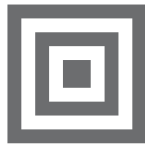


Public-Private Partnership Opportunities  
for the  
San Francisco Bay Area Rapid Transit District



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# Acknowledgements

This report has been prepared by the teams at Peyser Associates LLC, the Bay Area Council Economic Institute, and Roy Kienitz LLC under contract to the San Francisco Bay Area Rapid Transit District (BART). It is intended to serve as a broad survey of opportunities in the area of Public-Private Partnerships (P3) for BART leadership to explore.

Our writing is based on our varied experience in transportation and economic policy in the Bay Area and nationally and on research we conducted in recent months. Our research included interviews with several members of the BART staff; key leaders in the agency; and other transportation, real estate and investment experts in the region and in the federal government.

We would particularly like to thank BART General Manager Grace Crunican for commissioning this work and for making available to us her management team and staff. In addition, we are very appreciative of the efforts of our own team members in researching and writing this paper, including Beth Boehlert at Peyser Associates; Peter Luchetti, Megan Matson and Dana Marohn at Table Rock Capital; and Robert Goldsmith and Jay Mancini at G&S Realty Ventures.

We look forward to a robust discussion of our findings and recommendations.

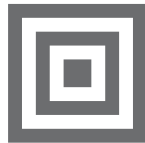
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## Executive Summary

The San Francisco Bay Area Rapid Transit District (BART) sits at a crossroads. As the 50th anniversary of its inaugural service approaches, BART faces significant challenges and opportunities. Its ridership is strong and is projected to grow substantially in the years ahead due to population growth, changing demographics and altered development patterns. While this almost certain growth is an opportunity, it presents significant challenges to an agency with constrained finances, aging infrastructure and rolling stock, and a process for developing new service that can be unwieldy.

As BART leadership seeks to plan for the future and manage its present challenges, it is clearly aware of the need to leave no stone unturned in its effort to find resources and streamline the process for improving and expanding BART service. The area of inquiry of this report is the potential for Public-Private Partnerships (P3) to help BART advance its agenda.

This report begins laying the foundation for our work by defining P3, assessing the legal and regulatory environment for P3 in the U.S., and reviewing the national and international experience in P3 for transit. We then go on to examine specific projects and programs that may be amenable to P3 approaches, and we offer our views on next steps for further exploring that potential.

### **Definition of Public-Private Partnerships**

We use a broad definition of P3 for the purposes of this paper. It includes everything from Design-Build-Operate-Maintain and Finance (DBOM-F) approaches for building new rail lines to taking better advantage of advertising opportunities. In between are a variety of approaches to delivering and financing new service and increasing revenues for BART.

### **Legal/Regulatory Environment for Transit P3**

As a matter of policy, the federal government neither discourages nor encourages P3 for transit. Federal laws, regulations and policies do, however, create some hurdles for P3 projects to clear. While these are not unlike the hurdles in front of traditional public projects, they do tend to discourage private sector participation in that they make P3 projects more difficult to enter into than strictly private projects. Our report outlines the broad array of federal requirements that are placed on P3 projects if they use federal funds. These requirements would not necessarily apply to projects without federal funding, but such projects would then be subject to California's requirements—which in many cases are just as stringent as the federal ones.

## **National and Regional Experience with Transit P3**

Experience with P3 for public transportation in the U.S. is limited when compared to other developed countries. On the operations side, there is a robust marketplace for the contracting of service to private entities. This is strongest in the realm of paratransit service, but is also growing on fixed-route service. When it comes to project delivery techniques such as Design-Build (DB), the track record is mixed—with notable successes and notable failures. With regard to project finance, opportunities have historically been limited. For decades, that was largely because demand for new transit service could be satisfied by public funding alone. In recent years, however, public funding has been flat or even down (depending on the state and region) while demand has been increasing. A few examples of private financing being a part of major transit projects have occurred as a result. On P3 for real estate development (either Transit-Oriented Development or Joint Development), there is a significant amount of experience nationally, and the techniques have been in use when real estate markets are healthy.

The Bay Area regional story mirrors that national experience. A variety of approaches that fall under the broad definition of P3 have been tried for building new service, developing property along BART alignments and raising additional revenue. These efforts have created a foundation of experience on which BART can build going forward.

## **Specific P3 Opportunities for BART**

### ***BART Extension in the Geary/Fulton Corridor***

Contemplated for more than 50 years, a BART line running in the Geary corridor from Market Street to the Richmond District would serve one of the busiest transit markets in the country that does not now have rail service. Requiring tunneling for most or all of its 6 miles in length, this would be a very expensive project. This report does not assess the potential for assembling all the financial resources required to build the project. Public funding will provide a majority of the project cost under any scenario, and it is not in our scope to review the potential for raising those funds. We do discuss some of the options for building BART service in the corridor and how they might affect the potential to build interest from the private sector to participate financially in the development of the project.

If the project is to be developed as a BART extension that will integrate with the BART system, the potential for private sector operations and maintenance is very constrained. There is some potential that private financing could support the delivery and maintenance of rolling stock, but that is made more difficult to the extent that the new service is fully integrated into other BART lines and by the difficulty in obtaining dedicated space in maintenance facilities for cars serving the Geary line.

With regard to enhanced project delivery, a Design-Build approach for the project could generate significant savings in both money and time. It could also help shift some of the risk of the project to the private sector. This is of significant benefit on any project involving so much tunneling.

We find that the greatest potential for private sector financial assistance to the project would come through capturing the value of real estate development that could occur along the alignment once the project is in service. One potential barrier to this could be community opposition to additional development.

In order for a P3 approach to make a meaningful contribution to this project, we believe a private sector partner would need to have access to significant revenue from new real estate development, premium fares, or some other revenue stream not currently available and/or would need to have the authority to decide on design, construction and operational approaches that would save capital and operating costs. Providing these opportunities would be challenging, and it is difficult to develop a more definitive analysis without more information.

### ***BART Extension to Livermore***

As with the Geary corridor in San Francisco, a BART extension to Livermore in Alameda County has been on the drawing board for more than 50 years. Although its financial plan suffered a blow at the polls in November 2012, the project is still high on the regional priority list. BART is conducting an Environmental Impact Review (EIR) on Phase 1 of this project.

While an extension of “traditional” BART service is the preferred alternative being discussed, the EIR is also reviewing another option that has received some attention and support: a Diesel Multiple Unit (DMU) service that would require a cross-platform transfer at the Dublin/Pleasanton station. Some project supporters believe this option is desirable because it would be cheaper and faster to build and would open up the potential for less expensive private operation of the service. That scenario could create a potential for a Design-Build-Operate-Maintain and Finance approach.

If the DMU option does not advance, there is still a potential for a Design-Build project delivery approach that may yield some savings in money and time.

At present, the development of the EIR and the effort to assess the potential for a successful referendum on project funding are the most important and timely project activities. While those are ongoing, we recommend that BART consider a fatal-flaw analysis of the potential for a DMU-type service on the extension. The analysis would assess two key issues: the potential that labor protection provisions in the Federal Transit Act would give BART’s unions a veto over such a project if it received federal funding and included a

significant P3 component, and the potential that the lower ridership inherent in a DMU project would make the project non-competitive in the increasingly competitive federal funding process.

### **Vehicle Acquisition**

BART has 410 new train cars under contract. These are part of a planned purchase of 775 cars—representing a replacement of all the cars in the current fleet and an expansion of the fleet. BART is still seeking financing for the full balance of the planned purchase.

The P3 approach that would produce the greatest financial participation from a private partner would be one where the private entity—most likely a joint venture—would finance, build, test, operate and maintain the vehicles. Under this arrangement, BART would make lease payments to the private entity over the term of the agreement. We point out some of the more obvious barriers to this approach. There is also a potential for various forms of leasing arrangements that would not create such a dramatic change in normal operation and maintenance of the cars.

BART may wish to consider putting out a Request for Interest to the industry to get the benefit of some thinking from those who may wish to participate in a future procurement.

### **Parking**

Parking at transit stations is another possible opportunity for P3 at BART. Parking management by the private sector is a large industry, and P3 agreements are becoming increasingly common. Many public agencies that have managed their own parking for years—from hospitals to universities to entire cities—are choosing or considering P3s.

Estimating the magnitude of possible revenue gains from different forms of parking P3 would require a complex site-by-site analysis that is beyond the scope of this report. Each of the 32 BART stations that offer parking operates in what is essentially its own market, and each would have to be analyzed individually to determine a revenue-maximizing rate structure. That said, net revenue gains for the agency are unlikely to be large in relation to the size of the agency's needs. Parking charges currently generate on the order of \$16 million per year at a cost to BART users ranging from free to \$5 per day. It is not implausible that the market could support raising fees sufficiently to double that revenue. While this is not a significant amount of money when compared to BART's overall needs, it is a good source of ancillary revenue.

We recommend that BART review its policies with regard to parking in order to determine if it is palatable to take the steps that would make P3 options viable.



### ***Infill Station Development***

Regional planners and BART staff have identified a number of locations on the BART system where new stations might be appropriate. Each potential location brings its own unique set of challenges in terms of current property ownership, local economic markets, community attitudes, local political leadership and other factors.

In order to explore further the potential for using P3 to support infill station development, BART staff who work on real estate, transit systems development, and legal and government affairs issues might work together to select one or two of the already identified potential station sites for a deeper exploration of how to involve the private sector. Once the potential site or sites are selected, a workshop that brings in outside players from the private sector and the community might be an effective way to validate the P3 potential and explore next steps.

### ***Advertising***

BART performs well at generating revenue from system advertising when compared to other public transit agencies on a revenue-per-rider basis. This has been achieved using fairly traditional methods—mostly through posters on trains and in stations. The good revenue performance of the system is testimony to the value advertisers place on reaching BART’s riders.

In this report, we cite some successes that other transit agencies are having with techniques such as advertising on farecards; video in stations, on trains and at station entrances; wrapping of trains; and naming rights for stations.

We recommend that BART examine the appropriateness of these innovative techniques for BART’s system and work with its existing private contractor to explore opportunities to raise additional revenue.

### ***State of Good Repair/Facilities and Systems***

BART’s state of good repair needs have been estimated to be \$14 billion. Only about half of that amount appears to be available to address the many needed repairs and replacements of existing facilities and systems. Because of the very nature of most of the systems in the BART network, P3 opportunities are limited. However, we do identify one particular area for study: station modernization. We recommend here that BART assess its station modernization plans with an eye toward identifying one or more opportunities to bring in a private partner to modernize the station. One of the approaches to doing this would be for BART’s capital projects and real estate teams to develop a short list of station modernizations that might best lend themselves to a real estate development tie-in and then seek input from the local development community as to which would be most amenable to a partnership approach.

### ***Long-Term Planning (Second Transbay Tube)***

BART and the region are looking ahead to the time when population growth and changes in demography and development patterns will require significant additional capacity to move people around the Bay Area. The 2050 plan for the region calls for significant additions to the regional transportation infrastructure, with many of those additions on the BART network. A potential second Transbay Tube is perhaps the most notable project included in that plan.

The long lead time and the magnitude, scope and complexity of a second Transbay Tube suggest that there are benefits to be gained from developing a new process through which BART would plan, procure and operate a major project using P3 techniques. Starting early to build a process that will maximize private sector involvement in the entire long-term plan is advisable, and now would be a good time to do so.

We recommend that BART create a multidisciplinary team of BART staff to work on developing an internal process for evaluating P3 options to deliver on the long-term plan and then discussing with outside stakeholders and potential P3 partners the right way to package different elements of the long-term plan for P3 participation. This team, which may have multiple reporting obligations within the agency, would exist solely to bring together both internal and external expertise and develop ideas for long-term project delivery for consideration by BART staff and leadership.

### ***Transit-Oriented Development***

BART has a large portfolio of real estate under its ownership, much of it near BART stations. This portfolio of property presents BART and the communities around BART stations with significant opportunities to build transit ridership, contribute to sustainable development and generate revenue for BART and other stakeholders.

BART is currently reviewing its portfolio with an eye toward identifying the most attractive parcels for development. This is a very positive step. While that analysis is ongoing, we believe BART should also examine its process for entering into development agreements with private partners. In order to maximize the benefit for the public sector by attracting the most advantageous development proposals, it will be useful to create a clear process for soliciting development proposals, evaluating them and working cooperatively toward an agreement. The process should spell out a professional, analytical approach to evaluating the economic and transportation benefits of each potential development for BART and for the surrounding community.

