
Revised Draft Final

Regional Means-Based Transit Fare Pricing Study

Draft Final

Technical Memorandum #3: Evaluation of Alternative Means- Based Transit Fare Scenarios

Prepared for



METROPOLITAN
TRANSPORTATION
COMMISSION

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1.0 Introduction

The Metropolitan Transportation Commission's (MTC's) Regional Means-Based Transit Fare Pricing Study has been undertaken to develop scenarios for a regional means-based transit fare program or programs in the nine-county Bay Area, and to determine the feasibility of funding and implementing one or more of the scenarios.

The goal of the Regional Means-Based Transit Fare Pricing Study is to answer three interrelated questions:

- Is there a way to make transit more **affordable** for the Bay Area's low income residents?
- How can the region best move towards a more **consistent regional standard** for fare discount policies?
- Is there a transit affordability solution that is **financially viable and administratively feasible**, and does not adversely affect the transit system's service levels and performance?

This technical memo provides the results of the alternatives evaluation phase of the study, which has included the development and evaluation of several means-based transit fare scenarios for the Bay Area. The scenarios were defined to achieve overall program objectives and informed by the results of previous task activities and findings, which have included discussions with Bay Area social service agencies and transit users, a review of existing means-based fare discounts offered by Bay Area transit providers, research into other means-based pricing and transit affordability programs in North America, analysis of the travel behaviors of low income populations in the Bay Area, as well as discussions with the Study Technical Advisory Committee, which includes representatives of Bay Area transit agencies, human services agencies, and organizations concerned with transportation equity.

This memo discusses the program's objectives and describes the alternative scenarios that were selected for the evaluation, the qualitative and quantitative results of the evaluations, and preliminary findings and conclusions.

2.0 Program Objectives

This study has been undertaken to find innovative approaches for supporting low income transit users. This study recognizes that providing an accessible network of affordable mobility services ensures that low income residents have opportunities to access jobs, education, food, healthcare, family, friends, and entertainment. This not only benefits those riders who may need a lift, it also benefits our region by offering all our citizens the chance to flourish and contribute to our communities.

This study further recognizes that increasing the number of people who choose transit increases mobility for everyone, at least in part as transit providers increase both service levels and service options in response to demand, further inducing demand. Public transportation delivers capacity and convenience as part of an overall transportation system – a system that would otherwise be overwhelmed by demand for road space.

The first technical memorandum for this study (MTC Technical memorandum #1, August 24, 2015) identified challenges and explored project objectives in Section 8.0, Regional Goal and Objectives for Low Income Transit Fare Programs. Stakeholders identified the following objectives for the program:

- Create a fare pricing and/or payment structure that is convenient and compliant with applicable regulations, including Title VI.
- Establish clear and consistent definitions of “low income” and “resident.”
- Support transit operator farebox recovery and financial objectives to ensure the program can be successful and sustainable – and if needed, identify funding source(s) to offset revenue and cost impacts.
- Build consensus for a shared regional approach across Bay Area transit operators, social service agencies, community organizations, and external stakeholders.
- Ensure program scenarios are appropriate for the region’s four largest transit agencies (SFMTA, AC Transit, BART, and VTA) that account for 90% of the region’s transit trips.
- Support low income individuals who make up the majority of Bay Area transit riders and whose households rank transportation as their third largest expense, behind housing and food¹.
- Establish a well administered means-based testing program to verify eligibility for low income programs, if required.
- Review existing discount programs to see how they currently support low income riders, whether their policy objectives are being met, or if those programs could be adjusted to better serve low income riders.
- Consider how to partner with Bay Area health and human services agencies.

Achieving these objectives will require carefully assessing trade offs among alternative low income fare scenarios. Fare programs that are more affordable to low income riders are likely to have greater revenue impacts. Fare programs that are the most administratively viable for individual transit operators may not be consistent across the region. Well crafted solutions will consider these tradeoffs, strike the right balance, and draw from national best practices that would work best for the Bay Area.

The previous technical memorandum for this study (Technical Memorandum #2, July 28, 2015) established a set of Fare Scenario Building Blocks, which define the parameters for each alternative. As shown in Exhibit 1 and discussed in Section 4, Evaluation Results, these building blocks comprise the

¹ As discussed in Regional Means-Based Transit Fare Pricing Study Technical Memorandum #1: Policies and Conditions, Section 1.1.2 Literature Review.

discount structure, geographic scope, target population and income threshold, means testing approach, distribution of fare media, and implementation timeframe associated with each scenario.

Exhibit 1: Fare Scenario Building Blocks



The overall goal of this project has been to consider how these building blocks could be assembled to create a fare policy and fare payment program that supports a more affordable, regionally consistent, financially viable and administratively feasible approach to use transit to meet low income mobility needs in the Bay Area.

3.0 Alternatives

Several aspects of this study require the evaluation of alternatives, from policy options to program design to implementation and resource considerations. This section discusses alternatives evaluated across the following aspects of the study:

- Alternative scenarios to provide transit fare discounts to low income Bay Area residents riders
- Alternative methods of delivering the program, including factors such as how means-based testing would be conducted
- Whether the Bay Area fare payment technology (Clipper®) is able to support the program
- How resulting ridership and fare revenue impacts would impact transit resources, such as a need for additional service hours to accommodate increased ridership.

3.1 Low Income Fare Scenarios

Several low income fare scenarios and alternatives for generating additional revenue to support a low income program were identified and discussed with stakeholders, including MTC committees and staff, the study Technical Advisory Committee, two focus groups with low income participants in San Jose and Vallejo, and by telephone interviews with low income residents in San Francisco and the inner East Bay. From these scenarios, five were selected and evaluated to assess their quantitative and qualitative impacts and to compare them to the study objectives. The scenarios that were selected for further analysis are circled in Exhibit 2 and described below in general, conceptual terms.

Three Affordability Scenarios and two Revenue Generating Scenarios were evaluated. The Affordability Scenarios are intended to address affordability barriers for low income residents; the Revenue Generating Scenarios that are intended to raise additional fare revenue. The Revenue Generating Scenarios may not address transit affordability barriers on their own, but their fare revenue generating impacts are evaluated so that they can potentially be paired with one of the Affordability Scenarios in order to achieve a financially viable low income program.

The three Affordability Scenarios are:

A1 – Discounted Fares and Passes for Low Income Riders

Most transit operators currently offer discounted cash fares or pass products to seniors, persons with disabilities, and youth. This scenario would create an additional discount category for low income persons, which would allow individuals below a certain income threshold to pay fares or purchase passes at discounted prices.

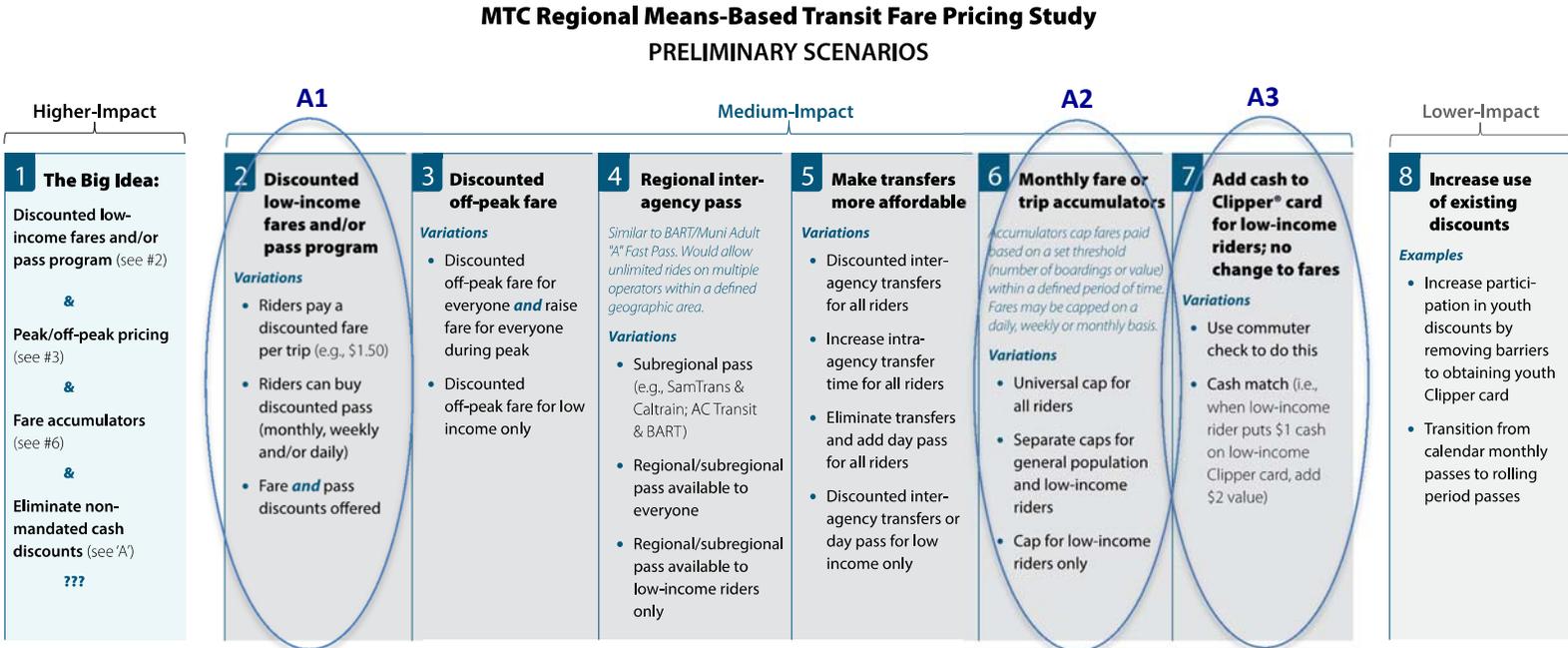
A2 – Accumulator with Monthly Cap for Low Income Riders

Accumulators are alternatives to pass products that cap fares or provide bonus trips based on a threshold (number of boardings or value of fares paid) within a defined period of time. Accumulators with monthly caps would allow riders to purchase pass products (e.g., monthly passes) in small increments rather than paying the full price of the pass up-front. For example, if the fare is \$2.50 and the monthly pass price is \$100, \$2.50 would be deducted from the rider's Clipper® card on each boarding until the \$100 "cap" is reached (with the 40th boarding). After that, all trips would be free for the rest of the month. A rider would need to make sure there was at least \$2.50 available in stored value on their Clipper® card before each boarding. In this scenario, fares would be capped on a monthly basis, and the cap would be set lower for low income riders than for the general population.

A3 – Cash on Clipper® for Low Income Riders

This scenario would not require a change to transit operators' fare policies. Low income riders would receive a stipend in the form of cash value added to a Clipper® card. This stipend could be used to ride any transit service in the region. This is similar to the model commonly used in the social services field, where persons below a certain income threshold are eligible for direct subsidies such as CalFresh (subsidy for food purchases) and Temporary Assistance for Needy Families (temporary cash assistance program, traditionally referred to as "welfare"). In this scenario, the stipend could be provided on a one-to-one match basis, with each dollar added by the rider matched with a stipend dollar.

Exhibit 2. MTC Regional Means-Based Transit Fare Pricing Study: Preliminary Scenarios

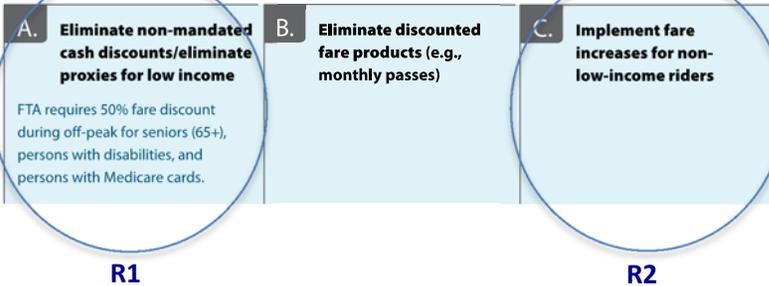


Scenario Objectives:

- S-1.** Make transit more *affordable* for the Bay Area’s low-income residents.
- S-2.** Move towards a more *consistent regional standard* for fare discount policies.
- S-3.** Define a transit affordability solution that is *financially viable and administratively feasible*, and does not adversely affect the transit system’s service levels and performance.

Revenue Generating

Many of the scenarios above may need to be paired with one or more of the following revenue generating scenarios in order to meet Scenario Objective S-3.



The two Revenue Generating Scenarios are:

R1 – Eliminate Non-Mandated Cash Discounts

This scenario would generate revenue to help fund a low income transit fare program by eliminating all fare discounts beyond those that comply with Federal requirements. Federal regulations require transit systems that use FTA formula funds, which includes virtually all Bay Area transit operators, to provide half-fare discounts to seniors (at a minimum, those riders who are age 65 and older), persons with disabilities, and Medicare recipients. The half fare requirements apply during off-peak hours and to cash fares. There are currently no federal requirements for fare discounts for youth or low income persons. Bay Area transit discount policies vary considerably by transit operator and often exceed the federally required discounts. For example, half fare discounts are commonly offered during peak as well as off-peak hours, and for pass products as well as cash fares. Under this scenario, discounts beyond those that are federally mandated would be eliminated and riders currently benefitting from those discounts would pay full fares. However, some of those customers would likely become eligible for the low income program, thereby directing subsidies to those who need a discount, including those that are not currently receiving a discount, such as low income adults.

R2 – Implement Fare Increases

This scenario would consider the revenue generating effects of raising transit fares in the region. It would always be paired with one of the Affordability Scenarios so the net impact would be to decrease fares for low income riders.

3.2 Means Testing

In all of the Affordability scenarios analyzed, a reduced fare or fare subsidy is offered to those riders who qualify as low income. Identifying those riders who qualify will require means testing to verify income. Regardless of how means testing is conducted, a physical certificate must be issued to serve as proof of low income qualification. A specially programmed low income Clipper® card could be created to serve as the certificate of qualification, as well as a convenient way for riders to pay fares.

Means testing involves two steps:

- Income Verification
- Eligibility Determination

3.2.1 Income Verification

Establishing an income verification process will require agreement on forms of documentation that are acceptable for confirming income. In Seattle, the ORCA LIFT program accepts a variety of documents to verify income for individuals in benefits programs (e.g., Apple Health/Medicaid, Washington Basic Food Program, Temporary Assistance for Needy Families) or other defined benefits programs (e.g., Employment Security, Supplemental Security Income, Social Security, Railroad Retirement, workers' compensation). For individuals with no income, Employment Security verification forms provide evidence of eligibility. Employed individuals may present paystubs, letters from employers verifying income, or bank statements. Self-employed individuals may provide their most recent tax return. For the Bay Area, consideration has

been given to relying on one or more benefits programs that use 200% or less of FPL to qualify individuals, such as the PG&E CARE Program (200% of FPL), Medi-Cal (138% of FPL), and CalFresh (200% of FPL). Discussions with social service agencies suggested that verification should be simplified by relying on pre-existing programs such as these. However, it may be appropriate to consider expanding the documentation to include other means of income verification, such as paystubs, tax returns, and other defined benefit programs, since not all individuals who qualify on the basis of income may be qualified under one of these programs. SFMTA's Lifeline pass, for example, is available to individuals who qualify on the basis of income levels, as documented by a tax return and W2s, an award letter for CalWORKS, CAAP, CalFresh, or Medi-Cal, SDI/SSI check stubs, or a current housing assistance program contract.

Focus group participants had diverse points of view on income verification. Some indicated that eligibility should be limited to Medi-Cal cardholders; others said they were not eligible for Medi-Cal, CalFresh, or CalWORKS, and were concerned about being left out if one of these mechanisms was used. In addition, certain low income populations may not be enrolled in existing benefit programs. For example, transit riders who are homeless may be target populations for a transit fare discount, but those riders are unlikely to be enrolled in PG&E's CARE program. Undocumented workers may also be a target population for a low income program, but might not enroll in existing social programs due to their immigration status. There were also differences of opinion about whether presentation of a paystub could work, and concern that paychecks would not take into account individuals' different expenses.

Social service agencies also discussed the potential for having County caseworkers distribute Clipper® cards for identification cards to riders determined to be eligible based on their enrollment in other programs. Some thought it may require changes to work rules and would therefore be difficult. However, County caseworkers in Santa Clara are currently providing this function for VTA's UPLIFT program.

Once defined and documented, these income verification standards can be used to determine eligibility for a low income program.

3.2.2 Eligibility Determination

Eligibility determination involves reviewing income verification documentation, providing eligibility determinations, and distributing low income transit fare program identification cards. The eligibility determination function could be managed in-house by one or more (or all) transit agencies and/or MTC, or outsourced to social service agencies or to a contractor similar to the Bay Area's RTC program contractor. Outsourcing would require MTC or a designated lead transit agency partner to manage the contract(s).

Role of Pre-Existing Means Testing Programs

Making effective use of pre-existing means testing programs will be invaluable in establishing a future eligibility determination process. However, it is not practical to suggest that pre-existing programs could meet all of the eligibility process needs of a low income transit fare program that requires residency and income verification, distribution of IDs, and other administrative processes. Administrative procedures and standards would be needed to translate existing program enrollment into eligibility for a transit fare program. For example: how would individuals who are not PG&E account holders prove residency or relationship to a PG&E CARE household? Additional requirements for proof of residency and/or

dependency would need to be established and managed. Questions like this are likely to require procedures and document validation beyond the existing programs’ current practices. In addition, other essential functions must be managed, such as the issuance of a low income transit fare program IDs, tracking lost or stolen IDs, and periodic recertification.

In-House Eligibility Determination

The additional eligibility determination needs could be managed in-house. MTC and/or one or more transit operators could provide income verification, eligibility determinations, and distribution of low income transit fare program identification cards on behalf of the region. It would also require one or more agencies to build a new competency in means testing. Alternatively, the program could partner with a government entity or entities that already conduct means testing as part of their public services, such as San Francisco’s Human Services Agency, which currently conducts means testing to qualify individuals for SFMTA’s Lifeline monthly pass. In discussions with social service agencies, it was noted that conducting means testing to qualify individuals for a low income program could provide opportunities to assess eligibility for other means-tested programs from which applicants might benefit. Depending on the partner agency and their competency in means testing, this method may be more expensive than or equivalent to outsourced means testing.

Outsourced Eligibility Determination

The means testing function could be contracted to one or more social service agencies, non-profit service providers, or other government agencies that have the expertise and systems to conduct eligibility assessments. In Seattle, for example, the ORCA LIFT program has contracted this function to a variety of agencies throughout King County, including Catholic Community Services, Compass Housing Alliance, El Centro de la Raza, Global to Local, Multi-Service Center, Refugee Women’s Alliance, WithinReach, and the YWCA. City and County Public Health Offices and transit agency customer service centers also provide these services.

Outsourcing requires the region to procure vendor(s) and manage contract(s). The Bay Area’s Regional Transit Connection (RTC) program is an example of a validation, qualification, and certification process that is outsourced. AC Transit is the current contract holder managing the program on behalf of the region, though other transit agencies have served this function in the past. For the RTC program, the vendor (Cordoba Corporation) certifies medical status by verifying both identity and medical condition; it does not perform means testing as part of the contracted service.

