



**FINAL REPORT**



# Bi-County Transportation Study



**SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY**  
PRESENTED TO THE AUTHORITY BOARD, MARCH 2013

## **ACKNOWLEDGEMENTS**

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## Executive Summary

### Introduction

The San Francisco-San Mateo Bi-County area, roughly defined as the southeastern corner of San Francisco and the northeastern corner of San Mateo County, is envisioned for transformative land use growth and development in future years. The Bi-County Transportation Study is a multi-agency effort to develop a priority project list and funding strategy for new transportation improvements to support the study area's current neighborhood needs and significant anticipated growth. The cross-border nature of the area and magnitude of proposed development call for cooperative, multi-agency planning.

The Study has engaged stakeholders and governmental bodies to collectively assess the transportation needs in the study area, providing an opportunity for regional discussion and coordination on which transportation improvements to fund collectively, and when and how to implement them, as individual land development and transportation projects move forward.

The growth envisioned here will transform the area from a set of under-utilized and vacant industrial lands into new, compact, mixed-use neighborhoods. The focus of the Bi-County Study is the change proposed in the sites shown in Figure ES-1, totaling over 15,000 new housing units and over 14 million square feet of new employment uses.

Figure ES-1. Bi-County Transportation Study Area and Development Sites





## Project List

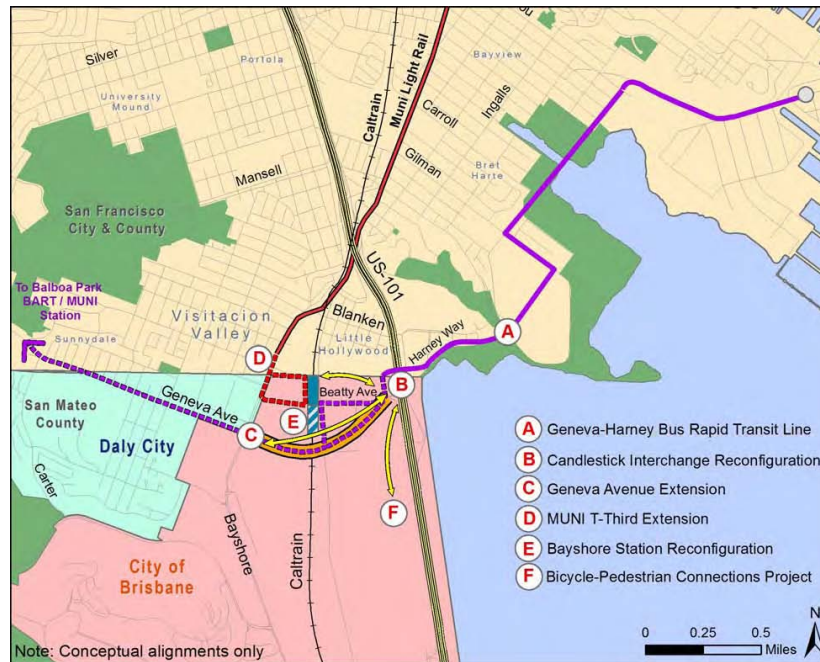
The Study evaluated previously proposed and new project concepts using a framework that considered each project's connection to the land developments, benefits to each of the two counties, and overall effectiveness in meeting the agreed-upon Bi-County goals. The evaluation generated a consensus Priority Project List for which funding will be sought collectively by the Bi-County partner agencies, as follows in Table ES-1 and Figure ES-2.

Table ES-1. Bi-County Priority Project List

Project	Cost [\$2010 millions]
US101 Candlestick Interchange Re-Configuration	\$195M
Geneva Avenue Extension	\$90M
Harney-Geneva Bus Rapid Transit Line	\$210M
T-Third Light Rail Extension (Segment "S")	\$58M
Bayshore Station Re-Configuration	\$14M*
Bicycle-Pedestrian Connection Project	\$7M
Area-Wide Traffic Calming Program	\$10M
Total	\$548M

\* Total project cost is estimated at \$31M; \$14M cost represents increment above the \$17M already committed by SFMTA

Figure ES-2. Bi-County Priority Project Map



## Implementation Schedule

The Study defined a desired implementation schedule for the Priority Project transportation improvements, shown in Table ES-2. This schedule aligns the transportation projects to the expected timing of transportation impacts that may result from the proposed land development projects, given their own phasing and occupancy schedules. The schedule identifies the bulk of the project (and resulting cash flow) need by 2020, with the last few Priority Projects opening in 2025.

Table ES-2. Bi-County Project Implementation Schedule

Timeframe	Project
2010-2015	Traffic Calming Program (begin)
2015-2020	Geneva Avenue Extension Full Harney-Geneva Bus Rapid Transit Line Bayshore Station Re-Configuration Bicycle-Pedestrian Connection Project
2020-2025	US101 Candlestick Interchange Re-Configuration T-Third Light Rail Extension (Segment “S”)
2025-2030	All projects constructed

## Funding Considerations

While the projects are estimated to cost \$548M if built in 2010, the Study places the full cost of the program, if implemented according to the above schedule, at \$480M in 2010 (present value) dollars. The Study does not actually represent a funding commitment by any agency or private interest; such commitments, if made, would be called for under future implementation steps. Instead, the Study represents a consensus approach among the public partners to project development and funding for the Bi-County transportation investment program and a commitment to continue efforts and discussions on Bi-County funding beyond the report.

The level of required funds to implement the Bi-County program is ambitious for either the public or private sector to gather individually in the specified timeframe. But by combining public and private sources, the Bi-County partners can increase dramatically the prospects for funding the projects according to the specified schedule.

A further reason for public-private cooperation is access to financing options that provide increased payment timing flexibility. Together, the enhanced fund access and timing flexibility from combining public and private funds create a strong case for working cooperatively on funding.

## Public Sources

The Study explored available traditional public funding sources, finding that:

1. Public sources have previously provided, on a countywide basis, funding levels of a similar order of magnitude to the Bi-County program cost. However, the future availability of public sources is uncertain, given the overall political climate and budget outlook for government at all levels.
2. To direct those sources toward the Bi-County program, each local agency would need to designate the Bi-County program as a high-priority transportation investment. The only currently committed funding for the Bi-County program is the approximately \$16 million in San Francisco Prop K sales tax revenues identified for the Bi-County expenditure category. Other sources exist that could also be committed, if the respective agency partners moved to prioritize the Bi-County program.
3. Current trends in public sources for transportation funding include stronger emphasis on private-sector participation, on improvements with a strong land use connection (especially to housing growth), and loans, as opposed to grants.

### **Private Sources**

The private sources proposed here are related to the development of large land sites in the Bi-County study area. These sources may include a combination of direct contributions from private developers and future taxes associated with the newly developed land, such as Mello-Roos special district or tax increment mechanisms.

The expectation is that the land use agencies in the Bi-County area work with private real estate developers as part of the land development process, identifying and committing contributions to the Bi-County program. It is understood that each development process will undergo its own environmental clearance and project approval process; that process, in combination with this Study, is expected to help establish each development's relationship to Bi-County transportation needs. The Bi-County land use agency partners may engage developers to contribute in one of two ways:

1. Negotiating development agreements
2. Instituting formal exactions or impact fees based on nexus studies

This report leaves to the respective Bi-County agency partners the decisions about how and how much developers will be called upon to contribute, providing a technical basis on which discussions can occur, in the form of the Bi-County cost-participation framework.

### **Cost-Participation Framework**

This cost-participation framework has been constructed on the concept of sharing the cost burden of the transportation projects by the public and private sectors. In this framework, the private sector takes responsibility for all new trips associated with the new large-site developments. The public sector takes responsibility for the so-called 'background' growth in trips not associated with the developments. In other words, all who impact the transportation system share the burden for the needed improvements in relative proportion to the size of their respective impacts.

Under this framework, the Study provided a technical basis on which to determine Bi-County tripmaking contributions by comparing the future projected use of the transportation network by new residents and employees.

Table ES-3. Cost-Participation Percentages and Amounts, by Automobile Trip Generation Method

Stakeholder	Tripmaking Contribution Percentage	Cost- Participation by Trip Contribution (\$2010)
<i>Public Share (2005 – 2030 Background)</i>	<i>32.9%</i>	<i>\$158M</i>
SF Background	18.8%	\$90M
Brisbane Background	11.2%	\$54M
East Daly City Background	3.0%	\$14M
<i>Private Share (Incremental Development Trips in 2030 Attributable to Land Developments)</i>	<i>66.9%</i>	<i>\$322M</i>
Hunters Point Shipyard	10.9%	\$52M
Candlestick Point	22.0%	\$106M
Executive Park	3.9%	\$19M
Visitation Valley	3.6%	\$17M
Baylands	18.4%	\$88M
Cow Palace/East Daly City	7.9%	\$38M
Recology	0.3%	\$2M
<b>Total</b>	<b>100%</b>	<b>\$480M*</b>

\* Note that \$480M is the 2010 present value of \$548M expended at the years of expected construction for each project.

The percentages and amounts shown here are intended to serve as a starting point for discussions about sharing costs among the Bi-County public and private partners. The framework is not intended to determine the actual contributions or create any commitments but rather to inform discussions about funding strategies. Furthermore, the public Bi-County partners have discussed the concept of seeking public grants in excess of the identified public share as a way to support and facilitate Bi-County growth.

### Why Work Together? Traditional and Financing Strategies

The prospects for implementing the ambitious Bi-County program according to schedule are much higher if the involved public agencies and private parties work together than if each party were to attempt it alone. Cooperation creates opportunities for potential bundled financing arrangements, allowing all improvements to be built when needed, delaying the needed payments, and dividing them among the cost participants. One large benefit to the private partners, who would likely need to borrow funds in order to provide their Bi-County contributions, could be access to sources of capital that are available to the public agencies at lower cost than those for private borrowers. Furthermore, the public Bi-County partners have discussed the concept of seeking public grants in excess of the identified public share as a way to support and facilitate Bi-County growth. Finally, the partnership could offer an additional benefit – further delaying the needed private payments by front-loading the public contributions, placing private funding toward the back end.



The Study explored three potential hypothetical fund strategies with private-public cooperation in mind:

1. Traditional pay-as-you-go
2. Bond financing: conventional
3. Bond financing: conventional + Transportation Infrastructure Finance and Innovation Act (TIFIA)

A **pay-as-you-go** strategy involves addressing each project need individually, waiting to proceed with implementation until accumulating enough private funding commitments and traditional public fund sources to fully cover the cost. Projects would be advanced according to the implementation schedule, but that schedule might be affected by the availability of funds.

A **bond financing** strategy involves securing financing to ensure that funds are available when needed for Bi-County Priority Project implementation according to the prescribed schedule. Collectively, with participation of the public agencies, the Bi-County partners may be able to access financing more easily, and at lower cost, than the private partners by themselves. There are two options for financing: the private bond market or the federal TIFIA program, which provides loans to public agencies for transportation projects at low interest rates and with lower requirements than the private bond market. To secure financing, the partners would need to collect private and public contributions up-front or on a pre-determined schedule, for use as a repayment stream. Adequate collateral would also need to be provided to securitize these bonds.

The Study explored the financial and cash-flow implications of each strategy. As would be expected, a conventional bond scenario has a present-value cost of \$656 million, substantially higher than the pay-as-you-go scenario, at \$480 million. Replacing some conventional bond funds with TIFIA funds, as in Strategy 3, reduces the cost of the financing strategy slightly, to \$644 million, because of the lower interest rate and longer repayment period. Still, financing increases the overall cost to implement. One of the strongest benefits of the financing strategies (2 and 3) is the deferred and distributed payment schedule that they offer, as shown by Figures ES-2 and ES-3. Given the nature of real estate development cash flows, for which income is scarce in the first years of a development project, the financing strategies may be more attractive to the private development project sponsors as a way of implementing the needed transportation improvements.

Figure ES-2. Pay-As-You-Go Strategy Cash-Flow Schedule, Pro-Rata Payment

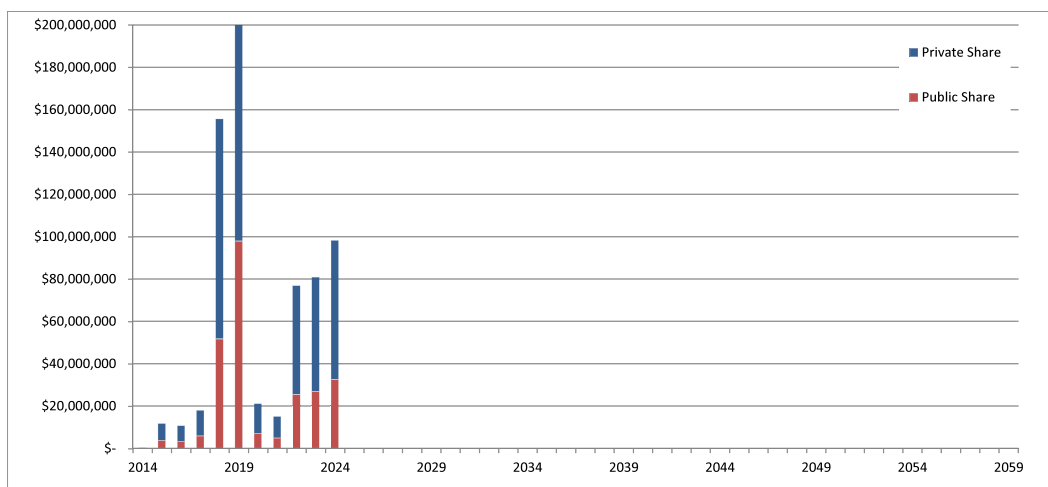
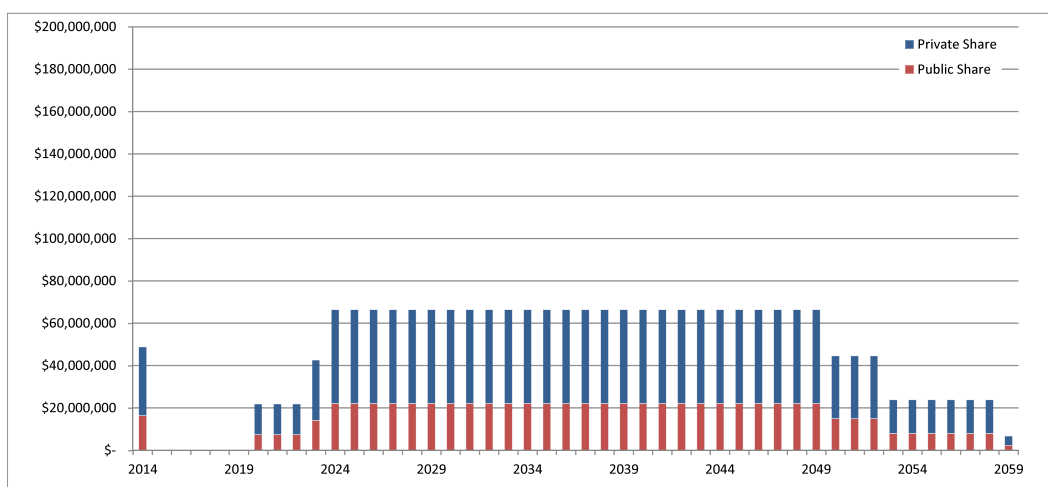


Figure ES-3. Bond+TIFIA Strategy Cash-Flow Schedule, Pro-Rata Re-Payment



The analysis examined an additional possible cash-flow scenario to identify further benefits the public sector might be able to offer to the private partners: providing the public portion of the required payments first through the pursuit of public capital grants. This approach would provide even more time for the private development projects to be implemented and gain full occupancy before needing to make a first payment toward transportation improvements. In a pay-as-you-go strategy, the additional time may amount to five years later than a pro-rata scenario. In a financing strategy, the additional time could stretch as long as ten years; see Chapter 8 of the full report for additional figures reflecting this finding.

The Study charted an implementation ‘roadmap’ for each type of strategy, contained in the body of the report. Each roadmap indicates the need to collect funds and/or funding commitments from private entities and public agencies, and the possible need to create an administrative structure if fund-borrowing is pursued, such as a joint powers authority. The roadmap also indicates the need to designate an implementing agency for each improvement project and development phase to receive funds as needed to advance them to completion. Finally, there would be a need for an accounting

system to record and track the timing, amount, and type of private and public Bi-County contributions made for each Priority Project. The system would need to enable contributors to take ‘credit’ for any in-kind contributions and for contributions made earlier, rather than later.

### Interim Solutions

Recent events relating to the economic recovery and the end of Redevelopment authority suggest that the Bi-County development projects may not move forward as quickly as envisioned originally. In recognition, the Study also explored Interim Solutions during which only some of the projects are built. The recommended Interim Solution is described in Table and Figure ES-4 below.

Table ES-4. Interim Solution Project Definition

Priority Project	Ultimate Cost [2010 \$]	Treatment Under Interim Solution	Interim Cost [2010 \$]
US 101 Candlestick Interchange Re-Configuration	\$195M	Not included. This project is needed only under the cumulative conditions. If not all land developments are implemented, the existing interchange suffices.	
Geneva-Harney Bus Rapid Transit Line	\$210M	The BRT line would be operated in at least 50% dedicated transit lanes, and 100% dedicated lanes east of US101. Between US101 and Bayshore Boulevard, buses would operate on existing streets in mixed-flow lanes with potential transit priority improvements, or on the Geneva Avenue Extension when built. Vehicle acquisition included.	\$98M
Geneva Avenue Extension	\$90M	The extension would be built with half the ultimate number of travel lanes.	\$52M
T-Third Light Rail Transit Line Extension (“Segment S”)	\$14M	Not included. This connection cannot be made without Baylands development; and with less than full build-out of Baylands, there would not be demand for the extension.	
Bayshore Station Re-Configuration	\$58M	Not included. This re-configuration is most needed when Baylands is developed.	
Bicycle-Pedestrian Connections Project	\$7M	Initial focus is on BRT and Caltrain access. This project would require more investment when Baylands is developed.	\$3M
Traffic Calming Program	\$10M	Not included. This project will not be needed until closer to build-out.	
Total	\$548M		\$153M

Figure ES-4. Maps of Interim Solutions Projects

<p>Interim Solution A</p> <p>[0-5 Years]</p>		<ul style="list-style-type: none"> <li>• Harney-Geneva BRT operates on exclusive lanes west of Harney and Alana Way on streets constructed as part of the Candlestick Point-Hunters Point Shipyard Development.</li> <li>• The central and eastern portions operate as mixed-flow on existing streets.</li> <li>• A pedestrian connection from Blanken Avenue to the Bayshore Caltrain Station is possible along Tunnel Avenue.</li> </ul>
<p>Interim Solution B</p> <p>[5+ Years]</p>		<ul style="list-style-type: none"> <li>• Geneva Avenue Extension constructed to improve vehicle flow and access between Candlestick-Hunters Point and Brisbane, Daly City, and points west. Extension could serve Muni and/or SamTrans buses.</li> <li>• Harney-Geneva BRT operates on Interim Solution “A” alignment or new Geneva Avenue Extension (would require further planning to ensure strong access to Bayshore Station).</li> <li>• To improve pedestrian access between Harney-Geneva BRT, Caltrain, and surrounding neighborhoods, new pedestrian facilities are constructed on an extension of Sunnydale Avenue from the west, and along Tunnel Avenue from the north.</li> </ul>

If built according to the anticipated project delivery schedule, the interim cost has a present value of \$142 million, less than a third of the cost of the ultimate solution.

The Study calculated the Cost-Participation amounts under the Interim Solution, shown in Table ES-5 below.

