Combined Technical Memoranda

- 2.2 Land Use Background
- 2.4 Economic Analysis
- 2.5 Operational Needs Assessment
- 2.7 Station Operations and Multi-Modal Connectivity
- 2.8 Preliminary Feasibility Assessment

BAYSHORE MULTI-MODAL FACILITY STUDY

TASK 2.2 LAND USE AND PLANNING CONSIDERATIONS

INTRODUCTION

This memorandum summarizes the land use and neighborhood access considerations in planning a Bayshore Multi-Modal (MM) Facility adjacent to the current Caltrain station and along Sunnydale Avenue.

The memo identifies nearby opportunities and constraints in a planning a Multi-Modal Facility. Taking into account the Bayshore Intermodal Station Access Study (2012) and the Bi-County Transportation Study (2013), the memo considers Multi-Modal connections and the compatibility of adjacent land uses based on the current understanding (August 2016) of development projects in the area.

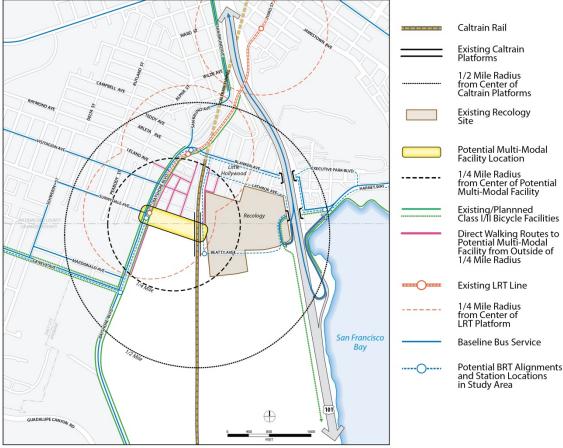


Figure 1 – Study Area Map, showing Sunnydale Avenue preferred alternative

Potential Multi-Modal Facility Location #3: Sunnydale Avenue — Short Term Transportation Enhancements

STUDY AREA LAND USE

The study area, defined as ½-mile from the edges of the Caltrain platforms, is currently a disconnected mix of industrial, formerly industrial and redeveloping areas, adjacent to residential neighborhoods, Bayshore Boulevard and US 101. But the immediate vicinity and the entire Bi-County area are poised for significant growth. The study area is expected to grow by 3,800 housing units and 13,810 jobs. The Multi-Modal Facility will play an important role in connecting these growth areas and existing neighborhoods to various modes of transportation. The major growth areas and projects are summarized in Figure 2 and discussed further in the "Current and Future Development Projects" section.

MAJOR PROJECT	STATUS	ACRES	HOUSING UNITS (GROSS)	NON- RESIDENTIAL (S.F.)
Brisbane Baylands*	Under review	648		8,215,000
Sunnydale Hope SF	Approved	50	1,775	
Schlage Lock	Approved	20	1679	46,700
Executive Park Plan	Approved	70	2,800	226,000
Candlestick/Hunters Point	Under construction	784	10,500	4,315,000

Figure 2 – Major Plan Areas and Projects in the Bi-County Area

* The current alternatives under review by the Brisbane City Council do not include housing on the Brisbane Baylands site. The Daly City Bayshore PDA, designated a Transit Town Center, has not been allocated housing or employment, either. One Bay Area Grant (OBAG) funds can be used for projects that support multimodal access and projects in PDAs, but only if there is a commitment to growth and affordable housing

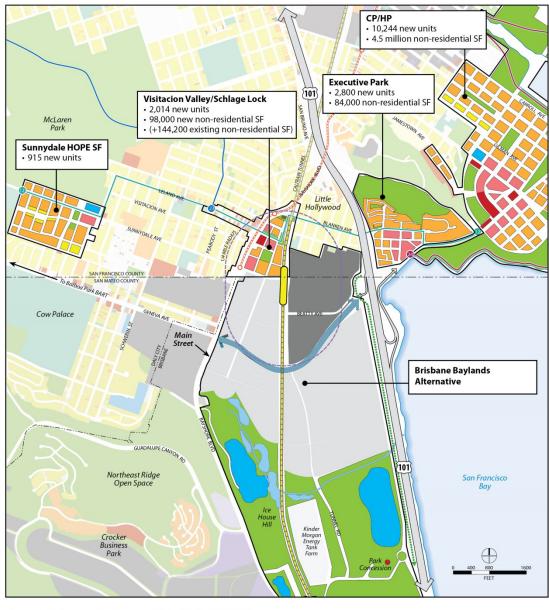
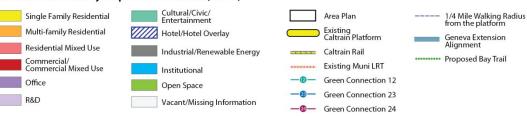


Figure 3 – Study Area Land Use Map





EXISTING NEIGHBORHOOD CONTEXT AREA ZONING

The existing zoning in the immediate vicinity of the MM facility allows for mixed use development and for some light industrial uses (see Figure 4). The majority of surrounding neighborhoods consist of mixed density residential zones. To the west of the Visitacion Valley/Schlage Lock site, two neighborhood commercial corridors – along Leland Avenue and along Bayshore Boulevard - allow for neighborhood commercial development. To the east, the area is predominantly zoned for single family residential. To the south of the Study area, the Brisbane Baylands area is currently zoned for light industrial uses. Plans for the Baylands are discussed in more detail below.

