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Resources, Community, and  
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August 30, 1996

The Honorable Frank R. Wolf  
Chairman, Subcommittee on Transportation  
and Related Agencies  
Committee on Appropriations  
House of Representatives

Dear Mr. Chairman:

This report responds to your request for updated information on the Bay Area Rapid Transit District's (BART) proposed \$1.167 billion extension to the San Francisco International Airport. The report updates our May 31, 1996, report,<sup>1</sup> in which we described (1) the actions the Federal Transit Administration (FTA) must take before agreeing to fund the proposed project and the schedule for completing them; (2) the project's estimated cost and factors that could affect them; and (3) the project's finance plan, including assumptions that could affect its viability. At your request, this report also describes ridership estimates for the project.

In summary, we found the following:

- In our May report, we noted a number of actions that FTA needed to take before it could sign a funding agreement for the project. These actions included approving the final environmental impact statement (EIS) and finance plan and providing a status report on the project to the House and Senate Appropriations Committees 60 days prior to signing the funding agreement. FTA approved the final EIS for the project on May 31, 1996, responded to the Appropriations Committees on August 19, and accepted BART's finance plan in late August. However, the agency still must issue a record of decision (ROD) before agreeing to fund the project. Currently, FTA

<sup>1</sup>Mass Transit: Actions Needed for the BART Airport Extension (GAO/RCED-96-176, May 31, 1996).

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expects to issue a ROD by the end of August, which will allow BART to obtain a wetlands permit and initiate final design during September. After taking these actions, FTA expects to sign a funding agreement with BART by late October, and BART expects to begin construction immediately thereafter.

- In our May report, we noted that BART's ability to complete the project within its \$1.167 billion cost estimate depended on whether BART adequately included contingencies and inflation adjustments in the estimate and whether it achieved expected savings from using innovative contracting procedures. BART still estimates the project will cost \$1.167 billion, which includes its estimated 15 to 20 percent cost savings from using design-build contracting procedures. However, in response to concerns raised by FTA's oversight consultant, BART has adjusted project costs to account for inflation to 1999—the midpoint of construction. As a result, the inflation component of the project's budget has increased by \$33 million. To offset this increase and stay within its total budget for the project, BART reduced the amount set aside for design contingencies, identified savings in purchases of rights-of-way, and will identify cost reductions through value engineering.<sup>2</sup> With a lower amount set aside for contingencies, anticipated savings from design-build contracting procedures become more important to keep the project within its current budget.
- BART's finance plan still anticipates receiving \$750 million in federal funding for the project and \$417 million from the San Francisco airport, the state, and local sources. Recent developments among the nonfederal contributors have clarified their financial commitments to the project. First, in June 1996, the governor approved state legislation that amended BART's statute, thereby enabling BART to pledge its own revenues as a source of collateral for its borrowing program. As a result, BART can obtain more favorable interest rates and has an additional source of revenue to use if financing costs exceed the current estimate of \$40 million or if the project's other costs increase. Second, in June, the San Mateo County Transit District (SAMTRANS), a local transit agency and cosponsor of the project with BART, agreed to accelerate its financial contribution to the project, which could reduce the potential impact of federal appropriations taking longer than expected. Finally, in July, the San Francisco airport identified revenue bonds as its source of funding for the project and has sought the necessary approval from the Federal Aviation Administration.

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<sup>2</sup>Value engineering is the formal technique by which contractors or independent teams identify methods for constructing projects more economically.

- The Bay Area's Metropolitan Transportation Commission (MTC) estimates that the airport extension project will result in a net gain of 29,500 daily customer boardings (entrances only) to the region's mass transit system by 2010. This includes 39,600 additional boardings to the BART system and 100 to the airport's planned light rail system, but 2,800 fewer boardings for Caltrain (the commuter rail operator), and 7,400 less for SAMTRANS. According to estimates in the EIS, 84,800 daily passengers will use the new line (enter or exit a station) by 2010. However, these estimates do not reflect BART's recent fare increases and future stations' surcharges, which will lower the daily level of passengers to about 78,100 people.

### BACKGROUND

When the BART system opened in 1972, transportation planners envisioned a transit system that would bring travelers and airport employees into the San Francisco International Airport. These plans began to take shape in 1991, when the Congress authorized an extension of the BART system to the airport as part of the Intermodal Surface Transportation Efficiency Act of 1991. In the act, the Congress authorized \$568.5 million for two BART projects and one light rail project in Santa Clara county. The act directed the Secretary of Transportation to fully fund the BART airport extension project and, if necessary, use the unobligated balance in the Mass Transit Account of the Highway Trust Fund.