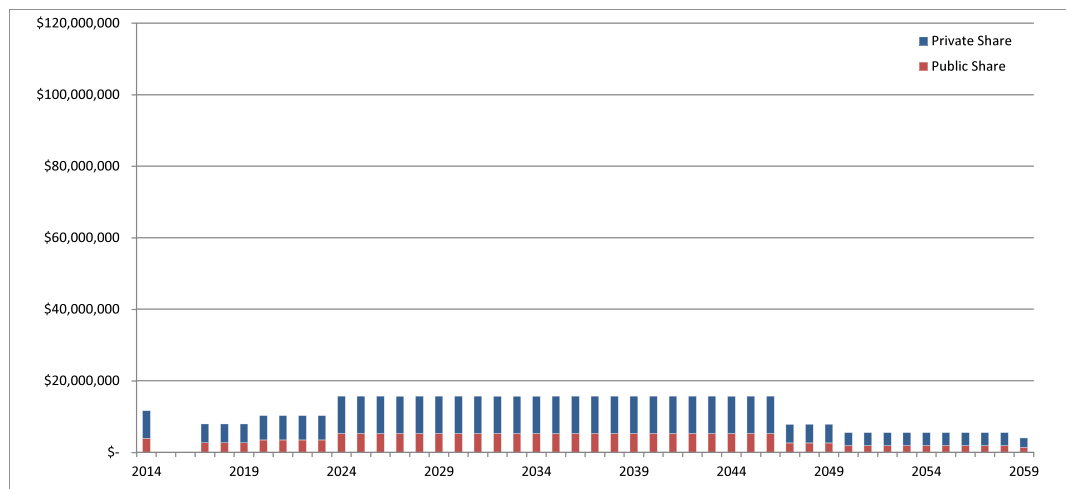
Table ES-5: Interim Solution Cost-Participation Amounts

Stakeholder	Cost-Participation by Trip Contribution (\$2010)
<i>Public Share (2005 – 2030 Background)</i>	\$47M
SF Background	\$27M
Brisbane Background	\$16M
East Daly City Background	\$4M
<i>Private Share (Incremental Development Trips in 2030 Attributable to Land Developments)</i>	<i>\$97M</i>
Hunters Point Shipyard	\$16M
Candlestick Point	\$32M
Executive Park	\$5M
Visitacion Valley	\$5M
Baylands	\$27M
Cow Palace/East Daly City	\$11M
Recology	\$1M
<b>Total</b>	<b>\$145M*</b>

\* Note that \$145M is the present value of \$153M expended at the years of expected construction for each project.

As with the ultimate solution described above, there are multiple potential strategies that could be used to implement the Interim Solution. If the Study Partners opt for bond financing, the Interim Solution's debt service payments would amount to less than \$20 million per year, as shown in Figure ES-4 below, with the same options as the ultimate solution in terms of the timing of the required payments.

#### ES-4. Interim Solution Bond + TIFIA Strategy Cash-Flow, Pro-Rata Repayment



### Near-Term Next Steps

#### Next-Phase Project Development Work

Several project development steps are required before the identified Bi-County Priority Projects can be constructed, including additional planning work, environmental clearance at both the state and federal levels, engineering design. There are multiple options for which agencies serve as leads for which projects, and how to ‘bundle’ projects together to realize economies of scale. The Study explored the options, the results of which are in the body of the report. Considering the long lead times and their stand-alone nature, the two projects requiring near-term development work are:

- US101 Candlestick Interchange Re-Configuration: Caltrans Project Report and environmental clearance documentation
- Harney-Geneva Bus Rapid Transit Line: feasibility study

While development work continues for individual transportation projects, the partner agencies will need to sustain an ongoing effort to gather Bi-County project funding as opportunities arise, and also to provide opportunities for community input on the implementation of the Bi-County transportation program.

There is also the issue of responding to the still-evolving planning landscape as individual land use and transportation projects advance. With some land use decisions yet to be finalized, plans may change, resulting in different transportation needs than described in this report. For instance, there is an active effort to re-define and continue advancing the Visitation Valley / Schlage development in response to changing financing conditions for the site. The Bi-County partners will need to coordinate as a group on any such potential shifts, as changes in the design of one land use and/or transportation project will likely affect the design of other projects as well as the overall cost and contribution amounts.



**Next-Phase Bi-County Funding Work**

Ongoing funding work will entail monitoring land development approval processes and coordinating with the respective land use agencies to secure private contributions to the Bi-County transportation projects. The Bi-County Study's cost-participation framework will serve as the basis for this coordination. This work applies to the public side as well; the agencies will need to monitor regional, state, and federal funding opportunities and pursue them on behalf of Bi-County transportation projects. It is proposed that SFCTA will continue to play this role, coordinating with the partner agencies as needed to help with advocacy and application activities to seize funding opportunities as they arise.

Because some local land use plans and approvals have not yet been finalized, it is important to regard the Bi-County Transportation Study as providing a framework for identifying shared capital project priorities and costs more so than a snapshot in time of needs and costs associated with any given project list. For example, the Brisbane Baylands process may yield a different land use vision from that described in this report, and the Visitacion Valley / Schlage site may be re-envisioned because of the new financial conditions for that site. It therefore may become necessary for the Bi-County partners to re-visit the Bi-County concepts captured in this report, including the overall vision, Priority Project List, and/or cost-participation amounts. Nonetheless, the cost-participation framework provides a useful tool to apply to decision-making, even as local conditions and the project list evolve.

The Bi-County partners will also need to continue to monitor the High-Speed Train (HST) Project as those plans evolve, to understand how the plans may impact the Bi-County area and to coordinate with the relevant agencies to represent Bi-County area interests.

Finally, during the Bi-County Study's outreach process, community members have indicated a desire to be updated on, and provide input to, the transportation projects on the Priority Project List as they take shape and move through the project development process. SFCTA is exploring mechanisms, including a new Community Advisory Committee staffed by SFCTA that would meet on a regular basis, to which project sponsors would be invited to provide updates. One option is to create this CAC as a project-focused body providing input to the Harney-Geneva BRT Feasibility Study, with the option of expanding its purview as other Bi-County projects advance to implementation.

## 1 Introduction and Purpose

The Bi-County Transportation Study is a multi-agency effort to develop a priority project list and funding strategy for new transportation improvements to support the project area's current neighborhood needs and significant anticipated growth. The involvement of multiple jurisdictions and magnitude of proposed development call for cooperative, multi-agency planning. The Bi-County Study has engaged stakeholders and governmental bodies to collectively assess transportation impacts and investment needs in the study area, providing an opportunity for regional discussion and coordination as large land development and transportation projects move forward.

### 1.1 Context: Transforming the Bi-County Area

The San Francisco-San Mateo Bi-County area, roughly defined as the southeastern corner of San Francisco and the northeastern corner of San Mateo County, is envisioned for transformative land use growth and development in future years. The growth will transform the area from a set of under-utilized and vacant industrial lands into new, compact, mixed-use neighborhoods. Changes are proposed for a number of large sites, including Hunters Point Shipyard, Candlestick Point, the Brisbane Baylands, the Cow Palace, and others. The full list of proposed land use changes is shown in Chapter 2.

Figure 1. Bi-County Study Area



The challenge here is ensuring that the new residential and employment neighborhoods are places that support community livability and travel choices beyond the single-occupant vehicle. The current multimodal transportation networks in the area show major gaps in coverage between neighborhoods and to important destinations such as the waterfront, and access to the regional road

network, such as US101, and transit networks, such as Caltrain and BART, is either overly circuitous and burdensome, or simply lacking. The Bi-County area exhibits clear existing needs for new investments in the multimodal and regional transportation networks, and these needs will multiply in number and degree as new development occurs.

## **1.2 Role and Purpose of the Bi-County Study**

The Bi-County Study takes a broad look at the totality of proposed development with the purpose of identifying regional, multimodal transportation project investments that will be needed to support future growth and existing neighborhoods. The Study aims to build broad consensus on such a project list toward creating a multi-jurisdictional and shared public and private funding strategy and prioritization. Because of the scarcity of public funding and the magnitude of needs, it is critical that the diverse group of public and private interests speak to regional, state, and federal funding providers with one coordinated voice regarding transportation needs. The Bi-County Study serves toward this end.

The Bi-County Study serves as a complementary, coordinating effort to the individual on-going land use and transportation projects proposed in the area. Multiple land use projects have already analyzed local and regional transportation impacts and needs, but they have only been able to fully address local impacts, leaving regional impacts as continuing needs. And some individual agencies have already begun advancing some regional transportation improvements through the project development process but have not yet secured full funding for those projects or coordinated implementation in concert with the other local and regional proposed projects. There remains a need to coordinate funding and implementation strategies for the regional-scale projects to secure full funding and ensure that they work together effectively to maximize transportation benefits to the community. The Bi-County Study is intended to fulfill this need.

In addition, interest in this area stems in part from San Francisco's 2004 Proposition (Prop) K sales tax measure. The accompanying sales tax expenditure plan identified funding for future projects in the Visitacion Valley Watershed, referred to here as the Bi-County area, but the plan did not identify specific projects at the time of the proposition's passage. For San Francisco, then, the Bi-County Study is the vehicle for identifying projects to which the agency will direct funds from the Prop K Visitacion Valley Watershed expenditure plan category.

Finally, this current Bi-County Study is the continuation of a previous Bi-County effort that was brought to a close in 2001. Since that time, land development proposals have advanced and evolved, creating a need to re-visit, update, and further explore the previous analysis where needed in order to re-confirm project priorities and advance recommendations commensurate with the current state of land developments and transportation improvements.

## **1.3 Goals and Objectives**

The Bi-County Study developed the following goals and objectives to guide the process of identifying and prioritizing transportation projects, the overarching theme of which is to support multimodal travel and community livability. The Study developed these goals and objectives, shown in Table 1 below, with input from multiple public agencies, private land development stakeholders, and the larger community.

Table 1. Bi-County Study Goals and Objectives

Goal	Objectives
1. Support local and regional strategic priorities with aligned transportation and land use investments and policies.	<ul style="list-style-type: none"> <li>▪ Support strategic land use priorities for growth</li> <li>▪ Enhance transportation choices</li> </ul>
2. Provide strong multimodal connections that facilitate safe travel within, among, and through neighborhoods.	<ul style="list-style-type: none"> <li>▪ Mitigate traffic impacts of new development on the street network where possible</li> <li>▪ Encourage and facilitate pedestrian travel</li> <li>▪ Encourage and facilitate bicycle travel</li> <li>▪ Improve inter- and intra-neighborhood connectivity</li> <li>▪ Mitigate negative traffic impacts on neighborhoods</li> </ul>
3. Support strong transit service.	<ul style="list-style-type: none"> <li>▪ Reduce travel times</li> <li>▪ Increase reliability</li> <li>▪ Improve access and rider experience</li> </ul>
4. Maximize cost-effectiveness and minimize implementation risks.	<ul style="list-style-type: none"> <li>▪ Select projects that are eligible and highly competitive for grant funding</li> <li>▪ Select projects that have high community support</li> </ul>

#### 1.4 Study Partners and Funders

The land and transportation projects in this area touch multiple jurisdictions, from city planning agencies to countywide and state transportation agencies. By design, this Study has been conducted as a collaborative effort among the multiple stakeholder agencies. At its core, the Study is a partnership between the congestion management agencies of each county: the San Francisco County Transportation Authority (SFCTA) and the City/County Association of Governments of San Mateo County, which provided much of the funding to make the Study possible.

The Study has also benefited from the input, cooperation, and in some cases, funding contributions, of the partner agencies. A full list of the Study Team Partner Agencies is shown in Table 2 below.

Table 2. Bi-County Study Partner Agencies

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**City of Brisbane:** Department of Public Works, Planning Department

**City of Daly City:** Planning Department

**City/County Association of Governments of San Mateo County (C/CAG)**

City/County of San Francisco: Department of Public Works, **Planning Department**, Office of Economic and Workforce Development

Peninsula Corridor Joint Powers Board (Caltrain)

**San Francisco County Transportation Authority (SFCTA)**

**San Francisco Redevelopment Agency (SFRA)**

San Francisco Municipal Transportation Agency (SFMTA)

San Mateo County Transit District (SamTrans)

San Mateo County Transportation Authority (SMCTA)

California Department of Transportation (Caltrans)

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**Bold** denotes study fund contributor

## 1.5 Related Transportation Projects and Studies

**Proposed Land Developments.** As noted above, multiple land development projects are in various stages of planning, many of which have developed individual transportation impact analyses that identify potential transportation impacts and mitigations, as part of the projects' overall environmental clearance process. Documents from the most relevant nearby land development projects include:

- Candlestick Point - Hunters Point Shipyard Environmental Impact Report (2010) and Transportation Plan (2010)
- Executive Park Environmental Impact Report (2010)
- Visitacion Valley / Schlage Lock Environmental Impact Report, (2008)
- Brisbane Baylands Specific Plan Environmental Impact Report Notice of Preparation (2010)

Although the above analyses briefly address regional transportation issues, they are not the focus of the land projects. The Bi-County Study is intended to complement the environmental analyses by addressing cumulative and regional impacts from all proposed land developments in the area.

There are also multiple related transportation projects and studies in the Bi-County area, some of which represent potential candidate projects for Bi-County funding, others which represent important coordination points for the Bi-County Study. The list below is not meant to be a

comprehensive listing of all transportation projects planned in the area, but rather, it describes those most relevant to the Bi-County Study.

**US 101 Candlestick Interchange Re-Configuration.** San Mateo County agencies, including SMCTA, C/CAG, and the City of Brisbane, have already identified this project as a key improvement to support growth on the southern side of the county line, while San Francisco agencies have also acknowledged the project need within recent land development environmental analyses. The project is completing its Caltrans-required preliminary feasibility phase, the Project Study Report (PSR), with Brisbane as lead agency. Beyond the PSR, the project has not developed a full funding plan and is a candidate for inclusion on the Bi-County priority project list. More information is provided in Chapter 6.

**US 101 San Mateo County Auxiliary Lanes.** San Mateo County transportation agencies have proposed to create auxiliary lanes for US 101 along its entire length, as a way to improve traffic flow.

**Geneva Avenue Extension.** This project is being planned as a key transportation improvement to be implemented with the proposed Brisbane Baylands land development project. It creates a new local street connection to US101. This project has not developed a full funding plan and is a candidate for inclusion on the Bi-County priority project list. More information is provided in Chapter 6.

**T-Third ‘Segment S’ Light Rail Transit Extension.** This project, led by SFMTA, would connect the T-Third light rail line to Bayshore Caltrain Station. It was conceived as part of the original T-Third project but not constructed at the time because of uncertainty about routing the light rail line through the as-yet-undeveloped Brisbane Baylands. This project is partially funded and is a candidate for inclusion on the Bi-County priority project list. More information is provided in Chapter 6.

**Geneva Avenue Transit Preferential Streets (TPS) Study.** This project, led by SFMTA, aims to improve the reliability and speed of transit along the western stretch of Geneva Avenue between Balboa Park Station and Moscow Street in San Francisco. The TPS Study is exploring short-term solutions based on existing transit service and land uses. The Bi-County Study, in contrast, explores long-term solutions based on future conditions.

**Oakdale Station Study.** This effort, led by SFCTA, explored the potential for a new ‘infill’ Caltrain station at Oakdale Avenue as a way to replace the Paul Avenue Caltrain Station, which closed in 2005. This project created conceptual designs and cost estimates for a new station and found that ridership there could be among the highest in the Caltrain system. Currently, no funding has been identified for constructing a new station, and Caltrain has not provided indication of the ability to serve this station.

**Bay Trail.** This regional bicycle-pedestrian trail aims to fulfill the vision of ringing the Bay. The trail already exists at Hunters Point Shipyard and Candlestick Point, but the portion in the vicinity of the Brisbane Baylands is currently a gap. The Association of Bay Area Governments (ABAG), the Bay Trail coordinating agency, is in discussions with the Baylands project to provide the Bay Trail within the Baylands instead of on the east side of US101, given the lack of right-of-way there. Some unresolved issues include how to connect that new portion of the Bay Trail with other key



destinations in the area, such as the Bayshore Caltrain Station and the existing Bay Trail on the east side of US101 at Harney Way.

**High Speed Rail.** In 2003, voters enacted a proposition creating the California High Speed Rail Authority (CHSRA) to be responsible for planning and building a high-speed train (HST) system connecting Sacramento, San Diego, and key points in between. Although full funding for this project has not been identified, CHSRA has developed a proposal that calls for HST service to be operated within the existing Caltrain right-of-way to connect San Francisco with the system. The original proposal, which would have affected the Caltrain right-of-way width and explored locating an HST maintenance facility on a portion of the Brisbane Baylands site (in addition to other potential sites), is being re-evaluated. By an agreement put in place in 2012, the CHSRA and Caltrain are now advancing the design and construction of the early investment projects, consisting of corridor electrification and associated rolling stock, and construction of an advanced signal system. An electrified Caltrain system would set the stage for an enhanced, modern commuter rail service and for future blended HSR service. As planning for the Blended system progresses, a new look at issues including needed right-of-way and train storage needs will be undertaken. The Bi-County team will re-evaluate findings and recommendations as necessary, if HST plans move forward and more details become available.

**Bayview Transportation Improvement Project (BTIP).** This project represents a set of local street improvements intended to improve access to regional freeways for freight needs in the Hunters Point and Bayview neighborhoods of San Francisco. The project will seek its own funding. There is some overlap between BTIP routes and identified important Bi-County routes.

## 2 Study Process

This chapter describes the Bi-County Study's process for generating the Priority Project List and Fair-Share Contributions. The process began with goal-setting, described in the previous chapter. The rest of this report is organized under chapters describing the results of the steps.

**Outreach.** The Study reached out to public agencies, private land developers, and the greater community to dialogue on the cumulative regional transportation impacts of the proposed growth and gain agreement on priority projects.

**Proposed growth.** The Study constructed an inventory of all large-site development proposals in the area and compiled information from local land use jurisdictions about proposed development programs. This inventory provided a comprehensive basis from which to explore cumulative transportation impacts.

**Conditions and needs.** The Study analyzed existing multimodal transportation needs and projected future conditions to identify the most critical regional needs in the Bi-County area.

**Issues and solutions.** For future issues identified in the previous step, the Study identified pre-existing proposals for transportation improvements and defined new investments for issues that remained unaddressed. This step produced the candidate project list to be evaluated for potential inclusion on the Priority Project List. This step also resulted in policy and other recommendations for ways to address growth impacts that go beyond providing new transportation infrastructure.

**Priority list.** The Study established an evaluation framework and used it to determine which candidate projects to include on the Study's Priority Project List.

**Funding and implementation.** The Study calculated appropriate 'fair-share' amounts from the private and public sectors needed to fully fund the Priority Project List. This step also included consideration of how funds could be collected and how the Priority Projects could be implemented, including the necessary project development work still ahead.

The chapters that follow describe the above steps in the Bi-County process in more detail.

### 3 Outreach

The Study conducted outreach to agency partners, the greater community, and private developers throughout the entire planning process, soliciting input and feedback on study products, specifically including:

- Goals and Objectives
- Conditions and Needs
- Candidate Projects
- Priority Project List
- Cost-Participation Framework

The Study utilized the avenues for outreach, input, and feedback shown in Table 3 below.

Table 3. Outreach Activities and Audiences

Outreach Activity	Target Audience
Hosted community meetings (October and November, 2008)	Community members
Presentations to existing community groups and agency boards	<ul style="list-style-type: none"> <li>▪ Bayview Hunters Point Project Area Committee</li> <li>▪ Brisbane City Council</li> <li>▪ San Francisco Redevelopment Agency Commission</li> <li>▪ San Francisco Planning Commission</li> <li>▪ Visitacion Valley Planning Alliance</li> <li>▪ Visitacion Valley / Schlage Citizen Advisory Committee</li> </ul>
Periodic working meetings with agency partners	Bi-County Study Agency Partners (See Table 2 for the list of agencies)
Briefings to private developers	<ul style="list-style-type: none"> <li>▪ Brisbane Baylands: Universal Paragon Corporation (UPC)</li> <li>▪ Candlestick Point: Lennar Corporation</li> <li>▪ East Daly City / Cow Palace: City acting as liaison to potential development interests and the California Department of Food and Agriculture (owner of the Cow Palace site)</li> <li>▪ Executive Park: UPC, Yerby Company</li> <li>▪ Hunters Point Shipyard: Lennar Corporation (through the SF MOEWD and SFRA)</li> <li>▪ Visitacion Valley / Schlage: UPC</li> </ul>
Project webpage and periodic email updates	Community members

## 4 Inventory of Planned Bi-County Growth

To examine transportation performance, the Study first identified the key proposed land developments of interest in Daly City, Brisbane, and San Francisco. Figure 2 and Table 4 below show the developments included in the Bi-County growth assumption.

Figure 2. Map of Bi-County Development Sites



Table 4. Bi-County Large-Site Growth Assumptions

Development Site	Proposed Housing Growth [housing units]	Proposed Employment Growth [square feet and jobs]
San Francisco sites		
Hunters Point Shipyard (Phase 2)	2,650	5.2M (research & development, commercial, and community uses)
Candlestick Point	7,600	1.2M (office, commercial, community, and hotel uses)
Visitacion Valley / Schlage Lock Site	1,250	120,000 (commercial, community uses)
Executive Park	1,600	-230,000 (demolition of 3 office buildings and conversion to residential units)
San Mateo sites		
Brisbane Baylands*	800	7.5M (commercial, research & development, entertainment, hotel, office, and other uses)
East Daly City / Cow Palace**	1,700	550,000 (commercial uses)
Total	15,600	14.3M

\* At the time of the Bi-County needs assessment, the best information known about the Brisbane Baylands was the potential for some additional housing. New information since the assessment was completed has become available, including the option for up to 4,400 new housing units, but this information is not reflected in the assessment.

