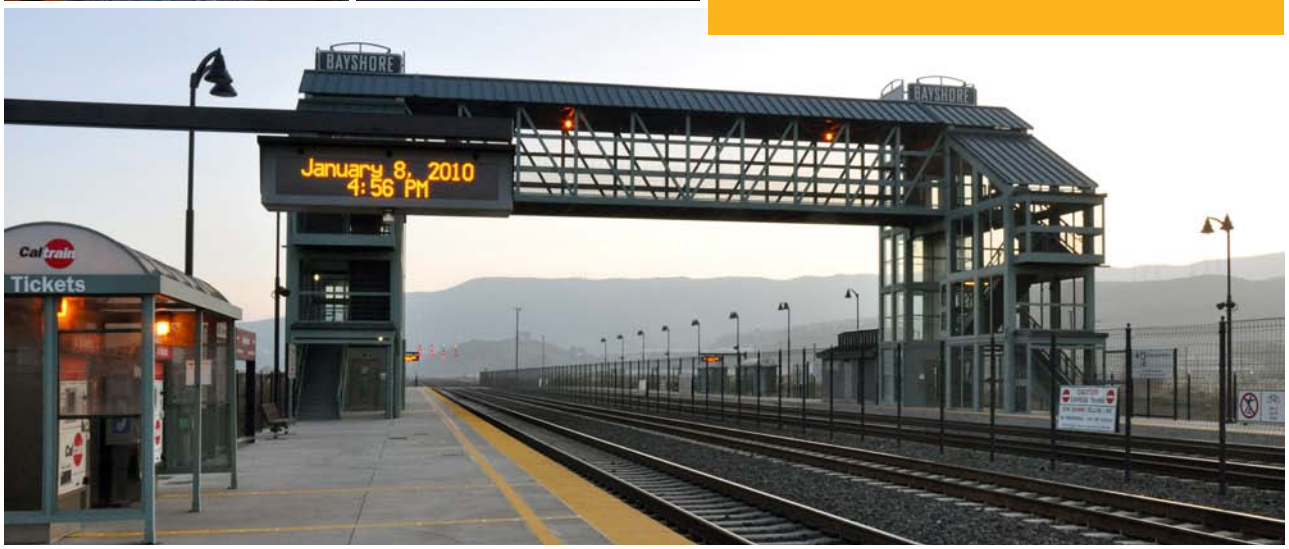
FINAL REPORT



Bayshore Intermodal Station Access Study

ADOPTED BY THE AUTHORITY BOARD IN MARCH 2012

SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

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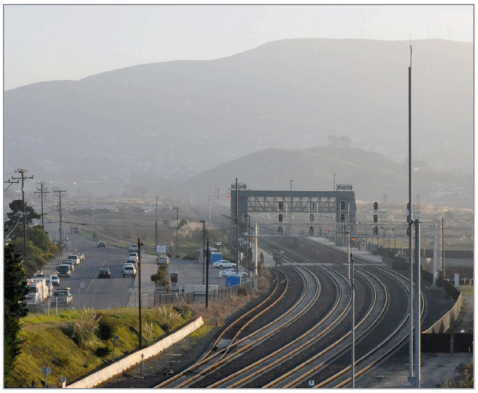

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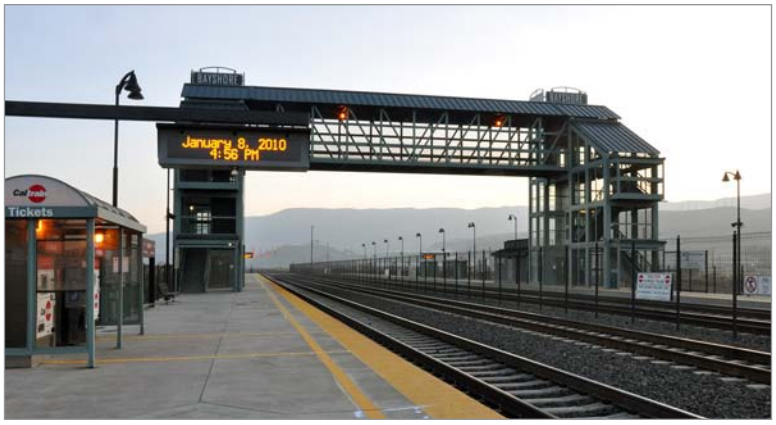


Executive Summary

Introduction and Study Purpose

BAYSHORE STATION, straddling southeastern San Francisco and northeastern San Mateo County, is a currently underutilized Caltrain station that has the potential to transform into a vibrant, central hub for regional and local transit connections. In addition to the existing neighborhoods adjacent to the Station, multiple land development proposals have envisioned transformative new growth in jobs and housing on large sites adjacent to and near the Station. The proposed growth could place up to 18,000 new housing units and 15 million square feet of commercial and office space in close proximity to the Station on both sides of the county line. As a result, the station area has been identified as a Priority Development Area (PDA), a designation enhancing access to regional transportation funding in recognition of the area's large potential role in meeting the region's housing needs and greenhouse gas reduction goals.

Bayshore Station represents a rare and important opportunity to truly coordinate transportation with land use to integrate a regional transit station into the surrounding neighborhood at the same time that the neighborhood itself is taking shape. The purpose of this Study is twofold: 1) to identify and evaluate design options for a future Bayshore Intermodal Station that accommodates multi-modal transit connections, providing high-quality access both for those beginning or ending transit trips in the areas surrounding the Station as well as those transferring between modes at the Station; and 2) to identify key policy and design considerations to ensure that the new neighborhood supports the Station.

The Study creates three alternatives, two of which remain feasible options to advance in subsequent planning and design work. Between these two feasible alternatives, neither is identified as the recommended alternative; that decision must wait until the intensity and mix of land uses immediately surrounding the Station are finalized, because of the decisive impact land use will have on potential future transit ridership, one of the Station's most critical performance criteria. In recognition of the importance of these upcoming decisions, the Study makes several findings regarding the need for supportive land use and policy choices. These factors would not only ensure a successful station but can influence the competitiveness of station and related projects for local, regional, and federal funding.

Station Area Context

Bayshore Station represents a rare opportunity to truly coordinate transportation with land use to integrate a regional transit station into the surrounding neighborhood at the same time that the neighborhood itself is taking shape.

Immediately surrounding the Station is a 600-acre site within the City of Brisbane, known as the Baylands. Through its Baylands Specific Plan (BSP) process, Brisbane is evaluating two alternative development proposals: the Developer Scenario, put forward by the site owner Universal Paragon Corporation (UPC), and the Community Scenario, developed through a City of Brisbane-sponsored planning process. Both include dense new development in the northwest quadrant of the site next to Bayshore Station: the Developer Scenario features residential and commercial uses, at higher densities, while the Community Scenario features commercial uses only, at a lower density (See Figure ES-1, below).

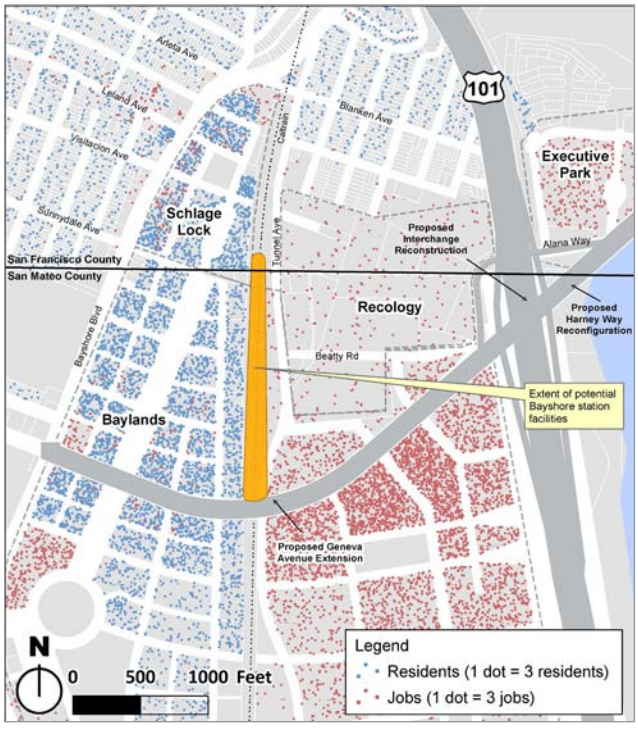
In addition to the Baylands site, the immediate Station area includes:

- Existing San Francisco neighborhoods of Little Hollywood and Visitacion Valley;
- the Schlage Lock site, where San Francisco has approved plans for new housing; and
- Recology, San Francisco's solid waste services provider located partially in Brisbane, which has proposed to expand its facility's footprint, posing potential access constraints for the Station to the east.

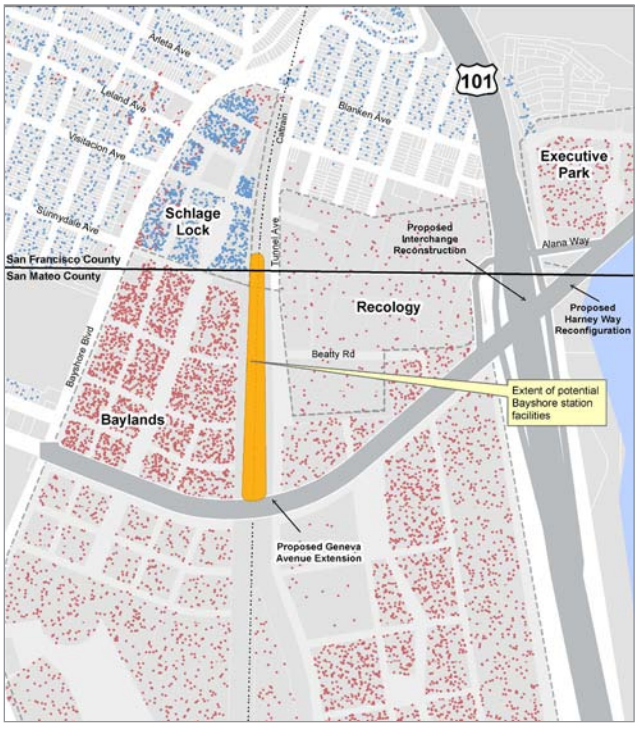
As San Francisco's Schlage Lock, Executive Park, Candlestick Point, and Hunters Point Shipyard development proposals have been approved, the Brisbane Baylands project and Recology proposal are the remaining major development plans to be decided in the area. The Baylands Community and Developer land use scenarios reflect a range of office-retail-housing mixes and intensities that bookend possible final configurations of land uses near the Station. Recology plans are not known in detail at this time, but any expansion of those operations could pose access barriers for transit, bicycle and pedestrian facilities to and from the east.

Figure ES-1: Potential Future Station-Area Land Uses, Given Two Baylands Scenarios

Developer Land Use Plan



Community Land Use Plan



Source: City of Brisbane and Universal Paragon Corporation, 2011

Table ES-1. Station alternatives

	ALTERNATIVE 1	ALTERNATIVE 1 VARIANT: TUNNEL	ALTERNATIVE 2	ALTERNATIVE 3
Caltrain Platform	Move 150 feet south of existing platform location		Move 300 feet south of existing platform location	Move 700 feet south of existing platform location to meet Geneva Avenue
Bus Rapid Transit	Elevated over Beatty	Tunnel under Beatty	Along Geneva Avenue	Along Geneva Avenue
Geneva Avenue	Alignment as previously proposed		Alignment as previously proposed	Slightly straighten previous alignment
BRT-to-Caltrain Transfer	Via escalator and elevator from BRT platform elevated directly above Caltrain platform	Via direct transfer for Caltrain northbound, or via existing Caltrain overcrossing (stairs/elevator) for Caltrain southbound	Via approx. 700-foot bicycle/pedestrian walkway on west side of Caltrain platforms	Via staircases and elevator from BRT in center of Geneva Avenue to Caltrain platform level
Notes:	Tunnel variant was developed to provide a feasible alternative should an aerial BRT facility be infeasible			Not evaluated because of later indication by Brisbane of incompatibility with land use plans

Accompanying the growth proposals are concepts for new transportation services and facilities for Bayshore Station, including:

- An extension of the T-Third Light Rail Transit (LRT) line, connecting the Study area to Downtown San Francisco;
- A new Bus Rapid Transit (BRT) line on Harney Way and Geneva Avenue, connecting the newly approved Candlestick Point/Hunters Point Shipyard future developments near the waterfront to Bayshore Station and the Balboa Park BART station;
- New and re-routed local bus and shuttle service, including Muni, SamTrans, and private shuttles; and
- An extension of Geneva Avenue from Bayshore Boulevard to US 101, providing a new local east-west street connection.

A key purpose of this Study is to envision how these new connections can come together seamlessly at Bayshore Station while supporting a vibrant and sustainable station area.

Development of Alternatives

The Station alternatives utilize different approaches to address three station design challenges:

- Minimizing the BRT-to-Caltrain transfer walk distance.
- Balancing competing demands for the station location (existing residents of Visitacion Valley and Little Hollywood prefer the Station to remain in its current location; the developer of the Baylands prefer station platforms to move south towards that development).
- Addressing barriers to station access, especially the Recology site.

Table ES-1 (above) and Figures ES-2 through ES-4 (next page) summarize the key features of the 3 alternatives and 1 variant developed to address these design challenges.

Figure ES-2: Alternative 1

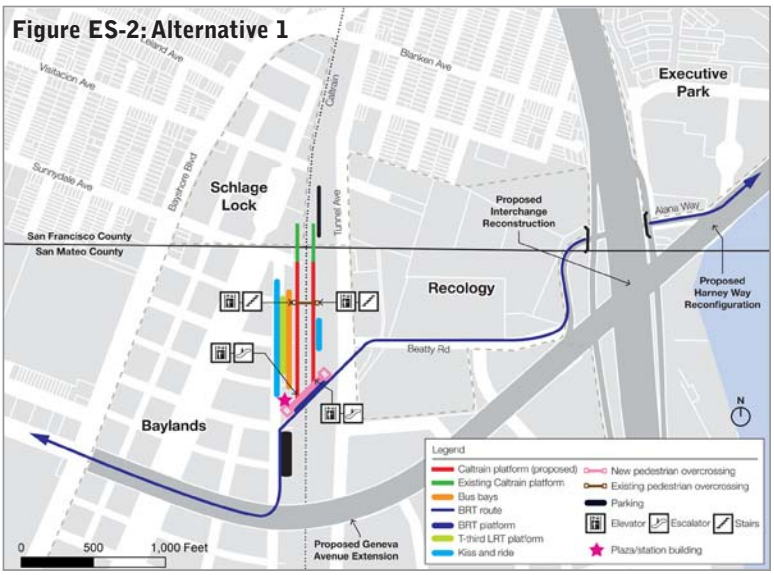


Figure ES-3: Alternative 2

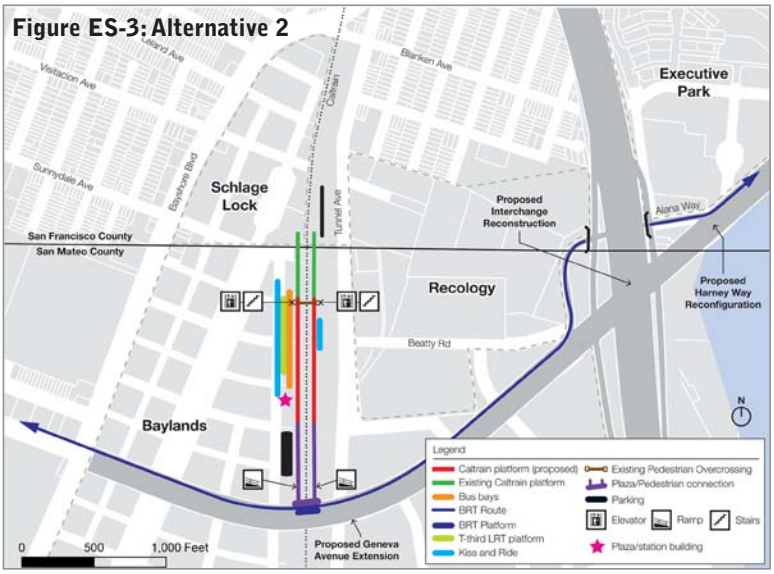
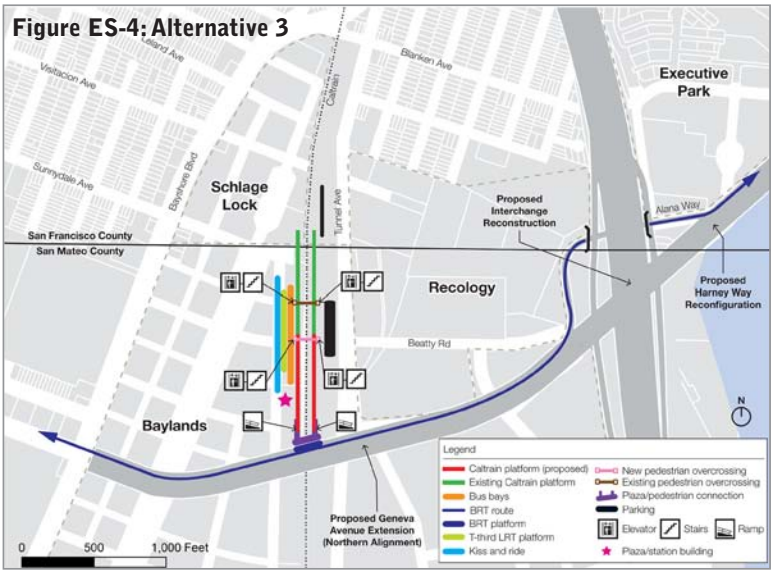


Figure ES-4: Alternative 3



Evaluation of Alternatives

The Study considered six criteria to compare the alternatives: ridership maximization, non-motorized access, intermodal connectivity, transit operations, place-making, and implementation ability. The evaluation also included a sensitivity discussion to assess the effects of multiple variables that will not be settled until after this Study's completion, such as whether the Community or Developer scenario (or a hybrid) moves forward, or how proposed facilities such as Geneva Avenue or an aerial BRT guideway may be affected by land use decisions.

The evaluation results shown in Table ES-2 (next page) reflect the tradeoffs between the alternatives and the effects of Baylands land use on alternative performance. Alternative 3 was later indicated by Brisbane to be in conflict with development plans under its jurisdiction and so was not evaluated. Between the two remaining alternatives, both are feasible to advance to further stages of planning and design work. In whole, Alternative 1 performs more favorably, although it involves a higher cost and other potential implementation challenges. Notably, the alternative that maximizes potential station area ridership depends on the land use selected for the Baylands: with the Community Scenario, Alternative 1 maximizes the catchment, while with the Developer Scenario, Alternative 2 does so, even if the scenario ultimately approved includes only half of the residential units under consideration (see Figure ES-5, next page). Here it is important to note that these analyses assume a highly walkable urban design—including for the new Geneva roadway—under either alternative, and for both land use scenarios.

Thus, neither is identified as the recommended alternative at this time; that decision must wait until the intensity and mix of land uses immediately surrounding the Station are finalized, because of the decisive impact land use will have on potential future transit ridership.

Community Input and Feedback

The Study engaged the Station-area community and key stakeholders to inform its findings and recommendations. Public involvement activities included presentations to community groups,

three community workshops in Visitacion Valley and Brisbane and meetings with developers of adjacent land. Key messages received include support for improving the Station area, multiple views on moving the Station, desire for continued involvement after the Study's completion, and a request to retain Alternative 3 for consideration.

Station Program

This Study recommends the following Station program; these features are necessary in order to accommodate multimodal access, regardless of which station design alternative is ultimately selected:

- Two (possibly re-located) heavy rail platforms to accommodate Caltrain;
- Two BRT platforms, with dedicated right-of-way and vertical circulation;
- Five bus bays to accommodate Muni, SamTrans, and shuttles;
- One LRT platform and support facilities for the T-Third;
- 150-310 parking spaces, 20 bicycle racks, and 40 lockers;
- A station plaza and landmark architectural feature or building;
- Station access points to provide entry from all directions; and
- General design features such as wayfinding, seating, weather protection, and accessibility compliance with the Americans with Disabilities Act.

Station Access/Circulation Recommendations

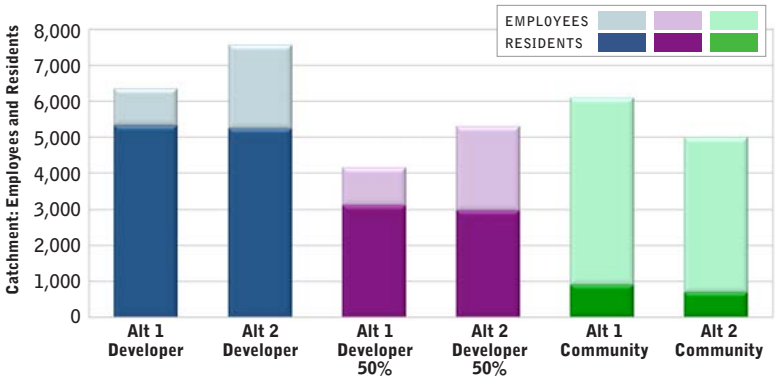
This Study proposes a station circulation plan with access routes designed to minimize conflicts among modes. The circulation concepts apply regardless of the Station alternative to be selected.

1. Access from points west of the Station via a central, multimodal loop. LRT has previously been proposed to enter and exit the Station by way of a one-way loop. This Study proposes that local buses access the Station from Bayshore Boulevard using the same streets, via a

Table ES-2: Alternatives Evaluation Results

CRITERION	ALTERNATIVE 1	ALTERNATIVE 2	NOTES
1. Ridership Maximization	✔	—	Alternative 1 closer to existing/entitled development
	IF COMMUNITY LAND USE:		
	✔	—	Alternative 1 maximizes catchment with community land use
	IF DEVELOPER LAND USE:		
	—	✔	Alternative 2 maximizes catchment with developer land use
2. Non-motorized Access	✔	—	Alternative 2 requires some BRT riders to cross the BRT guideway creating a potential for transit/pedestrian conflicts Alternative 2 creates circuitous routing to the station from the southeast
3. Intermodal Connectivity	✔	—	Alternative 1 provides a shorter BRT-Caltrain transfer walk distance Alternative 2 requires some BRT riders to cross the BRT guideway creating a potential for transit/pedestrian conflicts
4. Transit Operations	✔	—	Alternative 1 avoids most auto/BRT conflicts along Geneva Avenue
5. Place-making	Not a distinguisher		
	IF COMMUNITY LAND USE:		
	✔	—	Alternative 1 is closer to Schlage Lock, a source of 24-hour activity
	IF DEVELOPER LAND USE:		
			Not a distinguisher
6. Implementation	—	✔	Alternative 1 is most consistent with San Francisco's land use plans for Schlage Lock and affords phasing advantages Alternative 2 is significantly less expensive and more consistent with plans for the Baylands and Recology

Figure ES-5:. Quarter-Mile Walk Catchment Results



one-way loop in the opposite direction from the LRT, with private autos and bicyclists also using the loop for Station access (See Figure ES-6, below).

2. Pedestrian-supportive design, such as small block sizes, narrow street widths, wide sidewalks, streetscape amenities, and wayfinding signage. As proposed, the draft BSP's circulation chapter adequately addresses these needs.

3. Special attention to, and design suggestions for, strengthening walking and biking conditions at critical locations, including Geneva Avenue, Tunnel Avenue, the Bayshore/Arleta/Blanken intersection, Sunnydale Avenue, and the proposed Neighborhood Retail east-west street connecting the Station to Bayshore Boulevard.

4. Need for new facilities to provide strong bicycle access from points east for a connection across US 101 between the Candlestick Point/Hunters Point Shipyards to the Station, with additional attention to new Bay Trail connections.

5. Need for new local bus and shuttle connections to provide Station access, in particular for potential future transit riders living or working beyond a half mile of the Station, such as proposed employment uses south of Geneva Avenue, and residents of Visitacion Valley.

Neighborhood Land Use and Design Recommendations

Beyond the Station alternatives evaluation, this Study identifies land use and design issues that are critical to the Station's success regardless of the Station alternative to be selected.

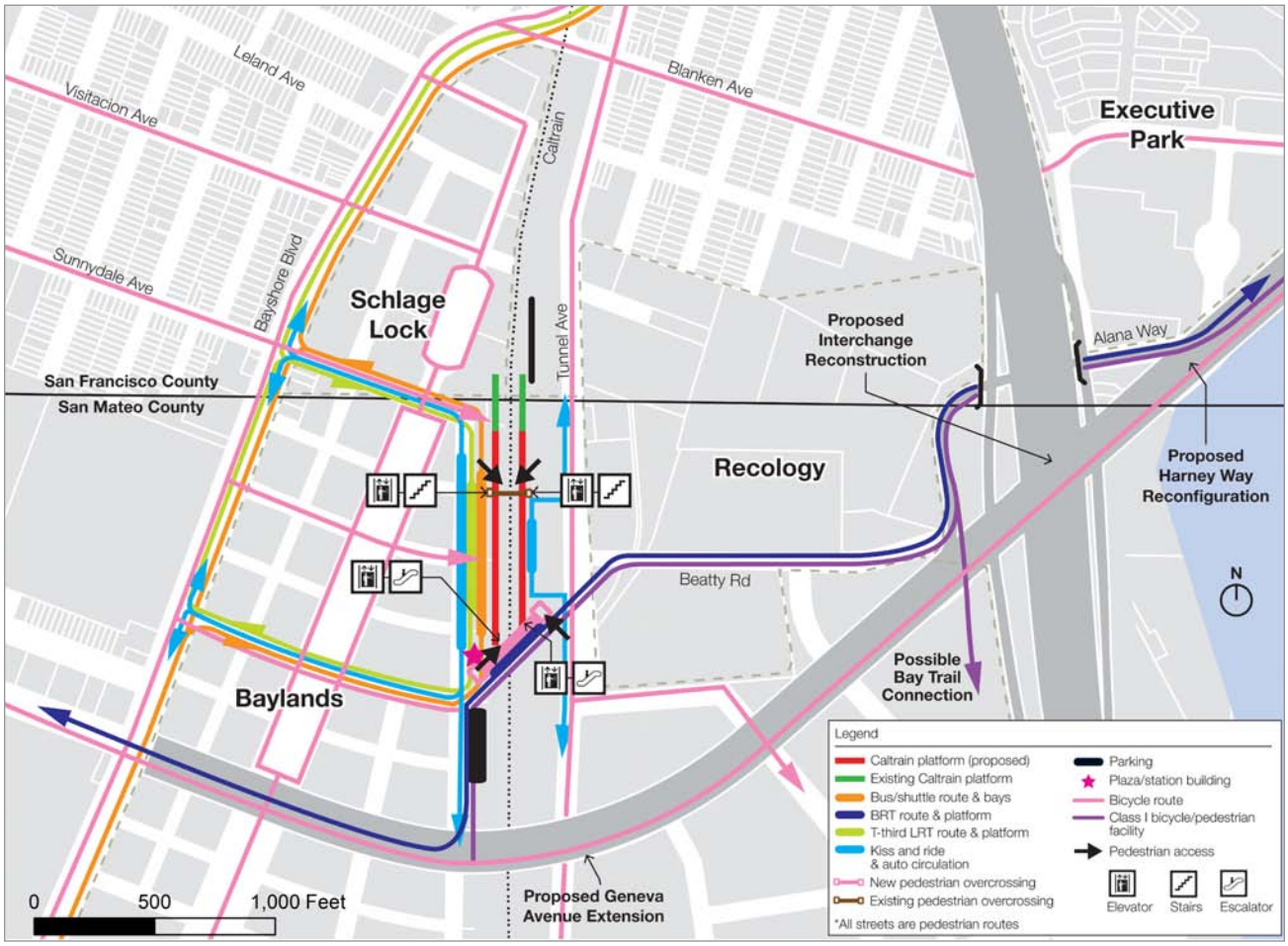
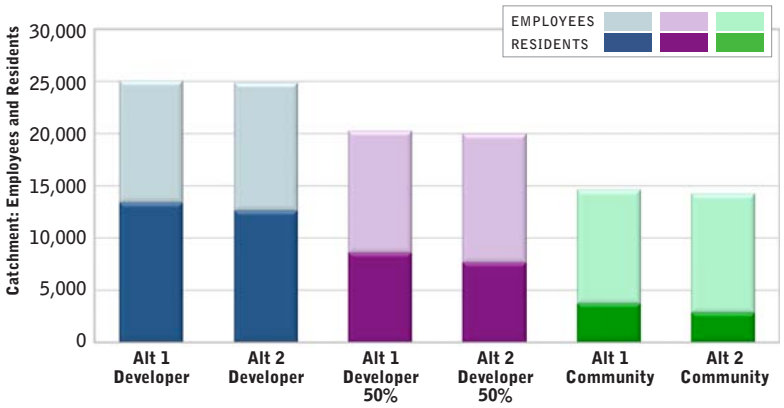


Figure ES-6: Example Circulation and Access
(for Alternative 1. Alternative 2's circulation plan is shown in the main body of the report)

Of all station considerations, the land uses surrounding Bayshore Station will exert the single biggest influence on station ridership. The draft BSP proposes several land use design and policy concepts that are supportive of the Station. In particular, it proposes a strong transportation demand management (TDM) program for Baylands residents and employees, limited parking near the Station, and provision of car- and bike-sharing programs. However, there are additional opportunities to incorporate best practices in transit-oriented design, recommended by this Study as follows:

1. Housing and other 24-hour uses. A successful station needs a dense mix of offices, shops, and especially housing, along lively streets that are welcoming for pedestrians throughout the day and evening. In addition, research has shown that rail transit use is highest for those within a quarter mile of a station, decreasing by half at a half-mile distance, and dropping off to nearly zero at greater distances[1]. Regardless of the selected station design alternative, the Developer Scenario would place the highest number of potential transit riders within the critical half-mile distance, with nearly 25,000, compared with the Community Scenario, with less than 15,000 (see Figure ES-7, right).

