


**CITY AND COUNTY OF SAN FRANCISCO
BOARD OF SUPERVISORS**

BUDGET AND LEGISLATIVE ANALYST

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LEGISLATIVE ANALYST REPORT

To: Supervisor Campos
From: Budget and Legislative Analyst 
Date: September 19, 2011
Re: Cost-Benefit Analysis of Waiving the San Francisco Municipal Railway (Muni) Fares Charged to Youth from the Ages of 5 to 17 (Project 110152.1)

SUMMARY OF REQUESTED ACTION

Your office requested that the Budget and Legislative Analyst provide a cost-benefit analysis of waiving fares for youth from ages 5 to 17 to ride the San Francisco Municipal Railway (Muni). Specifically, you requested an analysis that takes into consideration projected revenue loss from ending the sale of the Monthly Youth Pass and the cash fares paid by youth, as well as decreased fare enforcement and administrative costs to be incurred by the San Francisco Municipal Transportation Agency (SFMTA). You directed the Budget and Legislative Analyst to consider: projected ridership levels; associated bus service changes; the estimated number of youth that are currently evading fares and the related estimated loss of funds from youth fare evasion.

You also requested that the analysis of the Budget and Legislative Analyst, if practical, include a projection of the reduction in truancy rates of San Francisco Unified School District (SFUSD) students as a result of waiving the youth fares and the potential fiscal impact on SFUSD's budget. The scope of this analysis did not include identifying for alternative sources of revenue for the SFMTA if a fare waiver program were implemented.

EXECUTIVE SUMMARY

- To ride on the San Francisco Municipal Railway (Muni), excluding cable cars, youth from ages 5 to 17 currently must pay a cash fare of \$0.75 per ride or can purchase a Monthly Youth Pass for unlimited rides on Muni for \$21 per month. While the San Francisco Municipal Transportation Agency (SFMTA) does not track its cash fare passengers by age, using data available from the SFMTA, the Budget and Legislative Analyst estimates that 36,600, or approximately 15 percent of Muni's 240,000 weekday Muni riders, are youth who either have a monthly youth pass, pay the cash fare, or evade fares.
- The price of a Monthly Youth Pass has increased a total of \$11, from \$10 in June 2009 to the current price of \$21, or a 110 percent increase during that time period. The SFMTA increased the price of a Monthly Youth Pass to \$15 in July 2009, then to \$20 in May 2010 and, most recently, to \$21, which took effect July 1, 2011. During the one year time period starting in July 2009, there was a subsequent reduction in the average monthly sales of Youth Passes, from approximately 20,000 Youth Passes per month in FY 2008-09 to an average of 18,000 Youth Passes per month in FY 2009-10.

- More youth will require access to public transportation or some alternative source of transportation services to get to and from school as the San Francisco Unified School District (SFUSD) implements its plan to reduce its yellow bus services. In order to minimize the use of SFUSD's General Fund budget contributions for transportation, so that such General Fund monies could be redirected toward other needed programs, SFUSD plans to reduce its current fleet of 44 buses for general education transportation services to 25 buses by 2013. In FY 2011-12, 11 out of 65 elementary schools will lose yellow bus services and four schools out of 73 (one elementary and three K-8) will experience reduced bus services.
- The experiences in two cities in the United States that currently waive fares for some or all youth on their public transportation systems - Portland, Oregon and New York City - were reviewed for this analysis. These cities are not the only cities that waive fare for youth, but these cities have similar public transportation systems to San Francisco, including a combination of trains, light rail vehicles and motor buses. Portland allows all high school students attending Portland Public Schools to ride anywhere on the TriMet system, 24 hours a day, seven days a week, for free during the school year. New York City students are eligible for up to 3 rides a day on the MTA from 7 AM to 10 PM for free or reduced fare based on their grade level and the distance that they live from their schools. Both cities' transit agencies receive funding from the public school districts and their respective States to offset the estimated lost revenue from providing free and/or reduced fare programs.
- Based on the growth models used in a 2008 Controller's report and SFMTA's projections for increased boardings, the Budget and Legislative Analyst estimates that after the full implementation of a fare waiver program, the number of youth riders will increase by 10,980 riders between 7 a.m. and 7 p.m., from 36,600 estimated youth riders to 47,580. This increase of 10,980 youth riders represents an increase of 4.6 percent over the current estimated 240,000 weekday Muni riders.
- The Budget and Legislative Analyst estimates that if SFMTA were to waive fares twenty-four hours per day, seven days per week for youth between the ages of 5 and 17 enrolled in public or private school or residing in San Francisco, the key fiscal impact would be a loss of current youth fare revenue to the SFMTA of \$6,432,739 per year. If school identification cards are used to identify eligible youth, the revenue loss would be offset by savings from reduced Clipper Card transaction fees and fare enforcement costs. Also, considering potential increased costs associated with increased youth riders, the Budget and Legislative Analyst estimates that the net estimated annual fiscal impact to the SFMTA by waiving youth fares would be \$5,871,119. However, if Youth Clipper Cards are used to identify eligible youth instead of student identification cards, Clipper Card transaction fees would continue to be incurred by the SFMTA, thereby resulting in an estimated annual net fiscal impact to the SFMTA of \$7,036,169 annually.
- In this report, the Budget and Legislative Analyst is also disclosing potential additional fiscal impacts estimated by SFMTA as a result of an estimated increase in youth ridership because youth fares would be waived. SFMTA has estimated that it would incur additional costs if Muni cash fares and the Monthly Youth Pass fares were waived for youth and if additional service was provided to accommodate a projected increase in

youth riders on bus and rail lines that are already at, or would exceed, SFMTA's policy capacity thresholds.

