRANSIT PASSES

Twenty-four developments representing a population of 3,522 individuals participated in the T4T program. MTC and AC Transit organized promotional events at each development to publicize the program. Figure 2.1 shows a picture of one of the promotional events. Fifteen hundred (1,502) residents total were registered for the free TransLink pass at the events.

Figure 2.1 Photo: Pass Promotional Event



In addition to distributing the free passes, MTC and AC Transit staff also used the events as an opportunity to help residents get to know the AC Transit services in their area. Customized service maps were provided and staff was available to answer questions. Figure 2.2 shows a one-on-one consultation between a resident and an event staff person. Figure 2.3 provides an example of one of the customized maps.

Figure 2.2 Photo: Site Resident Receiving Customized Transit Information



Figure 2.3 Example Customized AC Transit Map



Bus Schedule Summary

NL - Transbay - Eastmont Transit Center to Transbay Terminal, San Francisco
 Weekdays, 5:25am-12:15am, every 15-30 minutes
 Weekends, 5:30am-12:05am, every 30 minutes

800 - Transbay All Nighter - Richmond BART to Market St. & Van Ness Ave., San Francisco
 Weekdays, 12:30am-5:35am, every 60 minutes
 Weekends, 12:20am-0:30am, every 30 minutes

1 - Berkeley BART to Bay Fair BART
 Weekdays, 3:30am-12:30am, every 15-20 minutes
 Weekdays, 5:45am-12:20am, every 20 minutes

1R - U.C. Berkeley campus to Bay Fair BART
 Weekdays, 6:10am-7:50pm, every 12 minutes

11 - Highland Ave. & Highland Way, Piedmont, to Diamond District, Oakland
 Weekdays, 6am-7:15pm, every 20-30 minutes
 Weekends, 7am-7pm, every 60 minutes

12 - MacArthur BART to Downtown Oakland
 Weekdays, 6am-7:15pm, every 20-30 minutes
 Weekends, 7:15am-7pm, every 30 minutes

15 - Berkeley BART to Downtown Oakland
 Weekdays and Weekends, 5:55am-9:40pm, every 20-30 minutes

18 - University Village, Albany, to Mortclair
 Weekdays, 5:28am-12:20am, every 15-30 minutes
 Weekends, 6:45am-12:05am, every 20 minutes

51 - Berkeley Amtrak to Broadway and Blanding Ave., Alameda
 Weekdays, 5:15am-12:20am, every 15-20 minutes
 Weekends, 5:25am-12:15am, every 15-20 minutes

72 - Hilltop Mall to Jack London Square
 Weekdays and Weekends, 5:07am-7:30am, every 30-60 minutes

72M - Point Richmond to Jack London Square
 Weekdays and Weekends, 5am-12:10am, every 30-48 minutes

72R - Contra Costa College to Jack London Square
 Weekdays, 6am-8pm, every 17 minutes

For personalized bus schedules:
 Call 511 for free and say "AC Transit"
 or call 510.839.2882

Online sites with detailed schedule and map information:
<http://tripplanner.transit.511.org/> and
<http://www.actransit.org/maps/>

2.2 PARTICIPATING DEVELOPMENTS

MTC selected a diverse range of apartments and condominiums throughout the East Bay region to participate in the T4T pilot project. To be eligible for selection, developments needed to meet several criteria reflecting characteristics of transit-oriented development:

- Close proximity to high-quality AC Transit service;¹
- High-density;
- Low parking ratios; and
- Responsive building site managers to support promotional events.

The 24 participating developments reflect a mix of rental versus owner-occupied units; market rate versus affordable (subsidized) housing; new versus established complexes; and family, disabled, and senior populations. Over one-third of the 2,000 units are available at below-market rates through affordable housing subsidies (all of the sites selected in Berkeley are low-income properties). With the exception of the Village at Town Center (El Cerrito) in Contra Costa County, all of the participating developments are located in Alameda County. Table 2.1 lists the locations and characteristics of the 24 participating communities and Figure 2.4 provides a map of the development locations.

MTC and AC Transit, in coordination with the site managers at each participating development, offered the free TransLink® passes to the residents of these developments (3,522 residents in total) during a series of promotional events in 2008. Between June and September of that year, approximately 1,500 residents enrolled in the program to receive free, personalized TransLink® passes. Residents of the below market rate (BMR) developments typically received one-year passes, while residents of market rate units generally received six-month passes.

¹ Proximity to transit other than AC Transit was not considered.

Figure 2.4 Map of Pilot Project Locations

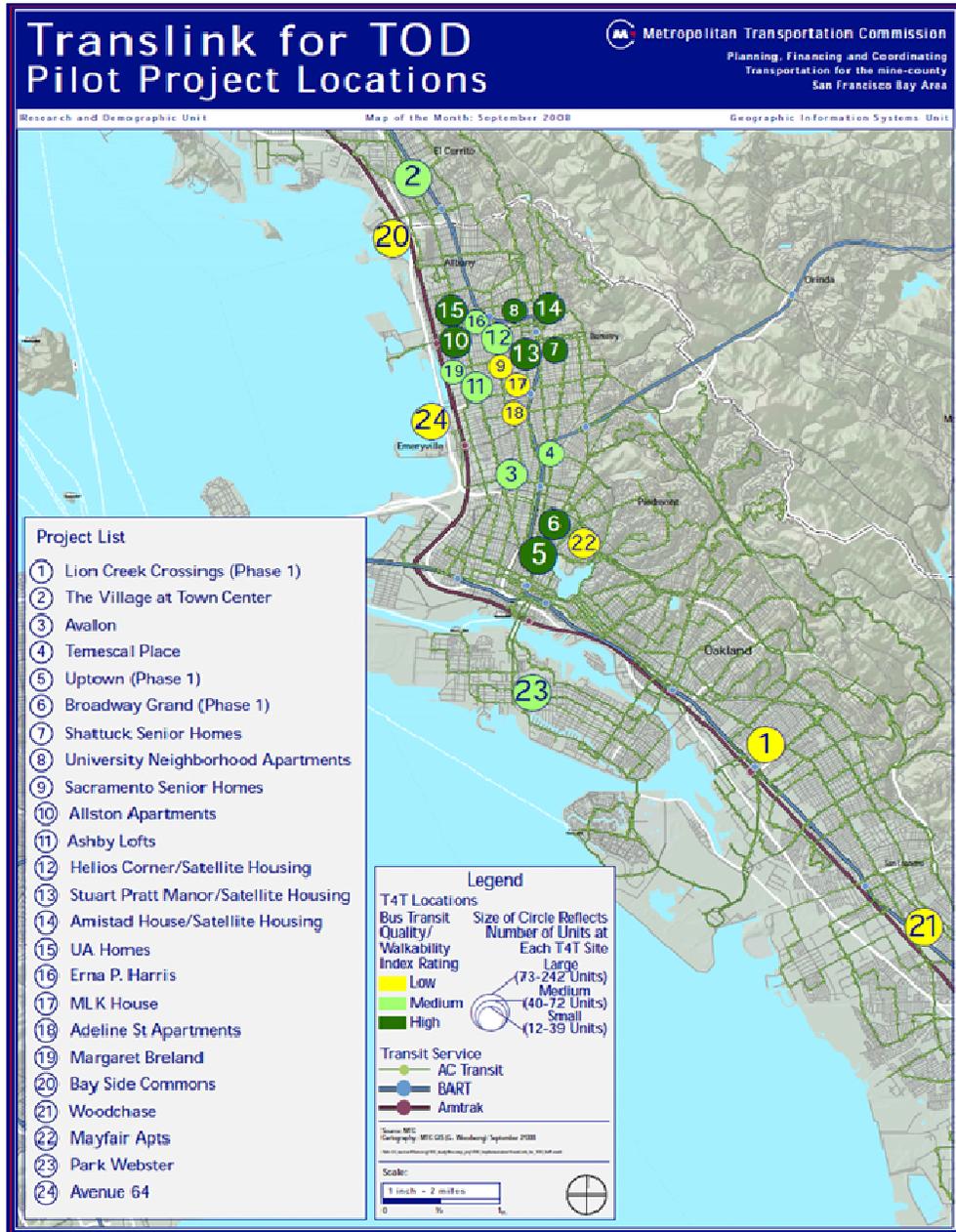


Table 2.1 Participating Transit-Oriented Developments

Development Name	City	Number of Units	Eligibility Requirement	Rent versus Own	Market versus Affordable	Program Length
Adeline Apartments	Berkeley	18	Disabled	Rent	Affordable	1 Year
Allston Apartments	Berkeley	48	Family	Rent	Affordable	1 Year
Amistad House	Berkeley	60	Senior	Rent	Affordable	1 Year
Ashby Lofts	Berkeley	53	Family	Rent	Affordable	1 Year
Avalon	Emeryville	67	Senior	Rent	Affordable	1 Year
Avenue 64	Emeryville	224	None	Rent	Market	6 Months
Bayside Commons	Albany	235	None	Mixed	Market	6 Months
Broadway Grand (Phase 1)	Oakland	60	None	Mixed	Market	1 Year
Erna P. Harris	Berkeley	32	Disabled	Rent	Affordable	1 Year
Helios Corner	Berkeley	72	Senior	Rent	Affordable	1 Year
Lion Creek Crossings	Oakland	115	Family	Rent	Affordable	1 Year
Margaret Breland	Berkeley	27	Senior	Rent	Affordable	1 Year
Mayfair Apartments	Oakland	60	None	Rent	Market	6 Months
MLK House	Berkeley	12	Disabled	Rent	Affordable	1 Year
Park Webster	Alameda	242	None	Own	Market	6 Months
Sacramento Senior Homes	Berkeley	39	Senior	Rent	Affordable	1 Year
Shattuck Senior Homes	Berkeley	27	Senior	Rent	Affordable	1 Year
Stuart Pratt Manor	Berkeley	44	Senior	Rent	Affordable	1 Year
Temescal Place	Oakland	25	None	Own	Market	1 Year
The Village at Town Center	El Cerrito	158	None	Rent	Market	1 Year
UA Homes	Berkeley	72	Disabled	Rent	Affordable	1 Year
UNA	Berkeley	27	Family	Rent	Affordable	1 Year
Uptown (Phase 1)	Oakland	95	None	Rent	Market	1 Year
Woodchase	San Leandro	186	None	Rent	Market	6 Months

Note: Some of the developments indicated as being market rate (the Village at Town Center and the Uptown) are majority market rate but contain some below-market-rate units.

Figure 2.5 compares the developments. Most developments (83 percent) were comprised of rental units. While the program was intended to include a larger proportion of buyers, the rate of purchasing units fell precipitously with the national housing market crash during the program, undermining the incorporation of new purchase of condo units. It was also intended to compare the impact of the program on already occupied units versus originally selling or leasing up; again the falling market precluded this analysis. About two-thirds of the developments were below-market-rate units for the disabled, elderly, or families; however, due to significant size differences among the developments, about an equal number of market rate and below-market-rate residents participated in the program.

Figure 2.5 Participating Development Summary Statistics



Note: Some of the developments indicated as being market rate (the Village at Town Center and the Uptown) are majority market rate but contain some below-market-rate units.

Transit Quality and Walkability

To compare the quality of transit service operating near the participating communities, MTC assigned a transit score to each development based on proximity to AC Transit services.² Similarly, a “walkability” score was assigned to each development based on proximity to nearby amenities, such as transit, retail, restaurants, schools, and parks.³ In general, a walkability score above 70 (on a scale of 1 to 100) indicates that there are enough nearby amenities to accomplish most errands without owning a car. All developments except two (Woodchase in San Leandro and Lion Creek Crossings in Oakland) had a walkability score of 70 or above.

Uptown and Broadway Grand, both market rate developments located in Oakland, had the highest transit scores, followed closely by Amistad House, an affordable senior housing facility in Berkeley. Figure 2.6 shows a picture of the Uptown. Lion Creek Crossings in Oakland received the lowest transit score. However, all participating developments had good access to AC Transit, as was required for program participation.

Figure 2.6 The Uptown development in Oakland



² To develop the AC Transit score, points were assigned as follows: one point for each local bus stop within one-half mile, two points for each express and TransBay bus within one-half mile, one point for all-night service within one-half mile, one point for school service within one-half mile, two points for each local bus stop within one-quarter mile, and four points for each express and TransBay bus within one-quarter mile. Proximity to transit other than AC Transit was not considered.

³ Walk score calculated on a scale of 1 to 100 using <http://www.walkscore.com/>.

2.3 CHARACTERISTICS OF SITE RESIDENTS AND TRANSLINK® FOR TOD PARTICIPANTS

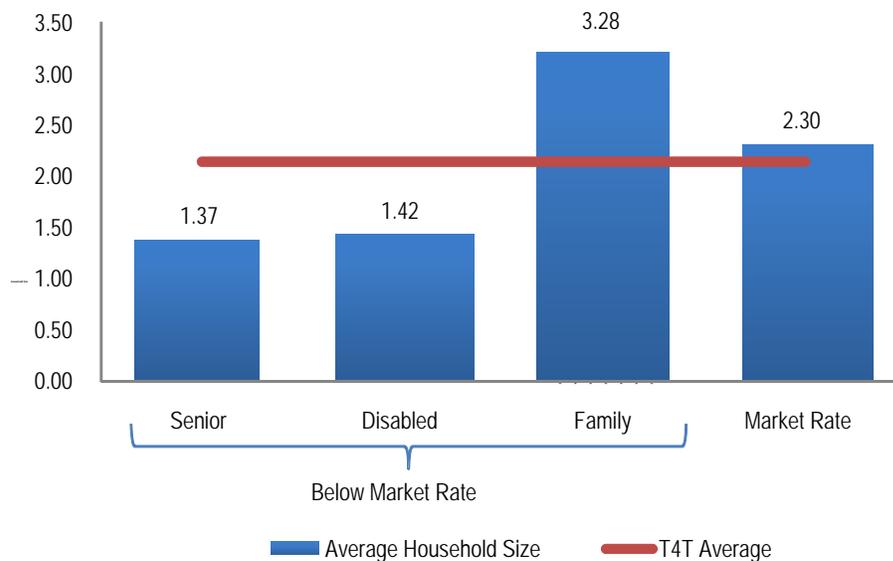
Two surveys were conducted to obtain sociodemographic characteristics. One (the “pre-survey”) was administered prior to the start of the program to residents at participating sites where the T4T pass was advertised. Another (the “post-survey”) was administered after the program only to those who registered for the pass. Although these are slightly different groups, their demographic characteristics are very similar.⁴

Demographic characteristics are summarized below. All data presented below is drawn from the post-survey, and reflect the characteristics of survey respondents. Appendix B contains analysis of demographic data in the pre-survey.

Household Size

The average T4T respondent household size was 2.14 persons per household, compared to 2.73 in the Bay Area as a whole. As shown in Figure 2.7, household sizes were highest among affordable family developments and lowest among senior developments.

Figure 2.7 T4T Survey Respondent Household Size by Development Type

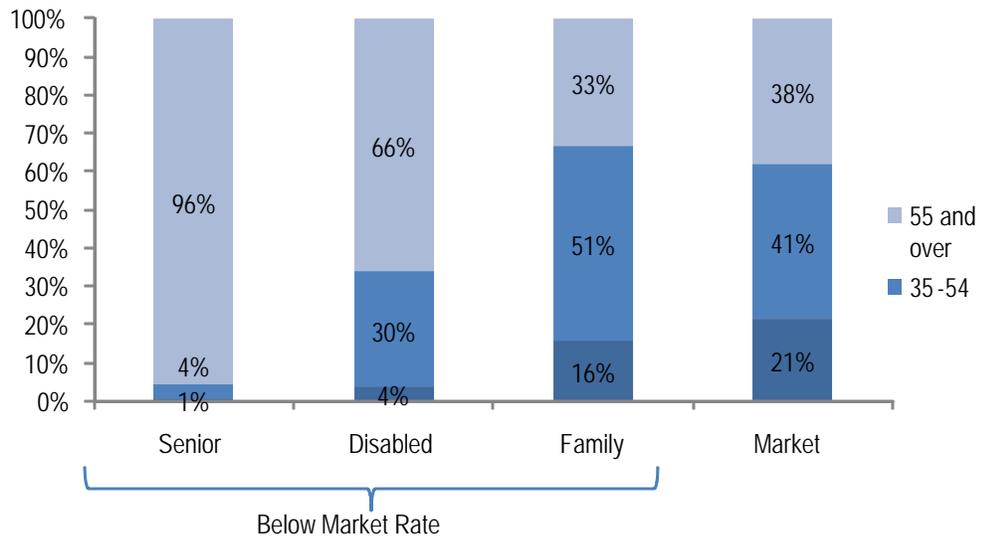


⁴ The sample distribution of T4T residents participating in the post-survey was within 10 percent of the pass distribution by site typology. Therefore, for the purposes of our analysis, the post-survey data reasonably approximate the socioeconomic and transit use characteristics of the T4T participants as a whole.

Age

Residents of market rate housing tended to be younger than other groups. As shown in Figure 2.8, about 21 percent of those in market rate housing were aged 18-34, compared to only one and four percent in senior and disabled housing, respectively. The age distributions of affordable family and market rate housing were similar for the adult populations (over 18), but the affordable family developments had more children (under 18) in the households.

Figure 2.8 T4T Survey Respondent Age by Development Type



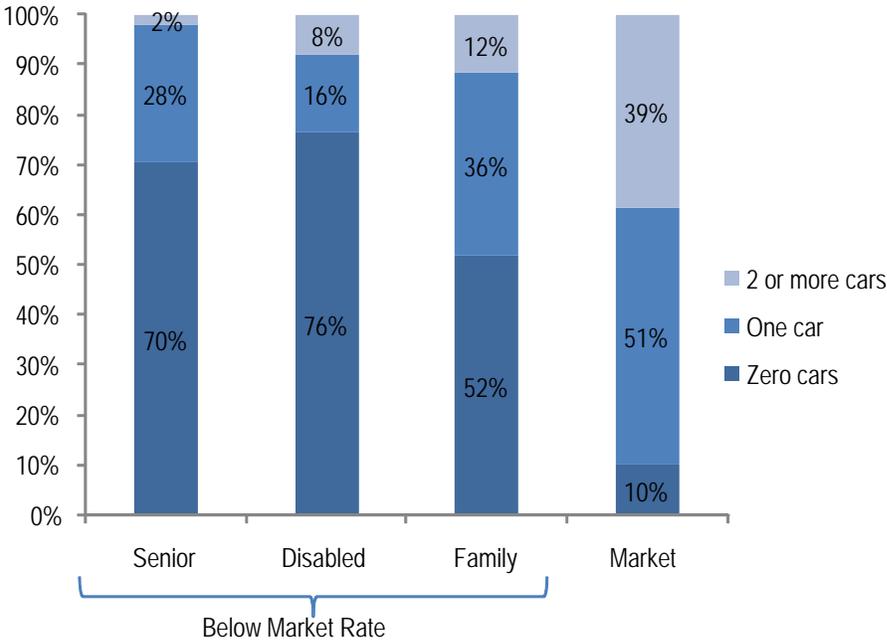
Note: Excludes those who refused to answer.