Figure ES-7: Half-Mile Catchment Results



2. Retail and other active land uses on the ground floor can generate pedestrian activity and "eyes on the street" to increase the vibrancy and perceived safety of the area. The draft BSP describes some nearby streets and buildings fitting this description. Further support could be provided by including the blocks directly adjacent to the Station and Caltrain tracks for this kind of treatment.

3. Public open space and landmark feature adjoining the Station. A plaza, coupled with a building or architectural landmark feature, would create a strong identifier for the Station, making it easier for transit riders to find and providing a distinct sense of place.

4. Rigorous management of nearby station-area parking, including

- Limiting parking supply, provided in structures and screened from pedestrians, even in areas beyond the Station's walk catchment.
- Policies that feature priced on- and off-street parking, even in areas beyond the Station's walk catchment.
- Employer-based parking cash-out programs that provide workers with a monetary benefit instead of free or subsidized parking.
- A shared parking arrangement between Station and nearby land uses.

5. Financial-incentive-based TDM programs, such as transit "Eco" passes to help fund enhanced feeder transit services.

The land uses surrounding Bayshore Station will exert the single biggest influence on station ridership.

Implementation

Since many of the recommended station elements fall within the jurisdiction of the City of Brisbane, its planning and approval processes, in particular for the BSP, figure prominently. The critical issues identified in this Study are meant to inform the BSP process such that they can be incorporated into the final plan. The Baylands process will result in both a se-

1 Kolko, Jed. Making the Most of Transit. PPIC, 2011

lected land use scenario and transportation network, including the locations of the station components.

The Study identifies the next steps that individual agencies and private-sector partners will need to take to implement this Study's recommendations for the eventual station design that is selected, such as engineering design, adoption of new policies, and provision of new services. The agencies will need to continue coordination to determine roles and responsibilities for these steps and provide further opportunities for input on Station issues. A logical and needed next step is a feasibility study to develop the planned Geneva-Harney BRT facility and its interface with Bayshore Station. The Bi-County Transportation Study—a parallel planning effort to prioritize infrastructure investments to support development on both sides of the county line, spearheaded by the San Francisco County Transportation Authority (Authority) and the City/County Association of Governments of San Mateo County (C/CAG)—recommends that the Authority lead such a study in coordination with C/CAG and partner jurisdictions and agencies.

Finally, this Study's relationship to High-Speed Rail (HSR) should continue to be monitored. Chapter 2 describes how initial conceptual plans for this area proposed by the California High-Speed Rail Authority (CHSRA) would conflict with this Study's recommendations but have been placed on hold to focus on the Central Valley HSR segment. In the meantime, a shorter-term Fast Start Project for HSR between San Francisco and San Jose is being advanced locally; that project does not conflict with the plans recommended in this report. There will be a need to revisit station access issues when the process to clarify the longer-term HSR project resumes. In the meantime, this Study serves as a local consensus vision for the area that can be used by the local agencies to advocate for local interests that should be respected when CHSRA moves to refine its plans.

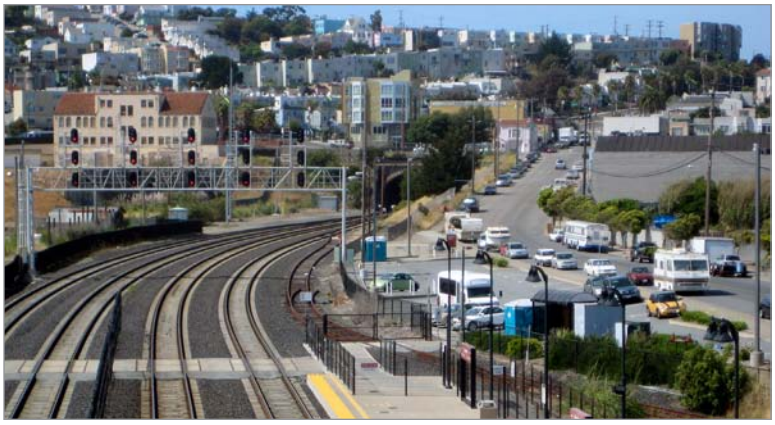
Table ES-3 (above) presents the preliminary cost estimate for improvements recommended at the Station itself and for related project costs (such as extending the LRT to the Station, or extending Geneva Avenue or the BRT facility through the Study area).

Approaches to funding the recommended station elements have been considered in the Bi-County Transportation Study. That study contemplated a program of projects that includes the Station and transit connection improvements evaluated in this Study, among other projects. The Bi-County Transportation Study proposed a funding approach for the entire program that calls for contributions from the public and private sector, identifying a fair-share approach based on relative contributions to future area trip-making. Approval of the Bi-County Transportation Study is expected in Winter 2011-12.

While funding has not yet been secured for these improvements, the link to coordinated transit and housing growth increases Bayshore Station's prospects for future funding. Bayshore Station's location within a PDA is expected to increase its competitiveness for discretionary transportation funds allocated by the regional transportation funding agency—the Metropolitan Transportation Commission—as well as for a range of federal transportation programs that aim to promote sustainable development.

Table ES-3: Station and Related Project Costs, by Alternative

	ALTERNATIVE 1	ALTERNATIVE 1 WITH TUNNEL	ALTERNATIVE 2
Station Costs	$52 M	$52 M	$58 M
Related Project Costs (e.g., BRT, LRT)	$283 M	$344 M	$240 M
Total Costs	$335 M	$396 M	$298 M



1 Introduction

BAYSHORE STATION, straddling southeastern San Francisco and northeastern San Mateo County, is a currently underutilized Caltrain station that has the potential to transform into a vibrant, central hub for regional and local transit connections. Multiple land development proposals have envisioned transformative new growth in jobs and housing on large sites adjacent to and near the Station. The proposed growth could place up to 18,000 new housing units and 15 million square feet of commercial and office space in close proximity to the Station.

Accompanying these growth proposals are ideas for new transportation services and facilities that could bring additional multi-modal transit connections to Bayshore Station. Potential new connections include an extension of the T-Third Light Rail Transit (LRT) line, a new Bus Rapid Transit (BRT) line on Harney Way and Geneva Avenue, an extension of Geneva Avenue from Bayshore Boulevard to US 101 to provide new local street connectivity, and new and re-routed local bus and shuttle service.

Bayshore Station represents a rare and important opportunity to truly coordinate transportation with land use to integrate a regional transit station into the surrounding neighborhood at the same time that the neighborhood itself is taking shape. Institutionally, Bayshore Station straddles two jurisdictions—San Francisco and Brisbane—and is in close proximity to Daly City. The station area has been identified as a Priority Development Area (PDA), a regional designation recognizing the area's potential role in providing a portion of the region's needed future housing and creating eligibility for enhanced access to transportation funds.

But some challenges remain. The existing Station is a quiet, low-ridership stop with resulting personal security concerns. Additionally, at this formative stage in the land planning process, multiple visions of the future station area have emerged, with no single vision yet prevailing. Complicating the process further is the number of stakeholders that a broad consensus must win over, including multiple existing neighborhood communities, land use jurisdictions, transit providers, transportation funding agencies, land development stakeholders, and property owners.

The Bayshore Intermodal Station Access Study is a cross-jurisdictional, consensus-building effort to incorporate technical analysis and stakeholder input toward producing a common vision for how best to make the transformation from its current low-key incarnation into a busy, vibrant regional hub.

1.1 Study Purpose and Role

This Study exists in the context of multiple other planning processes, many of which are still underway at the time of this final report. Most significantly, the land immediately surrounding the Station is the subject of an ongoing planning process called the Baylands Specific Plan that is critical to the Station's success. The Baylands process will determine the land uses and street network to be built around the Station, including the land on which the Station itself will eventually sit.

The current amount of uncertainty about the Baylands presents a unique opportunity at the same time that it limits the role of this Study. Now is the opportune time for an effort to identify key considerations for maximizing the chance of station success, such that the Study may provide valuable insights to inform the other ongoing planning processes. The Study does not attempt to reach an agreed-upon vision for the Station, since multiple decisions affecting that vision are yet to be made. Instead, the Study intends to inform those decisions by identifying the design options, trade-offs, and implications for station design and the new connections.

1.2 Study Stakeholders

There are multiple stakeholders with an interest in the Station area. Community stakeholders include the residents and businesses of Brisbane, of the nearby Visitacion Valley, Little

Table 1-1. Public-agency stakeholders

AGENCY	ROLE IN RELATION TO STATION	INTER-AGENCY TECHNICAL WORKING GROUP	FUNDER
San Francisco County Transportation Authority	Transportation planning and funding for San Francisco	Lead Agency	●
San Mateo Transit District (SamTrans)	Bus service provision	●	
Peninsula Corridor Joint Powers Board (Caltrain)	Caltrain commuter rail service provision	●	●
San Mateo County Transportation Authority	Transportation funding for San Mateo County	●	●
City/County Association of Governments of San Mateo County (C/CAG)	Transportation funding and planning for San Mateo County	●	●
City of Brisbane	Redevelopment planning and approval for nearby Baylands site	●	
San Francisco Planning Department	Station area local land use authority	●	
San Francisco Municipal Transportation Agency	Bus and light rail service provision	●	
San Francisco Department of Public Works	Public infrastructure for San Francisco	●	
San Francisco Redevelopment Agency	Redevelopment planning and approval for three nearby sites: Schlage Lock/Visitacion Valley, Candlestick Point, and Hunters Point Shipyard	●	
San Francisco Office of Economic and Workforce Development	Redevelopment of three nearby sites: Schlage Lock/Visitacion Valley, Candlestick Point, and Hunters Point Shipyard	●	
Metropolitan Transportation Commission/ Association of Bay Area Governments, FOCUS Program	Regional transportation and land use coordination and funding	●	●
City of Daly City	Station area local land use		
California High Speed Rail Authority	Planning and construction of new high-speed rail system using Caltrain right-of-way		

Hollywood, Candlestick Point, and Hunters Point Shipyard neighborhoods in San Francisco, and of the eastern portion of Daly City.

The landowners and developers for nearby potential redevelopment sites constitute a set of private stakeholders and include the Universal Paragon Corporation, the Lennar Corporation, and Recology, the waste collection provider for San Francisco. Chapter 2 provides more information regarding these entities' development plans.

Because of the location of Bayshore Station near the border of three local land use jurisdictions and the county line, there are numerous public-agency stakeholders for this Study (see Table 1-1, previous page). The San Francisco County Transportation Authority (Authority) served as lead agency for the effort but worked in close coordination with other public stakeholders. To incorporate input from and build consensus among the agencies most affected, the Study created an interagency Technical Working Group (TWG) that met periodically and reviewed all Study products. Lastly, this Study was made possible by a grant from the Association of Bay Area Governments/Metropolitan Transportation Commission (ABAG/MTC). Several local agencies also provided matching funds. Table 1-1 describes the public stakeholders and their relation to the Station.

The Study does not attempt to reach an agreed-upon vision for the Station, but instead intends to inform upcoming decisions by identifying the design options, trade-offs, and implications for station design and the new connections.

1.3 Study Process

The Study carried out the following tasks to develop its findings:

Vision Statement and Evaluation Criteria. The Study generated a vision statement (see: Vision Statement for Bayshore Station) to serve as the basis for proposed station design changes and related land use and transportation.

Existing and Future Conditions. The Study collected data and information to characterize existing transportation and land use conditions. To understand future conditions, the Study examined plans describing potential future land use and transportation changes and used a model to produce forecasts of future station usage patterns.

Alternatives Development and Evaluation. The Study created three alternative designs for station facilities and transit connections, after which the Study conducted analysis to evaluate the alternatives for comparative performance.

Vision Statement for Bayshore Station

The Study developed a vision statement for the station that guided the creation of alternative station designs, formed the basis for the criteria used to evaluate the station designs, and informed the findings for station-neighborhood integration. The statement is as follows.

"Bayshore Station will play a central role in transit provision and place-making for the area around the County Line between San Mateo and San Francisco. This role consists of:

- Providing convenient transfers for passengers connecting between transit services, including Caltrain, the future Muni Third Street Light Rail Extension, the future Geneva-Harney Bus Rapid Transit line, and local bus and shuttles.
- Creating, through an outwardly oriented design, strong multimodal connections to and from surrounding existing and future neighborhoods, whether passengers are arriving via foot, bicycle, auto, or transit.
- Serving as a highly visible gateway and organizing focal point for transit-oriented land uses in the immediate area, through a design that seamlessly integrates the station into the surrounding community.
- Reducing vehicle miles traveled and greenhouse gas emissions by facilitating mode shift from single occupant vehicles to alternative modes of transportation."

Outreach. The Study sought input from agency stakeholders and community residents and businesses throughout the Study. The Study also regularly engaged its interagency technical working group to provide technical input on Study products and findings. Community members provided input at two rounds of public events. To supplement the community meetings, the Study met directly with key stakeholders directly affected by or with a strong interest in the Station, including community groups, government agency representatives, local land owners, businesses, and land developers.

Station Program and Neighborhood Integration. The Study identified critical design-, policy-, service-, and program-related issues for integrating the Station into the new surrounding neighborhoods and supporting a strong Bayshore Station, regardless of which station design is ultimately chosen.

2

Existing and Future Conditions

THIS CHAPTER describes the Station area's existing conditions, as well as how those conditions may change with future planned land use and transportation projects. Where relevant, the chapter also identifies the critical needs resulting from these conditions that the Study aims to address through the station design alternatives (Chapter 3), station program (Chapter 5), and station-neighborhood integration findings (Chapter 6). The chapter closes with an analysis of future station usage patterns expected as a result of these land use and transportation changes.

2.1 Land Use Context

Bayshore Station is currently a quiet transit stop that is isolated from surrounding neighborhoods by a large, formerly industrial piece of land called the Brisbane Baylands. But future plans for the area envision transforming the Station's neighboring uses into vibrant new residential and employment centers, including the Baylands. When added to the Station's nearby existing neighborhoods, the new land uses will re-shape the station area's landscape and change the way the Station relates to and functions within the community (see Figure 2-1, next page). These transformations are described further below.

EXISTING NEIGHBORHOODS

Two existing neighborhoods are located adjacent to Bayshore Station within the City of San Francisco. The Visitacion Valley neighborhood west and north of the Station is primarily residential, but includes a neighborhood business district along Leland Avenue and additional commercial land uses along Bayshore Boulevard. The Little Hollywood area northeast of the Station is almost entirely single family residential homes.

SCHLAGE LOCK/VISITACION VALLEY PROJECT

The Universal Paragon Corporation (UPC) owns the former Schlage Lock Factory site, which is immediately northwest of the station between the Caltrain tracks and the existing Visitacion Valley neighborhood. The site is currently vacant and planned for redevelopment. San Francisco has approved plans for 1,250 housing units and approximately 120,000 square feet of commercial space in mixed-use buildings. The development will include a fine-grained street grid and provide a connection to Bayshore Station from the west.

Figure 2-1: Station Area Neighborhoods and Development Areas

BRISBANE BAYLANDS PROJECT

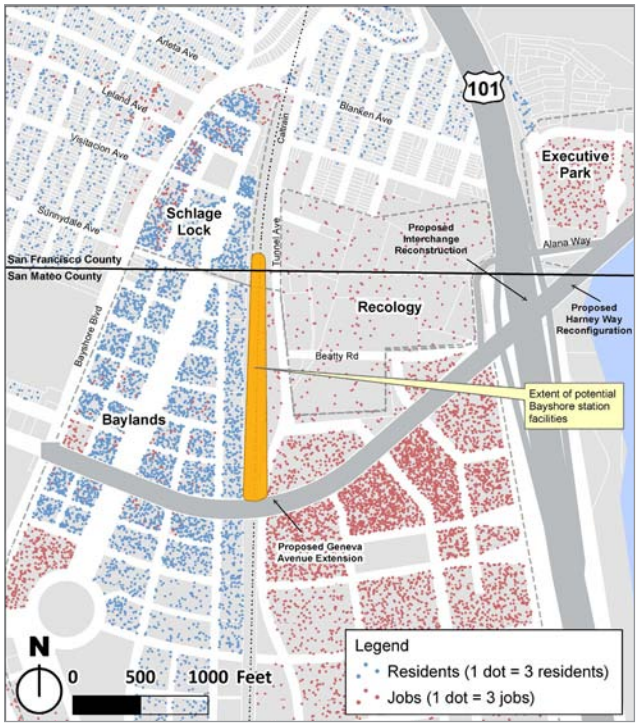
Within the City of Brisbane, the formerly industrial 600-acre Baylands site is located on both sides of the Caltrain tracks to the west and south of the Station. It is owned by UPC and is partially occupied by several remaining light industrial uses, but is undergoing environmental analysis for future development. The City of Brisbane, through its Baylands Specific Plan (BSP) process, is evaluating two alternative development proposals: a Developer Scenario, put forward by UPC, and a Community Scenario, developed through a city-led community process. Both proposals include substantial new development, including a dense concentration directly adjacent to Bayshore Station. The Developer Scenario features a combination of residential and commercial development, at higher densities, while the Community Scenario features commercial uses only, at a lower density (for more detail see: Developer and Community Land Use Scenarios for the Brisbane Baylands at a Glance).

RECOLOGY EXPANSION PROJECT

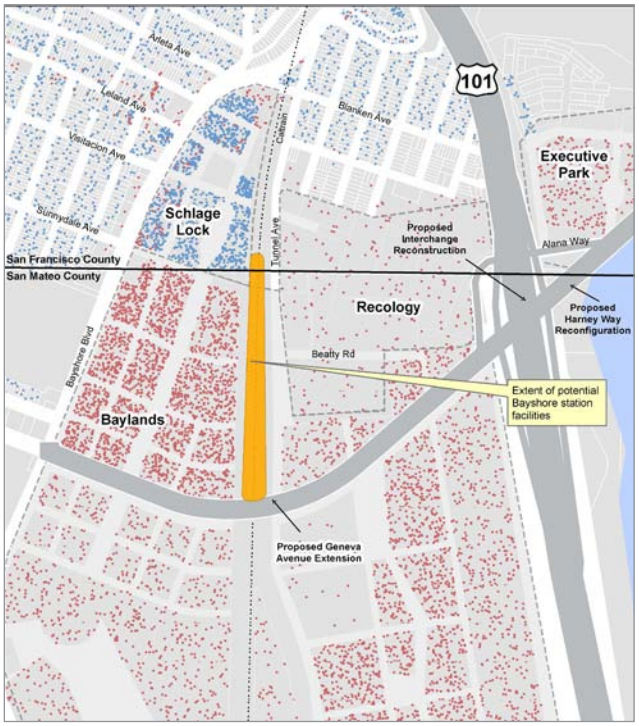
Recology owns and operates the city's solid waste transfer facility straddling the county line east of the Station. Recology has proposed to

Figure 2-2: Estimated Residential and Employment Density in Bayshore Station Area at Build-Out

Developer Land Use Plan



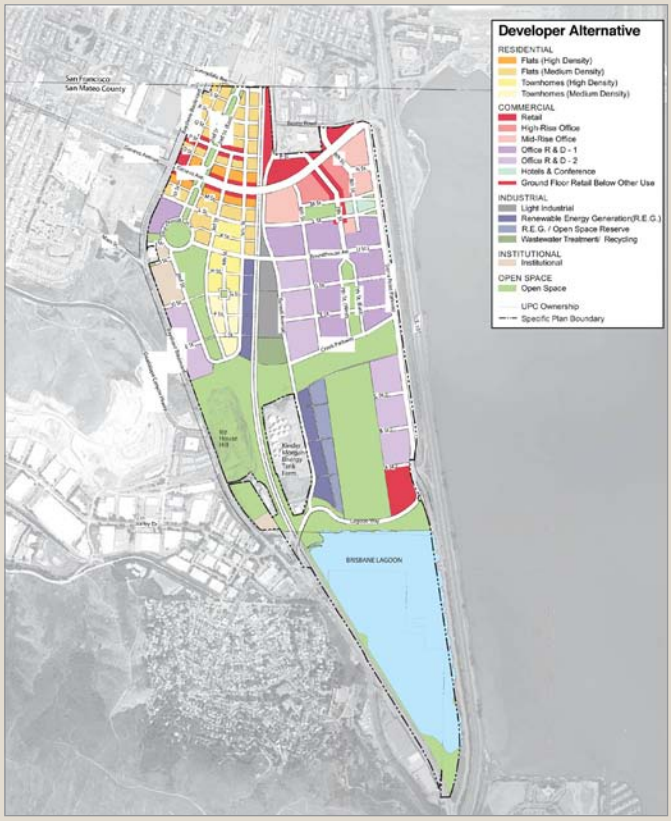
Community Land Use Plan



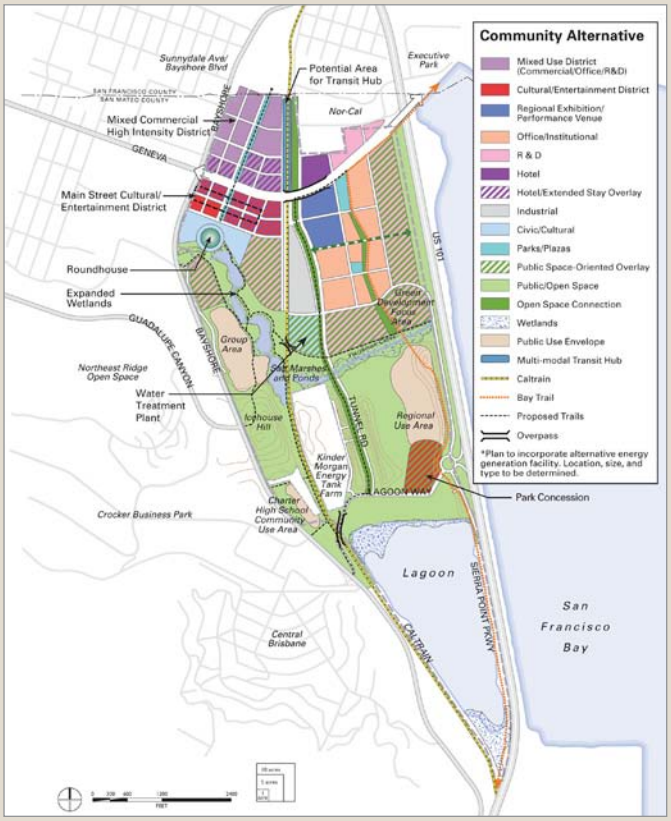
NOTE: Does not include proposed Recology expansion; For methodology used to generate maps, see Appendix A.

Developer and Community Land Use Scenarios for the Brisbane Baylands at a Glance

Developer Land Use Scenario. UPC has proposed developing the site with a mix of approximately 4,400 residential units and 6.9 million square feet of office, retail, research and development (R&D), hotel, and other commercial space. The Developer Scenario clusters development in multifamily housing and office buildings on both sides of the Caltrain tracks surrounding Bayshore Station at the north end of the site, with lower-density townhomes, research and development (R&D) uses, and open space further south. UPC proposes mostly residential uses west of the Caltrain tracks and commercial uses to the east. A major retail corridor connects east to west through the site along the proposed extension of Geneva Avenue. The west side of the tracks feature a fine-grained street grid and small block sizes, while a larger-scale grid would serve the eastern portion of the site. An Entertainment Variant to the Developer Scenario would replace several blocks of office, retail, and R&D space at the northeast corner of the site with an arena, theater, and other entertainment uses. The total amount of commercial space would remain similar to the base Developer Scenario.



Community Land Use Scenario. The City of Brisbane has worked with the local community to develop a second Baylands development alternative. The Community Scenario proposes 8.3 million square feet of commercial development with a mix of office, retail, R&D, hotel, and other uses, but no residential development. Mixed office and commercial uses in the site's northwest corner, adjacent to Bayshore Station, have the highest densities in the proposed plan. Lower-density uses are proposed on both sides of the Caltrain tracks south of the station. The plan includes a retail and entertainment district southwest of Bayshore Station and office, hotel, exhibition, and R&D uses east of the tracks. Much of the southern portion of the site would be open space. Block sizes are smaller in the proposed districts west of the tracks than in those to the east, but blocks are larger throughout compared with the Developer Scenario. A Recology Variant to the Community Scenario would replace several blocks of R&D and hotel uses with an expansion of the Recology waste facility, described below.



Developer Alternative map source: UPC
Community Alternative map source: City of Brisbane

expand the facility to include 25 acres of the Brisbane Baylands south of the existing Recology parcels. The project would consolidate administration, recycling, and yard facilities from multiple sites, expanding the developed area of the facility from 260,000 square feet to 1 million square feet.