We recommend that BART convene a panel of local and national developers to meet with BART staff and develop jointly a template for a process that could be used on all of BART's Transit-Oriented Development (TOD) opportunities.



## Definition of Public-Private Partnerships

Public-Private Partnership (PPP or P3) is a term that has taken on many meanings in recent years. P3 can run the gamut from simple agreements to allow transit property to be used for revenue producing activities (e.g., advertising) all the way to a privately financed, built and operated transportation system. As a basic definition of P3, The National Council for Public-Private Partnerships uses the following:

*A Public-Private Partnership (PPP) is a contractual agreement between a public agency (federal, state or local) and a private sector entity. Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public. In addition to the sharing of resources, each party shares in the risks and rewards potential in the delivery of the service and/or facility.*

Here are some definitions of different types of P3 applicable to public transportation:

### **Design-Build**

Whereas the “standard” construction process has, for many years, been seen as Design-Bid-Build, using the alternative of Design-Build (DB) means a single contract for the design and engineering of a project as well as its construction. The entity that fulfills the contract could be one company or a consortium, and that entity assumes part or all of the risk for fulfilling the services for a fee that is fixed except for limited potential for change orders. The design-builder is motivated to work efficiently and be budget-conscious to maximize the profit from the job. The process provides a benefit to the public when the time savings and efficiencies in delivering the project outweigh any potential cost increases that might come from payments to the contractor that include profit.

### **Construction-Manager-At-Risk**

Unlike Design-Build, under the Construction-Manager-at-Risk approach, a design contract is let separately from the construction management contract. However, unlike traditional Design-Bid-Build, the construction manager (CM) is hired before the design is complete and works in collaboration with the design firm and the project sponsor to finalize design, prepare construction drawings and commence construction. During construction, the CM firm or firms act as a general contractor. At some point in the early stages (the exact

point differs from place to place) the CM team sets a Guaranteed Maximum Price. As with Design-Build, the project sponsor does have the right to change certain aspects of the project, and a decision on a process for implementing changes and assessing costs is made early on.

### **Design-Build-Operate-Maintain**

Design-Build-Operate-Maintain (DBOM) combines what are normally separate contracts into one contract with a single entity not only designing and constructing the infrastructure, but also operating and maintaining it on a long-term basis (typically 25–40 years). The construction phase of the project is financed in a traditional way with public sector funds being used to reimburse the contracting team for its costs as the contract progresses. In the operations phase, a payment schedule is negotiated that is designed to allow the operator to recover its operations and maintenance costs plus a previously agreed upon profit margin.

### **Design-Build-Operate-Maintain and Finance**

Under the Design-Build-Operate-Maintain and Finance (DBOM-F) form of P3, a private sector team performs all the functions of a DBOM team and also provides some or all of the financing for the project. When this approach is taken, the return on investment is realized by the private team in the form of project generated revenues or availability payments from the project owner. These payments are designed to reward the contractor for ensuring that service standards are met over the contract period. The contractor's risk profile therefore extends throughout the term of the operating and maintenance agreement.

### **Operations and Maintenance Concessions**

In addition to facility design and construction, P3 can also be used to provide basic transit services and maintenance. Contracts can be for a fixed fee or based on incentives for meeting service requirements or hitting performance targets. One benefit of this method is that maintenance needs and asset management are addressed on an ongoing basis as part of the fulfillment of the contract, rather than having the public sector make decisions on these matters based on budget availability or political calculations.

### **Private Contracting of Fixed-Route Transit Service**

While this approach does not necessarily lend itself to service on a rail system, there are numerous bus operators nationwide who have contracted with private companies to operate fixed-route service for them. Contracts offer varying degrees of protection for unionized workers, but all are covered by the employee protection clauses—known as Section 13(c)—of the Federal Transit Act.

### **Private Contracting of On-Demand Services**

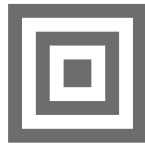
One of the most prominent forms of P3 in use in public transportation in the U.S., private contracting of on-demand services such as paratransit allows public transportation authorities to focus on their core business of fixed-route service provided by larger buses.

### **Associated Revenue Optimization**

Revenue streams to support P3 development, while derived primarily from user fees or availability payments, can also come from associated commercial activity, such as rents from on-site advertising or retail. Associated revenue optimization would apply particularly to facilities such as stations with heavy user traffic.

### **Real Estate and Transit-Oriented Development**

Real estate development associated with Transit-Oriented Development (TOD) offers a distinct window for P3 projects, where revenue from projects in close proximity to the transit asset—particularly if located on land owned by the government or agency partner—can provide a revenue stream to support the asset’s construction and operation. Revenue is typically generated through a ground lease. The focus of TOD on concentrated commercial and/or residential development within walking distance of the transit asset can magnify the opportunity due to its direct association with the transit asset and the density that is normally associated with TOD projects.





## Legal/Regulatory Environment for P3

As a general matter, the federal government neither promotes nor discourages P3 agreements for transit projects. However, the complicated web of federal law, regulation and policy creates many difficulties in pursuing P3 projects. Some of those have been addressed in recent years, but many remain. Recent provisions included in the MAP-21 legislation, however, open somewhat wider the door to an expanded P3 focus.

The choice of whether to pursue a P3 structure is entirely a local one. However, P3s are very much the exception, not the rule, and this results in a large degree of uncertainty about how a P3 structure interacts with the traditional project development process of the Federal Transit Administration (FTA).

There has been only one U.S. transit project that has used the most all-inclusive form of P3—Design-Build-Operate-Maintain and Finance—to construct a new transit line. This is Denver’s Eagle P3 Project, which is discussed in greater detail below. The P3 agreement for the project was signed in 2010 and revenue service is expected to begin in 2015.

### Normal Federal Requirements

If a local transit agency such as BART opts to undertake a transit project as a P3 and wishes to use federal funds to cover some portion of project costs, the project must comply with all normal federal requirements. The following is a list of the major requirements that apply to any investment of federal transportation funds, transit or otherwise:

- National Environmental Policy Act (NEPA)
- Americans with Disabilities Act
- Clean Water Act
- Clean Air Act
- Endangered Species Act
- Civil Rights Act, Title VI
- National Historic Preservation Act
- Davis-Bacon Act

These are not the only federal laws that can come into play, but they are the most common. Others may apply to projects built in particular locations or in other special circumstances: the Rivers and Harbors Act regulates the construction of any bridge spanning a navigable waterway; the Native American Grave Protection and Repatriation Act covers instances where Native American remains are found; and there are many more.

In addition, some requirements apply in particular to transit projects. These include the following:

### ***Buy America***

The U.S. Department of Transportation operates under law that requires that all iron, steel and “manufactured products” used in its projects be made in America. For the Federal Transit Administration, “manufactured products” includes buses and rail cars, although FTA’s rules allow some components and sub-assemblies to include foreign made materials. The procedures that define exactly how these rules are applied in practice are quite complex.

### ***Labor Protection***

Section 13(c) of the Federal Transit Act requires public transportation agencies receiving federal funds to commit to existing labor protection agreements in their expenditure of federal funding. Specifically, a new transit service or an expansion of existing service must be made in a way that does not reduce existing labor protections, including the following:

- preserving labor rights and benefits;
- continuing collective bargaining rights;
- protecting against a worsening of employment conditions;
- assuring jobs for employees of acquired mass transit systems;
- providing priority of reemployment if an employee is laid off or a job is eliminated; and
- providing paid training.

These requirements are enforced by the U.S. Department of Labor and apply regardless of whether a transit project is undertaken using traditional procurement methods or as a P3. Where transit employees have existing rights, as is the case with BART, these rights are to be protected. If there were no pre-existing collective bargaining rights or obligations, then no such rights or obligations are imposed by Section 13(c).



## **NEPA**

Any transit project that takes advantage of federal funding must comply with the National Environmental Policy Act (NEPA). In broad terms, NEPA requires an agency receiving federal funds to define a set of reasonable alternatives for a project and assess the environmental impacts of these options before selecting a locally preferred alternative. The NEPA requirements begin with determining what "purpose and need" the project will serve, and end when the U.S. Department of Transportation issues a Record of Decision for the project, granting federal approval to proceed.

Until this process is complete, the project sponsor is barred from taking "...any action concerning the proposal...which would...limit the choice of reasonable alternatives." This includes any action that would tend to "...determine subsequent development or limit alternatives." This has been interpreted to preclude a wide range of activities that might prejudice the outcome by favoring one alternative over another, including acquiring right-of-way, proceeding to final design and applying for an FTA Full Funding Grant Agreement (FFGA).

Because of the highly structured nature of this process, in which the steps must be undertaken in the proper order and a commitment to a specific design or alignment cannot be made until quite late in the process, many potential private partners may shy away from a P3 arrangement where the local sponsor plans to seek an FFGA from the Federal Transit Administration. However, as discussed below, the Denver Eagle P3 Project succeeded in navigating through this process and could be seen as a model for how to do so.

### ***2005 Transit P3 Pilot Program***

Prior to 2005, FTA funding was used for several transit projects under Design-Build and DBOM contracts. Based on this experience, in the 2005 SAFETEA transportation authorization bill (Section 3011(c)) Congress directed the FTA to establish a pilot program for P3 transit projects that would allow three projects to participate. The three projects ultimately chosen were the BART Oakland Airport Connector, Houston's planned new light rail system, and the Denver Eagle P3 Project. Only one of these, Denver's Eagle P3 Project, stayed with the program from beginning to end.

This program has now run its course and was not carried forward in MAP-21, although the Denver project is proceeding as previously planned.

So far, the Denver Eagle P3 Project has proceeded well and is provisionally considered by many to be a practical and successful application of P3 procedures to a U.S. transit project receiving federal funds. However, as with any P3 project that will be operated by a private partner, it is difficult to

judge success until the project has been operating for some time and there has been an opportunity to see how the public and private partners relate to one another under real-world conditions.

In addition, because the Eagle P3 Project was the only project that came to fruition under the FTA's pilot program, U.S. policy makers have a relatively meager track record to study when assessing the plusses and minuses of possibly undertaking a transit project as a P3.

### **MAP-21**

The MAP-21 transportation authorization bill passed by Congress and signed by the President in 2012 contains several provisions that could affect the FTA's treatment of future P3 projects. These provisions can be summarized as follows:

- The U.S. Department of Transportation is directed to identify provisions of law or FTA policy that impede P3s and to develop guidance to provide transparency and public access to P3 agreements.
- If requested by a sponsor of a New Starts, Small Starts or Core Capacity project, the FTA is directed to
  - identify best practices for P3 from models in the U.S. and elsewhere;
  - develop standardized P3 transaction models;
  - perform financial assessments that include calculation of public and private benefits of P3s;
  - identify any conflicts of interest for parties involved in P3s;
  - identify tax and financing aspects related to P3s;
  - identify changes in workforce and wages, benefits, or rules as a result of P3s;
  - estimate the revenue or savings a P3 will produce for the public entity and the private entity; and
  - estimate any impacts on other developments and transportation modes as a result of non-compete clauses contained in a P3.
- Project sponsors are encouraged to conduct assessments to determine whether a P3 provides greater public and financial benefits.
- Rulemaking by the FTA is to be issued within one year.
- The Government Accountability Office is to issue a report to Congress within one year.



## National and Regional Experience with P3 for Transit

### National Experience

Various forms of P3 have been in use in the U.S. public transportation industry for decades. However, each project has tended to be a “one-off,” and it is difficult to discern a template for the successful combination of federal, state and local government partnership with private entities to develop transportation facilities and services. Here are some notable examples of P3 used in the U.S. Some of them are successes and some are not.

#### Alameda Corridor Rail Project

The Alameda Corridor is a project that created a 20-mile-long “rail cargo expressway” connecting the ports of Long Beach and Los Angeles to the national rail network. The main feature of the \$2.2 billion project was the 10-mile Mid Corridor Trench that placed the railroad below street level and built 30 bridges over it to facilitate street traffic. The project used a public-private financing model under which the private carriers utilizing the railroad pay a per container fee. Those fees are used to support debt of approximately \$2 billion. The project also benefitted from a federal government loan authorized in the fiscal 1997 appropriations bill for the Department of Transportation. That loan was a model for the Transportation Infrastructure Finance and Innovation Act (TIFIA) program created the following year as part of the Transportation Equity Act for the 21st Century (TEA-21). While this project is a freight rail project, the techniques used to develop and finance it can be replicated in public transportation projects.