3.2.3 Means Testing Cost

The following table provides rough order of magnitude estimates for program startup costs and ongoing operations costs required to develop and manage a regional means testing function, based on information and assumptions described further below.

	In-House Low	In-House High	Outsourced Low	Outsourced High
Vendor Procurement	\$0	\$0	\$100,000	\$200,000
Operations Startup	\$250,000	\$500,000	\$200,000	\$250,000
Launch Materials	\$100,000	\$150,000	\$100,000	\$100,000

	In-House Low	In-House High	Outsourced Low	Outsourced High
Program Launch	\$250,000	\$350,000	\$150,000	\$250,000
1-Time Startup Costs	\$600,000	\$1,000,000	\$550,000	\$800,000
Clipper® Card Stock	\$100,000	\$150,000	\$100,000	\$150,000
Staffing (4-5 FTEs)	\$800,000	\$1,000,000	\$450,000	\$800,000
Promo Materials	\$50,000	\$50,000	\$50,000	\$50,000
Supplies	\$50,000	\$50,000	\$20,000	\$20,000
Transaction Fees	\$250,000	\$250,000	\$250,000	\$250,000
Space Rental / Mgt.	\$100,000	\$150,000	\$50,000	\$100,000
Contract Management	\$0	\$0	\$100,000	\$150,000
Total Annual Operations	\$1,350,000	\$1,650,000	\$1,020,000	\$1,520,000
1st Year Startup + Ops	\$1,950,000	\$2,650,000	\$1,570,000	\$2,320,000

NOTE: In addition to these regional operating costs, each transit agency would likely incur costs for supporting program administration for their riders.

Because the scenarios are only minimally defined, a range of implementation variables are likely to affect both the program cost and the cost of means testing. The future products offered, the number of riders targeted², the promotional goals of the program, and the number of staff dedicated to the program will determine the full range of eventual costs. The initial cost estimates above are rounded numbers based on the following information and assumptions:

- The ORCA Lift annual program budget is approximately \$3,000,000; it is an outsourced operation that has contracts with 10 partner community agencies, including a combination of social service agencies and City and County public health offices.
- An estimated 500,000 King County residents earn less than 200% FPL, the LIFT income threshold.
- In planning for ORCA LIFT, it was estimated that 50,000-100,000 people would register.

² The first technical memorandum prepared for this study (Technical Memorandum #1: Policies and Conditions) provided data on low income populations by county (Exhibit 13: Low Income Population by County and Bay Area Total, 2013) and on the proportions of each transit agency’s riders who are low income and who pay full fares (Exhibit 4: Bay Area Transit Demographics and Fare Discounts). From that data, it is possible to derive low income riders who pay discounted fares, but at this time, data are not available at the county-level on the number of Bay Area residents who would be eligible for means-based transit discounts and are not already receiving a discount under another program.

- SFMTA’s Lifeline program serves approximately 20,000 low income riders who take an estimated 14 million annual trips (only 13% of total low income ridership).
- In 2013, there were approximately 1.9 million Bay Area residents earning less than 200% FPL.
- The RTC Discount program processes approximately 30,000 applications annually to serve the needs of roughly 700,000 residents in the region with a disability (not all of whom apply for an RTC card).
- The RTC Discount program costs about \$500,000 per year to outsource.
- Individual transit agencies could take on the additional administration of this program with the same or lower level of effort and staff currently required to manage their RTC programs.
- RTC program support staffing levels at the major Bay Area transit agencies vary according to the size of the agency and range from less than one FTE for AC Transit to 5 FTEs (including light duty temporary) for SFMTA.
- Agencies that do not participate in the RTC program would need to develop program administration as a new program at additional startup costs (not included in these rough order of magnitude estimates).

3.2.3 Means Testing Pilot Program

In considering a future means-based pilot program, the most basic means-testing program could consist of simply recognizing one (or more) pre-existing means-testing programs to qualify a single named individual for the discount fare product. While such a simple means test may not be sufficient or entirely equitable way to reach all of the target population, it could be an adequate way to reach some of the target population for the purpose of a pilot program.

3.3 Fare Technology

Clipper®, the region’s electronic fare payment system, will be an important enabling technology to support a low income fare discount program. It is assumed that a specially programmed low income Clipper® card would be developed to serve as identification and certification for low income riders. Riders would use their low income Clipper® card as identifications and/or to pay fares. Riders using cash to pay a discounted fare upon entering a station or boarding a transit vehicle could present the card only for identification. It would also enable riders to pay a discounted fare electronically with funds or fare products loaded to their cards. It would require fare collection systems to be programmed to recognize a “low income Clipper® card” and to accept a discounted fare.

The Clipper® fare system is more than ten years old and due for a technology update. The strategy and timing for incorporating next generation technology into Clipper® is still being discussed. Therefore the cost, complexity, and compatibility of adding new functions – such as those envisioned for each of the Affordability scenarios – depends upon the functionality required in each scenario as well as the timing of the program launch. Nonetheless, an effort has been made in the analysis to assess whether and how

current and future Clipper® technology and other fare mechanisms and technologies could be managed to support each scenario.

MTC’s Clipper program team notes that for any scenario chosen, design and operational obstacles would need to be addressed – for both the current Clipper system or a future next generation Clipper implementation. This report does not fully account for the likely challenges and costs of addressing those challenges. Even those scenarios that could be “built-in” to a next generation system would still bring incremental cost and complexity to the system. In general, the scenarios suggest Clipper solutions but no technical implementation detail. Therefore, all these scenarios hold considerable uncertainty and risk with respect to Clipper schedule and budget for implementation.

3.4 Other Resource Needs

The quantitative analysis described in Section 4 generally shows that discounting fares for low income riders will result in increased trips and a loss of fare revenues. The agencies may also incur increased costs to serve higher ridership demand. Some agencies may be able to absorb additional trips into their current capacity, however estimating the ridership that could be absorbed at current service levels would require associating peak period capacities by line with travel patterns and demand among low income riders. For other agencies, additional trips will trigger the need to add capacity by operating additional hours of revenue service.

For this analysis, the increased number of trips generated by each Affordability scenario has been estimated for each agency. Appendix B includes a table showing the estimated ridership increases by agency for each alternative. Exhibit 3 uses current agency-specific productivity indicators (boardings per revenue service hour) to translate ridership increases to roughly approximate the additional revenue service hours that could be required to handle the increases.

The table shows that, for the scenarios analyzed, the region could add from 25 to 29 million new trips, resulting in approximately 600,000 to 700,000 new revenue service hours. The dollar cost to accommodate this service would vary by agency based on their individual service costs, whether they have excess capacity to accommodate these trips, the productivity of new services, and the types of services that would need to be added.

Finally, there are some additional resources that are even harder to quantify. Agency collaboration and regional coordination would be required to define the low income program, set fare policy rules, define Clipper® products, support means testing for their riders, and organize the program launch. The level of effort involved in collaboration and ongoing support will vary depending on how means testing is conducted and what fare media are accepted as part of the low income program. Individual agencies’ program administration costs will be lower if discounts are limited to Clipper® electronic fare payment.

4.0 Evaluation Results

Each of the five scenarios is described here in greater detail, including program-specific parameters as well as the results of qualitative and quantitative evaluations.

Program parameters include the following:

- **Discount Structure:** What discount and/or other policy tool will be implemented?
- **Geographic Scope:** Which operators will participate? Will it be an opt-in program? Will there be a limited demonstration project? Will there be regional consistency in discounts offered?
- **Target Population & Income Threshold:** Who is the target market? What income threshold will be used to determine eligibility?
- **Means-Testing:** Who will conduct the means-testing if eligibility assessments are required?
- **Distribution:** How will the benefits or discounts be distributed?
- **Fare Media/Technology:** What media and technology will be used to distribute the discounts (e.g., Clipper®, paper) and collect the discounted fares?
- **Timeframe:** What is the timeframe for implementation? Must C2 be implemented before the program can be introduced? Should a demonstration project be piloted prior to full rollout?

Exhibit 3. Service Level Implications of Affordability Scenarios (per year, assuming maximum penetration)

	A1: Cash/Pass Discounts			A2: Fare Capping			A3: Cash on Clipper®		
	Ridership Increase	Add'l Rev Svc Hrs, #	Add'l Rev Svc Hrs, %	Ridership Increase	Add'l Rev Svc Hrs, #	Add'l Rev Svc Hrs, %	Ridership Increase	Add'l Rev Svc Hrs, #	Add'l Rev Svc Hrs, %
AC Transit	4,569,049	139,471	8.2%	4,822,525	147,209	8.7%	5,849,480	178,557	10.5%
ACE	18,658	416	1.7%	9,707	217	0.9%	13,333	297	1.3%
BART	4,410,042	60,426	3.3%	3,432,282	47,029	2.6%	4,794,231	65,690	3.6%
Caltrain	197,105	2,199	1.2%	183,002	2,042	1.1%	209,262	2,335	1.2%
CCCTA	324,971	21,478	9.7%	196,824	13,008	5.9%	259,526	17,152	7.7%
City of Dixon	6,837	1,052	13.1%	3,772	580	7.3%	5,214	802	10.0%
ECCTA (Tri Delta)	277,283	14,573	9.8%	154,965	8,145	5.5%	205,774	10,815	7.3%
FAST	186,775	13,874	17.3%	103,702	7,703	9.6%	125,873	9,350	11.7%
Golden Gate & Marin Transit ⁽¹⁾	339,882	13,376	3.6%	290,700	11,441	3.0%	376,791	14,829	3.9%
LAVTA (Wheels)	202,314	15,431	12.2%	121,412	9,260	7.3%	146,213	11,152	8.9%
Napa Vine	97,248	8,975	12.3%	53,837	4,969	6.8%	67,836	6,260	8.6%
Petaluma Transit	47,673	2,251	13.2%	25,878	1,222	7.2%	35,777	1,689	9.9%
Rio Vista Delta Breeze	1,312	437	10.9%	748	249	6.2%	1,034	345	8.6%
SamTrans	1,289,267	46,895	10.1%	991,080	36,049	7.8%	1,161,905	42,263	9.1%
Santa Rosa CityBus	371,868	12,768	16.0%	197,895	6,795	8.5%	273,518	9,391	11.7%
San Francisco MTA	5,170,715	179,306	11.9%	3,651,168	126,613	8.4%	4,507,557	156,310	10.4%
SolTrans	6,467,493	90,818	2.8%	8,685,274	121,960	3.8%	7,554,142	106,076	3.3%
Sonoma County	215,184	12,305	15.0%	132,595	7,582	9.2%	161,685	9,246	11.3%
Union City	191,169	13,074	14.5%	101,772	6,960	7.7%	140,649	9,619	10.7%
Vacaville City Coach	50,192	4,370	12.5%	24,084	2,097	6.0%	33,282	2,898	8.3%
VTA	102,989	7,256	20.2%	60,396	4,255	11.8%	70,838	4,991	13.9%
West CAT	101,847	5,934	7.5%	65,205	3,799	4.8%	84,521	4,924	6.2%
WETA (SF Bay Ferry)	17,878	143	0.9%	11,550	92	0.6%	14,445	115	0.7%
Total	24,657,751	666,827	6.4%	23,320,373	569,274	5.5%	26,092,886	665,106	6.4%

⁽¹⁾ Revenue service hours for Golden Gate and Marin Transit are currently available only as a combined number, so it has not been possible to calculate revenue service hour impacts separately for those two agencies.

Qualitative considerations include the advantages and disadvantages of each scenario from the perspectives of various stakeholders, the degree to which each scenario achieves the three study objectives (increase affordability, create a more consistent regional standard, achieve financial viability and administrative feasibility), the acceptability of fare alternatives to different target audiences, issues related to means testing such as responsibility, criteria threshold, and eligibility evidence and assessment, and implementation hurdles such as the delivery of benefits, fare revenue and ridership implications, and technology challenges.

The **quantitative assessment** considers ridership and financial impacts for fixed route services, including fare revenues and costs of start-up, on-going administration, Clipper®-related costs, additional resource needs, and potential revenue offsets, and implications for program success and sustainability, as measured by impacts on transit operator farebox recovery. Estimated Agency-specific impacts are provided in Appendix B. The following Bay Area transit providers are included in this analysis:

AC Transit	Petulama Transit
ACE (Altamont Commuter Express)	Rio Vista Delta Breeze
BART	SamTrans
Caltrain	Santa Rosa CityBus
CCCTA (County Connection)	San Francisco MTA
City of Dixon	SolTrans (Solano County Transit)
ECCTA (Tri Delta)	Sonoma County
FAST (Fairfield and Suisun Transit)	Union City
Golden Gate (GGBHTD)	Vacaville City Coach
LAVTA (Wheels)	VTA
Marin Transit	West CAT
NCTPA (Napa Vine)	San Francisco Bay Ferry (WETA)

The ridership and revenue impacts of each affordability and revenue-generating scenario were evaluated using CH2M’s FARES model and changes to the average fare paid by different market segments. Key assumptions used in evaluating ridership and revenue impacts are as follows:

- Ridership and fare revenue impacts were analyzed by market segment (i.e., rider groups characterized by rider category (adult, senior/disabled, youth, etc.) and income (e.g., low income adult, non-low income senior)) for eight operators, including seven of the largest operators (AC Transit, BART, Caltrain, Golden Gate, SFMTA, SamTrans, and VTA) and Marin Transit³. For the remaining 16 agencies, ridership and fare revenue impacts were estimated

³ In the past, Golden Gate Transit provided much of Marin Transit’s service and performance data reported by MTC combined the two agencies. As a result, Marin Transit was included with Golden Gate among the transit providers that were analyzed at the market segment level.

only for “low income” and “non-low income” rider groups (i.e., not distinguished by rider category).

Survey results were used to estimate the percentage of low income riders by transit operator. In the absence of household size data, a household income of \$35,000 (which approximates 200% of the Federal Poverty Level (FPL) for an average Bay Area household size, which is between two and three persons) was generally used as the eligibility threshold. The year 2015 200% of FPL threshold levels are shown below:

Persons in Family/Household	Annual Household Income: 100% of FPL	Annual Household Income: 200% of FPL
1	\$11,770	\$23,540
2	\$15,930	\$31,860
3	\$20,090	\$40,180
4	\$24,250	\$48,500
5	\$28,410	\$56,820
6	\$32,570	\$65,140
7	\$36,730	\$73,460
8	\$40,890	\$81,780

Where available, proportions of low income riders by rider category were sourced from on board surveys. When these data were not available, it was assumed that the low income/non-low income split applied to each rider group. For example, if 10% of AC Transit riders are youth and 70% of overall AC Transit riders are low income, then it was assume that 7% of AC Transit riders are low income youth and 3% of AC Transit riders are non-low income youth.

- The FARES model uses elasticities to estimate the impact of a fare change on ridership. A fare elasticity can be defined as: $\text{Fare Elasticity} = \frac{\% \text{ Change in Ridership}}{\% \text{ Change in Price}}$. Therefore, for example, if a fare elasticity is assumed to be -0.33, a 10% increase in fare price will result in a 3.3% decrease in ridership. Conversely, with a fare elasticity of -0.33, a 10% decrease in price will result in a 3.3% increase in ridership. For many years, -0.33 was considered to be the standard transit fare elasticity. While APTA and some transit agencies have made efforts to refine it, it continues to be used broadly in the industry. It is generally assumed that lower income riders are more sensitive to price and therefore their price elasticities are higher, while higher income riders tend to be less sensitive to price and exhibit lower price elasticities. However, there is also an argument that low income riders may be relatively less sensitive to price if they do not have

access to other options that higher income households have, such as other modes (e.g., automobile) or greater flexibility to change trip times when driving may be an option.

The following fare elasticities have been used in previous Bay Area fare studies⁴ and were also assumed for this analysis:

- For ACE, BART, and Caltrain, -0.23 for low income riders and -0.20 for non-low income riders. These rail systems have lower proportions of low income riders than other Bay Area transit systems, resulting in and more riders who are less sensitive to price changes – hence, the lower elasticities for these systems. However, it is worth noting that BART’s low income ridership is notably higher than ACE and Caltrain, and that BART and Caltrain also have potentially lower cost bus alternatives for many trips.
- For all other operators, -0.33 for low income riders and -0.30 for non-low income riders. These elasticities reflect these agencies’ higher proportions of low income riders.
- In each case, it is assumed that the full means-based pricing program is rolled out in Year 1, not through a phased implementation. This is a simplifying assumption, and as such, the ridership and revenue results are for a full rollout and are intended to represent maximum impacts. Peers implementing means-based discount programs have had notably different experiences with take-up rates, possibly reflecting factors as varied as the stigma of participating in such programs, lack of awareness of the discount program, and inertia, as well as different eligibility criteria and assessment procedures.
- It is important to note for the quantitative results that actual results of program implementation may well vary from modeling results. Although key modeling assumptions are identified here and for each alternative, for the purposes of comparing scenarios to each other the resources and data available for the analyses are not sufficiently robust to provide more than order of magnitude results.

A **constrained program** was also considered as part of the quantitative assessment. The quantitative alternatives analysis was designed to estimate maximum ridership and fare revenue impacts for each scenario that was evaluated. The analysis therefore assumes that the full program will roll out in Year 1 and that all eligible individuals will participate in each Affordability Scenario and that the Revenue Generating Scenarios will be applied across the region, to all operators. As discussed in Section 5, the quantitative impacts of the alternatives on ridership and fare revenue are significant. For this reason, ways of developing a constrained program were also considered. Such constraints could be

⁴ SFMTA, Regional Integrated Fare Study (2008); MTC, Transit Sustainability Project – Pricing Analysis: Analysis of Changes to Fare Discounts (2012)

implemented geographically, by limiting the program to the residents and/or transit providers in a sub-area of the region. A program could also be constrained by capping the number of participants or passes, available funding, or the dollar value of the regional commitment or each agency's commitment. The number of participants could also be managed by limiting the program to adult riders. Lower participation rates could also be assumed, especially during the implementation phase. Limits such as these have been used to manage the growth of low income programs, both in other areas and in the Bay Area. In Madison, Wisconsin, there is a limit of 500 passes that are made available each month to low income riders on a first-come, first-served basis. Locally, VTA also limits the number of UPLIFT passes (2,400 per quarter) and TAP passes (1,000 per month) that are available through its homeless and low income programs. In the Seattle area, ORCA LIFT is available only to adult riders; other discounts are available for other categories of riders such as youth. Other regions implementing low income programs have found that up-take rates, particularly during the first year, were lower than expected, even when expectations were set at less than the total eligible population.