- Using SFMTA's cost estimates and formulae, excluding fixed administrative costs, the Budget and Legislative Analyst estimates the SFMTA would incur additional costs of \$5.9 million per year based on SFMTA's projection of increased service hours that would ideally be provided to accommodate increased ridership.
- This estimated cost of \$5.9 million is in addition to the cost estimated by the Budget and Legislative Analyst ranging from the above-noted \$5,871,119 to \$7,036,169 annually. However, the Budget and Legislative Analyst does not assume that SFMTA's estimates represent actual new service hours or costs that would be incurred as a result of waiving Muni fares to youth since SFMTA has not provided additional resources in recent years to remedy lines that are operating over capacity. Therefore, consistent with SFMTA's actual experience in the recent past, the Budget and Legislative Analyst does not assume that SFMTA would allocate resources to provide additional service hours on lines that are impacted by increased youth ridership if youth fares were waived.
- The SFMTA has identified other minor costs associated with additional maintenance if fares are waived for youth. Such costs and savings are included in our estimates of the net costs of a youth fare waiver program presented above and detailed in the body of this report.
- A number of possible benefits of waiving Muni fares for youth have been suggested by various stakeholders contacted by the Budget and Legislative Analyst in the course of preparing this report. These potential benefits include:
 - Possible reductions in student truancy at San Francisco schools to the extent that existing fares prohibit some students from being able to get to school;
 - Enabling youth to be able to get to jobs at more distant locations;
 - A reduction in youth's use of private vehicles and generation of associated pollution;
 - Reducing the number of Transit Fare Inspections that have to be performed by SFMTA staff on youth;
 - A reduction in "dwell times" on buses and streetcars (when busses and streetcars are idle at stops) since Muni drivers would not have to collect payments of the youth cash fares; and,
 - Enhancement of San Francisco as a youth- and family-friendly city.

While all of these represent valid potential benefits as a result of waiving Muni fares for youth, it is not possible to quantify or report definitive conclusions about such potential benefits, given the data available and the time frame for preparation of this report.

- Additional analysis is needed to determine the impact of a fare waiver program for youth on SFMTA's capital and infrastructure costs, as well as alternative sources of funding to offset estimated lost revenues and additional maintenance and operational costs.

BACKGROUND

Muni Youth Passes and Cash Fares

Youth between the ages of 5 to 17 may pay a cash fare of \$0.75 per ride, except on cable cars, or purchase a monthly Youth Pass for unlimited rides on the San Francisco Municipal Railway (Muni) for \$21 per month. Based on previous studies on Muni ridership, the Budget and Legislative Analyst estimates that there are currently 36,600 youth riders on Muni per month.

Beginning in June, 2011 all monthly passes must be purchased through Clipper Card¹ vendors. In order to obtain a Youth Clipper Card, passengers must submit a one time application to establish eligibility. Applications are currently accepted at four locations² in the City.

The price of a Monthly Youth Pass has increased a total of \$11, from \$10 in June 2009 to the current price of \$21, or a 110 percent increase during that time period. The price of a Monthly Youth Pass was increased to \$15 in July 2009 and from \$15 to \$20 per month in April, 2010 to help offset the loss of State funds to the SFMTA. The price was increased to \$21 on July 1, 2011.

The price for monthly youth passes had been \$10 per month since September 1, 2003. After the increases in the price of monthly Youth Passes, the average monthly sale of monthly Youth Passes decreased by approximately 2,000 passes per month, from approximately 20,000 monthly Youth Passes per month in FY 2008-09 to 18,000 Youth Passes per month in FY 2009-10.

The SFMTA Board of Directors (Board) approved a Youth Lifeline Program for 12,000 public school students enrolled in SFUSD, or subsidized \$10 monthly passes, for eligible low-income students for FY 2010-11. SFMTA reduced its revenue budget by approximately \$1.4 million per year for the two year program started in FY 2010-11 based on the estimated loss of revenue from the sale of 12,000 Youth Lifeline Passes per month throughout the year. Passes were to be provided to SFUSD for distribution to students. However, implementation was delayed until April, 2011 due to issues encountered by SFUSD, such as determining secure cash handling procedures and student eligibility.

The price of the monthly Youth Pass increased by one dollar on July 1, 2011, from \$20 per month to \$21 per month. The Youth Lifeline Pass increased to \$10.50 per month in FY 2011-12.

¹ The Clipper Card is an all-in-one transit card that keeps track of any passes, cash value, discount tickets and other fare products purchased for use on Muni, Bay Area Rapid Transit (BART), Alameda County (AC) Transit, Santa Clara Valley Transportation Authority (VTA), San Mateo County Transit District (SamTrans), Caltrain and Golden Gate Transit and Ferry.

² Applications for a Clipper Youth Card may be accepted at the SFMTA Customer Service Center on South Van Ness, SFMTA Presidio Sales Kiosk, Bay Crossings Transit Store at the Ferry Building and the Transit Kiosks at the Embarcadero Metro Station.

Possible Benefits of Waived Fare for Youth

Based on the 2010 Census, approximately 75,000³ youth between the ages of 5 and 17 reside in San Francisco. Approximately 53,000⁴ youth are enrolled in SFUSD schools and 23,000⁵ youth are enrolled in private schools located in San Francisco, many of whom use Muni for transportation to and from schools, jobs, and afterschool programs.

If Muni fare were waived for all youth that reside and/or attend schools in San Francisco, more students would be able to regularly get to school, particularly students who cannot afford public transportation and do not have alternative options for transportation. Such a program could also have a potential impact on students who currently use the yellow bus services provided by SFUSD at no cost to students, as they would then have an alternative mode of transportation for school without incurring a new cost for transit services. Further, waived youth fares on Muni could potentially lift transportation barriers for job attendance for some youth.

Waiving Muni fares for youth could reduce the youth's use of private vehicles and the generation of associated pollution. Such a program would reduce the number of Transit Fare Inspections that have been performed by SFMTA staff on youth. Additionally, the program might also reduce "dwell times" on buses and streetcars (when buses and streetcars are idle at stops) since Muni drivers would not have to collect payment of the youth cash fare. Finally, waiving Muni fares for youth would enhance San Francisco as a youth- and family-friendly city.

ESTIMATED SFMTA REVENUES AND VARIABLE COSTS ATTRIBUTED TO YOUTH

The Budget and Legislative Analyst estimates that SFMTA receives approximately \$6,432,739 in revenues from youth that reside and/or go to school in San Francisco and ride Muni. If Muni waived fares for youth, the Budget and Legislative Analyst estimates that it would incur additional costs and savings, for a net fiscal impact of \$5,871,119 if school identification cards are used to identify eligible youth or \$7,036,169 if Youth Clipper Cards are used to identify eligible youth since MTA pays a per transaction fee every time a Clipper Card is tapped. The revenues and variable costs specifically related to youth riding Muni in FY 2011-12 are shown in Figures 1 and 2 below.