The project was developed by a joint powers authority called the Alameda Corridor Transportation Authority ([www.acta.org](http://www.acta.org)). In addition to the innovative financing techniques, the project benefitted from a Design-Build procurement approach which ACTA believes shaved eighteen months off the project schedule. Construction on the Corridor began in 1997 and it opened for service in 2002.

The success of the original set of Alameda Corridor projects led to the development of the Alameda Corridor East project and other projects which continue to improve freight traffic in the Los Angeles basin.

### **Denver Eagle Commuter Rail Project**

The Denver Eagle P3 Project is part of the Regional Transportation District's (www.rtd-denver.com) FasTracks (www.rtd-fastracks.com) program for developing rail service in the Denver metropolitan area. It is a project through which two commuter rail lines totaling 34 miles in length and a commuter rail maintenance facility will be designed, built, operated, maintained and partially financed by a concessionaire.

Construction on the project began in July of 2012. The total cost is estimated to be \$2.04 billion. The private sector concessionaire is supplying \$487 million in private equity and debt to support the financing of the project. It will make its return on equity and repay its debt from the proceeds of availability payments made to it by the RTD over the 34 years of the concession. The availability payments will be made monthly by the RTD. The source of the payments will be the RTD's operating budget, which is supported primarily by fares and the sales tax. The Eagle P3 Project also received a Full Funding Grant Agreement from the Federal Transit Administration for \$1.03 billion and a TIFIA loan of \$280 million. The TIFIA loan will be paid back with the proceeds of the regional sales tax. All major project elements are expected to be completed by mid-2016.

The Eagle P3 Project's timeline from the letting of the contract in July of 2010 to completion six years later is good but not viewed as significantly faster than might be achieved through a traditional procurement process. However, the savings to the RTD of \$487 million in up-front capital, resulting from the injection of private equity and debt, is a significant benefit over traditional financing methods. The procurement method was required in order to induce the private sector financial participation.

### **Portland TriMet Airport MAX Line**

Airport MAX is a 5.5-mile segment of Portland's TriMet light rail system that connects the airport to the existing light rail network. It was the first "train-to-plane" transit service on the West Coast. After many years on the drawing board, the project came to life in 1997 when a private entity approached TriMet with a proposal under which it would contribute funds to the capital cost of the project in exchange for a Design-Build contract for construction and the rights to develop property along the line owned by the Port of Portland. The multi-party partnership called for project costs to be shared on the following basis:

TriMet General Fund	36%
Bechtel/Cascade Station Development Company, LLC	23%
Port of Portland	23%
City of Portland	18%

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Construction on the project began in 1999. The line opened on September 10, 2001. While the terrorist attacks of the following day had the effect of driving down airport traffic for a time and diminishing somewhat the value of the real estate deal for the private sector partner, the project is today viewed as a success by all parties. In addition to the public sector cost savings due to private investment, the project was also delivered quickly—five years from first proposal to opening day. An additional benefit was that the project was carried out without federal funds, thereby allowing other regional projects to advance in the federal project pipeline without having to wait for Airport MAX to get through the federal process.

### **Tren Urbano in San Juan**

The Tren Urbano project is a 10.7-mile heavy rail system with 16 stations serving the San Juan metropolitan area.

The project used a Design-Build-Operate-Maintain process to speed delivery and control costs. The facts of the development process for the Tren Urbano project point out that this process does not always produce the desired result. At the time that the Full Funding Grant Agreement was signed between the Puerto Rico Highway and Transportation Authority (PRHTA) and the FTA in 1996, the total project cost was estimated to be \$1.25 billion and the opening date was set for July 1, 2001. After three hurricanes, a series of change orders, contractual disputes and government investigations, the project finally opened for full revenue service in December 2005 at a cost of more than \$ 2.25 billion.

In a report to Congress in September 2008, the FTA cited a number of factors that helped cause the delay and cost increases in the project. While weather was one completely unavoidable cause, the other causes were related to difficulties between the public and private sectors in managing their relationships and in building sufficient technical capacity to handle a complex project.

The Tren Urbano project's delay and cost escalation—whether fairly or unfairly—have been held out by a number of federal officials—elected and appointed—as a cautionary tale when it comes to P3 for transit.

### **Las Vegas Monorail**

The Las Vegas Monorail is a 3.8-mile, 7-station monorail system running on the east side of the Las Vegas Strip. The project began in 1993 as a privately funded and operated one-mile system connecting two hotels. In 2000, the Las Vegas Monorail Corporation (LVMC) was formed as a nonprofit corporation under Nevada state law for the purpose of expanding the system to its current length. The corporation engaged a private sector firm to build and operate the system. That firm shut down less than a year after the opening of the system and turned the operations over to LVMC.

Shortly after its opening in 2004, the system was shut down for more than three months due to safety concerns because material had fallen from the overhead monorail to the street below. After its reopening, the system operated without major incident and with increasing annual ridership until the 2008 recession. After the recession hit, the monorail experienced declining ridership and revenue until, in January 2010, it defaulted on payments to bond holders and filed for Chapter 11 bankruptcy protection. It emerged from this bankruptcy under a court approved plan in December 2012.

The holders of the \$441.5 million in revenue bonds issued through a state authority in 2000 have agreed to settle for \$111 million and notes for the balance of the payments due. The notes would be paid by a fund established by the bonds' original insurer, which also went bankrupt in the financial crisis. Whether that fund will ultimately have sufficient resources to pay off the notes is questionable.

### **Washington Metro NoMa-Gallaudet University Station**

The infill transit station, NoMa-Gallaudet University, opened on Metro's Red Line in Washington, DC in 2004. Total funding for the project was \$120 million (2004 dollars) and included \$25 million from private developers who also provided \$10 million in land to the project and funded technical studies. A nonprofit corporation was created to leverage private investment. Named Action 29-New York Avenue Metro Station Corporation (Action 29 Corporation), it was composed of area property owners, major developers, and business leaders, and it was dissolved after the station opened. Action 29 Corporation's findings were able to illustrate that investment in the space would create 5,000 new jobs and \$1 billion in new public and private investment and development.

Development around the station has been substantial and has provided significant revenue to the District of Columbia. Before the station was opened, the area was bringing in only \$5 million in tax revenue. The 35-block area now generates about \$60 million in city taxes annually, with the assessed valuation increasing from \$535 million in 2001 to \$2.3 billion in 2007. As for Action 29 Corporation's job claims, over 15,000 jobs were created between 1998 and 2006.

### **Transit Advertising Revenue**

Bringing in revenue from vendors interested in advertising to passengers began as one of the most basic ways to bring in additional non-fare revenue. However, transit systems quickly expanded beyond basic print advertisements to increase revenue opportunities with a variety of innovations and new technology. Most systems contract with an outside ad agency to work with the individual advertisers.

### **Chicago Transit Authority**

The Chicago Transit Authority (CTA) offers a wide-range of advertising options to potential vendors, including interior and exterior wraps, station domination, tunnel wraps, placement on farecards and a digital network seen at train platforms and bus stops. The system is currently working on offering corporate sponsorships for eight-year terms at 11 stations. (The deadline for proposals closed at the end of September 2012.) Similar sponsorships can be seen in other systems, such as AT&T Station in Philadelphia and Barclays Center Station in New York City.

CTA, which has an annual ridership of 517 million, groups advertising revenue with charters and concessions in its annual budget. This type of revenue brought in \$19.4 million during 2011 and \$22.8 million was budgeted in 2012. CTA is estimating that this line of revenue will increase to \$23.5 million in 2013 and \$24.2 million in 2014.

### **Massachusetts Bay Transportation Authority**

The Massachusetts Bay Transportation Authority (MBTA), with an annual ridership of 375 million, is required to report annually to the state legislature on non-transportation revenue efforts. The MBTA has been experiencing growth in this area over the past few years. Revenue from its contract with its private ad agency partner grew 5 percent to \$12.3 million in fiscal year 2011. MBTA expects continued growth in the future and has estimated \$14.7 million in revenue for fiscal year 2012. These numbers do not include additional guaranteed amounts that the Authority receives through outdoor billboards and ads on agency-owned real estate, bus shelters, and parking garages. In November 2012, the MBTA started a pilot program, estimated to generate \$800,000 annually, for a digital advertising program on 36 screens across four stations. Finally, the MBTA is one of the few systems to sell ad space on its own website.

### **Metropolitan Transportation Authority**

New York's Metropolitan Transportation Authority (MTA) expects to receive \$120 million in 2012 from advertising throughout its system, including the subway, buses, commuter rail and billboards along its routes. About half of that amount is from MTA's contract with its single ad agency. With 3.3 billion riders annually, MTA continues to offer new opportunities for advertisers, and like others, it is actively pursuing more digital opportunities. A 2011 pilot project called On the Go is likely to be expanded. On the Go placed free-standing, interactive kiosks in five subway stations to showcase maps, subway status reports, and digital advertisements. The agency has also grown the number of video screens (Urban Panel Network) at subway entrances, another opportunity to show both system status reports and commercials. MTA now has 100 double-sided displays, which include ads on both sides and passenger information and messages from MTA on the

side facing the subway entrance. For the first time this year, the MetroCard has been offered as an opportunity for ad placement, and the ability to wrap buses has also been made available. (Subway trains have been an option for “wrapping” since 2003.) MTA also allows advertisers to install six 11-inch screens in subway cars to run advertisements without audio.

### **Los Angeles County Metro Joint Development**

LA Metro’s Joint Development Program was formalized about six years ago. By encouraging Transit-Oriented Development (TOD), the program’s intent is to reduce auto use and increase transit ridership with comprehensive and long-term planning that enhances the land use and economic development goals for the community. Mixed-use projects provide housing (including affordable housing), retail and commercial space. Metro has developed a project advancement process that is laid out in detail on the agency’s website. The development community can learn there what to expect in terms of the steps in the process and the time required to complete each step.

Metro’s Joint Development Program has completed 11 projects and is working on almost 30 more. Among its recently completed projects are the following:

- *Del Mar Station*  
Completed in 2007, this project on Metro’s Gold Line features 347 apartments, 11,000 square feet of ground floor retail, a refurbished historic train station now used as a restaurant, and a public plaza that connects everything to bus service and the surrounding Old Town Pasadena community.
- *Wilshire/Western*  
This project, completed in 2009 on Metro’s Purple Line, developed 1.7 acres owned by Metro and an additional nine tenths of an acre owned by the private developer. The result was 195 condominium apartments, 49,500 square feet of retail space, and a new bus layover facility and canopy for the subway entrance.
- *Wilshire/Vermont*  
This project along Metro’s Red and Purple lines built a new middle school while relocating intake and exhaust shafts from Metro’s tunnel. It was completed in 2008.

At present, there are four MTA Joint Development Program projects under construction that provide market rate and affordable housing, senior housing, retail and commercial space, parking and improvements to transportation facilities.



An important additional component of the joint development program is to generate revenue and sales proceeds for Metro based on a fair market return of the public investment. These returns are reinvested in other transportation projects. The agency estimates that in its first five years, effectively using joint development and TOD has brought in \$14 to \$15 million a year.

### **Bi-State Development Agency/Citizens for Modern Transit Partnership in St. Louis**

The Bi-State Development Agency is an interstate compact between Missouri and Illinois. The region's transit system is operated by Bi-State's Metro division. Metro owns and operates MetroLink (light rail), MetroBus and Metro Call-A-Ride (paratransit). In addition, Metro also owns and operates St. Louis Downtown Airport and the adjoining industrial business park, paddlewheel-style river excursion boats, the tram system leading to the top of the Gateway Arch, and the Arch's parking garage.

In 2011, Bi-State Development Agency/Metro established a new Economic Development Division to support initiatives for large-scale community infrastructure projects as well as public-private real estate development partnerships for Transit-Oriented Development and other special projects. As part of the effort, Metro partnered with a local nonprofit called Citizens for Modern Transit (CMT).