For the Bay Area, one approach to a constrained alternative could be to limit any of the Affordability and Revenue Generating Scenarios to a specific area, such as the Inner East Bay, and that area's low income populations and transit providers, by limiting trips and the resulting ridership and fare revenue impacts to residents of that area and the transit agencies serving them. However, that analysis would have required more time and resources than are currently available. Instead, the AC Transit and BART portions of each of the three Affordability Scenarios and two Revenue Generating Scenarios were used as proxies for geographically constrained alternatives. They are not limited either to Inner East Bay riders or to transit operations in the Inner East Bay, but they do provide a sense of how a scaled down version of a means-based program could impact ridership and fare revenue. The results of the constrained analyses are presented with the discussion of each Affordability and Revenue Generating Scenario. In the future, if a geographically constrained alternative is of interest, these results could be refined by limiting participation to Inner East Bay residents and/or origins and destinations.

A limited program such as this could also serve as a pilot for a broader regional means-based program, to test the concept, to provide additional quantitative data and qualitative input for further analysis, and to fine-tune a program prior to a broader implementation.

The evaluation results for each alternative are described in the following terms:

- **Advantages and disadvantages** of each scenario.
- **Quantitative analysis results**, including the implications for Bay Area transit ridership and fare revenue, constrained results for a limited implementation, other implementation considerations, implications for program success and sustainability as measured by impacts on transit operator fare recovery ratios, and issues related to means testing, fare technology, and other resource needs.
- **Qualitative analysis results**, including implications of the alternative for study objectives: affordability, regional consistency, financial viability, and administrative feasibility.

- **Alternative parameters** describe variations on each scenario that could be considered in the future, but have not been analyzed here.

Results of the qualitative and quantitative analyses are also summarized in the Evaluation Matrix presented at the end of this section, in Exhibit 4.

4.1 Affordability Scenarios

The three Affordability Scenarios described and evaluated here address affordability barriers to transit for low income Bay Area residents:

- Discounted Fares and Passes for Low Income Riders
- Accumulator with Monthly Fare Capping for Low Income Riders
- Cash on Clipper® for Low Income Riders

These Affordability Scenarios offer considerable flexibility with respect to the types of fare products that could be used to deliver low income benefits, possible discount levels, and program administration. The quantitative analysis documented in this section is intended to inform discussions of means-based pricing options and how they might be implemented by policy makers. Assumptions made in evaluating ridership and fare revenue impacts are identified; actual impacts of each alternative will depend on how policy makers choose to implement a future program.

4.1.1 Discounted Fares and Passes for Low Income Riders (A1)

This Affordability Scenario would provide a discount to eligible low income riders who use cash to pay a single ride fare, use Clipper® stored value, or use a monthly pass on a Clipper® card.

The discount for low income riders has been set at 50% of the adult fare for each operator, which is in line with typical other discounts already provided in the region. Means testing would be required and a special discount Clipper® card would be issued to eligible riders to serve as proof of eligibility and could also be used for to store value for discounted fares or to load a discounted monthly pass. Fares would be discounted at a uniform rate (50%), but the discount would apply to each operator's fares, so fares would continue to vary among operators. A monthly pass would be valid only on the operator issuing it. Applying fare discounts to each operator's fares accommodates each operator's fare structure, including distance-based fares and type of service fares as well as flat fares. Low income riders who already receive a discount of 50% or more of the full adult fare, such as senior/disabled and some youth riders, would not receive an additional discount.

The parameters that were evaluated for the Discounted Low Income Fares and Passes scenario are shown in the following table:

ALTERNATIVE A1: DISCOUNTED FARES AND PASSES FOR LOW INCOME RIDERS	
CRITERIA	PARAMETERS
Discount Structure	50% discount for low income riders on agency-specific: <ul style="list-style-type: none"> ● Cash fares ● Clipper® stored value fares ● Clipper® monthly pass fares Inter-agency transfer and monthly pass agreements are not included.
Geographic Scope	Analysis assumes a regional implementation, with the same percentage discounts offered by all Bay Area operators
Target Population and Income Threshold	Criteria applied consistently across all Bay Area operators. Low income riders are those with a household income equal to or less than 200% of the Federal Poverty Level
Means Testing	Required
Distribution	Clipper® card to serve as proof of eligibility for all fare discounts, including cash, as well as fare medium for stored value or monthly passes
Fare media/Fare payment technology	<ul style="list-style-type: none"> ● Cash ● Clipper® stored value and monthly passes, available at retail locations
Timeframe	May be implementable with existing Clipper® system and not dependent on C2 introduction (TBD based on design)

Advantages

- Offering specialized low income fares and passes and requiring eligibility assessments, similar to the Seattle ORCA LIFT program, provides a way to offer discounted fares to specific target population without requiring discounted fares for those who do not qualify.
- If handled electronically, this program could also enable different business rules/fare policies for low income riders (e.g., free intra-agency and interagency transfers, flat fares, regional interagency passes) in addition to discounted fares and passes.
- Clipper® cards would be issued as IDs to individuals who qualify for means-based price discounts. The cards could be used only as proof of eligibility or both for identification and fare payment. The same discount would be available to riders paying cash fares or using Clipper® for fare payment. Because focus group participants observed that it could be difficult to access discounts if they were limited to Clipper®, this scenario was designed so that riders could chose to pay cash fares and use the Clipper® card only as an ID.

- Can be implemented by all Bay Area operators, regardless of fare structure, including those that do not offer pass products and those that are not yet on the Clipper® system (e.g., BART could offer discounts on fares paid using Clipper® stored value, those operators that are not yet on Clipper® could provide cash discounts to eligible individuals).
- Extending the discount to cash and stored value fares as well as to monthly passes makes the discount affordable, and therefore accessible, to as many riders as possible. Offering only a discounted pass (and not a trip-based cash or stored value discount) would not address the high up-front cost that may not be affordable for low income riders.

Disadvantages

- Riders who wish to use a Clipper® card to store value or discounted passes would need to be able to load value or products onto their cards in advance of use, and could be constrained by access to reloading retail locations.
- It may be necessary to issue the Clipper® card with a photo if it is used to allow riders to obtain discounts on cash fares. While some programs, including Seattle’s ORCA LIFT, have avoided using distinguishing IDs, such as photo IDs or differently colored cards, due to concerns about potential stigmas associated with an ID that clearly identifies an individual as low income, other agencies do not have that concern and do require photos (e.g., Tucson’s SunGo ID & Card).
- Offering this type of program requires means testing, which may limit the reach of the program and would not benefit those that do not meet the criteria if they are just above the regionally-defined threshold or are not able to meet documentation requirements. However, means testing would be required for any scenario with an income threshold.
- Bay Area transit operators have different base fares, pass multiples, and transfer policies. Implementation on a regional basis will require handling multiple price points, different service types/distances traveled (e.g., local bus vs. regional rail), and other different fare policies, making it difficult to implement across operators. For example, an eligible rider using BART and AC Transit may need to purchase a discounted AC Transit monthly pass and use stored value to pay discounted single trip fares on BART, just as that rider does today. This problem mirrors the current challenges of using Clipper® across all Bay Area operators.

Quantitative Analysis: Ridership and Fare Revenue

In addition to the modeling assumptions discussed above, specific assumptions used in evaluating this alternative are as follows:

- The low income discount is available with cash fares, Clipper® stored value, and Clipper® monthly passes.
- Discounts are capped at a maximum of 50% of the adult fare for each operator.
- Monthly passes are agency-specific.

- Low income riders who already receive a discount of 50% or more of the full adult fare, such as senior/disabled and some youth riders, and riders participating in specific low income programs such as SFMTA’s Lifeline and Free Muni programs and VTA’s UPLIFT and TAP programs, would not receive an additional discount. These programs would continue to exist as they are today, providing the discounts they provide today to designated populations.

Agency-specific ridership and fare revenue impacts of Affordability Scenario A1 are provided in Appendix B. Overall, on a regionwide basis, impacts would be as follows:

A1 (Cash/Pass Discounts)	Annual Ridership Impact (millions)	Annual Fare Revenue Impact (millions)
Low Income Riders	24.7	-\$79.6
Non-Low Income Riders	0.0	\$0.0
Total	24.7	-\$79.6

Note: Ridership and fare revenue forecasts assume unconstrained, full implementation and utilization in Year 1.

Ridership and fare revenue impacts vary by transit agency, as shown in Appendix B, depending on the extent to which each agency serves low income individuals. With the introduction of means-based discounts of 50% on cash and Clipper® stored value and monthly pass fares, impacts are strongly correlated with current low income ridership or are explainable by factors such as the availability of alternative discount options.

- **Ridership:** Discounting agency-specific cash and stored value fares and monthly passes for low income riders by 50% is estimated to increase ridership by 24.7 million boardings per year. This is the equivalent of increasing low income ridership by 10.8% and total ridership by 4.7%. Impacts of these additional trips on riders are discussed further in the Qualitative Analysis section.
- **Fare Revenue:** These discounts are estimated to result in a net loss of \$79.8 million in fare revenue per year. This estimate takes into consideration all of the trips that would be made at the discounted rate, both those made currently and additional trips that would be attracted by the reduced fare, and including those trips made by low income riders that currently take advantage of eligibility for other discounts, such as those for seniors, disabled riders, or youth. This is the equivalent of a 26.9% reduction in fare revenues paid by low income riders and an 8.9% reduction in total regional fare revenues per year.
- **Fare Recovery:** The fare revenue losses associated with this scenario will reduce the regionwide fare recovery ratio (i.e. total regional fare revenue / total regional operating costs) from 37.5% to 34.1%, as shown in Appendix C. Agency-specific farebox recovery impacts are commensurate with the share of low income rider trips served; most agencies will see declines of between 1 and 3 percentage points, while BART could see a drop of 6.7 percentage points. These estimates do not take into consideration any increased costs to accommodate increased ridership and

maintain service performance standards, or cost savings associated with changes in the administration and delivery of low income fare programs.

Quantitative Analysis: Constrained Program

Limiting the cash, stored value, and monthly pass discounts to low income riders traveling only on the AC Transit and/or BART systems would reduce the ridership increases and revenue losses associated with a regionwide program. Ridership increases would be reduced to 9.0 million boardings, instead of the 24.7 million boardings estimated for the regionwide program. These constraints would also impact fare revenue, reducing expected losses from a regionwide program from \$79.8 million to \$47.3 million. Different program constraints, such as stricter geographic limitations, could further reduce the reach and price of the program.

Quantitative Analysis: Other Implementation Considerations

- Means testing would be required for this scenario and could be accomplished by any of the methods discussed in section 3.2.2. Therefore, the annual operating cost of means testing for this scenario could range between the low and high estimates, from \$1.0 million to \$1.7 million depending on the complexity and contracting method of the program. Additional funds would be required to initiate and launch the means testing function.
- Fare technology costs could range from “minimal” incremental cost if implemented as part of a next generation Clipper® system, to \$1 million or more if the current Clipper® system was expanded to include this scenario. This scenario suggests a new set of products and fares, but the fare structure is consistent with the functionality of the current Clipper® system. The development of a new low income rider category is not unlike the youth and senior/disabled rider categories already in existence. Nonetheless, the current Clipper® system vendor maintains that constrained software architecture and old technology make even consistent software expansions difficult. A rough estimate based on prior software changes suggest that it could take up to one year and cost more than \$1M to add this functionality to the current Clipper® system. However, there is already a one to two year backlog of features to be implemented. If this functionality was incorporated into a new Clipper® 2.0 system, the cost would likely be included as part of the overall design, development and implementation of the new system. Every new Clipper feature or fare category adds cost and complexity to the system during development and over the life of the program. The schedule for bringing the Clipper® 2.0 system online is uncertain and it is not clear how quickly this functionality would be implemented if it was deferred to the next generation Clipper system.
- Other resources for program administration and in-service operations (including public outreach, internal communication, operator training, and even potential service delays) could be significant if low income fares are made available to cash paying riders and require interaction with the vehicle operator during boarding and fare payment. Those costs could be reduced or eliminated if the discounted fares are managed exclusively through Clipper®.

- Other resources would be required to accommodate the estimated 24.7 million additional trips annually. Exhibit 3 indicates that an increase of 24.7 million trips could require the addition of 667,000 revenue service hours regionally (a 6.4% increase from current service levels), based on current agency-specific service productivity data. The actual cost of adding this service will depend on factors such as each operator's cost of providing service, the capacity of existing services to absorb any of these increases, and the specific services that would need to be added.

Qualitative Analysis

Providing a 50% discount for all riders that are at or below 200% of the FPL and who do not already receive the same or higher discounts under other fare programs would meet the region's overall means-based transit pricing objectives to the following extent:

- Transit would become more affordable for the Bay Area's low income residents. Based on these eligibility thresholds, this alternative is estimated to increase transit trips among low income riders by 24.7 million (4.7%) to 544.4 million annually. Of those, approximately 90% would be trips that are taken currently but that would become more affordable with this program. The remaining trips would be new trips taken by low income riders, which is consistent with regional goals to improve mobility for low income residents. In addition to increased mobility and congestion offsets, increased transit ridership has positive implications for air quality, congestion, access to jobs, education, medical support and other indicators of improved quality of life.
- With this alternative, it is estimated that the average fare paid, regionally, by low income riders who would be impacted by this program would drop 34%, from \$1.30 to \$0.86. Although the discount is 50%, average low income fares would drop less than that because new riders may be attracted to and use different fare media at different rates (e.g., they may find cash fares, which are more expensive on a per trip basis, to be more attractive than monthly passes with their higher up-front costs). Savings realized by individual riders will also depend on their specific travel habits such as frequency of travel and which transit provider(s) they utilize most.
- This approach would achieve a more consistent regional standard for discounting fares in the Bay Area, if it was adopted by all operators. It would provide a consistent 50% discount to all eligible riders, whether paying cash or stored value fares or purchasing a monthly pass, although differences in base fares and fare discounts for seniors, youth and persons with disabilities would remain.
- The financial viability of this alternative will depend on the ability to cover revenue fare losses of up to \$79.8 million plus implementation costs. The administrative feasibility of providing discounts in this manner will depend on choices about how to assess eligibility and distribute benefits, but could be similar to the experiences of other regions that have implemented similar smart-card based discount programs, such as those in Seattle and Minneapolis, if the decision is made to rely on Clipper® and third parties to assess feasibility and distribute media. The pilot program in Minneapolis relied on Metro Transit's relationship with the Metro Housing and Redevelopment Authority to identify eligible individuals and distribute cards to them. In Seattle, King County Metro

contracts with public health and social service agencies to serve as enrollment offices and review documents submitted by applicants to verify residency and income eligibility.

Alternative Parameters

Variations on these scenarios could also be considered by policy makers to focus discounts on certain target riders, or to change implementation complexity. The alternative parameters discussed below were also considered. Although they have not been evaluated as part of this analysis, they could be considered in the future, if the region pursues means-based transit pricing:

- **Discount Structure/Geographic Scope:** Instead of the 50% discount assumed in this analysis, a lower discount rate could be used; discount rates could vary by operator; or a uniform low income fare could be provided across all operators, either for all services or by service type, although introducing greater variations in the region does not meet this study's goal of achieving a more consistent regional standard for fare discount policies. Discounted fare products could also include passes that are accepted by two or more agencies, such as the 2+ zone Caltrain passes that are accepted by SamTrans and VTA. Seattle's ORCA LIFT program offers a uniform fare of \$1.50 per boarding (including a 2-hour transfer window) or \$54 per monthly pass on all participating operators (five services operated by four agencies in two counties), on all types of service, regardless of the underlying fare or fare structure.
- **Target Populations and Income Threshold:** Each operator could target specific populations and adopt different income thresholds, based on the target population, where the target population is defined by characteristics such as household income or percentage of the Federal Poverty Level. As with the previous point, this alternative also might not meet the goal of a more consistent regional standard for fare discounts.
- **Fare Media/Fare Payment Technology:** It is assumed that implementation will rely on a special Clipper® card for proof of eligibility. As noted previously, this evaluation measures the impacts of all eligible riders receiving the discount whenever they use a Clipper® card or cash. However, the discount could be limited only to Clipper® users. This would simplify the program, reduce potential for fraud, and encourage Clipper® penetration.

Conversely, fare media for this discount program could be expanded to include paper low income passes (as well as or instead of cash and Clipper® cards). Expansion to additional fare media would require additional administrative effort and costs to produce passes, distribute them to retailers, and update retail agreements, assuming retailers would be willing to handle additional products. In addition, if the program is not implemented on Clipper®, a separate photo ID card would be required to verify eligibility for the discount, particularly for riders paying cash fares. These alternatives are worthy of future policy consideration should this scenario be considered further, but have not been evaluated as part of this analysis.

- **Distribution:** The advantage of using Clipper® cards is that it provides a commonly recognized, verifiable means of delivering the benefit. Reliance on Clipper® suggests that the discount could

be limited to stored value and Clipper® pass products and that it would not be necessary to offer a cash discount. The cash discount is intended to address concerns about access to opportunities to reload Clipper® cards, especially among low income riders. As fare technologies evolve, access may become easier and the cash discount could be eliminated.

- **Means Testing:** Means testing and proof of eligibility are required for all alternatives. Section 3.2 outlines the alternatives for managing means testing in-house or outsourcing this function. The complexity (and associated cost) of means testing will also depend on the number of different programs recognized for qualification, methods of residency and income verification, and how frequently riders are required to prove continued eligibility.

4.1.2 Accumulator with Monthly Fare Capping (A2)

Smart card fare systems like Clipper® have enabled the introduction of new fare payment capabilities, such as accumulators, that support new products such as fare capping and trip bonuses. Fare capping limits a customer’s accumulated stored value expenditures to a defined dollar value; once the threshold is reached, subsequent trips in the same calendar period (often a day or a month) are free. Trip bonuses provide free trips once a rider pays for a set number of trips (e.g., one bonus trip for ten paid trips). Fare accumulators are already in place in the Bay Area, and have been implemented by AC Transit and VTA to cap the total fares a customer pays during the course of a day.

An accumulator providing a monthly cap for low income riders was evaluated. Accumulators are offered by each transit agency, and each agency has a separate accumulator (i.e., fares that accumulate toward VTA’s cap do not also accumulate toward SFMTA’s cap or toward a regional cap). Caps would be established for each agency, for trips taken during a calendar month. Each agency’s monthly cap is set at 50% of the price of a monthly pass and the amount deducted for each trip is the same as the agency’s single trip stored value fare. Thus, for an agency with a \$100 monthly pass and a \$2.50 stored value fare, the low income fare cap would be \$50 and the amount deducted from stored value on each boarding would be \$2.50, until the cap is reached, with the 20th trip. Since the prices of Bay Area transit agencies’ monthly passes vary, fare caps would vary among operators.

Since BART does not currently offer a monthly pass, an accumulator may not be an option. In order to create a similar discount for low income BART riders, it was assumed that they would receive a 50% discount when using Clipper® stored value.

Any approach that distinguishes low income riders from other riders would require means testing to establish eligibility for the program. Means testing would be conducted and a specially programmed low income Clipper® card would be issued to qualified riders to serve as proof of eligibility, to store value and track fares paid, to determine when a cap is reached, and to permit free travel for the rest of the month once a cap is reached.