EXECUTIVE PARK PROJECT

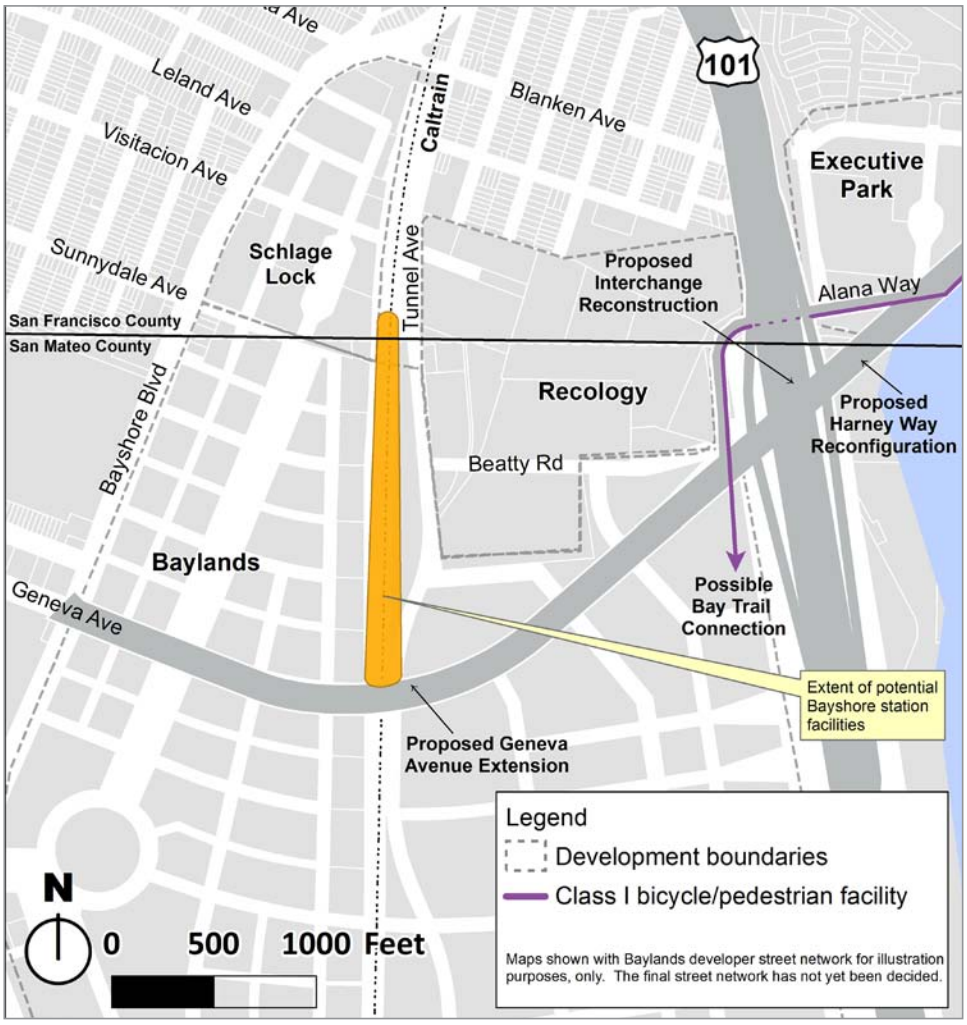
Executive Park, located east of the US 101 freeway, currently contains a mix of commercial office, multi-family residential, and townhouses. UPC owns Executive Park and plans to replace the three existing office buildings with 1,600 housing units.

CANDLESTICK POINT/HUNTERS POINT SHIPYARD PROJECT

The City of San Francisco approved a redevelopment plan in 2010 for these two areas located northeast of Bayshore Station. The plan, to be implemented by master developer Lennar Urban, includes 10,250 housing units and 6.4 million square feet of office, commercial, hotel, and community uses. While not located within the Bayshore Station walk catchment, Candlestick Point and Hunters Point Shipyard will generate significant demand for east-west travel through the Study area, vehicular access to US 101, and transit transfers

Candlestick Point and Hunters Point Shipyard will generate significant demand for east-west travel through the Study area, vehicular access to US 101, and transit transfers to Caltrain at Bayshore Station.

Figure 2-3: Existing and Future Streets Near Bayshore Station



to Caltrain at Bayshore Station. Seamless intermodal connectivity for transit transfers at Bayshore Station is of critical importance for the success of this development.

COW PALACE/EAST DALY CITY PROJECTS

Existing land uses in East Daly City at the southwest periphery of the Station area include light industrial, the Cow Palace arena, and a small single-family residential neighborhood.

Table 2-1. Existing and Future Street/Transportation Facilities Near Bayshore Station

STREET/FACILITY	EXISTING CONDITION	FUTURE PLANS
Bayshore Boulevard	North-south on west side of Caltrain tracks 2 lanes + bike lane + sidewalks in each direction	No change to street widths/facilities
Tunnel Avenue	North-south on east side of Caltrain tracks 1 lane in each direction + Class III bike route + sidewalks	2 lanes + Class I multi-use path
Geneva Avenue	East-west arterial terminating at Bayshore Boulevard 2 lanes in each direction + sidewalks	Extend through Baylands with grade separated crossings of Caltrain and US 101 Geneva would be even with the groundplane between Bayshore Boulevard and the Caltrain tracks, and be elevated above the ground plane east of the tracks 2 general purpose lanes + designated bus lane + buffered bike lane + sidewalk in each direction Study considers alternate configuration of designated bus lane between US 101 and the Caltrain tracks (see Chapter 3)
Blanken Avenue	Only existing east-west crossing of Caltrain tracks Connects Bayshore Boulevard to Executive Park, including an undercrossing of US 101 1 lane + sidewalks in each direction Class III bike route connecting Bayshore Boulevard to Tunnel Avenue	No change to street widths/facilities
Beatty Road	East-west connecting Tunnel Avenue to Alana Way (at US 101) 1 lane in each direction + Class III bike route	May be closed as a public right-of-way as a part of Recology expansion Study considers aerial/tunnel connection along Beatty right-of-way for BRT/non-motorized Class I facility (see Chapter 3)
Alana Way	Crosses under US 101 connecting Beatty Road with Harney Way	Exclusively designated BRT lanes for Geneva BRT + Class I bike facilities Private vehicles will use Geneva Avenue Extension instead
Harney Way	Connects US 101 with Candlestick Point, connects to Alana Way which crosses under US 101, becoming Beatty Road 2 lanes in each direction	2 general purpose lanes + designated BRT lanes for Geneva BRT + bike lanes/path + sidewalks in each direction
Bay Trail	Off-street multi-use path planned to ring the San Francisco Bay Within Station area, only 1-mile east of US 101 has been implemented	Planned to cross from the east side to the west side of US 101, potentially through the Alana Way tunnel, cross Geneva Avenue, and south through the Baylands site

US 101 and the Caltrain tracks, the hilly topography of the Station area, and the major un-gridded sites of the Baylands and Schlage Lock create challenge to connectivity within the Station area.

Table 2-2. Access Conditions, Routes/Major Crossings, and Critical Needs

ACCESS POINTS	EXISTING	FUTURE	OUTSTANDING NEED
NORTHWEST QUADRANT (west of Caltrain tracks, north of Geneva)			
Visitacion Valley	Cross Bayshore Boulevard Blanken Ave to Tunnel Ave	Cross Bayshore Boulevard Schlage/Baylands street grid	Strong non-motorized treatment to facilitate Bayshore Boulevard crossing
Schlage Lock	N/A	Schlage/Baylands street grid	
Baylands	N/A	Baylands street grid	
SOUTHWEST QUADRANT (west of Caltrain tracks, south of Geneva)			
Downtown Brisbane	Tunnel Ave	Tunnel Ave	Strong non-motorized treatment to facilitate Geneva Avenue crossing
Baylands	N/A	Baylands street grid Cross Geneva Avenue at-grade	
Baylands, via Tunnel Ave	N/A	Baylands street grid Cross Geneva Avenue at-grade	
SOUTHEAST QUADRANT (east of Caltrain tracks, south of Geneva)			
Baylands, via Tunnel Ave	N/A	Baylands street grid Cross Geneva Avenue at-grade	Strong non-motorized treatment to facilitate Geneva Avenue crossing
Baylands, east of Tunnel Ave	N/A	Baylands street grid to Tunnel Cross under Geneva Avenue	Special attention to overcome low-activity environment around Recology
NORTHEAST QUADRANT (east of Caltrain tracks, north of Geneva)			
Candlestick Point	Harney to Alana to Beatty to Tunnel (by bike or auto) Harney to Alana to Executive Park Blvd to Blanken to Tunnel (by foot)	Bike/Ped TBD—feasibility of crossing via Blanken Ave tunnel, connecting to station either via elevated structure over Beatty or via Geneva Avenue, needs to be explored further (discussed in Chapter 7) Harney to Geneva to Tunnel (by auto)	Designated non-motorized access under US 101 Special attention to overcome low-activity environment around Recology
Executive Park	Blanken Ave to Tunnel Ave	Blanken Ave to Tunnel Ave	
Little Hollywood	Little Hollywood street grid to Tunnel Ave	Little Hollywood street grid to Tunnel Ave	

Several sites in East Daly City, including Cow Palace, the Carter-Martin site, and the PG&E/ Midway Village site, have been identified for potential redevelopment, but no plans have yet been formally proposed.

CUMULATIVE GROWTH

Residential and employment densities around the Station will increase significantly as planned development described above occurs. Figure 2-2 (p. 18) illustrates estimated density of residents and employees in the Station area at build-out under both the Baylands Developer and Community Scenarios.

2.2 Transportation Context and Needs

This section describes the existing and future transportation context within the Station area. It begins by describing the multi-modal street network, and transit services in the area, it then describes the Station access demands that will be created as a result of Station improvements and new development.

MULTI-MODAL STREET NETWORK AND ACCESS NEEDS

The major north-south barriers of US 101 and the Caltrain tracks, the hilly topography of the Station area, and the major un-gridded sites of the Baylands and Schlage Lock sites create challenging connectivity within the Station area today for all modes. Non-motorized conditions are further strained by the vacant Baylands and Schlage Lock sites near the Station, which create personal security concerns, in particular during evening hours. These conditions may improve when future plans move forward, including implementation of the fine-grained street grids associated with the Baylands and Schlage Lock projects and the resultant activation of the space with new residents and businesses. Figure 2-3 (p. 20) shows existing and future streets in the Station area and Table 2-1 (p. 21) contains additional details, such as the numbers of lanes, provision of dedicated bus lanes, and bicycle and pedestrian facilities.

There are several Station access demands that will be created by the proposed growth. Table 2-2 (previous page) lists the likely access points from which Station users may wish to travel to the Station and any critical needs that are not already addressed by current plans.

In particular, consideration of all major access points to the Station in the future indicates three critical outstanding needs (all of which are discussed further in Chapter 6).

1) Accommodate safe non-motorized crossings of major arterials such as Geneva Avenue and Bayshore Boulevard. Treatments could include traffic calming measures such as bulb-outs to shorten crossing distances, high-visibility crosswalks, or signalized crossings.

Figure 2-4: Existing/Planned Transit Near Bayshore Station

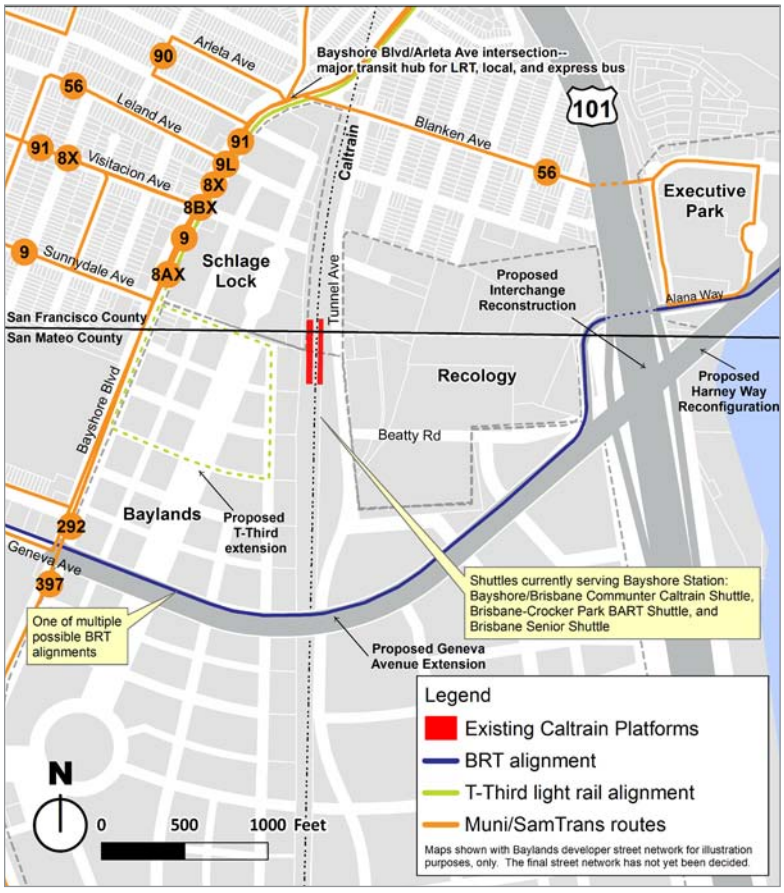
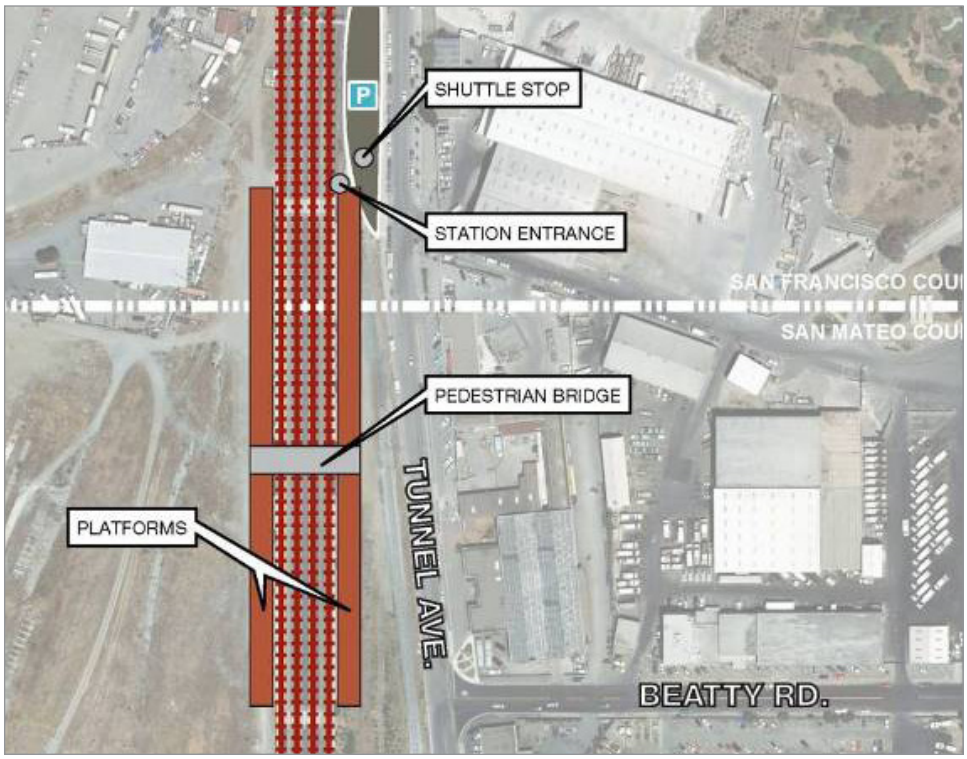


Figure 2-5: Existing Station Components



2) Design treatments to overcome the low-activity zone next to Recology. Tunnel Avenue adjacent to Recology is the only existing access point to the Station, and it will continue to be the main access for points east. Techniques or design treatments to overcome its potential to be an undesirable access route for non-motorized users must be identified.

3) Non-motorized access across US 101. Those traveling to the Station from east of US 101 need a safe and direct way to access it. Of the two existing undercrossings, Blanken Avenue is dark and provides indirect access for travelers from Candlestick Point because it is north of the Station, and Alana Way does not currently provide pedestrian access. Alana Way will also accommodate Geneva BRT in the future, necessitating careful design treatments to avoid modal conflicts.

TRANSIT SERVICES

While only shuttles serve the Bayshore Caltrain Station directly today, other major transit services operating nearby include several Muni transit lines (both local and express buses and the T-Third light rail/LRT) with stops near Arleta Avenue and Bayshore Boulevard. In the future, electrification of Caltrain service is expected to increase frequency, the T-Third will be extended to the Station, a new Geneva Harney-Bus Rapid Transit (BRT) line will be implemented connecting to Bayshore Station, and some existing and/or new local buses will serve the Station directly (see Figure 2-4, previous page). These changes are described in greater detail in the remainder of this section.

CALTRAIN

The Bayshore Caltrain Station was renovated in 2005 and consists of two 700-foot side platforms connected by a pedestrian overcrossing structure (see Figure 2-5, above). Passengers enter the Station from Tunnel Avenue at the north end of the eastern platform

and must use the bridge overcrossing located at the midpoint of the eastern platform to cross over to the western platform. Four tracks run through the Station, two for passenger service and two for through-trains. A 36-space paid Caltrain parking lot is located at the entrance to the Station, although park-and-ride users typically park in unpriced on-street spaces on Tunnel Avenue.

The Bayshore Station is served by Local and Limited Stop service with headways ranging from 40 to 60 minutes. Bayshore Station, with just over 300 daily boardings, is one of the least utilized in the system. Future plans include electrified operations, enabling Caltrain to shorten travel times and serve more stations. With electrification, it is expected that Bayshore Station could receive more service in the future than it does currently, especially in the peak commute periods.

T-THIRD LIGHT RAIL

The T-Third LRT line currently provides frequent all-day service from its southern terminus in Visitacion Valley north to downtown San Francisco. A planned extension of the T-Third would continue the line to the Bayshore Caltrain Station. The extension is envisioned as a loop, representing approximately one-half mile of new track through the Brisbane Baylands to reach Caltrain. The City of Brisbane and the Baylands developer have agreed on a preliminary street network near the Caltrain Station to accommodate the proposed extension, and the San Francisco Municipal Transportation Agency has developed a Conceptual Engineering Report (CER) based on that network, which calls for a 450-foot LRT platform, substation, and operator restroom.

GENEVA-HARNEY BUS RAPID TRANSIT

In the future, a planned Geneva-Harney BRT line will provide enhanced east-west service through the Station area. 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 Bayshore Station. While the portion of the route from Hunters Point to US 101 has been conceptually designed as a part of the Candlestick Point/Hunters Point Shipyards develop-

Table 2-3. Existing Transit Service Near Bayshore Station

LINE	DESCRIPTION
Muni 9-San Bruno	Visitacion Valley to Downtown
Muni 9-Limited San Bruno	Visitacion Valley to Downtown
Muni 8AX-Bayshore 8 'A' Express	Visitacion Valley to Downtown and North Beach via Visitacion Valley
Muni 8BX-Bayshore 8 'B' Express	Visitacion Valley to Downtown and Fisherman's Wharf
Muni 8X-Bayshore Express	City College to Downtown and Fisherman's Wharf via Visitacion Valley
Muni 56-Rutland	Visitacion Valley to Executive Park
SamTrans 292	Hillsdale Shopping Center to Downtown San Francisco
Bayshore/Brisbane Commuter Caltrain Shuttle	Brisbane to Bayshore Station
Brisbane-Crocker Park BART Shuttle	Balboa Park BART to Bayshore Station
Brisbane Senior Shuttle	Brisbane to Bayshore Station

Muni's T-Third light rail would extend from the Sunnydale stop (top) to the Bayshore Station to connect with Caltrain and the proposed Harney-Geneva Bus Rapid Transit line, which would travel along an extended Geneva Avenue that currently terminates at Bayshore Boulevard (bottom).

ment, the remaining segments are unplanned. This Study addresses the conceptual design for the portion of the route from US 101 to Bayshore Boulevard (discussed in greater detail in Chapter 3) which is expected to operate in dedicated bus lanes and provide a convenient transfer to Caltrain.

LOCAL/EXPRESS BUS AND SHUTTLE SERVICE

Several local and express services and shuttles operate near Bayshore Station; however, currently only shuttles provide direct service, while many bus lines stop nearby at Bayshore Boulevard and Arleta Avenue. Table 2-3 (previous page) lists all existing transit services operating nearby. Once Station improvements and development occur, additional local, express, and shuttle service should serve the Station. Although the proposed diverting lines would need to be confirmed and detailed service plans developed, the Study assumed they would include the Muni 9-Limited San Bruno and SamTrans Route 292, allowing for bus-to-rail connections from San Francisco and San Mateo local buses.

HIGH-SPEED RAIL

The California High Speed Rail Authority (CHSRA) is planning a high-speed, inter-city rail service serving Sacramento, San Francisco, Los Angeles, and San Diego that would share a modified Caltrain corridor from San Francisco to San Jose. CHSRA's original vision, generated at the conceptual engineering level in 2010, conflicted with local planning efforts, including this Study, in two ways.

The Study's approach to High-speed Rail is to establish local goals, policies, and designs that would become constraints for future High-speed Rail design efforts.

First, the CHSRA-proposed high-speed rail (HSR) envelope was wider than the current four-track Caltrain right-of-way in the vicinity of the Station, to accommodate grade-separated passing tracks and service tracks. In addition, CHSRA plans called for four tracks for a longer stretch than currently exists and for the two inside tracks to descend in grade near Bayshore Station, rather than remain at-grade as they do today.

Second, CHSRA explored locating a rail maintenance and storage yard on the Baylands east of the Caltrain tracks, a proposal that conflicted with local land use and transportation plans there, including the Developer Scenario, the Community Scenario, the Recology expansion, and the Geneva Avenue extension. From the perspective of strengthening Bayshore Station, the CHSRA maintenance yard would not be a supportive land use.

In 2011, CHSRA revised its business plan, focusing first on building the proposed Central Valley segment and pausing its engineering design work on the San-Jose-to-San-Francisco (SJ-SF) segment. The new business plan reflected an intention to initiate service to San Francisco much later, in 2034.

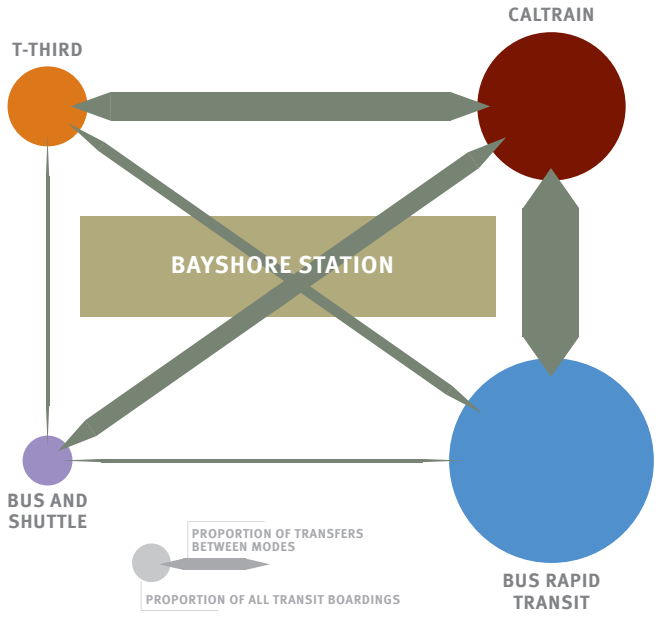
Separately, in 2012, San Francisco, through an effort led by SFCTA, began advancing an HSR concept called the Fast Start Project. This concept envisions a 'blended' service extending from San Jose to the San Francisco Transbay Terminal, featuring HSR and Caltrain equipment both operating on the same tracks at different times, with service initiating much sooner than 2034. This concept considers how both systems could reach the Transbay Terminal by combining the two previously conceived Caltrain Electrification and Downtown Extension projects. The Fast Start Project would utilize the existing Caltrain right-of-way, and, largely, the existing tracks. As such, the Fast Start Project would not require modification of the Caltrain right-of-way in the Bayshore area and would not impact the plans described in the Bayshore Study Final Report. The Fast Start Project will likely enjoy higher support locally than the 2011 CHSRA business plan proposal and therefore have a higher likelihood of implementation as the shorter-term solution.

CHSRA's delayed implementation of dedicated HSR facilities for the SJ-SF segment implies that the longer-term HSR design in the Bayshore area will not be clarified for the foreseeable future. And since the Fast Start Project would not impact the Bayshore area, the Bayshore Station Study's approach to HSR is to establish local planning goals, policies, and designs for the area now, which would become constraints to which any future efforts to modify the Caltrain right-of-way would need to be designed.

2.3 Future Station Usage Patterns

While this Study recognized that future demand would likely increase dramatically from existing conditions, it did not attempt to produce forecasts for future ridership on any of those services. Forecasting for this Study was conducted mainly to understand the relative usage patterns of the various proposed new services. The Study utilized the Authority's SF-CHAMP travel demand model to estimate future Station demand in 2030. The land use inputs were adjusted to reflect the growth proposed at nearby sites, and the transportation network was adjusted to reflect improvements envisioned to support the developments.

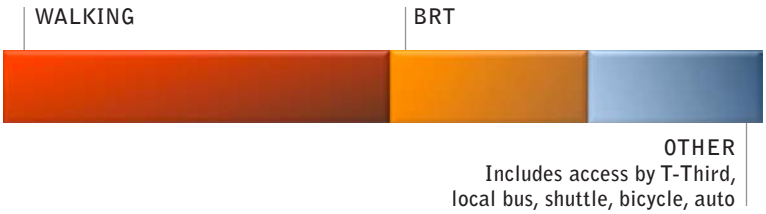
Figure 2-6. Transit Boardings and Transfers at Bayshore Station, 2030



As shown in Figure 2-6 (right), many more transit trips to or from the Station are expected via BRT or Caltrain than LRT. For transferring passengers, the demand for trips that utilize a Caltrain-BRT transfer will be about twice as high as that for trips using a Caltrain-LRT transfer. These findings indicate the importance of providing fast and direct transfers, in particular for the BRT-Caltrain transfer.

Among Caltrain riders, about half will walk to the Station, one-quarter will arrive by BRT, and the remaining quarter will arrive by LRT, local bus, shuttle, bicycle, or auto (see Figure 2-7, right). Given the potentially high walk access mode, pedestrian connections to the Station from the surrounding neighborhoods are a particularly important need to address with safe walk access treatments.

Figure 2-7. Access Modes of Bayshore Caltrain Riders, 2030

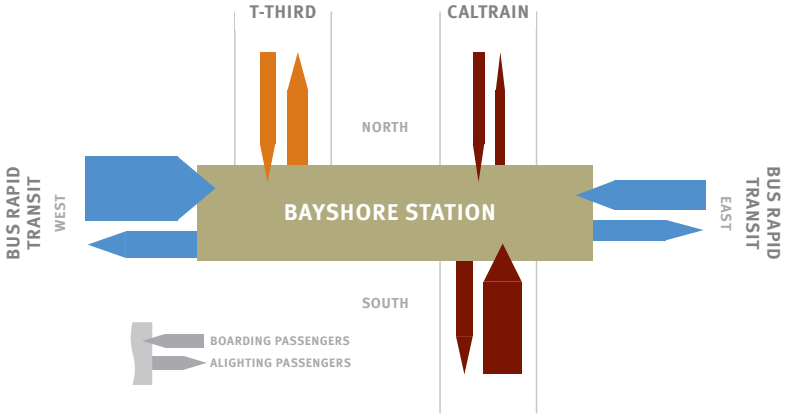


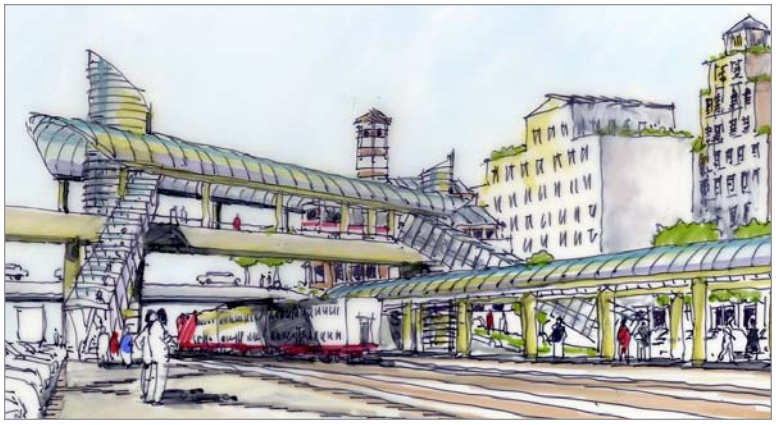
While large increases in nearby land uses and robust future connecting transit service will result in a lower auto-access mode share than existing conditions, the overall increase in Station activity will increase demand for parking beyond the existing Station parking supply. Parking demand might range from as low as 2.5 percent of overall boardings and alightings to as high as 35 percent. Ultimately, parking demand at the Station is affected by provision of parking, which is a policy-related decision. Given the disadvantages associated with oversupplying parking, ranging from higher costs and increased traffic to creating an unattractive environment for non-motorized users, Station parking needs to be limited to the minimum that can be achieved while avoiding spillover parking onto surrounding streets or impeding the growth in Caltrain ridership.