³ The estimate of 75,000 youth residing in San Francisco includes youth 5 to 17 years of age and is based on 2010 census data.

⁴ The estimate of 53,000 youth enrolled in SFUSD is based on enrollment data as of October, 2010.

⁵ The estimate of 23,000 youth enrolled in private schools is based on the San Francisco private school enrollment data for grades Kindergarten through 12 found on the website "Private School Review," http://www.privateschoolreview.com/county_private_schools/stateid/CA/county/6075.

Figure 1
SFMTA Estimated FY 2011-12 Lost Revenues and Variable Costs/Savings from a Muni Fee Waiver Program for Youth with School Identification Cards

Revenue Sources	Amount
Monthly Youth Passes ¹	\$3,250,800
Cash Fare ²	3,181,939
<i>Subtotal Lost Revenue</i>	<i>\$ 6,432,739</i>
Costs / (Savings)	
Clipper Card Contract	(\$891,620)
Maintenance	500,000
Fare Enforcement (POP)	(300,000)
Muni Transit Assistance Program ³	130,000
<i>Subtotal Costs/ (Savings)</i>	<i>(\$561,620)</i>
Total Net Cost to SFMTA	\$5,871,119

Source: Based on SFTMA 2010 revenue data and Budget and Legislative Analyst's assumptions and estimates of FY 2010-11 youth ridership

¹ Estimate of monthly Youth Pass revenue includes the impact of the Youth Lifeline Program for FY 2011-12.

² Estimate of cash fare revenue assumes that (a) 10 percent of the youth riders that currently do not purchase monthly passes evade fares and (b) SFMTA retains four percent of total annual cash fare revenue from youth that do not reside and/or go to school in San Francisco.

³ Program deploys at-risk youth at bus stops near schools. Cost change in proportion to the average projected increase in youth ridership during the 2 to 4 pm time slot, or 13 percent of the existing \$1,000,000 budget.

Figure 2
SFMTA Estimated FY 2011-12 Lost Revenues and Variable Costs/Savings from a Muni Fee Waiver Program for Youth with Youth Clipper Cards

Revenue Sources	Amount
Monthly Youth Passes ⁴	\$3,250,800
Cash Fare ⁵	3,181,939
<i>Subtotal Lost Revenue</i>	<i>\$ 6,432,739</i>
Costs / (Savings)	
Incremental Clipper Card Contract ⁶	\$273,430
Maintenance	500,000
Fare Enforcement (POP)	(300,000)
Muni Transit Assistance Program ⁷	130,000
<i>Subtotal Costs/ (Savings)</i>	<i>\$567,765</i>
Total Net Cost to SFMTA	\$7,036,169

Source: Based on SFTMA 2010 revenue data and Budget and Legislative Analyst's assumptions and estimates of FY 2010-11 youth ridership

⁴ Estimate of monthly Youth Pass revenue includes the impact of the Youth Lifeline Program for FY 2011-12.

⁵ Estimate of cash fare revenue assumes that (a) 10 percent of the youth riders that do not currently purchase monthly passes evade fares and (b) SFMTA retains four percent of total annual cash fare revenue from youth that do not reside and/or go to school in San Francisco.

⁶ SFMTA would continue to incur its current estimated annual cost of \$891,620 on the Clipper Card contract for youth transactions. However, with the projected increase in youth ridership, the Budget and Legislative Analyst estimates that SFMTA will incur an additional \$273,430 per year for additional Clipper Card youth transactions, based on a 4.6 percent increase in overall youth riders and Clipper Card transaction costs.

⁷ Estimate of the increase in program costs in proportion to the average projected increase in youth ridership during the 2 to 4 pm time slot, or 13 percent of its existing \$1,000,000 budget.

It should be noted that the estimates presented in Figures 1 and 2 assume fares, revenues and program costs consistent with those in effect in FY 2011-12. Any changes in subsequent years to fares, revenues and program costs could affect SFMTA's fiscal impact associated with waiving fares for youth.

Revenue

SFMTA receives revenue from the sale of monthly Youth Passes, cash fares paid by youth and payments for fare evasion citations issued to youth. It is these revenues that would be primarily affected if Muni fares were waived for youth.

Monthly Passes

The Budget and Legislative Analyst estimates that SFMTA would receive \$3,250,800 in revenue in FY 2011-12 from the sale of monthly Youth Passes at \$21 per month and \$10.50 for Youth Lifeline passes, the prices that took effect July 1, 2011. The estimates are presented in Figure 3 below.

**Figure 3
Estimated Muni Youth Fare Revenue in FY 2011-12**

	Estimated Number of Monthly Passes	Monthly Fare FY 2011-12	Total Annual Fare Revenue
Monthly Passes	7,800	\$21.00	\$1,965,600
Youth Lifeline	10,200	\$10.50	1,285,200
Total	18,000		\$3,250,800

Source: Budget & Legislative Analyst estimates based on SFMTA and SFUSD data

Although SFMTA does not have data for the number of youth eligible for the Youth Lifeline Pass, which did not become effective until April 2011, the Budget and Legislative Analyst estimates that approximately 56.7 percent of 18,000 youth who purchased monthly passes in 2010, or 10,200 youth, would qualify for the reduced-fare Youth Lifeline Pass.⁶

Cash Fares

SFMTA does not disaggregate its cash fare revenue data to distinguish how many adults are paying \$2.00 per ride and how many youth, senior and disabled passengers are paying \$0.75 per ride. To estimate SFMTA cash fare revenues from youth, the Budget and Legislative Analyst

⁶ The Budget and Legislative Analyst derived this estimate, based on approximately 30,000 of 53,000 SFUSD students, or 56.7 percent, who qualify for reduced or free school lunches. However, when SFMTA waived fares to youth through the Youth Lifeline Pass from April through June of 2011, over 12,000 applications for the passes were received, the full amount that SFMTA and SFUSD could print and distribute per month.

assumed that 16,740⁷ youth riders pay an estimated \$3,314,520⁸ in cash fare annually. However, the Budget and Legislative Analyst assumes that SFMTA will still receive four percent of annual cash fare, or \$132,581, from youth that do not reside or go to school in San Francisco, for net lost cash fare revenue of \$3,181,939.