In order to give the local development community and other stakeholders a clear picture of Metro's goals for Transit-Oriented Development (TOD) around stations, Metro in January of 2011 published a "TOD Best Practices Guide" which brought national experience on TOD into the local context. (It is interesting to note that the guide cites the BART Fruitvale Station development as an example of a "national success.")

The guide was followed in 2012 by a cooperative process between Metro, CMT and panels of outside experts—called the Technical Assistance Panels—to develop approaches to TOD at particular locations on the Metro system. One of the results was an RFP prepared for a project at the Belleville station. That RFP will serve as a basis for moving ahead on that particular project and also as a template that Metro can use to advance other projects.

### **EB-5 Immigrant Investor Program**

The Immigrant Investor Program, known as the "EB-5" program, allows foreign nationals to receive visas in exchange for investments in U.S. businesses that create jobs. Typically, the minimum investment is \$1 million and the requirement is that at least 10 jobs are created for each \$1 million invested. The job creation requirement can also be satisfied by preserving jobs in a troubled business. A lower investment threshold, \$500,000, is in place for investments in targeted high unemployment areas.

The program is administered by the U.S. Citizenship and Immigration Services (USCIS) agency. The program was first enacted in 1990. In 1992, it was amended to allow investments to be aggregated through regional centers. These centers pool qualified investments from foreign nationals thereby allowing EB-5 funds to be used for larger job creation projects. Regional centers are sometimes sponsored by state or local governments and sometimes by the private sector. Often they seek co-investors from the public and private sectors for their projects.

At present, there are 274 regional centers operating from coast to coast. California has 63 regional centers. Investments by regional centers can range from infrastructure (e.g., wastewater treatment plants) to manufacturing and technology facilities to real estate projects. Here are a few examples of regional center investments of interest from the transportation perspective:

- The New York City Regional Center used EB-5 monies to assist with ancillary development related to the Barclays Center/Atlantic Yards Project in Brooklyn, where the Brooklyn Nets now play. That project included hundreds of millions of dollars in transportation improvements and the purchase of naming rights to the station. The region is also using EB-5 funding (\$70 million) to redevelop the 48-year-old George Washington Bridge Bus Station.
- The Philadelphia Welcome Fund, operated as a loan program by the Philadelphia Industrial Development Corporation, in 2011 approved a \$175 million loan to the Southeastern Pennsylvania Transportation Authority (SEPTA) to finance the purchase and installation of a new fare collection system for the transit system.
- The Los Angeles County Regional Center has invested between \$50 million and \$125 million in each of four major projects with motion picture studios in Los Angeles County. While at their inception they targeted the entertainment industry for investment, in recent years they have added other areas, including transportation infrastructure, to their list of target investments.
- In BART's geographic area, the Bay Area Regional Center manages investment opportunities within eight counties in the region. The group is currently working on the Brooklyn Basin to reclaim 16.4 acres of a former industrial property in Oakland and prepare it for future residential and commercial development.
- The San Francisco Regional Center is also an active EB-5 investor. Its focus has been real estate in Oakland, but it also has investments in a call center company and a health services provider.

The examples cited above point out that EB-5 investments may be appropriate for significant transportation-related projects, particularly when a real estate investment is part of the project. However, as evidenced by the SEPTA example, EB-5 regional centers can also be an advantageous source of credit for a public agency to procure major systems or facilities.

## Regional Experience

### Fruitvale Transit Village Project

In 1991, BART announced plans to build a large parking facility next to the Fruitvale Station. The community opposed the idea, intended only to allow suburban commuters to park at the station, and, led by the Unity Council (a community development organization), convinced BART to withdraw the parking lot idea and work with the community on a new plan. The Unity Council received \$185,000 in federal funds in the form of a Community Development Block Grant (CDBG) to develop an alternative plan. The idea of the nine-acre Fruitvale Transit Village as Transit-Oriented Development—including a pedestrian plaza with restaurants and shops and the surrounding area for retail, housing, and social services—emerged. As the plan took shape, the Unity Council received a \$470,000 FTA planning grant for predevelopment activities and, after creating the Fruitvale Development Corporation, eventually took control of the land from BART through a land swap. BART also received \$7.65 million from the FTA in 1999 to build replacement parking near the station. The project was completed in 2004.

Here is what the Unity Council says about the project and the next phase currently being implemented:

*The Fruitvale Village is a successful national model for livable communities created by the Unity Council in the early 1990s. Initially conceived as a multi-phase revitalization development project, the Fruitvale Village expanded successfully beyond the initial goals of coordination of public transportation and land use planning between a low-income, inner city community, transit agency and local municipality. Combining the older Fruitvale with the new Village produced a distinctive urban space for daily visitors to experience an opportunity to shop, eat and rest in a safe and pleasant setting. Fruitvale Village Phase One was developed by the Fruitvale Development Corporation, a support corporation of the Unity Council, and offers a unique retail opportunity because of the range of employees and daily visitors utilizing the services and transit facilities that are available at the site. The Fruitvale Village retail plaza is located at the entrance to the Fruitvale BART station,*

*the East Bay's 4th busiest station and 9th most widely traveled station in BART's 31 station system. Additionally, the Village is also adjacent to the bustling Fruitvale commercial district that has experienced a dramatic transformation over the past 10 years and has been recognized as one of the leading neighborhoods in the National Main Street Program. Fruitvale Village Phase Two is the continuation of the Unity Council's revitalization plan for the Fruitvale. This plan will bring new residents and homeowners to the Village and foster 24-hour, 7-day vibrancy and sense of community that will further strengthen the commercial and retail components located at the Village retail plaza. The guiding principles for the Phase Two development will be to provide for mix-income homeownership residential units; to incorporate state of the art green building & energy savings systems; to build the maximum number of dwelling units; and that it be an award winning architectural product.*

### **Oakland Airport Connector**

The Oakland Airport Connector, or "AirBART," is using Design-Build procurement and an operations contract with a private consortium to deliver a 3.2-mile fixed guideway connection to Oakland International Airport from the Coliseum/Oakland Airport station on the BART system. The Connector is under construction.

As is the case with many projects—both public and private—that were in the development stage when the 2008 financial crisis hit, the Oakland Airport Connector development process was not without difficulties. BART initially used a technology-neutral RFP, issued in May 2009, as the vehicle for selecting a team to design, build, operate and maintain the project. Four teams were pre-qualified in July of that year and submitted proposals in September. One of the four teams was dropped from the competition as non-responsive because of a number of exceptions it took to the specifications laid out by BART in the RFP. As the evaluation process unfolded in the fall of 2009, the financial pressures on each of the remaining teams played a significant role in the process of determining which team offered the "best value." In the end, the BART Board of Directors decided in December 2009 to award the two contracts (one Design-Build and one Operate-Maintain) for a total estimated cost of \$440 million—about \$40 million below the target price.

One feature of the project—the premium fare, which is often part of privately operated projects such as this—created controversy that affected the mix of funding for the project. Community opposition to the higher fare took the form of arguments that lower-income travelers and airport employees would be disadvantaged by the fare. This led the Federal Transit Administration

to press BART for a more detailed review of the project's compliance with Title VI of the Civil Rights Act of 1964. The resulting delay in the completion of Title VI certification disqualified the project from receiving \$70 million in funding from the stimulus act (ARRA) that had previously been awarded. (The final Title VI review found the premium fare was not discriminatory in nature.) Additional regional funds were found to replace the ARRA money, which was moved to other projects in the Bay Area.

### **West Dublin/Pleasanton Station**

Building the West Dublin/Pleasanton Station was unusual, not only because it involved a three-part Public-Private Partnership—BART, a Master Developer, and the local jurisdictions—but also because the Station had to be built over an operating portion of the BART train system. Thus, the Master Developer ensured that there would be no interruptions of train traffic as it undertook to build and deliver to BART the new BART station, two new pedestrian bridges, and two BART parking garages

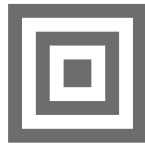
The transaction with the Master Developer called for the payment of \$15.5 million for the right to build on land near the Station and for the Master Developer to pay \$3 million in ground lease payments. In exchange, the master developer gained the right to build 350 apartment units, 309 condominiums, a 150 room hotel, and a retail component

The total Public Facilities Capital Cost, funded by BART and by the Master Developer, was \$88 million. The sources of this funding as follows:

Public Grants	\$14 million
Bond Sales	\$58.5 million
Master Developer	\$15.5 million
TOTAL	\$88 million

The local cities and the county agreed to pledge \$8 million as a reserve to cover early land payments and operating costs, in case early ridership revenue was less than projected. Farebox revenue was targeted to cover debt service on the bonds that helped to fund the capital costs of the station.

To summarize, this was a successful formula, as BART achieved a new station by engaging a Master Developer to build and to fund the cost of a portion of the public improvements in exchange for the right to develop near the new station. The nearby cities and the county, in exchange for the newly augmented BART service, agreed to “backstop” early ridership risks until the new train service achieved its projected acceptance. Thus, each of BART's “partners” accepted risks in exchange for a benefit in this unique Public-Private Partnership.





## Review of P3 Potential on Specific Bay Area Projects and Programs

### BART Extension in the Geary/Fulton Corridor

The east-west corridor that centers on Geary Boulevard and Geary Street (as the thoroughfare is designated east of Van Ness Avenue) has long been one of San Francisco's most dense transit markets. At various times this corridor has been served by bus, cable car and electric trolley. The last fixed rail service ended in 1956 when the trolley line was removed and replaced by buses. There is a long history of proposals to improve transit service in this corridor. A line heading west from Market Street and turning north to pass over the Golden Gate Bridge was part of the plans for BART as far back as 1957. For various reasons, neither this plan nor any of its successors were ever built.

Bus ridership along Geary today (Muni's 38 line) is quite high at around 50,000 trips per day. Adding ridership figures from lines that run on parallel streets to the north and south (including Muni's 1, 2, 5 and 31 lines) yields a total near 100,000 for daily east-west transit patronage in the corridor. Geary is also a highly congested corridor for car trips. A transit upgrade that offers major trip time savings could also be expected to divert many trips away from the automobile.

By any measure, the Geary corridor is a prime candidate for a major transit upgrade:

- Residential density in the surrounding neighborhoods is high.
- Car ownership rates are relatively low and residents are accustomed to choosing transit over driving.
- Population is distributed along an east-west axis due to Golden Gate Park on the south and the Presidio and Lincoln Park on the north.
- Travel demand is dominated by the east-west market due in part to the strength of Market Street and the financial district as a destination.
- Major travel time savings are achievable if transit vehicles can avoid conflicts with other traffic.

The benefits of a transit upgrade that offers major travel time savings to as many as 100,000 riders per day would compare favorably to transit projects undertaken recently in other U.S. cities. Project costs would likewise

be high, but not excessively so, given the ridership potential. For these reasons, the Geary corridor should be considered a promising market for a transit upgrade.

Most of the proposals made for this corridor over the years recommend one of the following:

- BART-style vehicles running underground;
- light-rail vehicles running underground, above ground or some mix of the two;
- bus rapid transit vehicles running in dedicated lanes above ground with signal priority.

This report considers the potential for BART technology in the corridor. It is important for us to note, however, that there is a current effort by the San Francisco Municipal Transportation Agency (SFMTA) to advance Bus Rapid Transit (BRT) in the corridor. The label “BRT” is used to describe many different types of bus systems with widely varying design and operating characteristics. Whether or not BRT in this corridor can provide a reasonable share of the travel time and reliability benefits that would come from underground rail will depend to a great degree on exactly how the BRT system is designed and operated. It is important to note that if competitive federal funds are awarded to BRT in the corridor, it may be more difficult for a more expensive rail project to receive funding in the same corridor.

Because BART trains use a non-standard width track gauge, BART technology is the only solution for this corridor that would allow the new service to be interoperable with the rest of the existing BART system and any potential extensions of BART South of Market (to Transbay Terminal, for example) or to the East Bay via the existing Transbay Tube or a new one.

### **Potential Alignments**

Two potential alignments for this service have been discussed to one degree or another: Fulton Street and Geary Boulevard/Street. For Fulton Street, the case has been advanced that constructability will be improved because the corridor is less dense in both development and traffic than the Geary alignment. However, a Fulton corridor would also likely result in lower ridership once the project is complete due to the large reduction in the number of addresses within reasonable walking distance of stations.