In addition to station access mode, the Study also examined the directionality and magnitude of future boardings at the Station, shown in Figure 2-8 (below), finding:

- Most people who take Caltrain to the Station area in the morning will do so to get from the Peninsula to jobs around Bayshore Station.
- BRT riders who get on or off at the Station will predominantly be coming from points west in the morning.
- Many people will come to Bayshore Station to transfer between BRT and Caltrain. Because of the other transit options San Franciscans have to get to downtown San Francisco, most San Franciscans who make the connection will be travelling south to points on the peninsula.
- For LRT, Bayshore Station will produce higher-than-average ridership among stations along the T-Third line, which is in part due to its function as an end-of-the-line station. More people will get on in the morning to access northern parts of San Francisco than will arrive from the north.
- In the morning, boardings at Bayshore Station will primarily be passengers making "first mile" connections from residential neighborhoods around the Station. Alightings in the morning will primarily be passengers from premium transit services making "last mile" connections to commute destinations primarily to the south, such as the Baylands.

Figure 2-8. Bayshore Station AM Passenger Flows, 2030





3 Station Alternatives and Evaluation

THIS CHAPTER presents conceptual design alternatives that were developed to address future Station area needs identified in Chapter 2. In particular, alternatives were developed to explore ways to accommodate station design challenges such as providing a minimal BRT-to-Caltrain transfer distance, balancing competing demands for the station location, and minimizing conflicts with existing plans such as for the Geneva Avenue extension. Alternatives were then evaluated to understand their performance on a range of criteria developed to assess consistency with the Bayshore Station vision. This chapter first describes the process followed to identify potential alternatives and presents the three conceptual alternative designs developed; then, the alternatives evaluation framework and evaluation results are presented. Further detail on other physical station program elements that must be provided regardless of which conceptual alternative moves forward, such as provision of local bus, shuttle, and kiss-and-ride loading space are presented in Chapter 5.

3.1 Alternatives Development Process

STATION FUNCTIONS

The Study approached the alternatives development process with two specific functions in mind. Bayshore Station will serve both as:

- A major intermodal hub providing efficient transfer between transit modes. Toward this end, the Study sought to minimize transfer distances between Caltrain, BRT, Muni LRT, and other bus and shuttle services.
- A major origin-destination station providing convenient access to transit from existing communities as well as future transit-oriented development in the Station area. Toward this end, the Study sought to provide direct pedestrian and bicycle access to existing communities to the north and west of the Station, as well to the future development at the Schlage Lock site, and the planned Baylands development primarily to the west and south of the Station.

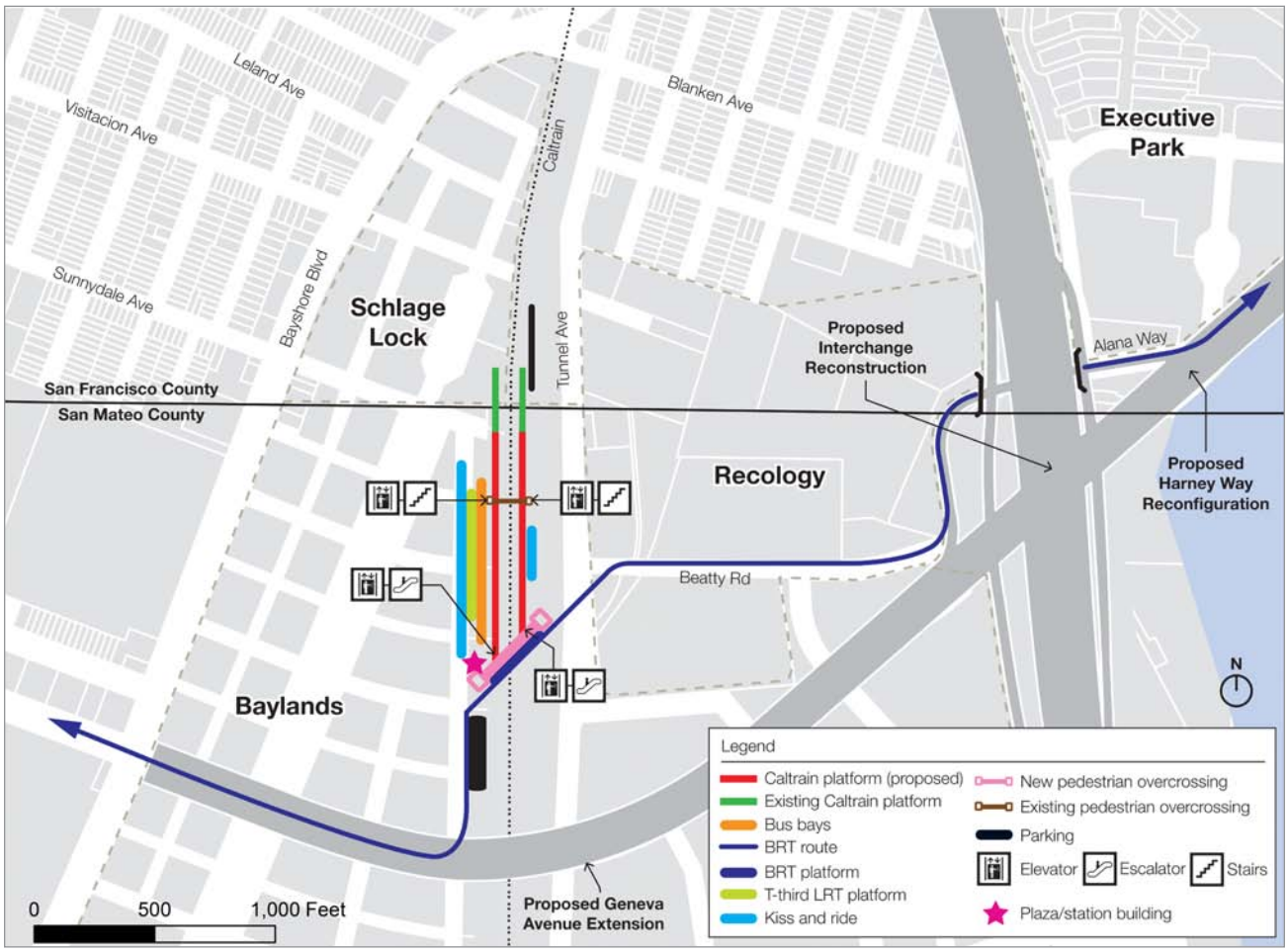
STATION "BUILDING BLOCKS"

The following primary functional components form the basic "building blocks" for the Station, consisting of:

- Heavy rail (Caltrain) platforms;

Figure 3-1: Cross-section view of Alternative 1

Figure 3-2: Alternative 1 aerial view



- Muni T-Third LRT alignment and station location;
- Harney-Geneva BRT alignment and station location;
- Bus transit center;
- Kiss-and-ride;
- Dedicated station parking;
- Intermodal passenger circulation, including vertical circulation where required; and
- Alignment of the Geneva Avenue extension (as a contributing factor to the station configuration).

The Muni T-Third LRT alignment and platform location was developed by the SFMTA in a Conceptual Engineering Report (CER). Alternative alignment options were considered by the Study team, but the loop alignment from the CER was determined to be the preferred configuration considering LRT operations, intermodal connectivity, and compatibility with both the approved site plan for Schlage Lock and the planned street network and grading concepts for the Baylands.

The Study identified options for the other building blocks, then combined all building blocks to form complete station concept alternatives. Appendix C shows the major station component design options used in alternative development.

STATION DESIGN CHALLENGES

The following challenges and trade-offs emerged in the effort to optimize the station functions of providing seamless transfers and strong neighborhood access:

- The southern ends of the existing Caltrain platforms are currently located approximately 1,000 feet north of the conceptual alignment for the Geneva Avenue extension. With BRT on Geneva Avenue as previous planned, the critical BRT-Caltrain transfer would require an unattractively long walking distance.
- Moving the Caltrain platforms south from their current location would bring them closer to BRT on Geneva Avenue and to the dense employment center planned within the Baylands south of Geneva Avenue, but they would be further from the Muni LRT and the existing communities in San Francisco and Daly City.
- Changing the proposed alignment of Geneva Avenue would impact land use plans and adjacent private parcels.

The resulting station alternatives reflect different approaches to overcoming these challenges.

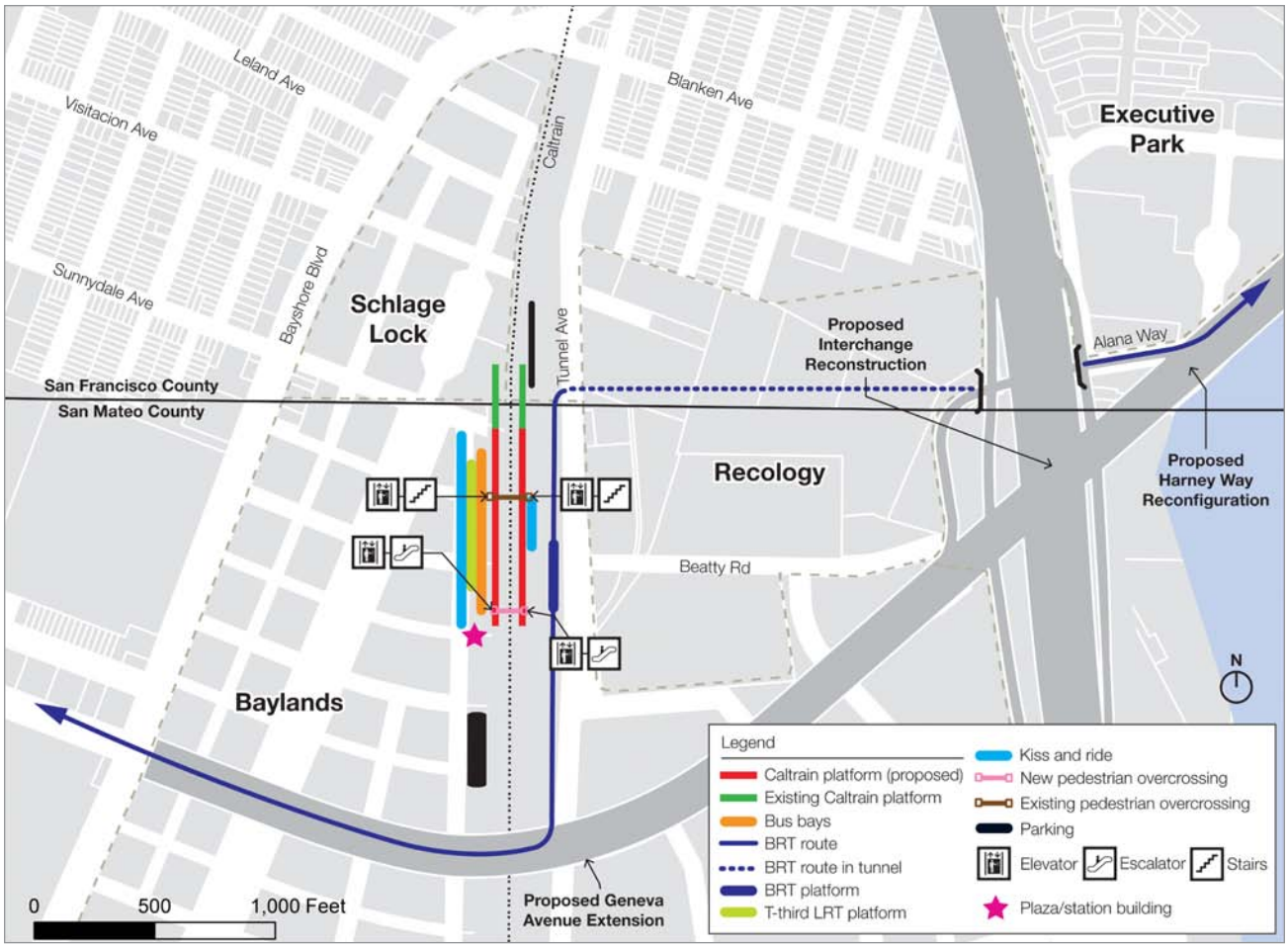
Three alternatives were developed to explore ways to accommodate station design challenges such as providing a minimal BRT-to-Caltrain transfer distance, balancing competing demands for the station location, and minimizing conflicts with existing plans such as for the Geneva Avenue extension.

3.2 Conceptual Design Alternatives

ALTERNATIVE 1

Alternative 1 would optimize intermodal connections by bringing all transit modes together near the existing Caltrain platforms, keeping the facilities relatively further to the north. A compact station footprint would be achieved by providing BRT on a separate alignment from the Geneva Avenue extension in the vicinity of the Station, thus allowing a BRT platform to be located directly above the southern end of the Caltrain platforms. The BRT would operate on a dedicated elevated guideway connecting from the Alana Way tunnel over Beatty Road to an elevated BRT platform at the south end of the Caltrain platforms. The BRT platform would connect to each Caltrain platform by an escalator and an elevator. These connections would serve not only BRT passengers but also as a second pedestrian overcrossing of the heavy rail tracks. West of the Station, the BRT would continue south along the west side of the heavy rail while descending to a grade below Geneva Avenue,

Figure 3-3: Alternative 1 aerial view, tunnel variant



Alternative 1 would bring all transit modes together near the existing Caltrain platforms. It would maintain the strongest connection to existing and approved future development.

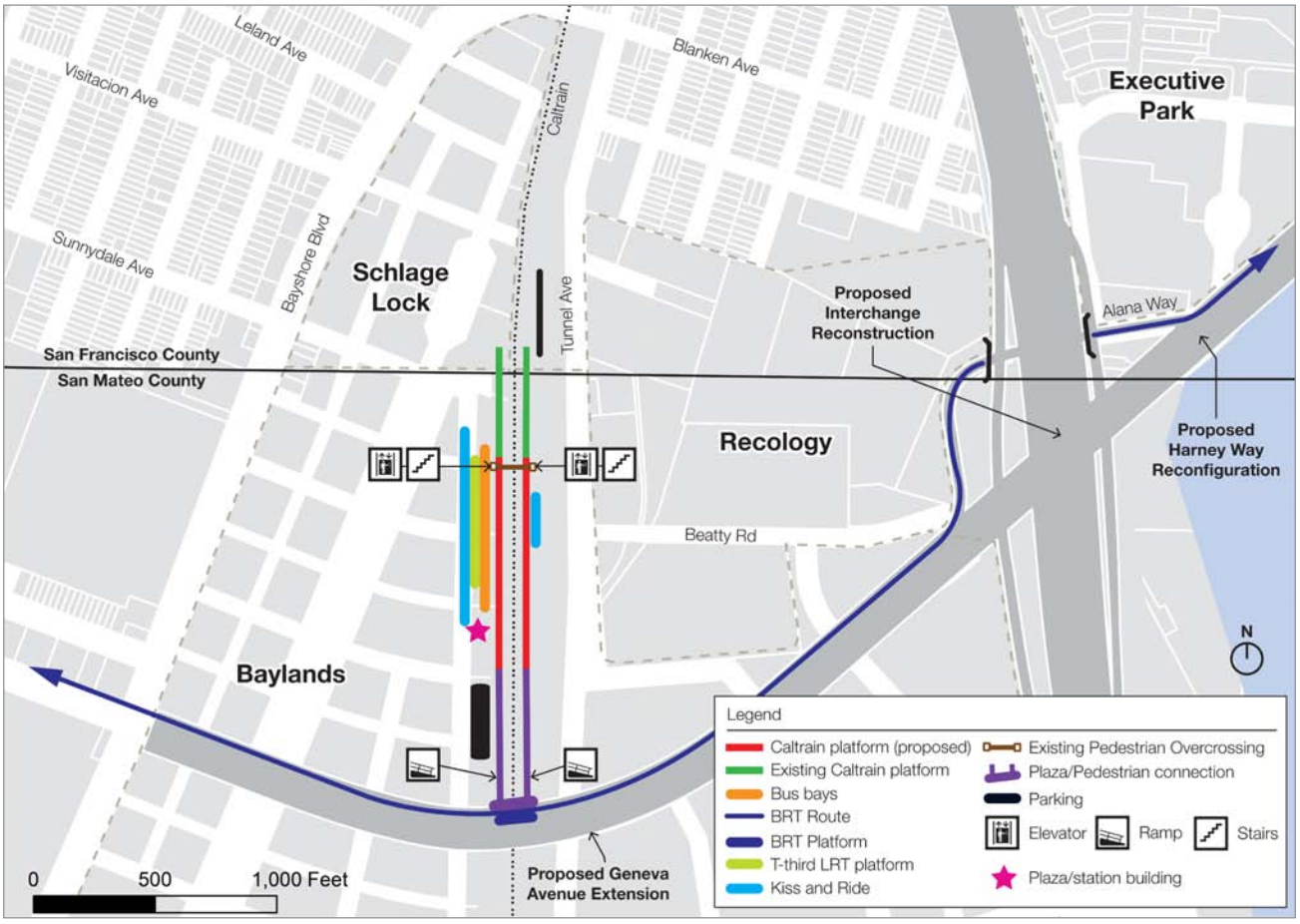
which would be elevated at that point. At Geneva Avenue, the BRT alignment would cross under the elevated roadway, turn west and transition directly into the median of Geneva Avenue without crossing traffic. Cross-section and aerial views of Alternative 1 are presented in Figures 3-1 and 3-2 (p. 30).

Alternative 1 would also maintain the strongest connection to existing and approved future development by moving the Caltrain platforms only 150 feet south of the current location. With this alternative, planned future development in the Baylands is further from the BRT stop and Caltrain platforms than with Alternative 2. Alternative 1 would retain the existing pedestrian over-crossing as a primary pedestrian crossing of the Caltrain tracks.

Because of feasibility questions relating to an aerial guideway through the Recology site, a variant to the elevated BRT alignment was identified for Alternative 1 (see Figure 3-3, above). In this variant, the BRT would operate in a dedicated tunnel from Alana Way, through the Recology site, to the east side of the Caltrain tracks. At this point, the BRT would emerge from the tunnel and ramp up to existing grade to a BRT stop located adjacent to the northbound Caltrain platform. The existing pedestrian overcrossing would connect BRT passengers to the west side of the Caltrain tracks to the southbound Caltrain platform. The BRT alignment would then continue on a dedicated ramp to Geneva Avenue.

Figure 3-4: Alternative 2 cross-section view

Figure 3-5: Alternative 2 aerial view



ALTERNATIVE 2

Alternative 2 would create a more dispersed station but a stronger connection to planned future development.

Alternative 2 would create a more dispersed station and provide some facilities relatively further south, with an additional entrance to the south on Geneva Avenue. BRT would operate on the north side of Geneva Avenue with a stop over the Caltrain tracks. A pedestrian and bicycle ramp would provide the connection from the southern station entrance and BRT platforms to the Caltrain platforms and other station components. Although the ramps would be relatively long, they would represent design opportunities for landscape, hardscape and adjacent land uses. On the west side of the Caltrain tracks, the grade on the ramp could match the re-grading proposed in the Baylands Specific Plan, so it would be perceived as being consistent with the ground plane. Cross-section views of Alternative 2 are presented in Figures 3-4 and 3-5 (previous page).

Compared to Alternative 1, this concept would result in a relatively long passenger transfer distance. However, Alternative 2 would provide a stronger connection to planned future development to the south in the Baylands, with the Caltrain platforms moving farther to the south, and both BRT and a station entrance on Geneva. Alternative 2 would also retain the existing pedestrian over-crossing as a functional part of the Station, located at the north end of the shifted Caltrain platforms.

A possible variant was identified for Alternative 2. This alternative would move the alignment of the Geneva Avenue extension slightly south, consistent with the alignment presented in the Community Scenario to accommodate Recology's proposed expansion. In this variant, the BRT would operate on this southerly Geneva alignment, moving the BRT platforms an additional 200 feet south beyond the original Geneva alignment proposal.

ALTERNATIVE 3

Alternative 3 addresses the challenges of connecting BRT to Caltrain and improving station access to the south, representing a compromise between Alternatives 1 and 2.

Alternative 3 was developed to address the challenges of connecting BRT to Caltrain and improving station access to the south by modifying the proposed alignment of the Geneva extension, in effect representing a compromise between Alternative 1 and Alternative 2. Geneva would be constructed further north than previously planned, and the Caltrain platforms would be shifted to the south. The BRT alignment would run in dedicated lanes in the center of Geneva Avenue. The transfer between BRT and the Caltrain platforms would be made directly via staircases and elevators from the BRT platforms to the Caltrain platforms. Cross-section and aerial views of Alternative 1 are presented in Figures 3-6 and 3-7 (next page).

In Alternative 3, the existing pedestrian over-crossing would no longer be a functioning part of the Station due to the Caltrain platforms shifting to the south, but it could be retained for pedestrian connectivity across the tracks.

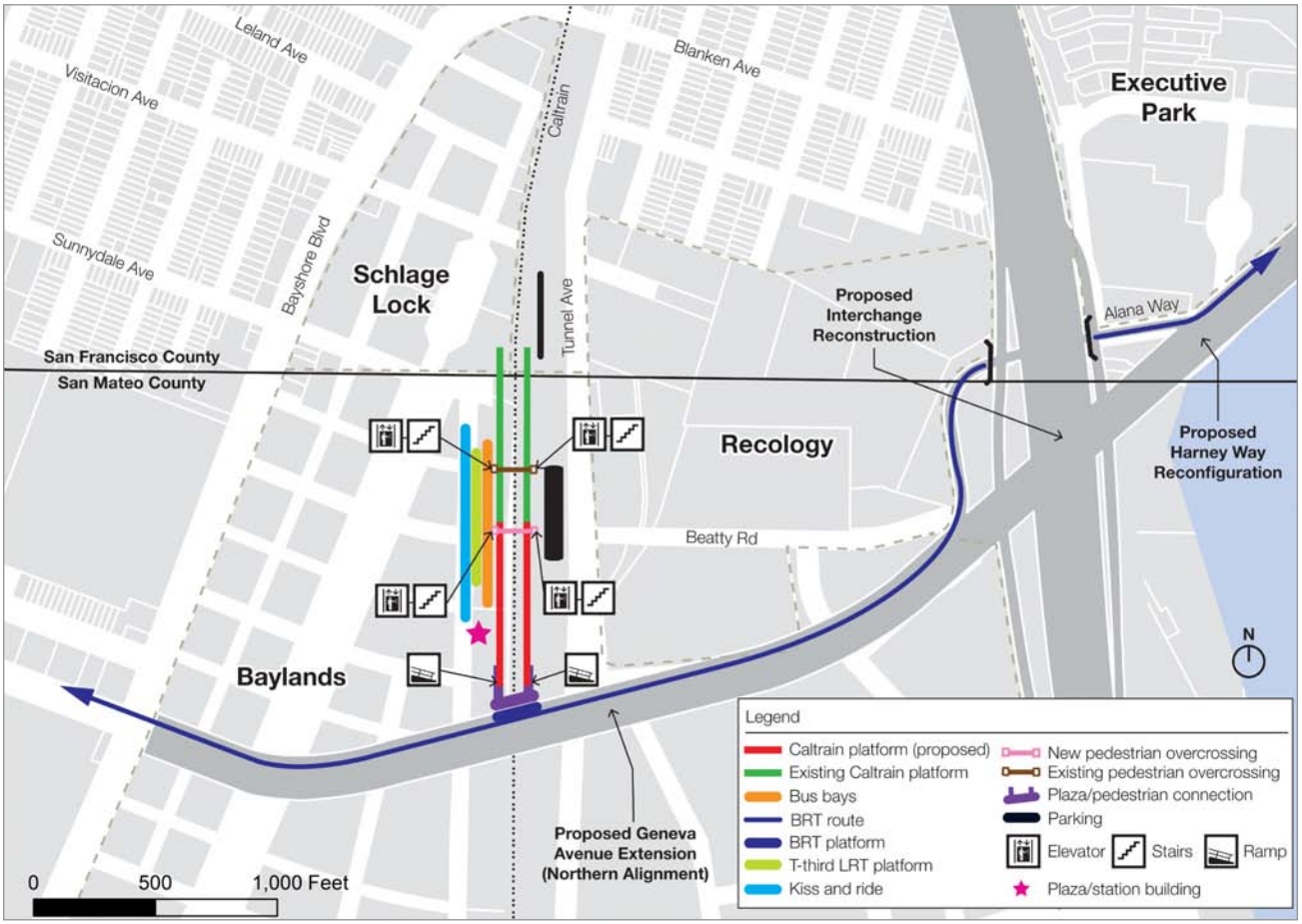
3.3 Evaluation Framework

The evaluation of alternatives considered the following six criteria that were developed to formally assess tradeoffs in how well the conceptual alternatives could achieve the Bayshore Station vision (also see Table 3-1, p. 36).

- **Ridership Maximization:** number of potential future transit riders located within close proximity to the Station.
- **Non-Motorized Access:** safety, attractiveness, and ease of accessing the Station as a pedestrian or cyclist.
- **Intermodal Connectivity:** quality of transit connection, such as the walking distance required to make a transfer.

Figure 3-6: Alternative 3 cross-section view

Figure 3-7: Alternative 3 aerial view



- **Transit Operations:** transit access or circulation differences that could impact service speed and reliability.
- **Place-making:** potential to enhance the Station as a vibrant place, both by attracting 24-hour activity around the Station and by creating a station area identity.
- **Implementation Ability:** ability for the project to advance towards implementation such as the cost of making station improvements and compatibility with planned development.

Brisbane, with jurisdiction over the land in question, has indicated that Alternative 3's alignment of Geneva Avenue is incompatible with land use plans currently under development.

The evaluation also utilized sensitivity discussions to assess the effects of variables that would affect the alternatives' performance but will not be settled until after Study completion. For example, the most considerable sensitivity for the Study is the performance under the Ridership Catchment Maximization criterion when considering different land use assumptions for the Baylands site. The Study examined the relative performance for this criterion under the Community and Developer scenarios in the Baylands. Another sensitivity considered, specific to Alternative 1, is how performance would change in the Tunnel Variant, if an aerial facility were determined to be inconsistent with Recology plans.

Although the Study developed three distinct conceptual alternatives for the Station area, the evaluation examined Alternatives 1 and 2 only, and not 3. Brisbane, the Study's land use partner with jurisdiction over the land in question, has indicated that Alternative 3's alignment of Geneva Avenue is incompatible with the land use plans being developed under the Community Scenario, which includes the Recology expansion variant that would utilize such an alignment as part of its site.

Table 3-1. Evaluation Framework

CRITERION	MEASURE(S)
Ridership Maximization	Future population and employees within a quarter mile and a half mile of the station platforms (station area catchment)
	How much of the catchment is comprised of existing or entitled development, versus development pending necessary approvals
Non-motorized Access	Whether access requires crossing high-volume streets, or areas with unpredictable vehicle movements
	Whether access requires travelling through areas that experience low-activity, in particular during evening hours
	How appealing the experience of travelling to the station is and whether routes include activity-generating retail, plazas, landscaping, or other public realm enhancements
	Whether the street network allows for direct and varied routes to the station and how distance to the station entrance points differ
Intermodal Connectivity	Walking distance between BRT and Caltrain
	Number of street crossings or potential conflicts and the number of vertical changes between transit modes
Transit Operations	Access and circulation differences that could affect service reliability
Place Making	Station as a vibrant place, including 24-hour activity
	Station as an integrated part or focal point of surrounding neighborhood
Implementation Issues	Capital operating and maintenance costs
	Implementation ability including right-of-way acquisition, compliance with institutional/regulatory requirements, phasing considerations, and interagency coordination

3.4 Key Evaluation Results

RIDERSHIP CATCHMENT MAXIMIZATION

Because Bayshore Station is immediately surrounded by the Baylands, future population and/or employees on this site will comprise by far the highest amount of likely future Station users. Future residents and employees at the Schlage Lock site comprise another significant population of potential users, with existing residents of the surrounding neighborhoods an important but smaller share of likely riders because of their distance from the Station—even the closest residents are more than a quarter mile away.