Variable Costs

Clipper Card

According to SFMTA, all paper passes, including the Youth Pass and subsidized Youth Lifeline Pass have transitioned to the Clipper Card as of FY 2011-12. Therefore, all administrative costs previously associated with providing paper passes to youth, including printing and distributing passes, and staff time for reconciling sales, will shift to the Clipper Card vendor which SFMTA will pay for through its Clipper Card vendor contract.

Clipper Card contract costs that would be incurred if Clipper Cards were used to identify eligibility for a youth fare waiver program include customer service, transaction fees (assessed per tap), and monthly operating costs.

With an increase in youth ridership, Clipper Card transaction costs will also increase. Based on the SFMTA projections on additional boardings if Muni fares were waived for youth, the Budget and Legislative Analyst estimates that overall ridership will increase by 4.6 percent. Therefore, the Budget and Legislative Analyst estimates that Clipper Card transaction costs will increase by \$273,430, or 4.6 percent of the approximately \$5,944,136 in current annual transaction costs for all Muni riders.

Fare Enforcement

There are two SFMTA programs that provide fare enforcement and/or security on Muni. The first is the Proof of Payment (POP) program, which deploys Transit Fare Inspectors and is estimated by SFMTA to cost approximately \$5,000,000 per year.⁹ The second program is the Muni Transit Assistance Program (MTAP), which has been deploying at-risk young adults in teams of two to prevent violence, graffiti, and other security issues on Muni near schools since 1997. MTAP staff do not issue fare evasion citations and try not to cover the same routes as Transit Fare Inspectors. The annual cost for MTAP is approximately \$1,000,000 per year.¹⁰

The SFMTA conducted a Proof-of-Payment Study in 2009 to determine the magnitude of fare evasion on Muni and quantify the financial impact to the agency. According to this study, the percentage of people without valid proof-of-payment increased throughout the day. During the

⁷ Based on previous studies of Muni ridership, the Budget and Legislative Analyst estimates that 15 percent of the 240,000 weekday Muni riders, or 36,600, are youth. Based on data provided by SFMTA, 18,000 youth purchase monthly passes, whereas the remaining 18,600 either pay cash fare or evade fares. Based on a SFMTA study showing that 10 percent of riders in the time slot between 2 to 4 pm did not have proof of payment, or evaded fares, the Budget and Legislative Analyst estimates that 16,740 youth pay cash fare and 1,860 evade fares.

⁸ The Budget and Legislative Analyst assumes that the 16,740 youth that ride Muni and pay \$0.75 cash fare make an average of 11 round trips per month, resulting in \$3,314,520 annual cash fare.

⁹ The annual budget for the Proof-of-Payment program includes salaries and benefits for approximately 42 fare inspectors, their supervisors, support staff and materials.

¹⁰ The MTAP annual budget of \$1,000,000 is for the salaries and benefits for 20 staff people, including 15 transit assistants (at-risk youth), 3 supervisors, 1 coordinator, and 1 manager.

weekday “school” period from 2 pm to 4 pm, approximately 10 percent of the ridership did not have valid proof-of-payment, or were evading fares.

It is important to note that SFMTA only tracks citations in two categories, citations for juveniles (under 18 years of age) and adults (18 years old and older). Though the SFMTA anecdotally noted that young adults age 18 to 24 may evade fares at a higher rate than most age groups, there is currently no data that tracks the number of citations issued to adults by age group.

According to POP program staff, it is their policy to provide more warnings and admonishments for fare evasion than actual citations to youth, resulting in only 550 youth citations issued in 2010. However, POP program staff reported that if they tried to issue a citation for every youth they encounter evading fares and spend time with admonishing and/or educating them about fare evasion, POP staff could issue 3,000 citations annually.

Although the Proof of Payment Program would shift its existing resources to enforcing fares for riders 18 years and older if Muni implemented fare waivers for youth under the age of 18, the Budget and Legislative Analyst concludes that Proof of Payment Program costs would be reduced under a fare waiver program for youth. Assuming fare evasion program costs attributable to youth are equal to the six percent proportion of SFMTA fare revenue attributable to youth,¹¹ the Budget and Legislative Analyst assumes that total Proof of Payment program costs of \$5,000,000 would be reduced by an estimated \$300,000 (six percent of \$5,000,000) annually under a youth fare waiver program. Due to the lack of data, the Budget and Legislative Analyst is unable to estimate any offsetting increase in fare enforcement attributable to young adults 18 to 24 years old potentially evading fares under a Muni fare waiver program.

The Budget and Legislative Analyst assumes that all MTAP costs are attributed to youth ridership on Muni because they are deployed on school specific bus routes and stops. Based on the average projected increase in youth ridership from 2 to 4 pm, or 13 percent, the Budget and Legislative Analyst estimates that MTAP costs would increase proportionately by 13 percent, or \$130,000.

Maintenance Costs

Due to a projected increase in ridership associated with the proposed program, SFMTA states that they would incur additional maintenance costs for trash clean up, graffiti removal, and other routine maintenance. The Budget and Legislative Analyst concurs with SFMTA’s estimate of \$500,000 in additional costs per year for this purpose and has included that amount in the estimated net costs for the youth fare waiver program.

¹¹ Based on SFMTA data, youth monthly passes represent six percent of the monthly passes sold annually.

IMPACT OF WAIVING MUNI FARE FOR YOUTH RESIDING OR ATTENDING SCHOOL IN SAN FRANCISCO

Based on the growth models used in a 2008 Controller's report and SFMTA's projections for increased boardings, the Budget and Legislative Analyst estimates that the number of youth riders will increase by 30 percent or, 10,980 riders between 7 a.m. and 7 p.m., from 36,600 estimated youth riders to 47,580. This represents an increase of 4.6 percent over the current estimated 240,000 weekday Muni riders.

The Budget and Legislative Analyst has estimated changes in costs and benefits from waiving Muni fares 24 hours a day, seven days a week for youth between the ages of 5 and 17 who reside or attend school in San Francisco, as presented below. If student identification cards are used to identify youth eligible for fare waivers, the estimated net cost of a youth fare waiver program would be \$5,871,119 per year. If students obtain monthly Youth Passes through the Clipper Card, the estimated net cost of a youth fare waiver program would be \$7,036,169. These estimates are based on a reduction of and/or an increase in certain variable costs associated with fare enforcement, the use of the Clipper Card, and additional costs in maintenance.