On the plus side, a Fulton Street alignment would improve access to Golden Gate Park and its amenities. That said, much of the park is within a one-half mile walk from the stops along Muni’s N-Judah Metro line. A Fulton Street alignment would greatly improve transit access to the de Young Museum,



the park's largest trip generator (annual attendance of around 2 million) and one of the most popular museums in the country. At present, the walk from the closest stop on the N-Judah Muni Metro line south of the park is not unreasonable at six tenths of a mile.

Determining the exact effect on ridership of moving the alignment from Geary south to Fulton would require a detailed ridership analysis that is not within the scope of this report. However, a Fulton alignment would most likely show significantly less ridership than a Geary alignment. Furthermore, although construction costs might be slightly lower on Fulton, there is little reason to believe the difference would be large. The basic geology and construction characteristics of the two alignments are very similar. Absent compelling evidence of either unexpectedly strong ridership or lower costs due to a Fulton Street alignment, the authors believe that Geary should be the default alignment option for the corridor.

### **Termini and Operating Plan**

While the focus of this report is on the P3 potential for this corridor and not the technical details of the project, it is important to consider some of the options for the terminus point of the project and the effect that this would have on how it is operated. Any potential P3 partner will be looking for a project that maximizes both ridership revenue and non-ridership revenue flowing from real estate development. Decisions made about the western and eastern termini of the line will have an impact on both factors.

On the west, the Geary line shown in the 1961 BART plan terminated at 25th Avenue; some of the more recent concepts have placed the western terminus at 33rd Avenue. Stopping at 25th Avenue seems a poor choice; the distance from the station to the last residences on 48th Avenue would be approximately one and a half miles.

If the system could be underground to the east where traffic is most dense and emerge to street level at its western end where conflicts with street traffic would be less likely, substantial cost savings could be achieved. However, this does not appear to be possible if BART technology is adopted. Because of the electrified third rail, BART trains can be surface-running only if fully isolated by fencing to ensure safety. Fencing is not practical in this corridor, so BART technology would require a fully underground system. If policy makers are willing to consider using Light Rail Transit (LRT) technology that uses overhead wires for power, this opens up the option of running on the surface.

For an underground system, it would be difficult to justify going west of 33rd Avenue, given the high cost of tunneling and the drop-off in new riders gained for each additional block.

On the eastern end of the project, the design, construction and operational challenges of bringing the line downtown are significant. Several options have been discussed.

### ***Merge Into the Existing BART Line***

This would require constructing an underground junction to merge trains coming from the Geary corridor onto the existing BART line in one or both directions. A possible location is Civic Center Station, but others could be considered.

This option has several points in its favor. It would fully integrate the new line into the existing BART system, offer one-seat rides from the Richmond District to many other destinations within the system, and allow the trains using the Geary line to be stored and maintained at BART's existing yards. It has disadvantages as well. Building an interconnect with the existing BART line would likely be difficult, expensive and disruptive. It could also present operational challenges: allowing one-seat rides from the Geary line to the East Bay would place more pressure on the limited capacity of the existing Transbay Tube. This ceases to be a concern if the Geary project is considered at the same time as the addition of a second Transbay Tube.

### ***Cross Market Street and Serve the TransBay Terminal***

This option would create a transfer station at Civic Center or whichever existing BART station is chosen. To get south of Market Street, the Geary line would need to pass below the existing BART and Muni tunnels: as has been seen with Muni's Central Subway project, the engineering issues this presents are not trivial. Once south of Market, the line could serve various destinations, including the new TransBay Terminal.

The TransBay Terminal will be the northern terminus of the California High Speed Rail system, and the benefits of connecting the terminal to the region's rapid rail network would be significant. However, as currently conceived, the TransBay Terminal project does not include a new BART station, and the difficulties of adding one either at or adjacent to the terminal are not known.

The benefit of connecting a Geary line to the TransBay Terminal probably would be enhanced if it is part of a larger plan to build a second Transbay Tube. A second Tube would address BART's growing capacity problems in the existing Tube and would allow trains serving the Geary corridor to connect to the existing BART system in the East Bay and thereby gain access to existing maintenance facilities and storage yards. A new Tube south of the existing one would also provide an opportunity to extend the

High Speed Rail system to the East Bay. Since BART trains and High Speed Rail trains use different gauge tracks, the new Tube would need four tracks to accommodate both systems.

### **Potential for P3**

A Geary rail project could be pursued under any of the P3 structures discussed earlier in this report, from the relatively modest Design-Build form of contracting, to the much more comprehensive pathway of Design-Build-Operate-Maintain and Finance.

This report has discussed the variety of procedural, legal, regulatory, financial and operational issues associated with P3. However, given that this project would be undertaken in the City and County of San Francisco, it is important that cultural factors—like the willingness of the community to accept new development—are also considered.

Private sector partners come to a project of this kind with a particular mindset. If the mission they are given is performance driven—achieve a particular quality of service as measured by frequencies, trip time and reliability, for example—they will look for whatever design achieves this purpose at the lowest cost. In some situations, allowing a wide range of design flexibility can produce substantial construction cost savings. The chances of achieving these savings broaden further if the project is to be operated by the private partner as well. Making the private sector partner responsible for both up-front capital and ongoing operating costs allows it to balance these two factors against one another in economic terms as the project is designed.

But this approach is not without difficulties. In a community accustomed to extensive public debate and input on projects of this kind, addressing everything from route to cost to the look of stations, giving a P3 partner a broad mandate to select a cost-saving design could be a challenge. This dynamic—a divergence in expectations between the project sponsor and the community—could be a barrier to achieving design and construction cost savings via a P3 arrangement. There is every reason to believe that cost savings are available for this project, just as they are for other projects of this type, and a P3 model could be an effective way to assure that they are pursued. Community acceptance would therefore be important to the project's success. If, at the end of the day, design choices will be governed by the agency's desire to adhere to the existing system's technology, look and feel, and by community pressure, a P3 arrangement's ability to deliver significant savings through innovative design will be limited. Current congestion in the Geary corridor, on the other hand, suggests that the community has a strong incentive to support the improved service that a Geary corridor BART project would deliver. These cultural considerations are very much in play in San Francisco and add a further layer of complexity.

Beyond the challenges of cultural factors, lies the issue of the degree to which private operation and maintenance are feasible or desirable in this situation. With regard to maintenance, it would be difficult to locate a new, privately-run rail maintenance facility in San Francisco. Even if an acceptable site could be found, the economics of building a whole new facility to serve a single line probably do not make sense. It would most likely be more cost-effective to store and maintain the trains used in the Geary corridor at BART's existing yards. Structuring a P3 agreement that allows use of these facilities while assigning all responsibility for maintaining and operating the vehicles to a private partner would be difficult for both parties.

The case for operational savings from a P3 in this corridor faces further challenges. As discussed above, a Geary line would be most valuable to the community if it interoperates with the existing BART system. The practical difficulties of having a P3 partner operate this line, even as the trains traverse from this line to other lines operated by the agency, are evident. The clear lines of responsibility when something goes wrong that are the hallmark of a successful P3 partnership would be difficult to achieve in this situation.

Any agreement to have a P3 partner operate a Geary line would also need to address how BART's existing labor contracts would apply to the new line. As we also note in the section on the Livermore extension, labor protection provisions in the Federal Transit Act give BART's unions a significant role in any decision to involve the private sector in the project if federal funds are used.

Another area for investigation is the possibility that a private partner could access sources of revenue that might be difficult for BART to access. Any such revenue could help offset expected operating losses or reduce the public sector's contribution towards the cost of construction. There are multiple possibilities that could apply in this case:

- *Higher Fares*  
If BART were willing to allow a private partner to charge premium fares in this corridor, some portion of the capital costs could potentially be financed by dedicating the additional fare revenue to repaying a portion of the debt for the project. The extent to which this tool can be used would depend on market forces and also the politics of charging higher fares along the new portion of the BART system.
- *Real Estate Development*  
One of the effects a major transit improvement can be the ability for a community to accommodate higher densities without the crippling effects of added traffic. If anything, transit is more effective as densities rise: more residents means more transit riders, which leads to shorter transit headways, less waiting and shorter overall trip times. For this and

many other reasons, Transit-Oriented-Development (TOD) has become a common feature in major U.S. cities as new transit lines are added.

Less common is a comprehensive strategy to capture some of the new market value added to existing real estate value near the stations to help pay for the rail line. Although a comprehensive analysis of the potential for new development in the Geary corridor is beyond the scope of this report, it is clear that the cost of renting or owning a home in San Francisco is high and that there could be a market for additional housing in the corridor if it were permitted. The density of current commercial development on Geary suggests that commercial or mixed-use development may also be viable. This could be both above and below ground. Zoning and other policies regarding the type and location of housing in San Francisco may not permit major additional densities in this corridor without significant changes. Whether these changes are possible or desirable is not within our scope to determine, but as with any development project in San Francisco, it is likely that proposals to add meaningful density around the line's new stations and capture some of the value of this new development would be controversial.

Beyond these two possibilities (higher fares and real estate development) it is hard to see what sources of earnings a private partner could access that could meaningfully lower the cost to the public sector of building or operating the line. Reduced construction time and the possibility of lower life-cycle maintenance could serve to reduce capital costs to a degree.

## **Conclusions**

P3 partnerships are successful when each side gets something out of the arrangement that it has difficulty getting through other means. For the public sector, it is a chance to deliver better value to the community by reducing construction time and cost, gaining access to new forms of revenue, and improving service. For the private sector, it is a chance to earn a return on investment.

The Geary corridor has some things going for it as a potential P3 project. The corridor offers strong potential for better transit service and is perhaps one of the best such markets in the country. Ridership would likely be very strong. In addition, construction of an underground rail line is likely to be very expensive, so any techniques the private sector could bring to bear that save even a modest percentage on construction costs would add up to a large amount.

However, there is reason to be cautious about whether a P3 partnership for this corridor could offer enough benefits to make it attractive to both the agency commissioning the project and a potential private partner.

Specifically, the authors believe that there needs to be a reasonable likelihood that at least one of the following two criteria could be met to make a P3 worth pursuing:

1. The private partner is allowed to charge premium fares, capture meaningful amounts of real estate value around the new stations through Transit-Oriented Development, or access some other new form of revenue to which BART does not have access now.
2. The private partner is given broader than normal latitude to select design and operational characteristics and construction methods for the line that could substantially reduce the costs to build and operate it, with the public and private partners agreeing to split the resulting savings.

The agency could pursue a P3 even if these conditions are not met, but the result would most likely be a project that is more, rather than less, expensive to deliver due to the private partner's need to earn a profit.

Answers to many of the questions identified above are beyond the scope of this study and require deeper analysis. Addressing those issues calls for a better understanding of community perspectives and engagement by knowledgeable actors in the investment community around financing models and the potential for private sector partners to achieve an acceptable return on investment.

## **BART to Livermore Extension**

This project would extend BART service from the Dublin/Pleasanton Station to the city of Livermore. Such a project has been under consideration by BART since the beginning of the agency. As conceived in the Preferred Alignment selected by the BART Board of Directors in June 2010, the project would be an 11.3-mile extension with a total project cost of \$3.83 billion. In February 2012 the BART Board, in search of a lower-cost solution, adopted a phased approach to developing this project. Phase 1 would be a 4.8-mile extension to a new station at the Isabel Avenue/I-580 interchange. BART estimates the capital cost of this project to be \$1.15 billion.

A Project Environmental Impact Review is currently underway on the Phase 1 project. That study is reviewing the Phase 1 BART extension as well as a no-build alternative, a Diesel Multiple Unit (DMU) alternative and an express bus alternative.

The financial plan for the project includes regional funding through the Metropolitan Transportation Commission (MTC), federal New Starts funding and Alameda County funds. To date, the regional contribution is \$100 million from toll receipts. These funds are being used to support the EIR and are available for property acquisition. The Alameda County contribution is slated

to be \$400 million. A referendum to approve a tax increase to provide that funding was defeated at the polls in November 2012, falling just short of the required two-thirds majority.

Alameda County officials have been quoted in the press as indicating that there is time to put the ballot measure before voters in an upcoming election and gain approval without delays to the project.