Since 1991, MTC and BART have studied numerous alternatives for linking the BART system with the airport. In 1992, MTC issued a draft EIS that proposed linking BART's and Caltrain's systems with the airport's light rail system at one intermodal location just outside the airport. However, to respond to local concerns about environmental impacts and ridership forecasts, BART studied new alternatives, and in April 1995, issued a new draft EIS that proposed bringing BART directly into the airport via a subway. However that alternative was too costly and created severe impacts on the airport's operations.

In September 1995, BART issued its most recent draft EIS, which proposed an aerial (elevated), rather than subway, approach into the airport. This new alternative consists of about 8 miles of straight mainline track running south from the existing end of the BART line at the city of Colma to the city of Millbrae, with an incorporated "Y-stub" aerial line diverging from the mainline track and running southeast into the airport, then southwest out of the airport to Millbrae. The aerial line would include a transit station adjacent to a planned new international terminal at the airport and would be linked to the airport's planned light rail system to transport passengers through the airport.

**ACTIONS FTA MUST TAKE BEFORE SIGNING A FUNDING AGREEMENT**

In May 1996, we reported that although the Department of Transportation had announced its intention for FTA to sign a funding agreement with BART, FTA still had to provide a number of assurances before the agreement could be concluded. Specifically, FTA had to ensure that BART developed sound environmental plans and secured the necessary financing to build the project. In addition, FTA was preparing its response to a request from the House and Senate Appropriations Committees that it certify, 60 days prior to signing a funding agreement, that BART's environmental and finance plans were reasonable and that various transit alternatives had been considered to meet the Bay Area's future transportation needs. At the time of our prior report, it was unclear if FTA could report to the Congress by August 1996—60 days before it planned to sign a funding agreement.

FTA approved BART's final EIS on May 31, 1996, and published on June 14, 1996, a notice that the EIS was available for review and comment in the Federal Register. The publication triggered a 30-day public comment period, which closed on July 15, 1996. With the closure of the public comment period, FTA officials are finalizing the ROD for the project, which will outline FTA's basis for selecting the project alternative and identify the approved environmental mitigation for the project. FTA plans to issue the ROD by the end of August—2 weeks later than originally planned. According to FTA officials, because of the project's complex and controversial nature and the detailed comments they received, the officials are taking additional time to prepare the ROD. Issuing the ROD will enable BART to obtain a wetlands permit from the U.S. Army Corps of Engineers, which BART must do before it can begin construction affecting wetlands, finalize the project's engineering plans, purchase rights-of-way, and relocate utilities.

In addition to reviewing and approving BART's environmental plans, FTA must also review and accept BART's finance plan. Since our May report, FTA has required BART to revise the finance plan to identify a means to pay for cost growth resulting from inflation and potential increased borrowing costs. The details of these new developments are discussed later in this report. FTA accepted the finance plan in late August and expects to sign a funding agreement by late October. After obtaining the funding agreement, BART plans to begin construction.

These actions have allowed FTA to resolve some of the concerns cited in the Appropriations Committees' fiscal year 1996 conference report. For example, FTA has finalized the EIS and required BART to refine its finance plan. As a

result of these refinements, FTA issued its response to the committees on August 19, 1996, which provided them an updated status of the project. According to FTA officials, they will not sign a funding agreement earlier than October 19, thereby providing the committees with the full 60 days they requested for reviewing the proposed project's status.

### CONSTRUCTION COST ISSUES

In our May 1996 report, we noted that BART's ability to complete construction of the project within the \$1.167 billion cost estimate depended on whether (1) BART adequately included contingencies and cost escalations in its finance plan and (2) innovative contracting procedures, known as design-build contracting, produced expected savings. On the first issue, we found that BART's cost estimate for the project did not account for 2 years of anticipated inflation and was therefore understated by \$40 million. The understatement occurred because BART calculated its costs based on issuing construction contracts in 1997, rather than at the midpoint of construction in 1999. On the second issue, we found that BART's projected savings of 15 to 20 percent through design-build contracting procedures could be offset by increased borrowing costs should federal appropriations be less than specified in BART's draft finance plan.

Since our May report, BART's cost estimate of \$1.167 billion for the project has not changed. However, as FTA required, BART has accounted for 2 years of additional inflation and escalated its costs to the midpoint of construction. As a result, BART determined that it needed to add \$33 million in inflation adjustments to the project's cost estimate.<sup>3</sup> To pay for this escalation and stay within the current budget, BART reallocated funds within the existing budget and reduced the amount for design contingencies from \$66 million to \$51 million. BART has also identified cost savings for rights-of-way purchases and is employing value engineering for all its construction contracts.