Vehicle Ownership

Vehicle ownership among survey respondents was much lower than the Bay Area average. About 35 percent of respondents reported not owning a car, nearly four times the regional average. At some developments, as many as 94 percent of respondents reported not owning a vehicle. As shown in Figure 2.9, vehicle ownership was lowest at senior and disabled developments and highest at market rate developments. At market rate developments, the share owning zero vehicles was 10 percent, slightly higher than the Bay Area average of nine percent.⁵

⁵ Metropolitan Transportation Commission, San Francisco Bay Area Regional Demographic and Travel Characteristics, Revised September 2006.

Figure 2.9 Vehicle Ownership among T4T Participants



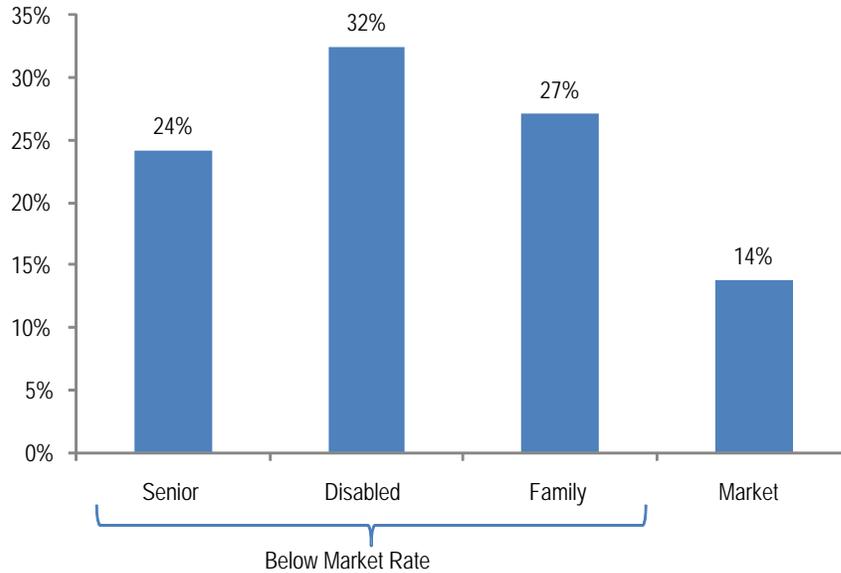
Note: Excludes those who refused to answer.

Transit Usage

Transit usage was highest among senior, disabled, and family developments and lowest among market rate developments. As shown in Figure 2.10, about 30 percent of below-market-rate residents reported using AC Transit five or more times a week before the free pass period, as compared to 14 percent of market-rate residents.

Among market rate residents, 35 percent reported never having tried AC Transit, as compared to 8, 11, and 25 percent for disabled, family, and senior development residents, respectively.

Figure 2.10 Percent of T4T Survey Respondents Using AC Transit Five or More Times a Week (before T4T Program)

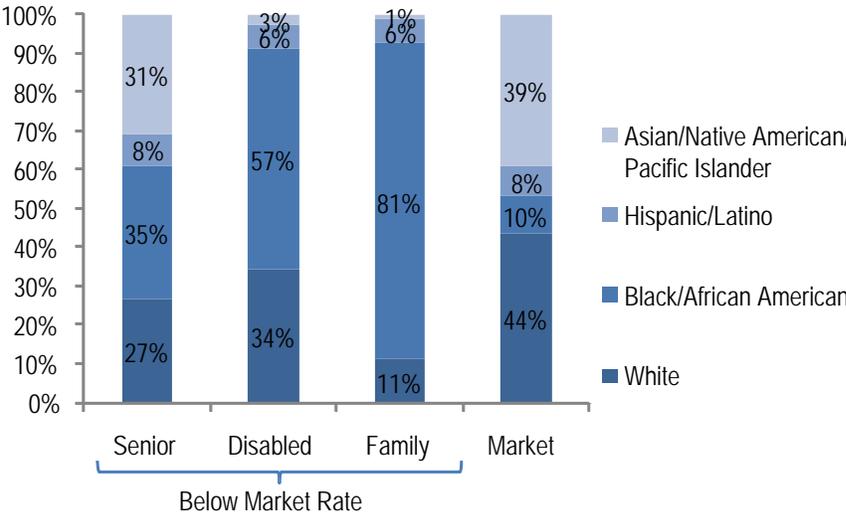


Ethnicity

Figure 2.11 indicates ethnicities by type of development. Market-rate developments were dominated by whites and Asians (total of 82 percent), as were senior developments (total of 58 percent). Family and disabled developments were majority African American (81 and 57 percent, respectively).

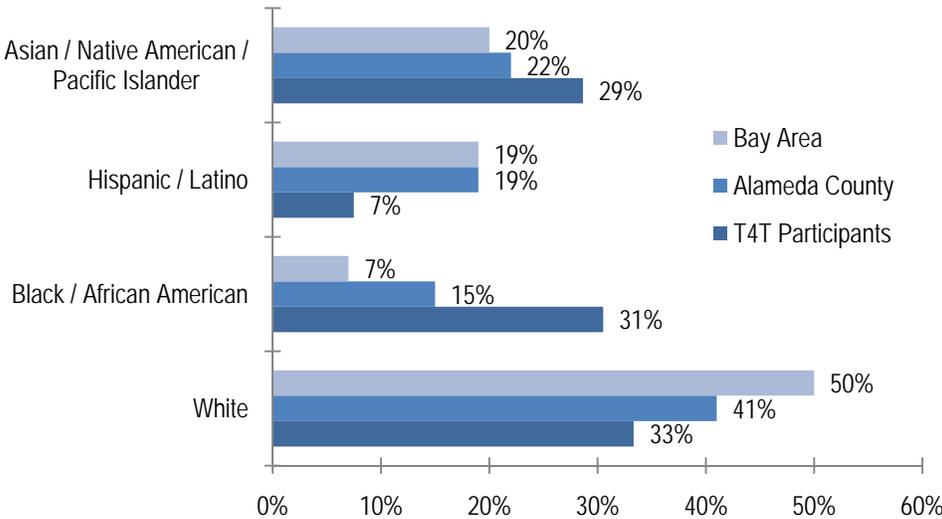
Overall, ethnic diversity in the T4T developments was greater than for Alameda County and the Bay Area as a whole. As shown in Figure 2.12, about 30 percent of T4T survey respondents were African-American compared to 15 percent in Alameda County as a whole; about 30 percent were Asian compared to about 20 percent in Alameda County as a whole.

Figure 2.11 Ethnicity of T4T Survey Respondents by Development Type



Note: Excludes those who refused to answer. For simplicity, excludes other race categories (five respondents). Participants were allowed to select multiple ethnicities; chart is based on first selection.

Figure 2.12 Ethnicity of T4T Survey Respondents Compared to Bay Area



Note: Excludes those who refused to answer. For simplicity, excludes other race categories (five respondents). Participants were allowed to select multiple ethnicities; chart is based on first selection.

3.0 Project Impact: Participant Travel Behavior

One of the goals of the T4T program was to influence participant's travel behavior to encourage greater transit usage and to reduce the number of automobile trips and associated greenhouse gases. This section analyzes program results in each of these areas, and evaluates whether any changes in travel behavior during the program continued after the free pass program ended. All the analysis in this section and the following sections is based on responses collected in the post-program survey, with the exception of a brief section summarizing the results of electronic pass usage data from AC Transit.

3.1 TRANSIT USAGE

Key evaluation questions relating to transit usage are:

- Did T4T program participants use AC Transit more during the free pass program than before?
- To what extent did participants continue to use transit more frequently after the free pass period expired? What factors influenced their choices?
- What demographic characteristics correlated with higher transit usage during and after the free pass period?

AC Transit Usage Patterns during the Free Pass Period

Overall, almost one-half (47 percent) of the surveyed participants indicated that they used AC Transit more during the free T4T program than they did before the program began; another 45 percent said they used AC Transit about the same amount; and seven percent said they used AC Transit less. As shown in Figure 3.1, these percentages varied only slightly depending on whether the participant was living in a below-market-rate or market-rate development.

Figure 3.1 AC Transit Use during the Free Pass Program Compared with before the Program

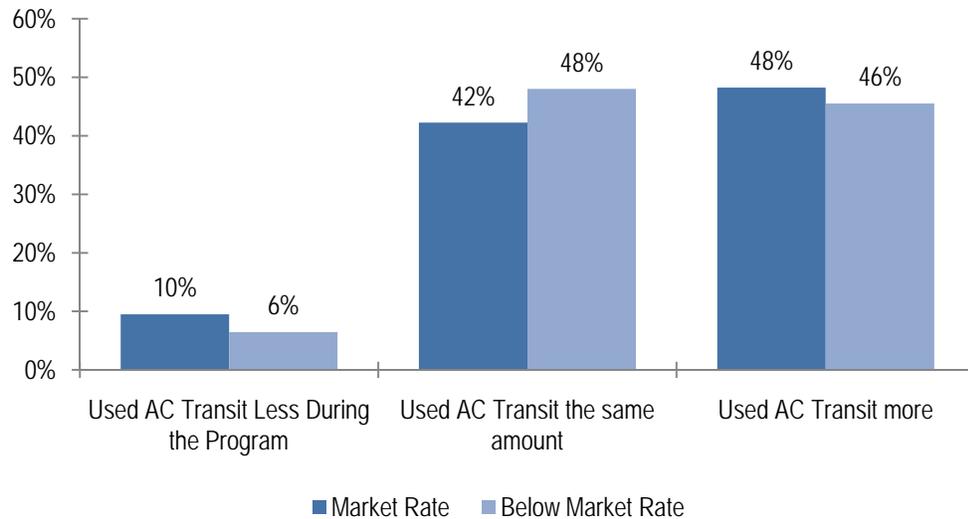


Figure 3.2 compares the share of participants who said they used AC Transit five or more days a week before the free pass period and during the free pass period. The figure illustrates that residents of the below-market-rate developments had high rates of frequent AC Transit usage before the program, and that the rate of frequent usage increased during the program. The share of market-rate users taking AC Transit frequently also increased. The following are key findings:

- The number of below-market-rate respondents taking AC Transit five or more times a week increased by about 50 percent (from 26 percent before the program to 39 percent during the program).
- The number of market-rate respondents taking AC Transit five or more days a week increased by about 80 percent (from 14 percent before the program to 25 percent during the program).

Figure 3.3 illustrates the share of respondents who reported never having tried AC transit before and during the program. For every type of development, the share of those who reported never trying transit fell during the free pass period. The following are key findings:

- The number of below-market-rate respondents who had never tried AC Transit fell by 24 percent during the program (from 18 percent before the program to 14 percent during).
- The number of market-rate respondents who had never tried AC Transit fell by 42 percent during the program (from 35 percent before to 20 percent during).

Figure 3.2 Respondents Using AC Transit Five or More Days per Week before and during T4T Program by Development Type

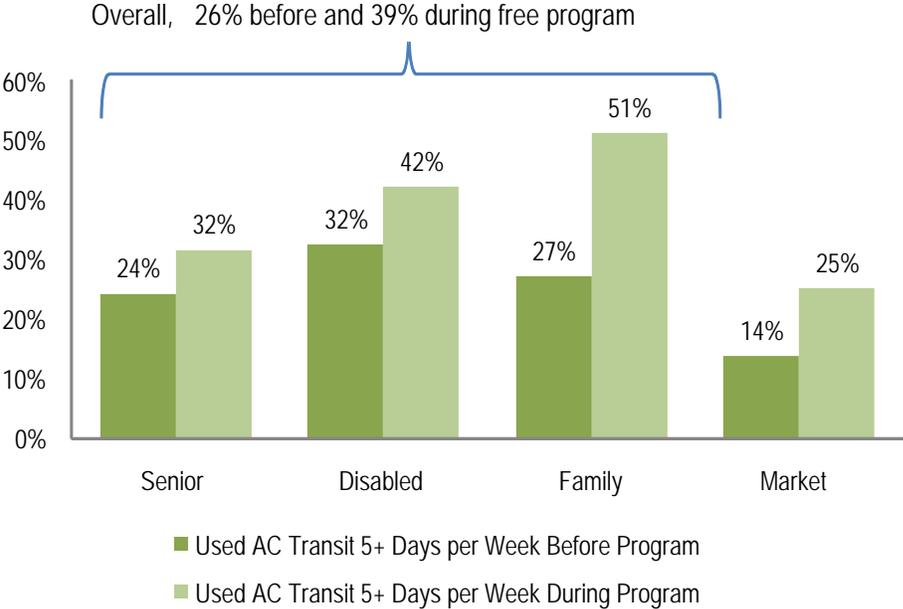
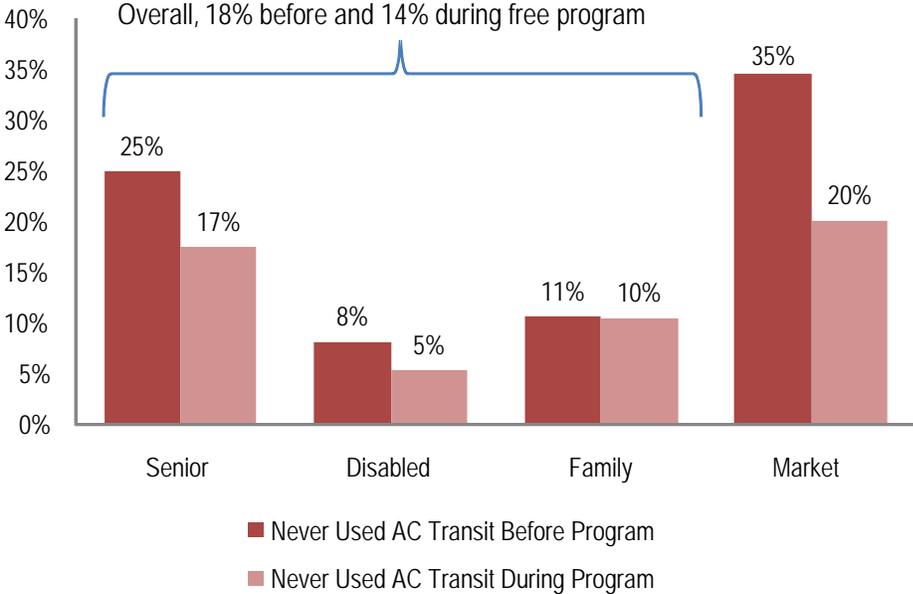


Figure 3.3 Respondents Reporting Never Using AC Transit before and during the T4T Program by Development Type



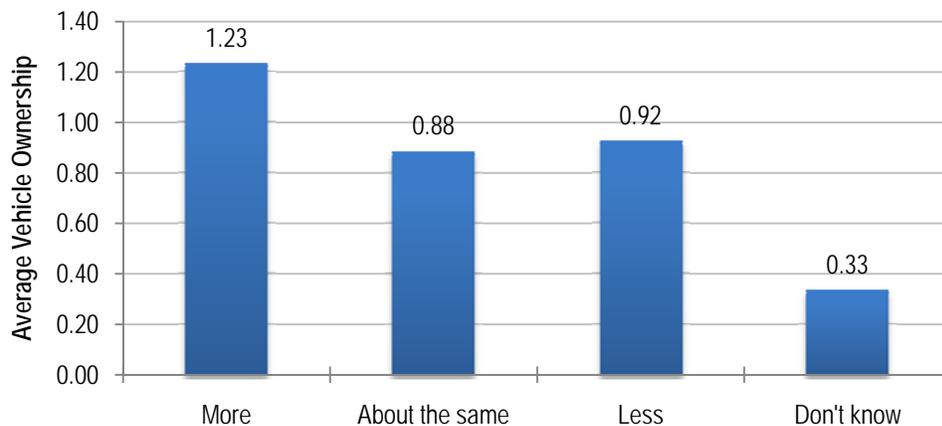
Post-Program Transit Usage Patterns

The participant survey included a question on overall levels of public transit usage after the free pass period ended. Twenty-seven percent of respondents living in market-rate housing, and 15 percent of those in below-market-rate housing reported using public transit more after the program ended than before it began.⁶ The following characteristics were associated with greater use of public transportation after the program began than before:

Younger individuals. Those aged 25-34 reported using public transit more after the program ended than before at higher rates than other age groups.

Higher vehicle ownership. Those who used transit more after the program than before had an average of 1.23 vehicles per household. Those who used transit about the same or less had lower vehicle ownership, as shown in Figure 3.4.

