

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

**Title VI Assessment for the
Fare Increase effective July 1, 2012**

April 30, 2012

EXECUTIVE SUMMARY

Resolution 4885, adopted by the BART Board in 2003, authorized four biennial, inflation-based, fare increases. The amount of the increase is based on the change in inflation over a two-year period, with one-half percent subtracted from that number to account for ongoing improvements in BART operating efficiencies. The last in the series of such productivity-adjusted inflation-based fare increases, calculated at 1.4%, is scheduled to be implemented on July 1, 2012.

In conformance with its current Title VI procedures, BART undertook an equity analysis of the July 2012 fare increase and actively sought public input in a variety of ways using approaches outlined in BART's Public Participation Plan.

The public was asked about the inflation-based fare increase and two other fare scenarios that are estimated to generate the same amount of revenue (\$4.8 million) in the upcoming fiscal year. Feedback was also requested regarding continuation of BART's current inflation-based fare increase program for future years. Public outreach results are summarized in a separate "Public Participation Summary Report for the Fare Increase effective July 1, 2012."

The disparate impact analysis described in this report shows that the inflation-based fare change analyzed would not result in a disproportionately high and adverse effect on minority or low-income populations compared, respectively, to non-minority and non-low-income populations.

Highlights from the disparate impact analysis and input from the public can be summarized as follows:

- The inflation-based fare increase will not result in a disproportionately high and adverse effect on minority and low-income groups, as compared to non-minority and non-low-income groups, respectively.
- The inflation-based fare increase will not increase BART's minimum fare of \$1.75 and thus would have no impact on the approximately 20% of BART passengers paying the minimum-fare, who experienced a 17% increase with BART's 2009 fare increase. Approximately 39% of passengers paying the minimum fare are considered low-income.
- In addition to the July fare increase question, the survey included a question about extending BART's current inflation-based fare increase program to future years. As reported in the "Public Participation Summary Report for the Fare Increase effective July 1, 2012," it is worth noting that approximately 60% of the responses indicated support for continuation of the inflation-based program.

Based on findings that the last in a series of inflation-based fare increases the Board approved in 2003 has no disparate impact, staff recommends the 1.4% inflation-based increase be implemented as scheduled on July 1, 2012. The Board has already given the General Manager authority to implement the increase, and so no further action is required by the Board to proceed with the change.

1. INTRODUCTION

To ensure compliance with federal and state civil rights regulations, including but not limited to Title VI of the Civil Rights Act of 1964 and FTA Circular 4702.1A, dated May 13, 2007, BART performs an analysis of any fare change to determine if the change has a disproportionately high and adverse effect on minority and/or low-income populations. BART also conducts outreach to the public to receive their input on the fare change, consistent with BART's Public Participation Plan, dated July 8, 2011, and the FTA Circular's requirement to provide meaningful opportunities for underrepresented populations to participate in transportation decisions.

This report documents BART's Title VI disparate impact analysis for the inflation-based fare increase scheduled to become effective July 1, 2012 and estimated to generate approximately \$4.8 million in Fiscal Year 2013 (July 1, 2012 through June 30, 2013). Results from public participation activities are summarized in a separate "Public Participation Summary Report for the Fare Increase effective July 1, 2012." The Preliminary FY13 Budget includes the assumption that this additional revenue will be available, which will help contribute to BART's unfunded capital program needs, including the complete replacement of its 669 train car fleet.

Per Resolution 4885 adopted in 2003, the BART Board gave the General Manager authority to implement four biennial productivity-adjusted inflation-based fare increases. The July 2012 increase is the last in the series of increases. This assessment is being conducted to evaluate equity impacts prior to the implementation of the fare increase.

The fare increase formula, as approved in Resolution 4885, calculates the change in both national and local inflation over a two-year period, takes the average of these two changes, and then subtracts out 0.5% to account for improved BART operating efficiencies; thus, the increase is actually less than inflation.¹

For the public outreach, staff presented fare scenarios that would each generate approximately the same amount of revenue. The table below shows the minimum fare and average fare for the three fare scenarios.