Two potential P3 options for the project have been discussed by local officials. One is attracting private investment through creation of revenue streams from parking and/or a surcharge on tickets purchased by people living outside the BART service area. Another is delivering the project through a combination of innovative project delivery techniques and selection of a cheaper technology, such as DMU.

With regard to the potential for inducing private investment, let us look first at the possibilities for generating investment through parking revenue. Elsewhere in this report we discuss in general the potential for generating parking revenue on the BART system. As it applies to this particular project, it appears that there may be some potential for this approach to produce positive results. The EIR on Phase 1 will be reviewing parking options at the Isabel Avenue/I-580 station. If a significant number of spaces were deemed to be feasible at the new station, it is possible that a private entity could undertake a project to build the structure or structures to create those spaces in exchange for the right to collect parking revenues there. The agreement allowing the private developer to play this role would presumably require an up-front payment to contribute to project capital costs, or a revenue-sharing arrangement with periodic payments to the public partner, or some combination of the two. Without knowing the potential number of spaces that may be feasible and desirable and in the absence of market studies on the potential parking rates, it is difficult to predict how much money might be generated from this approach. Of course, BART policy and local ordinances would have to be reviewed and potentially changed in order for this approach to be used.

The ticket surcharge option would clearly generate some significant controversy politically, but it is not our role to offer an opinion on that. If it were implemented, it is questionable that any private investment would necessarily flow from it. Essentially, the creation of the revenue stream would provide an opportunity for the project sponsor to incur debt so that the long-term revenue stream could be brought forward to provide a contribution to capital costs during construction. Normally, a public agency would have access to debt through the credit markets that would be backed by this revenue stream. The federal government might participate in making the borrowing costs cheaper through the TIFIA program. There may be a scenario where the ridership risk is high enough that the credit

markets and TIFIA combined still would not offer favorable terms. In that scenario, there might be a private entity prepared to take on a greater risk profile if it had the opportunity for a significant benefit on the “upside.” This potential, however slight, can be examined as ridership projections come into sharper focus.

The potential to use a P3 approach to project delivery is also worthy of review. Project advocates have suggested that a Construction-Manager-at-Risk approach might be workable on this project in combination with the use of Diesel Multiple Unit (DMU) technology that is considerably cheaper to develop than the traditional BART heavy rail technology. DMU utilizes diesel-powered trains that are usually shorter than the typical BART train. Project advocates who support this approach believe it will provide two key benefits: lower cost and faster project delivery.

Construction-Manager-at-Risk techniques are briefly discussed earlier in this report. Proponents of the technique believe it transfers significant cost over-run and delivery schedule risk to the private contractor. This assertion is a matter of some controversy among public sector project managers and even some in the contracting community. Because the contractor enters the process later than in a Design-Build scenario and does not have control over the full design process, many of the potential benefits of the Design-Build approach are lost. The scenarios where Construction-Manager-at-Risk appears to deliver the most benefits are those where project engineering and design challenges are minimal and where significant labor cost savings can be realized by limiting the number of individual contracts being let. It is unclear whether the conditions on this particular project would result in this technique producing its maximum possible benefits. BART, regional and local officials may wish to study this further.

The DMU technology is being studied as part of the EIR process. Its primary benefit to the project may be the lower cost associated with it. However, there are drawbacks to using the technology. Going with DMU would require a cross-platform transfer between the existing BART service and the new service at the Dublin/Pleasanton station. While changing the platform and station configuration will add capital cost to the project, the most important impact of this transfer is loss of ridership. It is generally believed that requiring passengers to ride in more than one seat to get to their destinations means fewer riders than if a one-seat ride is provided. While this reduction can be minimized by coordination of schedules, it is still almost certain to be a factor. The EIR will explore this and furnish information decision makers can use to evaluate this option. Any reduction in projected ridership on the project will damage its competitive position in the already very stiff competition for federal New Starts funding.



Some project proponents have also suggested that using DMU technology and the cross-platform transfer could also open up the potential for a private operator to run the service on the extension. Using an operator other than BART would potentially allow for a lower-cost operation based primarily on lower labor costs. While this approach is being used elsewhere (notably in Denver) it can jeopardize access to federal New Starts funds unless the unions on the property approve. The unions have significant leverage because of the labor protection provisions of the Federal Transit Act. These Section 13(c) provisions are designed to prevent federal funds from being used to disadvantage the working conditions or bargaining position of unions representing workers on the system making application for the funds. In Denver, the unions agreed to use a P3 for a new commuter rail service in the region that does not allow transfers from other services. BART's Board of Directors and leadership would need to assess for themselves the potential that their unions would cooperate in this approach. If they would not, then the project would need to go forward with no federal funding.

In conclusion, it appears that the BART Livermore extension would benefit from an assessment of the potential to generate parking revenue and whether that revenue would be sufficient to induce a private entity to defray project capital costs by building the parking spaces and by contributing a share of parking revenue to the project.

### **Next Steps**

If the BART Board and leadership wish to explore the potential of using an alternative project delivery model that would include DMU service with or without private operation, the first step would be to undertake a fatal-flaw analysis. There are two potential fatal flaws to the combination of P3 options discussed here. One is that the combination of project delivery and operation options would trigger sufficient union opposition to prevent federal funding of the project. The other is whether a DMU operation with cross-platform transfer would make the project uncompetitive in a federal funding process where cost per rider is the key measure. These issues are not explored in the EIR process and can be examined separately with conclusions drawn before the EIR is completed. A separate review of the potential for parking revenue to generate private financing might also be of value in the short term. This potential does not appear to present a fatal-flaw problem and could be of value regardless of how BART develops the project.

### **Vehicle Acquisition**

BART is embarked on a program to replace its entire fleet of 669 cars and increase its fleet size to 775 cars. In May of 2012, the BART Board of Directors approved a contract for the first 410 vehicles at a cost to the agency of

\$896 million. The original budget for the entire fleet replacement and expansion project was \$2.5 billion.

The initial purchase of 410 cars is being financed 75 percent with federal formula funds passed through the Metropolitan Transportation Commission, and 25 percent with BART funds. BART leadership is exploring mechanisms to finance the purchase of the remainder of the vehicles.

A number of options may exist at the state and regional level to raise additional revenue through fare policy or from a variety of taxes, tolls and fees. In addition, upcoming federal legislation may create an opportunity for the region to gain federal funding above the amounts currently budgeted, so that the incremental funding could be devoted to vehicle purchases. This paper, though, is concerned with how P3 opportunities may be available to provide a way to finance the vehicles.

One method of private finance which may be worthy of exploration would be a leasing arrangement. If it combines a number of features, such an arrangement might provide relief from some capital expense. In its most complete form, an agreement between BART and a private entity might look like this:

- A joint venture of a private equity fund, car builder and car maintainer would be formed to be BART's partner.
- That entity would finance the purchase of the vehicles and be the owner of the vehicles.
- BART would enter into an agreement to lease the vehicles and contract with the joint venture to maintain the vehicles. Lease payments would be based on performance measures with targets for the percentage of vehicles available for use on a daily basis and their performance.

Under an arrangement like this, BART's payments to the joint venture could, in whole or in part, be included in its operating budget and not its capital budget. To the extent that these costs are included on the operating side, some of them would be offset by the increased energy efficiency inherent in newer cars and by the reduced cost of maintaining the vehicles. In order to ensure that the procurement could proceed smoothly (perhaps taking advantage of options on the existing BART contract) the joint venture could use BART as its agent for purchasing the cars.

There are numerous complications that would come with an agreement such as this. Some might be legal and regulatory; others might be logistical. For example, in order for the maintenance of the vehicles to be handled by the joint venture, there would have to be either dedicated space in one or more BART maintenance facilities for these cars to be maintained or a completely dedicated facility. Such an arrangement could also create significant labor

issues which would need to be resolved for the success of the project. We recognize the difficulties that would be inherent in this approach, but creating a scenario where the private owner of the vehicles has maximum control over their life-cycle costs is the best way to maximize its willingness to invest in the long-term success of the relationship.

Options to finance the vehicles using leasing techniques without the feature of privately performed maintenance could also provide some financial benefits to BART—particularly if shifting costs to the operating budget is viewed as a benefit. In the past, these approaches have received federal tax benefits in a number of ways. However, those tax benefit options have been diminished and the move in Washington to reform corporate taxes calls into question whether tax-advantaged equipment leasing will be allowed in the future.

Another option for the financing of vehicles could be support of the vehicle purchase program using any additional revenue coming to BART through other P3 approaches discussed here. Such an option would require BART to decide that incremental revenues from advertising, joint development, parking, etc. would be dedicated to vehicle purchase. If revenue maximization from all these sources could be accomplished, the contribution to the vehicle purchase program could be meaningful at the margins, but it would be unlikely to be sufficient to buy a significant number of new cars unless combined with other new revenues or financing.

### **Next Steps**

BART's executive team and staff can most likely offer opinions as to the legal and procedural issues attendant to private financing of vehicles. If there are no significant barriers or if the barriers in place can be overcome, there may be value in issuing a Request for Interest (RFI) to test the interest of the investment community in partnering with BART on a vehicle procurement. In preparing the RFI, BART will need to resolve what the potential terms of a partnership might be and suggest more than one option for the industry to consider.

### **Parking**

Parking at transit stations is another possible opportunity for P3 at BART. Parking management by the private sector is a large industry, and P3 agreements are becoming increasingly common. Many public agencies that have managed their own parking for years—from hospitals to universities to entire cities—are choosing or considering P3s.

Although there are many reasons to reconsider how the agency manages parking, the principal reasons most agencies look at P3s of this kind are financial and operational. A well run P3 can increase revenue to the agency and relieve it of managing a function that is not part of its core competency.

Many of the opportunities for revenue gain are accessible without a private partner as well, if the agency has the will to adopt them on its own.

Estimating the magnitude of possible revenue gains from different P3 forms of parking management would require a complex site-by-site analysis that is beyond the scope of this report. Each of the 32 stations that offer parking operates in what is essentially its own market, and each would have to be analyzed individually to determine a revenue-maximizing rate structure. That said, net revenue gains for the agency are unlikely to be large in relation to the size of the agency's needs. Parking charges currently generate on the order of \$16 million per year at a cost to BART users ranging from free to \$5 per day. Assuming for the moment that raising parking fees for each of approximately 40,000 eligible spaces could double net revenues, the gain for the agency would be an additional \$16 million per year—not trivial by any means, but this is not a huge number compared to the size of the agency's needs.

For this reason, new revenue from parking via a P3 should be viewed as an ancillary strategy that could generate additional revenue at the margins.

### **Technical Suitability**

From a technical point of view, parking management displays many of the hallmarks of an activity that could be carried out for the agency by the private sector:

- It produces revenue.
- It takes place within clear geographic boundaries in a way that allows for performance monitoring.
- It operates independently of the rail system itself, facilitating a clear division of responsibility between the public and private partners.
- It is amenable to pay-for-performance arrangements that can be easily measured using existing technology.
- There is a robust and mature private sector with experience in the field.

### **Management Options**

Parking for large institutional users is usually managed under one of four structures. These are listed from the most common/least aggressive to least common/most aggressive.

- *Agency Management*  
Much parking at large public facilities—from hospitals to universities to train stations—is owned and operated by the agency that runs the facility. Parking is free or paid or both. Revenue is collected directly by the agency's employees and proceeds go into its general fund.

- *Fee for Service with Performance Minimums*  
Some agencies hire a private contractor to run their parking, generally on a fee-for-service basis. These contracts can contain performance criteria that affect how much the contractor is paid, although these tend to be in the form of definitions of minimally acceptable performance. Are the lots being staffed as agreed to? Are the gates and other technology working? Is the revenue being collected? If performance exceeds minimum requirements, the contract is paid in full. This can be considered a mild form of P3.
- *Private Partner Taking Revenue Risk*  
Under this structure, the private partner agrees to pay the public agency an ongoing fee—monthly, quarterly or annually—for the right to collect and keep parking revenues. This gives the private partner a clear incentive to manage efficiently, keep operating costs down and attract as many patrons as possible. In most cases the contract is based on parking rates set in advance by the agency, although this is not necessary. Allowing the private partner to set rates to maximize revenue would generate more revenue for the agency and assure that the parking facility constructed at public expense is generating maximum support for the public purpose of the agency. Agreements of this kind generally cover a term of between one and five years, which allows both some stability for the private partner and an opportunity for the agency to periodically re-evaluate.