\*\* The Cow Palace site is currently under the ownership of the California Department of Food and Agriculture but may be transferred from State ownership for development purposes. The fair share calculated within the Bi-County Study for that site applies, even if ownership changes.

This list does not represent the totality of all potential growth in the Bi-County area. For example, proposals that were not sufficiently defined by the time of the analysis did not receive consideration, including the Sunnydale Housing Project and the Recology Expansion. But this kind of ‘organic’ growth is accounted for in the Bay Area Region’s employment and housing growth projections produced by the Association of Bay Area Governments (ABAG). By using ABAG projections, the Bi-County Study was still able to capture the effects of Bi-County growth outside of the above development sites. The Study considered this ‘organic’ growth to be part of the background growth that is assumed to occur in locations outside the above large sites.

Figure 3 defines the study area and Table 5 shows the growth projections within the study area which were developed from each land use jurisdiction's expectations of growth outside the large development sites and conformed with the ABAG projections' county-wide control totals. In this way, the Study was able to reflect the potential impacts of such nearby growth, such as the proposed developments noted above.

Figure 3. Bi-County Study Area

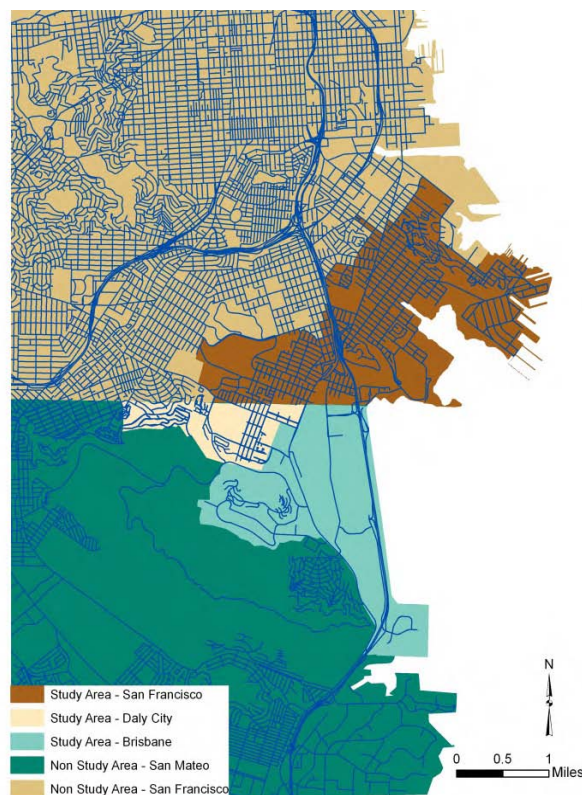


Table 5. Background Residential and Job Projections within the Bi-County Study Area, not including the Bi-County Large-Site Projects

	San Francisco		East Daly City		Brisbane	
Year	Households	Employment	Households	Employment	Households	Employment
2005	12,180	14,120	2,170	860	440	8,500
2030	15,980	27,930	2,660	1,410	640	15,230
<i>Change</i>	<i>3,800</i>	<i>13,810</i>	<i>490</i>	<i>550</i>	<i>200</i>	<i>6,730</i>

As Chapter 8 describes, the Bi-County Study accounts for fair shares toward transportation infrastructure costs associated with nearby growth outside the identified large Bi-County sites by incorporating 'public' fair shares for Brisbane, Daly City, and San Francisco. These public shares are



meant to represent the contributions to regional transportation impacts from organic growth outside the large development sites.

## 5 Conditions and Needs Assessment

This chapter describes the Bi-County Study's assessment of the critical transportation needs that could be addressed by new investments. The assessment addressed all travel modes, including private vehicle, transit, pedestrian and bicycle modes, using information gathered on existing and future travel conditions from multiple sources: field surveys, community input, existing environmental documentation, and a travel demand model that generated projections of future trip-making, traffic demand, and transit use.

### 5.1 Modeling of Future Conditions

To generate future travel conditions projections, the Study utilized a modified version of the San Francisco activity-based travel demand model, SF-CHAMP. The Study incorporated modifications to reflect a finer-grained analysis zone and transportation network in San Mateo County in order to more accurately portray travel in the Bi-County area.

Using this modified model, the Study developed findings on future travel conditions and potential transportation projects by comparing travel demand projections for multiple modeled scenarios. The Study generated several land use and transportation scenarios for comparison, the purpose of which was to determine the proposed land developments' cumulative impacts on transportation and the effectiveness of proposed transportation projects in improving conditions.

Specifically, the Study compared conditions in a 'base' year, representing current conditions, to several future-year scenarios, including one in which the proposed land developments are not built and one in which all land developments are implemented. The differences in travel patterns among the various scenarios then isolated the effects of Bi-County land developments, as well as of growth outside the large sites. The scenarios analyzed are shown in Table 6 below.

Table 6. Land Use and Transportation Analysis Scenarios

Scenario	Land Use Assumption	Transportation Network Assumption
Current baseline	2005 land uses	2005 transportation network
Future baseline	2030 land uses, no Bi-County growth	2030 transportation network as defined by Regional Transportation Plan
Future 'no transportation project'	2030 land uses with Bi-County growth	2030 transportation network as defined by Regional Transportation Plan

The Bi-County Study used Association of Bay Area Governments (ABAG) Projections for regional land use, version P2007, modified to reflect Bi-County growth. The Study maintained the countywide ‘control totals’ identified in P2007 by re-distributing overall projected growth within the respective counties to accommodate Bi-County growth.

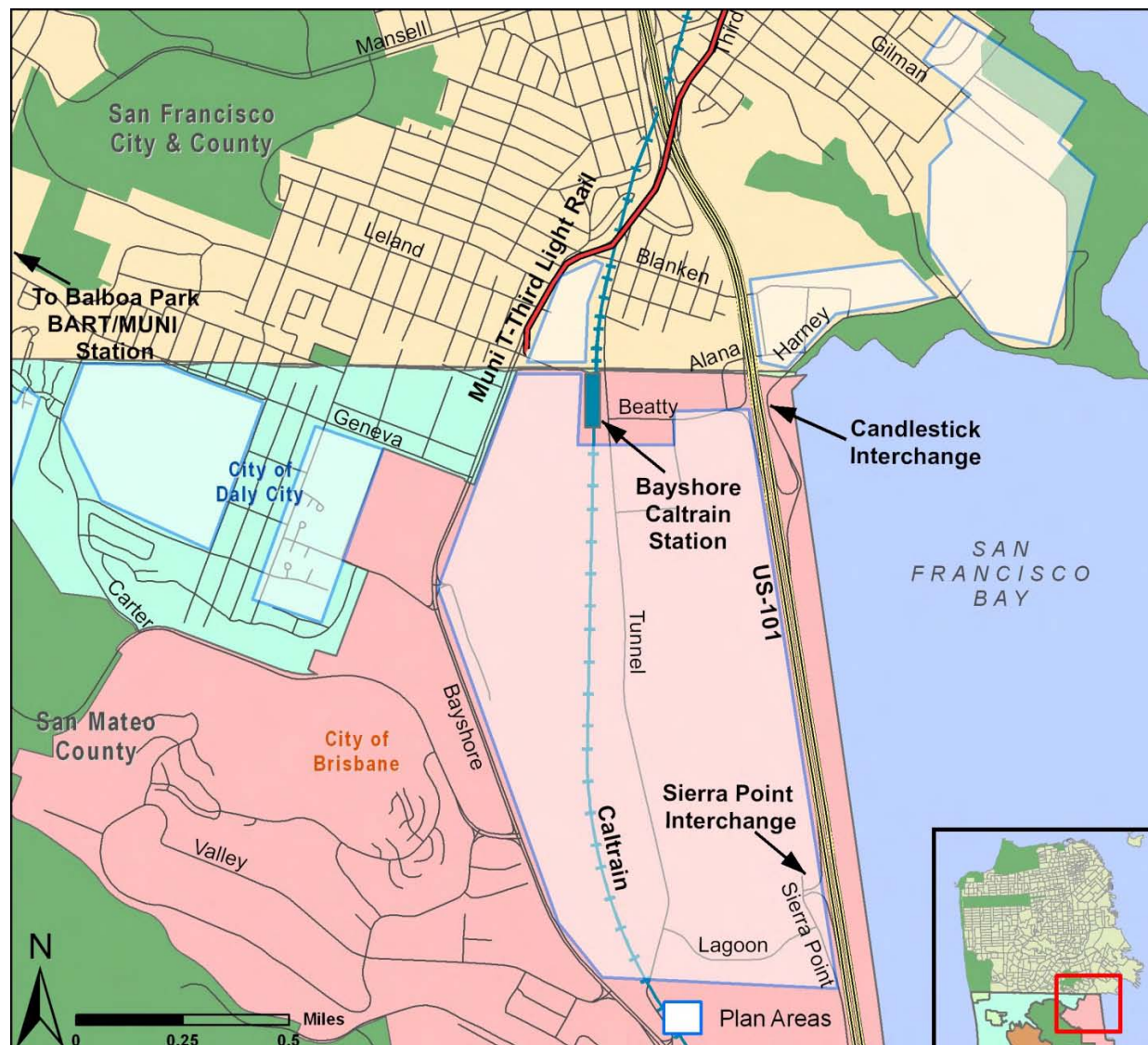
## **5.2 Existing and Future Transportation Conditions and Needs**

This assessment documents the needs and conditions in the study area for vehicles, transit riders, bicyclists, and pedestrians, focusing specifically on regional travel. It combines a discussion of current and future needs, noting current deficiencies that will become more pronounced with the proposed growth and new deficiencies that will result directly from the growth.

### **Overall Circulation**

Several circulation challenges are inherent in the area’s geography and existing transportation network. As shown in Figure 4 below, east-west circulation is constrained by the major linear barriers created by the Caltrain rail tracks and US 101. Few routes provide connectivity across these barriers. There is only one primary north-south corridor – Third Street/Bayshore Boulevard – providing for through-travel, which forces all demand, for multiple modes, to use this route. East-west through-routes with more than one lane in each direction are also difficult to find in this area. Finally, another set of circulation issues relates to San Francisco’s southeastern waterfront, including Hunters Point Shipyard and Candlestick Point, which is isolated from the rest of the transportation network and is in need of new connections for all travel modes.

Figure 4. Bi-County Area Regional Transportation Network



As development in the area increases, bringing higher demand for travel, the traffic burden on the few through-routes in the area may increase disproportionately, creating bottlenecks and conflicts among travel modes at key regionally important ‘hotspot’ locations. The following sections describe components of the circulation system in more detail, highlighting facilities with current and potential future regional-scale hotspot issues.

### Regional Roadway Network

US 101, the key regional freeway corridor in the area, currently experiences moderate-to-heavy volumes and further development will likely lead to even more congested conditions. Since widening options are prohibitively expensive, the remaining feasible options are to mitigate increases in demand with non-capacity solutions, such as road pricing and employment- and housing-based transportation demand management techniques. While these options are outside the scope of the Bi-County Study, it is recommended that such options be explored in other efforts.

The **US 101 Candlestick Interchange** is the key access point to US 101 for the Bi-County area. Nearly every proposed development is expected to rely heavily on this interchange to move development-related traffic to and from US 101. The interchange functions sufficiently well for the currently light vehicle and non-motorized travel demands. For instance, peak-hour vehicle volume at the Candlestick Interchange is indicated to be 200-400 vehicles at each ramp, which is well under each ramp's capacity<sup>1</sup>.

However, the land development proposals are expected to cause dramatic increases in vehicle, transit, and non-motorized traffic. The Visitacion Valley EIR noted that heavy mainline volumes may cause queuing on the southbound on-ramp here for vehicles attempting to enter US 101. Heavy delays and pedestrian and bicycle safety issues could result unless the interchange ramps and intersections are re-configured to accommodate the multimodal increase in demand.

Figure 5. US 101 Candlestick Interchange Current Configuration



<sup>1</sup> US 101 Candlestick Interchange Project Study Report, Traffic Operational Analysis, City of Brisbane, 2009.

The **Third Street Interchange**, the next exit to the north of Candlestick, could also become a future hotspot, given future demand. If the Candlestick Interchange becomes more accessible in the future, as is proposed, demand at Third Street may shift to Candlestick, easing conditions at the Third Street Interchange.

The **Sierra Point Southbound Interchange** is the next exit to the south of Candlestick. The ramps each see current volumes of under 600 vehicles per hour<sup>2</sup>, well under capacity, but these movements will likely increase dramatically with the proposed Bi-County and other developments.

### Local Street Network

Recent studies and traffic counts indicate that most local streets in the study area currently experience vehicle LOS C or better<sup>3</sup>. These conditions are not surprising, given the current low utilization of land in the area. However, because of the limited options for through-travel, future increases in travel demand may cause new bottlenecks and conflicts for these facilities. Key local streets that may become congestion hotspots include Bayshore Boulevard, Geneva Avenue, and Harney Way.

**Bayshore Boulevard** north of the County Line sees peak traffic volumes ranging from 1,400 to 2,400 vehicles per hour near the US 101 South exit<sup>4</sup>. South of the County Line, Bayshore Boulevard typically experiences peak-hour volumes under 1,000<sup>5</sup>. Intersections along Bayshore operate at LOS C or better<sup>6</sup>, but they are expected to reach capacity with the new land developments, becoming future delay hotspots.

**Geneva Avenue** currently terminates at the Brisbane Baylands site at Bayshore Boulevard, with no direct access to the Bayshore Caltrain station, US 101, and the San Francisco Bay Trail. During the PM peak hour, Geneva at Bayshore Boulevard carries approximately 1,400 cars<sup>7</sup>, well under capacity, but as development occurs, the cumulative traffic increase on Geneva, especially at the Bayshore intersection, is anticipated to be large. Extending Geneva Avenue from Bayshore Boulevard to US101 would address an existing need for increased east-west connectivity and more direct local access to the regional freeway system that will become critically important in the future, as new development adds demand for these connections. An extension would also create the ability to make bus transit connections across the Baylands and across the Caltrain tracks.

**Harney Way** traffic volumes are currently low<sup>8</sup>, with the exception of game-day traffic for the nearby Candlestick Park professional football stadium, but again, the cumulative development plans

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<sup>2</sup> Sierra Point Biotech Draft Environmental Impact Report, City of Brisbane, 2006.

<sup>3</sup> Visitation Valley Redevelopment Program Draft Environmental Impact Report, San Francisco Planning Department, 2008).

<sup>4</sup> Candlestick Point-Hunters Point Shipyard Phase II Draft Environmental Impact Report, San Francisco Planning Department, 2010.

<sup>5</sup> Sierra Point Biotech Draft Environmental Impact Report, City of Brisbane, 2006.

<sup>6</sup> Visitation Valley Redevelopment Program Draft Environmental Impact Report, San Francisco Planning Department, 2008).

<sup>7</sup> Candlestick Point-Hunters Point Shipyard Phase II Draft Environmental Impact Report, San Francisco Planning Department, 2010.

<sup>8</sup> Candlestick Point-Hunters Point Shipyard Phase II Draft Environmental Impact Report, San Francisco Planning Department, 2010.



will add significantly to demand, highlighting the need to improve the traffic handling capacity of the street.

**Alanna Way**, the main route to cross and access US 101 within the Bi-County Study area, has excess capacity, given the low current travel demand. Future increases in demand are expected and will require re-configurations, including signalization and lane re-striping to accommodate higher vehicle volumes and better transit and non-motorized travel conditions.

**Blanken Avenue** serves as an alternative route across US 101 within the Bi-County Study area approximately 800 feet north of Alanna Way, connecting the neighborhoods of Executive Park and Little Hollywood. Blanken is a local neighborhood residential street, with one travel lane and one parking lane in each direction. Stop signs control its intersections. Because of the connectivity it provides, Blanken may become an important link in the future for pedestrian and bicycle travel. And despite its current low-capacity design, it may also play a future role for transit and/or auto travel.

**Neighborhood Cut-Through Traffic.** Given the above-mentioned potential future local traffic delay hotspots, motorists may be tempted to divert to cut-through routes away from these bottlenecks, causing speeding and other traffic-related problems in the study area's neighborhoods.

### **Transit Network**

As growth occurs in the study area, connections from the new neighborhoods to the regional transit system will become critically important for promoting and encouraging transit use among new residents and employees, as well as the existing community. The two key regional transit connections are **Bayshore Caltrain Station** and **Balboa Park BART Station**. Existing and expected future gaps in transit service include:

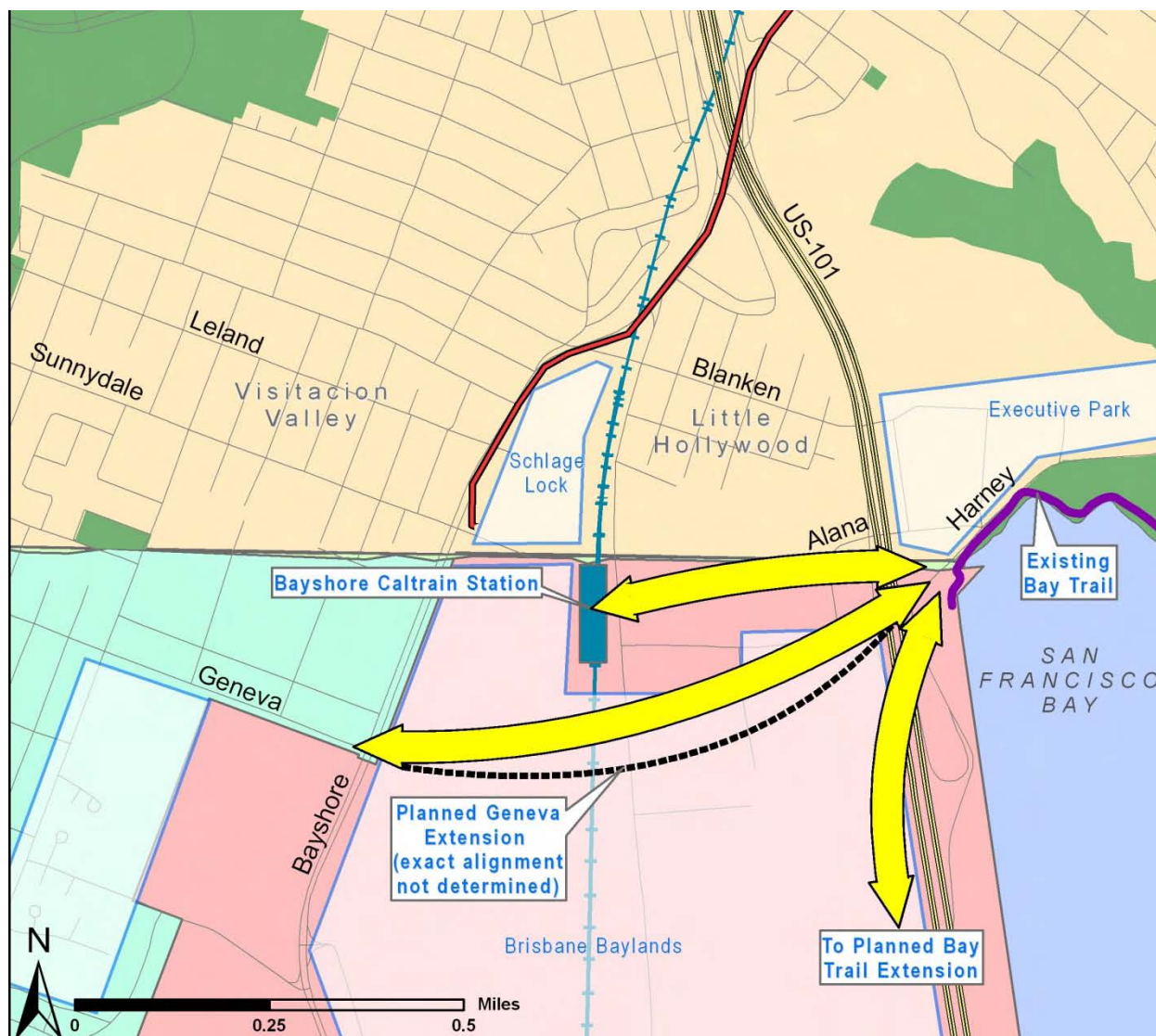
- Transit connectivity from this area, especially new developments, to the regional transit network and key regional destinations such as downtown San Francisco
- Transit reliability for street-operating buses and light rail vehicles, as overall vehicle traffic demand rises on streets where transit operates

### **Bicycle and Pedestrian Network**

Many pedestrian and bicycle network issues are local in nature; conditions in the existing neighborhoods are generally good, and the Bi-County Study assumes that conditions in the new proposed neighborhoods will be addressed by each land development project, respectively.