	Minimum Fare	Average Fare
Current Fare	\$1.75	\$3.71
Increase all fares by an inflation-based 1.4%, rounding to the nearest nickel.	\$1.75	\$3.75
Increase fares for trips from the East Bay to San Francisco and from San Francisco to the East Bay by \$0.10.	\$1.75	\$3.75
Increase all fares by \$0.05.	\$1.80	\$3.76

¹ For the July 2012 fare increase, the two-year period over which the change is measured is 2008 to 2010, which resulted in actual inflation of 1.9%. Subtracting 0.5% "productivity factor" results in a fare increase of 1.4%.

2. DISPARATE IMPACT ANALYSIS

2.1 Assessing Fare Increase Effects

This section describes the data and methodology used to assess the effects of a fare change on minority and low-income populations following the procedures in FTA Circular 4702.1A Section V.4.a, Option A.

In BART's 2010 Title VI Corrective Action Plan, BART outlined a process for assessing the effects of its proposed fare changes. This process has three steps:

1. "Assess the effects of the proposed fare change on minority and low-income populations at the planning and programming stages of the proposed fare change."
2. "Assess the alternatives available for people adversely affected by the fare increase."
3. "Determine which if any of the proposals under consideration would have a disproportionately high and adverse effect on minority and low-income riders."

If a finding is made that the proposed fare change would have disproportionately high and adverse effects on low-income or minority populations, BART will develop proposed mitigation actions for public comment in accordance with BART's inclusive Public Participation Plan and, after receiving public comment, bring the proposed mitigation actions to the BART Board for approval. Mitigation is neither necessary nor required where no disproportionately high and adverse effect is found.

2.2 Data and Methodology Used

The primary data used in the analysis are the following:

- Year 2010 U.S. Census for data on race/ethnicity for the BART service area
- American Community Survey (ACS) data estimates for 2006 through 2010 for information on household income.
- 2008 BART Station Profile Study. With more than 52,000 surveys completed by weekday riders in spring 2008, the Station Profile Study summarizes the largest survey ever conducted by BART of how BART riders use and access the system, including home origin station.
- Actual BART fares, before and after the fare increases; these are the full fares and do not reflect the various discounts available to riders.
- Actual 2011 average weekday BART ridership.

Methodology

The methodology used to assess the effects of the fare increase calculates the weighted average systemwide fare increase for (a) minority and non-minority populations and (b) low-income and non-low-income populations. The increases are then compared between the protected (minority or low-income) and nonprotected (non-minority or non-low-income) groups to determine if there was a disproportionately high and adverse effect on minority or low-income populations when compared respectively to non-minority or non-low-income populations.

For each BART station, census data is used to determine the percent of population within its service area that is minority and that is low-income. The service areas are defined by a

mapping of census tracts to geocoded addresses from the 2008 BART Station Profile Study.

Population race data by tract is available from the 2010 census. Non-minority includes only those who are White alone (single race) and non-Hispanic. Minority includes everyone else (Hispanic, non-white, and/or multi-racial). The systemwide BART service area is 59% minority, as described in Appendix A.

Household income data by census tract are not available in the 2010 census; thus, to get these data at the tract level, the Census Bureau's American Community Survey (ACS) data estimates for 2006 through 2010 are used (data from an annual ACS is reported for areas with population of 65,000 or more). For the purposes of these analyses, low-income is defined as under 200% of the federal poverty level.² The 200% threshold was used to account for the high cost of living in the Bay Area compared to the rest of the country and therefore is a more inclusive definition of low-income populations. The 200% threshold is also consistent with the assumptions employed by the Metropolitan Transportation Commission in its February 2009 Equity Analysis Report. The systemwide BART service area is 24% low income, as described in Appendix A.

The steps used to assess the effects of a fare change are described in Appendix B. Results were generated for all stations in the BART system except the San Francisco International Airport (SFO) and West Dublin/Pleasanton stations. The SFO Station does not have population within its service area (that is, no BART passengers use the SFO Station as their home-based station of origin), and West Dublin/Pleasanton had not yet opened when the 2008 Station Profile survey was done so its service area could not be mapped.