Empirical research indicates transit ridership is drawn almost entirely from within a half-mile catchment of a station, with those located less than a quarter mile about twice as likely to utilize transit as those located within a half mile.[1] The Study found that the half-mile catchment is almost identical among the two alternatives, so the focus here is on the quarter-mile catchment. Because residents and employees within the quarter-mile catchment are much more likely to make a trip by transit than those further away, and because many transit trips represent foregone private vehicle trips, a higher catchment also indicates a higher potential for greenhouse gas reduction.

The share of the Baylands versus Schlage sites within a quarter mile of the Station depends on the alternative, with Alternative 2's southerly location of the Caltrain platforms resulting in more of the Baylands and less of the Schlage Lock site within the quarter-mile catchment than Alternative 1 (see Figure 3-8, below).

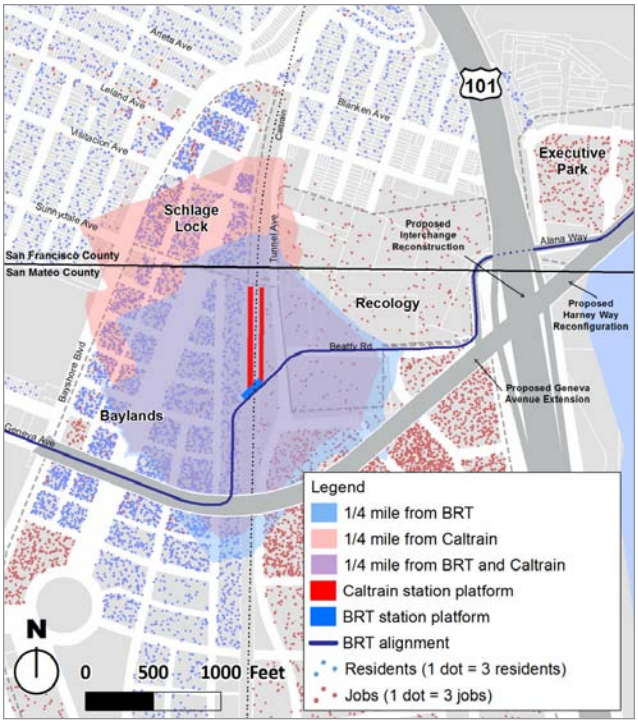
As a result, the yet-to-be-determined density in the Baylands has a decisive impact on the relative performance of the alternatives in maximizing potential ridership. As shown in

The yet-to-be-determined density in the Baylands has a decisive impact on the relative performance of the alternatives in maximizing potential ridership.

[1] Kolko, Jed. Making the Most of Transit: Density, Employment Growth, and Ridership around New Stations. Public Policy Institute of California, February 2011.

Figure 3-8: Quarter-mile catchment area, Alternative 1 vs. Alternative 2

Alternative 1



Alternative 2

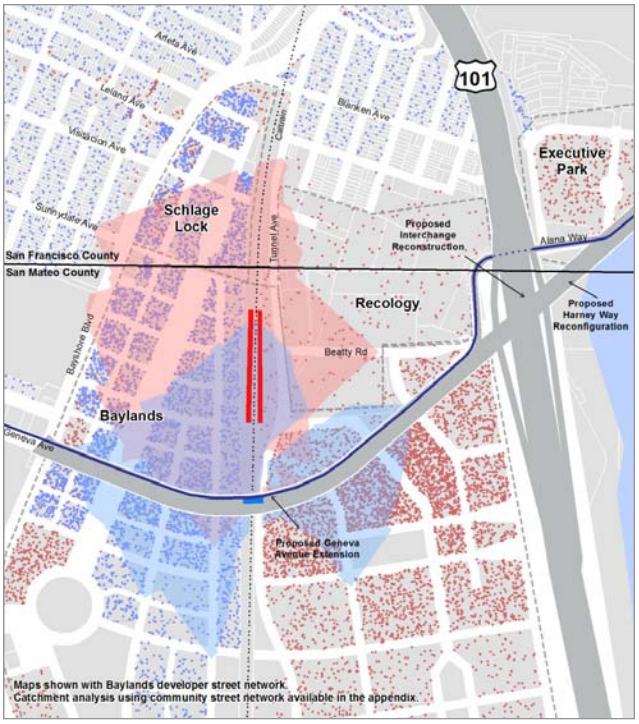
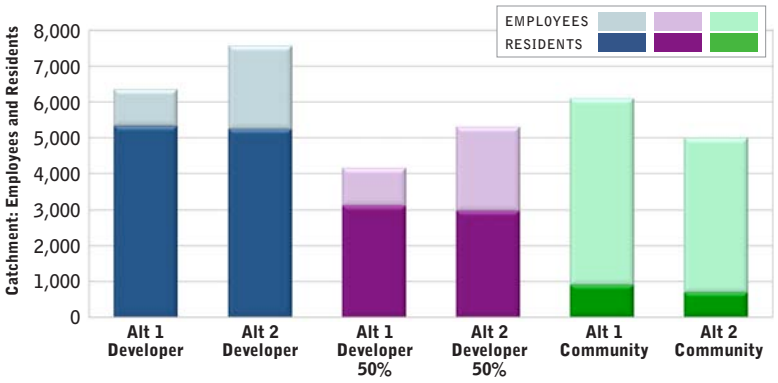


Figure 3-9 (previous page), in the Developer Scenario, Alternative 2 maximizes catchment within a quarter mile of the Station area, while in the Community Scenario, Alternative 1 does so. Similarly, the share of catchment of future station users that will be drawn from existing or entitled development is higher for Alternative 1 because the northern Caltrain platform location results in a greater share of the Schlage site within the catchment area.

The Study also examined the split between the two counties, finding that the vast majority of residents or employees within the quarter-mile catchment will be located within San Mateo County, mostly on the Baylands—between 84 and 89 percent, depending on the land use scenario and Station alternative.

Figure 3-9. Quarter-mile Residential and Population Catchment Results



Finally, two ways the catchment results presented above could vary are worth noting here:

1. Recology's expansion could result in less future employees in the Baylands because the proposed expansion would include some land currently within the Baylands site. In this case, the expected impact to station area catchment would be a slightly lower catchment for both alternatives.

2. The future land use mix and density that is ultimately entitled for the Baylands could be a hybrid of the Developer and Community scenarios. Figure 3-9 (left) indicates the result to the catchment analysis if only half the housing proposed for the Baylands is ultimately approved: in this scenario, Alternative 2 continues to provide a higher catchment than Alternative 1.

NON-MOTORIZED ACCESS

There are non-motorized station access challenges in both alternatives, in particular due to challenging grade changes throughout the site area, the significant north-south barriers of the Caltrain tracks and US 101, the presence of Recology in the Northeast quadrant of the Station area, and the expectation that the Geneva Avenue extension will be elevated above the ground plane on the east side of the Caltrain tracks. Within these limitations, Alternative 1 provides better access overall because it:

Alternative 1 avoids the circuitous pedestrian routing from the Southeast quadrant created in Alternative 2.

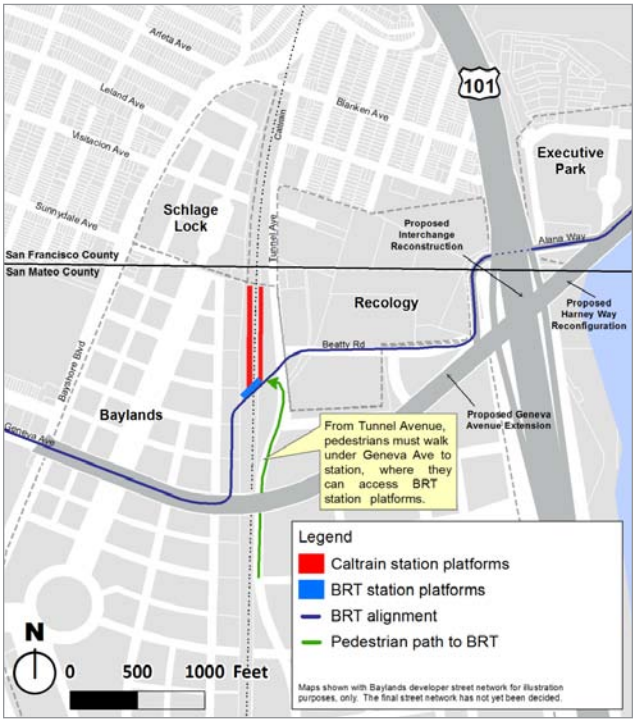
- Keeps more station facilities away from Geneva Avenue, which, as a facility elevated above the ground plane, will detract from personal security and attractiveness of the route;
- Does not necessitate crossing the BRT guideway to access the platforms, resulting in safer access by eliminating the need for pedestrians to navigate unpredictable vehicle movements.
- Avoids the circuitous routing from the Southeast quadrant created in Alternative 2. As shown in Figure 3-10 (next page) due to the elevation of Geneva Avenue above the ground plane, someone travelling to the BRT platforms would not be able to access Geneva Avenue without first walking north past Geneva to the station area and then back south to access the platform.

INTERMODAL CONNECTIVITY

Intermodal connectivity considers how easy it is to make connections between modes; Alternative 1 performs more favorably under this criterion. As shown in Table 3-2

Figure 3-10: Access from the southeast, Alternative 1 vs. Alternative 2

Alternative 1



Alternative 1

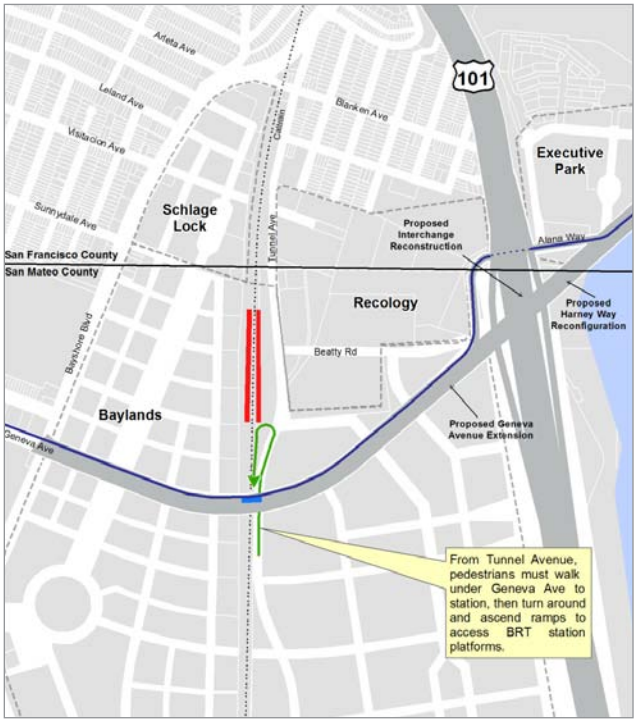


Table 3-2: Walk Distance Between Modes, Alternative 1 vs. Alternative 2

SCENARIO	BRT TO CALTRAIN	BRT TO LRT	BRT TO LOCAL BUS	BRT TO ARLETA STATION	CALTRAIN TO LRT	CALTRAIN TO LOCAL BUS
Alternative 1	300′	300′	300′	3000′	100′	100′
Alternative 2	1000′	1200′	1200′	4000′	100′	100′

(above) the walk distance to make connections is shorter for each transfer in Alternative 1. In particular, the important BRT-Caltrain transfer is about 700 feet longer than in Alternative 1. Additionally, the vertical circulation via elevators and escalators in Alternative 1 is more favorable than Alternative 2, where BRT riders would need to cross the BRT guideway to access the BRT platforms. The Alternative 1 Tunnel Variant offers similarly strong intermodal connectivity. In the case of the Alternative 2 variant that moves Geneva Avenue and the BRT slightly south, its intermodal connectivity would perform slightly worse, with Alternative 1 continuing to rate higher on this criteria.

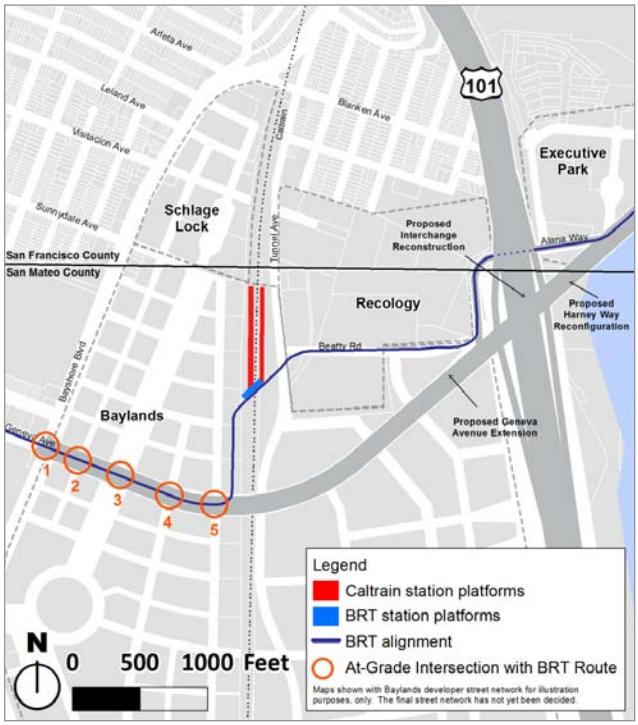
TRANSIT OPERATIONS

The alternatives are very similar in terms of transit operations. Transit access and circulation differ for the alternatives only for BRT; performance for all other transit modes is identical across alternatives. BRT access presents trade-offs for each alternative, but Alternative 1, which provides an exclusive guideway for a portion of the BRT route, provides more favorable operations to Alternative 2, which provides BRT routing on Geneva Avenue where more conflicts with turning autos exist (see Figure 3-11, next page).

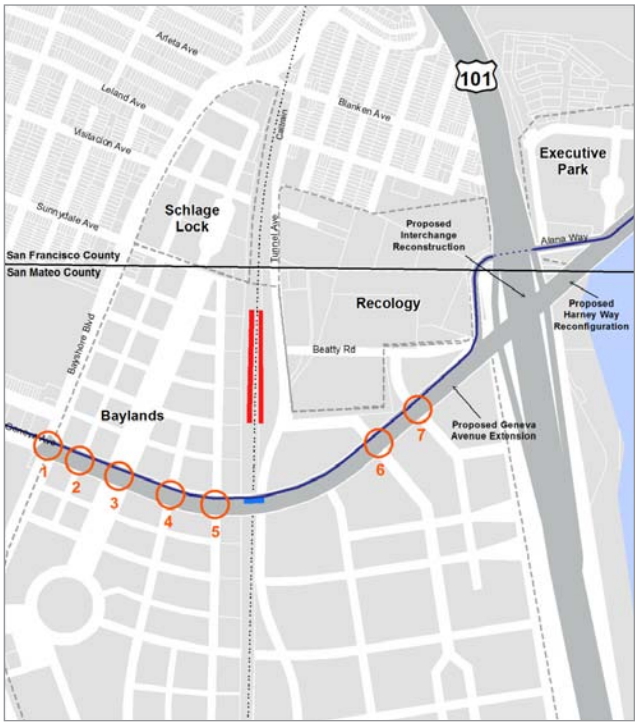
Alternative 1, featuring an exclusive guideway for a portion of the BRT route, provides more favorable operations to Alternative 2, featuring BRT routing on Geneva Avenue where more conflicts with turning autos exist.

Figure 3-11: BRT circulation in Alternative 1 vs. Alternative 2

Alternative 1



Alternative 1



PLACE-MAKING

Place-making refers to features and design elements that attract people to use a physical space—a Bayshore Station area that rates favorably in terms of place-making is one that has potential to be a vibrant, bustling place and that is a focal point, integrated within the surrounding neighborhood.

A Bayshore Station area that rates favorably for place-making is one that has potential to be a vibrant, bustling place and is a focal point integrated within the surrounding neighborhood.

Either alternative could be used to transform the Station area into a vibrant place, and there are pitfalls to avoid for both. Alternative 1 minimizes the Station footprint and concentrates activity adjacent to the relatively dense land uses proposed with each land use scenario. The elevated BRT structure would need to be carefully designed to avoid creating visual blight. Alternative 2 distributes station activity, but creates additional place-making and gateway opportunities along the walkway connecting BRT and Caltrain.

The land uses ultimately developed around the Station will significantly affect the activity levels in the area. While both land use scenarios call for relatively dense mixed-use development adjacent to the Station, the Developer Scenario, which incorporates residential uses into the Station area, is more likely to create a place with evening and weekend activity. The commercial land uses of the Community Scenario are more likely to result in periods of low activity outside of typical business hours and on weekends, which can contribute to personal security concerns that would deter people from utilizing the Station area. Because Alternative 1 is closer to the Schlage Lock site, while Alternative 2 is surrounded entirely by the Baylands, Alternative 1 is more likely to contribute to a vibrant station area under the Community Scenario.

In terms of how well the Station integrates with the surrounding neighborhoods, each alternative presents different opportunities (see Figure 3-12, next page). Alternative 1 has a

relatively compact station that can be surrounded by vibrant mixed-use development. The BRT crossing over the Caltrain tracks and associated pedestrian vertical circulation could be a highly visible, exciting design feature and focal point. In contrast, Alternative 2 offers multiple gateway opportunities along the sloping walkway on the west side of the Caltrain tracks and a major new station entrance at Geneva Avenue. A carefully designed ramp serving the BRT-to-Caltrain provides an opportunity to integrate the station with surrounding neighborhood. A pedestrian plaza could be provided at the Geneva Avenue entrance, which contributes to a sense of place and Station visibility.

Alternatives 1 and 2 involve similar levels of station investments. But when the respective BRT costs are added, Alternative 2 is significantly less expensive.

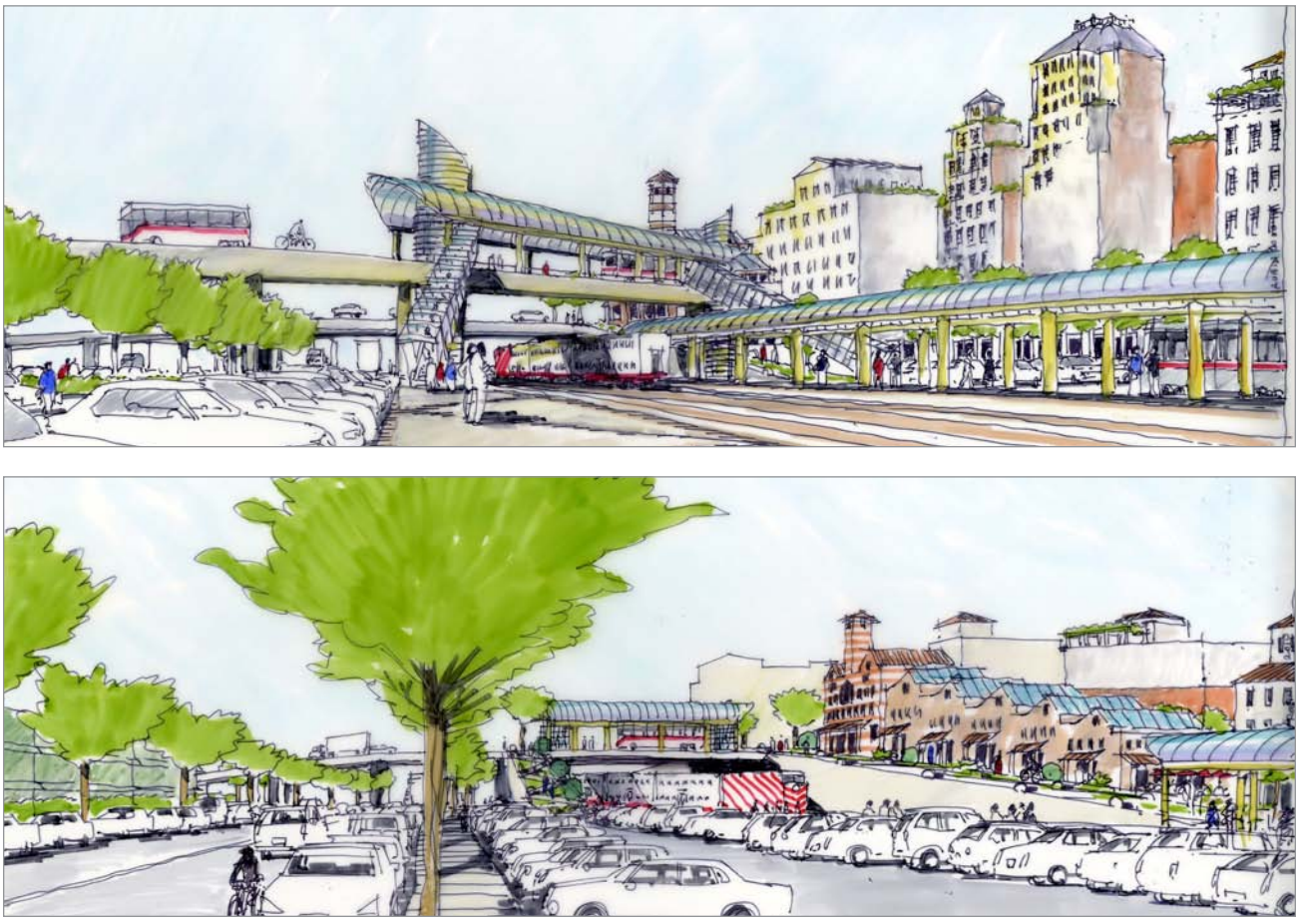
IMPLEMENTATION ISSUES

There are significant tradeoffs between the alternatives in terms of the challenges that are associated with moving forward towards implementation related both to differences in costs as well as in compatibility with other development plans.

Alternatives 1 and 2 involve similar levels of station investments. But when the respective BRT costs are considered in combination with station costs proper, Alternative 2 is significantly less expensive at approximately $58 million, versus the Alternative 1 estimated

Figure 3-12: Alternative 1 (top) and 2 (bottom) on northbound Caltrain platform looking south

Alternative 1 has a relatively compact station that can be surrounded by vibrant mixed-use development. The BRT crossing over the Caltrain tracks and associated pedestrian vertical circulation could be a highly visible, exciting design feature and focal point. In contrast, Alternative 2 offers multiple gateway opportunities along the sloping walkway on the west side of the Caltrain tracks and a major new station entrance at Geneva Avenue.



cost of $96 million (see Table 3-3, below). The lower cost for Alternative 2 reflects lower costs for the BRT as it approaches the Station. Because Alternative 1 requires the BRT to be elevated through the Recology site, this adds an approximately $40 million incremental cost to the BRT project over what it would cost in Alternative 1. In addition, if Alternative 1 requires a tunnel instead of aerial treatment through Recology, the cost could increase by an additional $60 million.

Table 3-3: Cost Estimates

	ALTERNATIVE 1	ALTERNATIVE 1 WITH TUNNEL	ALTERNATIVE 2
Total Station Costs	$52 Million	$52 Million	$58 Million
Additional Costs for Elevated BRT with Alternative 1	$40 Million	$100 Million	$0
Total	$96 Million	$152 Million	$58 Million

In terms of compatibility with planned development, Alternative 2 rates more favorably, although there are trade-offs between the alternatives. Alternative 2 is more consistent with Recology's expansion plans and with the Baylands Developer and Community scenarios. In contrast, Alternative 1 is more compatible with San Francisco's land use plans for Schlage Lock, which assume Caltrain remains in its current location. However, Alternative 1 provides a potential phasing benefit: because the BRT accommodation in Alternative 1 does not require completion of the Geneva Avenue extension, the alternative may represent a project that can be built separately, reducing coordination requirements. Implementation is discussed in greater detail in Chapter 7.

Neither alternative is identified as the recommended alternative at this time; that decision must wait until the intensity and mix of land uses immediately surrounding the Station are finalized.

EVALUATION SUMMARY

The evaluation results indicate there are significant trade-offs between alternatives, and significant differences depending on whether the Community or Developer scenario is assumed in the Baylands (see Table 3-4, next page). In whole, Alternative 1 performs more favorably, particularly for non-motorized access, intermodal connectivity, and transit operations, although it does have a higher cost and other potential implementation challenges. Notably, the alternative that maximizes potential station area ridership depends on the land use scenario selected for the Baylands: with the Community Scenario, Alternative 1 maximizes the catchment, while with the Developer Scenario, Alternative 2 does so, even if only 50% of the residential units under consideration are ultimately approved.

Thus, neither is identified as the recommended alternative at this time; that decision must wait until the intensity and mix of land uses immediately surrounding the Station are finalized, because of the decisive impact land use will have on potential future transit ridership. Rather, the findings of this evaluation will be an input that will inform several implementation actions such as the land use decisions in the Baylands and the Recology expansion plans. Chapter 7 describes implementation in greater detail.

Table 3-4: Evaluation Summary

CRITERION	ALTERNATIVE 1	ALTERNATIVE 2	NOTES
1. Ridership Maximization	✔	—	Alternative 1 closer to existing/entitled development
	IF COMMUNITY LAND USE:		
	✔	—	Alternative 1 maximizes catchment with community land use
	IF DEVELOPER LAND USE:		
	—	✔	Alternative 2 maximizes catchment with developer land use
2. Non-motorized Access	✔	—	Alternative 2 requires some BRT riders to cross the BRT guideway creating a potential for transit/pedestrian conflicts Alternative 2 creates circuitous routing to the station from the southeast
3. Intermodal Connectivity	✔	—	Alternative 1 provides a shorter BRT-Caltrain transfer walk distance Alternative 2 requires some BRT riders to cross the BRT guideway creating a potential for transit/pedestrian conflicts
4. Transit Operations	✔	—	Alternative 1 avoids most auto/BRT conflicts along Geneva Avenue
5. Place-making	Not a distinguisher		
	IF COMMUNITY LAND USE:		
	✔	—	Alternative 1 is closer to Schlage Lock, a source of 24-hour activity
	IF DEVELOPER LAND USE:		
			Not a distinguisher
6. Implementation	—	✔	Alternative 1 is most consistent with San Francisco's land use plans for Schlage Lock and affords phasing advantages Alternative 2 is significantly less expensive and more consistent with plans for the Baylands and Recology

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4

Community Input and Feedback

OUTREACH TO THE COMMUNITY and key stakeholders was a critical Study activity that informed the Study findings and recommendations. This chapter describes the outreach activities conducted during the Study, then summarizes the key feedback messages heard during outreach and describes how public input was incorporated into the Study's findings and recommendations.

4.1 Outreach Activities

COMMUNITY MEETINGS

The Study hosted two rounds of public outreach, described further below. Notification efforts for the workshops included:

- Postcard mailing and email notification to project list of over 400 individuals
- Utilization of established mailings and electronic notification (City of Brisbane blog and newsletter, Visitacion Valley Citizens Advisory Committee monthly mailings and e-mail newsletter)
- Release of a media advisory before each event
- Posting flyers at key location throughout the Station area in San Francisco, Brisbane, and Daly City
- Publicizing online, through the Study's webpage (www.sfcta.org/Bayshore), and via the Authority's social media presence on Facebook (www.facebook.com/SFCTA) and Twitter (www.twitter.com/SanFranciscoTA)
- Coordinating meeting times with established group meetings (the Saturday workshop times are typically utilized for Visitacion Valley Planning Alliance meetings)

The intent of the first round of outreach was to introduce stakeholders to the purpose of the Study, share draft conceptual alternatives, and seek input on opportunities for station area placemaking. The intent of the second round of outreach was to present the findings of the evaluation of station alternatives and recommendations for the next steps in implementation. The first round included a presentation and smaller breakout group discussions, while the second round was a more traditional presentation followed by large group discussion and feedback opportunity. See Table 4-1 (next page) for additional details. Input received at these meetings has informed the key messages described in this chapter.

DIRECT OUTREACH

To supplement the community meetings, the Authority met directly with key stakeholders that might be directly affected or have a strong interest in the project, including community groups, government agency partners, local land owners, businesses, and land developers (see Table 4-2, next page).

4.2 Key Feedback Messages and Study Response

The Study received a wide range of input over the course of the Study, including the following key feedback messages.