ADDITIONAL SERVICE HOURS AND RELATED COSTS

As previously stated, the Budget and Legislative Analyst assumes that a Muni fare waiver program for youth would result in an increase in ridership. An analysis of the impact of an increased ridership on SFMTA capacity, the need for additional services, and related costs were estimated by the Budget and Legislative Analyst based on the methodology used in the Controller's 2008 analysis of the impact on Muni ridership if service were free to all adults, youth and seniors.¹² The Budget and Legislative Analyst provided these assumptions to SFMTA staff who prepared estimates of the impact on ridership and service hours.

The potential cost per service hour and by mode used to calculate additional maintenance and operation costs were developed by SFMTA. The Budget and Legislative Analyst excluded administrative costs from SFMTA's projected additional costs because the Budget and Legislative Analyst concludes that, given the relatively moderate projected increase in youth ridership, these fixed costs would not increase at the same rate as variable maintenance and operation costs.

Assumptions

The analysis of increased ridership, additional service hours, and related increases in maintenance and operation costs was based on the assumption that Muni fares would be waived for all youth. While youth would be eligible for fee waivers on all Muni lines, the analysis of the impact of youth ridership was based on particular Muni lines and particular hours in the day with the most ridership by youth.¹³ Finally, while the analysis could be more refined to only include roundtrip routes from where youth reside and to where they go to school, SFMTA notes that by

¹² "Free Fare Muni System Feasibility Analysis," San Francisco Controller's Office, January 29, 2008.

¹³ According to SFMTA, express routes were excluded from the analysis to exclude the routes dominated by adult riders commuting to work. Additionally, SFMTA notes that while the analysis includes some routes that go to downtown, these routes also pass through areas with schools, and would therefore, include youth riders.

taking the average of youth riders across San Francisco, the analysis includes a fair analysis of the impact of youth ridership. The Budget and Legislative Analyst also notes that the approach of using the average youth ridership across San Francisco allows captures some estimates of youth riding Muni to and from work or other programs afterschool, for which there is a lack of comprehensive data.

For this analysis of additional service hours and related costs triggered by waiving Muni fares for youth, the Budget and Legislative Analyst used the growth assumptions in the Controller's 2008 report on waiving Muni fares for all riders, but then adjusted these percentages to reflect assumptions regarding youth riders. First, youth riders represent a portion of the population, whereas the Controller's analysis included the entire rider population. Second, the Budget and Legislative Analyst assumed that ridership would increase significantly immediately after school (2 PM to 4 PM) as students travel to their homes, afterschool programs, or jobs. Therefore, the Budget and Legislative Analyst assumes that overall ridership would increase between 2.7 to 6.0 percent in the mornings and evenings, but between 8.1 to 18 percent immediately after school.¹⁴

Additionally, the Budget and Legislative Analyst assumes that there will be a modest increase in youth ridership on the weekends of approximately 5 percent. However, for this analysis, both SFMTA and the Budget and Legislative assumed that SFMTA's existing capacity would be able to absorb such an increase in youth ridership on weekends.

The Budget and Legislative Analyst believes that these assumptions are reasonable given the experience of Portland's youth fare waiver program. Because Portland had a consistent base of youth riding public transportation prior to the implementation of their fare waiver programs, ridership increased only up to 15 percent for one high school. Similarly, the Budget and Legislative Analyst believes that implementation of the Muni Youth Lifeline program in FY 2010-11 will result in a consistent and solid base of low-income youth already riding Muni, so ridership would not increase up to 40 percent if fares were waived for all youth. In addition, a number of youth are already riding Muni for free based on the high rate of youth currently evading fares, according to SFMTA staff.

Projected Increase in Youth Ridership, or Boardings

Based on the above assumptions, the SFMTA projects that there would be 13,000 system-wide additional daily boardings throughout most of the day, with 8,000 additional daily boardings immediately after school in a low growth scenario. However, in a high growth scenario, there would be 28,000 daily boardings system-wide throughout most of the day, but 18,000 additional daily boardings immediately after school. Total daily boardings is approximately 700,000 on a weekday (including late night services). It is important to note, however, that the Budget and Legislative Analyst is still consulting with the SFMTA on the projected increase in youth

¹⁴ The Budget and Legislative Analyst assumed two growth rate scenarios using the Controller's 2008 analysis: 18 percent for low growth and 40 percent for high growth. The Budget and Legislative Analyst also assumed that youth represent 15 percent of total ridership in the morning and evenings, but 45 percent of the ridership immediately after school. Therefore, by multiplying the Controller's study growth rates by the proportion of youth riding Muni at certain times of the day, we obtained two ranges of percentages of growth (18 and 40 percent multiplied by 15 percent for the mornings and evenings; 18 and 40 percent multiplied by 45 percent for immediately after school).

ridership due to the inability to verify the base assumptions of ridership in this particular analysis.

**Figure 4
 Projected Increase in Youth Ridership
 By Time Period**

	Low Growth Scenario		High Growth Scenario	
	7 AM to 2 PM; 4 PM to 7 PM	School Time Period (2 PM to 4 PM)	7 AM to 2 PM; 4 PM to 7 PM	School Time Period (2 PM to 4 PM)
Percent Increase in <i>Overall Ridership</i>	2.7%	8.1%	6.0%	18.0%
Additional Daily Youth Boardings	13,000	8,000	28,000	18,000

Source: SFMTA

Estimated Increase in Service Hours

Given SFMTA's existing capacity and the above projected increase in youth ridership, SFMTA estimates that weekday service hours¹⁵ would need to be increased by approximately .8 to 1.2 percent of its existing services of 3,125,000 service hours. In other words, SFMTA would need to increase its weekday services by 25,000 annual services hours in the low growth scenario to approximately 37,000 additional service hours in the high growth scenario.

Figure 5 below summarizes the routes that would require more service hours.