However, there are current gaps in the pedestrian and bicycle networks of regional importance. Here, the Bi-County Study identifies three current regional bicycle and pedestrian connectivity gaps, as shown in Figure 6 below:

Figure 6. Bicycle and Pedestrian Network Gaps



These needed connections could be implemented as part of other, larger transportation projects, but they are identified here as a bicycle-pedestrian improvement for cost and funding purposes.

**Bayshore Station Connection.** Currently, there are no designated bicycle and pedestrian facilities that provide access to Bayshore Station from points east of US 101. As Bayshore Station becomes a more popular destination for bicyclists and pedestrians, the need for safe and convenient access will also grow.

**Geneva Avenue Bicycle Route.** Geneva Avenue is one of the few designated east-west bicycle routes in the study area. Bike lanes currently exist on the portion of Geneva Avenue between Paris and Prague Streets, while other portions of Geneva feature wide curb lanes or bike ‘sharrows’. To connect the new neighborhoods to the existing Geneva Avenue bicycle route from points east of Bayshore Boulevard, the connection solutions described above would bring bicyclists and pedestrians as far west as Bayshore Station. For the remaining stretch between the Station and

Bayshore Boulevard, the Geneva Avenue Extension's bike lanes would become key facilities to make this connection. This solution could be implemented as part of the Geneva Avenue Extension.

**Bay Trail.** South of the Baylands, the regional Bay Trail bike path ends at Sierra Point. North of that location, there is insufficient right-of-way between the US 101 and the Bay to create a Bay Trail. The Baylands project has been in discussions with the Bay Trail planning agency – the Association of Bay Area Governments (ABAG) – to carry the Bay Trail north from Sierra Point on the west side of US 101, within the Baylands site. At this point, the alignment of that Bay Trail section is unclear; one Baylands site plan alternative shows the Bay Trail nearly adjacent to US 101, while another shows it between US 101 and the Caltrain tracks. As that Bay Trail section travels northbound, the key bicycle-pedestrian connections to make include Bayshore Station, to the west, and the existing Bay Trail portion adjacent to Harney Way, to the east. The Bi-County Study also notes here that public input has indicated the need for convenient access from inland neighborhoods, such as Visitacion Valley and Little Hollywood, to the Bay Trail adjacent to Harney Way, and that the community is concerned that a re-designed Harney should not pose as a barrier to such shoreline access.

### **Other Issues**

**Parking.** Current parking conditions do not point to specific needs, but the partner agencies should coordinate on parking policies to ensure that future parking supply and management are consistent with community livability and travel choice goals.

**Freight.** Freight impacts from industrial lands bordering residential neighborhoods in the area have been identified as important community concerns and are being addressed through the Bayview Transportation Improvements Project (BTIP), led by the San Francisco Department of Public Works. Findings and recommendations from the BTIP should be coordinated with new land developments to ensure minimal impacts of freight on residential and commercial neighborhoods.

## 6 Issues and Potential Solutions

The previous chapter provided an assessment of the area's most critical transportation needs. This chapter identifies potential projects to address those needs. Some of those projects have already been identified through previous studies and the community as ways to address the previous section's transportation needs. The Bi-County Study began with this list of previously proposed projects and supplemented with additional projects to more comprehensively address the Bi-County area needs and create a full list of candidate projects.

Figure 7. Map of Candidate Projects



Table 7. Candidate Transportation Projects

Identified Transportation Issue	Proposed Solution(s)	Map ID	Pre-Existing or Bi-County Proposal?	Cost
US 101 mainline congestion	Demand management, including HOV/HOT lanes		Pre-Existing	Unknown
US 101 interchanges	Candlestick Interchange re-configuration	A	Pre-Existing	\$195M
	Sierra Point North Interchange widening	B	Pre-Existing	\$3.9M
Local arterial congestion hotspots	Geneva Avenue Extension	C	Pre-Existing	\$90M
	Harney Way Re-Design	D	Pre-Existing	\$13M
	Lagoon Parkway Extension	E	Pre-Existing	Unknown
	Yosemite Slough Bridge	F	Pre-Existing	\$52M
	Traffic Calming Program		Bi-County	\$10M
Transit connectivity and reliability	Harney Bus Rapid Transit Line	G	Pre-Existing	\$210M
	Bayshore Station Re-Configuration	H	Pre-Existing	\$58M
	T-Third Extension	I	Pre-Existing	\$31M
	Oakdale Station	J	Pre-Existing	\$48M
	Palou Transit Preferential Streets	K	Pre-Existing	\$13M
Non-motorized connectivity	Bicycle-Pedestrian Connections Project	L	Bi-County	\$7M
<i>Total</i>				<i>\$731M+</i>



Each proposed solution is described in more detail below, including planning-level cost estimates. The Study generated the cost estimates using the most recent existing information about the proposed project designs and study area where available. The estimates are all-inclusive, encompassing construction costs, right-of-way costs including known needed utility relocations, and soft costs for project development, engineering, construction management, and contingencies. The costs are shown in year 2010 dollars. Additional information about the cost estimates can be found in Appendix C.

**US 101 Demand Management.** Demand management refers to moving demand for single-occupancy travel on US 101 either by mode or by time of day, including to High-Occupancy Vehicle (HOV) use, transit use, or from peak periods to non-peak periods. To implement demand management in this corridor, some capital investments would be needed including creation of HOV-exclusive lanes, transit improvements, and road pricing equipment. Demand management efforts were not considered in the Bi-County Study because they address a congestion issue that relates to overall regional land use, rather than the Bi-County proposed developments in particular. Also, other ongoing efforts are exploring demand management possibilities in this corridor, including those led by C/CAG and MTC. *Cost: unknown.*

**US 101 Candlestick Interchange Re-Configuration.** This project entails re-configuring the existing interchange to tight-diamond design. A new US 101 over- or under-crossing would connect with Harney Way and the new proposed Geneva Avenue Extension (see below), generally carrying three travel lanes in each direction plus turn lanes, sidewalk, and bicycle lanes. The existing Alanna Way would be re-purposed for exclusive bus use. The re-configuration is intended to improve traffic operations, transit reliability, and non-motorized circulation. This project is currently in a Caltrans Project Study Report (PSR) process, led by the City of Brisbane. Defined here, this project does not include the BRT elements, which are instead accounted for within the Harney-Geneva BRT project (see below). *Cost: \$195M.*

**US 101 Sierra Point Southbound Interchange.** This project would widen the southbound Sierra Point interchange off- and on-ramps from one to two lanes each. *Cost: \$3.9M.*

**Geneva Avenue Extension.** This project would extend Geneva Avenue from Bayshore Boulevard to the new proposed US 101 Candlestick Point Interchange (see above), connecting to Harney Way, and including a grade-separated Caltrain crossing. This new local street connection would provide access to US 101 from the Brisbane Baylands as well as existing adjacent neighborhoods that would use the new street as a more direct route to US 101 than existing routes. The design would accommodate six travel lanes, two bicycle lanes, sidewalks, and potentially BRT exclusive lanes. The cost of those BRT lanes is not accounted for here and instead within the Geneva-Harney BRT project (see below). *Cost: \$90M*

**Harney Way Re-Design.** This project would re-design Harney Way, with possible lane additions, from US 101 Candlestick Interchange to Jamestown Road. The Harney-Geneva Bus Rapid Transit (BRT) project is considered separately (see below). *Cost: \$13M.*

**Lagoon Parkway Extension.** This project would create an additional roadway crossing of the Caltrain tracks to enhance connections between US 101 and Bayshore Boulevard across the southern portion of the Baylands project site, near the Sierra Point Parkway interchange. *Cost: Unknown.*

**Yosemite Slough Bridge.** This project would extend Arelious Walker Drive into Hunters Point Shipyard development across Yosemite Slough. It includes dedicated transit lanes for use by

proposed Harney-Geneva BRT project (see below), pedestrian paths, and bicycle facilities. In addition, on 49er football stadium game days, the bus lanes would also be open to stadium-related auto traffic. *Cost: \$52M.*

**Area-Wide Traffic Calming.** This program would fund, on a cyclical and competitive basis, traffic calming projects in neighborhoods throughout the Bi-County area that respond to traffic speeding and cut-through issues arising from Bi-County development-related local traffic increases. The cost of this program is a place-holder amount based on a similar program in Bernal Heights, San Francisco. *Cost: \$10M.*

**Harney-Geneva Bus Rapid Transit (BRT) Line.** This project would provide BRT vehicles, exclusive bus lanes where feasible, signal priority, and enhanced stations. The route would operate from the proposed Hunters Point Shipyard Transit Center to the Balboa Park BART station, by way of the Brisbane Baylands and the Bayshore Caltrain Station. The route can be divided roughly into three portions as follows.

- The eastern portion, from Hunters Point Shipyard to US 101, has been planned as part of the street infrastructure plan for the Candlestick Point-Hunters Point Shipyard development. This portion has been designed at a conceptual level to operate on exclusive bus lanes
- The central portion, from US 101 to Bayshore Boulevard, falls partially within the project area for the re-designed Candlestick Interchange and partially within the proposed Brisbane Baylands development site. This portion has not been designed conceptually and is the one of the study subjects of the Bayshore Intermodal Station Access Study, another effort, also managed by SFCTA. Exclusive bus lanes are expected. The outstanding design issues concern the exact BRT alignment and how the transit modes will connect at Bayshore Station – on Geneva Avenue in exclusive lanes, or on a separate, grade-separated guideway.
- The western portion, which would operate on the existing Geneva Avenue from Bayshore Boulevard to the Balboa Park BART/Muni Station. This portion has not been planned and would need further study to determine the appropriate design; exclusive bus lanes may be feasible near Bayshore Boulevard, but they may not be possible near Balboa Park.

*Cost: \$210M.*

**T-Third Light Rail Transit (LRT) Line Extension.** This project would extend the existing T-Third LRT line from Sunnydale station to the Bayshore Caltrain Station. The extension is envisioned as a loop, representing approximately ½ mile of new track. This portion of the line, to traverse the Brisbane Baylands to reach the Bayshore Caltrain Station, was part of the original scope for SFMTA's T-Third LRT project, but SFMTA did not build it at that time because the Baylands street network had not been established, and given the lack of development on the Baylands, little of the ridership market existed. Since then, the City of Brisbane and the Baylands developer have agreed on a preliminary street network near the Caltrain Station, and SFMTA has developed a Conceptual Engineering Report (CER) based on that network. As defined here, the project does not include the LRT platforms at the Caltrain Station, which the Bi-County Study has instead included in the Bayshore Station Re-Design project (see below). *Cost: \$31M. An SFMTA commitment of \$17M toward this project remains outstanding.*

**New Oakdale Caltrain Station.** This project would build a new infill station along the Caltrain line between Oakdale and Palou Avenues in San Francisco, intended as a replacement to the former Paul Avenue Station, closed in 2005. SFCTA has conducted a station feasibility and ridership study providing conceptual designs, for which the upper-end cost estimate is provided here. *Cost: \$48M.*



**Palou Avenue Transit Preferential Street (TPS) Treatments.** This project would implement TPS treatments along Palou Avenue, including enhanced stops, transit signal priority, and other traffic management changes to improve bus travel reliability. Improvements would be made between Hunters Point Shipyard and Third Street and have been designed conceptually as part of the Candlestick Point-Hunters Point Shipyard transportation plan. *Cost: \$13M.*

**Bicycle-Pedestrian Connections.** This project would address the three key regional bicycle-pedestrian gaps identified in the previous chapter. If, and only if, the BRT line receives its own exclusive guideway, this project would provide an adjacent bicycle-pedestrian path. If bicycle facilities are provided only on Geneva Avenue, then this project must address the connections from those facilities. The relevant connections include those to the Bay Trail portion to be provided within the Baylands and to Bayshore Station. It is possible for these connections to be implemented as part of other projects – for instance, the Candlestick Interchange Re-Configuration Project could construct the Alanna Way tunnel’s bicycle facility. The Study therefore defines this project on a conceptual level, to provide the ability to address those identified bicycle-pedestrian gaps. *Cost: \$7M.*

**Bayshore Intermodal Station Re-Design.** This project would re-design the Bayshore Caltrain Station to accommodate new transit connections, including a platform for the T-Third LRT Extension, stations and vertical circulation elements for the Harney-Geneva BRT line, loading areas for other local bus and shuttle connections, and any other needed station access elements and passenger amenities. The project may entail moving the existing Caltrain platforms. Conceptual design for the station is yet to be determined and the subject of the Bayshore Intermodal Station Access Study. Costs here have been estimated based on a similar design to the proposed Oakdale Station. *Cost: \$58M.*

## 7 Project Evaluation and Results

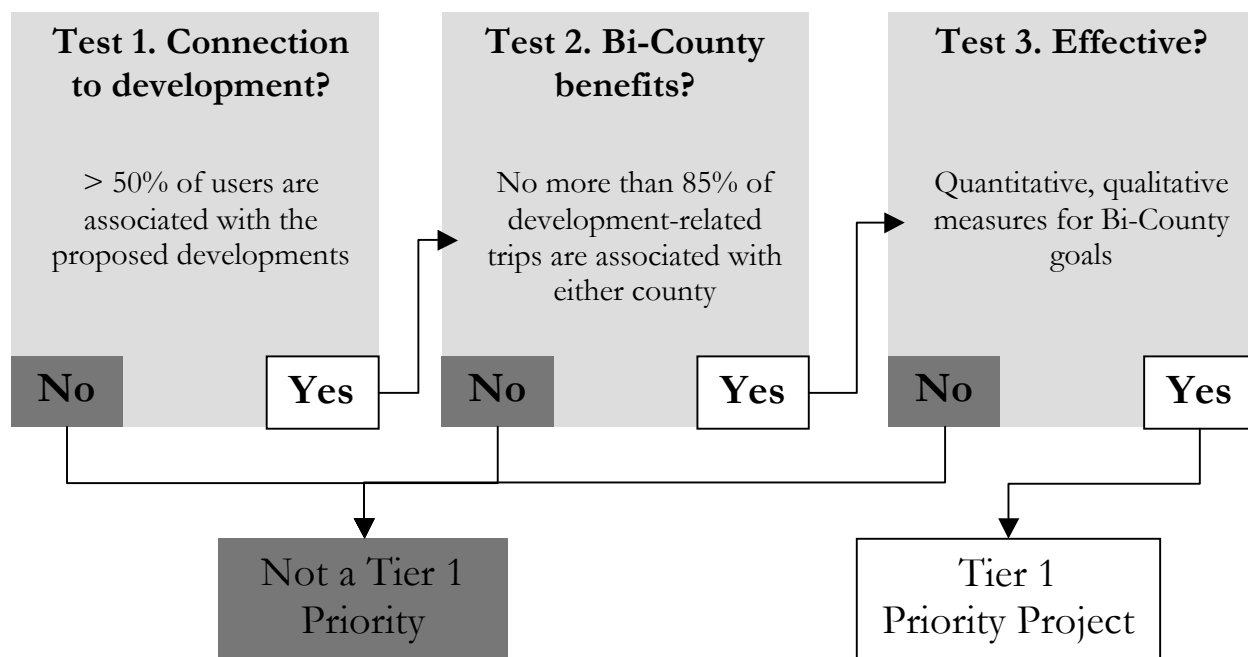
Given the candidate list's high cost and the need to generate a list of mutual interest to both counties, the Study screened and evaluated the candidate list to create a smaller, Priority List. This chapter presents the framework and results of that prioritization.

The Bi-County Study remains silent on the overall merits and justification for each of the candidate projects as they relate to the needs of individual jurisdictions. Instead, the Study's purpose is to identify and advance those projects that can be deemed of mutual interest to all partner agencies.

Non-selection for the Bi-County Priority List does not indicate that a project is unworthy of funding at all; it merely signifies that the project would not be likely to find support by Study Partners in both counties for funding advocacy as a Bi-County project and would need to look elsewhere for funding support.

The Study evaluated each project based on three criteria to determine its placement on the Priority List, as shown in Figure 8 below:

Figure 8. Bi-County Project Evaluation Framework



1. *Connection to land developments* – The Bi-County Study is concerned mainly with the proposed growth and how best to support that growth; only those transportation improvements that would be utilized significantly by residents, workers, and visitors associated with the new developments were considered for the Priority List. Transportation projects with less than 50% of their use associated with the new development growth, as determined through the Bi-County model, were removed from consideration.

2. *Bi-county Development Regionality* – Some of the proposed projects on the candidate list disproportionately benefit developments and background growth in one county rather than both. Transportation improvements overwhelmingly associated with developments in either San Francisco or San Mateo County (e.g., more than 85%, as determined by the SF CHAMP model), were removed from consideration.
3. *Effectiveness* – Those projects meeting the first two criteria were evaluated for effectiveness in meeting the Bi-County Study goals. The Study used quantitative and qualitative measures to determine effectiveness.

Based on these criteria, the Study recommended seven projects for the Bi-County Priority List, as shown in Table 8 and Figure 9. Appendix B describes the performance of all candidate projects against the screening criteria. The Priority list is projected to cost a total of **\$548 million** in Year 2010 dollars.

Table 8: Priority Project List

Project	Nexus with Land Developments?	Bi-County Benefits?	Effectiveness	Cost [\$2010]
US 101 Candlestick Interchange	Yes ~60% of users development related	Yes SF Dev = 55% SM Dev = 45%	<ul style="list-style-type: none"> <li>Modeling shows interchange ramp intersections will need better traffic-handling capacity than current configuration</li> <li>Enables dedicated BRT lanes and off-street ped-bike path on Alanna Way</li> <li>High community support</li> <li>Critical to Geneva Avenue Extension improvement</li> </ul>	\$195M
Geneva Avenue Extension	Yes ~60% of users development related	Yes SF Dev = 15% SM Dev = 85%	<ul style="list-style-type: none"> <li>Allows inter-neighborhood connectivity between development sites in both counties as well as regional connectivity from west</li> <li>Shortens travel time from eastern Daly City to Candlestick by 15%, not accounting for operational improvements – also affects BRT route</li> <li>Extends regional bicycle facility</li> <li>Critical for functioning of Candlestick Interchange improvement</li> </ul>	\$90M
Harney-Geneva BRT	Yes 55%-70% of users development related	Yes SF Dev = 70% SM Dev = 30%	<ul style="list-style-type: none"> <li>Model shows significant ridership from developments on both sides of the county line</li> <li>Connects neighborhoods to two regional transit hubs: Balboa Park and Bayshore Stations</li> <li>Operational improvements make shorter headways possible</li> <li>Lowers use of US101, interchanges, and local streets by developments</li> </ul>	\$210M

Project	Nexus with Land Developments?	Bi-County Benefits?	Effectiveness	Cost [\$2010]
Bayshore Station Re-Configuration	Yes ~50% of users (Caltrain) development related	Yes SF Dev = 30% SM Dev = 70%	<ul style="list-style-type: none"> <li>Significant Caltrain ridership when supplied with commute-level Caltrain service</li> <li>Strong ridership from Baylands likely, with good pedestrian connections</li> <li>Re-configuration necessary to accommodate new connecting BRT, LRT, other transit services</li> </ul>	\$58M
T-Third LRT Extension	Yes ~50% of users development related	Yes SF Dev = 20% SM Dev = 80%	<ul style="list-style-type: none"> <li>Makes a critical local-to-regional transit connection at Bayshore Station</li> <li>Provides improved connection to T-Third LRT for Baylands development</li> <li>Increases ridership for combined Sunnydale + Bayshore stations over Sunnydale-Only</li> </ul>	\$14M*
Regional Bicycle and Pedestrian Project	Project cannot be modeled, but seems likely	Project cannot be modeled, but seems likely	<ul style="list-style-type: none"> <li>Provides connections between proposed developments and key neighborhood destinations, including the Bay Trail, the waterfront, and Bayshore Station</li> <li>Facilitates and encourages non-motorized travel</li> </ul>	\$7M
Area-Wide Traffic Calming Program	Yes – will be implemented to offset project impacts	Yes – would be implemented in both counties	<ul style="list-style-type: none"> <li>Program's eligibility criteria would favor projects addressing speeding and cut-through traffic issues for neighborhoods affected by Bi-County development-related traffic</li> </ul>	\$10M
Total Program Cost				\$548M

\* Total project cost is estimated at \$31M; \$14M cost represents increment above the \$17M already committed by SFMTA

Figure 9. Map of Bi-County Priority Projects



## 8 Implementation Schedule

The study period is long, with a time horizon of 2030, and while the Study has identified the need for transportation investments at the end of that period, a question remains regarding when within the study period each investment may be needed. At the same time, many of the transportation improvements require major, complicated engineering design and construction, suggesting a need to time the project development processes appropriately with the need for each project.