The parameters that were evaluated for the Accumulator scenario are shown in the following table:

ALTERNATIVE A2: ACCUMULATOR WITH MONTHLY FARE CAPPING	
CRITERIA	PARAMETERS

ALTERNATIVE A2: ACCUMULATOR WITH MONTHLY FARE CAPPING	
Discount Structure	<ul style="list-style-type: none"> ● Separate fare caps for low income riders and all other riders ● 50% discount on fare caps for low income riders on agency-specific fare accumulators ● <u>Intra</u>-agency transfers are included (any <u>intra</u>-agency transfer fees are added to the accumulator) ● Accumulators are agency-specific; inter-agency transfer and monthly pass agreements are not included
Geographic Scope	Analysis assumes a regional implementation, with the same percentage discounts offered by all Bay Area operators
Target Population and Income Threshold	Criteria applied consistently across all Bay Area operators. Low income riders are those with a household income equal to or less than 200% of the Federal Poverty Level
Means Testing	Required
Distribution	Clipper® card to serve as proof of eligibility for all fare discounts
Fare media/Fare payment technology	<ul style="list-style-type: none"> ● Clipper® stored value ● Clipper® card to serve as fare medium for loading stored value and paying fares, tracking fares paid, and awarding free trips once cap is reached
Timeframe	Could not be implemented with existing Clipper® system due to card memory limitations. Implementation with C2 could be part of a future regionwide implementation of accumulators

Advantages

- Clipper® business rules would afford low income riders the best fare possible:
 - Frequent riders have the ability to obtain unlimited travel advantages of a monthly pass even if they are unable to afford the upfront cost of a monthly pass. Riders would need only to add the price of a trip to the stored value purse in advance of boarding, effectively permitting customers to purchase passes on an installment basis, one fare at a time, until the cap is reached. This is perceived to be particularly beneficial for low income riders and from a Title VI perspective, although focus group participants expressed concerns about any low income program that would require users to add value or products to Clipper® cards.
 - Even riders who do not undergo means testing and/or do not meet or fall below the income threshold may benefit from the accumulator, through advantages such as paying incrementally to obtain monthly pass benefits instead of paying for every boarding throughout the month.

- While infrequent riders may not travel enough to reach the monthly cap, they also would not need to purchase a monthly product in advance and risk underutilizing it.
- Requiring eligibility assessments in combination with a fare accumulator cap that provides a discount relative to the price of a monthly pass provides a way to offer discounted fares to a specific target population without requiring discounted fares for those who do not qualify. Maintaining higher fares for higher income riders can help offset costs of the low income program.
- Because this scenario would be managed electronically, this program could also enable different business rules/fare policies for low income riders (e.g., free intra-agency and inter-agency transfers) in addition to fare capping.
- Use of Clipper® for both eligibility verification and payment consolidates identification requirements with fare payment requirements on the Clipper® card and may also increase Clipper® penetration among transit users.

Disadvantages

- Fare capping primarily benefits those riders who travel frequently enough to reach the cap. Alternatively, instead of capping low income fares at half the cap for general public users, the per-trip fare could be discounted by 50%. Although this would double the number of trips required to reach the cap, it would reduce the fare paid for each of those trips.
- This program would require means testing, which may limit the reach of the program and would not benefit those that do not meet the criteria if they are just above the regionally-defined threshold or are not able to meet documentation requirements. Nevertheless, means testing should be required for any scenario with an income threshold.
- Fare capping would require a Clipper® card to pay fares using stored value, track fares paid toward the cap, and provide free trips once the cap is reached. Fare capping could not be provided to riders paying cash fares. Focus group participants observed that it would be a burden to access the discounts if they were limited to Clipper®. Clipper® card distribution would be handled through the eligibility assessment process, with specially programmed low income Clipper® cards issued as IDs to individuals who qualify for means-based price discounts. However, qualified riders would need to be able to add value to their cards and could be constrained by access to reloading locations. Further, individuals with limited incomes may need to add smaller amounts of value more frequently than individuals with less constrained incomes. All of these factors would need to be considered in conducting the equity analysis, if this alternative moved toward implementation. However, the ability to purchase a monthly pass by adding small amounts frequently could also be seen as an advantage, giving riders a more affordable way to purchase the benefits and avoid the high up-front costs associated with monthly passes.
- Accumulators and fare capping may impact fare revenues for transit operators in several ways:

- Riders who were previously unable to afford a monthly pass may have paid more than the price of a monthly pass over the course of a month. Fare capping would eliminate those fares paid in excess of the price of the monthly pass. This would be beneficial for the rider, but result in lower revenues for the transit agency.
 - In addition, riders who previously purchased monthly passes but did not travel enough to reach the break-even point may choose not to purchase a monthly pass, thereby paying only for trips taken.
 - There are some fiscal disadvantages for transit providers of replacing monthly passes with accumulators and fare capping. With traditional calendar monthly passes, transit agencies realize revenue upfront, at the beginning of the month. With capping, agencies may lose revenue associated with riders who previously purchased monthly passes but underused them.
 - Riders who are currently able to afford a monthly pass may elect to travel more than when they pay fares on a trip-by-trip basis, thereby reducing an agency's average fares.
- Implementation of a monthly fare cap is not possible with the current generation of Clipper® due to memory limitations with the current Clipper® card. This scenario therefore is not viable until the roll-out of the next generation Clipper® system that is anticipated to start in 2019 at the earliest.
 - Although AC Transit and VTA have each implemented their own day pass caps on Clipper®, neither monthly caps nor a common regional day pass accumulator has been developed and introduced. The Bay Area transit agencies have different base fares, pass multiples, and transfer policies. Implementation of accumulators throughout the region will require handling multiple price points, different service types/distances traveled (e.g., local bus vs. regional rail), and other different fare policies, making it difficult to implement a single regional accumulator across all operators. For example, an eligible rider using SFMTA and AC Transit would need to accumulate fares toward both agencies' caps. However, this mirrors the current challenges of using Clipper® across all Bay Area operators.
 - Accumulator business rules would be needed to determine how caps would be set for agencies with variable fare structures (e.g., distance-based fares, type of service fares, route-specific fares). For example, under the accumulator program, the monthly cap would be \$36.50 for a low income Caltrain rider who pays \$2.75 to travel one zone. It would be necessary to establish whether a 4-zone fare (\$8.10) should count toward that cap – or whether that passenger's cap should be the higher 4-zone price (\$116).
 - Agencies such as BART that do not currently offer pass products may not wish to develop a low income program option that awards a pass product.

Quantitative Analysis: Ridership and Fare Revenue

Key assumptions used in evaluating the ridership and fare revenue impacts of this alternative are as follows:

- The accumulator cap is discounted for eligible low income riders who pay fares using Clipper® stored value. Fare payments cap and no further fares are charged for the month when total fare payments reach 50% of the price of the general public monthly pass. Fares accumulate by agency and not across agencies.
- For each operator, it is assumed that 70% of low income riders not currently using Clipper® would migrate to Clipper® and take advantage of fare capping.
- It is estimated that about 23% of low income riders will not make enough trips to reach the monthly cap⁵.
- Low income riders who already receive a discount of 50% or more of the full adult fare, such as senior/disabled and some youth riders, would not receive an additional discount. Other low income programs, such as SFMTA’s Lifeline and Free Muni programs and VTA’s UPLIFT and TAP programs, would not receive an additional discount.

Agency-specific ridership and fare revenue impacts of Affordability Scenario A2 are provided in Appendix B. Overall, on a regionwide basis, impacts would be as follows:

A2 (Fare Capping)	Annual Ridership Impact (millions)	Annual Fare Revenue Impact (millions)
Low Income Riders	23.3	-\$64.2
Non-Low Income Riders	0.0	\$0.0
Total	23.3	-\$64.2

Note: Ridership and fare revenue forecasts assume unconstrained, full implementation and utilization in Year 1.

- **Ridership:** Offering fare accumulators and discounting fare caps by 50% for low income riders is estimated to increase Bay Area ridership by 23.3 million boardings per year among low income

⁵ The percentage of riders reaching the accumulator cap was calculated using SFMTA Clipper® data as a proxy for the region:

1. The number of rides required to reach the accumulator cap was calculated by dividing the capped accumulator cost by the adult full cash fare (\$35/\$2.25 per trip ≈ 16 trips).
2. The percent of riders who would hit the monthly accumulator cap was determined by analyzing SFMTA’s Clipper® stored value and Clipper® monthly pass ridership data. It was determined that 77.33% of trips completed using Clipper® stored value or Clipper® monthly passes were taken by riders who took more than 16 trips in a month.

riders. This is the equivalent of increasing low income ridership by 10.2% and total ridership by 4.5%.

- **Fare Revenue:** These discounts are estimated to result in a net loss of \$64.2 million in fare revenue. This estimate takes into consideration all of the trips that would be made at the discounted rate, both those made currently and additional trips that would be attracted by the reduced fare, including those trips made by low income riders that currently take advantage of eligibility for other discounts, such as those for seniors, disabled riders, or youth. This is the equivalent of a 21.6% reduction in fare revenues currently paid by low income riders and a 7.2% reduction from current total fare revenues from all riders.
- **Fare Recovery:** The fare revenue losses associated with this scenario will reduce the fare recovery ratio from 37.5% to 34.8%, regionally, as shown in Appendix C. These estimates do not take into consideration any increased costs to accommodate increased ridership and maintain service performance standards, or cost savings associated with changes in the administration and delivery of low income fare programs.
- Compared to Alternative A1, the accumulator scenario is estimated to have slightly lower ridership growth and less fare revenue loss. This is a consequence of the assumption that about 23% of low income riders would not make enough trips to reach the monthly cap.

Quantitative Analysis: Constrained Program

Limiting the monthly accumulator scenario to low income riders traveling only on the AC Transit and/or BART systems would reduce the ridership increases and revenue losses associated with a regionwide program. Ridership increases would be reduced to 8.3 million boardings, down from the 24.7 million boardings estimated for the regionwide program. These constraints would also impact fare revenue, reducing expected losses from a regionwide program from \$80.5 million to \$47.3 million. Different program constraints, such as stricter geographic limitations, could further reduce the reach and price of the program.

Quantitative Analysis: Other Implementation Considerations

- Means testing would be required for this scenario and could be accomplished by any of the methods discussed in section 3.2.2. Therefore, the annual operating cost of means-testing for this scenario could range between the low and high estimates, from \$1.0 million to \$1.7 million depending on the complexity and contracting method of the program. Additional funds would be required to initiate and launch the means testing function.
- It is only possible to implement this accumulator scenario as part of the next generation Clipper® system. Card memory limitations of the current Clipper® system only support a daily accumulator. In contrast, the next generation Clipper® system currently being planned could include broad accumulator functionality. If this accumulator scenario is implemented as part of the next generation Clipper® system, the incremental technology costs would be minimized. However, every new Clipper feature or fare category adds cost and complexity to the system.

during development and over the life of the program. The schedule for bringing the Clipper® 2.0 system online is uncertain and it is not clear how quickly this program would be implemented.

- Because this accumulator scenario relies entirely on the Clipper® system to manage the discounts provided, additional resources required to implement the program (including public outreach, internal communication, operator training, and even potential service delays) would be insignificant.
- Other resources would be required to accommodate the estimated 23.3 million additional trips annually. The table in section 3.4 indicates that an increase of 23.3 million trips would require the addition of 569,300 revenue service hours regionally, based on current agency-specific service productivity data. The actual cost of adding this service will depend on factors such as each operator's cost of providing service, the capacity of existing services to absorb any of these increases, and the specific services that would need to be added.

Qualitative Analysis

Providing a 50% discount using a Clipper®-based accumulator to cap fares for all riders that are at or below 200% of the FPL and who do not already receive the same or higher discounts under other fare programs would meet the region's overall means-based transit pricing objectives to the following extent:

- Transit would become more affordable for the Bay Area's low income residents. Based on these eligibility thresholds, this alternative is estimated to increase transit trips among low income riders by 23.3 million to 252.1 million annually. Of those, approximately 90% would be trips that are taken currently but that would become more affordable with this program. The remaining trips would be new trips taken by low income riders. With this alternative, it is estimated that the average fare paid, regionally, by low income riders who would be impacted by this program would drop 29%, from \$1.30 to \$.92, slightly higher than the average fare paid by low-income riders in Scenario A1.
- This approach would achieve the goal of a more consistent regional standard for discounting fares in the Bay Area, if it was adopted by all operators. It would provide a consistent 50% discount on the price of a monthly pass to all eligible riders paying fares from Clipper® stored value, as well as the advantages of fare capping, which would provide the benefit of a monthly pass to riders who currently may be unable to afford one. Differences would remain among operators' base fares, monthly pass prices, fare discounts for seniors, youth and persons with disabilities. Since the prices of Bay Area transit agencies' monthly passes vary, fare caps would also vary. In addition, for agencies like BART that do not offer passes, it may be necessary to consider another approach, such as increasing the bonus on BART's high value discount for low income riders to provide a 50% discount (e.g., receive \$120 value by paying \$60).
- The financial viability of this alternative will depend on the ability to cover fare revenue losses of up to \$64.2 million plus development and implementation costs. The administrative feasibility

of providing discounts in this manner will depend on choices about how to assess eligibility and distribute benefits, but could be similar to the experiences of other regions that have implemented smart-card based low income programs, such as Seattle and Minneapolis, if the decision is made to rely on Clipper® and third parties to assess feasibility and distribute media. However, delivering benefits through fare capping will also have implications for the program and how quickly it could be implemented as well as the costs of implementation.

Alternative Parameters

Variations on these scenarios could also be considered by policy makers to focus discounts on certain target riders, or to change implementation complexity. The alternative parameters discussed below were also considered but have not been evaluated as part of this analysis:

- **Discount Structure/Geographic Scope:** instead of the 50% discount assumed in this analysis, a lower discount rate could be used; discount rates could vary by operator; or a uniform low income fare cap could be provided across all operators, either for all services or by service type. However, these alternatives would not be consistent with the goal of a more consistent regional approach to fare discounts.

In addition to capping low income fares at half the cap for general public riders, the per-trip fare could be discounted by 50%. This change would increase the number of trips required to reach the cap while reducing the price per trip to provide a half fare discount. However, it would also provide a discount individuals who do not ride frequently enough to benefit from fare capping. This variation on capping could be evaluated further if there is interest in moving forward with an accumulator approach to means-based pricing.

Fare capping could be implemented regionally instead of on an agency-by-agency basis. A single regional accumulator valid for all fare payments on all Bay Area transit agencies, would require a longer lead time and further analysis and discussion of how to accommodate interagency transfer and pass policies. Seattle's ORCA LIFT program offers a uniform fare of \$1.50 per boarding (including a 2-hour transfer window and no transfer charges) or \$54 per monthly pass on all participating operators (five services operated by four agencies in two counties), on all types of service, regardless of the underlying fare or fare structure. With fare capping, the Seattle program would deduct \$1.50 per boarding from stored value and cap once \$54 has been deducted, after 36 trips. Nevertheless, the business rules governing a regional monthly pass accumulator would be complicated and would need to establish rules for handling interagency transfers and trips of various prices.

Consideration could also be given to whether the regional program should replace existing low income programs that may provide a more significant discount than what is being considered regionally (e.g., Free Muni for Youth and Free Muni for Seniors).

In addition to the low income-only cap evaluated here, at least two other options for implementing accumulators as part of a low income transit fare program could be considered:

- A single universal cap for all riders on all Bay Area transit providers, which would afford all customers the benefit of the same cap on all fares paid during a calendar period. While this would benefit riders, it is likely to have a more significant impact on agency revenues than the agency-specific caps analyzed in this scenario.
- Adding a separate cap for the general population, to make it possible to provide a lower cap or lower per-trip fares for low income riders than for other customers. There has been some interest in the Bay Area in introducing fare accumulators and caps with Clipper2. If that option is pursued, the accumulator offered to low income riders could be priced to provide a discount on the cap relative to the full fare cap or on the stored value fare relative to the full fare stored value fare.
- **Target Populations and Income Threshold:** each operator could target specific populations and adopt different income thresholds, based on the target population, where the target population is defined by characteristics such as household income or percentage of the Federal Poverty Level. The monthly pass accumulator could be available to all populations or only to specific populations that qualify for the low income program.
- **Fare Media/Fare Payment Technology:** it is assumed that implementation will rely on a Clipper® card for proof of eligibility and to receive the benefits of fare capping. Limiting the discount to Clipper® users will simplify the program, reduce potential for fraud, and encourage Clipper® penetration. However, program implementation will require a Title VI analysis to assess whether or not there are disparate impacts on minority passengers and/or disproportionate burdens on low income riders arising from the proposed fare change and users' ability to access opportunities to add value to cards. In addition, implementation of a monthly fare cap is not planned with the current generation of Clipper® and would need to be deferred to C2, resulting in a delay of at least several years in terms of implementation.
- **Distribution:** The advantage of using Clipper® cards is that it provides a commonly recognized, verifiable means of delivering the benefit. Reliance on Clipper® to manage the accumulator functionality limits the discount to stored value; with fare capping, discounts on fares paid with cash would not be an option. As fare payment technologies evolve (such as the introduction of mobile ticketing), access may become easier and offset some of the constraints associated with Clipper®.
- **Means Testing:** means testing and proof of eligibility are required for all alternatives. Section 3.2 outlines the alternatives for managing means testing in-house or outsourcing this function. The complexity (and associated cost) of means testing will also depend on the number of different programs recognized for qualification, methods of residency and income verification, and how frequently riders are required to prove continued eligibility.

4.1.3 Cash on Clipper® for Low Income Riders (A3)

The Cash on Clipper® scenario would provide a transit-only “cash” subsidy to eligible low income riders by adding funds to the stored value on a Clipper® card, to match funds added by the rider, effectively providing a 50% fare discount on fares paid with stored value. The subsidy could take the form of a stored value credit to eligible riders’ Clipper® cards, similar to a pre-tax transit benefit. Other methods of value distribution besides Clipper®, such as paper-based commuter checks or benefits cards, could be developed but are not recommended. Alternatives such as these would be entirely new programs and incur their own additional costs; they would also undermine the Clipper® program and would not be supported by MTC.

The scenario evaluated here assumes that stored value added by eligible riders would be matched dollar-for-dollar, with no cap on the bonus that could be added, effectively providing a 50% discount *on pay-per-trip stored value usage*. Under this scenario, subsidies would be provided by MTC from a regional pool of funds, not by individual transit agencies.

Like the other low income program alternatives, Cash on Clipper® would require means testing to establish eligibility. Following means testing, a special Clipper® card would be issued to qualified riders to serve as proof of eligibility; cash subsidies would be added to the stored value purse on the card. Stored value could be used to pay full fares on any and Bay Area transit providers, thereby accommodating each operator’s fare structure, including distance-based and type-of-service or route-specific fares as well as flat fares. Low income riders who already receive a discount of 50% or more of the full adult fare, such as senior/disabled and some youth riders, would not receive an additional discount.