Figure 3.4 Use of Public Transit after T4T Program Compared to before by Average Vehicle Ownership



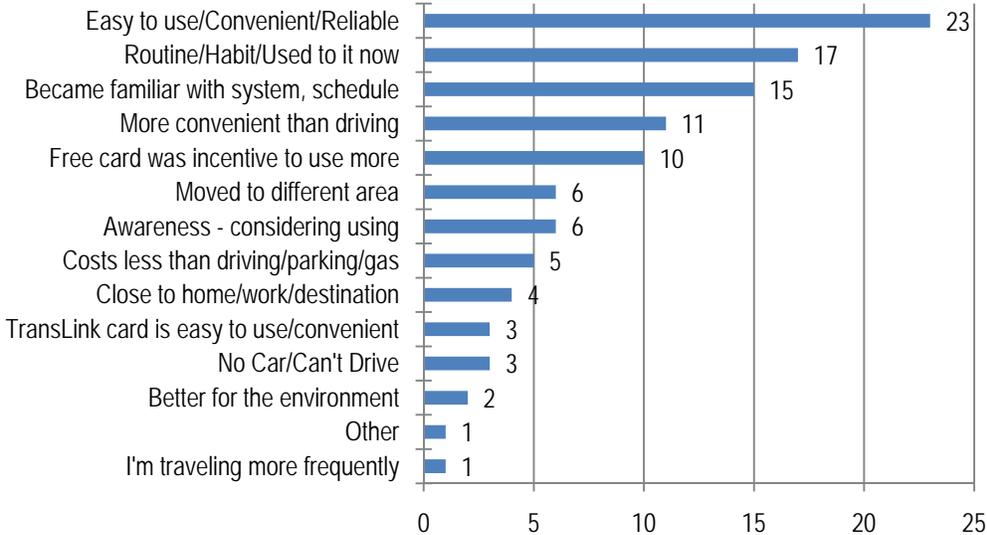
Two other indicators of potential transit use, walkability and transit accessibility, were collected on each residential development. Neither of these proved to be a reliable indicator of increased transit use after the free pass program. This may be in part because nearly all developments in the program had relatively high walkability and transit quality by Bay Area standards; differences may not have been significant enough to influence participants' travel choices.

Figure 3.5 shows the reasons cited by those who increased their use of transit after the program relative to before the program, focusing on residents of market rate units. The most common reasons included the ease of use of transit/TransLink; getting into the habit of taking transit; and increased familiarity with transit gained through the free transit pass program.

⁶ The question asked about all types of public transit, not just AC Transit.

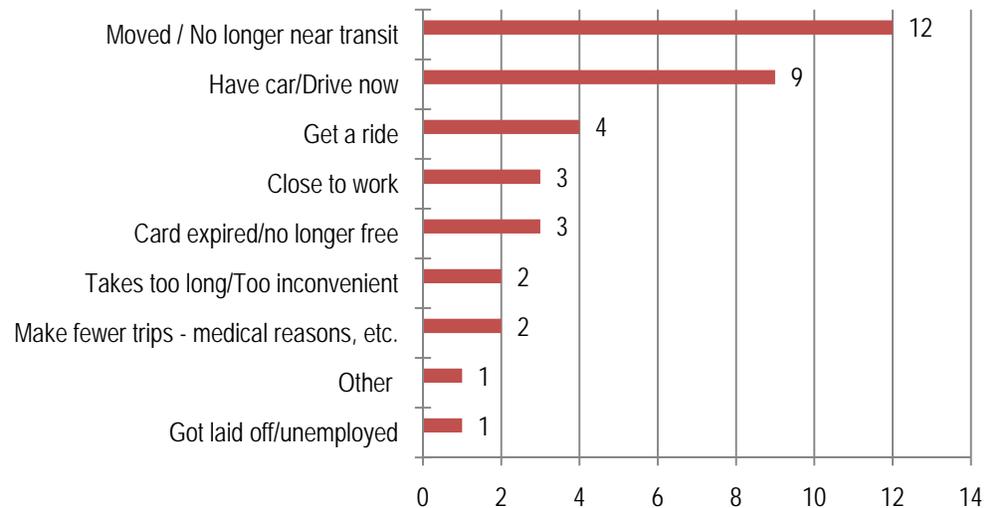
Figure 3.6 shows the reasons cited by those who did not increase their use of transit after the program, focusing on residents of market rate units. The most frequently cited reasons included lack of convenience of transit due to lifestyle changes (moving) or a preference for driving.

Figure 3.5 Reasons Cited for Taking Transit More after the T4T Program
Market Rate Participants Only



Note: Figure shows the total count of times the reason was cited by market rate respondents. Multiple responses were allowed. Not all respondents answered this question.

Figure 3.6 Reasons Cited for Not Taking Transit More after the Program
Market Rate Participants Only



Note: Figure shows the total count of times the reason was cited by market rate respondents. Multiple responses were allowed. Not all respondents answered this question.

3.2 AUTOMOBILE TRIP AND GREENHOUSE GAS IMPACTS

In addition to encouraging transit use, another goal of the T4T program was to reduce vehicle trips and associated greenhouse gases. This section addresses the following evaluation questions:

- How much did the T4T program reduce vehicle trips among participants?
- Which types of participants were more likely to reduce vehicle trips?
- How much were greenhouse gases reduced?
- What was the cost-effectiveness of the program in reducing greenhouse gases and how does it compare to other strategies?

Program Impacts on Vehicle Trips

The follow-up survey asked participants to identify how many times per week they used the free TransLink pass for work, school, and other type trips. The survey also asked how they would have otherwise made these trips if they did not have the free TransLink card. The survey identified the number of respondents that would have driven, gotten a ride or carpooled, walked or biked the entire way, would not have made the trip at all, etc. Respondents were allowed to select multiple options. A lower bound, mid-range, and upper bound estimate of avoided vehicle trips were calculated through analysis of the options selected

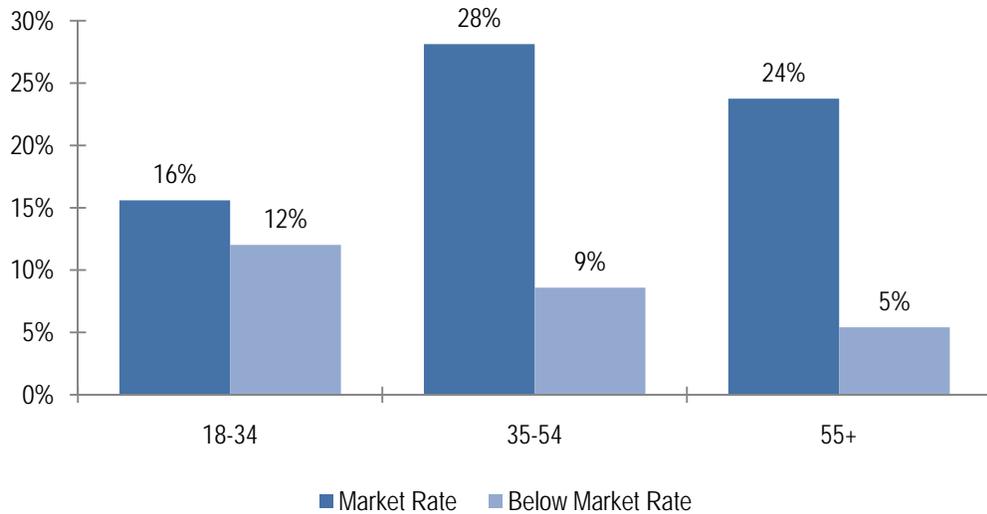
by each respondent.⁷ The mid-range estimate indicates that approximately 13 percent of the AC Transit trips made using the free TransLink card would otherwise have been made by personal vehicle.⁸ The following characteristics were associated with a higher share of avoided vehicle trips:

- **Resident of market rate development.** The share of avoided vehicle trips was higher among residents of market rate developments (22 percent) and lower among below-market-rate developments (eight percent). This equates to about 1.1 avoided trips per market rate resident per week compared with 0.7 trips per below market rate resident per week.
- **Young adult/middle aged.** Among market rate respondents, those aged 35 to 54 had the highest share of avoided automobile trips compared to other age categories (see Figure 4.7).
- **Higher vehicle ownership.** Among market rate respondents, the share of diverted trips was positively associated with automobile ownership. Those with zero automobiles in the household diverted zero trips; those with one automobile diverted 25 percent of their trips, and those with two or more vehicles diverted 29 percent of their trips.

⁷ The lower bound is estimated as the number of transit trips taken by respondents who only listed one option (driving) when asked how they otherwise would have made the trip. The mid-range estimate is the sum of driving trips after proportionally distributing the respondent's new transit trips among all alternative modes specified. The upper bound accounts for all of the TransLink trips taken by respondents who indicated they would have driven or used some other method to reach their destination (gotten a ride, used BART, walked, etc.). The upper bound assumes that all of these trips would have been made by driving despite the other options cited.

⁸ This includes those indicated they would have driven, not those who said they would have gotten a ride.

Figure 3.7 Share of Transit Trips Otherwise Made by Driving by Respondent Age Category



Did the Survey Accurately Capture Avoided Vehicle Trips?

The survey results rely on participant’s recollections of how often they used the free pass. A comparison with electronic data on card utilization during the free pass period provided by AC Transit suggests respondents may have over-reported their card usage (and therefore, presumably, the number of avoided vehicle trips). The number of transit trips recorded by TransLink readers was approximately 35 percent lower than the number of trips reported by T4T participants in the month of most frequent AC Transit usage, and even lower in some months.

AC Transit reported several technical difficulties in the collection and processing of data from card readers. Therefore, it is not known whether the survey results or the electronic readers more accurately reflect card usage.

Greenhouse Gas Impacts of Avoided Trips

Program greenhouse gas impacts can be estimated by multiplying the number of avoided single occupancy vehicle trips by a trip length assumption and by an emissions factor, which indicates the greenhouse gases produced per mile of vehicle travel.

Table 3.1 summarizes the upper and lower bound for the number of automobile trips that were replaced per week by trips on AC Transit. In total, the

respondents diverted an estimated 311 to 770 one-way automobile trips⁹ to AC Transit per week. Only trips where the respondent indicated they would have otherwise driven (as opposed to gotten a ride) were included. These were assumed to be single occupant vehicle trips.

Table 3.1 Respondent-Specified Automobile Trips Diverted to AC Transit per Week

City of Residence (Number of Respondents)	Lower Bound (Total Trips)			Mid-Range (Total Trips)			Upper Bound (Total Trips)		
	Work	School	Other	Work	School	Other	Work	School	Other
Alameda (59)	32	4	11	54	4	16	90	4	22
Albany (73)	37	1	12	47	6	19	57	11	36
Berkeley (193)	28	37	49	47	42	85	66	47	129
El Cerrito (20)	15	0	6	20	0	8	25	0	10
Emeryville (79)	2	0	12	19	0	21	49	0	31
Oakland (124)	32	6	27	44	11	45	60	18	85
San Leandro (13)	0	0	4	3	5	6	10	16	7
Total (561)	144	47	120	233	68	199	356	96	319
Grand Total	311			500			770		

Note: The lower bound is estimated as the number of transit trips taken by respondents who indicated they otherwise would have driven only. The upper bound accounts for all of the TransLink trips taken by respondents who indicated they would have driven or used some other method to reach their destination (gotten a ride, used BART, walked, etc.). The upper bound assumes that all of these trips would have been made by driving despite the other options cited. The mid-range estimate is the sum of driving trips after proportionally distributing the respondent's new transit trips among all alternative modes specified. In cases when respondents answered that they made fewer than one trip per week, a value of 0.5 trips per week was assigned. A sensitivity test of the results indicates that this assumption has a minor impact on the estimate of avoided vehicle trips.

The diversion totals in Table 3.1 account for the trips taken by the survey respondents only. Assuming that the travel behavior shifts captured by the follow-up survey reasonably represent the diversion patterns of all T4T participants, Table 3.2 estimates the total number of automobile trips diverted to AC Transit per week by all 1,367 participants.

⁹ The survey did not explicitly whether trips were round-trip or one-way. However, a comparison of reported trips with AC Transit TransLink data during the free pass period suggests that survey respondents were reporting one-way trips.

Table 3.2 Estimated Automobile Trips Diverted to AC Transit per Week

Trip Type	Lower Bound		Mid-Range		Upper Bound	
	Trips per Respondent	Trips – All Participants	Trips per Respondent	Trips – All Participants	Trips per Respondent	Trips – All Participants
Work Trips	0.26	351	0.42	568	0.63	866
School Trips	0.08	113	0.12	165	0.17	233
Other Trips	0.21	292	0.36	486	0.57	776
Total	0.55	757	0.89	1,219	1.37	1,875

The length of avoided vehicle trips is unknown from the survey, so average trip lengths by purpose in participating cities was assumed. Table 3.3 summarizes San Francisco Bay Area averages for trip length by trip purpose. These trip lengths are likely to be longer than actual trip lengths taken by AC Transit riders. However, they were used because AC Transit trip lengths by trip purpose were unavailable at the time of analysis.

Table 3.3 summarizes typical CO₂ emission rates reported in recent MTC publications. With the exception of the Village at Town Center in El Cerrito, all of the participating developments are located in Alameda County.

Table 3.3 Average Trip Lengths for the San Francisco Bay Area

County/City of Residence	Work Trips (miles)	School Trips (miles)	Other Trips (miles)
<i>Alameda County</i>	<i>12.12</i>	<i>8.77</i>	<i>5.29</i>
Berkeley	7.36	8.77	5.29
Emeryville	10.06	8.77	5.29
Albany	7.36	8.77	5.29
Oakland	10.06	8.77	5.29
San Leandro	13.43	8.77	5.29
Alameda	10.06	8.77	5.29
<i>Contra Costa County</i>	<i>14.88</i>	<i>8.77</i>	<i>5.29</i>
El Cerrito	13.25	8.77	5.29

Source: Metropolitan Transportation Commission, Transportation 2035 Plan for the San Francisco Bay Area, Travel Forecasts Data Summary, December 2008. Tables D.4 and D.9. Available at http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035-Travel_Forecast_Data_Summary.pdf.

Table 3.4 San Francisco Bay Area CO₂ Emission Rates

County/City of Residence	CO ₂ Exhaust Emissions (pounds per mile)
Alameda County	1.216
Contra Costa County	1.179

Source: Metropolitan Transportation Commission, BASSTEGG (Bay Area Simplified Simulation of Travel, Energy, and Greenhouse Gases) Sketch Planning Charrette/GIS Models for Predicting Household Vehicle Miles of Travel (VMT) and Greenhouse Gas (CO₂) Emissions, July 2009. Table S.11, Available at http://www.mtc.ca.gov/maps_and_data/datamart/research/BASSTEGG_Paper_Denver_TRB_JUL09.pdf.

Given that AC Transit did not run any additional buses to serve this project and that all T4T participants were accommodated by buses operating on existing schedules, every single-occupant automobile trip replaced by an AC Transit trip during the T4T pilot project results in a net GHG savings. Therefore, the GHG emissions savings is proportional to the vehicle miles that would have otherwise been driven.

After applying the average trip lengths and emission rates from Tables 3.3 and 3.4, Table 3.5 summarizes the weekly GHG emission savings by trip type. Given the availability of city-specific average work trip lengths, the GHG savings from work trips were calculated at the city level before being aggregated to the county level as shown in Table 3.5. The estimated weekly GHG savings from the T4T pilot project range from approximately five to nearly 13 pounds of CO₂ per participant per week, or about 270 to 660 pounds per year. For context, an average Alameda County resident emits about 11,322 pounds of CO₂ per year from transportation.¹⁰ Assuming this level of emissions holds true for participants, the T4T pilot project resulted in an average GHG reduction of two to six percent per year per person from transportation sources. This should be considered an order-of-magnitude estimate as it is based on numerous assumptions.

Table 3.6 estimates the cumulative greenhouse gas reduction effects of the program, taking into account the fact that about 30 percent of respondents received passes for only six months. Between 300,000 and 728,000 pounds of CO₂ were avoided because of the program.

¹⁰Climate Protection Campaign: *Climate Protection in the San Francisco Bay Area; Highlights of Status*, September 2007.

Table 3.5 Estimated Weekly GHG Savings from T4T Pilot Project
(Pounds CO₂ per week)

County of Residence	Lower Bound			Mid-Range			Upper Bound		
	Work	School	Other	Work	School	Other	Work	School	Other
Alameda County	3,401	1,197	1,813	5,573	1,786	3,047	8,671	2,569	5,002
Contra Costa County	566	0	94	762	0	125	957	0	156
Total	3,968	1,197	1,907	6,335	1,786	3,172	9,628	2,569	5,158
Grand Total	7,071			11,293			17,355		
Average GHG Savings per T4T Participant	5.2			8.3			12.7		

Table 3.6 Estimated Total GHG Savings from T4T Pilot Project
(Pounds CO₂)

Pass Type (Number of Participants)	Lower Bound	Mid-Range	Upper Bound
Six-month pass holders – Market Rate Developments (422)	63,975	121,680	214,956
One-year pass holders – Market Rate Developments (147)	91,651	111,258	135,211
One-year pass holders – Subsidized Developments (798)	144,404	242,545	377,953
Total GHG Savings for T4T program (1,367)	300,030	475,482	728,119

Program Costs and Cost-Effectiveness

An estimate of the pilot program’s cost-effectiveness (program costs versus the estimated GHG reduction) can help inform how the program compares to other GHG reduction strategies. AC Transit priced the T4T pilot program as a universal pass project, assigning a TransLink pass cost of \$100 per year per person in the participating TOD developments, regardless of how many residents signed up for the pass. MTC paid \$190,000 to provide the universal pass at all participating developments plus an additional \$35,000 for equipment (card printing machine, computer, etc.). Total program costs can therefore be estimated at \$225,000, or an average cost of \$195 per year-long pass holder and \$97.50 per one-half-year pass holder.

The following costs were not included in this estimate but may need to be included if the program is scaled up.

Staff Time for Program Marketing

MTC and AC Transit staff arranged events at each of the 24 participating developments to publicize the free pass and to distribute customized maps showing destinations around the development reachable by AC Transit. Approximately

eight hours of staff time per development, or 192 hours of staff time total were invested in these marketing efforts. These costs were able to be accommodated within the schedule of MTC and AC Transit staff. However, if the program were scaled up, the cost of hiring additional staff to market the program would need to be accounted for.

Additional AC Transit Service

AC Transit did not provide any additional service to accommodate program participants. If the program were scaled up, the cost of any additional service necessary to accommodate riders would need to be included.

Change in AC Transit Revenues

As revealed in the participant survey, many of the T4T participants indicated that they would have used AC Transit anyways – even if they had not received the free TransLink pass. While these riders did not contribute to a GHG reduction, they were included in the cost of the program.

Table 3.7 estimates the forfeited revenue during the six and 12-month T4T program from participants who indicated that they would have used AC Transit even if they did not have the free pass. Based on this approximate calculation, the forfeited AC Transit revenue was approximately 40 percent higher than the \$190,000 reimbursement that MTC paid for the TransLink passes. Residents of the subsidized family housing contributed to approximately 80 percent of the estimated lost revenue during the T4T program.