To align the implementation schedules of the transportation improvements to those of the land development projects, the Bi-County Study constructed a most-likely land development schedule based on input from the relevant land use agencies and assessed the potential transportation network issues corresponding to each phase of development in order to determine when individual transportation improvements will be needed. While it is clear that volatility in real estate markets and business cycles create uncertainty regarding the rate at which new developments will become occupied, the below represents the respective land use agency's best current state of knowledge. Also, to account for the possibility that occupancy may occur slower than anticipated, the Study included a sensitivity analysis pushing selected transportation improvements to later timeframes, described in further detail below.

The **Candlestick Point and Hunters Point Shipyard** project received its full entitlements in 2010, and pre-development work is underway. Given the massive size of the developments, the phasing schedule stretches over 25 years. While buildout of both sites will begin in a similar timeframe, the schedule tips initial work heavily toward Hunters Point and places the bulk of development on the Candlestick Point site in the middle of the schedule, beginning approximately in 2018. This schedule does not assume construction of a new football stadium; if the stadium proceeds, the scheduled opening is 2016.

The **Visitacion Valley / Schlage** project attained environmental certification in 2010, and full entitlements are expected by the end of 2011.

The **Executive Park** project released its draft environmental document in 2010, and full entitlements are expected by the end of 2011.

The **Brisbane Baylands** project released the Notice of Preparation for its environmental document at the end of 2010 and expects to conclude the environmental process in 2012.

The **East Daly City / Cow Palace** site is likely a more distant prospect – before development planning can move forward, the State, which owns the land, must transfer ownership, a process for which there is currently no timeline.

Based on the above expected land use phasing, Table 9 below shows a potential progression of corresponding transportation network impacts and projects. The following sections describe the table in more detail.

**2010–2015 Timeframe**

In the nearest term, the land developments in San Francisco are receiving their approvals and initiating construction. But given the infrastructure that must accompany the Candlestick Point and Hunters Point Shipyard projects, those developments are not expected to occupy in this timeframe. Visitacion Valley/Schlage and Executive Park sites are therefore the only ones to begin occupancy here. The needs relating to the Priority Project List do not yet surface.

**2015–2020 Timeframe**

In this timeframe, significant development activity is expected. The Visitacion Valley/Schlage site becomes fully occupied, while Executive Park continues to increase occupancy and Candlestick Point and Hunters Point Shipyard both begin seeing occupancy. Also in this period, the Brisbane Baylands site is expected to receive approvals, with the western phase beginning occupancy. The Cow Palace site is also expected to begin occupancy in this timeframe. Finally, Recology completes its expansion plans.

As such, the timing is appropriate for multiple Priority Projects. Transit demand is expected to rise dramatically, created by increasing numbers of new residents and employees, especially for connecting to the regional transit network at Bayshore Station and Balboa Park Station. To maximize the use of transit, it will be important to meet the new demand when it materializes, such that new employees and residents become acclimated to a culture of taking transit immediately, rather than establishing the habit of getting around by car. Meeting the new demand calls for new transit service – namely, the Harney-Geneva Bus Rapid Transit (BRT) line – to begin.

There are outstanding design issues regarding the BRT and two other related projects – the Bayshore Station Re-Design and the Geneva Avenue Extension – that are explained more fully in Chapter 6 and are being considered in another effort being managed by SFCTA, called the Bayshore Intermodal Station Access Study. These issues are also ultimately contingent upon land development decisions relating to the Recology facility and the Brisbane Baylands site. The inter-related nature of the improvements suggests that the most efficient process is to design all of those above projects at once. Because exact designs and routing for these projects have yet to be determined, the diagram in Figure 8 should be taken as representative.

In the event that Harney-Geneva bus service is ready for operations before a dedicated BRT route across US101 and the Caltrain tracks can be designed, agreed to, and built, the agencies may wish to begin bus service on a temporary route utilizing existing streets. A bus route using the existing transportation network, and mixed-flow traffic lanes instead of exclusive bus lanes, is possible, if the bus is routed on Alanna Way, Beatty Avenue, Tunnel Avenue, and Bayshore Boulevard.

Alanna Way likely could provide sufficient capacity for traffic and reliable transit. Congestion impacts there correspond to development activity at Executive Park, Candlestick Point, and the Baylands. Since these projects will see only partial occupancy in this timeframe, the street could be outfitted to serve the volumes in this time frame by signaling the existing stop-controlled intersections.



However, impacts along Bayshore Boulevard, which correspond most directly to development of the Visitacion Valley / Schlage site<sup>9</sup>, could become problematic in this timeframe. The Bayshore corridor carries multiple travel modes, including a light rail line, and is constrained by existing built-up land uses. San Francisco City policies dictate that any changes to the street network must not degrade conditions for transit and non-motorized modes. The potential for mitigating intersection vehicle level of service impacts is therefore limited. Any bus service using Bayshore Boulevard would encounter reliability issues not long after the Visitacion Valley / Schlage project has been built.

The Bicycle-Pedestrian Connections Project is also appropriate to accompany this phase of development, allowing cyclists and pedestrians to connect from points east of US101 to Bayshore Station, Geneva Avenue, and the new Bay Trail portion within the Baylands. Design of this project is tied directly to design decisions for the other projects described above, another reason for bundled implementation. To create a new east-west bicycle route in advance of re-configuring the Candlestick Interchange will require interim bicycle improvements on Alanna Way, which currently does not feature bicycle facilities and yet would become part of the new designated bike route.

Finally, in this timeframe, the auto demand generated by most of the sites is likely to be small, given the low occupancies. The exception is Hunters Point Shipyard, but the demand generated there will likely use the I-280 and US 101 interchanges to the north, rather than the Candlestick Interchange, suggesting that the Candlestick re-configuration project is not yet needed.

If the proposed new football stadium proceeds with an opening year of 2016, then the above phasing plan may need to be advanced, especially for the Candlestick Interchange and the Geneva-Harney BRT, to provide needed game-day transportation capacity in that year.

### **2020–2025 Timeframe**

In this timeframe, Hunters Point Shipyard and Executive Park, achieve full occupancy. The Cow Palace site, the western phase of the Baylands, and Candlestick Point are continuing to ramp up occupancy, while the eastern Baylands phase is initiating its occupancy. These additions are likely to constitute the trigger that spurs the last of the Priority Projects.

At this point, the Alanna Way tunnel across US 101 is likely to become constrained, and since it cannot be widened, this constraint will necessitate the new US 101 crossing that is to be provided with the US 101 Candlestick Interchange Re-Configuration project. A crucial additional benefit will be the ability to dedicate Alanna Way to exclusive bus, pedestrian, and bicycle use.

As the Baylands site increases its occupancy, traffic delays along Bayshore Boulevard will further increase, and mitigations will again be limited, further reinforcing the need for a dedicated bus crossing of the Caltrain tracks for the Geneva-Harney BRT line. If that dedicated crossing has not been feasible to implement beforehand, then it is feasible and necessary in this period of ultimate land development build-out.

Finally, it is likely at this point that demand will materialize for the T-Third Light Rail Extension to Bayshore Station, which will mostly serve travel to and from the Baylands.

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<sup>9</sup> Visitacion Valley Redevelopment Program Draft Environmental Impact Report, San Francisco Planning Department, 2008).


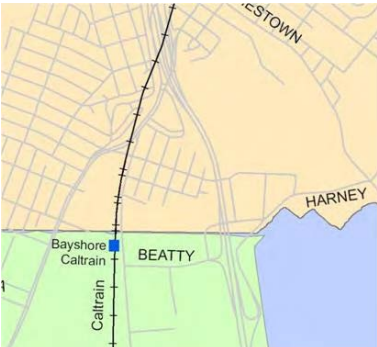
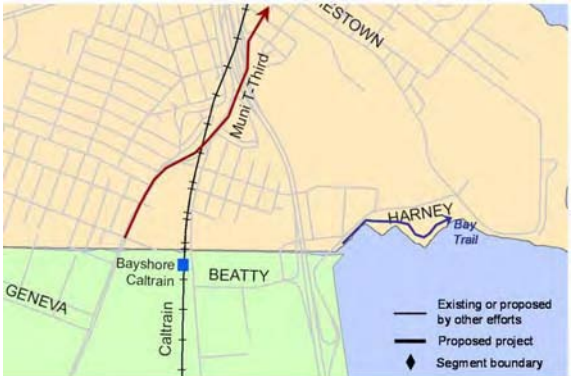

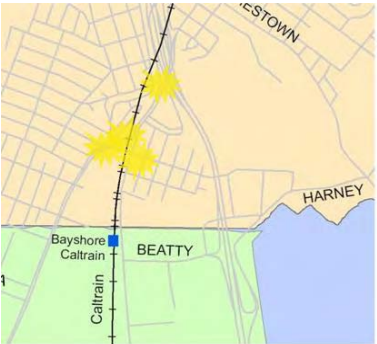
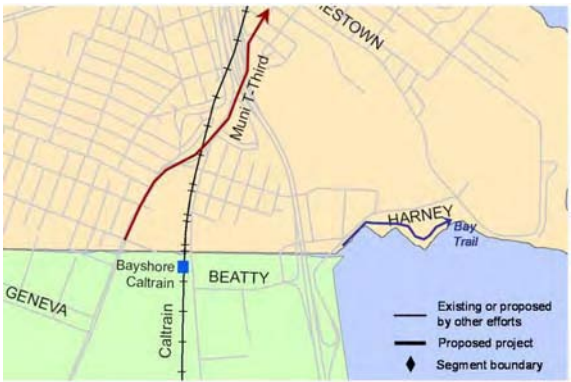
**2025–2030 Timeframe**


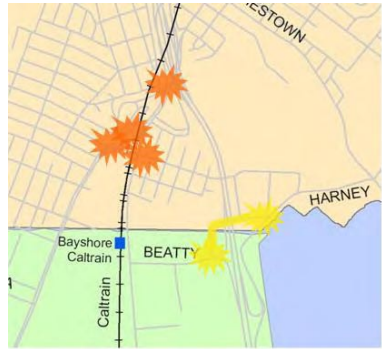

In this timeframe, the Daly City sites all reach full occupancy, while both Baylands phases continue to ramp up (full occupancy there is forecasted to occur beyond the year 2030).

All Priority Projects are expected to already be in operation by this timeframe.

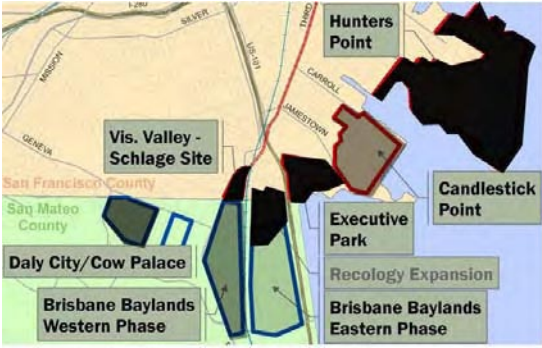





Finally, the Study addressed the possibility that development may occur later than anticipated by developing a sensitivity-testing scenario that places the Candlestick Interchange and T-Third Extension in this timeframe instead of the 2020-2025 timeframe.

Table 9. Land Use and Transportation Project Proposed Phasing

Scenario	Land Use Phasing Assumptions*	Transportation Conditions if no changes	Recommended Transportation Changes
Current conditions [2010]	<p>No new development.</p> 		<p>None.</p> 
Interim: Exec Park, Schlage, East Daly City  [5 years: 2015]	<p>Executive Park, Visitacion Valley/Schlage, East Daly City begin occupancy.</p> 	<p>VV adds trips toward freeway and points north.</p> <p>Volumes at intersections on Bayshore and Tunnel increase.</p> 	<p>None.</p> 

<p>Interim: HP, CP, Western Baylands, Recology</p> <p>[10 years: 2020]</p>	<p>Candlestick, Hunters Point, Western Baylands begin occupancy.</p> <p>Schlage, Recology Expansion occupied.</p> 	<p>Previous hotspots exacerbated.</p> <p>Traffic on two-lane Alana Way increases.</p> <p>Transit demand increases. Need new east-west service.</p> <p>Volumes on freeway access routes increase. Need alt. route.</p> 	<p>Add Geneva Extension.</p> <p>Begin BRT service. If feasible, build exclusive BRT segment from US 101 to Bayshore Blvd. If not, use existing streets (mixed flow).</p> <p>Interim interchange upgrades: signals at ramp intersections.</p> <p>Bike-ped east-west connection, links to Bay Trail.</p> <p>Re-configure Bayshore Station for new connections.</p> 
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<p>Interim: Eastern Baylands</p> <p>[15 years: 2025]</p>	<p>Hunters Point, Executive Park occupied. Eastern Baylands begins occupancy.</p> 	<p>Need new Candlestick interchange ramps. Demand for T-Third Segment S LRT and full BRT line.</p> 	<p>T-Third extension to Bayshore Station. New Candlestick interchange. BRT exclusive right-of-way complete.</p> 
<p>Ultimate [20 years: 2030]</p>	<p>Candlestick Point, East Daly City occupied. All projects complete except Baylands.</p> 	<p>Travel demand continues to increase.</p> 	<p>None. All improvements complete.</p> 

\*Sources: San Francisco Redevelopment Agency, San Francisco Planning Department, Daly City Planning Department, City of Brisbane Planning Department, 2011.

## 9 Funding Considerations

The previous chapters established the Bi-County Priority Project List and implementation schedule. The high cost of these major capital projects will require a sustained search for funding that responds to funding opportunities as they arise over time. This chapter deals with the questions of how to fund the improvements, describing the Bi-County Study's recommendations for potential agency and private-partner roles, fund sources, and financing strategies.

### 9.1 Year-Of-Expenditure Program Cost

This chapter begins with a refinement of the program cost. Previously, Chapter 7 established the Bi-County Priority Project list and cost estimates, while Chapter 8 established the desired implementation schedule of based on the expected build-out and occupancy schedules for the land developments. That implementation schedule provides the basis for determining the program cost in year-of-expenditure terms, which the Study has arrived at with basic assumptions for project development lead times and the time value of money.

The program cost is provided in Table 10 below. In the table, the 2010 present value of the year-of-expenditure project costs represents the value of the program cost that would need to be funded today in order to build the Priority Projects according to the schedule reflected in Chapter 8.

Table 10. Year-Of-Expenditure Program Cost

Total Project Costs	\$ Millions
Cost if all projects built in 2010	\$584
Gross year-of-expenditure (YOE) cost, using Chapter 8 project implementation schedule <sup>1</sup>	\$784
2010 present value of YOE costs <sup>2</sup>	\$480

Notes:

1. The Study assumed a 3% inflation rate. For project lead times, the Study assumed 2-4 years for project development and 1-3 years for construction, depending on project complexity.
2. The Study assumed a 5% rate for the time value of money.

### 9.2 A Cooperative Funding Effort: Sources and Roles

The level of required funds to implement the Bi-County program is ambitious for either the public or private sector to gather individually in the specified timeframe. But by combining public and private sources, the Bi-County partners can increase dramatically the prospects for funding the projects according to the specified schedule. The combination of public and private participation enhances access to public grant funds and timing flexibility.

This section provides an overview of possible funding sources, including traditional public sources – some of which favor private participation – and potential private sources. In a later section, this

chapter will discuss a further reason for public-private cooperation: financing options that provide increased payment timing flexibility and are available only to public-private partnerships. Together, the enhanced fund access and timing flexibility from combining public and private funds create a strong case for working cooperatively on funding the Bi-County program.

### **Traditional Public Fund Sources**

The Bi-County Study conducted an inventory of available public sources traditionally used for transportation improvements. The Study does not actually represent funding commitments by any agency; such commitments, if made, would be called for under future implementation steps. Instead, the Study represents a broad commitment by the public partners to continue efforts and discussions on Bi-County funding beyond this report.

The inventory included the local sources controlled by each city and county, as well as discretionary, competitive sources from regional, state, and federal programs. It reveals three key findings:

1. Public sources have previously provided, on a countywide basis, funding levels of a similar order of magnitude to the Bi-County program cost. However, the future availability of public sources is uncertain, given the overall political climate and budget outlook for government at all levels.
2. To direct those sources toward the Bi-County program, each local agency would need to designate the Bi-County program as a high-priority transportation investment.
3. Current trends in public sources for transportation funding include stronger emphasis on private-sector participation, improvements with a strong land use connection, and loans, as opposed to grants.

It is clear that drawing upon public sources will meet some, but probably not all, of the Bi-County funding need – at least not in the specified timeframe – and that a private-public partnership would enable the Bi-County partners to have greater access to the benefit of public loans.

*External sources.* To secure external sources such as regional, state, and federal programs, the Bi-County partners will need to make strong, joint advocacy efforts that are based on policy decisions to prioritize Bi-County projects as a top local transportation need. Advocacy is needed especially at the regional level, to ensure that the upcoming regional transportation plan, Plan Bay Area, follows through on prioritizing discretionary funds to address the goals of the Sustainable Communities Strategy (SCS). The SCS calls for prioritizing funds to areas supporting dense, mixed-use development near transit, called Priority Development Areas (PDAs) – exactly the type of development envisioned in the Bi-County area. The Bi-County partners believe the Priority Projects to be very competitive for external sources because they directly address land use growth in regional PDAs, are multi-jurisdictional, and include leverage of private funds.

*Local sources.* At the local level, both counties have programming authority over funds that could be directed at the Bi-County program, but again will need to prioritize these sources for the Bi-County program. In San Francisco, the voter-approved Prop K sales tax enacted in 2004 represents a ready local source. That tax was accompanied by an expenditure plan governing project eligibility and amounts for all of San Francisco. The Prop K expenditure plan identifies the Bi-County program as an eligible category to receive approximately \$16 million of the overall tax proceeds, as well as other categories for which Bi-County projects may be eligible and could be prioritized. In San Mateo



County, the 2004 voter-approved Measure A sales tax created several broad countywide expenditure categories representing more than \$300 million for which Bi-County projects may be eligible. Finally, the counties receive other funds that could be directed at Bi-County projects, if prioritized as such.

Appendix E includes a detailed overview of existing federal, state, regional and local fund sources that can reasonably be expected to be available within the project timeline. The appendix discusses, for each fund source, the applicable eligibility requirements, funding amounts, timelines and core priorities based on the most recent guidelines. It also lists the specific Bi-County Priority Project(s) that may be eligible, and possibly competitive, for that source.

### **Potential Private Fund Sources**

The private sources proposed here are related to the development of large land sites in the Bi-County study area. These sources may include a combination of direct contributions from private developers and future taxes associated with the newly developed land, such as Mello-Roos special district or tax increment mechanisms.

The expectation is that the land use agencies in the Bi-County area work with private real estate developers as part of the land development process, identifying and committing contributions to the Bi-County program. It is understood that each development process will undergo its required environmental clearance process; that process is expected to help establish the Bi-County transportation needs.

The Bi-County land use agency partners may engage developers to contribute in one of two ways:

1. Negotiating development agreements
2. Instituting formal exactions or fees based on nexus studies

The Environmental Impact Report (EIR) for each development project may include requirements for each project's "fair-share" contribution to regional traffic improvements. Depending on the method of contribution, land use agency partners will conduct future nexus studies or similar analyses to determine each project's fair-share contributions, which may or may not be equivalent to trip contribution percentages as described in Section 9.3 below.

These land use agency partners will need to weigh multiple factors in determining potential private-sector Bi-County fair-share contributions. First, regional transportation needs are just one of several types of public benefits that are often requested of land development projects – there are also competing needs for schools, libraries, parks, affordable housing, and local streets and utilities upgrades. Second, maintaining the market feasibility of a land development may mean that only some of the desired public benefits can be provided. The Bi-County Study does not weigh those factors – such an evaluation is the role of the land use jurisdiction. The Bi-County Study assists land use jurisdictions in this process by providing a technical basis that could be used in these efforts, including a project list, cost estimates, and a cost-participation framework (discussed in detail in Section 9.3 below). The actual fair-share contributions from each land development project would be determined by the land use agency partners subsequent to this study.