2.3 Disparate Impact Analysis Results

Systemwide current and proposed weighted average fares for minority and non-minority riders and for low-income and non-low-income riders were calculated, using the service area population and household totals and the minority and low-income percentages obtained for each station, as described in Appendix B.

Table 1 shows the results of this calculation for the inflation-based 1.4% increase to all fares. Note that the percent change is slightly lower than 1.4% because BART fares are rounded to the nearest nickel.³ A 1.4% increase to BART's lowest fare of \$1.75 rounds to \$1.75, leaving this fare unchanged and resulting in a systemwide average increase of less than 1.4%.

Approximately 65,000, or 20%, of BART's average weekday trips are taken on BART by riders paying the minimum fare. The 2009 fare increase increased the minimum fare to \$1.75 from \$1.50, a 17% fare increase for passengers paying the minimum fare.

² As a reference, for a single person household, 200% of the federal poverty level in 2011 was \$22,982. For a two adult, two child household, the 200% threshold was \$46,036.

³ Fares in the following tables represent a systemwide average of fares paid by the various groups and thus are not rounded to the nearest nickel.

Table 1. Inflation-based 1.4% Increase to All Fares

	Weighted Average Fare		% Change	Dollar Change
	Current	After Increase		
Minority	\$ 3.653	\$ 3.700	1.29%	\$ 0.047
Non-Minority	\$ 3.821	\$ 3.872	1.34%	\$ 0.051
Low Income	\$ 3.551	\$ 3.596	1.27%	\$ 0.045
Non-Low Income	\$ 3.738	\$ 3.787	1.32%	\$ 0.049

Table 1 shows that in the 1.4% increase scenario, low-income and minority riders would experience slightly lower percentage and dollar fare increases compared to non-low-income and non-minority riders.

With a \$0.10 increase to fares for trips between San Francisco and the East Bay, minority riders would experience lower percentage fare increases than non-minority riders. Low-income riders would experience higher average fare increases than non-low-income riders, but the difference between the two groups (1.21% vs. 1.19%) is extremely small.

With a \$0.05 increase to all fares, low-income and minority riders would experience higher average percentage fare increases compared to non-low-income and non-minority riders. However, the respective differences are small: 1.37% vs. 1.31% and 1.41% vs. 1.34%. In terms of dollar change, all riders would experience a \$0.05 increase.

2.4 Alternatives Available for People Affected by the July 2012 Fare Increase

This section analyzes alternative transit modes, fare payment types, and fare payment media available for people who could be affected by the fare increase. The analysis compares fares increased by the 1.4% inflation-based amount with fares paid through available alternatives. The section also includes a demographic profile of users by BART fare payment type.

2.4.1 Alternative Transit Modes including Fare Payment Types

BART operates a single mode, heavy rail. However, there are four major operators in the BART service area that provide service parallel to some segments of the BART system:

- AC Transit: Bus operator with service in Alameda County and parts of Contra Costa County, and between parts of Alameda County and downtown San Francisco.
- Caltrain: Commuter rail with service from Gilroy in the South Bay through to downtown San Francisco.
- SamTrans: Bus operator with service in San Mateo County.
- San Francisco Muni: Bus and light rail operator serving the City and County of San Francisco.

The table below compares BART fares and the fares of operators providing service in parts of the BART service area.

Effective July 2012	Adult Local Fare	Adult Pass Price
BART		
Current minimum fare	\$1.75	N/A
Inflation-based 1.4% increase to all fares	\$1.75	N/A
AC Transit	\$2.10	\$80
Caltrain (zone-based)	\$2.75-\$12.75	\$73-\$338
SamTrans	\$2.00	\$64
San Francisco Muni	\$2.00	\$74*

*This pass is also good for unlimited rides on BART within San Francisco.