**Figure 5
 Muni Routes Identified by SFMTA
 Requiring Additional Service Hours if Fares Waived for Youth**

	6 AM to 9 AM	9 AM to 2 PM	2 PM to 4 PM	4 PM to 7 PM
Low Growth Scenario	KT, L, M, N, 8X, 10, 21, 30X, 41	no routes	F, 44	F, KT, L, N
High Growth Scenario	KT, L, M, N, 8X, 10, 21, 30X, 41, 45	8X	F, 8X, 14L, 44, 45, 71	F, KT, L, N, 29, 41, 45

Source: SFMTA

Estimated Average Increase in Youth Rider per Bus

Using the SFMTA's model of calculating the average number of people at its maximum load point for each bus route during certain time periods, the Budget and Legislative Analyst estimated the average number of youth riders *above capacity* at certain times of the day, if Muni fares were waived for youth. However, the Budget and Legislative Analyst notes that the actual number of additional youth riders on a bus could vary at different peaks within each time period.

¹⁵ The total weekday service hours refers to the total hours in which all bus routes and rail lines are in service in one 24-hour period.

In the low growth scenario (assuming a 2.7 to 8.1 percent increase in overall ridership), the average number of additional youth riders above capacity ranges from one to four riders on a bus with a capacity of 54 passengers. In the high growth scenario (assuming a 6 to 18 percent increase in overall ridership), the average number of additional youth riders above capacity ranges from one to four riders on a bus with a capacity of 54.¹⁶ These estimates are average increase over a time slot of several hours. At certain times during those time slots, the impact on a particular bus could be higher, such as right after school lets out, and lower such as during the periods before school lets out.

According to SFMTA, while the impact of additional youth riders per bus may appear small, buses have finite capacities. The “tipping point” of passengers on a transit vehicle, after which at least one additional bus needs to be added to maintain reasonable service standards, was estimated to be reached in the bus routes listed in Figure 5 above. The “tipping points” in these routes range from 54 to 80 passengers, including those standing. Because whole buses must be added to maintain these service standards, even if for a “seemingly modest number of additional riders,” SFMTA believes total service hours is the best indication of service impacts, not average additional riders per vehicle.

Estimated Increase in SFMTA Maintenance and Operations

SFMTA advises that it has experienced increased crowding and a need to increase capacity in recent years but that it has not been able to provide needed additional service hours due to the allocation of resources. Further, a majority, or 67.5 percent of the routes listed in Figure 5 above, are already operating at 100 percent or more of capacity, which includes riders seated and standing in the bus or rail car. Therefore, the Budget and Legislative Analyst is disclosing SFMTA’s formulaic estimate of additional maintenance and operations costs based on its projection of additional service hours associated with the fare waiver program for youth. However, given the fact that the SFMTA reports it has not increased service hours and related maintenance and operations costs in recent years associated with increases in ridership, the Budget and Legislative Analyst concludes that it is likely that SFMTA will not allocate resources to provide additional service hours on lines that are impacted by increased youth ridership if youth fare were waived.

Using SFMTA’s estimates for vehicle operations¹⁷, vehicle maintenance¹⁸, and non-vehicle maintenance¹⁹ costs per service hour, by mode of transportation²⁰, the Budget and Legislative Analyst estimated that a Muni fare waiver program for all youth 24 hours a day, seven days a week would result in an additional \$5,972,347 in maintenance and operations costs. This estimate is the midpoint between the low and high estimated additional maintenance and

¹⁶ Buses with greater capacity were included in the analysis, but their projected excess capacity was lower than that for buses with capacity of 54.

¹⁷ Vehicle operations costs include salaries for operators, transit supervisors, and schedulers; fuel, supplies, and parts to operate the vehicle.

¹⁸ Vehicle maintenance costs include salaries for maintenance staff, supplies and parts associated with maintaining vehicles.

¹⁹ Non-vehicle maintenance costs include maintenance of tracks, overheads, and subway system, including related maintenance staff.

²⁰ The modes of transportation included in this analysis are light rail vehicles, trolley buses, and motor buses.

operation costs. By using the midpoint estimate between the low and high scenarios, the Budget and Legislative Analyst addresses the following factors:

- Based on a limited survey, Portland, Oregon's TriMet reported youth ridership increased by only 15 percent at one surveyed high school after implementing its youth fare waiver program;
- Though monthly pass sales decreased after Muni fares were increased, not all of those "lost" passengers necessarily represent an increase in ridership if youth fares are waived. Some youth that stopped purchasing monthly passes may still be using the system, either paying cash fare as they go or riding Muni while evading fares. Only the subset that stopped riding Muni altogether would represent increased ridership;
- Some increase in ridership could occur from parents who may drive to work so they can take their children to school, but may opt to take Muni if their children could ride at no cost; and,
- Some parents and youth may continue to choose modes of transportation other than Muni, regardless of the fares, because of personal preferences or for other reasons.

Increase in Other Maintenance Costs

The Budget and Legislative Analyst agrees with SFMTA's assertion that there would be an increase in other maintenance costs needed for trash clean up, graffiti removal, and routine maintenance associated with the increase in ridership resulting from a waived fare for youth. While Portland, Oregon's TriMet representatives report that there was no increase in graffiti incidents after the implementation of free youth fares, New York MTA representatives reported hearing anecdotes from system operators that there had been an increase in graffiti on buses servicing youth and schools. The Budget and Legislative Analyst concurs with SFMTA's estimate of \$500,000 annually in increased other maintenance costs associated with the program. This amount is separate from any estimated maintenance costs associated with additional services to accommodate overcrowded buses, as discussed above. The \$500,000 cost is included in our net annual cost estimates for a fee waiver program

KEY ASSUMPTIONS FOR COST-BENEFIT ANALYSIS

Though several assumptions were made to determine the existing revenues and costs that would be affected by waiving Muni fares for youth, additional assumptions had to be made as part of this cost-benefit analysis. These assumptions are related to the total population that would take advantage of a Muni fare waiver for youth; revenue related to adult ridership and youth fare evasion; additional costs or cost savings related to fare enforcement and additional maintenance costs; and costs associated with youth using the Clipper Card to verify eligibility for the free fare program.