These arrangements are particularly well suited to situations where management of an asset or activity by a highly motivated private partner has the potential to either increase revenue or reduce operating costs beyond what the agency is likely to do on its own. In these cases, the agency has the potential to see increased net revenues even after allowing for profits earned by the private partner. In theory, the public agency could manage the asset with the same level of creativity and motivation brought by the private partner, but the practical question is not whether it is possible in theory but whether it is actually likely in practice.

For BART, parking management does not appear to be a strong candidate for big revenue gains or operating cost reductions, but it can still generate substantial benefits due to better marketing, higher-quality service, streamlined management or other private sector innovations. Operating costs for parking are low, and demand is determined largely by price, location, supply of spaces and the underlying demand for transit trips.

- *Full Monetization*  
Under this structure, the public agency offers parking facilities to the private sector for a long-term lease in return for a single up-front

payment. Under the most expansive definition, this could even include the right for the private partner to manage the sites as they see fit, whether that means adding more spaces by building structured parking or turning over some or all of a lot to other commercial uses.

In practical terms, this would not be feasible for BART except in very special circumstances. Aside from the obvious policy reasons for wishing to retain control over these decisions, changes in land use to build structured parking or allow further development are made in partnership with local governments. It would be difficult for BART to structure a private lease that reflects a proper valuation for a highly uncertain prospect such as rezoning.

### **Policy Questions**

The fact that parking is technically well suited to a P3 structure does nothing to address the policy questions that would need to be raised and resolved in structuring an actual P3 agreement.

- *Pricing*  
Although we have not analyzed the question in detail, it seems clear that parking rates could be raised significantly without creating a major revenue loss due to lower utilization. However, doing so would require the agency to affirmatively change its approach toward parking fees. These fees have been knowingly kept below full market rate to mitigate the cost impact on BART patrons. If there is not a willingness to substantially raise parking rates, it would not be practical to pursue a P3 option in this area.
- *Land Use*  
BART has been a leader among transit agencies in adopting a clear policy preference for Transit-Oriented-Development (TOD) around its stations. Increased parking rates via a P3 or other means would be one way for the agency to rationalize demand for parking as an interim step toward TOD implementation. Offering parking allows riders to gain access to stations, but studies from transit agencies around the country have shown that well-planned TODs can generate equal or better ridership, reduce the social costs of car ownership and offer more people the choice of a less car-centric lifestyle. Before entering into medium- or long-term P3 parking agreements, the agency should determine whether doing so would hinder its ability to redevelop parking lots around stations that have been targeted for TODs.
- *Local Politics*  
The acceptability of increased parking and/or increased parking fees at a given station is likely to be different from one locality to another. Policy issues entering into the equation for a local government go

beyond the transportation and economic issues of central concern to BART. Therefore, outreach to local governments, sensitivity to their concerns and flexible approaches to dealing with those concerns are an important part of the mix when considering P3 options for parking at BART stations.

### **Next Steps**

The first steps to considering P3 parking options at BART would appear to be internal ones. Agency policy surrounding the purpose of parking charges, the process for changing fees and the types of partnerships that might be desirable needs to be evaluated and potentially changed in order to make P3 options viable. If policies are changed to allow for serious consideration of P3 approaches, it would be appropriate to start with outreach to localities where there are stations that offer good P3 opportunities. Doing this will help determine if there are hurdles to parking development or fee changes locally and whether those hurdles can be cleared or not.

### **Infill Station Development**

There are a number of infill station locations in the BART system that, if built, could increase ridership, system access and overall service. Sites specifically identified in the 2007 Regional Rail Plan include the following:

- 30th and Mission Streets in San Francisco
- San Antonio district in East Oakland
- Solano Avenue in Berkeley
- Irvington district in Fremont
- Calaveras Boulevard in Milpitas

Public-Private Partnerships offer BART a way to provide that added service without a significant impact to its operating budget. A P3 approach would also potentially allow BART to benefit from the other P3 advantages that have been identified earlier in this report, including drawing on the private sector's design, development and construction expertise; lower total overall costs; more rapid project delivery and significant delivery cost risk avoidance; reduced up-front capital investment of public funds; shift of project delivery schedule risk to the private sector; and improved long-term maintenance. Private sector entities can potentially design, build, finance, operate and maintain individual infill projects as BART's partner.

As with other P3 projects, the private partner would be responsible for obtaining the necessary long-term financing that is secured by the revenue stream generated by (or associated with) each specific project. In considering

the benefits of public (tax-exempt) and private taxable financing, one should not assume that a public procurement approach is always better because it can access lower-cost tax-exempt financing. The reality in today's operating environment is that many projects can access a combination of public and private sources of funding, using a multilateral financing approach that reaches across a broad range of public and private funding sources. It is often the case as well that the benefits of risk transfer, the improvement in timing, and the application of private sector best practices and expertise more than offset the singular advantage of tax-exempt financing. Hybrid P3 methods of procurement currently being used around the world may meet and exceed the economic and operational parameters of traditional public procurement as it is commonly practiced in the United States.

Revenue streams that could support P3-based infill station development include the following:

- local and county tax increment revenue;
- dedicated increased farebox revenue;
- retail lease and concession revenue;
- paid parking revenue;
- federal transportation appropriations;
- grants.

### **Next Steps**

In order to explore further the potential for using P3 to support infill station development, BART staff who work on real estate, transit systems development, and legal and government affairs issues might work together to select one or two of the already identified potential station sites for a deeper exploration of how to involve the private sector. Once the potential site or sites are selected, a workshop that brings in outside players from the private sector and the community might be an effective way to validate the P3 potential and explore next steps.

### **Advertising**

On a revenue-per-rider basis, BART does well in generating advertising revenue when compared to other transportation systems. The chart below shows how BART compares with other transit systems in generating revenue from advertising in nominal terms and on a revenue-per-rider basis.



**Advertising Revenue for Major U.S. Transit Systems**

<b>Agency</b>	<b>2011 Total Ridership*</b>	<b>Advertising Revenue</b>	<b>Revenue Per Rider</b>
SEPTA	328 million	\$29.3 million	\$.09
MARTA	143 million	\$11.4 million	\$.08
BART	108 million	\$7.9 million	\$.07
Los Angeles County MTA	454 million	\$28 million	\$.06
San Francisco Muni Railway	213 million	\$11.5 million	\$.05
Tri-Met	101 million	\$5 million	\$.05
MTA New York City Transit	3.256 billion	\$120 million	\$.04
Chicago	517 million	\$19.4 million	\$.04
New Jersey Transit	257 million	\$9 million	\$.04
WMATA	409 million	\$18 million	\$.04
Massachusetts Bay Transit Authority	375 million	\$12.3 million	\$.03
San Diego MTS	79 million	\$621,000	\$.01

\*All figures taken from APTA 2011 Ridership Report

Our initial review indicates that BART generates this revenue without using some of the more innovative techniques being used in other systems. Techniques now in use include wrapping trains (inside and outside) with branding and advertising material, ads on fare media, video on trains and in stations, media screens at station entrances, station naming rights and others. The fact that the agency generates such significant revenue, while not utilizing some of the more innovative approaches being used in other regions, shows how much value advertisers place on reaching BART’s riders.

With the Bay Area already branded as a technology hub, BART can be leveraging this identity to make sure that the agency’s advertising opportunities engage the region’s tech-savvy riders and provide an opportunity for technology companies and others to advertise their wares in the most forward-thinking ways.

Each additional penny of revenue per rider means more than \$1 million in revenue each year to BART. Therefore, we recommend that BART review potential contract changes with its third-party advertising partner to incentivize additional revenue growth in this area.

Here are pictures of station entrance media screens:



Left Photo Source: <http://www.mta.info/news/stories/?story=868>

Right Photo Source: Source: <http://www.screenmediadaily.com/news-cbs-outdoor-new-york-city-mta-digital-signage-advertising-urban-panel-network-0014001811.shtml>

Here is a picture of a wrapped subway train:



Photo Source: <http://www.highsnobiety.com/2012/11/11/kaws-wraps-mta-subway-train-inside-and-out-for-macys-thanksgiving-day-parade/>

Here's an example of fare media with an advertisement/commemorative message:

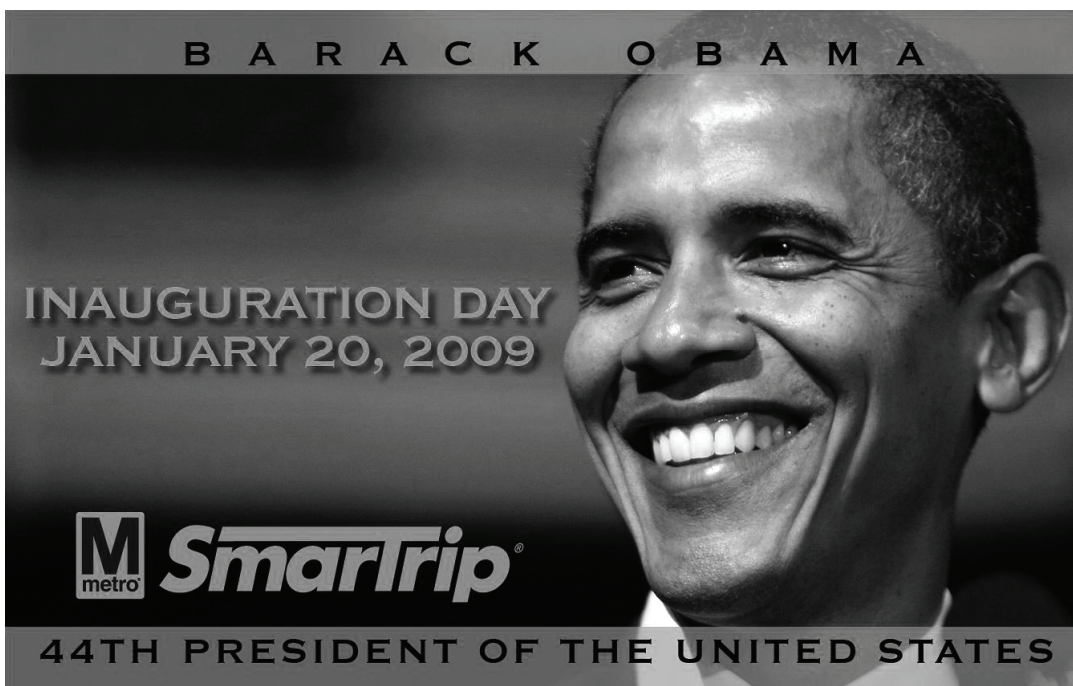


Photo Source: [http://voices.washingtonpost.com/inauguration-watch/2009/01/metros\\_obama\\_smartrip\\_cards\\_av.html](http://voices.washingtonpost.com/inauguration-watch/2009/01/metros_obama_smartrip_cards_av.html)

The New York MTA in 2009 sold the co-naming rights for the Atlantic Avenue Subway Station in Brooklyn to Barclays Center for \$4 million. Here is the sign that was placed in the station to alert riders to the change:



Photo Source: <http://www.dnainfo.com>

### Next Steps

We recommend that BART examine the appropriateness of these innovative techniques for BART's system and work with its existing private contractor to explore opportunities to raise additional revenue.

## **State of Good Repair/Facilities and Systems**

BART just celebrated its 40th anniversary. This has come with much success—BART trains now provide more than 400,000 trips on the average weekday—but it has come with challenges as well. Many of the key systems BART relies on to provide safe and efficient travel to its customers are 40 years old. For this reason, a large portion of the agency’s investment needs in the coming years involves the recapitalization of these basic systems.

### **Areas of Need**

The main areas of need for system recapitalization include

- station modernization;
- track improvements;
- traction power;
- capacity enhancements;
- train control/communication systems.

More than \$14 billion in investment need has been identified for these and other state of good repair activities. Funding sources have been tentatively identified for approximately half of this amount, leaving a gap of around \$7 billion.

### **Opportunity for P3**

Identifying one or more methods to use private sector capital to close this funding gap would be highly valuable.

It would be very difficult to structure a successful P3 for these types of investments if the goal is to have the private partner design, deliver and guarantee the ongoing performance of these systems in exchange for a stream of on-going payments. These systems are physically and operationally woven into the agency’s fabric in a complex and integrated way. This would make it very difficult to overcome one of the central challenges of writing a successful P3 agreement: a clear definition of roles and responsibilities between the public and private partners.