Table 3.7 Estimated Forfeited AC Transit Revenue during T4T Program

Development Type	Number of Survey Respondents	Forfeited Revenue (survey respondents)	Forfeited Revenue per respondent	Total T4T Participants	Total Forfeited Revenue (all participants)
Disabled	38	\$5,904	\$155	103	\$16,003
Family	86	\$45,216	\$526	407	\$213,987
Market	284	\$39,096	\$138	569	\$78,330
Senior	155	\$18,528	\$120	288	\$34,426
Grand Total	563	\$108,744	\$193	1,367	\$264,037

Note: The AC Transit fare for disabled and senior passengers was assumed to be \$1 per ride with a monthly cap of \$20 (equal to the cost of senior/disabled monthly pass). Transit trips among residents of family and market rate housing were assumed to be \$2 per ride with a monthly cap of \$80 (equal to the cost of a one-month unlimited use pass).

The cost of these forfeited revenues were not included in program costs for two reasons. First, the estimates in Table 3.7 are uncertain as they rely on assumptions about the cost per transit trip that would have been paid by participants, which cannot be precisely known based on the survey data. Second, the costs may be fully offset by additional revenues gained from riders who use transit more after the program than they did before.

Change in Automobile Operating costs

Participants who rode transit rather than driving their cars also saved some operational costs for the foregone trips in their vehicles (gas, tires, etc.). These savings have not been incorporated into this analysis.

Program Cost-Effectiveness

The estimated cost per pound of CO₂ associated with the T4T program is \$225,000 for 475,482 pounds of CO₂ or about \$0.47 per pound (\$1,043 per metric ton) for the mid-range estimate and \$0.30 to \$0.75 per pound for high and low estimates, respectively.

Cost-effectiveness is higher among market rate participants, who were more likely to be auto owners and more likely to divert vehicle trips. The mid-range estimate of cost-effectiveness for this group is \$0.30 per pound of CO₂.

Table 3.8 compares these costs with the typical cost of selected other greenhouse gas reduction strategies to provide context. The cost-effectiveness of the T4T program appears roughly comparable to the cost-effectiveness of strategies such as increasing the frequency of transit service. The cost-effectiveness of the T4T program could be improved if the program were focused only on those individuals who are most likely to eliminate driven trips, namely those in market rate developments.

However, it is possible that this analysis somewhat under-states emission reductions from below-market-rate developments as it does not take into account the fact that low-income individuals are more likely to drive older cars that may be less fuel efficient and more polluting than newer cars.

Table 3.8 Comparison of Cost-Effectiveness in Greenhouse Gas Reduction

Strategy	Cost per Pound of CO ₂
Eco-driving	\$0.00003
Parking pricing in the CBD	\$0.0007
Car sharing	\$0.002
Bicycle network improvements	\$0.04
Pedestrian network improvements	\$0.09
T4T Pass Program (market rate participants, mid-range estimate)	\$0.30
T4T Pass Program (all participants, mid-range estimate)	\$0.47
Transit frequency/LOS/Extent	\$0.53
Urban transit expansion	\$0.80
HOV lanes	\$1.62

Source: Cost-effectiveness based on estimates for “expanded current practice” scenario in *Moving Cooler*, a research report developed by Cambridge Systematics (2009) that compares the costs and effectiveness of a variety of transportation greenhouse gas reduction strategies.

Analysis of Longer-Term Impacts

Survey results indicated that the T4T program had lasting impacts on participants' travel behavior. Overall, 21 percent of the participants indicated that they used public transit more after the program ended than before it began.¹¹ Increased transit use after completion of the program was higher among residents of the market rate developments. Because the survey did not ask participants to quantify how many more trips they were taking on transit after the program ended or how many of those trips were replacing trips that they otherwise would have driven, it is not possible to estimate the longer-term GHG impacts of the program, although it would appear to be positive.

¹¹The survey questions asked about all types of public transit, not just AC Transit.

4.0 Mobility for Low-Income Populations

Another goal of the T4T program was to improve mobility and quality of life for low-income populations. This section explores the impacts of the program on low-income populations in terms of cost savings, mobility improvements, and other benefits.

4.1 COST SAVINGS

The T4T program benefited all participants and especially low-income families by reducing their transportation costs. About one-half of the T4T participants lived in low-income designated housing (disabled, senior, and family).

Individuals using the free pass avoided the expense of paying for trips they would otherwise have made by AC Transit, BART, driving, or other modes (except walking or bicycling, which have very low or negligible costs per trip). Table 4.1 provides an estimate of the monthly cost savings to low-income families for just those trips that would otherwise have been made on AC Transit. Low-income participants saved approximately \$20 per month in AC Transit-related travel expenses due to the program. Additional savings from other types of trips were not included in the analysis.

Table 4.1 Avoided AC Transit Expenses for Low-Income Participants

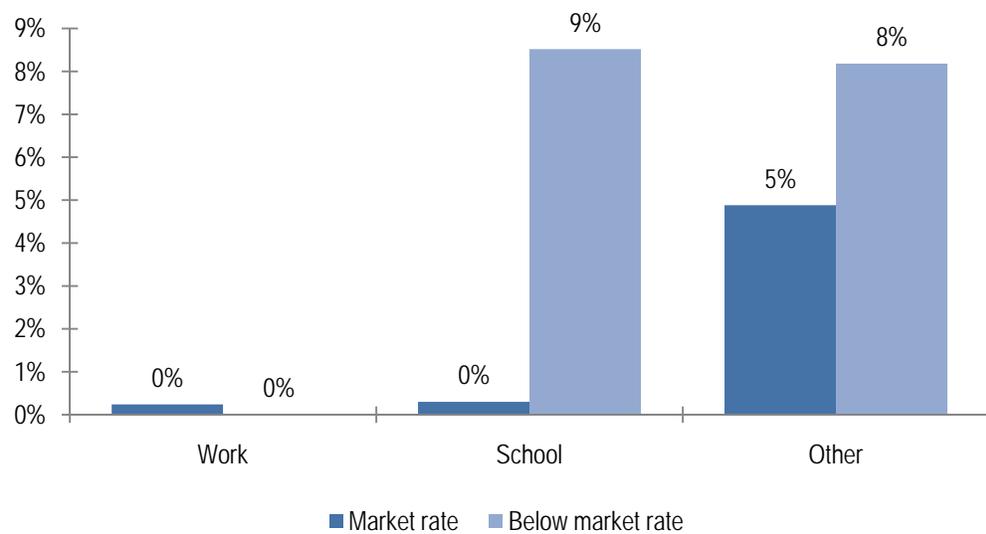
Development Type	Number of Survey Respondents	Avoided Expense	Avoided Expense per Respondent (Total)	Avoided Expense per Respondent per Month
Disabled	38	\$5,904	\$155	\$13
Family	86	\$45,216	\$526	\$44
Senior	155	\$18,528	\$120	\$10
Total (Below-Market-Rate)	279	\$69,648	\$250	\$21

Note: Avoided expenses are based on the number of trips respondents indicated they would have made on AC Transit even without the free pass. The AC Transit fare for disabled and senior passengers was assumed to be \$1 per ride with a monthly cap of \$20 (equal to the cost of senior/disabled monthly pass). Transit trips among residents of family and market rate housing were assumed to be \$2 per ride with a monthly cap of \$80 (equal to the cost of a one-month unlimited use pass). This analysis only considers trips the respondent would have made on AC Transit; avoided expenses from other types of trips (trips made by driving, BART, etc.) are not included.

4.2 ADDITIONAL TRIPS BY TRIP TYPE

Some T4T participants made additional trips because of the free pass. The exact number of new (induced) trips cannot be known, but a maximum and minimum and middle estimate can be calculated.¹² Figure 4.1 illustrates the middle estimate of the share of trips in each purpose category (work, school, other), that would not have been made if not for the free pass. The data suggest that those living in below-market-rate units made more induced trips than those in below market-rate units, and that most of the induced trips were “other” (e.g., discretionary), or school trips.

Figure 4.1 Share of Induced Trips by Purpose and Development Type



¹²The survey questionnaire asked respondents to quantify the total number of trips made with the free pass by trip purpose (work, school, or other), and asked to list all the ways that trip would otherwise have been made. “Would not otherwise have made the trip” was one option respondents could select. If respondents provided multiple responses, then a minimum, maximum, and middle were developed (methodology described in Section 4.2, footnote 10).

4.3 VISITING NEW DESTINATIONS

Another survey question asked respondents whether they were able to visit new destinations because of the free pass. In total, 25 percent of survey respondents reported visiting new destinations with the free TransLink passes. This share was higher for residents of below-market-rate housing (30 percent) and lower for residents of market rate housing (20 percent).

Of those visiting new destinations and living in households with two or more individuals, 59 percent traveled with one or more of these household members to a new destination. Of these traveling household members, 29 percent did not have their own TransLink card.

5.0 Participation and Satisfaction

The third major objective of this evaluation is to explore issues related to program participation and satisfaction, specifically card registration rates, card activation rates, participant satisfaction, and number of participants to continue using the TransLink card after the free pass program ended.

5.1 REGISTRATION RATES

Throughout the registration period, MTC and AC Transit distributed just over 1,500 free TransLink passes to residents of participating developments. One objective of this evaluation is to identify factors influencing registration rates so they can be applied in the future if the program is continued. Note that registration is defined as signing up for the pass program. Most, but not all registrants activated their cards (see discussion in Section 5.2).

As shown in Figure 5.1, registration rates ranged from seven percent at the Woodchase development to more than 100 percent at the University Neighborhood Apartments [UNA], MLK House, and Sacramento Senior Homes, indicating that the number of residents signing up for the free transit passes exceeded the number of residents on record for that development. Some non-residents in the Lion Creek Crossing community applied for the program. Overall, 42 percent of residents in the target developments participated in the program.

The following factors have a relationship to registration rates:

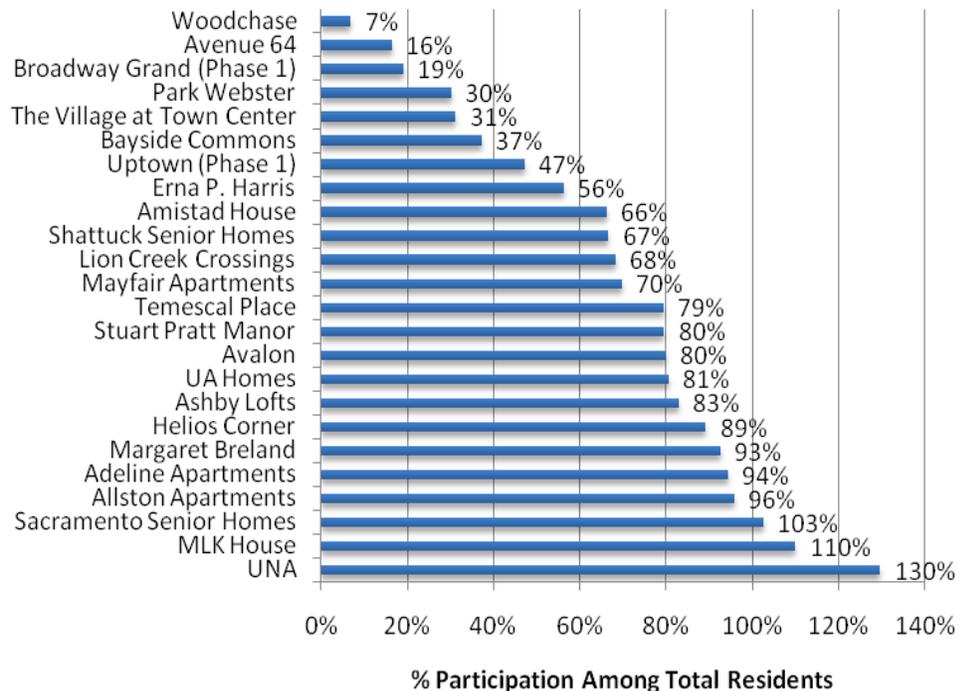
- **Development Size.** Small developments (less than 50 residents) had considerably higher participation rates as a percentage of total residents than large developments (more than 200 residents), for both market rate and below-market-rate developments. This may be because program outreach and publicity are likely to reach a larger share of residents at small developments. See Figure 5.2.
- **Housing Affordability.** Seventy-seven percent of residents of below-market-rate units registered for the pass compared to 26 percent of residents of market rate units (see Figure 5.2). Residents of the senior affordable housing had the highest participation rates, followed closely by disabled residents.
- **Transit Quality.** Transit quality at the development did not have a clear relationship to registration rates. As noted in the introduction to this report, transit quality at all participating developments was relatively high.
- **Automobile Ownership.** Registration rates are inversely proportional to automobile ownership. As shown in Figure 5.3, developments with low auto ownership (less than 0.50 cars per household) had the highest participation

rate at 77 percent. Conversely, developments with high automobile ownership (more than 1.5 vehicles per household) had the lowest participation rates (31 percent). See Figure 5.3.

- Program Length.** While all of the residents of the below-market-rate developments were offered a one-year transit pass, five of the nine market rate developments were offered a six-month pass instead of a full year. Based on a comparison of market-rate resident participation, program length seems to have an influence on participation. Approximately 37 percent of the market-rate residents offered a one-year pass signed up for the program compared to 24 percent registration among market-rate residents offered a six-month pass.

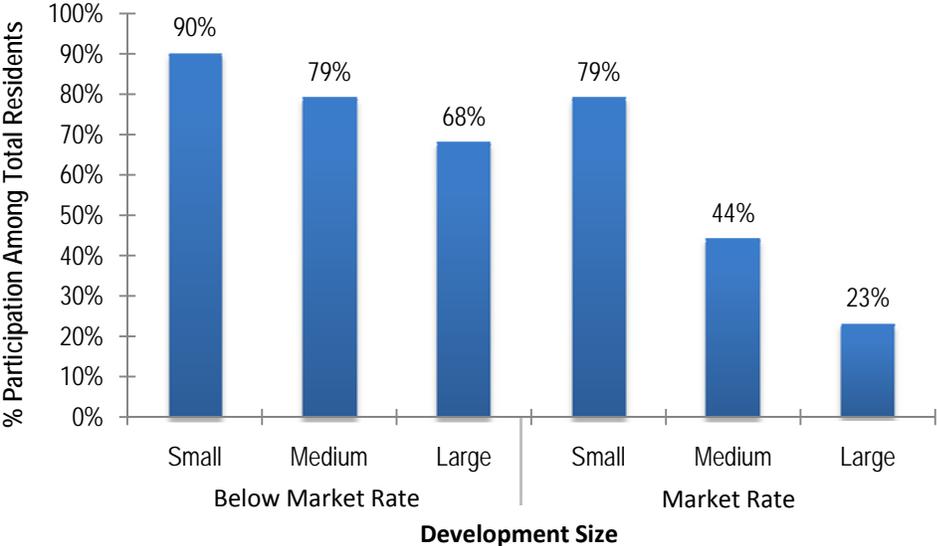
Those involved in distributing the T4T pass felt manager involvement may also have played a role in participation rates, since managers helped the T4T team gain access to residents to advertise the pass program. Manager involvement was rated “high” at all sites except four making it difficult to draw firm conclusions regarding its impact on participation rates. However, at the four developments where it was rated “moderate” or “limited,” registration rates were much lower on average than for the developments where it was rated high.

Figure 5.1 Resident Registration Rates



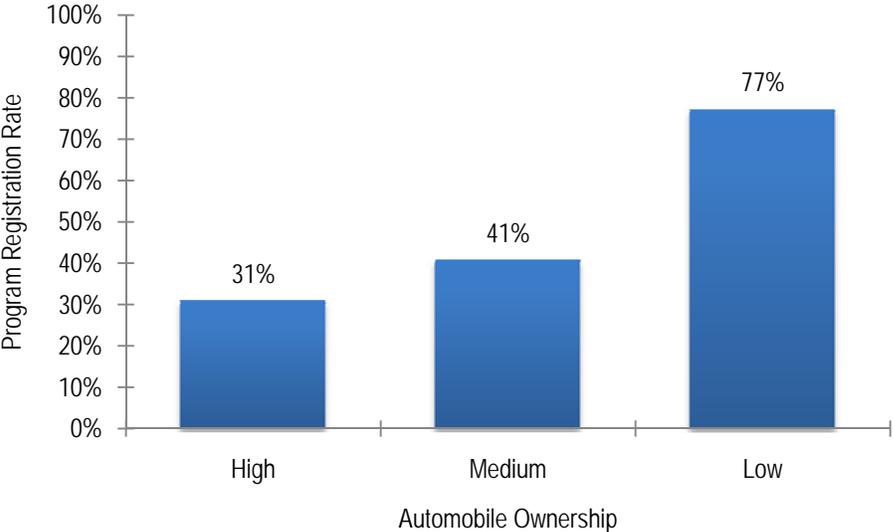
Source: AC Transit.

Figure 5.2 Registration Rates by Development Size and Affordability



Note: Large developments defined as greater than 200 residents; medium developments defined as between 50 and 200 residents; and small developments defined as less than 50 residents. The overall participation rate for market rate developments was 26 percent; most residents of market rate units lived in large developments. The overall participation rate for below market rate units was 77 percent.

Figure 5.3 Registration Rates by Automobile Ownership



Note: This analysis defines high automobile ownership as more than 1.5 vehicles per household on average per development. Low automobile ownership is defined as fewer than 0.5 vehicles per household on average per development. Auto ownership rates by development represent all residents and are drawn from the pre-survey.

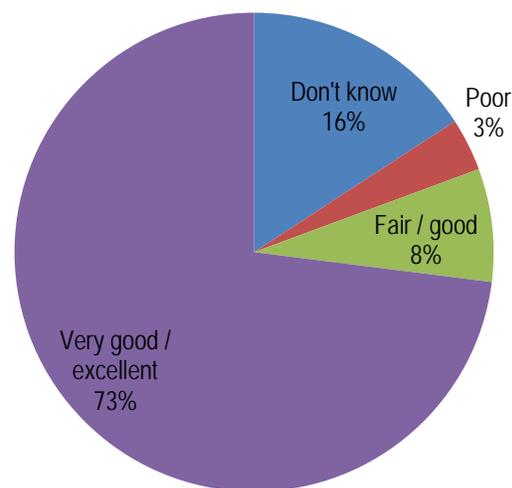
5.2 ACTIVATION RATES

As of March 2009, AC Transit reported that 1,367 free TransLink passes (91 percent of the passes distributed) had been activated. Unlike the trends described above, activation rates were much less sensitive to demographic or site-specific attributes. In general, without discernable trends in development size, vehicle ownership, transit score, program length, etc., approximately 90 percent of registered T4T users activated their passes.