In comparing the other operators' fares to BART fares, the local cash fares of the other operators are higher than BART's current minimum fare and the minimum fare with the 1.4% inflation-based fare increase (\$1.75). A rider could pay a fare using the other operators' passes that would be less expensive than the \$1.75 BART fare under the following circumstances:

- AC Transit: Rider takes more than 45 trips per month.
- Caltrain: Rider takes more than 41 trips per month (based on \$73 pass).
- SamTrans: Rider takes more than 36 trips per month.
- San Francisco Muni: Rider takes more than 41 trips per month.

2.4.2 BART Fare Payment Types, Fare Payment Media and Payment Method by Protected Group

The demographic profile of each fare type user from 2010 Customer Satisfaction Survey data is shown in the table below. Those data show minority and non-minority riders are similar in their usage of ticket types and fare media, although minority riders are somewhat less likely to use the 62.5% discounted tickets for seniors, people with disabilities, and children. Low-income and non-low-income riders use ticket types and fare media in less similar ways. Low-income riders are more likely to use the regular fare product and less likely to use the high-value discount fare product. Low-income riders are slightly more likely to use the 62.5% discounted tickets and the Muni Fast Pass.

BART Fare Payment Ticket Type, Fare Media and Payment Method by Ethnicity and Income*

Fare Payment Type	Fare Media	Payment Method	Non-Minority	Low Income under \$50K	Non-Low Income over \$50K
Regular fare	Magnetic stripe ticket, Clipper smart card	Cash, credit/debit card, check, transit benefit payments	61.6%	63.4%	70.7% 56.5%
6.25% higher-value discount (\$48 in value sold for \$45 or \$64 in value sold for \$60)	Magnetic stripe ticket, Clipper or EZ Rider smart	Cash, credit/debit card, check, transit benefit payments	26.8%	24.4%	16.0% 33.6%
BART Plus, joint operator instrument **	Magnetic stripe ticket	Cash, credit/debit card	1.0%	.2%	.9% .7%
62.5% discount for seniors, people with disabilities and youth aged 5 to 12	Magnetic stripe ticket, Clipper smart card	Cash, credit/debit card, check	4.1%	7.0%	6.0% 4.4%
50% discount to middle and high school students at participating schools (\$32 ticket sold for \$16)	Paper magnetic stripe ticket	Cash, credit/debit card, check	1.2%	.4%	1.0% .4%
Muni Fast Pass (San Francisco Muni monthly pass accepted on BART in SF)***	Magnetic stripe ticket, Clipper smart card	Cash, credit/debit card, check, transit benefit payments	4.7%	3.8%	5.1% 3.8%
Other or n/a	n/a	n/a	.5%	.7%	.3% .7%
Total			100.0%	100.0%	100.0% 100.0%

*Source: 2010 Customer Satisfaction Survey

**6.25% discount on BART at point-of-sale, flash pass on ten regional bus operators, sold in multiple denominations

***Unlimited rides on San Francisco Muni system and BART within San Francisco. SFMTA is solely responsible for setting the price of the Fast Pass.

Note: Children and students are under-represented in survey sample, as only those who appeared to be age 13+ were surveyed.

\$50K income threshold approximates the under 200% federal poverty level threshold using available 2010 Cust. Sat. Satisfaction Survey income categories

2.5 Disparate Impact Analysis Finding

Pursuant to FTA Circular 4702.1A dated May 13, 2007, a disproportionately high and adverse effect is defined as an adverse effect that either “is predominantly borne” by minority and/or low-income populations or “is appreciably more severe or greater in magnitude” than the adverse effect suffered by non-minority and/or non-low-income populations. BART uses this definition to determine if any fare change would have such an effect.

The analysis results are as follows:

- With the inflation-based 1.4% increase, the protected groups experience slightly lower average fare increases, compared to the non-protected groups. In both cases, the difference of 0.05% between protected and non-protected groups is virtually identical.
- Under the \$0.10 increase to fares for trips between San Francisco and the East Bay in either direction, minority riders experience a 0.07% lower increase than non-minority riders. Low-income riders would experience a 0.02% greater average fare increase. In both cases, the differences between protected and non-protected groups are virtually identical.
- With the \$0.05 increase, the protected groups experience higher average fare increases than the nonprotected groups; however, the difference is 0.06% for minority compared to nonminority, and 0.07% for low-income compared to non-low-income. These results are virtually identical.