SUPPORT FOR IMPROVING THE STATION AREA

Community Message: The existing conditions surrounding the Station create several challenges, including: circuitous access from Visitacion Valley, poor personal safety due to Station's isolation from surrounding uses, and unappealing design of the Station. There is strong support for changes to the Station to overcome these challenges. Desired amenities and features include retail and entertainment uses adjacent to the Station, gardens and plazas, public art, pedestrian-scale lighting and environmentally sustainable features. In addition, the Station should have a unique identity, reflecting the local character of the surrounding neighborhoods.

Study Response: Chapter 6: Station-Neighborhood Integration recommendations were developed in consideration of this input.

UNDERSTANDING OF TRADE-OFFS ASSOCIATED WITH MOVING THE STATION SOUTH

Community Message: In Visitacion Valley and Little Hollywood, there is a strong preference for the Station to remain in its current location to maintain walk access. However, there is an understanding of the importance to provide a direct transfer between future BRT service and Caltrain. Moving the Station southward could be acceptable if it

In Visitacion Valley and Little Hollywood, there is a strong preference for the Station to remain in its current location to maintain walk access. However, there is an understanding of the importance to provide a direct transfer between future BRT service and Caltrain.

Table 4-1: Summary of Study Public Events Purpose and Feedback Sought

COMMUNITY MEETINGS	PURPOSE	FEEDBACK SOUGHT	MEETING FORMAT
Round 1 (Summer 2010) Community workshops in Visitacion Valley and Brisbane, drawing approximately 50 attendees	Summarize the planning context Present station design goals/ requirements Outline potential alternative station locations/design plans Explain next steps and additional opportunities for public involvement	What are the best ways to make the station easier to get to and use, especially by foot and by bike? What are the most effective ways to connect Caltrain and the new proposed transit services? What would make transit a more attractive travel option in this area? What would make the station a highly visible, attractive community asset?	Presentation and break-out group discussions
Round 2 (Summer 2011) Community meeting in Visitacion Valley drawing approximately 30 attendees, and Brisbane City Council presentation	Present evaluation findings and tradeoffs Identify community input heard and how Study has incorporated this input Present recommendations to support a transit-oriented station Explain implementation next steps and potential schedule	Do you agree with the findings? Are certain evaluation criteria more important than others? Is one alternative more preferable than another?	Presentation, open house Q+A with Study Team

is accompanied by mitigating improvements that make the Station accessible, such as a pleasant walking environment connecting the neighborhood to the Station, and/or frequent shuttle service to the Station.

Study Response: Alternative 2, which considers moving the Station south, includes conceptual designs to create a pedestrian walkway to the Station, and each of the alternatives was designed with enough bus bay space to accommodate shuttle loading at the Station. In addition, in Chapter 6, pedestrian connections and shuttles are recommended as key station-supportive elements.

CONCERN ABOUT LAND USE CHANGES

Community Message: While the Study is focused on transportation issues, those issues are inherently linked to decisions about the land uses surrounding the Station. There are concerns related to the Baylands development, and uncertainty still exists about the density and mix of uses that will be approved. Some Brisbane residents support employment-only uses on the Baylands, and also for variants that feature alternative-energy generation resources.

Study Response: The evaluation results in Chapter 3 indicate which of the results are land use decision-dependent and indicate how the results would change, given each of the two land use alternatives under consideration. Because the Baylands land development approval process will continue after the Bayshore Study is completed, the Study does not identify a preferred alternative. The Study is intended to inform the evaluation of Baylands land use alternatives as described in greater detail in Chapter 7: Implementation and Funding.

DESIRE FOR NEEDS OF EXISTING COMMUNITY NOT TO BE OUTWEIGHED BY NEED TO PLAN FOR NEW RESIDENTS AND EMPLOYEES

Community Message: Visitacion Valley residents desire to balance the needs of future residents and employees with existing residents. They are concerned about planning Station changes to benefit an uncertain future development while existing neighborhoods currently need strong access.

Study Response: In its catchment analysis detailed in Chapter 3, the Study identified the station area catchment of residents and employees within a quarter mile of the Station. Given that the catchment is highly related to the density and mix of uses on the Baylands site, the analysis distinguished the relative share of the catchment comprised of existing versus future residents or employees. The Study also produced a sensitivity discussion addressing the effects of a land use plan that blends parts of the two alternatives under consideration. Finally, the Study findings include identifying the need for shuttle service to extend the catchment, both for existing and potential future residents.

REQUESTS FOR FASTER, CHEAPER, AND BETTER-COORDINATED TRANSIT

Community Message: Transit travel times, in particular the T-Third LRT are slow; transit is too expensive, in particular the cost of trips involving a transfer between Caltrain, Muni, and/or SamTrans make transit trips unappealing; regional and local transit service do not coordinate well in terms of schedule timing; and there is demand for trips that could be accommodated by shuttle service, in particular to provide east-west transit connectivity in addition to north-south connectivity.

Study Response: The increase in development in this area provides a justification to improve transit service that would otherwise not be planned, such as the BRT service and increases in Caltrain service. Additional input about regional connections, local and regional transit performance and cost are noted here for use in other, broader planning efforts

Table 4-2: Direct Outreach Stakeholders Engaged

COMMUNITY/RESIDENTIAL

- Visitacion Valley Planning Alliance
- Visitacion Valley Citizens Advisory Committee

POLICY MAKER

- Brisbane City Council
- San Francisco

LANDOWNERS/DEVELOPERS

- Universal Paragon Corporation
- Lennar Urban
- Recology

PUBLIC AGENCIES

- San Mateo Transit District (SamTrans)
- Peninsula Corridor Joint Powers Board (Caltrain)
- San Mateo County Transportation Authority
- City/County Association of Governments of San Mateo County (C/CAG)
- City of Brisbane
- San Francisco Planning Department
- San Francisco Municipal Transportation Agency
- San Francisco Department of Public Works
- San Francisco Redevelopment Agency
- San Francisco Office of Economic and Workforce Development
- Metropolitan Transportation Commission /Association of Bay Area Governments
- City of Daly City
- California High Speed Rail Authority

underway, such as the San Francisco County Transportation Authority's San Francisco Transportation Plan update and the Metropolitan Transportation Commission's 2013 update to the Regional Transportation Plan. The Study identifies area shuttles as a key recommendation to maximize transit success; developer-funded shuttles could be included as a part of the City of Brisbane entitlement process.

DESIRE FOR STRONG TRANSPORTATION DEMAND MANAGEMENT (TDM) AROUND THE STATION

It is important to prioritize walk, bike, and transit access to the Station,and manage vehicle use by implementing strong TDM policies.

Community Message: It is important to prioritize walk, bike, and transit access to the Station, and manage vehicle use by implementing strong TDM policies. The Station's success depends on maximizing non-automobile access to the Station.

Study Response: In Chapter 6, Station-Neighborhood Integration, the Study references the suite of TDM strategies proposed by the Baylands Specific Plan, for which the Study expresses support.

DESIRE FOR CONTINUED PUBLIC OUTREACH/INVOLVEMENT

Community Message: There is much happening related to land use and transportation planning in the Station area. The community desires to be consulted regularly in decision-making.

Study Response: Continued outreach is expected even after this Study is completed. For instance, this Study recommends a Harney-Geneva Bus Rapid Transit (BRT) feasibility study as a next step in refining the planning work developed here, with SFCTA as the proposed lead agency. SFCTA would expect to convene a citizens advisory committee (CAC) for such a study; this CAC could also discuss and seek to provide input on other projects in the Bi-County Area as well, as those projects continue through their own individual project development steps.

REQUEST TO KEEP ALTERNATIVE 3 UNDER CONSIDERATION

Community Message: Although the Study did not evaluate Alternative 3 because of Brisbane's indication of incompatibility with land use plans under Brisbane's jurisdiction, the Study team heard requests both from community members, and the Baylands/Schlage Lock developer, Universal Paragon Corporation (UPC), to evaluate Alternative 3.

Study Response: Brisbane staff have indicated that Alternative 3 is incompatible with the Baylands Community Scenario, which includes a variant for an expansion of Recology occupying land that the alternative expected to use for Geneva Avenue. Thus, the Study has not evaluated it. Should conditions change in the future, Alternative 3 could be re-considered at that time.

REQUEST FOR THREE-DIMENSIONAL MODEL TO ILLUSTRATION STATION DESIGN ALTERNATIVES

Community Message: The Study has created plan-view drawings of the design alternatives, as well as artist renderings reflecting multiple on-the-ground perspectives. However, given the complexity of the Station area, including multiple sets of platforms, grade changes, and large sites that are currently vacant, it is challenging to visualize the alternatives. A three-dimensional model would be helpful to better understand differences between design alternatives.

Study Response: Given the conceptual level and preliminary nature of the planning in this Study, detailed three-dimensional modeling at this stage would be over-investment. However, such a model can be developed after completion of this Study, as planning work continues to refine the concepts.

San Mateo Caltrain Station provides an example of a station building and plaza.

5 Station Program

THIS CHAPTER summarizes programmatic requirements for the station and underscores the station components that are required for station success regardless of the selected design alternative.

5.1 Future Station Program Needs

Table 5-1 (next page) summarizes this Study's recommended station elements. All are discussed in greater detail in the remaining sections of this chapter, and Figure 5-1 (page 51) shows the recommended arrangement of these elements for Alternatives 1 and 2.

5.2 Station Components

The primary design consideration for the Bayshore station will be its functionality. In addition, aesthetic and architectural considerations for the Station should be sensitive to the architectural, cultural, and geographic context and include principles of safety, comfort, sustainability and universal design. The Station must be designed in a way that maximizes safe, convenient, and comfortable circulation for all passengers. The following sections provide additional descriptions of the Station components.

CALTRAIN PLATFORMS

The Station requires two typical 700' Caltrain side platforms (one northbound, one southbound). For both alternatives, the platforms are proposed to shift to the south from their current location, effectively requiring the extension of the existing platforms. Typical Caltrain design criteria and standards apply.

BUS RAPID TRANSIT FACILITIES

Alternative 1 proposes an elevated guideway extending from Beatty Road to Geneva Avenue. This alternative includes a BRT stop above the southern edge of the Caltrain platform. An elevated pedestrian bridge over the tracks would connect with the BRT platform, allowing for convenient transfers between BRT and Caltrain. Elevators and escalators would connect the BRT platform with both Caltrain platforms.

Alternative 2 proposes a BRT stop along the north side of the Geneva Avenue extension with pedestrian ramps that link this BRT stop to the southern edge of the Caltrain platforms.

Table 5-1: Station Program Needs

STATION COMPONENT	DESCRIPTION	COMMENT
Caltrain platforms	Two (2) 700′ long heavy rail platforms	Standard Caltrain platforms
Bus rapid transit facilities	Two (2) 120′ long BRT platforms, dedicated right-of-way and vertical circulation	Alignment varies with alternatives
Bus platform	Five (5) 80′ long saw-tooth bus bays	Accommodate articulated buses and to be used by SF Muni, SamTrans, and shuttles
LRT facilities	One (1) 450′ long LRT platform, substation, and operator restroom	Platform accommodates 3 2-car trains
Parking	150 to 310 auto parking spaces, 20 bicycle racks and 40 lockers	Surface auto spaces on both sides of the Caltrain tracks. Potential to provide a shared parking with adjacent uses.
Kiss-and-ride curb	Two (2) curbs	1 platform on each side of the Caltrain tracks
Station plaza and/or landmark architectural feature or building	Design	Potential for joint development
Station entrances	Multiple entrances	Convenient, well-defined access points from all directions
General design features	ADA compliance, wayfinding, seating, weather protection	

For both Alternatives, the BRT platforms must accommodate two 60’ long articulated buses. The specific design features of the BRT platforms will be developed as part of the Harney-Geneva BRT project.

BUS TRANSIT CENTER

This Study envisions a bus transit center located on the west side of the heavy rail tracks adjacent to the southbound Caltrain platform. SF Muni, SamTrans, and shuttles will use these bays. Five saw-tooth bus bays should be provided to accommodate future demand. The bays should accommodate 60' long articulated buses and allow independent bus movement. Buses should travel in the northbound direction within the transit center, permitting the bus boarding platforms to be located adjacent to the Caltrain platforms. This configuration will allow bus passengers access the Station without crossing roadways.

The Station must be designed in a way that maximizes safe, convenient, and comfortable circulation for all passengers.

LIGHT RAIL TRAIN (LRT) PLATFORM AND FACILITIES

This Study envisions the LRT platform immediately west of and parallel to the bus transit center. This raised 450-foot-long platform will accommodate up to three (3) two-car light rail trains for alighting, layover, and boarding activities. Given the long length of the platform, it would be highly desirable to provide an access point at the mid-point of the platform to permit pedestrian and bicycle circulation into the Station as a continuation of the street grid from the west. Typical SFMTA LRT platform design criteria and standards apply.

KISS-AND-RIDE AND TAXI CURBS

Private vehicle drop-off/pick-up curbs (i.e., kiss-and-ride) areas will be located on both sides of the heavy rail tracks. The primary Kiss-and-Ride curb will be located along a public roadway immediately west of and parallel to the Muni LRT platform. A secondary kiss-and-ride curb will be located on the east of the heavy rail tracks for access from Tunnel Avenue. The kiss-and-ride curbs should be designed to permit convenient vehicular access, while minimizing the need for pedestrians to cross roadways. Parking would not be allowed in these areas. Designated areas for taxis could be provided.

Figure 5-1: Station Program, Alternative 1

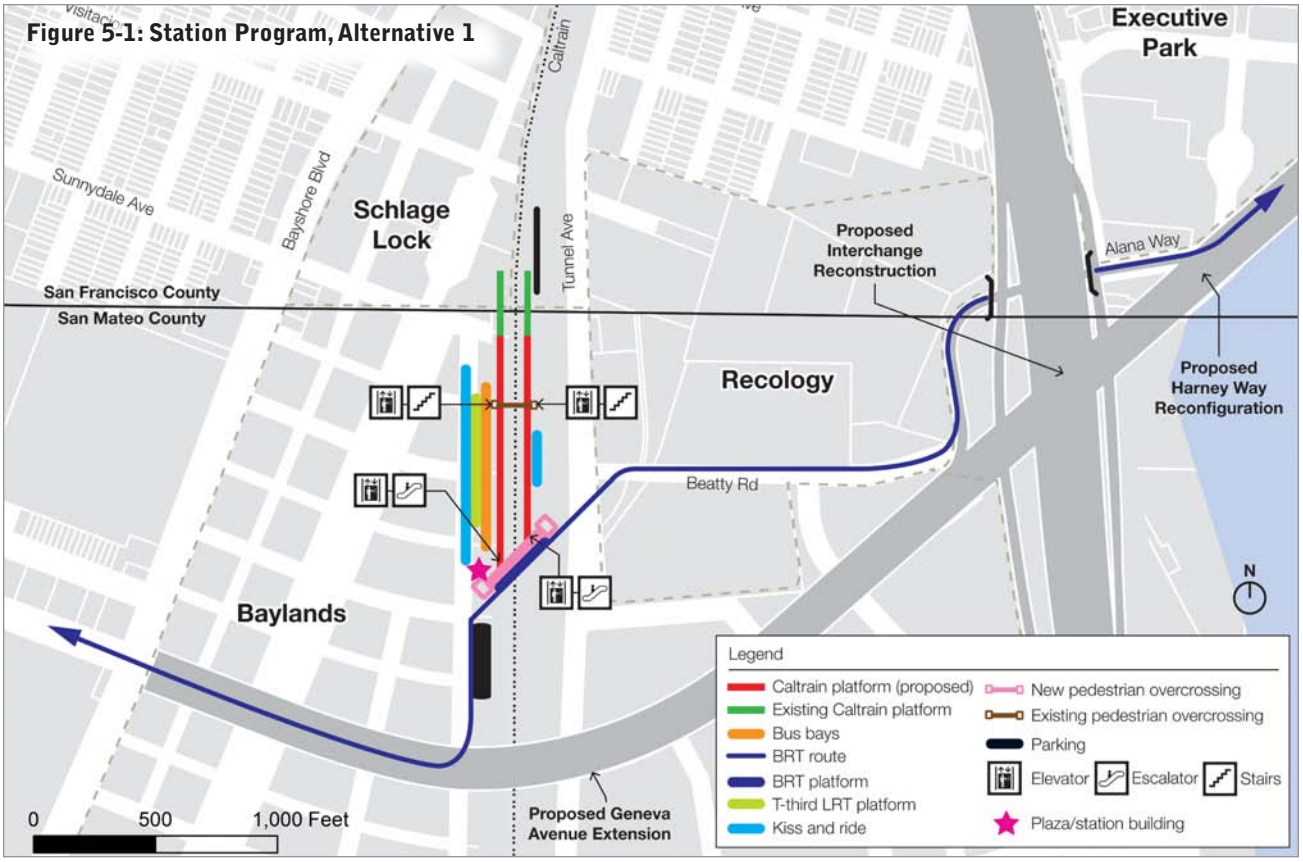
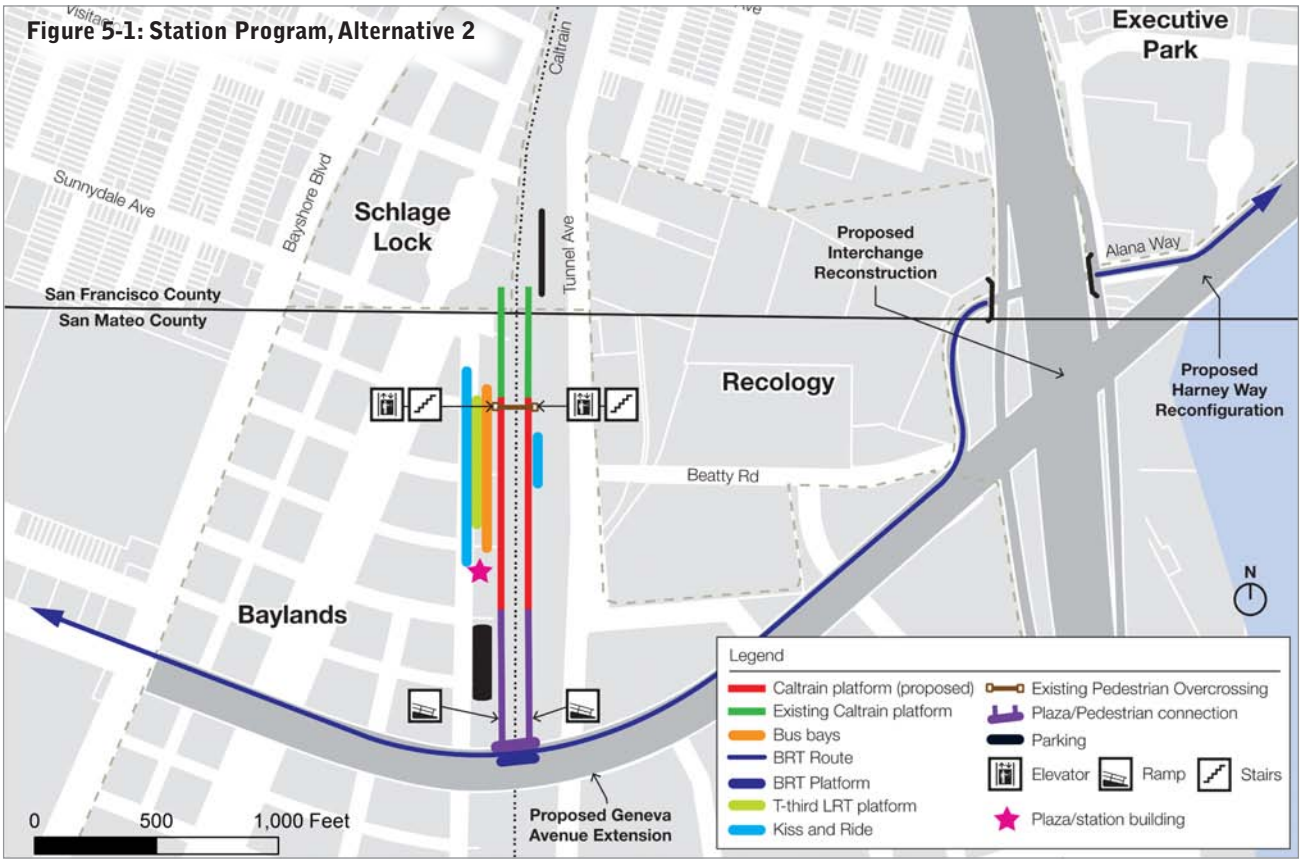


Figure 5-1: Station Program, Alternative 2



AUTOMOBILE PARKING

In order to support area land uses and station access, parking for the Station will be located on both sides of the Caltrain tracks. Based on the Study's analysis of future demand and other Caltrain stations in similar place-types, the amount of dedicated station parking is recommended to be between 150 and 310 parking spaces, and this supply should be managed through pricing and other means to maintain high levels of utilization and encourage alternatives to solo automobile access. Surface parking should be located away from primary pedestrian access routes. And in order to encourage efficient use of automobiles, it would be desirable to reserve a minimum 5% of the station parking spaces for carpool, vanpool, and/or car share vehicles.

The parking supply should be managed through pricing and other means to maintain high levels of utilization and encourage alternatives to solo automobile access.

A portion of the overall station parking demand could be accommodated through shared parking. Successful shared parking arrangement case studies (see Shared Parking Arrangement Case Study) indicate potential for a similar model to be implemented at Bayshore Station, allowing parking supply to be limited. Because station parking demand will peak during regular business hours on weekdays, compatible uses for shared parking with transit are entertainment, restaurant, and retail uses that peak on evenings and weekends.

For the purposes of the Bayshore Station, a shared parking arrangement would have two key features:

Parking is shared by time of day. Shared parking is not just locating parking spaces for different uses in the same facility, but rather the same parking spaces are used by transit users during one time of day and by non-transit users during another time of day. This arrangement would allow the overall parking supply in the vicinity to be reduced as a result of the arrangement.

Parking is priced for Caltrain riders. Caltrain already charges riders to park at all stations and is consistent with its station access policy to prioritize non-auto station access. Parking for the compatible use at the Baylands could be either priced or not priced, to be determined by the City of Brisbane, the Baylands developer (Universal Paragon Corporation), and future Baylands retail/entertainment owners/lessees.

BICYCLE PARKING

Bicycle racks and lockers will allow bicyclists to store their bicycles at the Station so that they can continue their trip on public transportation. This Study envisions twenty bicycle racks and 40 bicycle lockers, provided in convenient and visible locations, near pedestrian routes but not obstructing the flow of transit passengers, and within view of any regularly scheduled station staff presence. Lockers provided would be perforated such that contents are visible.

Sufficient space should also be reserved for a future bicycle station in anticipation of increased bicycle use. As a precedent, the bicycle station at the 4th and King Caltrain station in San Francisco is 1,500 square feet. Half the space accommodates parking for 150 bicycles; the remaining space is a bicycle repair shop.

STATION PLAZA AND ARCHITECTURAL LANDMARK/BUILDING

The Bayshore Intermodal Station should include a highly visible architectural element that will allow the public to easily identify it as the transit hub. This element could be in the form of a station building, but a building is not specifically required for actual station functions. If a building is used to identify the Station, it may include transit functions but could be primarily or exclusively used for a complementary purpose. For instance, a restaurant would increase station visibility and activity, especially at night, when personal security is-

sues become most important. A non-building element, such as a bridge or covered canopy over a plaza, could also be used to create a highly visible station and define the space as a transit hub.

Whether a building or other architectural element is used, the station area should also include public plaza space. With both alternatives, a desirable plaza location would be near the southern end of the Caltrain platforms on the western side of the tracks. The plaza should be an active and versatile space that could accommodate a variety of active uses such as outdoor seating, retail kiosks, and outdoor performances. Table 5-2 (next page) displays the amenities to be included or considered for the station building or plaza.

Shared Parking Arrangement Case Studies

In order to minimize the impact of parking to the pedestrian design surrounding the station, parking at Bayshore Station should consider parking arrangements that share parking supply with neighboring development at the Baylands. Such practice has precedent at other case studies which offer lessons and considerations applicable to Bayshore Station.

Denver's Regional Transit District participates in shared parking arrangements at two 1,500-space garages, at Broomfield and Lincoln stations, shared between light-rail riders and retail customers. In these arrangements, transit riders who are subject to the fee (RTD has different policies for residents vs. non-residents of the district) must pay after they park in the garage but before they board transit at a pay station that prompts the user to enter their vehicle license plate. Enforcement occurs each weekday around 8:00am, after which point it is presumed that the majority of transit commute riders have parked, and before which retail users have arrived. By accessing via a centralized database the list of license plates for which payment was processed, as well as a list of license plates of employees of the retail uses who arrive to work early, enforcement officers can identify cars that should have paid the fee, but did not. There is also a small designated lot for short-term retail parking for those who park early in the day and are not using transit. These spots are monitored regularly and are time-restricted. Although the operating and enforcement scheme is complex, the cost of providing parking was reduced by 30% from what it would have been if RTD had provided the parking without any sharing arrangement.

In Old Town Sacramento, near the Sacramento Capitol Corridor and light rail station, transit users are allowed to park in an overflow lot that, on the weekends, is typically used by visitors to Old Town Sacramento—a retail/tourist district. Transit riders are allowed to pay the equivalent, lower rate that is charged to park in the main station lot, rather than the higher rate charged to Old Town Sacramento visitors. The two different groups are distinguished based on time of entry/exit—the lower rate for transit users is only available during the week for those arriving before 7:30am and exiting after 5:30pm.

Considerations for Shared Parking Arrangements

Compatible land uses. The key consideration for identifying nearby land uses that could share parking with transit is the time of day when each type of usage experiences its peak demand. For Caltrain, users are likely to arrive in the morning peak period and stay until the evening peak period. Compatible land uses, then, would be those with peak parking demand times not coincident with the mid-day, such as housing, which experiences peak demand from the evening to the morning peak period, or entertainment, which experiences peak demand in the evening.

Compatible parking rules. Operating the shared facility is easier when the parking rules stipulated for transit and non-transit users are compatible, although it is not necessary for the rules to be identical. For instance, Caltrain users may be required to pay for parking. If non-transit users are also required to pay the same price, then the rules are identical. If non-Caltrain users are not expected to pay the same price, then different, yet compatible, parking pricing rules could be applied during those times of day when non-transit users are expected to park.

Management and enforcement. The entities sharing parking may wish to monitor and enforce usage of the spaces. If different parking rules are to be applied to different users, enforcement becomes more complex. Enforcement in this case is easier if there is an ability to distinguish between transit and non-transit users. One useful way to distinguish users is parking validation or proof-of-payment for one or both types of users. If the entry and exit of the parking facility is access-controlled, then parking rules, including validation, can be enforced at the point of exit. Because the majority of Caltrain riders board in the morning, an enforcement scheme similar to what is used in Denver could be applied without access control, where enforcement ensures all cars parked in the morning have paid or are employees, and after which, cars parked are presumed to be retail customers.

Public space at the San Mateo Caltrain Station.

STATION ENTRANCES

Bayshore Station must be easily and safely accessed by pedestrians from all directions. Specific locations for station entrances include:

- East side of tracks from north end parking and kiss-and-ride
- East side of tracks at the south end of the platform
- East side of tracks from Geneva via elevated BRT and pedestrian walkway (Alt 1) or via pedestrian ramp (Alt 2)
- West side of tracks at north end of platform
- West side of tracks at south end of platform
- West side of tracks from Geneva via elevated BRT and pedestrian walkway (Alt 1) or via pedestrian ramp (Alt 2)
- West side of tracks through the kiss-and-ride platform, LRT platform (through a "gap" in the platform), and the bus and shuttle bays

GENERAL DESIGN FEATURES

Considerations for persons with disabilities, wayfinding, crime prevention, and appropriate shelter and waiting facilities will be provided throughout the Station (see Table 5-3, below).