[Begin Text Box]

Large-Site Developments: Status as of December 2011

Large-Site Development	Status
San Francisco sites	
Hunters Point Shipyard (Phase 2)	Environmental documents certified; entitlements granted
Candlestick Point	Environmental documents certified; entitlements granted
Visitacion Valley / Schlage Lock Site	Environmental documents certified; awaiting development agreement
Executive Park	Environmental documents certified; entitlements received; awaiting final building permits
San Mateo sites	
Brisbane Baylands	Environmental process underway; awaiting land use decision
East Daly City / Cow Palace	Awaiting ownership transfer

[End Text Box]

### 9.3 Technical Cost-Participation Framework

Returning to the core purpose of the Bi-County Study, the public and private funding stakeholders have agreed, in principle, to share the costs of these Priority Projects, but they have been in need of a way to determine the amounts to be contributed. One of the Bi-County Study's tasks was to develop a technical cost-participation framework to provide a way for the private and public partners to begin discussing the respective potential Bi-County contributions.

This cost-participation framework has been constructed on the concept that the projects are needed only because of the expected growth; but for this growth, there would be no need for these improvements. Therefore, the developers of the land in question who are implementing the expected growth and can pass the costs on to the ultimate beneficiaries – the new employees and residents using the facilities – should be partially responsible.

However, it is also true that, once in place, the Priority Projects will likely be used by – and thus benefit – all area residents and employees, not just the new ones associated with the proposed developments. Therefore, the public sector, representing so-called 'background' travelers not

associated with the proposed developments, should also be partially responsible for funding the improvements. In other words, all who impact the transportation system should be called upon to pay for the needed improvements in proportion to the comparative size of their respective impacts.

Under this policy framework, the Study provided a technical basis on which to determine Bi-County tripmaking contributions by comparing the future projected use of the transportation network by new residents and employees. Included in the calculation are those associated with the proposed Bi-County growth and those associated with background growth expected in the future, regardless of the Bi-County land development projects.

The Bi-County model once again provided the projections needed to make the comparison. The Study used new automobile trips attributable to background growth and new land developments as the comparison metric. The Bi-County model generated daily automobile trip projects for the existing condition – the year 2005 – and for future conditions – the year 2030, both with and without the proposed land developments.

The Study identified so-called ‘background’ trips, which constituted the difference between 2030 ‘without land developments’ and 2005. These background trips represent trip growth in Study Area not associated with the large-site Bi-County developments – what could be considered ‘organic’ growth that would occur regardless of the implementation of the Bi-County developments. The Bi-County cost-participation framework considers these trips as the ‘public’ tripmaking share, and the Study calculated one for each of the Study Area’s three local jurisdictions.

The remaining portion of future tripmaking is that associated with the large-site Bi-County developments. These trips, which the Bi-County cost-participation framework considers to be “private” trips, constituted the difference between the trips generated in 2030 ‘with developments’ and those trips generated in 2030 ‘without developments’. The Study calculated this tripmaking share for each private development project site.

The Study then summed the public trips and the private trips, creating a percentage representing that party’s contribution to overall tripmaking. Following the above-mentioned policy approach that those responsible for transportation impacts should fund the needed improvements in proportion to their respective future impacts, the Study assigned these tripmaking contribution percentages as the proportional split of the total cost of the improvements for respective party. Appendix D describes the modeling process and various approaches in more detail. The results of dividing the total program cost by each party’s tripmaking contribution percentage are shown in Table 11.

Table 11: Automobile Trip Generation and Resulting Cost-Participation Amounts

Stakeholder	Growth in Daily Auto Trips*	Tripmaking Contribution Percentage	Cost-Participation by Trip Contribution (\$2010)
<i>Public Share (2005 – 2030 Background)</i>	<i>100,000</i>	<i>33.0%</i>	<i>\$158M</i>
SF Background	57,000	18.8%	\$90M
Brisbane Background	34,000	11.2%	\$54M
East Daly City Background	9,000	3.0%	\$14M
<i>Private Share (Incremental Development Trips in 2030 Attributable to Land Developments)</i>	<i>202,000</i>	<i>67.0%</i>	<i>\$322M</i>
Hunters Point Shipyard	33,000	10.9%	\$52M
Candlestick Point	67,000	22.0%	\$106M
Executive Park	12,000	3.9%	\$19M
Visitation Valley	11,000	3.6%	\$17M
Baylands	56,000	18.4%	\$88M
Cow Palace/East Daly City**	24,000	7.9%	\$38M
Recology [note: this is current trips – 1.24.12 cf]	1,000	0.3%	\$2M
<b>Total</b>	<b>303,000</b>	<b>100%</b>	<b>\$480M***</b>

\* Source for all trip numbers is the SF-CHAMP model, except Recology trips (source: Recology, as per Fehr & Peers memorandum to ESA, dated September 23, 2011)

\*\* One portion of these Daly City sites is the subject of a current development proposal, as of 2011; the tripmaking percentage for this portion is calculated to be 2%.

\*\*\* Note that \$480M is the present value of \$548M expended at the expected construction years for each project

[Begin Text Box]

#### Interpreting the Cost-Participation Framework

The percentages and amounts shown here are intended to serve as a starting point for discussions about sharing costs among the Bi-County public and private partners. It is not intended to determine the actual contributions.

For the public shares, this report does not commit any of the public agency partners to providing the respective amount shown. Such commitments, if made, would result from future discussions and agreements. Similarly, for the private shares, this report does not commit development interests to provide the amounts shown. None of the transportation agencies are expecting direct Bi-County contributions from the private sector as a result of this document. This report is instead expected to facilitate the conversation between land use agencies and development interests about potential contributions to overall public benefits, as described in more detail in Section 9.2.2. And in light of

market feasibility concerns and competing public benefit factors, it is possible, even likely, that the final agreed-to private contribution amounts will not match Table 11 exactly. Furthermore, the public Bi-County partners have discussed the concept of working to gather public grants in excess of the identified public share as a way to support and facilitate Bi-County growth.

One final note is that the above percentages and amounts are predicated on a specific set of land use assumptions (presented in Chapter 4) and cost estimates (presented in Chapter 6). If proposed land use programs change, or if cost estimates undergo refinement, the percentages and cost-participation amounts shown here will change as well.

[End Text Box]

Of the nearly 300,000 future additional daily automobile trips generated in the study area compared with the year 2005, the public share comprised approximately one-third of the new trips, while private developments generated approximately two-thirds. San Francisco's public tripmaking contribution amounted to 19%, whereas San Mateo County public shares totaled to slightly less than 13%. The San Francisco private developments' tripmaking contribution was calculated to be more than 40%; private developments in San Mateo County added to 27% of the total.

#### 9.4 Why Work Together? Traditional and Financing Strategies

The prospects for implementing the ambitious Bi-County program according to schedule are much higher if the involved public agencies and private parties work together than if each party were to attempt it alone. This Study finds two important advantages. First, among the traditional public grant sources, given recent trends, projects are more competitive when they involve inter-jurisdictional cooperation and private-sector participation. Many sources favor leveraging of 'local match', which in this case could be provided by either the private sector or a local public source. Securing more in public grant sources translates to requiring less from the private sector.

Second, working cooperatively creates new opportunities for potential bundled financing arrangements, allowing improvements to be built when needed and delaying the needed payments. One large benefit to the private partners, who would likely need to borrow funds in order to provide their Bi-County contributions, would be access to a less expensive source for capital – a partnership with the public agencies enables such an opportunity. The partnership could offer an additional benefit – further delaying the needed private payments by providing the public portion of the required payment stream disproportionately toward the front end.

The Study explored three potential hypothetical fund strategies with private-public cooperation in mind:

- 1) Traditional pay-as-you-go
- 2) Bond financing: conventional
- 3) Bond financing: conventional + Transportation Infrastructure Finance and Innovation Act (TIFIA)

A **pay-as-you-go strategy** involves addressing each project need individually, waiting to proceed with implementation until accumulating enough private funding commitments and traditional public

fund sources to fully cover the cost. Projects would be advanced according to the implementation schedule, but that schedule might be affected by the availability of funds.

A **bond financing strategy** involves securing financing to ensure that funds are available when needed for Bi-County Priority Project implementation according to the prescribed schedule. There are two options for financing: the private market or the federal TIFIA program (see box). To secure financing, the partners would need to collect private and public contributions up-front or on a pre-determined schedule, for use as a repayment stream.

[Begin Text Box]

What Is TIFIA?

TIFIA is a Federal financing program designed to provide assistance in the form of direct loans, loan guarantees to a non-Federal lender with the full-faith-and-credit of the Federal government, and/or standby lines of credit to transportation projects of at least \$50 million that are of regional and national significance. This focus on loans as opposed to grants distinguishes the TIFIA program from other federal transportation programs. The projects are selected through an extremely competitive process administered by the Federal Highway Administration (FHWA). The TIFIA program was increased under the new federal transportation bill, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) from \$120 million in Fiscal Year 2011/12 to \$750 million in Fiscal Year 2012/13 and \$1 billion in Fiscal Year 2013/14. MAP-21 also increased the share of project costs that TIFIA could finance from 33 percent to 49 percent. The program was also expanded to explicitly allow for interrelated programs of projects to be eligible instead single capital projects.

The advantages of the TIFIA program in relation to the conventional bond market include broader access to capital markets for projects that may be difficult to package for conventional financing. For example, TIFIA only requires a project to have an investment-grade credit rating before offering access to a low loan interest rate, whereas private sources often demand a higher credit rating for a similar interest rate. It also offers more flexible repayment terms. For example, the program can provide a maximum term of up to 35 years and will allow repayment to start up to five years after substantial completion of a capital project. Finally, it can provide potentially more favorable interest rates than the conventional bond market.

There are some limitations and disadvantages to TIFIA loans as well. First, they are available only to public agencies. Second, current TIFIA regulations limit assistance to 49 percent of total project cost. Third, TIFIA loans can only be repaid with non-Federal funds, which eliminates the possibility of using large grant programs such as the Federal Transit Administration's New/Small Starts program or the FHWA's Transportation Investment Generating Economic Recovery (TIGER) program. Finally, the TIFIA program has generally requested a 10% up-front capital contribution to serve as a credit assistance fee for its underwriting and origination of the loans. This fee cannot be paid from the TIFIA loan itself, although it can be paid from the proceeds of a non-federal bond issue.

[End Text Box]

### Comparing the Strategies

This section describes the implications, advantages, disadvantages, and requirements for each strategy. The Study modeled the three hypothetical fund strategies to examine their respective cash-flow and timing requirements for delivering the Bi-County program in accordance with the prescribed schedule (see Chapter 8 for more details). The analysis described the overall cost

implications, assuming the overall proportions would be as previously shown above in the Bi-County cost-participation calculation.

The pay-as-you-go scenario simply projected the costs into year-of-expenditure dollars and assumed that the projects would be funded as needed on a project-by-project basis. The conventional bond scenario uses four conventional bond issuances at a single-A credit rating to account for general municipal ratings and possible backing by real estate revenues, which translated into an interest rate at 30-year maturity of 6.63%. The TIFIA scenario used the average TIFIA borrowing rate over the last five years of 4.31%, to account for possible future changes in interest rates. As noted above, TIFIA can only cover 33% of the overall project cost, so the TIFIA scenarios necessarily include two conventional bond issuances as well. Each scenario was discounted to present-value dollars for July 2010 to compare the costs of bond financing versus the cost of pay-as-you-go financing.

### Cost and Cash-Flow Implications

Table 1 shows the overall cost associated with each strategy is shown in present-value terms. As would be expected, using conventional bonds, valued at \$656 million, would cost substantially more than the pay-as-you-go scenario, valued at \$480 million. Replacing some conventional bond funds with TIFIA funds, as in Strategy 3, reduces the cost of the financing strategy slightly, to \$644 million, because of the lower interest rate and longer repayment period. Still, financing certainly increases the overall cost to implement.

Table 12: Overall Program Cost, Prescribed Implementation Schedule

<b>Financing Strategy</b>	<b>Present Value of Overall Cost [2010 \$]</b>
1) Pay-as-you-go	\$480M
2) Conventional Bond	\$656M
3) Conventional Bond + TIFIA	\$644M

The benefit of the financing strategies (2 and 3) is the deferred and distributed payment schedule, as illustrated in Figures 9-11 below. Debt service payments are stretched over 30 years and can be delayed until after the infrastructure is in place, eventually reaching a typical annual cash flow need of just over \$60 million. Given the nature of real estate, in which cash is scarce in the first years of a development project before full occupancy, these financing strategies may be more attractive to the private development project sponsors.



Figure 10. Strategy 1) Pay-As-You-Go Cash-Flow Schedule, Pro-Rata Repayment

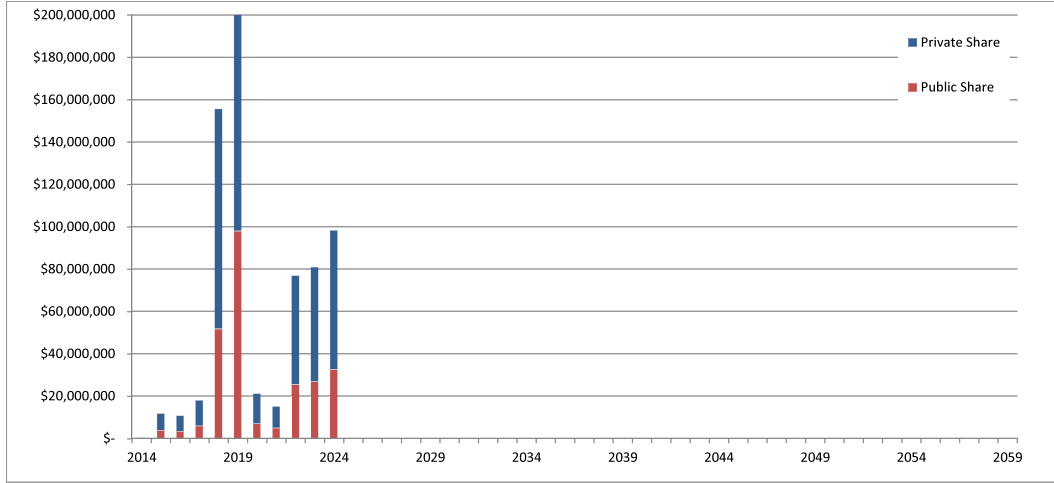


Figure 11. Strategy 2) Conventional Bond Cash-Flow Schedule, Pro-Rata Repayment

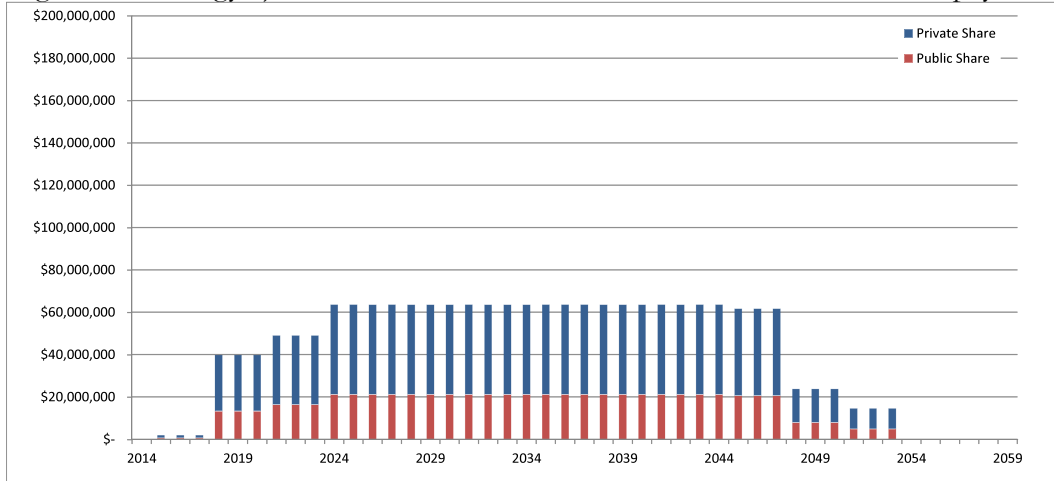
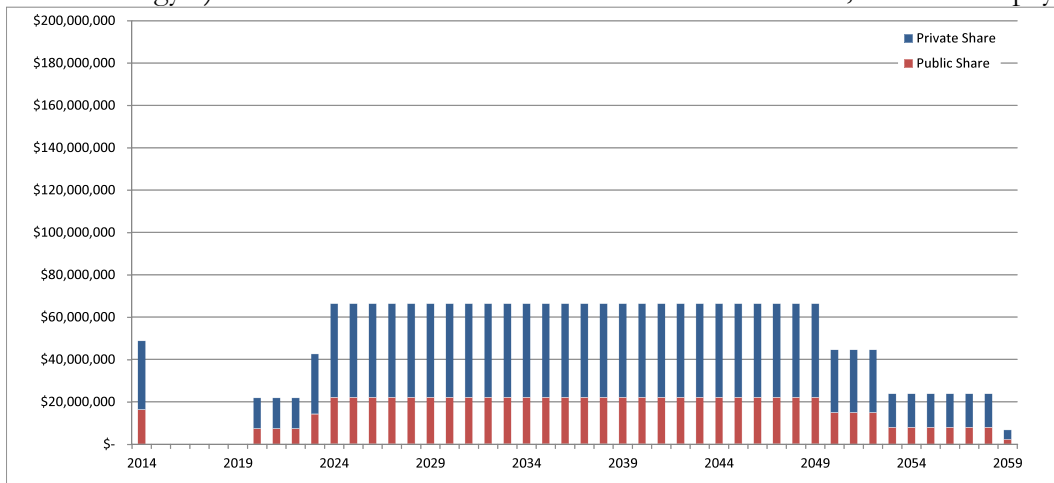


Figure 12. Strategy 3) Conventional Bond + TIFIA Cash-Flow Schedule, Pro-Rata Repayment



**Sensitivity Discussion: Public Upfront**

The analysis examined an additional possible cash-flow scenario to identify further benefits the public sector might be able to offer to the private partners: providing the public portion of the required payments first. This approach would provide even more time for the private development projects to be implemented and gain full occupancy before needing to make payments toward transportation improvements. At the extreme, such a scheme would look as follows in Figures 12 – 14, if the overall cost-participation percentages are held constant in present-value terms. In a pay-as-you-go strategy, the additional time before the first payment may amount to five years. In a financing strategy, a ‘grace period’ could stretch as long as ten years.