➤ **Muni Youth Ridership would Moderately Increase from the Existing Muni Youth Ridership**

Based on previous studies on Muni ridership, the Budget and Legislative Analyst estimates that there are currently 36,600 youth riders on Muni per month, or approximately 15 percent²¹ of all 240,000 Muni passengers per month.²² Based on data provided by SFMTA, 18,000 youth purchase monthly passes, whereas the remaining 18,600 either pay cash fare or evade fares. Based on a SFMTA study showing that 10 percent of riders in the time slot between 2 to 4 pm did not have proof of payment, or evaded fares, the Budget and Legislative Analyst estimates that 16,740 youth pay cash fare and 1,860 evade fares.

The Budget and Legislative Analyst based this cost-benefit analysis on existing Muni youth ridership and assumed an increase in youth ridership resulting from Muni fares being waived for youth. This approach is consistent with the experiences of other cities that have provided free fare to passengers, including Portland, Oregon and New York City's experiences with their free or reduced youth fare programs.

Clipper is able to provide the City some limited data on youth ridership by month. This data includes the total number of boardings within a month and includes trips taken using monthly passes, cash fares and ridebook products. This data currently cannot be disaggregated by bus/rail route or time of day, but SFMTA noted that they hope to have such data capability within two to three years.

Based on data provided by the Metropolitan Transportation Commission, boardings with the use of a Youth Clipper Card have averaged approximately 227,000 boardings per month over three months from April through May of 2011. This data probably does not provide an accurate depiction of the total number of SFMTA youth riders because during these months, youth could continue to pay cash fare, purchase paper monthly passes, or receive free monthly youth passes through the Youth Lifeline Program. June 2011 was the first month in which all youth were required to use a Clipper Card, but the 218,000 youth boardings for the month is low given the end of the academic school year. Total youth boardings in September and October of 2011 would give a more accurate account of youth ridership.

By limiting analysis to a population based on a modest increase in the existing ridership, as a result of a youth fare waiver program, as opposed to the total 75,000 youth age 6-17 that reside in San Francisco²³ or 53,000 youth enrolled in SFUSD,²⁴ the Budget and Legislative Analyst

²¹ Based on ten-year data provided by SFMTA, the Budget and Legislative Analyst assumes that SFMTA has average daily weekday boardings of 700,000. The Budget and Legislative Analyst estimates that there are 233,333 (700,000 divided by 3) Muni riders per day based on an assumption that each rider boards a Muni vehicle three times a day, on average, including transfers on one trip. Therefore, the estimated number of youth riding Muni on a monthly basis is 36,600, or 15 percent, of 233,333 total Muni riders.

²² The estimate of youth riders includes private school and SFUSD students. The Budget and Legislative Analyst assumes that private school students would either obtain a waived fare Clipper Card or a student identification card from their private schools.

²³ The estimate of 75,000 youth residing in San Francisco only includes youth 6 to 17 years of age and is based on 2010 census data.

²⁴ The estimate of 53,000 youth enrolled in SFUSD is based on enrollment data as of October, 2010.

acknowledges that a majority of students may not change their behavior and mode of transportation to school, even if public transportation to school were free.

➤ **SFMTA would Retain Cash Fare from non-Resident Youth who do not Attend School in San Francisco**

If youth must obtain a Youth Clipper Card to verify eligibility for waived youth fare on Muni, then SFMTA would retain cash fare revenue from youth who do purchase Youth Clipper Cards, such as youth who do not frequent Bay Area transportation systems.²⁵ The Budget and Legislative Analyst assumes that SFMTA would retain approximately four percent of its current cash fare, or \$132,581 from such riders. This amount is incorporated in our net cost estimates of a fare waiver program for youth.

➤ **Adult Ridership is not Projected to Decline**

SFMTA asserts that overcrowding on Muni as a result of waiving youth fare would lead to existing riders choosing alternative forms of transportation, and therefore a reduction in fare revenue from adult and senior riders. However, based on the reported experiences in Portland, Oregon and New York City, where such a decrease in adult ridership did not occur, the Budget and Legislative Analyst assumes that there would not be significant changes to ridership and fares from adult and senior riders after the implementation of a youth fare waiver program.

➤ **Revenue from Fare Evasion Citations would not Change Significantly**

In 2010, 550 citations were issued to youth for fare evasion, with each citation resulting in a fee of \$113. Assuming that the number of citations issued in 2010 is typical for any year, each citation is paid in a timely manner and does not result in additional fees for late payment, the Budget and Legislative Analyst estimates that SFMTA receives \$62,150 in annual revenue from fare evasion citations to youth.²⁶ The implementation of a youth fare waiver program would result in the loss of this annual revenue. However, the Budget and Legislative Analyst assumes that such revenue from fare evasion citations to youth would be offset by new fare evasion revenue from citations to young adults (ages 18 and older) attempting to ride for free. It is possible that revenue from fare evasion citations could increase after the implementation of a youth fare waiver program.

➤ **Fare Enforcement Costs would Decrease**

According to the SFMTA, a cost-benefit analysis of a youth fare waiver program should include an assumption that fare enforcement costs would increase by 10 to 15 percent. This assumption is based on data provided by the San Francisco Police Department on 2010 Muni-related arrests,

²⁵ According to SFMTA, because the Clipper Card is a regional transportation card, youth from other cities in the Bay Area would be able to use their Youth Clipper Cards for waived fares on Muni. The Clipper Card vendor would not be able to provide separate youth fare programs to San Francisco youth residents and students only.

²⁶ While the Budget and Legislative Analyst assumes that all citations are paid in a timely manner, without late fees and/or unpaid citations, the SFMTA notes that this is not necessarily the case. Because all juvenile citations are processed through the Courts, the SFMTA is unable to provide data on collection rates, including late fees collected.

in which 48 percent were juveniles. SFMTA asserts that Proof of Payment (POP) staff would need to be increased to address safety and other violations in the system, other than fare evasion.

The Budget and Legislative Analyst, however, assumes that additional POP staff would not be needed, based on the reported lack of changes in fare enforcement deployment and costs in Portland, Oregon and New York City after the implementation of their youth fare waiver programs. Additionally, joint SFUSD and SFMTA efforts for outreach and public education regarding behavior and safety issues on Muni could alleviate safety concerns.