Table 5-2: Station Building/ Plaza Amenities

BASE AMENITIES
Information kiosk
Ticket machines
Public seating (benches)
Bicycle facilities (racks and lockers)
Vegetated landscape
Waste receptacle with three stream separation
Real-time information display
Wayfinding signage
OPTIONAL AMENITIES
Vendors
Children's playground
Small amphitheatre
Toilets and water fountain
Public art
Public seating: Movable chairs

Table 5-3. Station Design Features

DESIGN FEATURE	DESCRIPTION
Access for persons with disabilities	Comply with accessibility standards including American Disabilities Act of 1990 and California State Title 24 Accessibility Standards and Guidelines. Where possible the station design should exceed these standards to provide the greatest level of comfort for all riders.
Wayfinding	Comply with the MTC Regional Hub standards for wayfinding signage, transit information displays, and real time displays
Crime Prevention through Environmental Design	Apply best practices including: • Clear sight lines into and out of waiting areas (including shelters) • Well lit waiting areas • Landscaping that does not create dead-ends or hiding places • Emergency call boxes • Video camera surveillance
Shelter and Waiting Facilities	Provide canopies or shelters to provide protection from sun, rain and wind. Design transparently so as to not obstruct views of approaching transit vehicles Provide adequate seating

6 Station/ Neighborhood Integration Recommendations

PREVIOUS CHAPTERS described planning and design issues for the Station proper. This chapter identifies critical considerations for successful integration of the Station and its surrounding neighborhood and for supporting a vibrant station.

Many of these considerations are established planning best practices and are well documented by others. The end of this chapter lists some of the authoritative sources on general principles of station area design. In addition, many of the considerations have already been incorporated into the Draft Baylands Specific Plan (BSP) process—the Developer-sponsored version has generated land use and community design guidelines, proposed parking and other transportation-related policies, a proposed circulation plan, and proposed street cross-section designs. Much of this work reflects a vision that is supportive of the Station. As such, the chapter focuses on station topics not yet incorporated into the draft BSP or otherwise addressed by other efforts.

This chapter is organized under two topic areas: Station Access, which addresses how each mode will access the station from the surrounding area, and Recommendations for Neighborhood Design, which addresses land uses and the built environment surrounding the Station.

6.1 Station Access Recommendations

This section describes four considerations that would support strong access to the Station by all modes, with an emphasis on non-motorized modes: a pedestrian-friendly street network; strengthened walking access routes at critical locations; strong bicycle access from points east; station access routes with minimal conflicts among modes; and the need for new local bus and shuttle connections.

PEDESTRIAN-FRIENDLY STREET NETWORK

A street network that supports walking includes features such as: small block sizes, narrow street widths, wide sidewalks, streetscape amenities, and wayfinding signage. The draft BSP discusses these appropriate street design elements at length for portions of the network near the Station, including the streets in the northwest retail area, so this Study does not address these issues in detail.

STRENGTHENED WALKING ACCESS ROUTES AT CRITICAL LOCATIONS

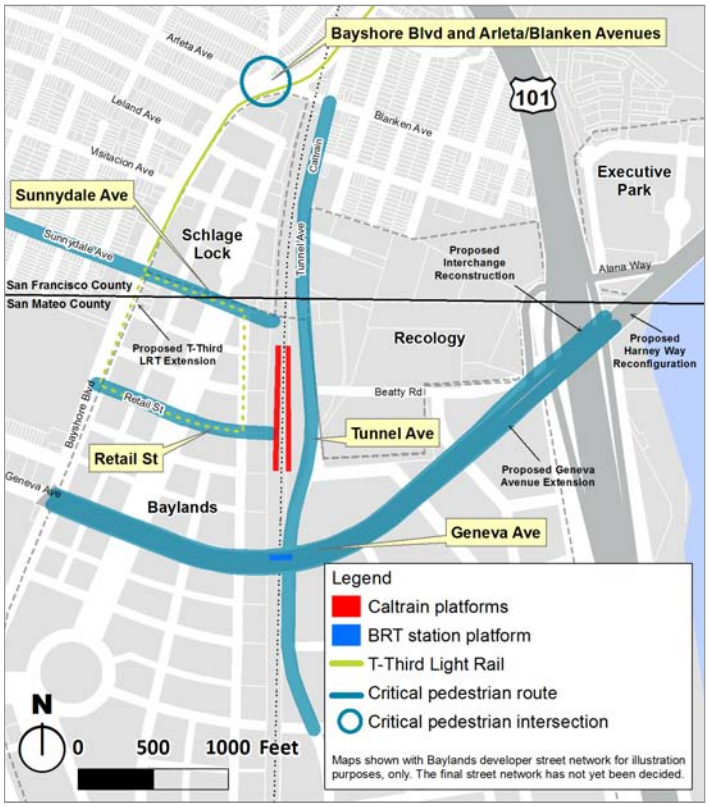
Figure 6-1 (next page) identifies critical locations along key walking access routes that deserve special attention, as described below.

Intersection of Bayshore Avenue and Arleta/Blanken Avenues

This intersection is currently served by as many as 25 Muni buses in the peak hour (including express buses), in addition to the T-Third LRT line and SamTrans buses. It will also serve as a key pedestrian link for the existing Visitation Valley neighborhood and future Schlage Lock development. Future modal conflicts involving heavy vehicle traffic and high-frequency LRT service call attention to the need for strong pedestrian crossing facilities. Potential strategies to improve pedestrian conditions at this intersection include:

- High-visibility crosswalks with higher-intensity lighting.

Figure 6-1: Critical locations for strengthened pedestrian environment



- Widened sidewalks where feasible, such as adjacent to the Schlage Lock site.
- Amenities such as pedestrian-scale lighting and wayfinding signage to nearby attractors such as Leland Avenue and Bayshore Station.
- Regular maintenance of pavement markings, signage and lighting.

Geneva Avenue

In all land use scenarios and station design alternatives, principal pedestrian routes to Bayshore Station will involve walking along and crossing Geneva Avenue, highlighting the importance of creating a pedestrian-friendly environment there. Multiple discussions on potential designs for Geneva Avenue have already taken place beyond this Study, but a final design has not yet been established. This Study highlights design issues and features important to station access, as follows.

- Adjacent land uses oriented toward the street, with street-level commercial uses (the draft BSP already addresses many of these adjacent-land-use-related issues).
- Sufficient width, buffering, gradual grades, and minimal interruptions from driveway curb cuts for the sidewalks, as well as amenities such as pedestrian-scale lighting and wayfinding signage to major attractors.
- Compact intersections that avoid multiple turn lanes and high-speed, channelized right turns.
- Frequent opportunities for controlled pedestrian crossings to minimize required out-of-direction walking.
- Strong at-grade pedestrian crossings to minimize potential future conflicts with turning vehicles and street-running BRT, with adequate sight distances and crossing times, minimal cycle lengths to increase crossing opportunities, minimal conflicts between pedestrian and permitted vehicle turn movements, and enhancements such as high-visibility striping, small curb return radii, corner bulb-outs, median refuges, and advance limit lines.
- At some specific locations, such as the potential BRT stops, a potentially lower design speed than the 35 mph currently being employed for the street's design to further protect pedestrians, as well as special traffic and BRT signaling and striping treatments to enable safe crossings.
- Where the street will be elevated above the ground plane, a safe and comfortable crossing under the Geneva structure for those approaching Geneva on the ground plane from the north or south, including amenities such as landscaping and lights.

Tunnel Avenue

For neighborhoods to the east and northeast of the Station, including Little Hollywood, Executive Park, Candlestick Point, and Hunters Point Shipyard, and employees of the Recology waste treatment center, the route to the Station will include walking along or across Tunnel Avenue. With the exception of the aerial facility of Alternative 1, all of these

pedestrian trips will end or begin on Tunnel Avenue. Expected future heavy vehicle traffic there calls attention to the need to provide sufficient width and buffering for the sidewalks, as well as strong pedestrian crossings.

The draft BSP describes a multi-use path along Tunnel Avenue, which would support a strong station. The cross-section provided shows an east-side path but applies to a segment of Tunnel much further south than the Station. Attention to the segment of Tunnel Avenue near the Station would be helpful in determining how the street could support strong pedestrian access, as well as attention to providing connections between the Station and that multi-use path. Potential design features to strengthen Tunnel Avenue's walking environment include:

- For Recology and other development on the east side of Tunnel Avenue, buildings that are oriented toward the street and provide street-level commercial uses or designs of visual interest to pedestrians.
- Wide sidewalks with buffers between pedestrians and moving traffic such as on-street parking, landscaping and hardscaping, particularly on the west side of Tunnel Avenue, as well as pedestrian-scale street lighting and wayfinding signage to major attractors.
- Special treatment for paths or street segments crossing under Geneva Avenue, such as public art and/or higher intensity lighting.
- Crime Prevention Through Environmental Design techniques, including: landscaping designs adjacent to pedestrian circulation areas that will not block sight lines when mature; path and sidewalk designs that avoid creating areas where people could be entrapped (such as segments with walls or fences on both sides) or concealed (such as areas with columns, walls and/or sharp corners) and feature minimal lengths of isolated routes (e.g., areas where visibility may be limited, such as under the Geneva Avenue overcrossing).
- Compact intersections that avoid multiple turn lanes and high-speed, channelized right turns.
- Frequent opportunities for controlled pedestrian crossings to minimize required out-of-direction walking.
- Strong at-grade pedestrian crossings to minimize potential future conflicts with turning vehicles, with adequate sight distances and crossing times, minimal cycle lengths to increase crossing opportunities, minimal conflicts between pedestrian and permitted vehicle turn movements, and enhancements such as high-visibility striping, small curb return radii, corner bulb-outs, median refuges, and advance limit lines.
- Multi-use path provided on the west side of Tunnel Avenue for easier Station access.

Considerations supporting strong access include a pedestrian-friendly street network, strengthened walking access routes, strong bicycle access, routes with minimal conflicts among modes, and new local bus and shuttle connections.

East-West Station Access Streets

Two east-west streets forming the north and south sides of the central loop will be important for pedestrian access to the Station. Design attention has already been given to these streets through the Visitacion Valley/Schlage Lock planning process and the draft BSP, and while some issues remain, preliminary street designs reflect a strong pedestrian environment here, so this Study does not address the pedestrian aspects of these streets in detail.

STRONG BICYCLE ACCESS FROM POINTS EAST

Access to the Station from points east is the biggest bicycle access need. From points west, the established and future street grids will provide a strong basis for designating appropriate bike routes, but bicyclists from the east face barriers such as the vacant Baylands site, the Recology site, and US 101. This problem has already been described by the Bi-County

Figure 6-2: Station Access Routes, Alternative 1

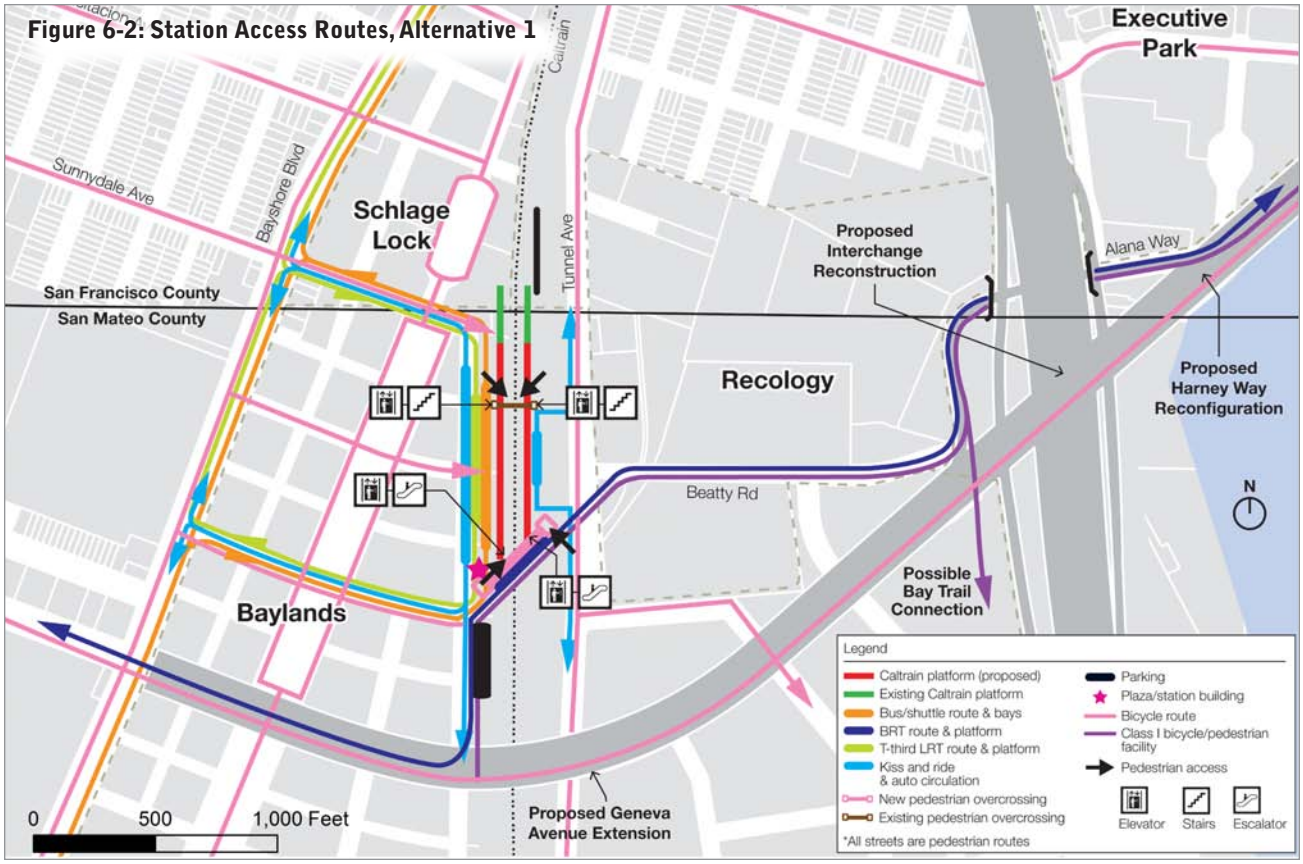
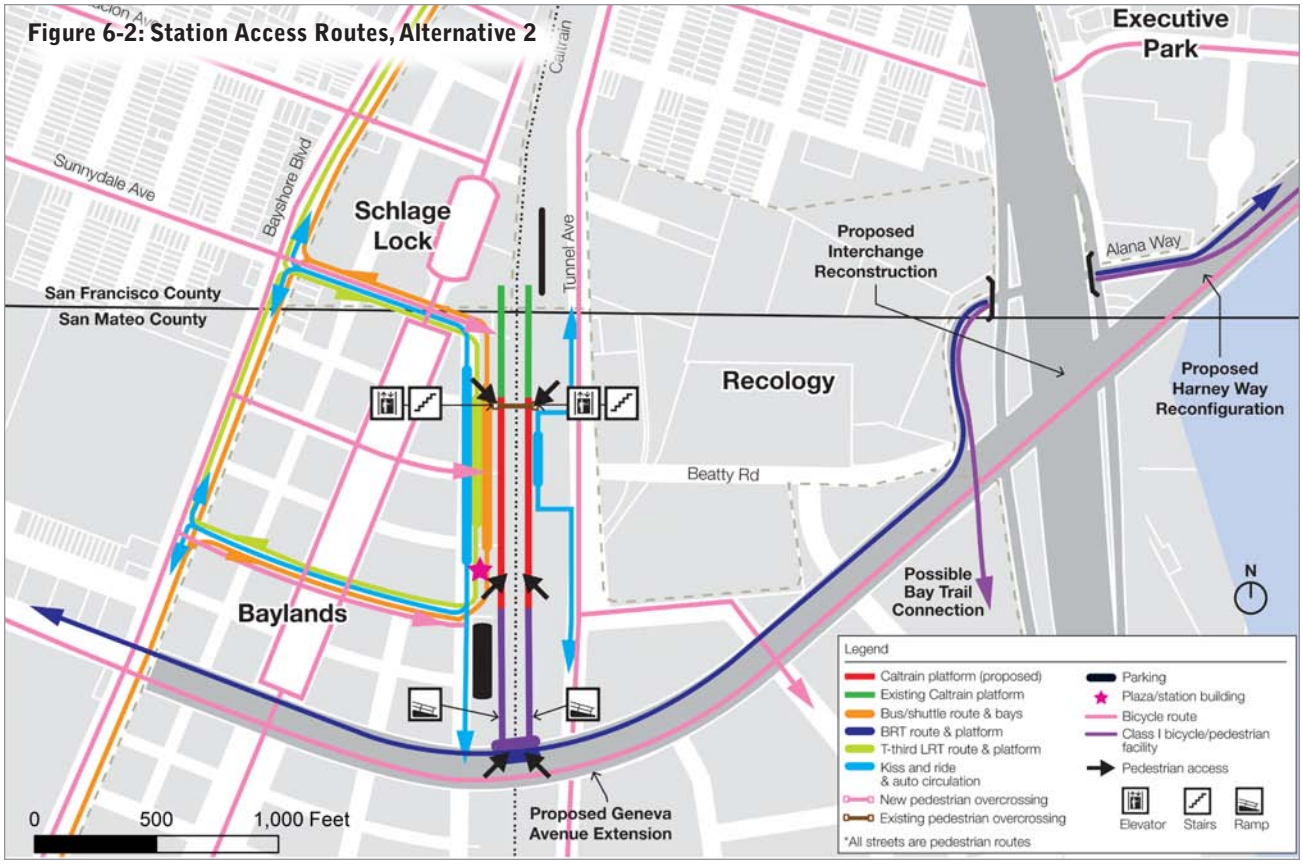


Figure 6-2: Station Access Routes, Alternative 2



Transportation Study. That study identified a general project need—access to Bayshore Station from east of US 101—and several options for fulfilling the need.

If Station Alternative 1 is chosen, then, as noted elsewhere in this Study, the solution may be to provide a bike-pedestrian path adjacent to the BRT guideway, in which case it should be planned as part of the BRT project. But if the BRT lanes are provided in a tunnel, as proposed in the Alternative 1 Variant, an adjacent bike-pedestrian path is not optimal, and instead, the preferred solution is to implement a robust bicycle facility on Blanken Avenue, such as a Class II bicycle lane.

Whether Alternative 1 or 2 is chosen, the Geneva Avenue extension represents a third bicycle access option, if the street's design can be made suitable for comfortable bicycle travel. Challenges remain, including potential heavy vehicle traffic, potential high vehicle speeds, and conflicts with freeway ramps. A bicycle facility protected from these modal conflicts would be beneficial, such as a cycletrack buffered by on-street parking, curbing and/or landscaping, which recent empirical research indicates may result in lower risk of injury for cyclists than Class II bike lanes.[1]

Since a station design alternative has not yet been chosen, it is premature to select a bicycle access solution. Nevertheless, this Study identifies east-west bicycle access as an outstanding need to be addressed when the designs for related projects are crystallized.

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STATION ACCESS ROUTES WITH MINIMAL CONFLICTS AMONG MODES

This Study proposes a station circulation plan with access routes designed to minimize conflicts among modes, as shown in Figure 6-2 (previous page). The key concept for access from points west of the Station is a central loop. Bayshore Boulevard forms the western edge of the loop; the Station's LRT, bus, and kiss-and-ride (including taxi) platforms form the eastern edge. Two east-west streets connect these two sides form the northern edge (Sunnydale Avenue) and southern edge of the loop.

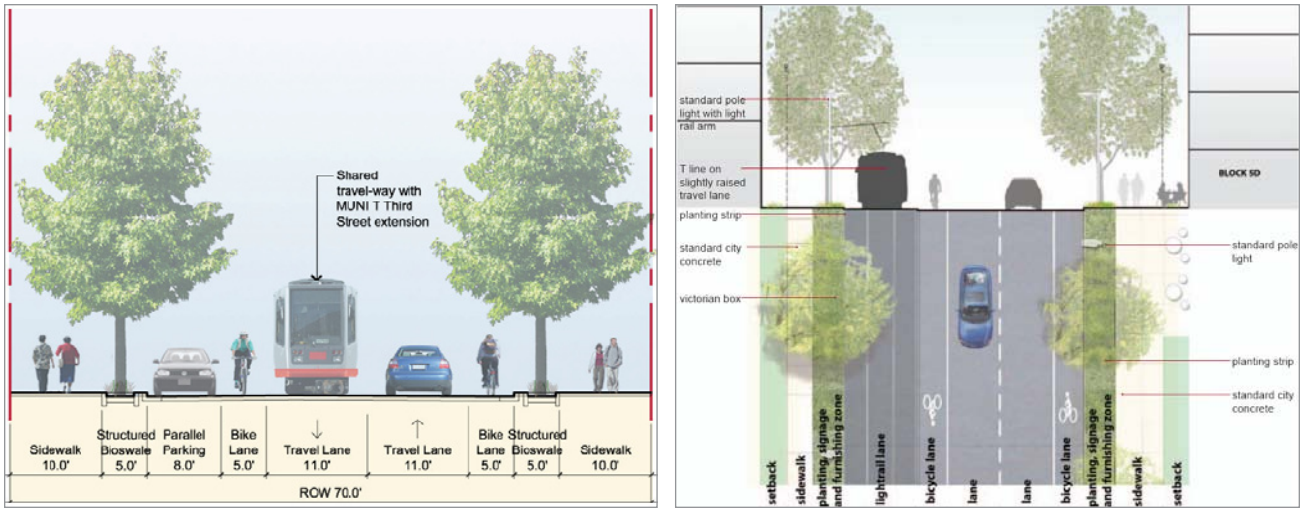
The two east-west streets will serve local buses, private vehicles, LRT, bicycles, and pedestrians. LRT has previously been proposed to use these east-west streets as a one-way loop. This Study proposes that local buses access the Station from Bayshore Boulevard using the same streets, via a one-way loop in the opposite direction from the LRT. In this design, there are no conflicting LRT and bus movements within the loop near the Station.

The eastern edge of the loop is proposed by this Study to serve as the loading areas for each motorized mode, respectively, providing exclusive lanes for buses, LRT, and vehicles to load and unload passengers. The LRT loading area has previously been proposed to be exclusive LRT right-of-way. Similar to the LRT, the eastern edge of the bus loop is proposed by this Study to operate in an exclusive bus lane along the bus bays. This Study proposes a third lane reserved for private vehicle kiss-and-ride and taxi use, providing two-way directionality.

Sunnydale Avenue, as the northern edge of the loop, warrants discussion in further detail for bicycle access. A portion of the street falls within San Francisco's Visitacion Valley/ Schlage Lock redevelopment site, which has proposed a cross-section design for the street that includes a one-way, exclusive, side-running LRT lane, two mixed-flow vehicle lanes, and bike lanes to the inside of the street from the LRT, as shown in Figure 6-3 (next page). While that design would minimize bike-LRT conflicts, this Study suggests an additional option for consideration: providing a two-way bike lane on the north side of the street. A north-side bike lane would eliminate conflicts between bikes and private vehicles and buses near the Station.

[1] Lusk et al. Risk of Injury for Bicycling on Cycletracks Versus in the Street. ***Injury Prevention***. 17: 131-135, February 2011.

Figure 6-3: Differing Sunnydale Avenue Proposed Cross-Sections



SOURCE: Baylands Specific Plan Circulation Plan (left), Visitacion Valley/Schlage Streetscape Plan (right).

The eastern portion of Sunnydale falls within the Brisbane Baylands site, and the current draft BSP proposal is for two mixed-flow vehicle lanes, one of which would also carry the LRT, as well as a parking lane and bike lanes to the outside of the LRT. This Study notes that LRT tracks pose a hazard for bikes to cross, a movement necessitated by this design when bikes turn onto and off Sunnydale. This design's combination of mixed-flow LRT-auto operation and parking may also create bike issues, given the potential for conflicts among parking maneuvering, LRT vehicles, turning autos, and bikes. This Study suggests a re-thinking of the BSP's design of Sunnydale Avenue to mitigate these potential conflicts and offers a similar design option suggestion as noted above.

The southern edge of the loop coincides with what is referred to in the draft BSP as the Neighborhood Retail Street. This Study notes potential bike issues created by the design of this street as well, similar to those created by the BSP's vision of Sunnydale. This Study suggests re-thinking the street's design relating to bicycle facilities here as well.

On the eastern side of the Caltrain tracks, this Study proposes only a kiss-and-ride and taxi area, for those arriving from points east, accessed via Tunnel Avenue; no bus platforms are needed because buses and shuttles serving the Station are likely to use routing that brings them to the western side.

NEED FOR NEW LOCAL BUS AND SHUTTLE CONNECTIONS

No matter which station design alternative or land use scenario is selected, significant numbers of employees and residents will fall outside the key half-mile mark, pointing to the need for additional local bus and shuttle service. The role of local bus and shuttle service at Bayshore is to extend that catchment, allowing more riders to use the Station without getting in their cars. Given the alternatives under consideration, such local service may be especially important for the residential neighborhoods in Visitacion Valley and employment locations south of Geneva Avenue in the Baylands, both of which may fall outside the half-mile catchment distance. This local service could be provided by a transit agency, or it could be provided privately, as in the employee shuttles currently operated by the landowners and leaseholders of offices in nearby Executive Park, Crocker Business Park, and Sierra Point.

6.2 Recommendations for Neighborhood Design

The station access and design features in Alternatives 1 and 2 will provide for the program space, amenities, operational requirements, and convenient transit transfer paths to support strong future transit use at the Bayshore Station. But simply addressing these station connection issues will not by itself create a successful station area. Success requires attention to several other aspects of station area use and design as well. This section describes those aspects, including:

- Dense and diverse land uses near the Station, including 24-hour activity;
- Street-facing, active uses on streets surrounding the Station;
- Public open space and landmark feature adjoining the Station;
- Rigorous management of nearby station-area parking; and
- Transportation Demand Management programs.

DENSE AND DIVERSE LAND USES NEAR THE STATION, INCLUDING 24-HOUR ACTIVITY

Of all station considerations, the land uses surrounding the Bayshore Station will exert the single biggest influence on station ridership. A successful station needs a dense mix of offices, shops, and housing along lively streets that are welcoming for pedestrians throughout the day and evening. The current station area suffers from lack of evening activity, leading to personal security concerns that hamper efforts to promote transit use.

Nearby housing will produce the 24-hour (and especially evening) activity that is essential to encouraging the viability of the station area as a place around which people feel comfortable walking. A balanced community around the Station will produce even demand for transit service throughout the day.

In addition, research has shown that commuter use of rail transit is highest for those within a quarter mile of a station, decreasing by half at a half-mile distance, and dropping off to nearly zero at distances more than a half mile, as illustrated in Figure 6-4 (below). Clearly, locating the Station within a half mile of residents and employees (and vice versa) is critical.

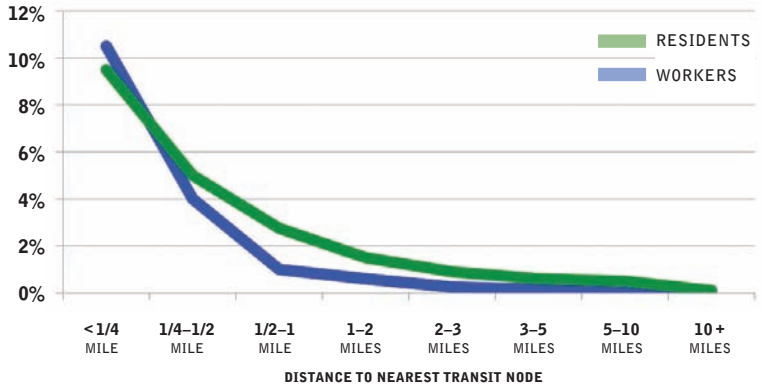
The two proposed Baylands land use plans under consideration will place differing amounts of residents and employees within a quarter and a half mile of the Station, both of which would provide the intensity of use that is necessary for a thriving station. But there are meaningful differences between the proposed land use scenarios.