Figure 13. Strategy 1) Pay-As-You-Go Cash-Flow Schedule, Public Upfront Repayment

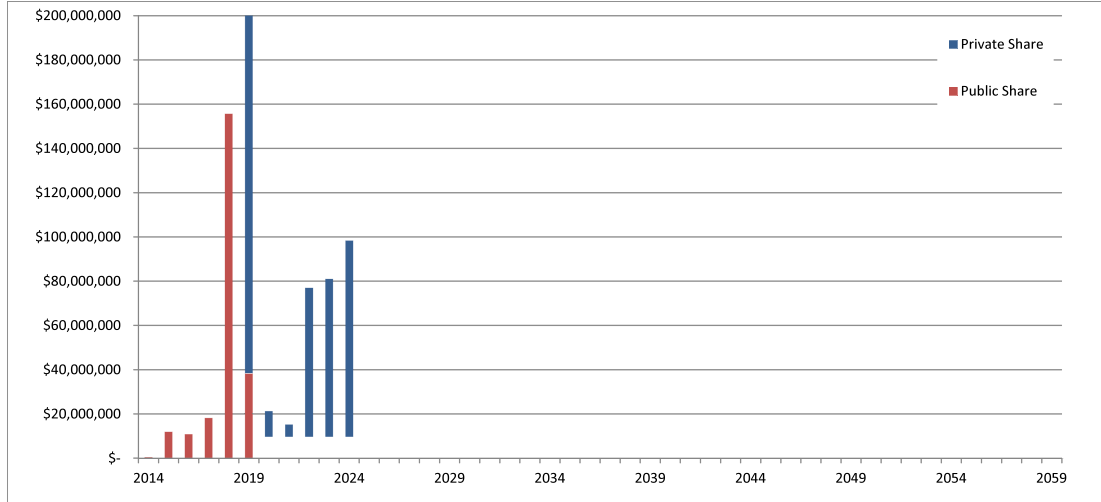


Figure 14. Strategy 2) Conventional Bond Cash-Flow Schedule, Public Upfront Repayment

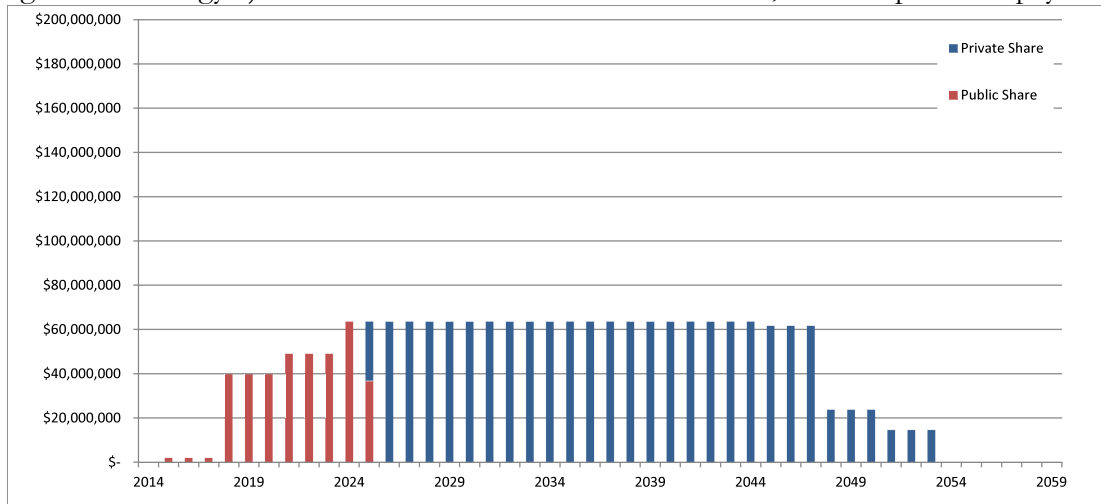
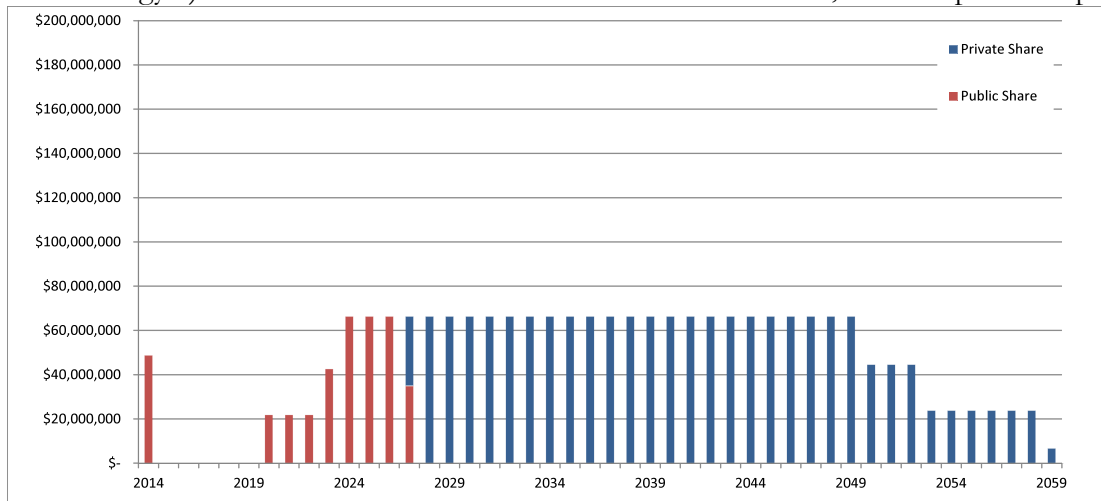


Figure 15. Strategy 3) Conventional Bond + TIFIA Cash-Flow Schedule, Public Upfront Repayment



### Sensitivity Discussion: Delayed Implementation

The last option that might be of interest to the Bi-County partners is delaying implementation of the projects. Here, the Study has assumed a project schedule and cash flow that delays implementation of the last two projects, US 101 Candlestick Interchange and T-Third Light Rail Transit (LRT) Line Extension, by another five years. As is shown in Table 13, a delayed schedule would reduce the overall cost of a pay-as-you-go strategy by \$18 million as compared with the original schedule, or approximately 4%.

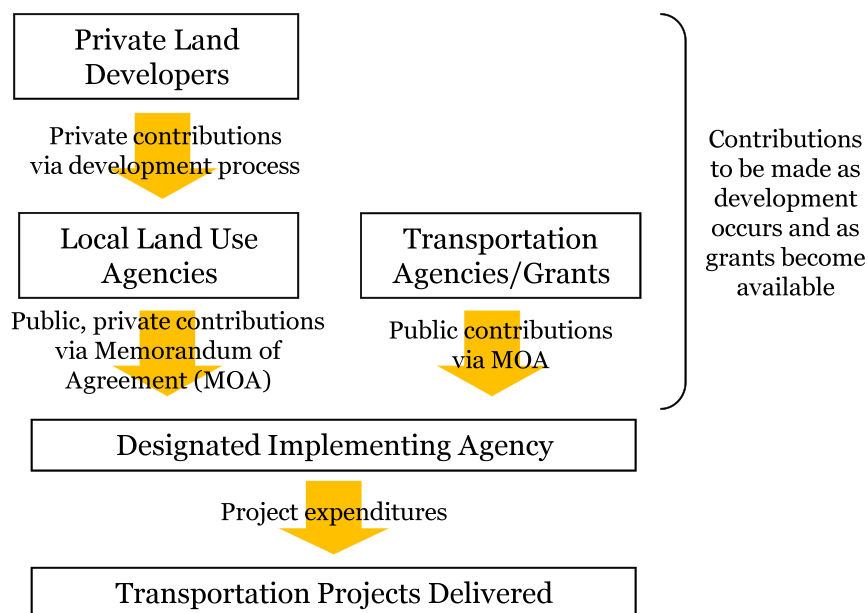
Table 13. Overall Program Cost, Delayed Implementation

Financing Strategy	Present Value of Overall Cost [2010 \$]
Pay-as-you-go	\$462M
Conventional Bond	\$628M
TIFIA	\$667M

### Implementation ‘Roadmap’: Pay-As-You-Go Strategy

The ‘roadmap’ for implementing a pay-as-you-go strategy could resemble that shown in Figure 15 below.

Figure 16. Pay-As-You-Go Implementation Roadmap



The partners would designate an agency to be responsible for project delivery. There may be a different agency for each project, and even for each phase of project development (planning, environmental clearance, final design and construction). Land use agencies would collect private

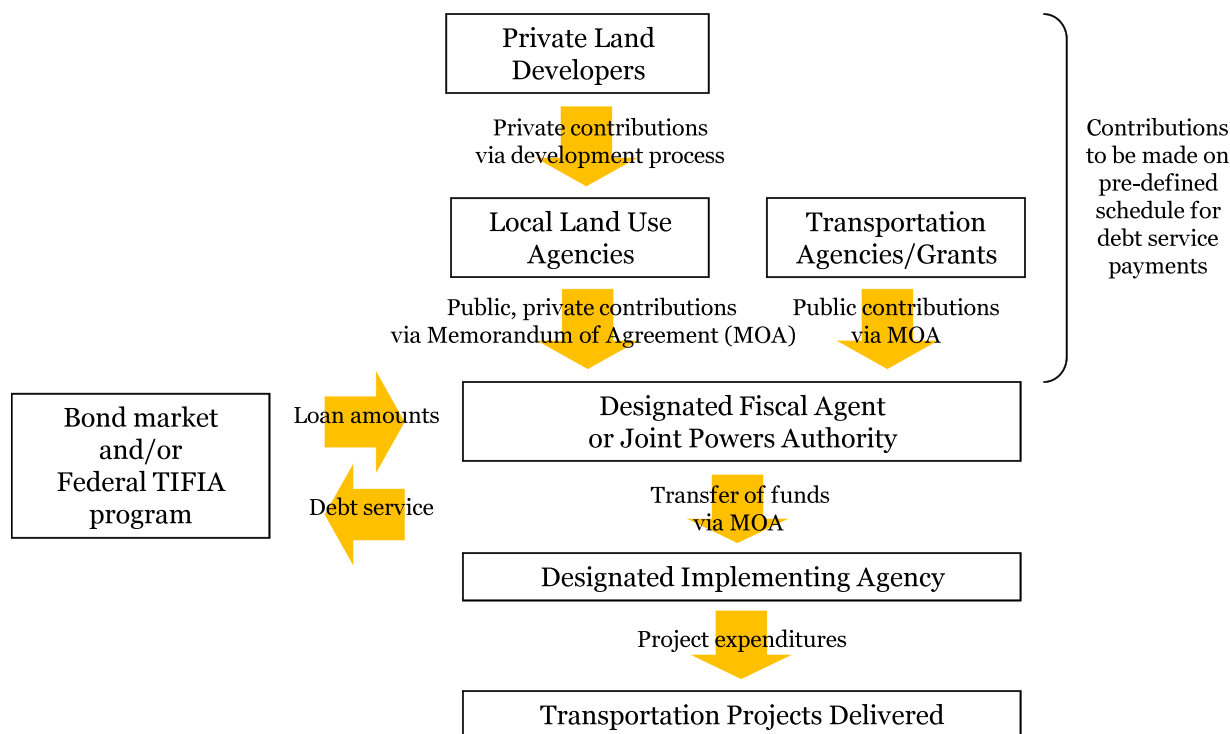
contributions from land developers through the development approval process. Those agencies would then contribute the funds to the designated implementing agency for the specific Bi-County Priority Project. Transportation agencies would also contribute public grant source funding to the specific Priority Project as those funds become available. Projects would move as they achieve full funding.

As with all strategies, there would be a need for an accounting system to record and track the timing, amount, and type of private and public Bi-County contributions made for each Priority Project. The system would need to enable contributors to take ‘credit’ for any in-kind contributions and for contributions made earlier, rather than later.

### Implementation ‘Roadmap’: Financing Strategy

The ‘roadmap’ for implementing a financing strategy could resemble that shown in Figure 16 below.

Figure 17. Financing Implementation Roadmap



Here, the partners would need to determine the administrative structure through which to issue debt. That fiscal agent could be one of the agencies, if an agency were willing to shoulder that debt. It could also be a new Bi-County joint powers authority (JPA). This would allow for an autonomous body to coordinate all project funding and implementation on a program-wide basis.

Funds would be borrowed on a program basis. The JPA and Bi-County partners would need to select the exact financing strategy. This study examined two very broad strategies, but there are several ways that financing could be structured, including packaging conventional bonds with TIFIA bonds, using commercial paper, using shorter term debt and using debt instruments more suited for

backing by public sector discretionary grants like Grant Anticipation Revenue Vehicles and Grant Anticipation Notes.

Further, the partners would need to create a repayment portfolio to match the financing strategy – this portfolio would likely consist of development project commitments of future payments and future discretionary grants. The fiscal agent/JPA would ‘pool’ the commitments and issue consolidated debt for the entire Bi-County program of projects. The partners would need to obtain a rating of the portfolio by a credit rating agency. This study shows an order of magnitude of repayment needs at approximately \$480 million. Currently, the only fund source that is available to commit to such a funding stream is the approximately \$16 million in Prop K sales tax revenues identified for the Bi-County expenditure category. Clearly, additional work is needed to secure discretionary public sector grants and develop committed revenue streams that can be used to secure financing.

As with all strategies, the Bi-County partners would still need to designate an implementing agency for each project and/or project development phase to receive project funds as needed to advance them to completion. And there would be a need for an accounting system to record and track the timing, amount, and type of private and public Bi-County contributions made for each Priority Project. The system would need to enable contributors to take ‘credit’ for any in-kind contributions and for contributions made earlier, rather than later.

## Summary of Fund Strategy Options

Table 14. Summary of Fund Strategy Options

	Pay-As-You-Go	Financing (Conventional Bond and/or TIFIA)
Implementation Actions	<ul style="list-style-type: none"> <li>Funds to be collected on project-by-project basis</li> <li>Accounting system needed to track contributions</li> </ul>	<ul style="list-style-type: none"> <li>Select administrative structure through which to issue debt</li> <li>Select exact financing strategy</li> <li>Agree upon a repayment portfolio to match the financing strategy and have that repayment portfolio rated by a credit rating agency</li> </ul>
Advantages	<ul style="list-style-type: none"> <li>Overall costs lower</li> <li>Simpler administrative structure</li> </ul>	<ul style="list-style-type: none"> <li>Ensures funds are available to meet implementation schedule</li> <li>Easier to manage multiple fund sources and for financing as it removes the burden of a single agency carrying financing costs on its balance sheet</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>Transportation improvements may see delayed implementation while waiting for full funding</li> </ul>	<ul style="list-style-type: none"> <li>Overall costs higher - funding lost to interest costs</li> <li>Significant up-front/continuing burden to support the administrative management of the financing mechanism and the pooling of the private contributions</li> <li>Possibility that the current market for real estate backed financing is tenuous and could require a public funding stream (such as sales tax) to back the loan, which could put public funds and other priority projects at risk</li> </ul>



## 10 Interim Solutions

Recent events suggest that the Bi-County development projects may not move forward as quickly as envisioned in Chapter 8. The US economy is recovering slower than expected, having a ripple effect on the demand for housing and the ability of developers to implement the original timeline. More significantly, the California legislature has recently enacted the end to Redevelopment law, removing a major financing mechanism for collecting property tax revenues for local public benefits, including transportation infrastructure.

The Bi-County funding and implementation plan described in this Final Report relies on a public-private partnership, the private portion of which was expected to be collected at least partially via Redevelopment mechanisms on both sides of the County Line. Some of the Redevelopment sites reached key milestones in creating contracted obligations before the law changed, including San Francisco's Candlestick Point and Hunters Point Shipyard projects. Others, including San Francisco's Visitacion Valley/Schlage site and Brisbane's Baylands site, had no contracted obligations when the law changed. The Redevelopment financing tool for these projects is no longer available, and they will have difficulty moving forward until another source of funding is found. The respective local land use agencies are exploring alternative financing mechanisms, working together with regional and statewide partners. While the schedule for these projects is unclear as a result of the end of Redevelopment, there is a need to continue the infrastructure planning work that is underway, albeit at a more modest scale.

### 10.2 Interim Land Developments and Transportation Projects

While the Priority Project List remains as the ultimate solution for the area, given the current economic and regulatory situation, there is also a benefit to considering the development of Interim Solutions. In fact, some of the Priority Projects are only necessary when all the land developments have been implemented. Short of full implementation, the picture of needed investment is different.

The premise of the Interim Solutions is to create subsets of Priority Projects that have a more affordable price tag and, indeed, that are actually needed for the interim periods. The land development timeline from Chapter 8 already suggests such an Interim Solution, but this solution may apply to a wider timeframe than Chapter 8 identifies.

The assumed status of land developments for the Interim period is as follows:

Table 15. Interim-Period Status of Land Developments

Large-Site Development	Assumed Implemented In Interim Period?
San Francisco sites	
Hunters Point Shipyard (Phase 2)	Yes; redevelopment obligations contracted

Large-Site Development	Assumed Implemented In Interim Period?
Candlestick Point	Yes; redevelopment obligations contracted
Visitation Valley / Schlage Lock Site	No; lost access to redevelopment financing tool
Executive Park	Yes; not a redevelopment area
San Mateo sites	
Brisbane Baylands	No; lost access to redevelopment financing tool
East Daly City / Cow Palace	No; not a redevelopment area but ownership issues likely not resolved in interim

The needed Interim Solution transportation projects, then, are as described in Table 16 and Figure 17 below. The Bi-County Study conceives of multiple Interim Solutions, the first of which would be “A” and “B” as described below, both of which would apply at different points in time.

**Interim Solution “A”.** In this interim solution, the only Bi-County transportation infrastructure to be implemented is that which is related to the Candlestick Point-Hunters Point Shipyard (CP-HPS) development project, east of US101. This effort, which includes initiating an interim Geneva-Harney bus service, envisions buses operating on exclusive right-of-way east of US101, transitioning to mixed-flow lanes on existing streets west of US101 and generally routing north of the county line, given the current absence of a street network south of the county line. This solution is shown in the map in Figure 18 below. The CP-HPS development expects to use a mix of private funds, tax-increment funds, bond proceeds, and a federal TIFIA loan to construct, among other items, the portion of the Geneva-Harney Bus Rapid Transit line east of US101, as well as contribute to other Bi-County investment program costs. The cost for this portion of the BRT line would be borne solely by the development project rather than divided among the Bi-County partners. It would be considered an in-kind initial contribution and serve as ‘credit’ to be accounted for in the overall cost participation among the Bi-County partners, as long as the ultimate the BRT line is routed to serve San Mateo County as envisioned in this document.

**Interim Solution “B”.** This interim solution would include the improvements from Interim Solution “A”, as well as an interim Geneva Avenue Extension, as described in Table 16 and Figure 18 below.

Table 16. Interim Solutions Project Descriptions

Priority Project	Ultimate Cost [2010 \$]	Treatment Under Interim Solution	Interim Cost [2010 \$]
US 101 Candlestick Interchange Re-Configuration	\$195M	Not included. This project is needed only under the cumulative conditions. If not all land developments are implemented, the existing interchange suffices.	
Geneva-Harney Bus Rapid Transit Line	\$210M	The BRT line would be operated in at least 50% dedicated transit lanes, and 100% dedicated lanes east of US101. Between US101 and Bayshore Boulevard, buses would operate on existing streets in mixed-flow lanes with potential transit priority improvements, or on the Geneva Avenue Extension when built. Vehicle acquisition included.	\$98M
Geneva Avenue Extension	\$90M	The extension would be built with half the ultimate number of travel lanes.	\$52M
T-Third Light Rail Transit Line Extension (“Segment S”)	\$14M	Not included. This connection cannot be made without Baylands development; and with less than full build-out of Baylands, there would not be demand for the extension.	
Bayshore Station Re-Configuration	\$58M	Not included. This re-configuration is most needed when Baylands is developed.	
Bicycle-Pedestrian Connections Project	\$7M	Initial focus is on BRT and Caltrain access. This project would require more investment when Baylands is developed.	\$3M
Traffic Calming Program	\$10M	Not included. This project will not be needed until closer to build-out.	
Total	\$548M		\$153M

Figure 18. Maps of Interim Project Solutions

Interim Solution A  [0-5 Years]		<ul style="list-style-type: none"> <li>• Harney-Geneva BRT operates on exclusive lanes west of Harney and Alana Way on streets constructed as part of the Candlestick Point-Hunters Point Shipyard Development.</li> <li>• The central and eastern portions operate as mixed-flow on existing streets.</li> <li>• A pedestrian connection from Blanken Avenue to the Bayshore Caltrain Station is possible along Tunnel Avenue.</li> </ul>
Interim Solution B  [5+ Years]		<ul style="list-style-type: none"> <li>• Geneva Avenue Extension constructed to improve vehicle flow and access between Candlestick-Hunters Point and Brisbane, Daly City, and points west. Extension could serve Muni and/or SamTrans buses.</li> <li>• Harney-Geneva BRT operates on Interim Solution “A” alignment or new Geneva Avenue Extension (would require further planning to ensure strong access to Bayshore Station).</li> <li>• To improve pedestrian access between Harney-Geneva BRT, Caltrain, and surrounding neighborhoods, new pedestrian facilities are constructed on an extension of Sunnydale Avenue from the west, and along Tunnel Avenue from the north.</li> </ul>

These projects would be anticipated to be in place by 2020.

#### 10.4 Interim Solution Funding and Implementation Considerations

As shown in Table 17 below, paying the cost of the interim solution upfront would result in a total cost of \$142 million. Financing these improvements would raise the total cost by nearly \$50 million but also bring the benefit of delayed payment requirements. Here again, as for the ultimate solution, TIFIA is an option with an added benefit of a further-delayed required payment.

Table 17: Overall Interim Solution Cost, Prescribed Implementation Schedule

<b>Financing Strategy</b>	<b>Interim Solution Cost, Present Value (2010)</b>
1) Pay-as-you-go	\$145M
2) Conventional Bond	\$190M
3) Conventional Bond + TIFIA	\$190M

The required cash flow schedules are shown in Figures 18-20 below. Using Strategy #1, pay-as-you-go, the Interim Solution requires significant payments between 2015 and 2020. And similar to the ultimate Bi-County solution explored in Chapter 9, the financing options (Strategies #2 and #3) spread the payments over longer periods of time. Here, the average debt service payment is approximately \$18 million per year, less than one-third of that needed for the full solution.