Further, in a 2009 Proof-of-Payment Study conducted by SFMTA, approximately 10 percent of the ridership during the weekday “school” period from 2 pm to 4 pm, did not have valid proof-of-payment, or were evading fares. Based on discussions with POP staff, the Budget and Legislative Analyst assumes that fare enforcement costs would decrease as the need to interact with youth regarding fare evasion decreases. The reduction in cost is estimated to be \$300,000, or 6 percent, of the estimated \$5,000,000 annual budget for the POP program that can be attributed to youth interactions. This percentage is based on the assumption that the fare evasion program costs attributable to youth are equal to the six percent proportion of SFMTA fare revenue attributable to youth.

The Budget and Legislative Analyst assumes that all MTAP costs are attributed to youth ridership on Muni because they are deployed on school specific bus routes and stops. Based on the average projected increase in youth ridership from 2 to 4 pm, or 13 percent, the Budget and Legislative Analyst estimates that MTAP costs would increase proportionately by 13 percent, or \$130,000.

Even with the increase in MTAP costs, fare enforcement costs are estimated to decrease by a net total of \$170,000.

➤ **Clipper Card Costs would be Incurred if Used to Identify Youth Eligible for Fare Waiver**

If SFMTA uses the Clipper Card to verify youth eligible for free fares instead of paper passes or student identification cards, transaction costs would be charged by the Clipper Card contractor. Based on a the estimated 30 percent increase in youth ridership, which represents an increase of 4.6 percent over the current estimated 240,000 weekday Muni riders, the increase in Clipper Card transaction costs is estimated to be \$273,430, or 4.6 percent of existing transaction costs for Clipper Card users.

CITIES WITH FREE PUBLIC TRANSPORTATION FOR YOUTH

While several cities provide free or reduced public transportation fares for youth, two cities with public transportation systems similar to San Francisco’s, Portland, Oregon and New York City, currently waive public transportation fares for targeted subsets of youth. Information on those cities’ youth fare waiver programs was collected for this analysis.

Portland, Oregon

Beginning in the FY 2009-10 school year, all Portland Public Schools high school students (grades 9-12) may receive a student bus pass and ride any of the TriMet Transit Agency buses 24 hours a day, seven days a week during the school year. These students are provided student identification cards with a special transit logo. Otherwise, a monthly youth pass for those between the ages of 7 and 17 may be purchased for a discounted rate of \$26 per month. The fare waiver program serves approximately 13,000 students and is estimated to cost \$3.4 million a year, based on TriMet's estimated lost revenue.²⁷ TriMet is able to fund the fare waiver program with funding from the Portland Public Schools district and a State of Oregon business energy tax credit program.

According to TriMet representatives, there was not a large increase in youth ridership after the implementation of the program because most of the students that wanted or needed to ride public transportation already did so, including low-income students that were already receiving free transportation passes through the school district. However, one limited study conducted by TriMet showed that ridership increased by approximately 15 percent for one high school.

The increased youth ridership resulted in TriMet including school "tripper buses", or additional bus service to accommodate school students and personnel, on four routes that were already crowded and serviced schools.²⁸ No additional buses were required for purchase, but the additional cost for school tripper services is reported to be approximately \$130,000 per year. According to TriMet, with the exception of the routes requiring tripper service, the majority of the transit routes were able to absorb any increases in youth ridership.

Additionally, TriMet notes that there were no noticeable increases in graffiti or behavior problems after the implementation of the program. Further, according to TriMet, there were no changes in the cost or deployment of fare enforcement officers.

New York City

Since the late 1990's, the New York Metropolitan Transportation Authority (MTA) has been providing public transportation for waived or reduced fares to eligible students, a majority of which are middle and high school students. Schools distribute special MetroCards with a magnetic strip to students based on their grade level and the distance they live from their schools.²⁹ The MetroCards allow students to ride on subways and buses up to three times per day

²⁷ If 13,000 students purchase monthly passes for \$26 per month during a 10-month school year, then TriMet would receive approximately \$3.4 million in revenue from youth passes (13,000 x \$26/month x 10 months).

²⁸ According to the Code of Federal Regulations 49 CFR Part 605 Section 605.3, a tripper service is a regularly scheduled mass transportation service, which is open to the public, and is designed or modified to accommodate the needs of school students and personnel, using various fare collections or subsidy systems. Buses used for tripper service must be clearly marked as open to the public, may not carry special designations, and must stop and operate along regular service routes.

²⁹ New York City students in grades K-2 who live at least half a mile from their school, students in grades 3-6 who live at least one mile from their school, and students in grades 7-12 who live at least 1½ miles from their school are eligible for free transportation, either through free MTA student MetroCards or yellow bus services. Students in grades K-2 who live less than half a mile from their school, students in grades 3-6 who live between half a mile to one mile from their school, and students in grades 7-12 who live between one and 1½ miles from their school are eligible for half fare public transportation. Students in grades 3-12 who live less than half a mile from their school are not eligible for either free or reduced fare transportation.

on school days, from 7 AM to 10 PM. In 2009, there were approximately 585,000 students with student MetroCards.

New York MTA estimates that the program costs \$214 million per year based on estimated lost revenue. The State of New York contributes \$25 million while the New York Department of Education contributes \$45 million in funding for the program. The New York MTA uses dedicated taxes, regional taxes, and fares to fund the remaining \$144 million in estimated lost revenue for the fare waiver or reduced fare program for students.

AREAS FOR FURTHER ANALYSIS

This analysis did not include related capital costs associated with vehicles and infrastructure. According to SFMTA, additional investment in vehicles and infrastructure would be required to absorb projected growth in youth ridership, overall population and employment. Additional analysis is needed to calculate these costs.

Additional analysis is also needed to determine alternative sources of revenue to offset the estimated lost revenue and additional costs.

CONCLUSION

This report presents a cost-benefit analysis of waiving Muni fare for youth, ages 5-17, for 24 hours a day, seven days a week. The Budget and Legislative Analyst estimated lost revenue, additional costs and cost savings from fare enforcement and Clipper Card contract costs, as well as additional maintenance and operational costs associated with an estimated increase in youth ridership. The Budget and Legislative Analyst suggests that further analysis should be conducted on the impact of a fare waiver program on SFMTA capital and infrastructure needs, as well as alternative sources of funding for the program.