Regardless of which station design alternative is selected, the Developer Scenario would place the highest number of residents and employees within the critical half-mile distance, with nearly 25,000, compared with the Community Scenario, with less than 15,000 (see Figure 6-5, next page).

Regardless of which station design alternative is selected, the Developer Scenario would place the highest number of residents and employees within the critical half-mile distance, with nearly 25,000, compared with the Community Scenario, with less than 15,000.

At the quarter-mile distance, there are differences in catchment depending on alternatives selected (see Figure 6-6, next page). Holding station design Alternative 1 constant, the two land use scenarios place nearly equal amounts of transit riders in the station catchment area, at slightly more than 6,000. Holding station design Alternative 2 constant, the Developer scenario places 7,500 potential transit riders in the catchment, compared with the Community scenario, with 5,000 potential riders.

Figure 6-4: Mix of Rail, Subway, or Streetcar by Residents/Workers



Source: Kolko, ed. *Making the Most of Transit: Density, Employment Growth, and Ridership Around New Stations*. Public Policy Institute of California, February 2011.

Figure 6-5: Half-Mile Catchments for Land Use and Station Alternatives

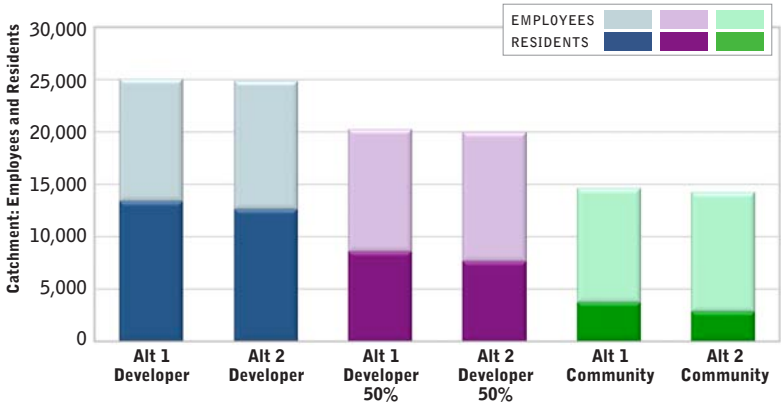
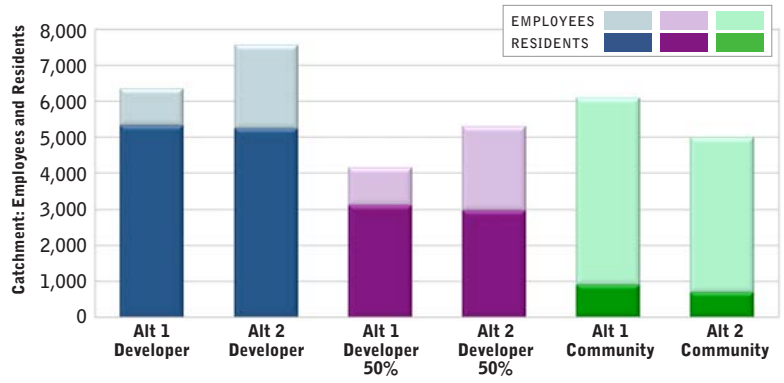


Figure 6-6: Quarter-Mile Catchments for Land Use and Station Alternatives



STREET-FACING, ACTIVE USES ON STREETS SURROUNDING THE STATION

Retail and other active land uses on the ground floor can generate pedestrian activity to increase the "eyes on the street". Station-compatible uses include convenience retail, restaurants and cafes, and services, and station-supportive designs include front entrances, windows, and fine-grained architectural details on the ground level facing the street. Key locations for this kind of treatment include the buildings immediately adjacent to the Station and the route to the Station from the west and north (at least one of the streets connecting the Station to Bayshore Boulevard).

The draft BSP describes some nearby streets and buildings fitting this description, including Geneva Avenue and P Street, which support a strong station. Further support could be provided by including the blocks directly adjacent to the Station and Caltrain tracks for this kind of treatment.

On the eastern side of the Station, constraints may limit the potential for transit-supportive land uses adjacent to the Station. There, street, sidewalk, and path design along Tunnel Avenue will be a big factor in creating an attractive pedestrian environment. Landscaping, lighting and other Crime Prevention Through Environmental Design techniques can be employed to create safe and attractive access, as already described in Section 6.1 above.

PUBLIC OPEN SPACE AND LANDMARK FEATURE ADJOINING THE STATION

A plaza, coupled with a building or architectural landmark feature, would create a strong identifier for the Station, making it easier for transit riders to find and providing a distinct sense of place. Given the experience with similar features at other Caltrain stations in the system, these features will likely need to be implemented by either the local jurisdiction (Brisbane) or the land developer, as part of the development agreement. This topic is described in more detail in Chapter 5 as a recommended station program element.

RIGOROUS MANAGEMENT OF NEARBY STATION-AREA PARKING

Appropriate treatment of parking is essential to a successful station area because of its dramatic influence on travel choice incentives and the ability to create a pedestrian-supportive environment. Supplying, designing, and managing parking appropriately is a key part of any effort to support better transit use, including Transportation Demand Management (TDM) programs.

Any parking within walking distance of the Station, whether signed as station parking or not, might be used by transit patrons, including on- and off-street spaces managed by Brisbane and private landowners and leaseholders on the Baylands. Such parking also affects

the quality of the pedestrian environment, and ultimately, station success. The following are considerations for supportive station-area parking (parking at the station itself is addressed in Chapter 5).

Limited supply, provided in structures and screened from pedestrians. Surface parking decreases the quality of the pedestrian environment. Wherever feasible, parking should be located underground or within parking structures wrapped by land uses facing sidewalks. If surface parking is provided, it should be rear-loaded to minimize parking spaces adjacent to major pedestrian corridors. Driveways crossing sidewalks should be minimized and should be avoided on major pedestrian corridors.

The draft BSP describes parking for land uses near the Station as being provided via garages, which supports a strong station. But in the more distant districts with research and development and industrial uses, the plan describes surface parking. Considerations that would further support a strong station include providing more limited parking in structures, enabling buildings to be clustered and creating an area that can be better served by shuttles, which will be a key station access mode for employees there.

Priced and "unbundled" to manage demand. The price of parking is often a dominant factor in travelers' mode choice. The chance of a successful station is highest when nearby on- and off-street parking is priced to encourage non-auto station access. Pricing also manages demand such that spaces needed to serve the nearby private land uses, such as retail, are available and not taken exclusively by transit riders.

Also, when parking spaces are offered together with, or 'bundled', with housing and employment sites, residents and employees do not perceive the price of parking. In those cases, they do not receive the price signals that would encourage non-auto use. Land sales and leasing agreements that 'unbundle' parking from the housing or employment use accompanied make such price signals clearly visible. The draft BSP describes unbundled parking for the proposed housing, which supports a strong station. Considerations that would further support the station include policies for the proposed employment sites that feature unbundled, priced parking and/or parking cash-out programs that provide workers with a monetary benefit instead of free or subsidized parking.

Car- and bike-sharing programs. Car- and bike-sharing have the potential to reduce car ownership rates and parking demand, which in turn enable a more pedestrian-supportive station area. The draft BSP describes car- and bike-sharing programs, which would support a strong station.

Shared parking between station and nearby land uses. The dedicated station parking supply may be insufficient to meet the future demand for station parking. Shared parking can help by supplementing dedicated station parking with the additional spaces already planned for nearby land uses. Providing transit patron parking through shared arrangements would support a strong pedestrian environment and lead to more efficient use of land.

The draft BSP does not describe shared parking arrangements, but successful case studies from other areas (see Chapter 5: Shared Parking Case Studies) indicate potential for a similar model to be implemented at Bayshore Station, allowing parking supply to be limited.

Transportation Demand Management strategies encourage employees and residents to take transit. They work best in conjunction with each other and in the context of a compact, mixed-use environment with strong parking management.

TRANSPORTATION DEMAND MANAGEMENT PROGRAMS

Transportation Demand Management (TDM) strategies provide the incentives, information, assurances, and services necessary to encourage employees and residents to take transit. These strategies work best in conjunction with each other and in the context of a compact, mixed-use environment with strong parking management as described above.

The draft BSP provides an extensive list of TDM strategies that support a strong station, including: a full-time TDM program coordinator, transit subsidies, parking policies for residential parking (see above), shuttle service, a guaranteed ride home program, vanpool and carpool support, and car-sharing support.

This Study recommends considering additional financial-incentive-based TDM strategies such as mandatory "Eco" transit passes for new residents, with proceeds supporting expanded transit service.

References for Station/Neighborhood Integration

The following documents provide in-depth discussions of station area design issues and guidance.

BART Station Access Guidelines. BART April 2003.

BART Transit Oriented Development Guidelines. BART June 2003.

Integration of Bicycles and Transit. TCRP

Pedestrian Safety Guide for Transit Agencies. US DOT, FHA. February 2008.

Regional Transit Hub Signage Program: Technical Standards and Guidelines. MTC. 2008.

Visitacion Valley/Schlage Lock Design for Development. San Francisco Redevelopment Agency and San Francisco Planning Department. February 2009

7 Implementation

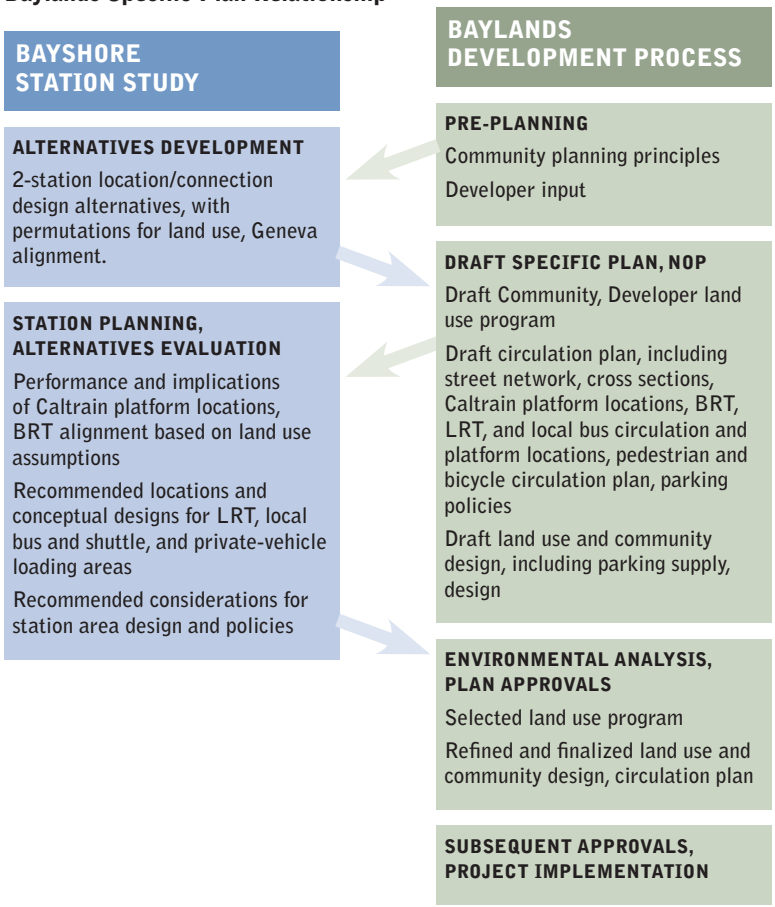
THIS CHAPTER discusses three implementation issues in particular: how decisions among public and private stakeholders about the Station elements are expected to be made; the actions and roles needed to implement this Study's recommendations; and funding considerations.

7.1 Decisions Made and Decisions Ahead

As indicated throughout the Study, for some of the recommended physical station elements, such as the Caltrain platforms, BRT lanes, and BRT-to-Caltrain transfer connection, the Study has generated multiple alternative conceptual designs but does not identify a preferred design because some key factors, including surrounding land uses, will affect the selection of a preferred design but have not been finalized. Other findings and recommendations relating to the Station program and integration into the neighborhood do not depend on selection of a preferred alternative. In those cases, this Study represents consensus among the Study's stakeholders, but the implementing decisions will need to be carried forward by one or more stakeholders, both public and private.

Since many of the recommended station elements fall within the jurisdiction of the City of Brisbane, its planning and approval processes figure prominently, especially the Baylands Specific Plan (BSP) process. The relationship between the Bayshore Station Study and the BSP process deserves attention in more detail here. Figure 7-1 (below) describes the relationship between these two processes.

Figure 7-1: Bayshore Station Study and Baylands Specific Plan Relationship



The BSP process, being carried out as dual community-driven and developer-driven efforts, has identified two main land use alternatives—a Developer Scenario and a Community Scenario—and two variants, including an expansion of the Recology waste facility. The process has also generated multiple draft circulation network plans—these documents will eventually identify the locations of station components when finalized—and draft guidelines for design and development.

Meanwhile, the Bayshore Station Study has generated three station design alternatives (two of which were evaluated); the optimal one will ultimately depend on the land uses that will surround the Station on the Baylands and the related transportation network in the area. The Study has identified the trade-offs and implications relating to the station design alternatives and various land use scenarios, with the intention of helping to inform the eventual BSP decisions. The Study has also identified other issues critical to smooth integration of the Station into the new neighborhoods and regardless of the selected station design alternative. These critical issues are also meant to inform the BSP process such that identified issues can be incorporated into the final plan. The Baylands process will simultaneously result in a selected land use scenario and transportation network, including the locations of the station components. Beyond the Baylands process, it is also clear that other agencies will have roles in implementation, which the next section will describe.

Finally, the relationship to High-Speed Rail (HSR) should continue to be monitored. The relatively shorter-term Fast Start Project described in Chapter 2 does not conflict with the plans described in this report. The process for clarifying the details on the longer-term proposal from the California High Speed Rail Authority (CHSRA) will not move forward in the near term. There will be a need to revisit station access issues when that process resumes. In the meantime, this Study serves as a local consensus vision for the area that can be used by the local agencies to advocate for local interests that should be respected when CHSRA moves to refine its plans.

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These decisions, when made, would impact the station area dramatically. Although CHSRA staff and consultants have indicated that the HSR project will attempt to account for local plans such as those in the Bayshore Station area, there may be a need to revisit station access issues when the process for clarifying details of the HSR project resumes. In the meantime, this Study serves as a local consensus vision for the area that can be used by the local agencies to advocate for local interests that should be respected when CHSRA moves to refine its plans.

7.2 Actions and Roles

The various recommended station elements rely on different, and, in some cases, multiple parties to take action. These actions include:

- Finalizing conceptual plans;
- Obtaining environmental clearance;
- Producing engineering designs;
- Satisfying any right-of-way needs;
- Securing needed funds;
- Constructing the facilities;
- Adopting policies governing the design of land use and transportation;
- Establishing programs to manage facilities; and
- Planning and providing new transportation-related services.

Because station elements include facilities, services, policies, and programs that fall under the purview of differing public agencies and the private sector, implementation will necessarily

Table 7-1: Recommended Bayshore Station Elements Implementation Roles

PROPOSED STATION ELEMENT	PLANNING AND/OR POLICIES	ENVIRONMENTAL CLEARANCE	ENGINEERING DESIGN	RIGHT-OF-WAY ACQUISITION	OTHER PERMITTING	CONSTRUCTION	OPERATIONS, MANAGEMENT, MAINTENANCE
Caltrain operational elements							
1. Caltrain platforms (options)	BISAS Brisbane (BSP)	Brisbane (BSP)	Lead: TBD (Caltrain, SFMTA, Private)	Lead: Caltrain Cooperating: Private Approval: Brisbane	Lead: Caltrain Approval: Brisbane	Lead: TBD (Caltrain, SFMTA, Private)	Caltrain
BRT operational elements							
2. BRT lanes, platforms (options):							
Alt 1: Dedicated ROW east of Caltrain	BISAS Brisbane (BSP) HG BRT FS	TBD (Brisbane, SFCTA, SFMTA, Private)	TBD (Brisbane, SFCTA, SFMTA, Private)	Lead: TBD (Brisbane, SFMTA) Cooperating: Private Approval: Brisbane	Lead: SFMTA Approval: Brisbane	SFMTA	SFMTA
Alt 2: On Geneva	BISAS Brisbane (BSP) HG BRT FS	TBD (Brisbane, SFCTA, SFMTA, Private)	TBD (Brisbane, SFCTA, SFMTA, Private)	Lead: Brisbane Cooperating: Private Approval: Brisbane	Lead: SFMTA Approval: Brisbane	TBD (Brisbane, SFMTA)	TBD (Brisbane, SFMTA)
LRT operational elements							
3. LRT trackway, power system, platform, and power substation w/operator restroom	SFMTA (CER) Brisbane (BSP)	Brisbane (BSP)	SFMTA	Lead: SFMTA Cooperating: Private Approval: Brisbane	Lead: SFMTA Approval: Brisbane	SFMTA	SFMTA
Local bus and shuttle operational elements							
4. Local bus and shuttle circulation (street) network	BISAS Brisbane (BSP)	Brisbane (BSP)	TBD (Brisbane, Private)	Lead: SFMTA Cooperating: Private Approval: Brisbane	N/A	Brisbane	Brisbane
5. Local bus and shuttle platforms	BISAS Brisbane (BSP)	Brisbane (BSP)	TBD (Caltrain, SamTrans, SFMTA)	Lead: TBD (Caltrain, SamTrans, SFMTA) Cooperating: Private Approval: Brisbane	TBD (Caltrain, SamTrans, SFMTA) Approval: Brisbane	TBD (Caltrain, SamTrans, SFMTA)	
6. Local bus and shuttle service	Brisbane (BSP)	Brisbane (BSP)	N/A	N/A	N/A	N/A	TBD (Private)
Non-motorized station access/transfers							
7. East-west bicycle access and other routes	BISAS Brisbane (BSP) Bi-County Study	Brisbane (BSP)	TBD (Brisbane, SFMTA, Private)	Lead: TBD (Brisbane, SFMTA) Cooperating: Private	Brisbane	TBD (Brisbane, SFMTA)	Brisbane
8. Bicycle parking	Bi-County Study BISAS	N/A	Lead: TBD	N/A	N/A	TBD	Caltrain
9. BRT-Caltrain transfer (options):							
Alt 1: BRT-to-Caltrain elevator, escalators	BISAS Brisbane (BSP)	TBD (Brisbane (BSP), SFMTA, SFCTA)	TBD (Brisbane, Private, Caltrain)	Lead: SFMTA Cooperating: Private Approval: Brisbane	Lead: SFMTA Approval: Brisbane	TBD (Caltrain, SFMTA)	TBD (Caltrain, SFMTA)
Alt 2: BRT-to-Caltrain ramp	Brisbane (BSP)	TBD (Brisbane (BSP), SFMTA, SFCTA)	TBD (Brisbane, Private, Caltrain)	Lead: SFMTA Cooperating: Private Approval: Brisbane	Lead: SFMTA Approval: Brisbane	TBD (Caltrain, SFMTA)	TBD (Caltrain, SFMTA)
10. Critical locations for strengthened pedestrian environment	BISAS	TBD (Brisbane (BSP), SFMTA, SFCTA)	TBD	TBD	TBD	TBD	TBD
11. Station plaza and/or landmark feature/ building	Brisbane (BSP)	Brisbane (BSP)	Private	N/A	Lead: Private Approval: Brisbane	Private	Private
Parking and Auto Access							
12. Kiss and ride platform	BISAS Caltrain	TBD (Brisbane (BSP), Caltrain)	TBD	TBD	Lead: TBD Approval: Brisbane	TBD	TBD (Caltrain, SFMTA)
13. Caltrain station parking	BISAS Caltrain	TBD (Brisbane (BSP), Caltrain)	TBD	TBD	Lead: TBD Approval: Brisbane	TBD	TBD
14. Station area off-street parking (including shared)	Brisbane	Brisbane (BSP)	Private	Private	Lead: Private Approval: Brisbane	Private	Private
15. On-street parking near station	Brisbane	Brisbane (BSP)	Brisbane	Brisbane	Brisbane	Private	Brisbane
16. Geneva Avenue extension	Brisbane	Brisbane (BSP)	Brisbane	Lead: Brisbane Cooperating: Private Approval: Brisbane	Brisbane	Brisbane	Brisbane
Other transit support							
17. Station-supportive land use design and development	Brisbane (BSP)	Brisbane (BSP)	Private	N/A	Lead: Private Approval: Brisbane	Private	Private
18. Station-supportive TDM program	Brisbane (BSP)	Brisbane (BSP)	N/A	N/A	N/A	N/A	Private

ACRONYM KEY:

BISAS: Bayshore Intermodal Station Access Study

HG BRT FS: Harney-Geneva Bus Rapid Transit Feasability Study (future, to be led by SFCTA)

BSP: Baylands Specific Plan (ongoing)

CER: Conceptual Engineering Report (completed 2007)

TBD: to be determined

N/A: not applicable

involve coordinated actions by multiple actors in multiple processes. Implementation steps for each recommended station element are proposed as shown in Table 7-1 (previous page). In many of the cases, implementation could be carried out by more than one agency, or even the private sector—for instance, SamTrans, SFMTA, or Caltrain might each be the logical lead agency for the design and construction of the local bus and shuttle platforms. Thus, Table 7-1 notes where flexibility exists in terms of the lead, but no agreements have yet been made.

Regardless of which organization leads implementation of a particular station item, multiple stakeholders will need the ability to provide input into the details of design. For instance, SamTrans and SFMTA will need an opportunity to verify that the design complies with each operator's standards and guidelines for bus stops. This inter-dependence calls attention to the need for continued close coordination, beyond this current study.

As an initial next step, the partner agencies have agreed to undertake a Harney-Geneva Bus Rapid Transit (BRT) Feasibility Study to further refine plans for that BRT facility, especially for the segment falling within the Baylands. This Study recommends that the SFCTA lead such a study, and that a citizen advisory committee (CAC) be created to provide input to the study, as well as other related projects in the Bi-County area that move forward through their individual project development steps. As one example, closely related to the BRT facility is the pedestrian-bicycle connection from the east side of US 101 to Bayshore Station, which may be appropriate to incorporate into the BRT project, depending on the BRT design to be selected.

7.3 Funding

Bayshore Station's location within the Bi-county Priority Development Area is expected to increase the competitiveness of Bayshore Station improvements for discretionary transportation funds controlled by the regional funding agency, the Metropolitan Transportation Commission (MTC).

While funding has not yet been secured for the envisioned improvements here, their transit-supportiveness and relation to housing growth give Bayshore Station very strong prospects for future funding. The Bayshore Station area is located within the Bi-County Priority Development Area (PDA), a distinction indicating that the location is ideal for transit-oriented growth, especially for housing. The PDA distinction is expected to increase the competitiveness of Bayshore Station improvements for discretionary transportation funds controlled by the regional funding agency, the Metropolitan Transportation Commission (MTC). For example, the One Bay Area Block Grant proposal that would guide the next cycle of programming for federal Surface Transportation Program (STP) and Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds, may require that 70% of funds allocated to the county congestion management agencies—including the Authority and C/CAG—must be used within PDAs. Similarly, the 2013 update to the Regional Transportation Plan (RTP), the Bay Area's long-range transportation investment policy document, is subject to the requirements of Senate Bill 375 (Steinberg). SB 375 requires greater coordination between land use and transportation planning through the creation of a new component to the RTP, the Sustainable Communities Strategy (SCS) that must achieve a greenhouse gas reduction target and identify a strategy to house the region's entire population by income level. Given these new requirements, the transportation investment strategy established in the RTP/SCS is expected to give greater priority to transit-supportive projects in priority growth areas, such as the Bayshore Station improvements identified in this Study.

Approaches to funding the recommended station elements have already been considered in the Bi-County Transportation Study, a multi-agency effort led by the Authority with many of the same study partners as this Study. That study contemplated a program of projects, including the station and transit connection improvements evaluated herein, among other projects. The Bi-County Study proposed a funding approach for the entire program that calls for contributions from the public and private sector, identifying a fair-share approach to potential contributions based on relative contributions to future area trip-making.

One of that study's key findings is that each county—San Francisco and San Mateo—has historically generated and captured funds from local, regional, state, and federal levels at sufficient levels to make investments of the magnitude envisioned here, but that the funding agencies in each county and the region will need to prioritize the Bi-County projects, including Bayshore Station, over other competing priorities within their work programs in order to raise the required funds for these projects in the time frame when they are needed. The Bi-County Study's partner agencies have also agreed to work to obtain private contributions through commitments to be made during the respective land development approval processes. See the Bi-County Study Final Report for more information on funding.

The Bi-County funding approach considered funding on the project level, applying to the Station and its new connections as a single program. But funding at the level of individual elements is yet to be addressed. Table 7-2 (below) indicates the capital costs for each element, as well as potential sources for those costs.

Table 7-2: Costs and Potential Fund Sources

STATION ELEMENT	ALTERNATIVE 1 TOTAL COST (2010$)	ALTERNATIVE 1 TUNNEL TOTAL COST (2010$)	ALTERNATIVE 2 TOTAL COST (2010$)	POTENTIAL CAPITAL FUNDING RESPONSIBILITIES
Caltrain operational elements				
1. Caltrain platforms (options)	$3.0 M	$3.0 M	$6.8 M	Bi-County*
BRT operational elements				
2. BRT lanes, platforms. (Does not include cost of BRT on Geneva Ave. Extension)	$87.2 M	$144 M	$26.6 M	Bi-County*
LRT operational elements				
3. LRT trackway, power system, platform, and power substation w/operator restroom	$50.1 M	$50.1 M	$50.3 M	Bi-County,* San Francisco
Local bus and shuttle operational elements				
4. Local bus and shuttle circulation (street) network	Not available	Not available	Not available	Private
5. Local bus and shuttle platforms	$9.4 M	$9.4 M	$9.4 M	Bi-County*
6. Local bus and shuttle service	Not available	Not available	Not available	Bus: TBD (SFMTA, SamTrans); Shuttle: Private
Non-motorized station access/transfers				
7. East-west bicycle access and other routes**	$7 M	$7 M	$7 M	Bi-County*; others TBD (San Francisco, Birsbane, Private)
8. Bicycle parking	$0.3 M	$0.3 M	$0.3 M	Bi-County*
9. BRT-Caltrain transfer (vertical circulation)	$1.5 M	$1.5 M	$4 M	Bi-County*
10. Critical locations for strengthened pedestrian environment	Not available	Not available	Not available	TBD (San Francisco, Brisbane, Private
11. Station plaza and/or building	Not available	Not available	Not available	Private
Parking and auto access				
12. Kiss-and-ride platform	$4.5 M	$4.5 M	$4.5 M	Bi-County*
13. Caltrain station parking	$2.9 M	$2.9 M	$2.9 M	Bi-County*
14. Station area off-street parking (including shared)	Not available	Not available	Not available	Private
15. On-street parking near station	Not available	Not available	Not available	Private
16. Geneva Avenue extension	$169.3 M	$172.8 M	$186.1 M	Bi-County*
Other transit support				
17. Station-supportive land use design and development	Not available	Not available	Not available	Private
18. Station-supportive TDM program	Not applicable	Not applicable	Not available	Not applicable
TOTAL STATION COSTS	$52 M	$52 M	$58 M	
TOTAL RELATED PROJECT COSTS***	$283 M	$344 M	$240 M	
TOTAL COSTS	**$335 M**	**$396 M**	**$298 M**	

*—Bi-County refers to a collection of contributions from existing public sources to be prioritized toward Bi-County projects and private sources to be provided by land development projects. See section 7-3 for more details.

**—This project has already been proposed as part of the Bi-County Study and is not included in the the cost appendix details.

***—Related project costs include Muni LRT Extension, BRT, and Geneva Ave. Extension. The BRT costs include the cost of BRT when is it on Genveva Ave Extension in addition to the separate right-of-way components.

NOTE: All costs are rough-order-of-magnitude planning-level estimates. Costs are inclusive of utilities, earthwork, site development, right-of-way, professional services, and a 30% contingency. Details are provided in Appendix C.