The parameters that were evaluated for the Cash on Clipper® Scenario are shown in the following table:

ALTERNATIVE A3: CASH ON CLIPPER®	
CRITERIA	PARAMETERS
Discount Structure	Clipper® stored value subsidies structured to provide a 50% discount to eligible riders
Geographic Scope	Analysis assumes a regional implementation, with the same subsidies provided across all Bay Area operators
Target Population and Income Threshold	<ul style="list-style-type: none"> ● Criteria applied consistently across all Bay Area operators ● Low income riders are those with a household income equal to or less than 200% of the Federal Poverty Level
Means Testing	Required
Distribution	<ul style="list-style-type: none"> ● Clipper® card to serve as proof of eligibility and medium for adding subsidy and paying fares ● Assumes subsidies are administered by someone other than the transit agency (e.g., MTC)
Fare media/Fare payment technology	<ul style="list-style-type: none"> ● Clipper® stored value

ALTERNATIVE A3: CASH ON CLIPPER®	
	<ul style="list-style-type: none"> • Clipper® card to serve as fare medium for loading subsidy and paying fares
Timeframe	Requires Clipper® implementation; could take six months to a year to implement in the current system or could be implemented as part of C2

Advantages

- Riders are able to spend their Cash on Clipper® transit dollars on any/all transit agencies, thereby providing access to the entire regional transit system.
- This options accommodates established transit fares and fare structures. It requires no changes to transit agencies’ established fares. Half of the funds in a rider’s stored value account would be provided by subsidy and riders would use stored value to pay their fares, effectively receiving a 50% discount.
- This scenario provides a 50% stored value discount across all agencies even though the cash required to create the subsidy is different for different agencies. Agencies will continue to set their own fares and systems with distance-based fares will continue to receive higher fares than on those with flat fares.
- Transit agencies would gain fare revenue from additional trips induced by the program (discounted fares would be paid by riders and matched by the regional funding pool). For existing riders that currently pay full fare and opt to take advantage of the low income program, subsidies provided from a regional funding pool would offset transit agencies’ revenue losses.
- Implementation on Clipper® speeds the distribution of value, minimizes the transferability of value, and reduces the potential for fraud, but enables and requires tracking and monitoring to minimize fraudulent use.

Disadvantages

- There is a potential for fraud associated with the use of alternative methods of transit value distribution, such as more readily transferrable paper-based commuter checks or benefits cards, if the program is made available outside of Clipper®.
- Like all other scenarios, this program would require means testing, which may limit the reach of the program and would not benefit those that do not meet the criteria.

Quantitative Analysis: Ridership and Fare Revenue

Key assumptions used in evaluating the ridership and fare revenue impacts of Cash on Clipper® are as follows:

- The Cash on Clipper® low income program provides subsidies to riders paying fares using Clipper® stored value. Subsidies would match funds that riders add to their stored value

accounts and would be available to pay fares on any Bay Area transit agency, including inter- and intra-agency transfer fees.

- For each operator, it is assumed that 70% of low income riders not currently using Clipper® would migrate to Clipper® to take advantage of the Cash on Clipper® program.

Agency-specific ridership and fare revenue impacts of Affordability Scenario A3 are provided in Appendix B. Overall, on a regionwide basis, impacts would be as follows:

A3 (Cash on Clipper®)	Annual Ridership Impact (millions)	Annual Fare Revenue Impact (millions)
Low Income Riders	26.1	-\$75.5
Non-Low Income Riders	0.0	\$0.0
Total	26.1	-\$75.5

Note: Ridership and fare revenue forecasts assume unconstrained, full implementation and utilization in Year 1.

- **Ridership:** Offering transit-only Clipper® stored value subsidies with the objective of providing a 50% discount for low income riders is estimated to increase ridership by 26.1 million boardings per year to 254.9 million; all of the increase would be among low income riders. This is the equivalent of increasing low income ridership by 11.4% and total ridership by 5.0%.
- **Fare Revenue:** These discounts are estimated to result in a net loss of \$75.5 million in fare revenue. This estimate takes into consideration all of the trips that would be made by low income riders using Clipper® stored value, both those made currently and additional trips that would be attracted by the reduced fare, and including those trips made by low income riders that currently take advantage of eligibility for other discounts, such as those for seniors, disabled riders, or youth. This is the equivalent of a 25.4% reduction in fare revenues currently paid by low income riders and a 8.5% reduction from current total fare revenues from all riders.
- **Fare Recovery:** The fare revenue losses associated with this scenario will reduce current fare recovery ratios from 37.5% to 34.3%, as shown in Appendix C. These estimates do not take into consideration any increased costs to accommodate increased ridership and maintain service performance standards, or cost savings associated with changes in the administration and delivery of low income fare programs.
- Compared to Alternative A1, Cash on Clipper® is estimated to have slightly higher ridership growth and less fare revenue loss, but from a regional perspective, their results are similar.

Quantitative Analysis: Constrained Program

Limiting the Cash on Clipper® scenario to low income riders traveling on the AC Transit and/or BART systems would reduce the ridership increases and revenue losses associated with a regionwide program. Ridership increases would be reduced to 10.6 million boardings, from the 26.1 million low income boardings estimated for the regionwide program. These constraints would also impact fare revenue, reducing expected losses from a regionwide program from \$75.5 million to \$46.0 million. Different

program constraints, such as stricter geographic limitations, could further reduce the reach and price of the program.

Quantitative Analysis: Other Implementation Considerations

- Means testing would be required for this scenario and could be accomplished by any of the methods discussed in section 3.2.2. Therefore, the annual operating cost of means-testing for this scenario could range between the low and high estimates, from \$1.0 million to \$1.7 million depending on the complexity and contracting method of the program. Additional funds would be required to initiate and launch the means testing function.
- The fare technology required for this scenario is consistent with the existing functionality of the current Clipper® system. Adding cash to a new low income card type involves functionality and fare categories already in existence. Rough estimates based on prior software changes suggest that implementing this scenario under the current Clipper® system could be less than \$500,000 and take approximately six months. If this functionality were to be added as part of a new Clipper® 2.0 system, the same subsidy management system would need to be put in place so the cost would be roughly the same.
- Because this Cash on Clipper® scenario relies entirely on the Clipper® system to manage the subsidy provided, additional resources required to implement the program (including communication, operator training, and even potential service delays) would be minimized.
- Other resources would be required to accommodate the estimated 26.1 million additional trips annually. The table in section 3.4 indicates that an increase of 26.1 million trips would require the addition of 665,100 revenue service hours regionally, based on current agency-specific service productivity data. The actual cost of adding this service will depend on factors such as each operator's cost of providing service, the capacity of existing services to absorb any of these increases, and the specific services that would need to be added.

Qualitative Analysis

Providing a 50% match to eligible riders' Clipper®-based stored value purses would meet the region's overall means-based transit pricing objectives in the following ways:

- Transit would become more affordable for the Bay Area's low income residents. Based on these eligibility thresholds, this alternative is estimated to increase transit trips among low income riders by 26.1 million to 254.9 million annually. Of those, approximately 90% would be trips that are taken currently but that would become more affordable with this program. The remaining trips would be new trips taken by low income riders. With this alternative, it is estimated that the average fare paid, regionally, by low income riders who would be impacted by this program would drop 33%, from \$1.30 to \$0.87, lower than Scenario A2 and similar to Scenario A1. Average low income fares would drop less than the 50% discount as riders shift from more cost-effective products, such as monthly passes, to cash fares with higher per-trip costs. Savings realized by individual riders will also depend on their specific travel habits such as frequency of travel and which transit provider(s) they utilize most.

- Although Cash on Clipper® is designed to provide a consistent 50% discount to all eligible riders paying fare using Clipper® stored value, this approach would neither provide regional fare policy coordination nor simplify riders' fare payment experiences. Differences among operators' base fares and fare discounts for seniors, youth and persons with disabilities would remain.
- The financial viability of the Cash on Clipper® alternative will depend on the ability to cover revenue fare losses of up to \$75.5 million plus implementation costs. The administrative feasibility of providing discounts in this manner will depend on choices about how to assess eligibility and distribute benefits, but could be similar to the experiences of other regions that have implemented similar smart-card based discount programs, such as those in Seattle and Minneapolis, if the decision is made to rely on Clipper® and third parties to assess eligibility and distribute media. It may be possible to leverage transit value distribution methods such as commuter checks, benefits cards, or Clipper® autoloading to enable delivery of low income benefits under this program. However, matching the amount of cash added by a rider to a Clipper® card would be challenging and could require a more complex, 2-step process making it necessary for eligible riders to purchase discounted transit checks and then add the value to their Clipper® cards. It therefore seems unlikely that this alternative would be implemented outside of Clipper®.

Alternative Parameters

Variations on the Cash on Clipper® scenario parameters could also be considered by policy makers to focus discounts on certain target riders, or to change implementation complexity. The parameters discussed below were also considered but have not been evaluated as part of this analysis:

- **Discount Structure/Geographic Scope:** instead of the one-for-one match that was evaluated, a flat subsidy could be provided. In that case, the proportion of transit costs covered by this approach would vary depending on the costs of using different transit providers. Alternatively, a variable subsidy could provide a more consistent share of transit costs across all agencies. This analysis effectively assumed a 50% discount, by matching the value customers' add to their stored value purses. Instead, a lower discount rate could be targeted, or discount rates could vary by operator.

Alternatives to this scenario could also include dollar-for-dollar matching toward pass products instead of stored value. This could increase the cost-effectiveness of the subsidy if it reduces the per-trip subsidy by leveraging the discounts provided by passes used beyond their break-even points.

Consideration could also be given to whether the regional program should replace existing low income programs that may provide a more significant discount than what is being considered regionally (e.g., Free Muni for Youth and Free Muni for Seniors).

- **Target Populations and Income Threshold:** each operator could target specific populations and adopt different income thresholds for Cash on Clipper®, but this approach would not achieve a more consistent regional standard for discounting fares.

- **Fare Media/Fare Payment Technology:** it is assumed that implementation will rely on a Clipper® card for proof of eligibility and to accommodate the stored value subsidy. Limiting the program to Clipper® users will simplify the program, reduce potential for fraud, and encourage Clipper® penetration. However, program implementation will require a Title VI analysis to assess whether or not there are disparate impacts on minority passengers and/or disproportionate burdens on low income riders arising from the proposed fare change and users' ability to access opportunities to add value to cards.
- **Distribution:** The advantage of using Clipper® cards is that it provides a commonly recognized, verifiable means of delivering the low income benefit. Reliance on Clipper® to manage the delivery of subsidies limits the discount to stored value; discounts on fares paid with cash would not be an option. As fare payment technologies evolve (such as the introduction of an account-based system and mobile ticketing), access may become easier and offset some of the constraints associated with the current generation Clipper® technology.
- **Means Testing:** means testing and proof of eligibility are required for all alternatives. Section 3.2 outlines the alternatives for managing means testing in-house or outsourcing this function. The complexity (and associated cost) of means testing will also depend on the number of different programs recognized for qualification, methods of residency and income verification, and how frequently riders are required to prove continued eligibility.

4.2 Revenue Generating Scenarios

There are two Revenue Generating Scenarios that are intended to evaluate whether additional fare revenue could be raised and paired with any of the Affordability Scenarios to achieve a financially viable low income program.

4.2.1 Eliminate Non-Mandated Cash Discounts (R1)

FTA grantees are required to provide half fare discounts on cash fares for seniors, persons with disabilities, and Medicare cardholders during off-peak hours. Like transit agencies across the country, Bay Area transit agencies offer fare discounts that exceed the federally mandated discounts. For example:

- There are no federal mandates for youth and student discounts, but most Bay Area agencies offer discounts to riders between the ages of 5 and 18
- Existing programs such as the SFMTA Lifeline Pass and Free Muni and VTA's UPLIFT and TAP programs offer non-mandated discounts for low income riders
- Discounts for senior/disabled/Medicare riders during peak periods and/or on non-cash fares such as monthly passes exceed federal requirements.

Eliminating non-mandated discounts like these and charging the full adult fare instead could generate additional fare revenue and help to offset the costs of a low income program.

The parameters that were evaluated for this Revenue Generating scenario are shown in the following table:

ALTERNATIVE R1: ELIMINATE NON-MANDATED CASH DISCOUNTS	
CRITERIA	PARAMETERS
Discount Structure	<ul style="list-style-type: none"> ● Federally-mandated half fare discounts available only on cash and Clipper® stored value fares and only during off-peak ● Retain free/reduced fixed route fares for ADA paratransit eligible riders ● No discounted passes for youth, seniors, persons with disabilities, Medicare recipients; other (full fare) passes and pass programs retained ● Seniors: 65+
Geographic Scope	Discount criteria applied consistently across all Bay Area operators
Target Population and Income Threshold	Not applicable
Means Testing	Not applicable
Distribution	Not applicable
Fare media/Fare payment technology	<ul style="list-style-type: none"> ● Cash ● Clipper® stored value and fare products ● Agency-specific, non-Clipper® fare products
Timeframe	Implementation would require adoption of fare policy changes by transit agencies' policy boards

Advantages

- Reducing the number and variety of discounts offered provides funding for a low income program designed to address the needs of those who are most in need of transit fare discounts. These fare policy changes will generate additional fare revenue to help offset the discounts provided by a low income program, while maintaining compliance with mandated discounts.
- Retaining free/reduced fares on fixed route services for riders who are eligible for ADA paratransit services encourages the use of lower cost fixed route services for riders who are able to use those services instead of higher cost paratransit services.
- Eliminating the variety of reduced fare programs simplifies fare policies, makes fare policies more consistent across the region in keeping with the overall goal of this study, and reduces administrative costs of managing several different discount fare programs.
- Retaining mandated discounts on fares paid using Clipper® stored value reinforces the use of Clipper® regionally as well as the use of a specially programmed low income Clipper® card to support a Bay Area low income program.

Disadvantages

- Eliminates all current discounts for Bay Area transit users except seniors, persons with disabilities, and Medicare recipients traveling during off-peak periods.
- Requires action by each transit agency’s policy board and may be extremely difficult to accomplish consistently on a regional basis.
- Limiting discounts to off-peak periods would require time-sensitive (peak/off-peak) pricing, which is currently neither part of the Clipper® functionality nor of many operators’ fare-collection mechanisms, such as on-board fareboxes.
- Will have a negative impact on transit ridership throughout the Bay Area.

Quantitative Analysis: Ridership and Fare Revenue

Key assumptions used in evaluating the ridership and fare revenue impacts of eliminating non-mandated discounts are as follows:

- Discounts that are not mandated are eliminated and the fares for riders who currently use those discounts are increased to the corresponding full adult fare. Only federally mandated senior/disabled/Medicare off-peak half-fare cash discounts are retained.
- An exception is made for the fixed route discounts offered to ADA paratransit eligible riders, to encourage them to use fixed route services instead of more expensive ADA complementary paratransit services when they are able.
- Existing low income programs (e.g., SFMTA’s Lifeline pass and VTA’s UPLIFT and TAP programs) are eliminated. Those riders’ fares increase to the corresponding full adult fare, but they may be eligible for the low income program that would be funded by the elimination of non-mandated fare discounts.

Agency-specific ridership and fare revenue impacts of Revenue Generating Scenario R1 are provided in Appendix B. Overall, on a regionwide basis, impacts would be as follows:

R1 (Eliminate Discounts)	Annual Ridership Impact (millions)	Annual Fare Revenue Impact (millions)
Low Income Riders	-13.0	\$30.4
Non-Low Income Riders	-7.5	\$22.9
Total	-20.5	\$53.2

Note: Ridership and fare revenue forecasts assume unconstrained, full implementation and utilization in Year 1.

- **Ridership:** Eliminating non-mandated discounts is estimated to reduce Bay Area transit ridership from current levels by 22.9 million (3.8%), including 13.0 million trips currently taken by low income riders and 7.5 million trips taken by all other riders. While this loss in low income boardings is approximately half of the new low income ridership generated by the affordability scenarios (50% to 56%), the net gain (44% to 50%) is still substantial.

- **Fare Revenue:** Eliminating non-mandated discounts with the objective of increasing fare revenue is estimated to increase fare revenue by \$66.3 million (7.0%) from current levels, including \$20.9 million among low income riders and \$45.5 million among all other riders. While these results suggest that a little less than half of the revenues generated by eliminating discounts are related to the decline in low income ridership, eliminating the discounts prioritizes a regionwide means-based low income program and redirects existing transit agency subsidies to it.
- **Fare Recovery:** The fare revenue gains associated with this scenario will increase current fare recovery ratios from 37.5% to 39.7%, as shown in Appendix C. These estimates do not take into consideration any increased costs to accommodate increased ridership and maintain service performance standards, or cost savings associated with changes in the administration and delivery of low income fare programs.

Quantitative Analysis: Constrained Program

Eliminating non-mandated cash discounts only for AC Transit and BART would generate less revenue and have a lower impact on ridership losses than a regionwide program of discount elimination. Ridership losses would be reduced to 6.0 million boardings, instead of the 20.5 million lost boardings estimated with regionwide elimination of all but the Federally mandated off-peak senior and disabled discounts. These constraints would also impact fare revenue available to offset revenue losses associated with the Affordability Scenarios, reducing expected gains from a regionwide program from \$53.2 million to \$25.9 million. Different program constraints, such as stricter geographic limitations, could further increase the reach and reduce the revenue generated by reducing the non-mandated discounts offered.

Quantitative Analysis: Other Implementation Considerations

Not applicable.

Qualitative Analysis

Eliminating non-mandated fare discounts in order to increase fare revenues would help to meet the region's overall means-based transit pricing objectives in the following ways:

- By providing revenue that would help to offset the fare revenue reductions that would occur with the implementation of a low income transit fare program, this approach would help to assure that transit would become more affordable and sustainable for low income Bay Area residents. However, eliminating these discounts would increase fares for many transit users, thereby reducing transit use by nearly 21 million trips (approximately 3.9%). Riders impacted would likely include low income riders who do not enroll or who miss the eligibility threshold for a low income program.
- By eliminating the many agency-specific discounts, this approach would assist in coordinating and simplifying the fare options offered to Bay Area transit users and making them more consistent across the transit agencies. However, this approach would not eliminate the differences among operators' base fares and other non-discounted fare products, and would not eliminate the various transfer and joint pass programs that exist in the region.

- By providing funding to help offset the fare revenue losses that the transit agencies will experience, thereby supporting the financial viability of a low income program. The estimated losses for the three Affordability scenarios analyzed here would range from \$64 to \$80 million. Eliminating non-mandated fare discounts may generate sufficient fare revenue to offset approximately \$53 million in lost fare revenues. The administrative feasibility of implementing these changes will depend on their adoption by the transit agencies’ policy boards and can be expected to face stiff opposition from vocal rider groups who currently benefit from those discounts.

Alternative Parameters

Revenue generating alternatives to eliminating non-mandated discounts include identifying other sources of funding available for transit. Bay Area transit agencies that offer or are considering low income programs rely on a variety of sources, including local sales taxes, funding from private sector organizations, County general funds, Transit Performance Initiative incentive funds from MTC, and local county sales tax revenues. Other options could include working with school districts or social service agencies to make transportation funds available for this purpose, though it is likely that those sources are already maxed out.