For example, there are many private sector entities that would have sufficient expertise to design and implement an upgrade to the agency’s electrical power systems. They might even be able to do so more cost-effectively than the agency could on its own or through a standard Design-Bid-Build procurement. However, as a practical matter, such a P3 would require the

private party and its employees to have continuing access to essentially all portions of the system, including the rail bed where trains are operating. For these operations to be safe, the private partner would need to operate under the strict control of BART management about when and where it is able to access the tracks safely. Although this is certainly achievable, it would tend to negate one of the conditions that needs to be present when the P3 agreement is negotiated: i.e., the ability of the private partner to accurately assess how long it will take to do the work and at what cost. It is unlikely that a private partner would be willing to be held accountable for a guaranteed price and timeline for the work to be undertaken if it will be at the mercy of the agency in an unpredictable way for access to the systems and facilities on which it will be working.

Similar considerations would apply to the agency's communications and train control systems and to the tracks themselves. These are so highly integrated with the agency's daily operations that inserting a private actor into the process of operating and upgrading these systems would likely be too unpredictable to yield a P3 agreement the agency and the private partner would both be comfortable with.

Station modernization might be a more fruitful area for a P3. In most cases, station improvements can be made independent of the moment-to-moment operation of the trains, so it is more likely that the agency and a private partner could agree to guaranteed cost and a work schedule that the private partner could be confident it could meet.

If these problems can be overcome, the question of cost effectiveness still arises. In order for a P3 to be desirable, the agency should have reasonable confidence that a private partner could achieve the goals of the project either more cheaply or more quickly (or both) than via traditional procurement. Given the type of work involved in station renewal, it is not very likely that a private partner could bring to the process innovations in design that create major cost savings. Cost savings through better construction management could still be achievable.

None of these areas of investment—electrical power systems, communications, train control, trackage, station renewal—appear to offer significant opportunities for a private partner to generate new revenue to offset construction costs.

### **Next Steps**

While the potential for P3 on state of good repair work may be limited, it would be appropriate to review BART's station modernization plans to see where there might be an opportunity to bring in a private partner.

## Long-Term Planning/Second Transbay Tube

As BART celebrates its 40th anniversary and looks ahead to its 50th, it is appropriate not just to look back at the successes of the past 50 years but to look ahead to the *next* 50 years. The 2050 system plan, developed at the regional level in 2007, includes a number of long range initiatives that could be advanced using P3 techniques. Perhaps the most notable new infrastructure envisioned in that long-term plan is a second Transbay Tube. With the current Tube already approaching its maximum capacity, planning for a second Tube—even though its construction might be fifteen or twenty years away—would appear to be a necessity, not a luxury.

The value of bringing the private sector into the planning process early has been pointed out recently by the selection of a Design-Build team to build a new bridge over the 3-mile expanse of the Hudson River at the Tappan Zee (about 20 miles north of Manhattan). The private sector was first brought into a planning process for that bridge in 1997, a full sixteen years before the contract will be let. That amount of time was required to bring into alignment all of the financial, procedural, legal and political issues associated with such a large project. With this in mind, it is not too soon to be involving the private sector in the thinking about how and when major elements of the Bay Area’s long-term plan can be delivered.

Here is how the BART Metro Vision Plan describes this project:

*A variety of alignments for a second Transbay Tube connecting Oakland to San Francisco—which would effectively double system capacity in the corridor—have been proposed. Most recently, the Regional Rail Plan recommended a conceptual alignment starting in the Oakland Wye, where a fourth track would be added, and continuing under the Oakland Estuary and Alameda (a direct alignment would pass near College of Alameda and directly under Alameda Point) into San Francisco at an undefined point south of Market Street. The plan considered both a connection to the existing Market Street subway as well as a second San Francisco line. The plan recommended a four-track crossing with provision for two tracks for BART and an additional pair of standard-gauge tracks for regional rail (Capitol Corridor/Caltrain) and high-speed rail services.*

In particular, the scope, scale and complexity of building shared transit infrastructure benefitting Muni in San Francisco, AC Transit in Oakland, BART, California High-Speed Rail, the Capital Corridor Train, and the airports (including San Francisco International and Oakland) suggest that there are benefits to be gained from a P3 approach that would bring the shared expertise of BART and the private sector to bear on the complexities of the project. Apart from accessing off-balance-sheet private capital, all of

the agencies listed above would likely realize significant advantages across the key elements of a Design-Build-Finance-Operate-Maintain (DBFOM) approach to a second Transbay Tube. But BART in particular would be positioned to leverage the benefits of cost-savings, timeline compression, substantial risk transfer to the private partner, covenanted long-term performance commitments, and life-cycle value.

The significant scale and complex scope of the proposed second Transbay Tube meet the initial global criteria used to evaluate the suitability of an alternative delivery method against a conventional procurement. Further applying an international P3 screening matrix to the second Transbay Tube suggests that the following elements should be considered:

1. a competitive number (>5) of private sector firms with the capacity to deliver the project;
2. integration of multiple phases of the project (i.e., design, build, finance, operate, maintain) into a single contract, with a minimum of design, build, finance and some maintenance being combined;
3. an anticipated useful life of the second Tube of greater than 25 years;
4. the capacity to generate revenue, given the inherent scope of the second Tube.

Many of the output specifications for the construction of the second Tube are known and would not need to be developed; the second Tube's long-term operational and maintenance needs should be relatively stable and predictable; and operations- and maintenance-related performance specifications and indicators should be available. Most of the second Tube's costs, mainly related to construction and long-term operations including maintenance, should be quantifiable up-front with reasonable assumptions and the availability of historic data.

In addition to assessing the second Tube's appropriateness for a P3 approach using the screening criteria above, the particular capital conditions currently affecting infrastructure development in the state of California invite consideration of P3 for a project of this scale. Using California's Debt Affordability Report as a proxy for the availability of grant funding and debt capacity in itself suggests that developing the second Tube may require the participation of private capital in a multilaterally-financed DBFOM structure.

There is significant global precedent for examining a second Transbay Tube P3 procurement process. The Eurotunnel, notwithstanding a long and complicated procurement history, is a prima facie example of how the UK and French governments procured a complex and precedent-setting passenger rail asset under more speculative circumstances that were less favorably defined in terms of operating history than the second Transbay Tube would be. BART already has a very successful system with known data on ridership,

revenue, development and operating costs, where one of the central infrastructure assets is defined by the existing Transbay Tube. BART is running at or near capacity and thus has supporting passenger data spanning many years that can be used to model and assess the potential elements of the proposed expansion.

As another excellent comparative case study of alternative delivery models for transit in the San Francisco Bay Area, the Los Angeles Measure R regional transportation tax offers BART another map of how public funding is being combined with private funding elsewhere in California. Aside from whether the San Francisco region adopts a similar transportation measure or not, the development and financing principles reflected in Measure R share many similarities to BART's historical funding model, where regional bonding and revenue tax measures were used to fund a large-scale integrated regional transportation project. In the case of Measure R, the notable difference lies in understanding how the two streams of capital—public and private—are being integrated alongside carefully structured P3 procurement (DBFOM) methods.

To begin to execute at the Measure R scale, one scenario in the Bay Area (which has its own unique context and transportation history) would be for the major transportation agencies to form a Project Joint Venture (Project JV) dedicated to the development of the second Tube. The Project JV would evaluate for adoption the P3 finance model, and apply the DBFOM approach to procurement. Financing arrangements could potentially be modeled around a multilateral approach that embodies a range of funding sources: federal, state and local sources of grant and revenue-based funding, including sales and property tax measures, combined with private sources. Private capital could leverage and supplement the limited availability of public resources with urban infill and station-centric development impact, lease and user fees, farebox revenues, a potential second Transbay Tube surcharge, and other interagency revenue and cost-sharing agreements aimed at optimizing multi-modal transportation resources in the Bay Area at large.

To exploit these advantages and achieve a successful P3 for a second Transbay Tube or for other projects within the BART system, BART's leadership should consider an internal assessment and restructuring of its traditional procurement practices and culture with regard to longer term projects.

A core shift in this approach would involve changing from an input- to an output-defined procurement process. While traditionally the public agency is the controlling partner defining all of the procurement inputs through a traditional Design-Bid-Build (DBB) process, in this scenario BART (and most likely a Project Joint Venture encompassing all of the agencies outlined above) would either transform and retrain its procurement arm to adopt an output-specified methodology, or form a dedicated P3 team to manage any



P3 projects on the outcome-defined basis. The private sector in this scenario would effectively treat BART as a customer, taking full responsibility for the input specification process that has traditionally been administered by BART.

For well-established public agencies like BART, such an alteration in roles and responsibilities can challenge existing organizational culture and structure. However, while new to BART, such methods of procurement are now conventional in many other countries, where long-standing institutions on the public side and market participants from the private sector have made similar adaptations. We are not suggesting here that BART adopt this new approach for projects in its current capital program. Rather, we are suggesting that the scope, magnitude, complexity and timing of the second Transbay Tube may allow for a top-to-bottom review of how BART and the region might deliver such a project through a different process. Building that procedure very early in the planning process—before project specifications are even known—could allow for time to internalize some of the procedural changes and allow those changes to be incorporated into the BART organizational culture.

Overall, the objective of evaluating and embracing a Public-Private Partnership DBFOM approach to the proposed second Transbay Tube is to provide BART passengers and affected taxpayers with better outcomes over the useful design life of the infrastructure that defines BART and also collectively across all of the impacted agencies of the Bay Area transportation system at large. Faster, better and cheaper procurement, combined with increased operating efficiency, safety and ultimately a superior customer experience are the parameters within which a comparative analysis of procurement methods should take place.

### **Next Steps**

One approach to beginning the process of evaluating options for this project would be to create a multidisciplinary team within BART to work on developing an internal process for evaluating P3 options to deliver on the long-term plan and then to discussing with outside stakeholders and potential P3 partners the right way to package different elements of the long-term plan for P3 participation. This team, which may have multiple reporting obligations within the agency, would exist solely to bring together both internal and external expertise and develop ideas for long-term project delivery for consideration by BART staff and leadership.

### **Transit-Oriented Development**

Throughout its system, BART owns properties that are adjacent or in close proximity to its stations. Currently, BART is working with consultants to review its portfolio of real estate at or near stations and assess their potential for development. This is a very positive step.

BART's real estate can be leveraged to provide for system improvement, including infill stations to support increased ridership and improved service to nearby communities. By utilizing the P3 model to develop these properties, BART can potentially secure the broad advantages outlined above, while benefiting from private capital investment at the front end, and subsequently from long-term ground lease payments from the private developer.

Where the property is located adjacent to or near an existing station, the revenues could be utilized by BART for other projects or purposes. Where the property is adjacent to or near a potential infill site, the revenue generated could be applied toward the costs of developing the infill station.

Typically, the P3 financial structure for Transit-Oriented Development (TOD) would utilize a long-term bondable unsubordinated ground lease. This structure would shift the risks associated with the development, operation and maintenance of the project from BART to the private developer for the term of the ground lease.

TOD projects also provide benefits and amenities to adjoining municipalities, be they retail, office, residential, parking or increased tax revenues, and these effects can drive increased BART ridership. Since all parties—the adjoining municipality, BART and the developer—benefit from the TOD, it is typical that they cooperate in moving the project, and jointly contribute to its overall cost.

The West Dublin/Pleasanton Station is an example of where BART has utilized a P3 approach to develop an infill station with adjacent TOD. We discuss how that project was developed earlier in this report.

To build on BART's experience at Dublin/Pleasanton and elsewhere, it is important for BART to work out a clear process for soliciting development proposals, evaluating them and working cooperatively toward an agreement. The process should spell out a professional, analytical approach to evaluating the economic and transportation benefits of each potential development for BART and for the surrounding community. Once a project emerges from this process as a potential for final agreement, the Board and leadership of BART would make final decisions on how to move ahead. The key to success will be clarity in terms of what factors are in play at what part of the process of reaching a P3 agreement. The private sector responds best—and offers the highest value to its public partner—when an efficient, quality process is in place.

One approach to developing such a TOD process would be to convene a panel of local and national developers to meet with BART staff to jointly develop the template for a process that could be used for all of BART's TOD opportunities.