BART remains strongly committed to the design-build approach and believes that it will achieve significant costs savings. FTA officials stress that the full benefit of the design-build approach is contingent on BART's receiving funding as currently planned. As discussed later, the level and timing of federal appropriations has the potential to impact the amount of financing costs BART incurs and affect the project's total cost. FTA has reviewed BART's cost

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<sup>3</sup>BART officials noted that the difference between the \$40 million inflation adjustment identified by FTA's consultants and the \$33 million adjustment that BART made results from BART's assumptions of lower inflation.

estimates and determined the amount BART has set aside for contingencies is adequate. However, with BART's lowering the amount for design contingencies, achieving the expected design-build savings becomes more important as the means to keep the project within its estimated total cost.

#### ISSUES RELATED TO THE PROJECT'S FINANCE PLAN

In our May 1996 report, we noted that BART's finance plan stated that FTA's proposed share of the project's total cost was \$750 million. The remaining \$417 million of the project's cost would come from the San Francisco airport (\$200 million), the state (\$108 million), SAMTRANS (\$99 million), and MTC (\$10 million). We noted four factors that could affect the viability of the finance plan. First, the project's borrowing costs could grow if BART does not receive federal appropriations at the rate expected in the finance plan. Second, the California state legislature needed to amend BART's statute to allow BART to pledge its own revenues as a source of collateral for a borrowing program. BART must establish a borrowing program because expenses are expected to exceed revenues during the height of construction and produce cash shortfalls of up to \$240 million. Third, all of the state and local contributors faced financial limitations that had capped their pledges to the BART project. Finally, the airport had yet to identify how it intended to fund its \$200 million contribution.

BART's August 1996 finance plan specifically addresses a number of concerns raised in our May 1996 report. The August 1996 finance plan contains no changes to the amounts to be contributed to the project by each federal, state, and local entity. BART's finance plan continues to assume federal appropriations of \$51 million in fiscal year 1997 (the amount in the President's fiscal year 1997 budget request), which will rise to \$121 million in fiscal year 2001. In contrast, the House provided the BART and Santa Clara County projects a combined total of \$35 million, and the Senate provided a combined total of \$20 million. The final amount will be agreed to by the conference committee. Therefore, borrowing costs may exceed the \$40 million currently estimated in the finance plan. However, on June 21, 1996, BART secured the needed change in California law that had prohibited it from using its own funds for extending service outside its district. As a result, BART can use existing surcharges at the Daly City station and a proposed premium (\$1.50) surcharge at the airport station to serve as a secondary source of collateral for its borrowing program. These changes will remove potential legal barriers to financing the program and provide additional collateral to help BART obtain favorable interest rates. The change also allows BART to use its own funds to cover any borrowing costs that exceed the \$40 million currently estimated in the finance plan or if the project's other costs increase. Should additional funds become

necessary, BART has identified other sources, including advertising and concession revenues from airport extension stations, revenues from joint development activities, and parking fees at BART garages.

While BART now has the potential for contributing funds to the project, the remaining local contributions are still capped. However, two changes have occurred among local contributors that affect the project's financing. In June 1996, BART and SAMTRANS amended their interagency agreement to allow SAMTRANS to contribute more funds earlier than planned. Accelerating SAMTRANS' contribution will help contain costs associated with the borrowing program if federal appropriations are slower than planned. Second, the San Francisco International Airport has now identified revenue bonds as its source of funds for the BART project. As a result, the airport has requested a decision from the Federal Aviation Administration on the use of airport revenues for the project. Under the airport's agreements with the airlines, it cannot formally approve its financial commitment to the project until September 2, 1996. BART and the airport expect to execute a memorandum of understanding on the project's budget, schedule, construction, insurance, maintenance, and operating responsibilities by September 30, 1996.

#### RIDERSHIP FORECASTS AND IMPLICATIONS

Since our May report, you asked us to describe the ridership estimates for the project. Since May, we have reviewed the estimates contained in the final EIS to describe the effect of the project on mass transit throughout the region and the degree to which the patrons will utilize the new transit line.<sup>4</sup> Our review shows that the \$1.167 billion project is expected to generate 29,500 new daily passenger boardings throughout the region by 2010. In addition, BART estimates the extension will be used at the rate of approximately 78,100 combined daily entrances and exits at stations between Colma and Millbrae.