4.2.2 Implement Fare Increases (R2)

This scenario would generate additional fare revenue to off-set the fare revenue impacts of a low income program by increasing all fares by 10%. The fare increase would apply across-the-board to all fare products and all Bay Area transit agencies.

The parameters that were evaluated for this Revenue Generating scenario are shown in the following table:

ALTERNATIVE R2: IMPLEMENT FARE INCREASES	
CRITERIA	PARAMETERS
Discount Structure	<ul style="list-style-type: none"> • Increase all cash and non-cash fares by 10% • Retain existing discounted fare options and products
Geographic Scope	10% fare increases applied consistently across all Bay Area operators
Target Population and Income Threshold	Not applicable
Means Testing	Not applicable
Distribution	Not applicable
Fare media/Fare payment technology	All existing fare media, including Clipper® products
Timeframe	Implementation would require adoption of fare policy changes by transit agencies’ policy boards

Advantages

- Provides funding for a low income program designed to address the needs of those who are most in need of transit fare discounts.

- Maintains each agency’s existing fare policies and structures.

Disadvantages

- Increases fares by 10% for all riders on all Bay Area transit systems, modes and routes.
- Increasing all fares by 10% will require action by each transit agency’s policy board and may be difficult to accomplish on a regional basis. It may also limit the agencies’ abilities to increase fares for other purposes.
- Increasing all fares by 10% will negatively impact Bay Area transit ridership.

Quantitative Analysis: Ridership and Fare Revenue

Key assumptions used in evaluating the ridership and fare revenue impacts of increasing all fares by 10% are as follows:

- All fares increase by 10%, across-the-board, on all systems, modes, and routes.
- Existing fare products and discount options are retained, including existing low income programs, such as SFMTA’s Lifeline pass and VTA’s UPLIFT and TAP programs.

Agency-specific ridership and fare revenue impacts of Revenue Generating Scenario R2 are provided in Appendix B. Overall, on a regionwide basis, impacts would be as follows:

R2 (10% Fare Increase)	Annual Ridership Impact (millions)	Annual Fare Revenue Impact (millions)
Low Income Riders	-6.7	\$20.9
Non-Low Income Riders	-7.2	\$45.5
Total	-13.9	\$66.3

Note: Ridership and fare revenue forecasts assume unconstrained, full implementation and utilization in Year 1.

Fare revenues generated by increasing fares will depend on the type and number of trips taken, services used, and fare choices made by riders, including assumed price elasticities. Currently, non-low income riders account for 56% of boardings and 67% of fare revenues; accordingly low income riders account for 44% of boardings and 33% of revenue. With a 10% fare increase, total ridership goes down (13.9 million boardings) and total revenue goes up (\$66.3 million), but the percentage mix between non-low income and low income riders stays the same.

- **Ridership:** Increasing fares across-the-board by 10% would reduce Bay Area transit ridership from current levels by 13.9 million (2.9%), including 7.2 million trips currently taken by low income riders and 6.7 million trips taken by all other riders.
- **Fare Revenue:** Increasing fare revenues by 10% is estimated to increase fare revenue by \$66.3 million (7.0%) from current levels, including \$20.9 million among low income riders and \$45.5 million among all other riders.

- **Fare Recovery:** The fare revenue gains associated with this scenario will increase the fare recovery ratio regionally from 37.5% to 40.3%, as shown in Appendix C. These estimates do not take into consideration any increased costs to accommodate increased ridership and maintain service performance standards, or cost savings associated with changes in the administration and delivery of low income fare programs.

Quantitative Analysis: Constrained Program

Limiting a 10% across-the-board fare increase to AC Transit and BART would generate less revenue and have a lower impact on ridership losses than increasing fares regionwide. Ridership losses would be reduced by 69% to 4.2 million boardings, instead of the 13.9 million lost boardings estimated with regionwide implementation of a fare increase. These constraints would also impact fare revenue available to offset revenue losses associated with the Affordability Scenarios, reducing expected gains from a regionwide program by 44%, from \$66.3 million to \$37.1 million. Different program constraints, such as stricter geographic limitations, could further increase the reach and reduce the revenue generated by a fare increase.

Quantitative Analysis: Other Implementation Considerations

Not applicable.

Qualitative Analysis

Increasing fares by 10% across-the-board for all operators in order to increase fare revenues would help to meet the region's overall means-based transit pricing objectives in the following ways:

- By providing revenue that would help to offset the fare revenue reductions that would occur with the implementation of a low income transit fare program, thereby helping to assure that transit would become more affordable and sustainable for low income Bay Area residents. However, increasing fares in this way, without consideration to price elasticities of various transit market segments, would increase fares for all transit users and reduce transit use by nearly 13.9 million trips (approximately 2.9%). Riders impacted by the fare increase would include low income riders who do not enroll or who miss the eligibility threshold for a low income program.
- This approach would not change the fare options offered by Bay Area transit agencies and would neither improve fare coordination and simplification nor make fares more consistent across the agencies that provide transit services. The differences among operators' base fares and other fare products would not change and the various transfer and joint pass programs that exist in the region would be retained.
- The financial viability of any low income program depends on the ability to cover the fare revenue losses that the transit operators will experience. These losses would range from \$64 to \$80 million for the three Affordability scenarios analyzed here. Increasing all fares by 10% may generate sufficient fare revenue to offset approximately \$66 million in lost fare revenues. The administrative feasibility of implementing these changes will depend on their adoption by the

transit agencies' policy boards and can be expected to face stiff opposition from vocal rider groups who may not benefit from the implementation of a low income transit fare program.

Alternative Parameters

In addition to identifying other sources of funding available for transit, revenue generating alternatives to an across-the-board, regionwide 10% fare increase include:

- A different percentage fare increase, adjusted (up or down) to the level required to cover calculated revenue losses once a preferred means-based transit fare program is more specifically defined.
- Limiting fare increases to certain products and/or certain groups of riders could be considered, along with the price elasticities of specific categories of transit riders.

Exhibit 4. Evaluation Framework

Qualitative Results

Scenario	Study Goal #1	Study Goal #2	Study Goal #3		
	Affordability for low income residents (High/Medium/Low)	Consistent regional standard for fare discounts (High/Medium/Low)	Financial Viability (High/Medium/Low)	Administrative feasibility (High/Medium/Low)	Effect on operator fare recovery and financial objectives (High/Medium/Low)
Baseline	Varies	Low	Not applicable	Unknown (offered by 6 agencies)	Unknown
#A1	High (reduces average low income fare by 36%)	High (if adopted by all agencies)	Low (without adjustments or additional funding to offset revenue losses)	High (Clipper® or cash fare payments)	Low (negative impact)
#A2	High (reduces average low income fare by 30%)	High (if adopted by all agencies)	Low (without adjustments or additional funding to offset revenue losses)	Medium (requires C2)	Low (negative impact)
#A3	High (reduces average low income fare by 35%)	High (if adopted by all agencies)	Low (without adjustments or additional funding to offset revenue losses)	Medium (requires C2)	Low (negative impact)
#R1	Low	High	Not applicable	Not applicable	High (positive impact)
#R2	Low	Low	Not applicable	Not applicable	High (positive impact)

Exhibit 4. Evaluation Framework (continued)

Quantitative Results

Scenario	Fare Revenue	Change from Baseline		Ridership	Change from Baseline	
		\$	%		#	%
Baseline	\$891,942,000			519,717,000		
#A1	\$789,177,000	-\$92,765,000	-10.4%	546,860,000	27,143,000	5.2%
#A2	\$811,421,000	-\$80,521,000	-9.0%	544,991,000	25,274,000	4.9%
#A3	\$794,975,000	-\$96,967,000	-10.9%	548,532,000	28,815,000	5.5%
#R1	\$949,578,000	\$57,636,000	6.5%	498,568,000	-21,149,000	-4.1%
#R2	\$957,473,000	\$65,531,000	7.3%	505,799,000	-13,918,000	-2.7%

Scenario	Clipper® Cost		Means-Based Testing Cost		Additional Resource Needs (Rev Service Hrs)
	Implementation	Operations	Start-Up	Operations (annual)	
Baseline	N/A	N/A	N/A	N/A	N/A
#A1	Incremental Development costs in C2 or \$1.0M+	TBD	\$0.5M - \$1.0M	\$1.0M - \$1.6M	701,100
#A2	Incremental Development costs in C2	TBD	\$0.5M - \$1.0M	\$1.0M - \$1.6M	595,700
#A3	\$0.5M	TBD	\$0.5M - \$1.0M	\$1.0M - \$1.6M	702,200
#R1	TBD	\$0	N/A	N/A	N/A
#R2	\$0	\$0	N/A	N/A	N/A

5.0 Implementation Considerations

The Affordability and Revenue Generating scenario evaluation results have implications for implementation of a low income program:

- **Timeframe** – the nature and scope of the decisions to be made about a low income program and how to implement it, the extent of further analyses needed, and the need to build consensus among transit providers, policy boards, and transit users, are likely to take at least another 24 months. In Seattle, even once the region’s operating agencies were committed to moving forward with a regional public fare program for low income populations, the development and implementation of the ORCA LIFT program took 30 months.
- **Clipper® considerations** – all of the Affordability scenarios assume the use of a specially programmed Clipper® card to provide identification for program-eligible individuals. This approach is intended to move enforcement responsibilities from vehicle operators and fare enforcement officers to the Clipper® system. In two cases, it is also dependent on Clipper® to enable the program using stored value, either by managing a fare capping program or by providing matching funds. Although Alternative A1 (discounts on cash, stored value, and monthly passes) could potentially be implemented using the current Clipper® system, the fare capping and cash matching alternatives (A2 and A3, respectively) would require implementation of C2, which can be expected to add more time to the implementation timeframe.
- **Approaches to means testing** – means testing includes assessing eligibility based on income and residency as well as distributing proof of eligibility. The eligibility assessment process could rely exclusively on a pre-existing benefit program (such as PG&E CARE, CalFresh, CalWORKS, and Medi-Cal) to provide income verification, or it could also incorporate other means of verification in order to capture some of the target markets for a low income transit fare program. In addition to selecting the means of determining income and residence, the program will need a process for verifying income and residence and distributing identification cards. This element of the program could be handled in-house by some or all of the transit agencies and/or MTC or it could be outsourced, possibly to social service agencies or to a contractor similar to the approach used for the RTC program. The costs of any of these options are expected to be about the same, regardless of the specific Affordability scenario, and would range between \$2.0 million and \$2.7 million for in-house approaches and between \$1.6 million and \$2.3 million for outsourcing, including one-time start-up costs and annual operating costs.
- **Revenue impacts and implications for fare recovery and sustainability** – the modeling conducted for the alternatives evaluated here suggest that a low income program could reduce fare revenues by as much as \$102 million per year across the region. The transit agencies cannot afford to absorb those losses and alternatives to offset them will need to be found if transit service is to be sustainable in the Bay Area. The Revenue Generating alternatives evaluated here are not likely to be sufficient to meet those needs, recouping only one half to two-thirds of the revenue lost by the various affordability scenarios.

Alternative	Fare Revenue Impact (millions)	% Change
A1: Cash/stored value/pass discounts	-\$79.8 million	-8.9%
A2: Fare capping	-\$64.2 million	-7.2%
A3: Cash on Clipper®	-\$75.5 million	-8.5%
R1: Eliminate non-mandated discounts	+\$53.2 million	+6.0%
R2: 10% fare increase	+\$66.3 million	+7.4%

- Ridership impacts and implications for system performance, service delivery – modeling results indicate that a low income program could increase ridership by as much as 26.1 million in the Bay Area. Ridership increases of this magnitude are likely to increase the resources required to accommodate the additional boardings. The level of additional revenue service hours and the cost to provide them will depend on factors such as each operator’s cost of providing service, available capacity on existing services, and the specific services that would need to be added.

Alternative	Ridership Impact (millions)	% Change
A1: Cash/stored value/pass discounts	+24.6 million	+4.7%
A2: Fare capping	+23.3 million	+4.5%
A3: Cash on Clipper®	+26.1 million	+5.0%
R1: Eliminate non-mandated discounts	-20.5 million	-3.9%
R2: 10% fare increase	-13.9 million	-2.7%

6.0 Observations and Next Steps

Making transit services more affordable for low income residents will require: 1) a clear and consistent definition of “low income” and “resident,” 2) a well administered means-based testing program to verify eligibility for the low income program, and 3) fare pricing and payment that is convenient and compliant with applicable regulations including Title VI. In addition, successful implementation will require consensus building across transit operators, social service agencies, community-based organizations (CBOs), and external stakeholders to achieve regional consistency. Moreover, for acceptance and to overcome implementation challenges, scenarios must not compromise transit operators’ farebox recovery and financial objectives and, as such, may require special funding sources to offset revenue and cost impacts if the scenario itself does not generate revenue (e.g., through increased fare revenues from non-low income populations).

These alternatives and the descriptions of their advantages, disadvantages, quantitative and qualitative impacts, and implementation challenges provide a starting point for further discussion of opportunities for implementing a regional low income transit fare program for Bay Area residents. The Affordability scenarios that were evaluated would all provide 50% fare discounts to qualifying individuals eligible for a low income program with a threshold of 200% FPL. The modeling results for the three Affordability scenarios suggest that at these levels, a low income program would increase Bay Area ridership by 23 million to 26 million boardings per year, or roughly 5% above current levels. They would also reduce Bay Area transit agencies’ fare revenues on the order of \$64 million to \$80 million, or 7% to 9% below current levels. In practice, however, it is unlikely that a new low-income fare discount program would

realize such fare impacts right away, as it would take time to get eligible participants enrolled in the program and the program will not likely reach every potential eligible user, as has been the case in the peer programs studied.

Inasmuch as the results of all of the Affordability scenarios are similar in scale, a critical next step in this study will be to review these results with MTC and the TAC, particularly to obtain their input on prioritizing alternatives and refining the preferred scenario and analysis. The similar scale of the modeling results will make the qualitative assessments of each alternative even more important.

If the region continues to pursue a low income fare option, it will be important to agree on the discount to be provided and to refine and evaluate the preferred alternative(s). Improved agency-specific data on transit usage and travel nuances among low income riders will be helpful for refining the results presented here. Due to data limitations, it was necessary to make assumptions in modeling in each of the alternatives. In many cases, broad assumptions were made that cross all operators. Detailed, agency-specific data, especially on low income riders' ridership patterns and levels, inter- and intra-agency transfers patterns and rates, and types and frequency of fare media usage would help to refine the modeling results.

It will be equally important to discuss further the funding aspects a low income program, including how associated fare revenue losses might be offset, as well as how ridership increases are likely to impact operating costs. The two Revenue Generating scenarios suggest that eliminating non-mandated discounts or increasing fares across-the-board could generate additional fare revenues on the order of 53 million to \$66 million (roughly 6%-7%), while reducing transit ridership by 14 million to 20 million (3%-4%) boardings.

As a preferred alternative emerges and moves forward, a Title VI analysis will be needed to assess whether or not there are disparate impacts on minority passengers and/or disproportionate burdens on low income riders arising from the proposed fare change.

Appendix A: Focus Group Input on Discounted Fare Media Alternatives

As part of MTC's Regional Means Based Transit Fare Pricing Study, the consulting team of CH2M and Nelson\Nygaard conducted two focus groups of low income residents in Santa Clara and Solano Counties. The focus group objectives, recruitment methodology, and key findings are discussed below.

Background

Two focus group meetings were conducted to obtain input on preferred mechanisms for providing discounted fare alternatives for low income transit riders. In addition to the focus groups, face-to-face meetings and telephone polls were conducted with low income Bay Area residents and stakeholders from Bay Area social service agencies. Discussions were also held with the study's Technical Advisory Committee and MTC staff.

Three Affordability Scenarios selected for further analysis (A1: Discounted Fares and Passes for Low Income Riders, A2: Accumulator with Monthly Fare Capping for Low Income Riders; A3: Cash on Clipper® for Low Income Riders). Focus group participants also expressed interest in both regional inter-agency passes and options that would make transfers more affordable. These results suggest that participants make linked trips (requiring more than one boarding) to reach their destinations. In many cases, transfers involve more than one transit system.

Reducing fares during off-peak periods held the least interest for both focus groups, despite the fact that this mechanism could be universally applied and would not require means testing. The benefits of this option were not viewed as significant compared to the other options under consideration, particularly since some agencies offer only limited off-peak service.

Neither regional inter-agency passes nor more affordable transfers are included in the scenarios selected for further evaluation. Alternatives for implementing regional fare integration in the Bay Area were examined in a study completed in 2008, which found that regional fare products were not viable if revenue neutral pricing was a requirement. The study concluded that if revenue neutrality were not a constraint (e.g., if transit agencies were able to accommodate a limited impact on fare revenue or if a funding source could be identified to subsidize the cost of implementation), some alternatives could merit further consideration. Transit agencies in other metropolitan areas have implemented non-revenue neutral approaches to regional fare integration and similar alternatives could be considered for the Bay Area. While there are challenges to implementing a Bay Area regional pass, the Clipper® system would provide valuable data for to manage issues such as trip tracking and revenue allocation, similar to the way ORCA data are used in the Seattle area to allocate regional pass revenues.

Coordinating transfer policies and making transfers more affordable is an option that has been considered by regional fare coordination efforts related to the next generation Clipper® program. MTC staff believe that the number of riders who actually transfer across transit agencies is relatively small and it has been difficult to establish a clear connection between riders who transfer and low income riders. Clipper® data suggest that depending on the time of day and location, a maximum of 10-15% of Clipper® trips involve transfers. Nonetheless, the focus group response demonstrates that some low income riders feel the burden of long commutes involving multiple transit agencies and further consideration may be warranted to determine whether it is sound transportation policy to reduce the financial burden of lengthy linked trips.

Focus Group Objectives

The purpose of the focus groups was to obtain specific feedback on whether and how the fare scenario alternatives developed by MTC and the consultant team would make transit use easier and more affordable, and to identify practical suggestions on how they could be made more attractive and consumer friendly.

Methodology

The team initially intended to recruit low income residents in a number of counties who would be willing to travel to one of two nearby counties in the northern and southern ends of the Bay Area. However, despite the offer of a \$50 Clipper® card incentive, almost no residents from counties outside of the focus group locations participated in the groups. Significant time resources of team members and MTC staff were spent on the recruitment effort, which initially appeared to be rather unproductive in that less than eight people had committed to participating in the two groups a week before the scheduled meeting times.

However, as a direct result of intervention by transit agencies and with the added credibility of MTC staff outreach, ultimately 15 individuals participated in the first group held in San Jose, and 21 in the group held in Vallejo. These numbers were significantly larger than the optimal size for a focus group, but nevertheless substantive input was obtained from participants. Those responsible for recruitment made a concerted effort to limit focus group participation to low income residents (an annual household income of \$50,000 was provided as a guideline when asked), and it appears as though most participants fell into this category. Possible exceptions were the three participants in Vallejo who reported that they worked for agencies representing low income residents.