Therefore, none of the fare increases analyzed would result in differences that are “appreciably more severe or greater in magnitude” for the minority and low-income

populations when compared respectively to non-minority and non-low-income populations and so do not have a disproportionately high and adverse effect on them.

3. CONCLUSION

The disparate impact analysis shows that the inflation-based 1.4% fare increase would not result in a disproportionately high and adverse effect on minority and/or low-income populations compared to non-minority and/or non-low-income populations. BART actively sought public input in a variety of ways, using approaches outlined in BART's Public Participation Plan, as described in the separate "Public Participation Summary Report for the Fare Increase effective July 1, 2012."

Based on findings that the last in a series of inflation-based fare increases the Board approved in 2003 has no disparate impact, staff recommends the 1.4% inflation-based increase be implemented as scheduled on July 1, 2012. The Board has already given the General Manager authority to implement the increase, and so no further action is required by the Board to proceed with the change. Staff recommendation is based upon the following findings:

- The inflation-based fare increase will not result in a disproportionately high and adverse effect on minority and low-income groups, as compared to non-minority and non-low-income groups, respectively.
- The inflation-based fare increase will not increase BART's minimum fare of \$1.75 and thus would have no impact on the approximately 20% of BART passengers paying the minimum-fare, who experienced a 17% increase with BART's 2009 fare increase. Approximately 39% of passengers paying the minimum fare are considered low-income.
- In addition to the July fare increase question, the survey included a question about extending BART's current inflation-based fare increase program to future years. As reported in the "Public Participation Summary Report for the Fare Increase effective July 1, 2012," it is worth noting that approximately 60% of the responses indicated support for continuation of the inflation-based program.

APPENDIX A: Determination of Predominantly Minority or Low-Income BART Service Area Census Tracts

The BART service area used in these analyses was the four-county region that BART serves: Alameda, Contra Costa, San Francisco, and San Mateo counties. This is the same service area used in BART's Public Participation Plan. The following process was followed to identify census tracts in the BART service area that are predominantly minority or low-income tracts.

1. Using the 2010 census data, the percent of minority population for the BART service area as defined above was estimated to be 59.4%.
2. Next, using the 2010 census data, the percent of minorities for each census tract within the BART service area was estimated. If the percent of minorities in any single census tract was found to be greater than the four-county percentage of 59.4%, then that census tract was flagged as predominantly minority.
3. Using the American Community Survey (ACS) data estimates for 2006 through 2010, the percent of the population that is low-income within the BART service area was determined to be 23.9%. Low-income was defined as under 200 percent of the federal poverty level.⁴ The 200% threshold was used to account for the high cost of living in the Bay Area compared to the rest of the country and therefore is a more inclusive definition of low-income populations. The 200% threshold is also consistent with the assumptions employed by the Metropolitan Transportation Commission in its February 2009 Equity Analysis Report.
4. Next, using the ACS data, the percent of low-income population was determined for each tract. If that value for any single census tract was found to be higher than the service area percentage of 23.9%, then that tract was mapped as a predominantly low-income tract.

The results of this process indicate the following for the 918 populated census tracts that comprise the four-county BART service area, as mapped in Figure 1 and Figure 2 on the next pages:

<i>Minority Population Tracts</i>	<i>Service Area Census Tracts</i>	<i>% of Tracts</i>
Minority Tract: a tract is counted as predominantly minority if more than 59.4% of that tract's population is minority	454	49%
Non-Minority Tract	464	51%
Total	918	100%

<i>Low-income Population Tracts</i>	<i>Service Area Census Tracts</i>	<i>% of Tracts</i>
Low-income Tract: a tract is counted as predominantly low-income if more than 23.9% of the tract's households have incomes under 200% of federal poverty level	372	41%
Non-Low-income Tract	546	59%
Total	918	100%

⁴ As a reference, for a single person household, 200% of the federal poverty level in 2011 was \$22,982. For a two adult, two child household, the 200% threshold was \$46,036.