To describe how the BART airport extension will affect other transit operators in the region, we reviewed MTC's forecasted changes in passenger boardings for the year 2010. Boardings are the total number of patrons entering transit vehicles from all sources, including from transfers, from automobiles, and by foot. The four transit operators of concern in the final EIS are BART, Caltrain, SAMTRANS, and the Airport Light Rail System. All measures of change with respect to passenger boardings were made in comparison to the Transportation

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<sup>4</sup>The ridership forecasts were prepared by MTC and included in the draft and final EISs.

Systems Management alternative. This alternative serves as a baseline against which FTA compares project alternatives, and includes currently planned or funded major transportation improvements but does not include the BART extension south of Colma. Comparisons made to the Transportation Systems Management alternative are a key feature in FTA's evaluation of a transit system's productivity.

According to MTC's projections for the year 2010, as a result of the airport extension, BART will enjoy an increase of 39,600 passenger boardings per day, when compared to those for the Transportation Systems Management alternative. Caltrain is projected have 2,800 fewer daily boardings, and SAMTRANS is projected to have 7,400 fewer daily boardings than they would have if the Transportation Systems Management alternative were selected (see table 1). The Airport Light Rail System, designed to transport people within the San Francisco International Airport, is projected to have an increase of 100 daily passenger boardings. The net gain to regional mass transit in terms of passenger boardings, as a result of the BART extension, is 29,500 new daily passenger boardings.

Table 1: Projected Effects of BART Airport Extension on Daily Passenger Boardings, 2010

Daily passenger boardings

System	Transportation Systems Management alternative	Final EIS alternative	Difference
BART	361,800	401,400	39,600
Caltrain	49,500	46,700	-2,800
SAMTRANS	92,800	85,400	-7,400
Airport Light Rail System	6,100	6,200	100
<b>Total</b>	<b>510,200</b>	<b>539,700</b>	<b>29,500</b>

Source: Jan. 1995 and June 1996 EISs, BART Airport Extension Project.

To describe the extent to which the new line extension from Colma to Millbrae will be used, we reviewed MTC's estimated daily patronage for each of the five new stations in San Mateo county (see table 2). Daily patronage is defined as the number of entrances and exits at a particular station. In the final EIS, BART estimated that in the year 2010 total daily patronage for the five San Mateo



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stations will be 84,800. Furthermore, the Millbrae Avenue station is projected to be the busiest station on the airport extension line.

Table 2: Projected Passenger Use of BART Airport Extension, 2010

San Mateo County station	Daily patronage in 1996 EIS	Daily patronage adjusted for price increases
Colma	16,200	15,100
Hickey	8,000	7,400
Tanforan	9,800	9,100
Airport terminal	17,800	15,900
Millbrae Avenue	33,000	30,600
<b>Total</b>	<b>84,800</b>	<b>78,100</b>

Source: June 1996 EIS and BART's Aug. 1996 finance plan for its airport extension project.

However, BART recently established a phased-in 45-percent systemwide fare increase and anticipates special surcharges will be applied at stations on the airport extension to pay for the system's operational costs. According to BART's August 1996 finance plan, when the impact on ridership of these surcharges and fare increases is accounted for, BART's daily patronage on the airport line will decrease from 84,800 to about 78,100, or by about 6,700. This is in contrast to revenues, which BART estimates to increase as a result of the surcharges, creating a net operating surplus of \$7.5 million by the year 2010.

#### AGENCY COMMENTS

We provided a draft of this report to FTA and BART for review. We met with FTA officials, including the Director of the Office of Planning to discuss their comments on the draft. We also discussed the draft report with BART officials, including the Deputy General Manager. In general, FTA and BART officials agreed with the facts presented in the report. The officials suggested technical and editorial changes to the report. Where appropriate, we incorporated these changes into the report.

SCOPE AND METHODOLOGY

We conducted our review from June 1996 through August 1996 in accordance with generally accepted government auditing standards. To update information on actions FTA must take before agreeing to fund the project, we obtained current environmental documents from FTA and interviewed BART and FTA Region 9 officials. To update information on the project's financing, we obtained current finance plans from BART and interviewed BART and FTA Region 9 officials. To determine expected ridership levels, we interviewed MTC and BART officials and reviewed forecasts of ridership for the project.

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As arranged with your office, unless you announce its contents earlier, we plan no further distribution of this report for 21 days after the date of this report. At that time, we will make copies available to interested congressional committees, the Secretary of Transportation, the Administrator, FTA, and the General Manager, BART. We will make copies available to others on request. If you have any further questions, please contact me at (202) 512-2834.

Major contributors to this report were Joseph Christoff, Robert Ciszewski, David Lichtenfeld, and Peter Shellenberger.

Sincerely yours,



John H. Anderson, Jr.  
Director, Transportation  
and Telecommunications Issues

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