The first meeting was held in San Jose on September 8, 2015 at the Santa Clara Valley Transportation Authority (VTA) headquarters. The second meeting was held on September 16th at the Community Center in Vallejo, Solano County. Each focus group was highly structured and lasted 1.5 hours.

Focus Group Composition

Following are the key characteristics of the two groups:

San Jose

- Majority were either non- or occasional transit riders
- Eleven out of 15 were non-native English-speakers (primarily Chinese and Spanish speakers)
- Thirteen were from San Jose and two from Fremont
- Primary reason given for not riding transit was not affordability, but rather greater convenience of auto driving

Vallejo

- Majority were transit riders – affordability and lack of frequency were the key reasons why some do not ride transit, and many walk or get rides instead
- Seventeen were from Vallejo, two from Benicia, and two from Dixon
- Only half of the transit riders use Clipper® cards. The rest use cash and day and monthly passes

General Comments from San Jose Group

- Significant amount of discussion regarding the method being considered for means testing – participants had diverse viewpoints on the subject, with some indicating that eligibility should be limited to Medi-Cal cardholders, while others indicated that they were not eligible for Medi-Cal, CalFresh, or CalWorks, and that they were concerned about being left out if one of these mechanisms was used. There were also differences of opinion about whether presentation of a

paystub could work, and concern that this did not take into account individuals' different expenses.

- Participants were unaware of locations where they could purchase a Clipper® card, and did not know that the card could be used on transit systems other than Valley Transportation Authority.
- Participants indicated that it is critical that a family transit pass be offered because even when passes are discounted, if families have multiple children it still turns out to be expensive to travel.

General Comments from Vallejo Group

- The Vallejo group had a harder time deciding on options than the San Jose group, since they did not know the actual degree of discount that would be offered. The participants appeared to be savvy about their fare options, and used to calculating the least expensive option for their needs, making adjustments to their travel accordingly (note: this group had a higher preponderance of transit users than in San Jose, and therefore more closely represented the study's end users).
- Many Vallejo participants complained about the lack of transfers in their system, and how this impacts the affordability of their multi-legged trips.
- Clipper® card minimum balances present a problem for low income riders, and these vary a lot from one system to the next.
- Unaware that Clipper® can handle passes, most participants thought they were just for cash balances.
- Significant discussion on issues facing working poor who may not be eligible for Medi-Cal but nevertheless find transit fares unaffordable.
- Most people are aware of the PG&E Care Program, but some pointed out the problem that there may be multiple unrelated adults in the same household, so unclear who would be eligible for the discount.
- There should be multiple ways of determining eligibility, not just one.
- Some participants stated that while an inter-agency pass would be very valuable to them, it would require a degree of cooperation from the operators that does not currently exist.
- Overall participants were quite familiar with operating policies in other transit systems in the Bay Area.

Top Preferred Options of the San Jose Group

Each group member was asked to vote their top two preferences, as indicated below in order of ranking (with the number of votes in parentheses for each option)

- Regional Interagency Pass (14)
- Make transfers more affordable (7)
- Add cash to Clipper® card (4)
- Discounted Fare (3)
- Monthly or Day Pass Accumulator (3)
- Discounted Off-Peak Fares (1)

Comments of the San Jose Group on the Discounted Fare Options

- Regional Inter-Agency Pass would be particularly helpful to veterans who cross county lines to go to veterans' facilities in other counties
- The three monolingual Spanish-speakers preferred the regional pass because they like the idea of being able to use the one pass to travel on multiple systems
- Adding cash to the Clipper® card is appealing because it is simple and there is no time limit
- Day accumulator doesn't make as much sense as a monthly accumulator as it seems unlikely that a person would have enough cash for a single trip but not for a one-day pass

Top Preferred Options of Vallejo Group

- Regional Inter-Agency Pass (9)
- Discounted Fare (9)
- More affordable transfers (8)
- Add cash to Clipper® cards (5)
- Monthly or Day Pass Accumulator (4)
- Discounted Off-Peak Fares (2)

Comments of the Vallejo Group on the Discounted Fare Options

- There are already so many different kinds of cards like the RTC versus the Clipper® card, and it becomes confusing
- You should be able to use Clipper® for paratransit service
- It is important that transfers be bi-directional (both within the agency and between different transit systems), but next best would be for an extended period of time
- Off-Peak fares are almost irrelevant in smaller systems where there is such limited evening service

Key Findings Regarding Discount Mechanism Preferences

The two groups represented two fairly distinct populations of low income individuals. As a result, they presented interesting and diverse perspectives on the preferred mechanism for providing discounted fares, with some significant overlap. The more auto oriented group unanimously supported inter-agency passes above all other options, whereas the group that was largely made up of transit riders showed comparable levels of interest in both inter-agency passes and discounted fares. In both groups, making transfers more affordable ranked next highest, suggesting that many group participants need to use more than one ride (regardless of mode) in order to reach their destinations, and in many cases more than one transit system.

Off-peak fares appeared to be the least appealing to both groups, despite the fact that this mechanism would not require a means test but rather could be universally applied. Participants felt that the benefits of this option were not significant compared to the other options under consideration.

Participants in both groups expressed deep appreciation at being consulted on this issue and indicated optimism that implementation of any of the options would have a significant impact on transit affordability.

Appendix B: Quantitative Analysis Results

Current Ridership and Fare Revenue

	Current Ridership			Current Fare Revenue		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	35,225,000	20,270,000	55,495,000	\$36,126,800	\$22,473,200	\$58,600,000
ACE (Altamont Commuter Express)	130,000	946,000	1,076,000	\$831,700	\$6,053,300	\$6,885,000
BART	36,226,900	95,507,200	131,734,000	\$103,510,600	\$311,480,400	\$414,991,000
Caltrain	1,873,200	15,155,800	17,029,000	\$7,452,300	\$67,388,700	\$74,841,000
County Connection (CCCTA)	1,645,900	1,713,100	3,359,000	\$2,238,300	\$2,329,700	\$4,568,000
City of Dixon	34,600	17,400	52,000	\$61,900	\$31,100	\$93,000
ECCTA (Tridelta)	1,275,800	1,559,300	2,835,000	\$1,307,700	\$1,598,300	\$2,906,000
FAST (Fairfield and Suisun Transit)	778,700	298,300	1,077,000	\$1,517,600	\$581,400	\$2,099,000
Golden Gate (GGBHTD)	1,290,100	5,359,500	6,649,600	\$4,299,500	\$19,789,800	\$24,089,300
LAVTA (Wheels)	925,100	726,900	1,652,000	\$1,089,800	\$856,200	\$1,946,000
Marin Transit	563,500	2,340,900	2,904,400	\$1,877,900	\$8,643,800	\$10,521,700
Vine (NCTPA)	419,200	371,800	791,000	\$519,400	\$460,600	\$980,000
Petaluma Transit	237,600	122,400	360,000	\$143,900	\$74,100	\$218,000
Rio Vista Delta Breeze	6,900	5,100	12,000	\$11,500	\$8,600	\$20,000
SamTrans	7,304,500	5,479,500	12,784,000	\$9,684,200	\$7,471,800	\$17,156,000
Santa Rosa CityBus	1,817,400	512,600	2,330,000	\$1,741,000	\$491,000	\$2,232,000
VTA	28,228,900	15,200,200	43,429,000	\$24,512,000	\$13,148,000	\$37,660,000
San Francisco MTA	107,708,500	121,458,500	229,167,000	\$94,418,100	\$116,668,900	\$211,087,000
SolTrans (Solano County Transit)	999,500	434,500	1,434,000	\$2,340,500	\$1,017,500	\$3,358,000
Sonoma County	934,400	381,600	1,316,000	\$1,415,700	\$578,300	\$1,994,000
Union City	221,100	180,900	402,000	\$204,100	\$167,000	\$371,000
Vacaville City Coach	445,300	65,700	511,000	\$317,200	\$46,800	\$364,000
West CAT	415,800	940,300	1,356,000	\$565,400	\$1,278,600	\$1,844,000
San Francisco Bay Ferry (WETA)	79,200	1,901,800	1,981,000	\$524,700	\$12,593,300	\$13,118,000
Total	228,787,100	290,949,300	519,736,000	\$296,711,800	\$595,230,400	\$891,942,200

Scenario A1 - 50% Discount for Low Income Cash, E-Purse, and Monthly Pass: Change in Ridership

	Change in Ridership, #			Change in Ridership, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	4,569,000	0	4,569,000	13.0%	0.0%	8.2%
ACE (Altamont Commuter Express)	18,700	0	18,700	14.4%	0.0%	1.7%
BART	4,410,000	0	4,410,000	12.2%	0.0%	3.3%
Caltrain	197,100	0	197,100	10.5%	0.0%	1.2%
County Connection (CCCTA)	325,000	0	325,000	19.7%	0.0%	9.7%
City of Dixon	6,800	0	6,800	19.7%	0.0%	13.1%
ECCTA (Tridelta)	277,300	0	277,300	21.7%	0.0%	9.8%
FAST (Fairfield and Suisun Transit)	186,800	0	186,800	24.0%	0.0%	17.3%
Golden Gate (GGBHTD)	236,600	0	236,600	18.3%	0.0%	3.6%
LAVTA (Wheels)	202,300	0	202,300	21.9%	0.0%	12.2%
Marin Transit	103,300	0	103,300	18.3%	0.0%	3.6%
Vine (NCTPA)	97,200	0	97,200	23.2%	0.0%	12.3%
Petaluma Transit	47,700	0	47,700	20.1%	0.0%	13.3%
Rio Vista Delta Breeze	1,300	0	1,300	18.8%	0.0%	10.8%
SamTrans	1,289,300	0	1,289,300	17.7%	0.0%	10.1%
Santa Rosa CityBus	371,900	0	371,900	20.5%	0.0%	16.0%
VTA	5,170,700	0	5,170,700	18.3%	0.0%	11.9%
San Francisco MTA	6,467,500	0	6,467,500	6.0%	0.0%	2.8%
SolTrans (Solano County Transit)	215,200	0	215,200	21.5%	0.0%	15.0%
Sonoma County	191,200	0	191,200	20.5%	0.0%	14.5%
Union City	50,200	0	50,200	22.7%	0.0%	12.5%
Vacaville City Coach	103,000	0	103,000	23.1%	0.0%	20.2%
West CAT	101,800	0	101,800	24.5%	0.0%	7.5%
San Francisco Bay Ferry (WETA)	17,900	0	17,900	22.6%	0.0%	0.9%
Total	24,657,800	0	24,657,800	10.8%	0.0%	4.7%

Scenario A1 - 50% Discount for Low Income Cash, E-Purse, and Monthly Pass: Change in Fare Revenue

	Change in Fare Revenue, \$			Change in Fare Revenue, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	-\$9,229,300	\$0	-\$9,229,300	-25.5%	0.0%	-15.7%
ACE (Altamont Commuter Express)	-\$309,600	\$0	-\$309,600	-37.2%	0.0%	-4.5%
BART	-\$38,023,800	\$0	-\$38,023,800	-36.7%	0.0%	-9.2%
Caltrain	-\$2,374,600	\$0	-\$2,374,600	-31.9%	0.0%	-3.2%
County Connection (CCCTA)	-\$705,200	\$0	-\$705,200	-31.5%	0.0%	-15.4%
City of Dixon	-\$19,500	\$0	-\$19,500	-31.5%	0.0%	-21.0%
ECCTA (Tridelta)	-\$444,900	\$0	-\$444,900	-34.0%	0.0%	-15.3%
FAST (Fairfield and Suisun Transit)	-\$558,000	\$0	-\$558,000	-36.8%	0.0%	-26.6%
Golden Gate (GGBHTD)	-\$1,381,300	\$0	-\$1,381,300	-32.1%	0.0%	-5.7%
LAVTA (Wheels)	-\$372,600	\$0	-\$372,600	-34.2%	0.0%	-19.1%
Marin Transit	-\$603,300	\$0	-\$603,300	-32.1%	0.0%	-5.7%
Vine (NCTPA)	-\$186,000	\$0	-\$186,000	-35.8%	0.0%	-19.0%
Petaluma Transit	-\$45,900	\$0	-\$45,900	-31.9%	0.0%	-21.1%
Rio Vista Delta Breeze	-\$3,500	\$0	-\$3,500	-30.4%	0.0%	-17.5%
SamTrans	-\$2,979,600	\$0	-\$2,979,600	-30.8%	0.0%	-17.4%
Santa Rosa CityBus	-\$564,500	\$0	-\$564,500	-32.4%	0.0%	-25.3%
VTA	-\$7,521,100	\$0	-\$7,521,100	-30.7%	0.0%	-20.0%
San Francisco MTA	-\$12,603,000	\$0	-\$12,603,000	-13.3%	0.0%	-6.0%
SolTrans (Solano County Transit)	-\$790,300	\$0	-\$790,300	-33.8%	0.0%	-23.5%
Sonoma County	-\$459,000	\$0	-\$459,000	-32.4%	0.0%	-23.0%
Union City	-\$71,900	\$0	-\$71,900	-35.2%	0.0%	-19.4%
Vacaville City Coach	-\$113,300	\$0	-\$113,300	-35.7%	0.0%	-31.1%
West CAT	-\$211,300	\$0	-\$211,300	-37.4%	0.0%	-11.5%
San Francisco Bay Ferry (WETA)	-\$183,900	\$0	-\$183,900	-35.0%	0.0%	-1.4%
Total	-\$79,755,600	\$0	-\$79,755,600	-26.9%	0.0%	-8.9%

Scenario A2 - Low Income Monthly Accumulator, Cap at 50% of Monthly Pass: Change in Ridership

	Change in Ridership, #			Change in Ridership, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	4,822,500	0	4,822,500	13.7%	0.0%	8.7%
ACE (Altamont Commuter Express)	9,700	0	9,700	7.5%	0.0%	0.9%
BART	3,432,300	0	3,432,300	9.5%	0.0%	2.6%
Caltrain	183,000	0	183,000	9.8%	0.0%	1.1%
County Connection (CCCTA)	196,800	0	196,800	12.0%	0.0%	5.9%
City of Dixon	3,800	0	3,800	11.0%	0.0%	7.3%
ECCTA (Tridelta)	155,000	0	155,000	12.1%	0.0%	5.5%
FAST (Fairfield and Suisun Transit)	103,700	0	103,700	13.3%	0.0%	9.6%
Golden Gate (GGBHTD)	202,300	0	202,300	15.7%	0.0%	3.0%
LAVTA (Wheels)	121,400	0	121,400	13.1%	0.0%	7.3%
Marin Transit	88,400	0	88,400	15.7%	0.0%	3.0%
Vine (NCTPA)	53,800	0	53,800	12.8%	0.0%	6.8%
Petaluma Transit	25,900	0	25,900	10.9%	0.0%	7.2%
Rio Vista Delta Breeze	700	0	700	10.1%	0.0%	5.8%
SamTrans	991,100	0	991,100	13.6%	0.0%	7.8%
Santa Rosa CityBus	197,900	0	197,900	10.9%	0.0%	8.5%
VTA	3,651,200	0	3,651,200	12.9%	0.0%	8.4%
San Francisco MTA	8,685,300	0	8,685,300	8.1%	0.0%	3.8%
SolTrans (Solano County Transit)	132,600	0	132,600	13.3%	0.0%	9.2%
Sonoma County	101,800	0	101,800	10.9%	0.0%	7.7%
Union City	24,100	0	24,100	10.9%	0.0%	6.0%
Vacaville City Coach	60,400	0	60,400	13.6%	0.0%	11.8%
West CAT	65,200	0	65,200	15.7%	0.0%	4.8%
San Francisco Bay Ferry (WETA)	11,600	0	11,600	14.6%	0.0%	0.6%
Total	23,320,400	0	23,320,400	10.2%	0.0%	4.5%

Scenario A2 - Low Income Monthly Accumulator, Cap at 50% of Monthly Pass: Change in Fare Revenue

	Change in Fare Revenue, \$			Change in Fare Revenue, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	-\$8,409,700	\$0	-\$8,409,700	-23.3%	0.0%	-14.4%
ACE (Altamont Commuter Express)	-\$179,800	\$0	-\$179,800	-21.6%	0.0%	-2.6%
BART	-\$27,436,700	\$0	-\$27,436,700	-26.5%	0.0%	-6.6%
Caltrain	-\$2,027,000	\$0	-\$2,027,000	-27.2%	0.0%	-2.7%
County Connection (CCCTA)	-\$464,100	\$0	-\$464,100	-20.7%	0.0%	-10.2%
City of Dixon	-\$11,800	\$0	-\$11,800	-19.1%	0.0%	-12.7%
ECCTA (Tridelta)	-\$274,800	\$0	-\$274,800	-21.0%	0.0%	-9.5%
FAST (Fairfield and Suisun Transit)	-\$345,100	\$0	-\$345,100	-22.7%	0.0%	-16.4%
Golden Gate (GGBHTD)	-\$1,121,800	\$0	-\$1,121,800	-26.1%	0.0%	-4.7%
LAVTA (Wheels)	-\$244,700	\$0	-\$244,700	-22.5%	0.0%	-12.6%
Marin Transit	-\$490,000	\$0	-\$490,000	-26.1%	0.0%	-4.7%
Vine (NCTPA)	-\$114,500	\$0	-\$114,500	-22.0%	0.0%	-11.7%
Petaluma Transit	-\$27,500	\$0	-\$27,500	-19.1%	0.0%	-12.6%
Rio Vista Delta Breeze	-\$2,200	\$0	-\$2,200	-19.1%	0.0%	-11.0%
SamTrans	-\$2,237,000	\$0	-\$2,237,000	-23.1%	0.0%	-13.0%
Santa Rosa CityBus	-\$332,800	\$0	-\$332,800	-19.1%	0.0%	-14.9%
VTA	-\$5,443,700	\$0	-\$5,443,700	-22.2%	0.0%	-14.5%
San Francisco MTA	-\$13,834,700	\$0	-\$13,834,700	-14.7%	0.0%	-6.6%
SolTrans (Solano County Transit)	-\$530,400	\$0	-\$530,400	-22.7%	0.0%	-15.8%
Sonoma County	-\$270,700	\$0	-\$270,700	-19.1%	0.0%	-13.6%
Union City	-\$39,000	\$0	-\$39,000	-19.1%	0.0%	-10.5%
Vacaville City Coach	-\$73,200	\$0	-\$73,200	-23.1%	0.0%	-20.1%
West CAT	-\$147,500	\$0	-\$147,500	-26.1%	0.0%	-8.0%
San Francisco Bay Ferry (WETA)	-\$128,800	\$0	-\$128,800	-24.5%	0.0%	-1.0%
Total	-\$64,187,700	\$0	-\$64,187,700	-21.6%	0.0%	-7.2%

Scenario A3 - Low Income Clipper E-Purse with Bonus Value, at 1 to 1 Match: Change in Ridership