5.3 PARTICIPANT SATISFACTION

Overall, survey respondents indicated a high level of satisfaction with the free TransLink pass program. When asked to rank their experience on a five-point scale (one being poor, five being excellent), responses averaged 4.46, as shown in Figure 5.4, and 73 percent of respondents chose a better than neutral response. Notably, 16 percent of respondents chose “didn’t know” to this question. Most of these individuals reported never using their card.

Figure 5.4 Rated Experience with Free TransLink Program



Of those who rated their experience “poor” or “don’t know,” most were infrequent transit users before the program. These individuals did not give reasons when asked why they used transit less after the free TransLink program. Of those who responded “don’t know,” almost two-thirds never used AC Transit before the program.

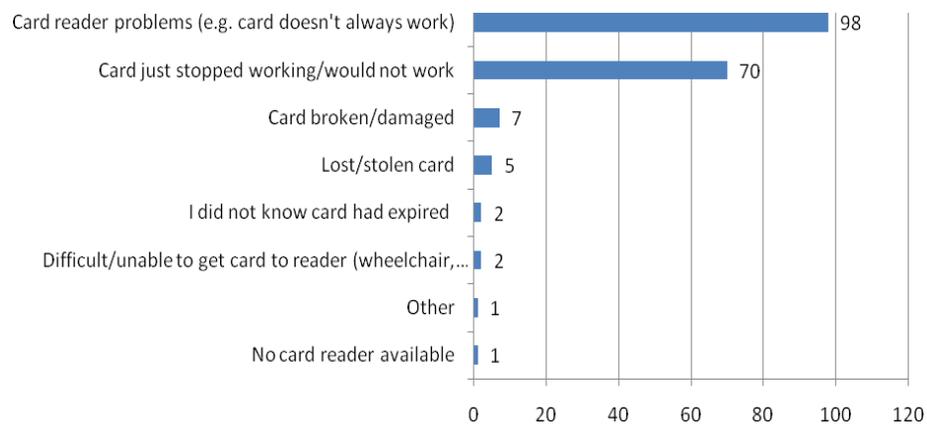
The number of technical problems encountered also had a significant effect on satisfaction rate. Every respondent who rated the program poor experienced technical problems; 70 percent of those who rated it good/fair experienced

technical problems; and less than 30 percent of those who rated it very good/excellent experienced technical problems.

5.4 TECHNICAL PROBLEMS ENCOUNTERED

A third of the respondents cited technical problems during the T4T program. After encountering a problem, 79 percent of respondents continued using their cards. As Figure 5.5 shows, the most frequently encountered problems involved the card reader. One can assume that some incidents of “card just stopped working” may actually be due to card reader failure.

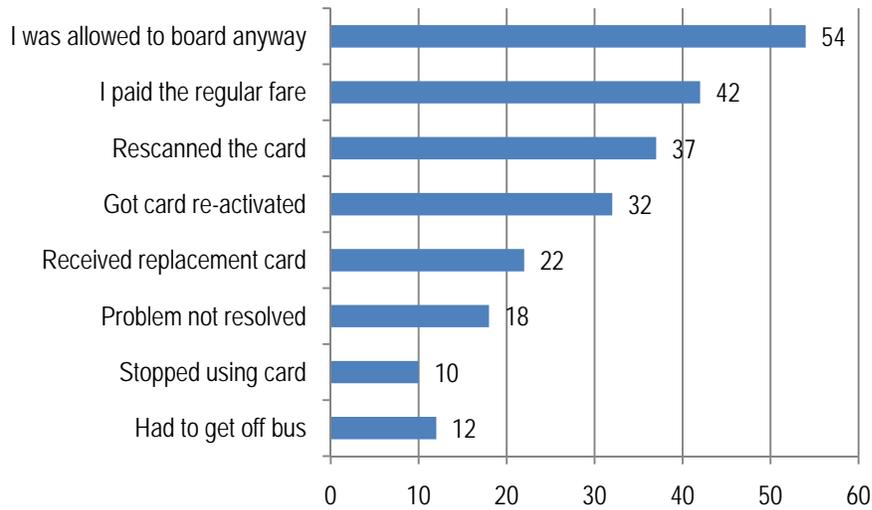
Figure 5.5 Frequency and Types of Problems Encountered



Note: Figure shows the total count of times the reason was cited by market rate respondents. Multiple responses were allowed.

Among those who encountered technical problems, many were allowed to board the bus even though their TransLink card was not working, but many others were asked to pay the regular fare. Some also stopped using their card altogether after encountering a technical problem. Figure 5.6 lists the most common actions reported in response to technical problems.

Figure 5.6 Action Taken after Encountering Technical Problem



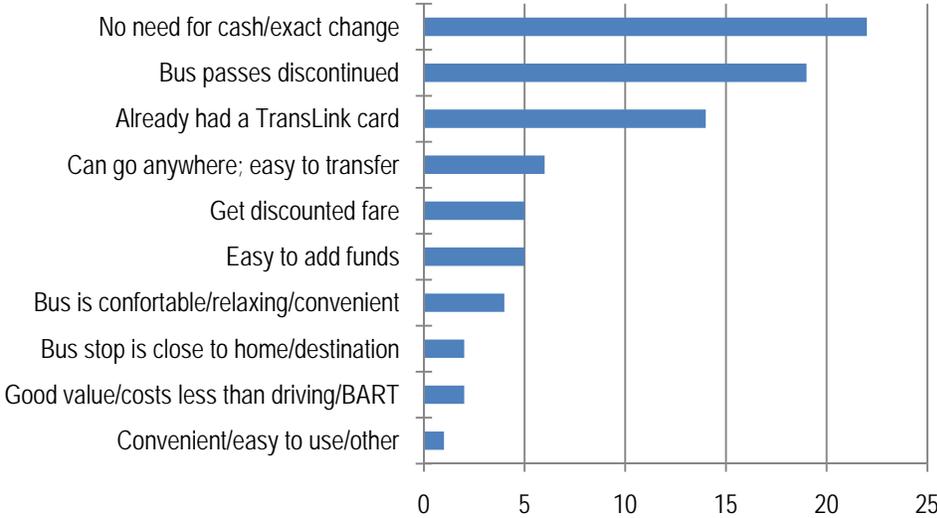
Note: Figure shows the total count of times the reason was cited. Multiple responses were allowed.

5.5 CONTINUATION OF TRANS LINK USE

The analysis of continuation of use of TransLink® cards only includes residents of market rate development, because at that time the TransLink® cards could not be loaded with discounted passes for seniors or disabled patrons. Twenty-three percent of market rate residents reported adding their own funds to the TransLink card after the program.

The reasons cited for continued use of TransLink related to the convenience and speed of boarding with an electronic pass and not needing to carry exact change (see Figure 5.7). The reasons cited for not continuing use of TransLink among residents of market rate developments (see Figure 5.8) included infrequent use of public transit relative to other modes or life changes (e.g., moving or changing jobs) that make AC Transit less convenient.

Figure 5.7 Top Ten Reasons Cited for Continued Use of TransLink
Market Rate Residents Only



Note: Figure shows the total count of times the reason was cited by market rate respondents. Multiple responses were allowed.

Figure 5.8 Top Ten Reasons Cited for Not Continuing Use of TransLink
Market Rate Residents Only



Note: Figure shows the total count of times the reason was cited by market rate respondents. Multiple responses were allowed.

6.0 Program Expansion and Implementation Options

The T4T pilot program evaluation can provide lessons learned to agencies in the Bay Area seeking to improve utilization of transit service around TODs, improve mobility for the transit dependent, and reduce greenhouse gases to support progress towards regional and state goals outlined in recent legislation (SB 375 and AB 32).

This section provides several options for how future programs could be implemented. The options were developed in consultation with the project technical advisory committee, which included the city of Berkeley, nonprofit group Transform, AC Transit, private developers, and others.

6.1 OPTIONS FOR STRUCTURING RESIDENTIAL TRANSIT SUBSIDY PROGRAMS

The T4T evaluation results suggest similar programs could be implemented successfully in the future by following either of two major implementation options: as short-term subsidy intended primarily to market transit services to new and existing riders; or as a long-term, ongoing subsidy intended to incentivize additional transit use by permanently lowering its cost. These options are described in more detail below.

Short-Term Subsidy to Support Transit Marketing

The T4T evaluation results indicate the program succeeded in attracting new transit riders, suggesting future programs could be deployed as part of transit service marketing. About 16 percent of respondents tried AC Transit for the first time because of the program, and many indicated higher post-program transit usage due to improved familiarity with transit routes and schedules.

T4T study results suggest that, if intended primarily as marketing, future programs should be coupled with provision of customized transit service information to program participants. The fact that riders cited better familiarity with routes and schedules as a reason for using transit more after the program suggests the tailored marketing materials referenced in Section 4.2 played a role in the effectiveness of the program.

Efforts to provide tailored, customized traveler information to potential transit users are already underway elsewhere in the Bay Area. The Travel Choice program offered by Bay Area nonprofit *Transform* involves offering one-on-one consultations and customized materials to potential transit riders, and has proven

effective at increasing transit usage and reducing vehicle trips, at least in the short term.¹³ Pairing such programs with short-term transit subsidies may increase their effectiveness and, potentially, the likelihood of creating sustained behavioral change.

Providing short-term passes is less costly than offering an ongoing subsidy, but would not be likely to produce the same level of sustained trip reduction. The T4T evaluation showed that about 21 percent of respondents used transit more after the program than before, but it is uncertain how long this behavioral change will endure in the absence of an ongoing subsidy. Behavioral changes associated with marketing-only programs such as the Travel Choices program cited above have proved short-lived.¹⁴

Ongoing Subsidy for Long-Term Change

Alternatively, future implementations of the T4T program could focus on providing an ongoing transit subsidy to residents of TODs. T4T program results suggest ongoing trip reductions of about 10 percent¹⁵ among groups targeted for implementation.

Ongoing subsidies require a sustained funding source, but are more likely to produce sustained reductions in trips. Methods for implementing and funding long-term pass programs are discussed below.

6.2 IMPLEMENTING TRANSIT PASS PROGRAMS

The following describes the roles cities, transit agencies, developers, congestion management agencies, and educational institutions can play in implementing and funding universal transit pass programs.

Cities

Cities may pursue transit pass programs as a means to reduce congestion, contribute to air quality improvement, and to address climate change, particularly through local climate action plans.

¹³Source: Nelson/Nygaard evaluation of the Travel Choice program. Discussed in <http://transformca.org/files/travelchoice-alameda-presentation.pdf>.

¹⁴Source: discussion with *Transform* staff regarding their research on the long term impacts of the Travel Choices program.

¹⁵This figure was obtained by divided total estimated weekly avoided vehicle trips per T4T participant (approximately 1 trip per week) by the average number of vehicle trips per week for typical Bay Area residents living in dense urban areas, as reported in the MTC Bay Area Travel Survey 2000. The total number of weekly vehicle trips per T4T resident was not available, nor was more recent travel survey data.

Cities can use the following methods to support transit pass programs:

- Require employers or developers to provide transit passes through a commuter benefits ordinance, through negotiation of a development agreement, as a condition of a special use permit, or as an environmental mitigation;
- Offer incentives to developers, such as reduced parking requirements, discounted development impact fees, or expedited development approvals in exchange for developers providing free transit passes; or
- Provide funding to subsidize transit passes or transit pass marketing programs.

These options are described in more detail below.

Commuter Benefits Ordinances, Development Agreements, and Use Permits

Cities can require or request employers or developers to provide transit passes through ordinances, negotiation of development agreements, as a condition of use permits, or as an environmental mitigation.

Several Bay Area cities, including San Francisco, Richmond, and Berkeley, have commuter benefits ordinances. San Francisco recently implemented a commuter benefits ordinance that requires all employers with 20 or more employees to offer a commuter benefit program. Employers benefit by not having to pay the 9 percent payroll tax on all funds employees set aside through the pre-tax program.¹⁶

Berkeley is considering how to develop systematic transit pass requirements for private residential developments as well. Although such requirements do not currently exist, the city has been able to negotiate the inclusion of transit pass programs in several recent development agreements, including the recently constructed 4th and University residential complex, and as a condition of the special use permit for the 155 unit Parker Place development.¹⁷

An additional option for cities seeking to fund reduced fare transit pass programs is to request developers to provide universal transit passes as a means of mitigating their environmental impacts under the California Environmental Quality Act.

¹⁶City of Berkeley Commuter Benefit ordinance, passed 2009. <http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=11134>. The subsidy can be either 1) a pre-tax plan that allows employees to exclude transit, vanpool, or bicycle expenses from taxable wages and compensation as allowed by Federal tax law (this option saves employees income taxes, while saving employers payroll taxes), 2) a transit subsidy equivalent to the value of an AC Transit regular (local) monthly pass, or 3) an employer-provided shuttle service.

¹⁷Source: city of Berkeley planning department staff.

IRS rules on commuter benefits ordinances can be found the IRS web site.¹⁸

Developer Incentives

Cities can incentivize developers to provide transit passes by offering:

- **Reduced parking requirements.** In most cases, it is far less costly for developers to provide transit passes rather than additional parking, particularly in urban areas where land costs are high. The average monthly cost of providing a parking space has been estimated to range from \$64 per month to \$334 per parking space; structured parking starts at about \$173 per space.¹⁹ This is significantly higher than the monthly cost of providing discounted universal transit passes (for example, about \$10 per participant per month for the T4T program). For example, the city of Berkeley approved a reduction in parking requirements associated with expansion of the 1908 Shattuck development in part because of the existence of a reduced cost transit pass available to site residents. The Metropolitan Transportation Commission's Smart Parking toolbox provides additional information and examples of how to manage parking in smart growth contexts.²⁰
- **Discounted developer impact fees.** Cities with development impact fee programs can offer discounts on developer fees if the developer provides free transit passes to site residents. Research citing the automobile trip reduction benefits of transit pass programs can be used as support. One U.S. city is currently considering developing a system of developer impact fee discounts whereby the developer would receive a discount for locating near a major transit line, another discount for providing reduced transit passes, and an additional discount if both conditions are met.²¹
- **Expedited development approvals.** Delayed development approvals can be very costly for developers and increase their uncertainty. Cities can offer to expedite or streamline the development approval process in exchange for developers providing universal transit passes or other amenities. The "GreenTrips" pilot program offers endorsements at city council meetings by TransForm, a community advocacy group, for qualifying development

¹⁸Internal Revenue Service rules for commute benefits can be found on the IRS web site: <http://www.irs.gov/publications/p15b/ar02.html>.

¹⁹Cited values are in 2007 USD. Source: Victoria Transportation Policy Institute. Transportation Cost and Benefit Analysis II - Parking Costs. <http://www.vtpi.org/tca/tca0504.pdf>.

²⁰MTC's *Toolbox Reforming Parking Policies to Support Smart Growth* is available on the MTC web site: http://www.mtc.ca.gov/planning/smart_growth/parking_seminar/Toolbox-Handbook.pdf.

²¹The city cannot be named for reasons of confidentiality.

projects: universal transit passes are one of the monitored strategies. The City of Berkeley is also proposing a “Green Path” process to expedite qualifying development proposals that incorporate identified TDMs including transit passes.

Direct Transit Pass Subsidy Programs

Cities can also directly subsidize transit passes by raising funds through tax increases, developer impact fees, or other sources. The City of Boulder, Colorado provides a 50 percent subsidy for the city’s neighborhood residential pass program in the first year and a 25 percent subsidy in subsequent years; residents pay the remainder (discussed in more detail in Appendix A). Funding for the subsidy comes from the city’s transportation division; Federal Congestion Mitigation Air Quality funds are also used for program marketing. The City of Boulder has identified the need for additional sources of funding in the future.²²

Special downtown improvement districts can be a potential source of funding for transit pass programs or customized transit marketing programs. These districts are funded through special assessments on property owners or businesses, and fund improvements and programs to specifically benefit the district. For example, the Downtown Denver Partnership, which manages the Downtown Denver Business Improvement District, has partnered with the regional transit agency to promote sustainable transportation options such as *Get Downtown Unconventionally* and *Drive Less Denver*.²³ Downtown business districts (as well as neighborhood associations) can also be a means of grouping together a number of smaller employers or residences to achieve the critical mass necessary to obtain bulk discounts for universal transit passes.

Transit agencies

The T4T program evaluation suggests two main roles for transit agencies to play in the distribution of reduced price transit passes: 1) Transit agencies can offer developers, employers, or cities the option to buy transit passes in bulk at a reduced price; and 2) transit agencies can engage in innovative marketing programs aimed at residences or worksites and provide customized traveler information alone or in addition to short- or long-term reduced price transit passes.

AC transit has entered into discounted pass arrangements with all the Peralta Colleges, the University of California at Berkeley, the city of Berkeley, the city of Alameda, private developers, and others. To facilitate implementation of these

²²Source: City of Boulder Transit Access Options final report: http://www.bouldercolorado.gov/index.php?option=com_content&view=article&id=12866&Itemid=4478

²³Source: Urban Transportation Monitor Volume 24, No. 3.

pass programs, AC developed a standardized pricing matrix. The pricing scheme was created to:²⁴

- Offer volume discount (the more people comprising the participant universe, the lower the price per participant);
- Factor price differences for the level of AC Transit service;
- Incorporate administrative and ancillary costs (pass production and staff coordination);
- Allow for fare increase adjustments; and
- Align pricing with current programs (as feasible).

AC Transit staff feels that creating a predictable, published pricing scheme has helped increase the adoption of universal pass programs. Additionally, AC Transit marketing staff actively seeks out potential clients for universal pass programs. Appendix D contains AC Transit's information materials on their residential transit pass programs, including the pricing matrix.

AC Transit staff notes that accurate program pricing is critical. Some Bay Area transit agencies have scaled back universal pass programs that resulted in revenue loss. More discussion of program pricing is below.