Figure 1: Locations of Predominantly Minority Population in the BART Service Area

Minority Population



U.S. Census Bureau 2010

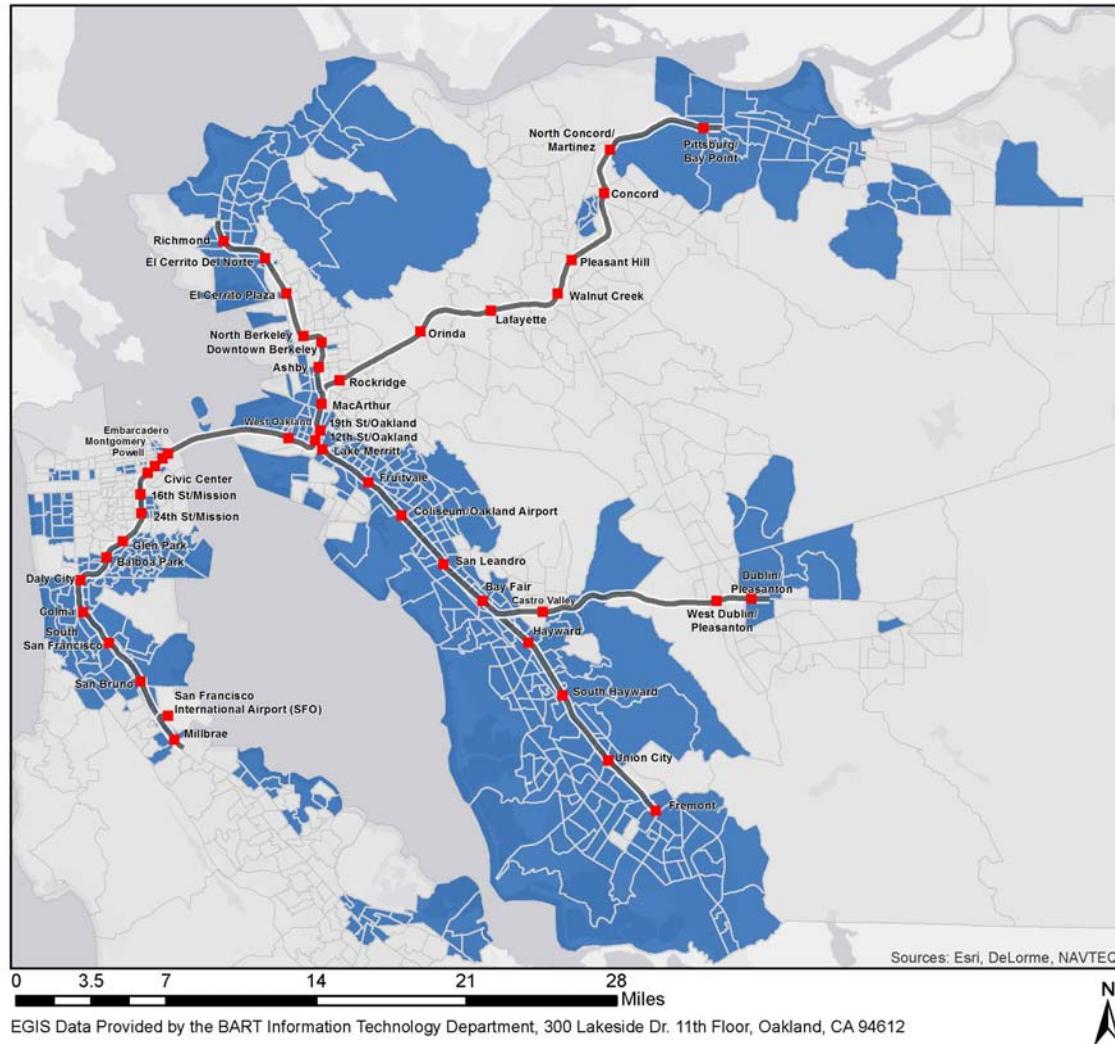
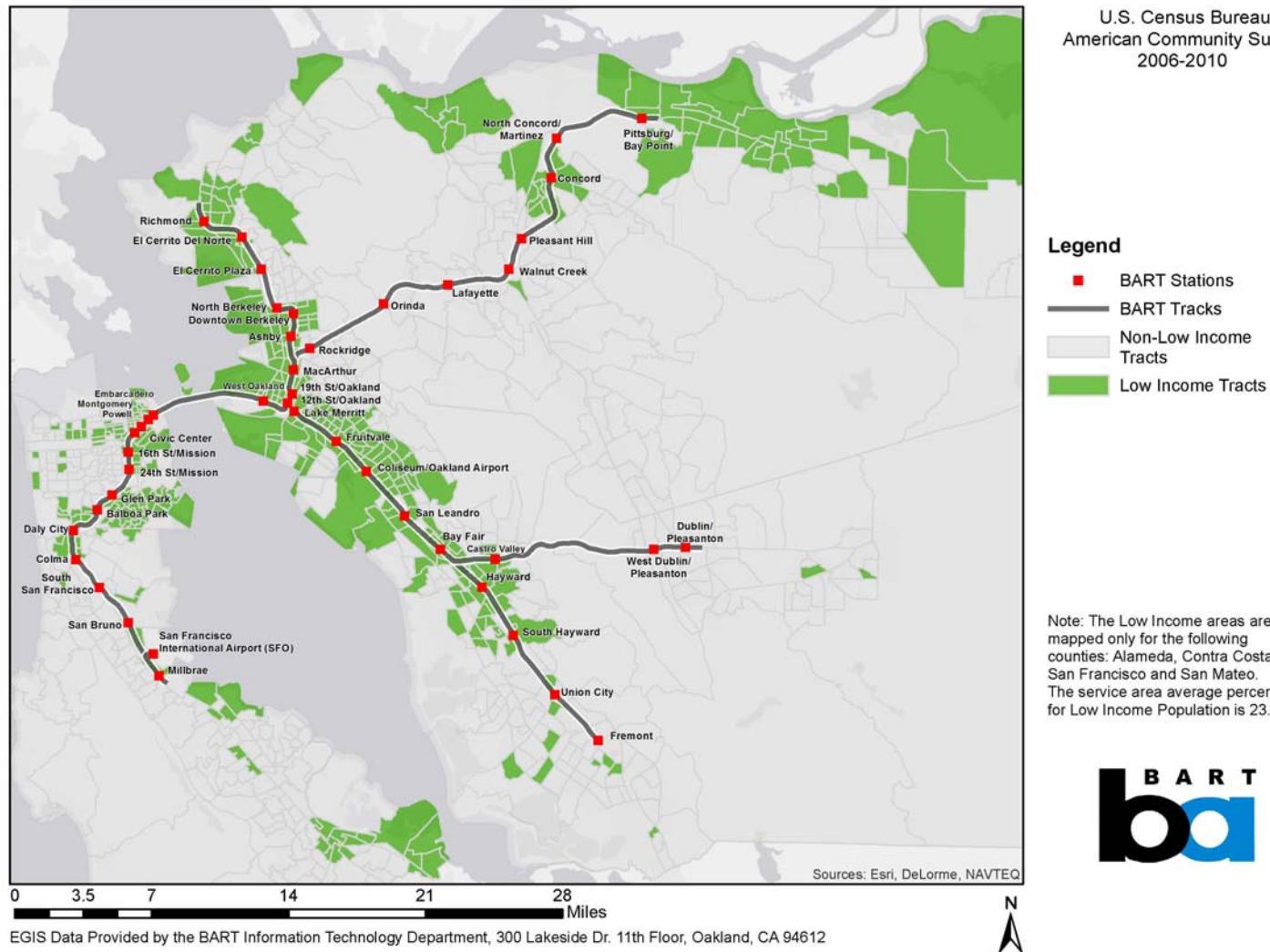


Figure 2: Locations of Predominantly Low-income Population in the BART Service Area

Low Income Population



U.S. Census Bureau
American Community Survey
2006-2010



EGIS Data Provided by the BART Information Technology Department, 300 Lakeside Dr. 11th Floor, Oakland, CA 94612

APPENDIX B: Methodology Used to Assess the Effects of a Fare Change

Step 1: Estimate weighted average boarding fares “Before Fare Increase” and “After Fare Increase” for each BART station.