	Change in Ridership, #			Change in Ridership, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	5,849,500	0	5,849,500	16.6%	0.0%	10.5%
ACE (Altamont Commuter Express)	13,300	0	13,300	10.2%	0.0%	1.2%
BART	4,794,200	0	4,794,200	13.2%	0.0%	3.6%
Caltrain	209,300	0	209,300	11.2%	0.0%	1.2%
County Connection (CCCTA)	259,500	0	259,500	15.8%	0.0%	7.7%
City of Dixon	5,200	0	5,200	15.0%	0.0%	10.0%
ECCTA (Tridelta)	205,800	0	205,800	16.1%	0.0%	7.3%
FAST (Fairfield and Suisun Transit)	125,900	0	125,900	16.2%	0.0%	11.7%
Golden Gate (GGBHTD)	262,200	0	262,200	20.3%	0.0%	3.9%
LAVTA (Wheels)	146,200	0	146,200	15.8%	0.0%	8.8%
Marin Transit	114,500	0	114,500	20.3%	0.0%	3.9%
Vine (NCTPA)	67,800	0	67,800	16.2%	0.0%	8.6%
Petaluma Transit	35,800	0	35,800	15.1%	0.0%	9.9%
Rio Vista Delta Breeze	1,000	0	1,000	14.5%	0.0%	8.3%
SamTrans	1,161,900	0	1,161,900	15.9%	0.0%	9.1%
Santa Rosa CityBus	273,500	0	273,500	15.0%	0.0%	11.7%
VTA	4,507,600	0	4,507,600	16.0%	0.0%	10.4%
San Francisco MTA	7,554,100	0	7,554,100	7.0%	0.0%	3.3%
SolTrans (Solano County Transit)	161,700	0	161,700	16.2%	0.0%	11.3%
Sonoma County	140,600	0	140,600	15.0%	0.0%	10.7%
Union City	33,300	0	33,300	15.1%	0.0%	8.3%
Vacaville City Coach	70,800	0	70,800	15.9%	0.0%	13.9%
West CAT	84,500	0	84,500	20.3%	0.0%	6.2%
San Francisco Bay Ferry (WETA)	14,400	0	14,400	18.2%	0.0%	0.7%
Total	26,092,900	0	26,092,900	11.4%	0.0%	5.0%

Scenario A3 - Low Income Clipper E-Purse with Bonus Value, at 1 to 1 Match: Change in Fare Revenue

	Change in Fare Revenue, \$			Change in Fare Revenue, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	-\$9,884,100	\$0	-\$9,884,100	-27.4%	0.0%	-16.9%
ACE (Altamont Commuter Express)	-\$235,600	\$0	-\$235,600	-28.3%	0.0%	-3.4%
BART	-\$36,115,200	\$0	-\$36,115,200	-34.9%	0.0%	-8.7%
Caltrain	-\$2,266,000	\$0	-\$2,266,000	-30.4%	0.0%	-3.0%
County Connection (CCCTA)	-\$586,600	\$0	-\$586,600	-26.2%	0.0%	-12.8%
City of Dixon	-\$15,600	\$0	-\$15,600	-25.2%	0.0%	-16.8%
ECCTA (Tridelta)	-\$349,200	\$0	-\$349,200	-26.7%	0.0%	-12.0%
FAST (Fairfield and Suisun Transit)	-\$406,000	\$0	-\$406,000	-26.8%	0.0%	-19.3%
Golden Gate (GGBHTD)	-\$1,386,800	\$0	-\$1,386,800	-32.3%	0.0%	-5.8%
LAVTA (Wheels)	-\$286,200	\$0	-\$286,200	-26.3%	0.0%	-14.7%
Marin Transit	-\$605,700	\$0	-\$605,700	-32.3%	0.0%	-5.8%
Vine (NCTPA)	-\$139,100	\$0	-\$139,100	-26.8%	0.0%	-14.2%
Petaluma Transit	-\$36,300	\$0	-\$36,300	-25.2%	0.0%	-16.7%
Rio Vista Delta Breeze	-\$2,900	\$0	-\$2,900	-25.2%	0.0%	-14.5%
SamTrans	-\$2,556,700	\$0	-\$2,556,700	-26.4%	0.0%	-14.9%
Santa Rosa CityBus	-\$438,900	\$0	-\$438,900	-25.2%	0.0%	-19.7%
VTA	-\$6,500,400	\$0	-\$6,500,400	-26.5%	0.0%	-17.3%
San Francisco MTA	-\$12,194,400	\$0	-\$12,194,400	-12.9%	0.0%	-5.8%
SolTrans (Solano County Transit)	-\$626,600	\$0	-\$626,600	-26.8%	0.0%	-18.7%
Sonoma County	-\$357,000	\$0	-\$357,000	-25.2%	0.0%	-17.9%
Union City	-\$51,400	\$0	-\$51,400	-25.2%	0.0%	-13.9%
Vacaville City Coach	-\$83,700	\$0	-\$83,700	-26.4%	0.0%	-23.0%
West CAT	-\$182,400	\$0	-\$182,400	-32.3%	0.0%	-9.9%
San Francisco Bay Ferry (WETA)	-\$155,000	\$0	-\$155,000	-29.5%	0.0%	-1.2%
Total	-\$75,462,000	\$0	-\$75,462,000	-25.4%	0.0%	-8.5%

Scenario R1 - Eliminate Non-Mandated Discounts (Retain Only 50% Senior/Disabled Discount on Cash Fares During Off-Peak Periods): Change in Ridership

	Change in Ridership, #			Change in Ridership, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	-2,502,200	-972,700	-3,474,900	-7.1%	-4.8%	-6.3%
ACE (Altamont Commuter Express)	-1,700	-11,000	-12,800	-1.3%	-1.2%	-1.2%
BART	-1,529,400	-1,037,400	-2,566,800	-4.2%	-1.1%	-1.9%
Caltrain	-62,600	-129,500	-192,200	-3.3%	-0.9%	-1.1%
County Connection (CCCTA)	-43,200	-40,900	-84,100	-2.6%	-2.4%	-2.5%
City of Dixon	-900	-400	-1,300	-2.6%	-2.3%	-2.5%
ECCTA (Tridelta)	-34,600	-38,500	-73,100	-2.7%	-2.5%	-2.6%
FAST (Fairfield and Suisun Transit)	-33,200	-11,600	-44,800	-4.3%	-3.9%	-4.2%
Golden Gate (GGBHTD)	-52,500	-57,900	-110,300	-4.1%	-1.1%	-1.7%
LAVTA (Wheels)	-39,200	-28,100	-67,300	-4.2%	-3.9%	-4.1%
Marin Transit	-22,900	-25,300	-48,200	-4.1%	-1.1%	-1.7%
Vine (NCTPA)	-31,100	-25,100	-56,200	-7.4%	-6.8%	-7.1%
Petaluma Transit	-13,900	-6,500	-20,400	-5.9%	-5.3%	-5.7%
Rio Vista Delta Breeze	-800	-500	-1,300	-11.6%	-9.8%	-10.8%
SamTrans	-261,200	-148,800	-410,000	-3.6%	-2.7%	-3.2%
Santa Rosa CityBus	-84,500	-21,700	-106,300	-4.6%	-4.2%	-4.6%
VTA	-567,400	-261,400	-828,800	-2.0%	-1.7%	-1.9%
San Francisco MTA	-7,563,800	-4,611,400	-12,175,200	-7.0%	-3.8%	-5.3%
SolTrans (Solano County Transit)	-63,300	-25,100	-88,400	-6.3%	-5.8%	-6.2%
Sonoma County	-52,100	-19,400	-71,500	-5.6%	-5.1%	-5.4%
Union City	-11,500	-8,500	-20,000	-5.2%	-4.7%	-5.0%
Vacaville City Coach	-18,000	-2,400	-20,400	-4.0%	-3.7%	-4.0%
West CAT	-7,300	-15,000	-22,300	-1.8%	-1.6%	-1.6%
San Francisco Bay Ferry (WETA)	-1,400	-29,500	-30,900	-1.8%	-1.6%	-1.6%
Total	-12,998,600	-7,528,900	-20,527,500	-5.7%	-2.6%	-3.9%

Scenario R1 - Eliminate Non-Mandated Discounts (Retain Only 50% Senior/Disabled Discount on Cash Fares During Off-Peak Periods): Change in Fare Revenue

	Change in Fare Revenue, \$			Change in Fare Revenue, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	\$4,662,200	\$2,132,500	\$6,794,700	12.9%	9.5%	11.6%
ACE (Altamont Commuter Express)	\$38,500	\$291,000	\$329,500	4.6%	4.8%	4.8%
BART	\$10,615,400	\$8,442,100	\$19,057,500	10.3%	2.7%	4.6%
Caltrain	\$638,300	\$1,553,600	\$2,191,900	8.6%	2.3%	2.9%
County Connection (CCCTA)	\$124,300	\$135,300	\$259,600	5.6%	5.8%	5.7%
City of Dixon	\$3,500	\$1,800	\$5,300	5.7%	5.8%	5.7%
ECCTA (Tridelta)	\$75,100	\$96,100	\$171,200	5.7%	6.0%	5.9%
FAST (Fairfield and Suisun Transit)	\$140,600	\$56,400	\$196,900	9.3%	9.7%	9.4%
Golden Gate (GGBHTD)	\$275,600	\$343,700	\$619,200	6.4%	1.7%	2.6%
LAVTA (Wheels)	\$100,500	\$82,600	\$183,100	9.2%	9.6%	9.4%
Marin Transit	\$120,400	\$150,100	\$270,500	6.4%	1.7%	2.6%
Vine (NCTPA)	\$88,500	\$82,300	\$170,800	17.0%	17.9%	17.4%
Petaluma Transit	\$18,800	\$10,100	\$28,900	13.1%	13.6%	13.3%
Rio Vista Delta Breeze	\$3,200	\$2,500	\$5,700	27.8%	29.1%	28.5%
SamTrans	\$552,500	\$377,300	\$929,700	5.7%	5.0%	5.4%
Santa Rosa CityBus	\$177,200	\$52,300	\$229,500	10.2%	10.7%	10.3%
VTA	\$747,200	\$388,700	\$1,135,900	3.0%	3.0%	3.0%
San Francisco MTA	\$11,401,600	\$7,888,600	\$19,290,300	12.1%	6.8%	9.1%
SolTrans (Solano County Transit)	\$334,100	\$152,200	\$486,300	14.3%	15.0%	14.5%
Sonoma County	\$175,600	\$75,100	\$250,700	12.4%	13.0%	12.6%
Union City	\$23,300	\$20,000	\$43,300	11.4%	12.0%	11.7%
Vacaville City Coach	\$27,700	\$4,300	\$32,000	8.7%	9.2%	8.8%
West CAT	\$20,700	\$49,000	\$69,700	3.7%	3.8%	3.8%
San Francisco Bay Ferry (WETA)	\$18,700	\$468,000	\$486,600	3.6%	3.7%	3.7%
Total	\$30,383,300	\$22,855,500	\$53,238,800	10.2%	3.8%	6.0%

Scenario R2 - 10% Across-the-Board Fare Increase: Change in Ridership

	Change in Ridership, #			Change in Ridership, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	-1,090,100	-571,100	-1,661,100	-3.1%	-2.8%	-3.0%
ACE (Altamont Commuter Express)	-2,800	-17,900	-20,700	-2.2%	-1.9%	-1.9%
BART	-785,000	-1,802,100	-2,587,100	-2.2%	-1.9%	-2.0%
Caltrain	-40,600	-286,000	-326,500	-2.2%	-1.9%	-1.9%
County Connection (CCCTA)	-50,900	-48,200	-99,200	-3.1%	-2.8%	-3.0%
City of Dixon	-1,100	-500	-1,600	-3.2%	-2.9%	-3.1%
ECCTA (Tridelta)	-39,500	-43,900	-83,400	-3.1%	-2.8%	-2.9%
FAST (Fairfield and Suisun Transit)	-24,100	-8,400	-32,500	-3.1%	-2.8%	-3.0%
Golden Gate (GGBHTD)	-39,900	-151,000	-190,900	-3.1%	-2.8%	-2.9%
LAVTA (Wheels)	-28,600	-20,500	-49,100	-3.1%	-2.8%	-3.0%
Marin Transit	-17,400	-65,900	-83,400	-3.1%	-2.8%	-2.9%
Vine (NCTPA)	-13,000	-10,500	-23,400	-3.1%	-2.8%	-3.0%
Petaluma Transit	-7,400	-3,400	-10,800	-3.1%	-2.8%	-3.0%
Rio Vista Delta Breeze	-200	-100	-400	-2.9%	-2.0%	-3.3%
SamTrans	-226,000	-154,400	-380,400	-3.1%	-2.8%	-3.0%
Santa Rosa CityBus	-56,200	-14,400	-70,700	-3.1%	-2.8%	-3.0%
VTA	-872,100	-428,100	-1,300,200	-3.1%	-2.8%	-3.0%
San Francisco MTA	-3,332,000	-3,420,600	-6,752,600	-3.1%	-2.8%	-2.9%
SolTrans (Solano County Transit)	-30,900	-12,200	-43,200	-3.1%	-2.8%	-3.0%
Sonoma County	-28,900	-10,700	-39,700	-3.1%	-2.8%	-3.0%
Union City	-6,800	-5,100	-11,900	-3.1%	-2.8%	-3.0%
Vacaville City Coach	-13,800	-1,900	-15,600	-3.1%	-2.9%	-3.1%
West CAT	-12,900	-26,500	-39,400	-3.1%	-2.8%	-2.9%
San Francisco Bay Ferry (WETA)	-2,500	-53,600	-56,000	-3.2%	-2.8%	-2.8%
Total	-6,722,700	-7,156,900	-13,879,600	-2.9%	-2.5%	-2.7%

Scenario R2 - 10% Across-the-Board Fare Increase: Change in Fare Revenue

	Change in Fare Revenue, \$			Change in Fare Revenue, %		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
AC Transit	\$2,383,300	\$1,551,200	\$3,934,500	6.6%	6.9%	6.7%
ACE (Altamont Commuter Express)	\$63,400	\$479,700	\$543,100	7.6%	7.9%	7.9%
BART	\$8,035,000	\$25,156,200	\$33,191,200	7.8%	8.1%	8.0%
Caltrain	\$567,600	\$5,340,200	\$5,907,800	7.6%	7.9%	7.9%
County Connection (CCCTA)	\$147,600	\$160,800	\$308,400	6.6%	6.9%	6.8%
City of Dixon	\$4,100	\$2,100	\$6,200	6.6%	6.8%	6.7%
ECCTA (Tridelta)	\$86,200	\$110,300	\$196,500	6.6%	6.9%	6.8%
FAST (Fairfield and Suisun Transit)	\$100,100	\$40,100	\$140,200	6.6%	6.9%	6.7%
Golden Gate (GGBHTD)	\$282,800	\$1,361,800	\$1,644,600	6.6%	6.9%	6.8%
LAVTA (Wheels)	\$71,900	\$59,100	\$131,000	6.6%	6.9%	6.7%
Marin Transit	\$123,900	\$596,500	\$720,400	6.6%	6.9%	6.8%
Vine (NCTPA)	\$34,300	\$31,800	\$66,000	6.6%	6.9%	6.7%
Petaluma Transit	\$9,500	\$5,100	\$14,600	6.6%	6.9%	6.7%
Rio Vista Delta Breeze	\$800	\$600	\$1,300	7.0%	7.0%	6.5%
SamTrans	\$638,900	\$515,700	\$1,154,600	6.6%	6.9%	6.7%
Santa Rosa CityBus	\$114,800	\$33,900	\$148,700	6.6%	6.9%	6.7%
VTA	\$1,616,600	\$907,200	\$2,523,800	6.6%	6.9%	6.7%
San Francisco MTA	\$6,226,700	\$8,050,000	\$14,276,700	6.6%	6.9%	6.8%
SolTrans (Solano County Transit)	\$154,400	\$70,200	\$224,600	6.6%	6.9%	6.7%
Sonoma County	\$93,400	\$39,900	\$133,300	6.6%	6.9%	6.7%
Union City	\$13,500	\$11,500	\$25,000	6.6%	6.9%	6.7%
Vacaville City Coach	\$20,900	\$3,200	\$24,200	6.6%	6.8%	6.6%
West CAT	\$37,300	\$88,300	\$125,600	6.6%	6.9%	6.8%
San Francisco Bay Ferry (WETA)	\$34,600	\$869,100	\$903,700	6.6%	6.9%	6.9%
Total	\$20,861,600	\$45,484,400	\$66,346,000	7.0%	7.6%	7.4%

Appendix C: Impacts on Farebox Recovery

	Farebox Recovery					
	Current	A1	A2	A3	R1	R2
AC Transit	18.8%	15.9%	16.1%	15.7%	21.0%	20.1%
ACE (Altamont Commuter Express)	45.2%	43.2%	44.0%	43.7%	47.4%	48.8%
BART	73.1%	66.4%	68.3%	66.7%	76.5%	79.0%
Caltrain	62.7%	60.7%	61.0%	60.8%	64.5%	67.6%
County Connection (CCCTA)	16.5%	14.0%	14.8%	14.4%	17.4%	17.6%
City of Dixon	15.6%	12.4%	13.6%	13.0%	16.5%	16.7%
ECCTA (Tridelta)	18.4%	15.6%	16.7%	16.2%	19.5%	19.7%
FAST (Fairfield and Suisun Transit)	24.8%	18.2%	20.7%	20.0%	27.2%	26.5%
Golden Gate (GGBHTD) / Marin Transit	23.1%	21.8%	22.1%	21.8%	23.7%	24.7%
LAVTA (Wheels)	13.8%	11.2%	12.1%	11.8%	15.1%	14.7%
Vine (NCTPA)	14.6%	11.8%	12.9%	12.5%	17.1%	15.6%
Petaluma Transit	16.4%	12.9%	14.3%	13.7%	18.6%	17.5%
Rio Vista Delta Breeze	5.6%	4.6%	4.9%	4.8%	7.1%	5.9%
SamTrans	16.8%	13.9%	14.6%	14.3%	17.7%	17.9%
Santa Rosa CityBus	21.5%	16.0%	18.3%	17.3%	23.7%	22.9%
VTA	11.8%	9.4%	10.1%	9.8%	12.2%	12.6%
San Francisco MTA	30.4%	28.5%	28.4%	28.6%	33.1%	32.4%
SolTrans (Solano County Transit)	34.6%	26.5%	29.2%	28.2%	39.6%	36.9%
Sonoma County	17.2%	13.3%	14.9%	14.2%	19.4%	18.4%
Union City	11.3%	9.1%	10.1%	9.8%	12.7%	12.1%
Vacaville City Coach	20.3%	14.0%	16.2%	15.6%	22.1%	21.7%
West CAT	23.8%	21.1%	21.9%	21.5%	24.7%	25.5%
San Francisco Bay Ferry (WETA)	50.7%	50.0%	50.2%	50.1%	52.6%	54.2%
Total	37.5%	34.1%	34.8%	34.3%	39.7%	40.3%

NOTE: Operating costs for Golden Gate and Marin Transit are currently available only as a combined total for both agencies, so it has not been possible to calculate separate farebox recovery ratios for those two agencies.