Transit agencies can also partner with nonprofits and other public agencies to implement individualized marketing programs to accompany discounted transit pass offerings or as stand-alone programs. Bay Area nonprofit *Transform's* Travel Choices program (discussed under "cities" above) resulted from a partnership between Transform, the Alameda County Congestion Management Agency, BART, AC Transit, and the Alameda County Public Health Department.

Developers

Developers can work with cities and transit agencies to develop reduced cost transit pass programs. These programs can reduce developer expenditures if they are offered in exchange for reduced parking requirements, impact fee discounts, or expedited developer approvals. Any additional costs can be passed on to residents.

Providing free transit passes to site residents can potentially help to attract new renters or buyers. City of Berkeley staff report that the developer of the recently completed 4th and U residential complex voluntarily began offering a second transit pass per residential unit after finding that offering a single transit pass (as required by a negotiated development agreement) was attracting additional

²⁴Source: AC Transit 2007, Public Hearing on Universal Pass Programs. <http://www2.actransit.org/news/articledetail.wu?articleid=7c7f7e95&PHPSESSID=fa9529098ebb91e72db70ea70a43a0c4>.

renters. Also, as detailed in Appendix A, the Olson Company, a private developer in southern California, reports that inclusion of free two-year transit passes helped sell at least seven homes totaling \$3.5 million.

Developers can earn a point towards Leadership in Energy and Environmental Design (LEED) certification with a transit pass program through the Innovation and Exemplary Performance category of both New Construction and Neighborhood Development requirements. LEED certification has its own benefits – publicity, potential subsidies, and positive attention from prospective buyers. Transit passes can also earn points towards “GreenTrip” certification, a new type of development certification being offered by Bay Area nonprofit *Transform*.²⁵

Developers sometimes face challenges in obtaining financing for projects that have what banks perceive to be inadequate parking. Cities may be able to help developers make the case by providing data and research documenting reductions in parking demand in high-density, transit-oriented contexts.

Congestion Management Agencies

Congestion management agencies (CMAs), the agencies responsible for county-level transportation planning, could support transit pass programs in a number of ways. They could provide technical assistance to cities in their jurisdiction interested in pursuing transit pass programs, or could work with multiple cities to facilitate the implementation of transit pass programs over larger geographic areas. For example, CMAs could identify cities located in priority development areas (areas slated for additional compact, transit-oriented development) to facilitate the implementation of transit pass programs.

CMAs could also work with nonprofits and transit agencies on customized transit marketing programs. As mentioned above, the Travel Choice program was a partnership between the Alameda County CMA, AC Transit, Transform, and other agencies.

They could also consider a transit pass monitoring program, including cities, developers, employers, and schools that provide universal pass programs, potentially through the MTC-funded TPLUS program.

Educational Institutions

Colleges and university campuses are often ideally suited to the implementation of transit pass programs, as they are major trip attractors and are frequently located in areas where transit quality is high. Additionally, educational institutions often have the ability to implement policies that complement transit

²⁵More about the GreenTrip scoring system is available on the Transform web site: <http://transformca.org/files/GreenTRIPScoringSystem.pdf>.

pass programs such as parking pricing and customized marketing of transit options.²⁶

There are many examples of universal transit pass programs for university and college faculty, staff, and students. For example, AC Transit has discount pass programs that cover all the Peralta Colleges (Berkeley City College, College of Alameda, Laney College, etc.), as well as programs for the University of California at Berkeley faculty and staff (BearPass), and students (ClassPass).

UC San Diego has created a model program that incentivizes the use of transit through transit passes, improved transit services, and real time tracking, along with pricing parking and other amenities for walking and bicycling, to avoid major expenses that were pending for construction of new parking garages.

6.3 ADDITIONAL CONSIDERATIONS IN PROGRAM IMPLEMENTATION

Location

Subsidized passes are likely to be most effective in attracting additional riders in locations where the following criteria are met:

- **Location is transit competitive.** Transit tends to be most competitive in higher-density environments with high-quality, reliable transit service. Designated priority development areas (PDAs) in may be good candidates for deployment of future transit pass programs in the Bay Area. PDAs are locally defined, infill opportunity zones near existing or planned fixed transit or served by comparable bus service, and planned for more housing.²⁷ Note that cities may apply for technical assistance grants (up to \$50,000 under the SMART Technical Assistance Program) for program development within priority development areas, especially as a component of a station area plan or equivalent planning activity.²⁸
- **Capacity exists.** Universal pass programs may increase transit ridership which must be accommodated on existing transit service unless funds for

²⁶Source: *If You Build it, They May Not Come!: How to advance sustainable transportation AND save your campus \$50 million*, Sam Corbett, UC San Diego 2008 Sustainability Conference August 2, 2008.

http://www.universityofcalifornia.edu/sustainability/documents/sam_corbett.pdf.

²⁷Source: Focus Program web site: <http://www.bayareavision.org/initiatives/prioritydevelopmentareas.html>.

²⁸For more information, see the Focus Program Web site: <http://www.bayareavision.org/technicalassistance/2009%20Technical%20Assistance%20Application%20Guidelines.pdf>.

additional service can be identified. Most Bay Area transit agencies do not currently have capacity constraints during off-peak periods, but peak-period capacity is an issue for some, particularly the San Francisco Municipal Transportation Authority and BART, particularly in the peak direction. For those with capacity challenges, universal pass programs can be offered only at locations unlikely to increase peak ridership, such as at large employment sites that generate reverse-commute travel patterns. If capacity is expanded to accommodate additional ridership from a transit pass program, the additional greenhouse gases produced by the transit vehicles would need to be taken into account when calculating net program GHG impacts. Greenhouse gases produced by transit vehicles can vary greatly depending on vehicle age, technology, and fuel.

- **Electronic passes are available.** Many Bay Area transit agencies are in the process of deploying the electronic Clipper card, providing a unique opportunity to offer short-term transit pass promotions and customized travel choice marketing materials in conjunction with electronic pass distribution. Electronic fare cards also make implementation of long-term transit subsidy programs logistically simpler.

Price

Universal transit pass programs are typically priced according to an insurance model, in which all participants pay regardless of usage. The advantage of this model is that individuals can obtain unlimited transit access for a greatly reduced cost. However, transit agencies must be sure to price the programs so they at least cover program costs, which may include program administrative and marketing costs and forgone revenues from individuals who would have purchased transit rides regardless. Some research studies have indicated that underpricing of transit pass programs is a frequent problem.²⁹

As discussed above, cities, developers, or employers can subsidize universal transit pass programs so that the cost to the rider is lower than that available through a bulk discount purchase from the transit agency. Depending on the level of subsidy available and the program goals, the pass may be offered at no cost or at a discount. Free programs may be most feasible as part of shorter-term transit marketing promotions. They are easy to administer as they do not require the sponsoring agency to obtain financial information from participants. If the program is a longer-term subsidy it may be cost-prohibitive to provide free passes indefinitely. Some agencies have addressed this issue by providing free or deeply discounted passes for a preliminary period (e.g., the first year of the program), and then reducing the level of discount in subsequent years.

²⁹For example, see TCRP 82: Transit Fare Arrangement for Public Employees (2010). http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_82.pdf.

7.0 Summary and Recommendations

The following summarizes the results of the T4T program according to the four major program goals.

7.1 SUMMARY

Automobile Trip and Greenhouse Gas Reduction

The following summarizes the effects of the program on reducing automobile trips and greenhouse gas reduction and encouraging transit use:

- **T4T affected the travel behavior of about one-half of respondents.** About one-half of survey respondents reported using AC Transit more during the free pass period than they had before (48 percent in market rate developments and 46 in below market rate developments).
- **T4T reduced automobile trips.** The T4T program met the objective of reducing automobile trips among program participants. Those respondents in market rate developments reduced about 1.1 automobile trips per person per week compared with 0.7 in below market rate developments.
- **T4T introduced new participants to transit.** Among residents of market rate developments, 65 percent indicated trying AC transit before the program compared with 80 percent during the program (a 23 percent increase).
- **T4T resulted in greater public transit use after the free pass period ended.** Twenty-seven percent of respondents in market rate developments and 15 percent of those in below market rate developments reported using public transit more after the free pass program ended than they had before it began. Among market rate respondents, the top reasons cited for higher public transit usage after the program were the convenience of AC Transit/TransLink and a greater level of familiarity with AC Transit's routes and schedules.
- **T4T reduced greenhouse gases.** T4T reduced about five to 13 pounds of CO₂ per week per participant,³⁰ equating to a reduction of approximately two to six percent per year in the average greenhouse gases emitted from transportation sources by a typical resident of Alameda County. This equates to approximately 47 cents per pound of CO₂ reduced, which is in the middle

³⁰Note that this estimate relies on multiple assumptions such as trip length and vehicle occupancy that were not asked during the survey. This should be treated as an order of magnitude estimate.

range of cost-effectiveness based on comparison to a selection of strategies included in national studies.

Mobility for Low-Income Populations

The following summarizes the effects of the program on improving mobility for low-income populations:

- **The program slightly increased discretionary travel among all respondents.** The T4T program increased the number of discretionary (nonwork- and nonschool-related) trips among participants. Of the discretionary AC Transit trips made by individuals living at below-market-rate housing, an estimated eight percent would not otherwise have been made without the free pass.
- **Residents of below-market-rate units visited new destinations more than those in market rate units.** About 30 percent of those living in below-market-rate units visited new destinations during the free pass period compared with 20 percent in market rate units.

Participation Rates and Customer Satisfaction

The following summarizes the effects of the program on participation rates and customer satisfaction:

- **Participation rates were highest among existing transit users.** Those most interested in signing up for the T4T program were transit users, residents of below-market-rate developments, and those with low auto ownership.
- **Satisfaction rates were high.** Overall, 73 percent of respondents rated their satisfaction with the program as very high or excellent. Those who encountered fewer technical difficulties were more likely to rate the program highly than those who did not. About one-third of respondents encountered technical difficulties, the most common of which involved the TransLink card reader not working.
- **A significant share of respondents indicated purchasing their own TransLink passes after the program.** About 23 percent of respondents in market-rate developments added their own funds to the TransLink card after program expiration. These individuals cited the convenience of using an electronic pass rather than having to have exact change. (Reduced fare passes were not available on TransLink cards at this time, effectively limiting the continuation on the TransLink® cards to residents of market rate housing.)

7.2 RECOMMENDATIONS

Overall recommendations for effective implementation

1. Cities and others seeking to maximize reductions of greenhouse gas reductions should focus the program on vehicle owners

The T4T program included a substantial share of low-income individuals without vehicles because one of the program goals was to improve mobility among low-income populations. Local jurisdictions or institutions seeking to implement universal pass programs to maximize greenhouse gas reductions should focus the program on vehicle owners to the extent feasible given social justice concerns.

Future program marketing efforts may need to be intensified to reach vehicle owners. The evaluation results showed that those who most readily adopted the program were already frequent transit users; additional effort will be needed to reach those with limited experience riding transit. If the program is focused on populations that do not currently use transit and that have higher auto ownership rates, then in order to address equity concerns, consider development of parallel programs that provide benefit to low-income individuals and support their contribution to reductions in green house gas emissions.

2. Consider using short-term pass promotions as a marketing tool

The T4T program resulted in many individuals trying transit for the first time, and many reported using transit more after the program than before, due in part to greater awareness of AC Transit routes and schedules. These results suggest short-term transit pass programs with good outreach can be an effective tool for marketing transit services to both new and existing riders.

3. Consider targeting priority development areas with excess transit capacity.

Transit pass programs may be most effective in reducing vehicle trips if implemented in areas where high-quality (e.g., frequent and reliable) transit service provides a viable alternative to the automobile. Priority development areas (PDAs) with some excess transit capacity may be particularly good candidates for implementation. PDAs are locally proposed, regionally accepted, infill opportunity zones near existing or planned fixed transit or served by comparable bus service, and planned for more housing. The ideal locations are those where additional transit ridership/market penetration is possible; these may be areas with good quality transit service and a large potential share of discretionary riders.

As a caution, providing subsidized transit passes to existing transit riders may not achieve increases in transit usage, or VMT or GHG reductions proportional to the costs. Even if successful, attracting more transit riders where there is little unused capacity may result in overcrowding; GHG impacts for

additional transit services would need an entirely new analysis than that conducted for this effort.

4. Ensure program is priced appropriately.

Future deployments of universal pass programs should take into account the share of participants who are already frequent transit users, and transit agencies may wish to be price the program to ensure the program is at least revenue-neutral. While such programs appear to build long-term ridership that continues beyond the free period, the short-term expenses may also be an important consideration. National research suggests under-pricing of universal pass programs may be a frequent occurrence, and can undermine long-term program viability.

Recommendations for the Metropolitan Transportation Commission

5. Consider developing a monitoring, support and analysis program

The T4T program demonstrated that universal transit pass programs can be an effective means of reducing vehicle trips and greenhouse gases. MTC could support progress towards expansion of transit pass programs by implementing a monitoring effort, potentially supplemented with technical support, documentation of best practices and/or training for interested parties. For instance, MTC could track the percentage of individuals living in priority development areas (PDAs) that have access to universal transit pass programs, and set goals for increasing this percentage. Such tracking could also be applied to employers in PDAs. MTC could monitor this data to determine if expansion of transit pass programs correlates with transit ridership increases. Additionally, MTC could consider additional research on the long-term effectiveness of short-term incentive programs, the relative effectiveness of subsidies versus marketing, and the optimal price of transit passes.

6. Consider opportunities to offer transit pass promotions in conjunction with Clipper card distribution

MTC is in the process of rolling out the Clipper card, the next generation transit pass for Bay Area transit agencies. Clipper card distribution could be combined with short-term transit pass promotions and provision of customized travel choice marketing; potential sponsorship from the public and private sectors could be solicited for specific locations (e.g., employers, cities, developers, business associations, homeowners associations, etc). Additionally, MTC could consider how future transit pass programs in the Bay Area could potentially reduce overhead costs by interfacing with the Clipper system.

Recommendations for local agencies, developers, and educational institutions interested in universal pass programs

7. Transit agencies can consider developing and marketing standardized pricing schemes for universal pass programs

AC Transit has developed a standard pricing scheme for universal pass programs and actively markets the programs to a wide range of customers including developers, cities, and educational institutions. AC staff report that the predictable pricing scheme has helped increase program adoption. Other transit agencies could undertake similar efforts, especially in transit-oriented areas where some excess capacity exists.

8. Cities and developers can work together to implement pass programs

Cities can support implementation of universal transit pass programs at new developments by implementing new requirements or by offering developer incentives such as reduced parking or expedited development approvals. Cities can also provide direct subsidies for transit pass programs or implement new taxing districts (e.g., downtown development districts) to fund them. Cities can also encourage small employers or neighborhood associations to form groups for the purpose of obtaining bulk discounts on universal transit pass programs. The cities of San Francisco, Richmond, and Berkeley all have commuter benefit programs. The City of Berkeley is also testing a “Green Path” process to expedite qualifying development proposals that incorporate identified TDM strategies including transit passes.

Developers can propose universal transit passes with reduced parking levels to make new developments more cost-effective; property managers of existing developments could incorporate such programs to allow additional development without additional parking or to allow alternative use of existing parking spaces. One development that was required to provide one transit passes per unit is now contracting for additional transit passes per unit based on the positive responses of potential renters (4th and U Apartments, Berkeley).

9. Congestion management agencies can consider working with multiple jurisdictions to implement transit pass programs along a corridor.

Congestion management agencies (CMAs) can provide technical assistance to cities in their jurisdiction interested in pursuing transit pass programs, or can work with multiple cities to facilitate the implementation of transit pass programs over larger geographic areas. They could also consider a monitoring program, including cities, developers, employers, and schools that provide universal pass programs, potentially through the MTC-funded TPLUS program.

10. Educational institutions can consider implementation of universal transit pass programs along with complementary travel demand management strategies

Colleges and university campuses are often ideally suited to the implementation of transit pass programs, as they are major trip attractors and are frequently located in areas where transit quality is high. They can work with transit agencies to purchase transit passes in bulk for faculty, staff, and students, and can implement complementary policies such as parking pricing. UC San Diego has created a model program that incentivizes the use of transit through transit passes, improved transit services, and real time tracking, along with pricing parking and other amenities for walking and bicycling, to avoid major expenses that were pending for construction of new parking garages.³¹

7.3 CONCLUSION

The TransLink® for Transit-Oriented Development pilot project has demonstrated that a combination of free convenient transit passes and custom marketing has positive immediate and longer-term impacts. There are a number of specific strategies that can be pursued to build on this pilot project, engaging the efforts of various public and private sector entities, including the regional agencies, transit agencies, cities, developers, employers, and schools. When implemented in the right places with the right policies and procedures, a refined program of this nature can be a useful tool in the campaign for higher use of transit and reduced vehicle miles traveled and greenhouse gases.

³¹Source: *If You Build it, They May Not Come!: How to advance sustainable transportation AND save your campus \$50 million*, Sam Corbett, UC San Diego 2008 Sustainability Conference August 2, 2008.

http://www.universityofcalifornia.edu/sustainability/documents/sam_corbett.pdf.

A. Background Research and Case Studies of Residential Transit Pass Programs

This appendix presents background information on typical trip reductions from free transit pass programs and presents several case studies of residential transit pass programs and their effect on automobile trip reduction if analyzed.

A.1 Free Transit Pass Programs and Trip Reduction

One recent review of free transit pass programs indicated they can reduce work-related automobile trips by between four and 24 (average of 12) percentage points, as shown in Table A.1. Similarly, there has been significant research translating case studies of transit fare changes into transit price elasticities. Elasticities indicate the percent increase or decrease in transit ridership expected to occur as a result of a fare increase or decrease. Demand elasticities for bus service are thought to be about -0.28 in the short run, indicating that a 10 percent increase in bus fare should result in about a 2.8 decrease in ridership, and vice versa.³²

Those who are transit-dependent tend to be less sensitive to price increases or decreases, as they have fewer alternatives. Those who own cars are more sensitive to price, as they have a ready alternative.