In Step 1, the weighted average fare paid by customers at each of BART’s 44 stations is estimated. A “weighted average fare” is weighted by how many riders pay that fare. The more riders that pay a certain fare, the closer the weighted average fare will be to that more-often paid fare. This is in contrast to a simple average fare where each fare has the same weight. A sample of stations is shown below, with the “average fares post-increase” reflecting the 1.4% inflation-based fare increase.

Sample of Average Fare Data

Station	Average Fares			
	Pre-Increase	Post-Increase	% Change	Dollar Change
Richmond	\$ 3.40	\$ 3.44	1.2%	\$ 0.04
El Cerrito del Norte	\$ 3.30	\$ 3.34	1.3%	\$ 0.04
El Cerrito Plaza	\$ 3.09	\$ 3.13	1.3%	\$ 0.04
North Berkeley	\$ 3.23	\$ 3.27	1.3%	\$ 0.04
Berkeley	\$ 2.97	\$ 3.00	1.1%	\$ 0.03

The census tracts associated with each BART station were verified and updated with home-origin station data from BART’s 2008 Station Profile Study. Using riders’ home-origins to assign the census tracts to each station links the appropriate census tract population to each station and thus to the average fare paid at each station. This method uses the actual fares customers pay in the form of a station-to-station table of fares, unlike large-scale regional travel models such as the Metropolitan Transportation Commission model, which aggregates BART data. The following steps calculate station-specific average fares, weighted by weekday trips.

1. The station-to-station fare table currently in effect was multiplied by the 2011 actual station-to-station trip data. This results in the weighted average fare by station before the fare increase.
2. Next, the station-to-station fare table in effect after the fare increase was multiplied by the 2011 actual station-to-station trip data. This results in the weighted average fare by station after the fare increase.
3. Using the before and after average fares, for each station the percent increase in average fares from before the fare increase compared to after the fare increase was computed.
4. Using the census tracts associated with each BART station, the average fare increase estimated above was translated from the station level to the census tract level. Therefore, each census tract had an average fare calculated for it. If a census tract was close to two different BART stations, the average fare associated with that tract was calculated by taking the weighted average of the average fares for both stations.

Step 2: Estimate systemwide weighted average fares for minority, non-minority, low-income and non-low-income populations.

For each BART station, the census tracts that generate ridership to that station are known as the station's "catchment area." Assignment of a census tract in BART's service area to a particular station was verified using the 2008 Station Profile Study data that indicated that people residing in a census tract used that station. For each census tract, census and ACS data supplied the number of minority, non-minority, low-income and non-low-income populations residing in that tract. The following steps were followed to estimate systemwide weighted average fares for the protected and nonprotected groups.

1. For each population group, the numbers from the catchment area census tracts were summed with the result that the catchment area of each station had four separate groups of population figures: minority, non-minority, low-income and non-low-income.
2. Next, the systemwide weighted average fare for each of the four population groups was estimated by weighting the average fares for each station (calculated in Step 1 above) by the actual number of people in each population group residing within the station catchment area. This calculation was performed for both the "before" and "after" fare increase scenarios.

Step 3: Calculate and then compare the percent increase paid by (a) minority and non-minority populations and (b) low-income and non-low-income populations.

1. Using the systemwide weighted average fares calculated in Step 2 above, the percent increase in fares paid by each of the four population groups was calculated "before" and "after" the fare increase.
2. To determine if the fare increase had a disproportionately high and adverse effect on minority or low-income populations, the percent average fare increase paid was compared between (a) the minority group and the non-minority group and (b) the low-income group and the non-low-income group.