Figure 19. Interim Solution Strategy #1) Pay-As-You-Go Cash-Flow Schedule, Pro-Rata Repayment

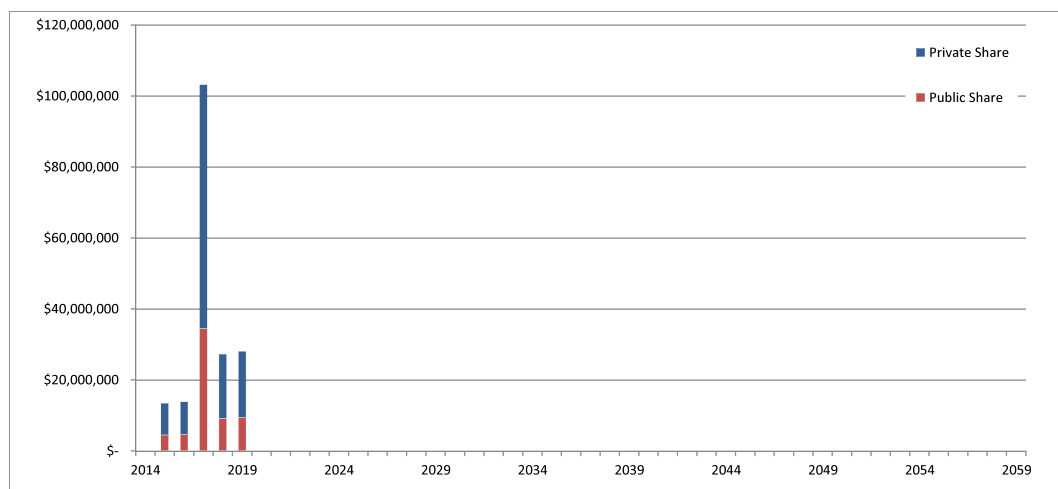


Figure 20. Interim Solution Strategy #2) Conventional Bond Cash-Flow Schedule, Pro-Rata Repayment

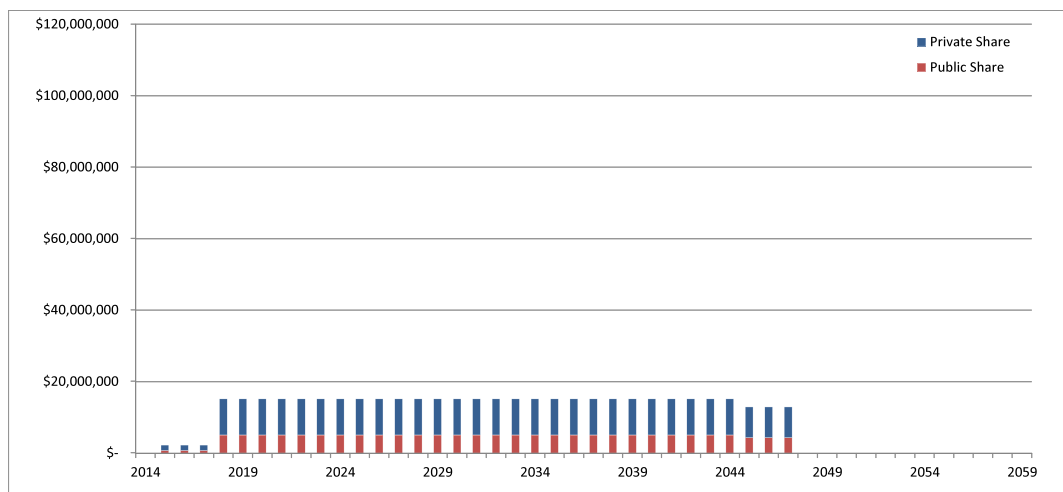
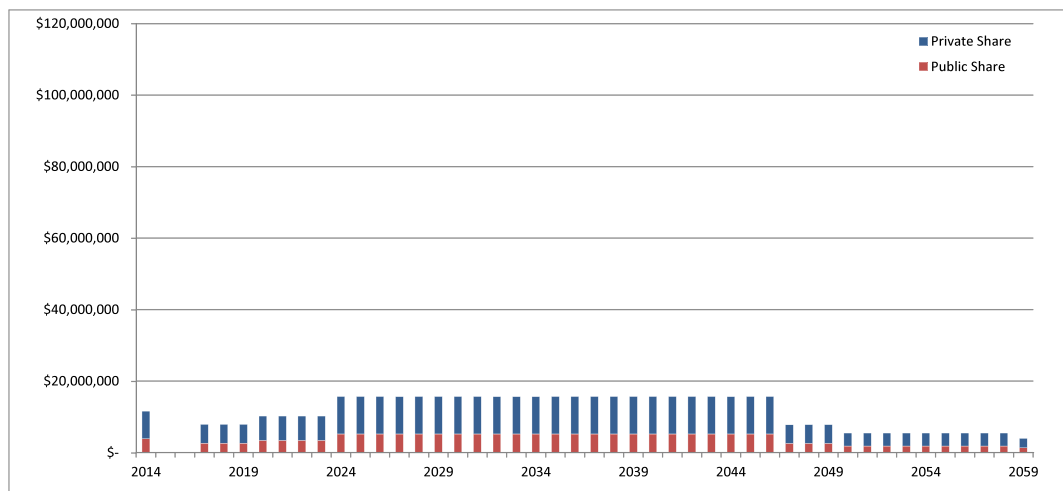


Figure 21. Interim Solution Strategy #3) Conventional Bond + TIFIA Cash-Flow Schedule, Pro-Rata Repayment



Distributing the interim project solution across the contributing parties with the same cost-participation framework as with the ultimate solution shown in Chapter 9, the analysis indicates a public share of \$47 million and a private share of \$95 million. Details on the respective cost-participation shares are shown in Table 18 below.

Table 18: Cost-Participation Amounts, Interim Solution

Stakeholder	Tripmaking Contribution Percentage	Cost- Participation by Trip Contribution (\$2010)
<i>Public Share (2005 – 2030 Background)</i>	<i>33%</i>	<i>\$47M</i>
SF Background	18.8%	\$27M
Brisbane Background	11.2%	\$16M
East Daly City Background	3.0%	\$4M
<i>Private Share (Incremental Development Trips in 2030 Attributable to Land Developments)</i>	<i>67%</i>	<i>\$97M</i>
Hunters Point Shipyard	10.9%	\$16M
Candlestick Point	22.0%	\$32M
Executive Park	3.9%	\$5M
Visitacion Valley	3.6%	\$5M
Baylands	18.4%	\$27M
Cow Palace/East Daly City	7.9%	\$11M
Recology	0.3%	\$1M
<b>Total</b>	<b>100%</b>	<b>\$145M</b>



## 11 Near-Term Next Steps

This chapter outlines the Bi-County Study’s recommended immediate next steps for moving the Bi-County Priority Projects toward implementation. Multiple veins of work warrant attention, including individual project development and general Bi-County coordination, as follows.

### 11.1 Next-Phase Project Development Work and Design Considerations

Several project development steps are required before the identified Bi-County Priority Projects can be constructed, including additional planning work, environmental clearance at both the state and federal levels, engineering design, and for some projects, additional project approval steps are required from the State Department of Transportation, or Caltrans. The projects are each at varying stages of development, but all must continue to progress through these stages in order to be ready for implementation as funding becomes available.

Most of the Bi-County Priority Projects cross more than one jurisdiction, including San Francisco, Brisbane, and Daly City. With respect to project implementation steps, this cross-jurisdictional nature of the projects produces multiple options for lead and supporting agency roles. It is not necessary for a lead agency to be the agency with land use jurisdiction, but it is clear that decisions, including permitting, certification, and other steps, will require participation and actions from multiple agencies. Therefore, regardless of the option to be pursued, it will be critical for all agencies to have roles as partners in the projects, with opportunities to provide input throughout the project development process.

Finally, some of the projects overlap in geography and it could be advantageous to ‘bundle’ several related projects together to realize economies of scale. One nuance here is the implied federal lead agency for federal-level environmental clearance, or the National Environmental Policy Act (NEPA) – for highway projects, the Federal Highway Administration has delegated its lead agency responsibility to Caltrans, so Caltrans would become the lead NEPA agency for any road project. For transit projects, the Federal Transit Administration (FTA) is the lead agency.

Table 19 below shows one potential way to implement the projects. For each implementation phase represented as a column, the table lists potential lead agencies. The table denotes potential project bundling by highlighting projects with the same color, for each implementation step.

Table 19. Project Implementation Steps and Bundling

Project	Description	Planning/Conceptual Design		CEQA Clearance Potential Lead Agencies	NEPA Clearance Potential Lead Agencies	Caltrans Approval Potential Lead Agencies		Final Design Potential Lead Agencies	Construction Potential Lead Agencies
		Documentation	Lead Agency			Documentation			
1 Candlestick Interchange	Under/overpass 500 ft to east and west of US101; on- and off-ramp touchdowns	Bi-County Study	SFCTA (cooperative)	SF, <b>Brisbane</b>	<b>Caltrans</b>	PSR (nearly complete), PR	SF, <b>Brisbane</b>	SF, Brisbane	SF, Brisbane
Candlestick Interchange 1-A Interim Improvements	Signalize existing interchange ramp intersections; re-stripe Alana to accommodate bus lanes, if feasible	Bi-County Study	SFCTA (cooperative)	SF, Brisbane (necessary?)	N/A	Encroachment permit	SF, <b>Brisbane</b>	SF, Brisbane	SF, Brisbane
2 Geneva Extension	New R.O.W. from Bayshore Blvd to 500 ft west of new US 101 under/overpass	Baylands Specific Plan	Brisbane	Brisbane (Baylands EIR)	<b>Caltrans</b>	None	N/A	Brisbane	Brisbane
Geneva-Harney BRT: 3 eastern portion	Dedicated lanes on existing/new streets from Hunters Point Shipyard to west side of US 101 Caltrans R.O.W. boundary on Alana Way [interim: bus on mixed-flow lanes on Alana Way]	CP-HPS Transportation Plan (completed)	Lennar/SF	SF (completed - CP HPS EIR)	FTA, Caltrans (BTIP EIS)	None	N/A	Lennar/SF	Lennar/SF
Geneva-Harney BRT: 4 central portion	West side of US 101 Caltrans R.O.W. boundary on Alana Way to Bayshore Blvd, on dedicated alignment or on Geneva Extension [possible interim: bus on mixed-flow lanes on Beatty, Tunnel, Bayshore]	New BRT Feasibility Study (based on rec's from Bayshore Station Study)	SFCTA (cooperative)	SF (completed? - CP HPS EIR), <b>Brisbane</b>	FTA, <b>Caltrans</b>	Encroachment permit or combined PSR/PR	N/A	SF	SF
Geneva-Harney BRT: 5 western portion	Dedicated or mixed-flow lane on Geneva Ave from Bayshore Blvd to Balboa Park Station	New BRT Feasibility Study (based on rec's from Geneva TPS, Bi-County Study)	SFCTA (cooperative)	SF, <b>Brisbane</b> , Daly City	FTA, <b>Caltrans</b>	None	N/A	SF	SF
Bike-Ped Connection: 6 Bay Trail	New off-street path from east side of US 101 Caltrans R.O.W. on Alana Way to Baylands site Bay Trail, south of Geneva Extension	Bi-County Study	SFCTA (cooperative)	SF, <b>Brisbane</b> (Baylands EIR)	FTA, <b>Caltrans</b>	Encroachment permit or combined PSR/PR	SF, <b>Brisbane</b>	SF, Brisbane	SF, Brisbane
Bike-Ped Connection: 7 Bayshore Station	New off-street path and/or bike lane on Geneva Extension, from west side of US 101 Caltrans R.O.W. boundary to Bayshore Station and Bayshore Blvd	Bayshore Station Study	SFCTA (cooperative)	SF, <b>Brisbane</b> (Baylands EIR)	FTA, <b>Caltrans</b>	None	N/A	SF, Brisbane	SF, Brisbane
8 Bayshore Caltrain Station	New and/or replaced station elements to serve new intermodal transit and enhance community access (including new boarding platforms, canopies, bus bays, drop-off areas, plazas, parking, fare systems, and pedestrian transfer and access connections)	Bayshore Station Study	SFCTA (cooperative)	SF, <b>Brisbane</b> (Baylands EIR)	FTA	None	N/A	SF, Brisbane	SF, Brisbane
T-Third "Segment S" Light 9 Rail Extension	Extension of T-Third Light Rail from Sunnydale Station to Bayshore Caltrain Station	"Segment S" Conceptual Engineering Report (completed)	SFMTA	SF, <b>Brisbane</b> (Baylands EIR)	FTA	None	N/A	SF	SF

**Notes**

SF: could be SFMTA, SFCTA, SFPD, SFRA

Projects highlighted in the same color indicate bundling for the implementation step indicated.

**Bold** denotes the implied lead agency

Beyond the question of which agency serves in the lead role, the Bi-County work has resulted in several findings and recommendations for each of the Priority Projects. Many of these findings relate to design coordination issues between individual projects that are critical to enabling the projects to support the broader Bi-County goals.

There is also the issue of responding to the still-evolving planning landscape as individual land use and transportation projects advance. With some land use decisions yet to be finalized, plans may change, resulting in different transportation needs than described in this report. For instance, there is an active effort to re-define and keep advancing the Visitacion Valley / Schlage development in response to changing financing conditions for the site. The Bi-County partners will need to coordinate as a group on any such potential shifts, as changes in the design of one land use and/or transportation project will likely affect the design of other projects as well as the overall cost and contribution amounts.

These project-related and next-step recommendations are listed, by project, below:

**US 101 Candlestick Interchange.** The next step is for the City of Brisbane to complete the Caltrans Project Study Report. Still ahead for the project are the Caltrans-required Project Report, CEQA and NEPA environmental impact analysis documentation, and more detailed engineering design.

*Design Considerations:* The Bi-County Study has identified the importance of two key regional bicycle-pedestrian connections are relevant to the interchange, including a path on Alanna Way adjacent to the already-planned BRT and a connection across Geneva Avenue to the Bay Trail as it proceeds northward on the Baylands site, if the Baylands project stakeholders decide to locate the Baylands section of the Bay Trail adjacent to US 101. The Bi-County Study recommends that these design considerations be incorporated into the next phase of Interchange development work.

**Geneva Avenue Extension.** The next step is to determine the alignment, cross-section, intersection configurations, and the character of adjacent land uses. The City of Brisbane will make these determinations as part of the Baylands process.

*Design Considerations:* The Bi-County Study recommends that the findings of the Bayshore Intermodal Station Access Study be used to inform those determinations, which will focus on the relative performance of station connection and location alternatives and the implications for the Geneva Avenue Extension. Also, if the Baylands project stakeholders decide to locate the Baylands section of the Bay Trail closer to the Caltrain tracks, then the Bi-County Study recommends that the bicycle-pedestrian connection to that portion of the Bay Trail be provided via the Geneva Avenue Extension.

**Harney-Geneva Bus Rapid Transit Line.** The next step is a feasibility study to explore the possible design configurations on each portion of the full line from Hunters Point Shipyard to the Balboa Park BART/Muni Station. The Bi-County Study recommends that SFCTA lead this study, with participation from Daly City and Brisbane. The study would explore whether the BRT could access Bayshore Station from the east via exclusive right-of-way, and if so, whether the alignment could be provided underground or as an aerial guideway. The study would also explore a near-term bus routing solution on existing streets, in the time period before the Baylands is developed and the

Geneva Extension is built. In 2012, SFCTA applied successfully for a planning grant from the California Department of Transportation (Caltrans) for such a study, scheduled to begin in 2013.

*Design Considerations:* The Bi-County Study recommends that the findings of the Bayshore Intermodal Station Access Study be used to inform the feasibility study's alternatives. One issue is the bicycle-pedestrian path adjacent to the BRT alignment, from Alanna Way to Bayshore Station, identified here as an important regional connection. But if the BRT alignment is provided underground, then the Bi-County Study recommends no adjoining bicycle-pedestrian facility, the connection to be provided instead via the existing Blanken Avenue, a more roundabout route but one preferable to a bicycle-pedestrian tunnel. In addition, the Bi-County Study identifies an interim project solution, interim bus service, and therefore, an interim bus routing on existing streets, as a way to provide transit to Hunters Point Shipyard when demand materializes prior to development on the Baylands. The feasibility study should develop an interim service proposal.

**Bayshore Intermodal Station.** SFCTA recently completed its Bayshore Intermodal Station Access Study, which describes the trade-offs, conflicts, benefits, and implications of the various options for connecting BRT and LRT at the station. That study also made recommendations regarding station parking. The next step here is for the Baylands Specific Plan to settle plans regarding the area's land use program, local street network, public realm, and right-of-way needs. Final plans for the Baylands and/or the Visitacion Valley/Schlage site may warrant re-considering station issues, which the Bi-County partners would do cooperatively.

*Design Considerations:* The future location of the Station platforms should be determined in coordination with how Geneva-Harney BRT will access the station, as well as the type, intensity, and design of future surrounding land uses.

**T-Third Light Rail Transit Line Extension.** The next step is for the Brisbane Baylands process to finalize the street network and adjacent land uses. Then, also pending changes resulting from ongoing planning for other sites such as the Visitacion Valley / Schlage site, SFMTA will make any needed adjustments to the conceptual engineering work, including its Conceptual Engineering Report (CER), and, if appropriate, proceed with final design.

*Design Considerations:* The Bi-County Study recommends that the project design be adjusted to be compatible with the findings of the Bayshore Station Study and with the type, intensity, and design of future surrounding land uses.

**Bicycle-Pedestrian Connections.** The next step is for the identified key connections to be integrated into the appropriate projects, while noting potential changes in key connections as the result of ongoing planning for remaining Bi-County development opportunity sites such as the Brisbane Baylands and the Visitacion Valley / Schlage site. Coordination is needed here with San Francisco's ongoing city-wide pedestrian strategy planning work, which aims to prioritize pedestrian capital improvements, and the city's next-generation city-wide bicycle network planning.

*Design Considerations:* As noted above, the Bi-County Study recommends that the connection across US 101 on Alanna Way be integrated into the Candlestick Interchange project, and that the connection to the Bay Trail within the Baylands be integrated either into the Interchange project or the Geneva Avenue Extension. Connections to the Visitacion Valley / Schlage site from the surrounding streets and neighborhoods may also increase in importance as plans for that site evolve.

**Traffic Calming Program.** The next step is to define the Bi-County Area Traffic Calming program, including geographic limits of eligibility, types of eligible improvements, and the process for planning, designing, and implementing such improvements. Given that this program will respond to issues ‘on-demand’, work to develop specific projects and designs will only be needed when travel patterns in the area shift as a result of growth.

## 11.2 Next-Phase Bi-County Work

While development work continues for individual transportation projects, the partner agencies will need to sustain an ongoing effort to gather Bi-County project funding as opportunities arise, and also to provide opportunities for community input on the Bi-County transportation projects.

Ongoing funding work will entail monitoring land development approval processes and coordinating with the respective land use agencies to secure private contributions to the Bi-County transportation projects. The Bi-County Study’s cost-participation framework described in Chapter 9 will serve as the basis for this coordination. This work applies to the public side as well; the agencies will need to monitor regional, state, and federal funding opportunities and pursue them on behalf of Bi-County transportation projects. SFCTA will play this role, coordinating with the partner agencies as needed to help with advocacy and application activities to seize funding opportunities as they arise.

Because some local land use plans and approvals have not yet been finalized, it is important to regard the Bi-County Transportation Study as providing a framework for identifying shared capital project priorities and costs more so than a snapshot in time of needs and costs associated with any given project list. For example, the Brisbane Baylands process may yield a different land use vision from that described in this report, and the Visitacion Valley / Schlage site may be re-envisioned because of the new financial conditions for that site. It therefore may become necessary for the Bi-County partners to re-visit the Bi-County concepts captured in this report, including the overall vision, Priority Project List, and/or cost-participation amounts. Nonetheless, the cost-participation framework provides a useful tool to apply to decision-making, even as local conditions and the project list evolve.

The Bi-County partners will also need to continue to monitor the High-Speed Train (HST) Project as those plans evolve, to understand how the plans may impact the Bi-County area and to coordinate with the relevant agencies to represent Bi-County area interests.

Finally, during the Bi-County Study’s outreach process, community members have indicated a desire to be updated on, and provide input to, the transportation projects on the Priority Project List as they take shape and move through the project development process. SFCTA is exploring mechanisms, including a new Community Advisory Committee staffed by SFCTA that would meet on a regular basis, to which project sponsors would be invited to provide updates. One option is to create this CAC as a project-focused body providing input to the Harney-Geneva BRT Feasibility Study, with the option of expanding its purview as other Bi-County projects advance to implementation.