Research is also available on the expected relationship between transit price changes and changes in automobile travel. One researcher indicates a range of .03 to .1, indicating that every 10 percent decrease in transit fares should result in between 0.3 percent and one percent decrease in automobile travel.³³

Appendix A presents several case studies of residential transit pass programs and their effect on automobile trip reduction, if known. Included are several examples of residential transit pass programs across the country, including experiences with nonprofit developers, for-profit developers, and neighborhoods.

³²David Gillen, *Peak Pricing Strategies in Transportation, Utilities, and Telecommunications: Lessons for Road Pricing*. Curbing Gridlock. TRB (www.trb.org), 1994, pp. 115-151; cited in Todd Litman, *Transit Elasticities and Price Elasticities*, Victoria Transportation Policy Institute, 2007.

³³Todd Litman, *Transit Elasticities and Price Elasticities*, Victoria Transportation Policy Institute, 2007.

Table A.1 Mode Shifts Attributed to Free Transit Pass Programs

Location	Drive to Work		Transit to Work	
	Before	After	Before	After
Municipalities				
Santa Clara (VTA)	76%	60%	11%	27%
Bellevue, Washington	81%	57%	13%	18%
Ann Arbor, Michigan	N/A	(4%)	20%	25%
Universities				
UCLA (faculty and staff)	46%	42%	8%	13%
University of Washington, Seattle	33%	24%	31%	36%
University of British Columbia	68%	57%	26%	38%
University of Wisconsin, Milwaukee	54%	41%	12%	26%
University of Colorado, Boulder (students)	43%	33%	4%	7%

Source: Nelson\Nygaard Consulting Associates, *San Marcos University District Parking and Transportation Demand Management Plan*, Draft report prepared for the City of San Marcos, January 2009.

A.2 Case Studies of Residential Transit Pass Programs

The following are more detailed descriptions of transit pass programs, focusing on residential programs.

Santa Clara Valley Transportation Authority Residential Eco Pass Program

Residential communities in San Jose, California may enter into an agreement with the Santa Clara Valley Transportation Authority (VTA) to provide an Eco Pass to each resident of the community.³⁴ At present, 20 apartment buildings and 2,500 residents currently participate in the program. Building management companies fund approximately 50 percent of the Residential Eco Passes, providing passes to low-income and/or transit-dependent residents. The remaining 50 percent of the Residential Eco Passes are funded by residents. VTA has been working with cities to encourage participation among low-income developers. While the program engaged participation among residential communities and nonprofit organizations in the past, VTA does not have any ongoing agreements with any for-profit developers.

A survey of commuters offered VTA's Eco Pass found that the number of people driving a vehicle to work declined by 14 percent, while the transit mode share increased by 16 percent. Correspondingly, parking demand declined by

³⁴Santa Clara Valley Transportation Authority, *Residential Eco Pass* http://www.vta.org/ecopass/ecopass_resi/eprbenefits.html.

approximately 19 percent.³⁵ As Eco Pass usage data becomes available, VTA will be able to conduct updated measurements of ridership and revenue generation.

Regional Transportation District Neighborhood Eco Pass

Denver's Regional Transportation District (RTD), in partnership with the City of Boulder (GO Boulder), developed a program to offer special regional bus passes to Boulder neighborhoods. Whereas annual bus passes purchased outside the program cost over \$1,900, residents in participating neighborhoods may purchase an annual Neighborhood Eco (NECO) Pass for \$75 to \$170 per household. The City of Boulder subsidizes 50 percent of the neighborhood's costs during the first year under contract, followed by a 25 percent subsidy in most neighborhoods for the following years. As of November 2009, 45 neighborhoods in Boulder and one in Lafayette offer the NECO Pass to more than 11,000 residents.³⁶ Participating residents include a mix of choice riders and transit-dependent riders. RTD expects to issue "smart" fare cards to NECO holders in 2010 that will record actual transit use and collect data to evaluate the viability of the program.

Similar to the NECO program offered to Boulder neighborhoods, employers in the Boulder area are eligible to purchase an annual Eco Pass for all full-time employees. The City of Boulder also provides rebates to participating companies during the first two years under contract. Since the program implementation, local planners estimate that the Eco Pass reduced the drive to work mode share by 36 percent. Boulder's Downtown Management Commission also estimates that the Eco Pass reduced commuter parking demand by 850 spaces.³⁷

San Mateo County Transit District Residential Transit Pass Program

A pilot project initiated by the San Mateo County Transit District (SamTrans) provides free residential transit passes (R-Pass) to the 135 residents of a 58-unit affordable housing apartment complex in Redwood City, California. The apartment complex's nonprofit developer initiated the pilot residential pass program with SamTrans and paid for the one-year passes. In a follow-up survey, approximately 20 percent of residents indicated that the R-Pass enabled them to put off purchasing a second automobile. Other developers expressed interest in

³⁵Parsons Brinckerhoff, *Statewide Transit-Oriented Development (TOD) Study: Factors for Success in California*, Prepared for the California Department of Transportation, February 2002.

³⁶City of Boulder, *Neighborhood Eco (NECO) Pass* http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=8835&Itemid=3322.

³⁷Nelson\Nygaard Consulting Services, *San Marcos University District Parking & Transportation Demand Management Plan*, Draft Report prepared for the City of San Marcos, California, January 2009.

a similar program for their communities, and SamTrans is evaluating the program's revenue impact to determine the viability of future R-Pass programs.

Southern California Regional Rail Authority and the Olson Company Partnership

The Olson Company, a home-building company involved in TOD design and development, partnered with the Southern California Regional Rail Authority (Metrolink) to offer homebuyers a free, two-year residential transit pass upon closing of the sale. The Olson Company prepurchased the passes from Metrolink. The joint marketing campaign provided incentives to potential homebuyers, increased exposure to the Metrolink system, and contributed to at least seven home sales totaling \$3.5 million for the developer as of 2007. Although the program was relatively small in scope, it provides an example of a transit agency working with a for-profit developer to meet shared goals.

Orengo Station Mixed-Use Development

In 1998, the developers of a TOD community near a newly constructed light rail line in Hillsboro, Oregon implemented a Pilot TOD Pass Program to test the effectiveness of transit pass incentives. The developer provided free, one-year transit passes to all new tenants. Prior to the opening of the adjacent light rail line, residents reported a 22 percent increase in transit use for commuting purposes during the first six months of the program. After the light rail service became operational, residents reported a 53 percent increase in transit usage and a reduced need to travel outside of the immediate community for discretionary trips.³⁸ Although the study tested for the impacts that the free transit passes had on transit ridership, it did not assess the impacts on auto ownership.

³⁸The Association for Commuter Transportation, *Mitigating Traffic Congestion – The Role of Demand-Side Strategies*, prepared for the Federal Highway Administration, October 2004. http://ops.fhwa.dot.gov/publications/mitig_traf_cong/orengo_case.htm.

B. Demographic Characteristics of Participating Developments

At the beginning of the T4T program, residents of the 24 selected TODs were asked to provide information about their travel patterns, including primary trip purpose, transit usage, household size, automobile availability, parking availability, and car-sharing usage.³⁹ The data reflect the characteristics of all residents of the development – not just those who signed up for the free transit passes. This data provides a general sense of the characteristics of the residents of the participating developments, although their characteristics may differ slightly from those who ultimately signed up for the free pass. Similarly, comparing the socioeconomic characteristics of the participating TODs to average statistics of the nine-county San Francisco Bay Area reveals potential characteristics that may affect transit ridership and/or the success of future residential transit pass programs.

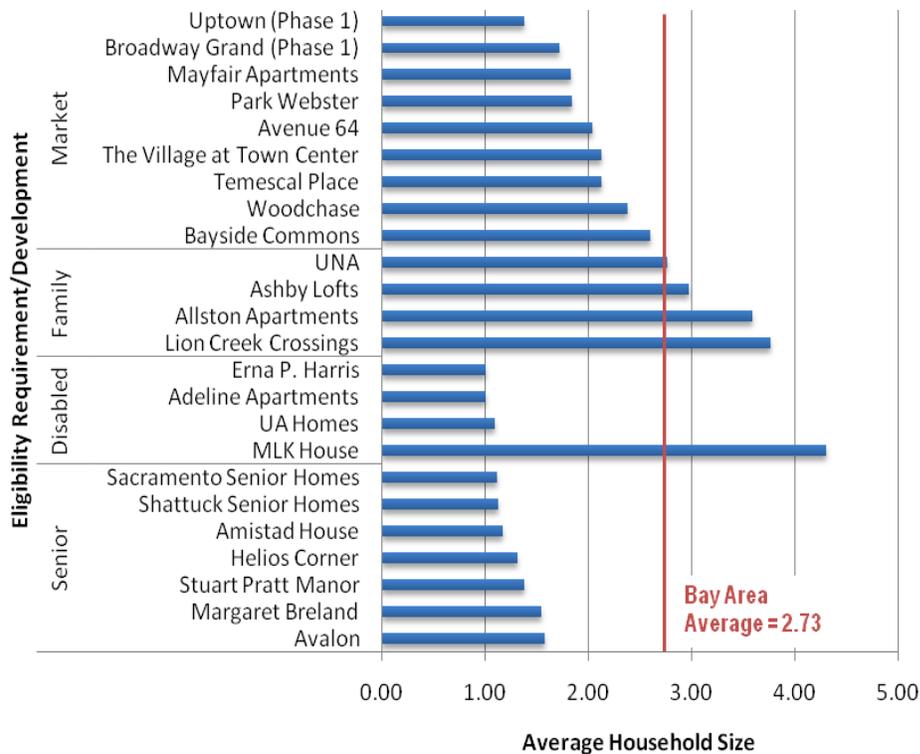
Household Size

The average household size in the San Francisco Bay Area is 2.73 persons per household.⁴⁰ Based on the survey data, the average household size of the participating TOD is somewhat lower at 2.26 persons per household. The lower average is primarily due to near single-occupancy in most of the senior and disabled/transitional developments. As shown in Figure B.1 the average household size at all of the family (below market rate) developments exceeds the Bay Area average, averaging 3.54 people per household. Household sizes among all of the market rate developments are lower than the Bay Area average, ranging from 1.38 in Oakland's Uptown development and 2.60 at the Bayside Commons development in Albany.

³⁹Corey, Canapary & Galanis Research, *TransLink for Transit-Oriented Development Topline Report*, Prepared for Metropolitan Transportation Commission, November 2008.

⁴⁰Metropolitan Transportation Commission, *San Francisco Bay Area Regional Demographic and Travel Characteristics*, Revised September 2006, Accessed June 2009, http://www.mtc.ca.gov/maps_and_data/datamart/stats/baydemo.htm.

Figure B.1 Average TOD Household Size



Automobile Availability

In 2006, the average Bay Area household owned 1.81 vehicles and 9.3 percent of households did not own any vehicles.⁴¹ Automobile availability is substantially lower among the T4T participating developments. The pre-survey found that 35 percent of households at the TOD developments do not own any vehicles, nearly four times the regional average.⁴² At some developments, as many as 94 percent of the respondents reported not owning a vehicle.

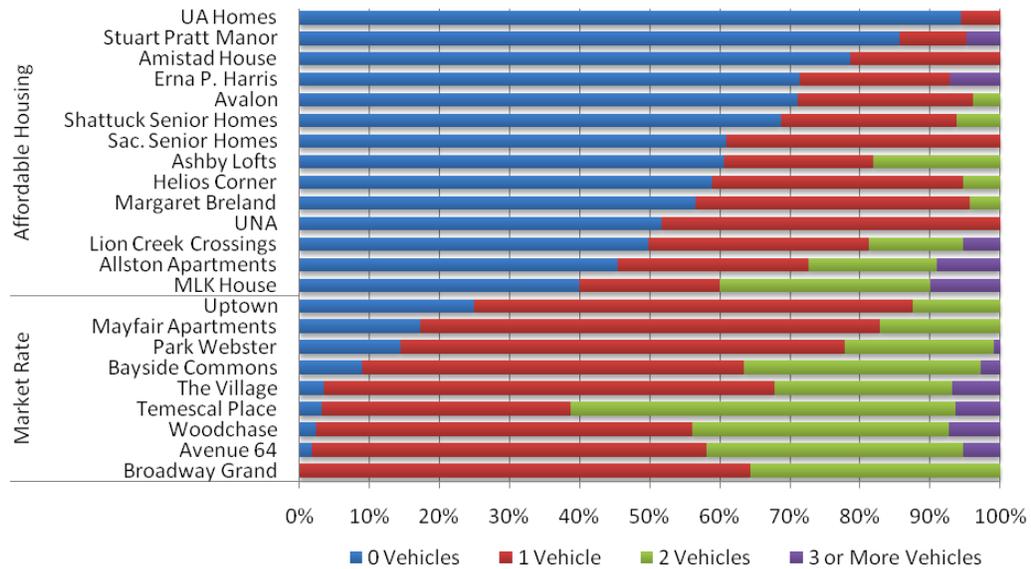
Still below the Bay Area average, Woodchase and Avenue 64 have the highest automobile availability with 1.63 and 1.47 vehicles per household, respectively. The nine market rate developments have the lowest occurrences of zero car households. Whereas 92 percent of the respondents in the market rate developments own one or more vehicles, only 38 percent of the affordable housing

⁴¹Metropolitan Transportation Commission, San Francisco Bay Area Regional Demographic and Travel Characteristics, Revised September 2006.

⁴²Corey, Canapary & Galanis Research, *TransLink for Transit-Oriented Development Topline Report*, Prepared for the Metropolitan Transportation Commission, November 2008.

residents own at least one vehicle. Figure B.2 summarizes the automobile ownership at each TOD development.

Figure B.2 TOD Automobile Ownership



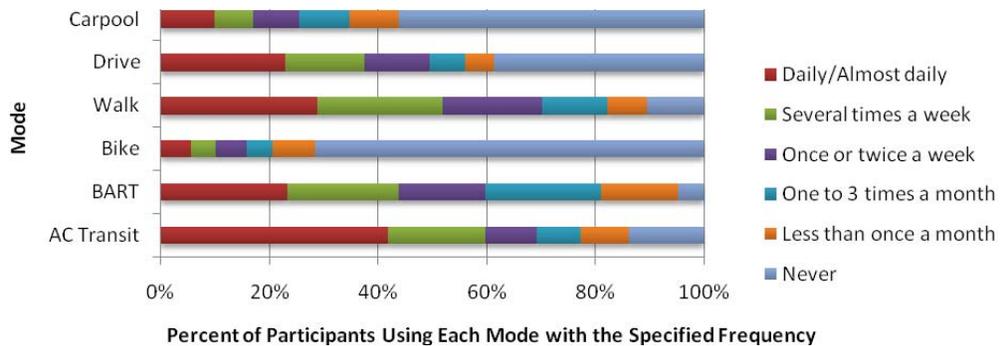
Transit Usage

In the Bay Area, transit usage accounts for approximately 5.5 percent of total daily trips resulting in approximately 1.2 million total transit trips per day.⁴³ Work trips have the highest transit share at 11.1 percent, compared to a transit share of 3.8 percent for total nonwork trips.

Although the pre-survey did not determine the mode split of total trips to/from the participating TOD communities, it revealed a high level of transit ridership among TOD residents. As shown in Figure B.3, roughly one-half of TOD residents travel by car less than three times per month, favoring instead transit (AC Transit and/or BART) and walking. Approximately 42 percent of pre-survey respondents indicated they use AC Transit daily or almost daily, whereas only about four percent indicated that they never ride transit at all. Nearly an even mix of TOD residents reported using transit primarily for nonwork trips (42 percent) as compared to residents using transit primarily for work and school trips (45 percent).

⁴³Metropolitan Transportation Commission, San Francisco Bay Area Regional Demographic and Travel Characteristics, Revised September 2006.

Figure B.3 Frequency of Each Mode Choice before the T4T Program



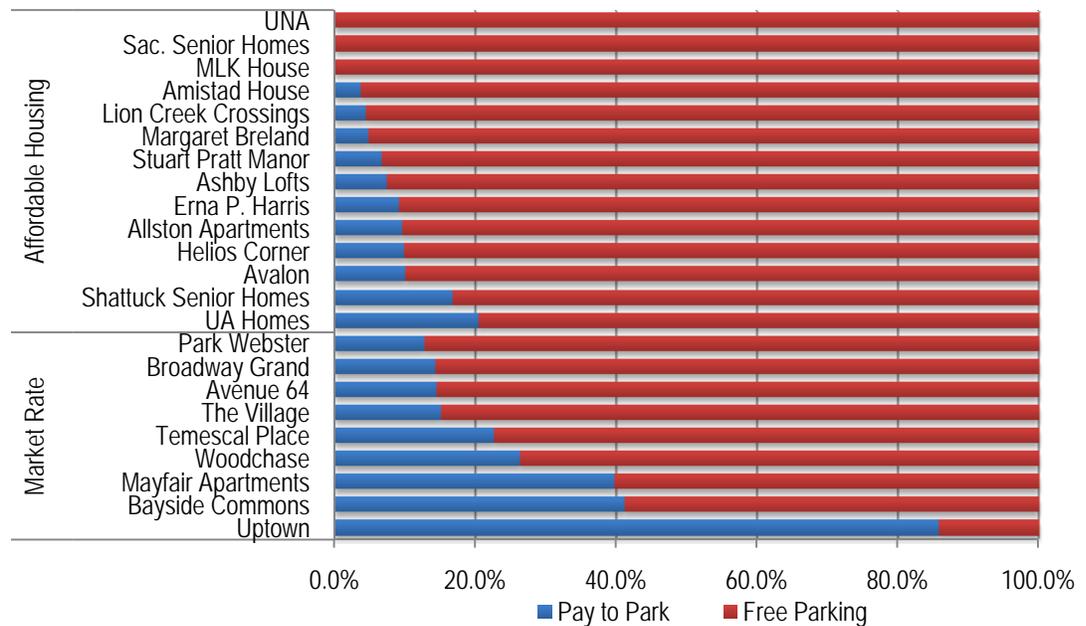
Parking Usage and Availability

Similar to automobile ownership, the availability and price of parking affects transit demand. While free and abundant parking at a trip's origin and/or destination may promote auto access, parking limitations or expensive parking fees may increase transit use. Parking policies and programs promote smart growth and transit accessibility to TODs.⁴⁴

Although the availability of free parking varied among the TODs (see Figure B.4) approximately 18 percent of the pre-survey respondents indicated that they pay for parking at their home address. The Uptown TOD in Oakland had the highest percentage of residents (86 percent) that pay for parking, followed by Bayside Commons and Mayfair Apartments where approximately 40 percent of residents pay for parking. With a couple exceptions (namely Shattuck Senior Homes and UA Homes), residents of the below-market rate developments were less likely to pay for parking.

⁴⁴Metropolitan Transportation Commission, *Reforming Parking Policies to Support Smart Growth*, June 2007.

Figure B.4 TOD Free Parking Availability



Car-Sharing Use

A recent car-sharing study commissioned by Zipcar, Inc. identified the San Francisco Bay Area, alongside Hong Kong, New York City, Paris, and London, as cities with the highest car-sharing potential in the world.⁴⁵ Factors that drive high car-sharing potential include high population densities, extensive public transit systems, and high car ownership costs. City CarShare, a Bay Area non-profit organization that introduced the first car-sharing services to the area in 2001, currently has approximately 12,000 members participating in Bay Area car-sharing operations.⁴⁶ Some developers in the Bay Area provide car-sharing service discounts to attract residents and promote alternative transportation options.⁴⁷

Approximately 45 pre-survey respondents, representing 3.5 percent of the TOD residents, indicated that they use a car-sharing program. Four developments (Woodchase, Uptown, Mayfair Apartments, and Erna P. Harris) have the highest

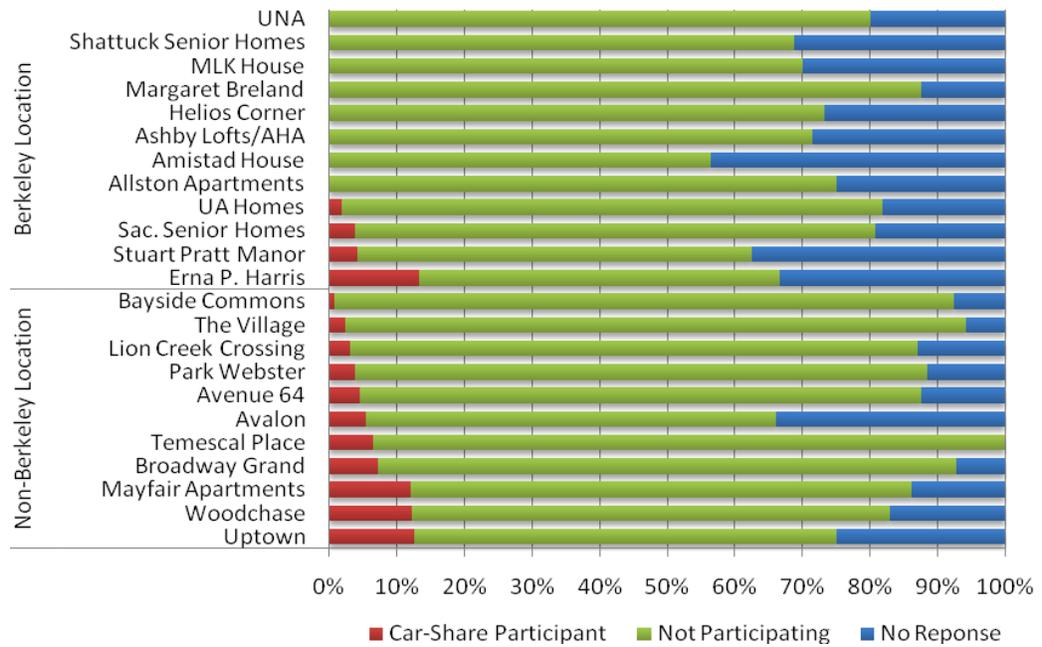
⁴⁵Zipcar, Inc., press release: *Zipcar Announces First Comprehensive Global Car-Sharing Study, Estimates Market Size of 37 Million Members and Over 10 Billion Dollars in Revenues*, June 3, 2009.

⁴⁶Howland, Lance. *Bay Area Leading the Way in Green Automotive Trends*, PublicCEO.com, June 9, 2009.

⁴⁷Rao, Leena. *Developers Find Ways to Drive New Residents Home*, San Francisco Business Times, November 7, 2008.

car-sharing participation at over 12 percent (Figure B.5). At least one resident in each of the non-Berkeley developments reported participating in a car-sharing program. Conversely, eight Berkeley developments had no car-sharing participation among pre-survey respondents. The high percentage of survey respondents that did not reply to this particular survey question (18 percent) may indicate that car-sharing programs are not widely known or understood by residents of participating TODs.

Figure B.5 TOD Participation in Car-Sharing Programs



C. T4T Program Evaluation Questionnaire

MTC TransLink for Transit (T4T) Post Program Survey (version 4.3) – FINAL

INTRODUCTION

1. Hello, I'm _____, with Corey Research. I am calling to do a follow-up survey about the free AC Transit TransLink card program. Do you recall receiving this pass?

INTERVIEWER NOTES:

- *This survey will take about 8-10 min.*
- *This is not a sales call.*
 - *This project is being conducted in cooperation with AC Transit and the Metropolitan Transportation Commission.*
 - *[If person did not use card] We would still very much like your opinions as to why you did not use the card. Your input will be valuable when evaluating this program.*

Yes	1	[GO to Q3]
No	2	[CONTINUE]
Don't know	3	[CONTINUE]

2. Do you recall signing up for your free TransLink card?

Yes	1	[GO to Q2a.]
No	2	Thank/Terminate

2a. Do you know why you did not receive your card?

[Probe for whether respondent followed up, who with, etc.]

3. Are you at least 18 years of age?

No	1	[Thank/Terminate]
Yes	2	[CONTINUE]

4. On a five-point scale, with 5 being "Excellent" and 1 being "Poor", how would you rate your experience with the free TransLink card program? (Record any number between 1 through 5)

5 Excellent
4
3
2
1 Poor

[] Don't know

4a. Why is that?

USE OF THE TRANSLINK CARD

5. While you had the free TransLink card, about how many days per week did you use AC Transit (with or without the TransLink card)?

[Read list if necessary]

- 1 6 or more days a week
- 2 5 days a week
- 3 3 - 4 days a week
- 4 1 - 2 days a week
- 5 1 - 3 days a month
- 6 Less than once a month
- 7 Never - did not use AC Transit during this time

[skip to Q7, then

skip to Q13]

6. How often did you use the free TransLink card for these rides? *[Read list]*

- 1 Always
- 2 Most of the time
- 3 Sometimes
- 4 Never
- 5 Don't know

(If sometimes or never, ask)

6a. Briefly, why is that?

7. You said you used AC Transit about _____ (*pick up from Q4*) while you had the free TransLink card. About how often did you use AC Transit before you got the TransLink card?

[Read list if necessary]

- 1 6 or more days a week
- 2 5 days a week
- 3 3 - 4 days a week
- 4 1 - 2 days a week
- 5 1 - 3 days a month
- 6 Less than once a month
- 7 Never - did not use AC Transit before getting card

8. While you had the free TransLink card, did you take any of the following types of trips on AC Transit?

[Read list. Mark all that apply]

- a) Commuting to work or attending work-related meetings
- b) Attending school
- c) For any other reason besides work or school

[Ask Q9 – Q11 series for each trip type selected in Q8]

Think about the _____ [pick up trip type] trips you took while you had the TransLink card.

9. About how many times did you use the pass for these trips in an average week? (Read list if necessary)

Write in number: _____

[Note: 98 = less than once per week; 99 = don't know]

10. If you did not have this card, how would you have (typically) gotten to your destination? You can select more than one response. (Read List. Accept multiples)

- a) Same way - would have used AC Transit
- b) Would not have made the trip
- c) Would have driven
- d) Would have gotten a ride/ Carpooled
- e) Would have used BART (or another transit system)
- f) Would have walked or biked the entire way
- g) (or) some other way (specify: _____)
- h) Don't know (Do not read)

[If would have driven or gotten a ride selected above and at least one other response selected, ask]^

10_1. About how many of the ____ (total trips) would you have driven or gotten a ride if you did not have the free TransLink card for these trips?

Write in number: _____

11. Did you take this _____ [pick up trip type] any more often because you had the free TransLink card?

- 1 Yes
- 2 No
- 3 Maybe

^If less than once per week in Q9, skip Q10_1

12. Did you use the TransLink card to travel to any destinations you had not been before, or did you only visit destinations you had already visited?

- 1 Only visited places I had been before
- 2 Visited new places
- 3 Don't know

[If visited new places in Q12, ask]

12a. Did any other members of your household travel with you when you visited these new places?

- 1 Yes
- 2 No
- 3 No - I'm the only person in my household
- 4 Don't know

[If yes in Q12a, ask]

12b. Did any of these household members have also have free TransLink cards?

- 1 Yes
- 2 No
- 3 Don't know

13. Think about your use of all types of public transit now, compared to before you received the TransLink free card. Do you feel you use transit... *[Read List]*

- 1 More now
- 2 About the same now
- 3 Less now
- 4 Don't know

[If "More Now", ask] 13a. Why do you use transit more now?

[If "Less Now", ask] 13b. Why do you use transit less now?

TECHNICAL SUPPORT

14. Did you have any problems using your free TransLink card?

- 1 No [Skip to Q18]
2 Yes
3 No - never used card [Skip to Q18]

15. What type of issues did you encounter with your card? [Mark all that apply]

- a) I did not know card had expired
 b) Card just stopped working/would not work
 c) Lost/stolen card
 d) Card reader problems (e.g. card doesn't always work)
 e) Other (specify)_____

16. What did you do when you encountered these issues?

17. Did you continue to use the card after you had this/these problems?

- 1 Yes
2 No
3 Don't Know

[If No in Q17, ask]

17a. About how long was the card active (usable) before it stopped working/it was lost or stolen [pick up from Q15]?

_____ (specify # of weeks)
[Note: 99 = don't know]

TRANSITION - POST-TRANSLINK

18. Are you currently using a TransLink card that you've added your own funds to, now that the free period has expired?

- 1 Yes*
- 2 No
- 3 Don't know
- 4 Card did not expire yet

**Includes those who purchased a new discount (senior/disabled) Regional Transit Connection (RTC) TransLink card.*

[If Yes, ask] 18a. Why did you decide to continue using TransLink?

[If No, ask] 18b. Why did you decide not to continue using TransLink?

[Note: Skip Q18b if did not use transit in Q5]

18c. Did you receive a LETTER indicating the free period would be expiring, with instructions on how to add funds and continue using TransLink?

- 1 Yes
- 2 No
- 3 Don't Know
- 4 Not asked

DEMOGRAPHICS

Now to finish up, I would like to ask you a few questions for classification purposes only. *[If necessary, add: all of your responses will be kept strictly confidential]*

19. In which of these categories does your age fall? *[Read responses, check one only]*

- 1 18 to 24 years old
- 2 25 to 34
- 3 35 to 44
- 4 45 to 54
- 5 55 to 64
- 6 65 and over
- 7 Refuse (DO NOT READ)

20. What ethnic group do you consider yourself a member of? (If hesitates) Are you White, Black/ African, Hispanic or Latino, Asian or Pacific Islander, Native American or of some other ethnic or racial background? *[Multiple responses accepted]*

- a) White
- b) Black or African American
- c) Hispanic or Latino
- d) Asian
- e) Native Hawaiian or Other Pacific Islander
- f) Native American or Alaska Native
- g) Other (Specify) _____
- h) (DO NOT READ) Refused
- i) (DO NOT READ) No Other/Next Question

21. Including yourself, how many people currently live in your household?

Record number (Refuse=99).

_____ *Note: if '1' or '99' skip to Q.23*

22. Did anyone else in your household sign up for the free TransLink card program?

- 1 Yes
- 2 No
- 3 Don't know

[If yes in Q22, ask]

22a. Were any of them under 18 years old?

- 1 Yes
- 2 No
- 3 Don't know

23. How many registered vehicles (including cars, light trucks, vans, or motorcycles) are owned by you or those in your household (and kept at home address)?

Record number (Refuse=99). _____

24. What is your current job status? [Read responses, check one only]

- 1 Employed full-time *
- 2 Employed part-time *
- 3 Homemaker
- 4 Student
- 5 Retired
- 6 Unemployed
- 7 (DO NOT READ) Disabled
- 8 Other (specify): _____
- 9 (DO NOT READ) Refuse

**if self-employed, probe and code into employed full-time or part-time.*

25. Is my information correct that you lived at the _____ [pick up residential facility from sample sheet] when you signed up for the TransLink program?

- 1 Yes
- 2 No
- 3 Refused

[If yes in Q25, ask]

26. Do you still live there?

- 1 Yes
- 2 No
- 3 Refused

[If no in Q26, ask]

27. (About) when did you move?

_____ (type in date)

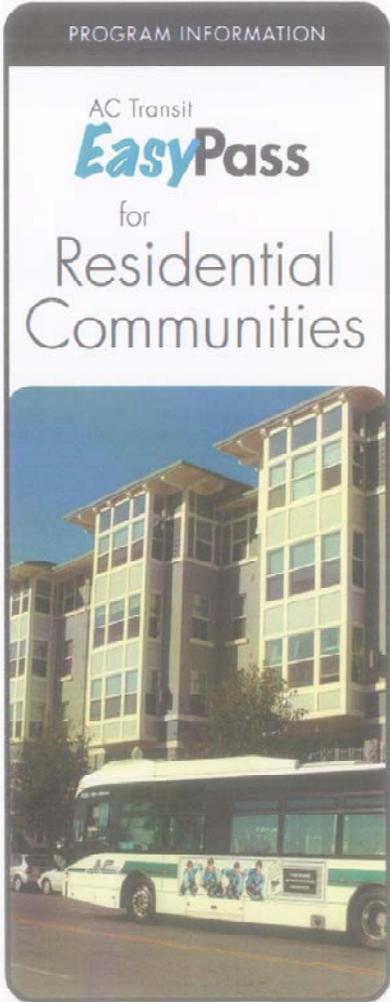
That's all our questions! Thank you so much for your help.

If Appropriate, add: Information from this survey will help to shape future transportation programs in your area..

Comments: _____

Thank and End Call

D. AC Transit Residential Pass Pricing Brochure



The image shows a brochure titled "PROGRAM INFORMATION" for the "AC Transit EasyPass for Residential Communities". The brochure features a photograph of a modern multi-story residential building with a white and green AC Transit bus parked in front. The text on the brochure is as follows:

What Is the AC Transit EasyPass Program for Residential Communities?

The AC Transit EasyPass program provides discounted bus passes, valid at any time on all AC Transit local and transbay buses to qualified residential communities with 100 or more units (one pass per unit minimum.) Similar programs are available to employers and colleges.

Why EasyPass?

The AC Transit EasyPass program is great for your bottom line and the environment. Enabling residents to use the bus instead of driving alone is one of the most effective ways to reduce their carbon footprint and help make the world a little greener. Getting residents to use EasyPass reduces parking demands, alleviates traffic congestion, and saves you money. Parking spaces are valued up to \$50,000 each in some cities.

The biggest benefit to having an EasyPass program for your residents is the awesome discount. When compared to buying fares at full price, users can realize big savings. In fact, the most expensive annual price for a residential EasyPass is less than the monthly price of a regular pass with equal service! Residential developers may receive tax

† Adult transbay pass provides the same service as EasyPass on all AC Transit lines, but costs \$132.50 per month.

deductions and possibly parking mitigation from their city planning departments while providing an incentive for full occupancy in a competitive market place. Establishing an EasyPass program may help a developer qualify for green certification. The residential development's homeowner's association, building manager, leasing agency, or real estate developer can purchase EasyPasses for every unit/home within the community.

The program is easy to start and to administer. Once signatures are complete for the EasyPass proposal and agreement, AC Transit will create the EasyPass cards and work with the developer to form a process for distributing the passes to participants. EasyPass comes with basic marketing, reporting, and survey services, so employers can

assess how the program is working. Just using the AC Transit EasyPass two days a week will not only help the environment, but will pay for itself in a short time! Residents that use their EasyPass all year long can realize big savings.

How Does EasyPass Work?

EasyPass is loaded onto a TransLink® card, the regional transit-fare smart card, with the resident's name and photo on the back. EasyPass participants simply "tag" the card on the reader at the front of any AC Transit bus each time they board. The TransLink card is convenient and can also be used on BART, Muni, Golden Gate Transit and Ferry, and Caltrain when the resident adds electronic cash (e-cash) or other agency fare media to the card. If a resident moves away from the development (and the EasyPass benefit), AC Transit deactivates the pass portion from the card so the cardholder can continue to use the card by adding money for full fare passes.

AC Transit EasyPass Pricing Matrix for Residential Communities

Level of Transit Service	Number of Program Participants (Annual price per participant)				
	100-500	501-1,000	1,001-5,000	5,001-10,000	10,001+
1	\$115	\$98	\$82	\$65	\$49
2	\$103	\$89	\$74	\$61	\$46
3	\$89	\$78	\$66	\$55	\$43
4	\$77	\$67	\$59	\$50	\$41



How Is EasyPass Pricing Calculated?

The program is valid for a defined population—all residential units within the residential development.

There is a minimum requirement of 100 units or more and one EasyPass per unit. Owners must provide passes for all units in the development regardless of current or anticipated pass usage.

The EasyPass is not refundable or transferable to anyone else. EasyPass pricing factors in the size of the residential development; the level of AC Transit service offered to the development; and some pass production and program management costs.

The developer/owner pays an annual per-unit price based on the pricing matrix shown in this brochure. Developers/owners can choose to subsidize the entire cost, a portion of the cost, or pass the cost on to residents. The developer/owner is responsible for making all payments due to AC Transit.

How Do We Get Started?

Visit our Web site at www.actransit.org/easypass and click on the Residential Communities tab for more details. Then call (510) 891-4709 or email EasyPassInfo@actransit.org to get answers to your questions, or to request a meeting with the EasyPass team.

From Richmond to Fremont, and all communities in between, AC Transit runs 24 hours a day serving over 69 million passengers a year. With 105 bus lines (26 traveling to San Francisco, San Mateo, and Palo Alto) and more than 6,500 bus stops, AC Transit gets people where they need to go.



Alameda-Contra Costa Transit District
1600 Franklin Street
Oakland, CA 94612
Call 511
Visit www.actransit.org

0066-10

Marketing - April 2010