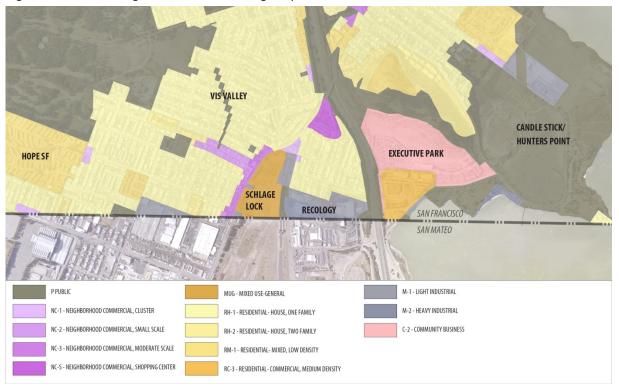


Figure 4 – Site Existing San Francisco Zoning Map*

*Adjacent areas in Brisbane are zoned industrial. Future zoning is currently unknown (see Brisbane Baylands section)

VISITACION VALLEY

Visitacion Valley is bounded to the west and north by McLaren Park, to the east by Highway 101 and to the south by the San Francisco / San Mateo County line. It contains mostly two to three story buildings with a variety of architectural styles, including local landmarks like Eichler homes and a Julia Morgandesigned church. Homeownership in the neighborhood is much higher than the citywide average. The area also includes McLaren Park, the second largest park in the City (317 acres), and the Visitacion Valley Greenway, a linear system of open space lots connecting to Leland Avenue. Leland Avenue and Bayshore Boulevard make up one of the San Francisco's "Invest in Neighborhoods" corridors. The Leland Ave corridor is rich with retail and was redesigned with additional lighting, planting, seating, and safer pedestrian facilities in 2010. Businesses along the corridor include retail, food services, professional services and social services agencies.

Visitacion Valley currently has several challenges affecting the health of the commercial district; it has a high vacancy rate (23%) and low foot traffic. Sales tax captured has declined by 22% since 2006, compared with a citywide growth of 17%. While the area has undergone physical improvements to the public realm, those improvements alone have not succeeded in attracting more shoppers to the district. A study of existing sales tax compared with local demand indicates that local residents patronize businesses outside of the area.

OPPORTUNITIES

- As an Invest in Neighborhoods corridor with recent public realm improvements, Leland Avenue provides a safe pedestrian connection from Visitacion Valley to the Schlage site and, ultimately, the Multi-Modal Facility. Multi-Modal Facility design should design for this pedestrian connection and the Leland Avenue extension into the Schlage Lock site. The corridor also contains several storefronts and other opportunities for retail and commercial activity.
- The Visitacion Valley Community Facilities and Infrastructure Fee and Fund was established approximately ten years ago in anticipation of new development at Executive Park and other sites in the area. The Planning Department, in collaboration with the SFMTA and other city agencies, meets with the Visitacion Valley community annually to identify and prioritize project for impact fee spending. Funds dedicated to "pedestrian, bicycle and streetscape improvements" could potentially contribute to elements of the Multi-Modal Facility. Approximately \$4.4 million has been programmed for these improvements, including planning, design, and construction work, between FY 16 and FY 20.
 - A portion of Schlage Lock contributions to the fund are already earmarked specifically for Bi-County priority projects, including the new bus rapid transit line, improvements to the Bayshore Caltrain Station, a potential Harney Way connection to Geneva Avenue, and smaller-scale pedestrian and bicycle improvements.

CONSTRAINTS

- According to San Francisco's Vision Zero, the Bayshore Boulevard/Arleta Avenue/San Bruno Avenue intersection, an at-grade stop for the T-Third, is considered a High Injury Intersection. There are not any Vision Zero Priority Projects currently planned for the intersection. Multi-Modal station facility programming such as signal prioritization, signage and minimizing crossing distances have the potential to address and abate future injuries.
- Visitacion Valley vehicle traffic entering and exiting US 101 frequently queues during peak hours.

LITTLE HOLLYWOOD

The Little Hollywood neighborhood lies between Bayshore Boulevard and US 101, just east of the Schlage Lock site. Less than a square mile, Little Hollywood is one of the City's most diverse neighborhoods, home to mainly working families in 1-2 story bungalow-style homes.

OPPORTUNITIES

• A neighborhood rich with diversity, home owners and a small park, Little Hollywood provides critical pedestrian connections and, potentially, opportunities for improved pedestrian, bike and transit access to and from areas east of US 101.

CONSTRAINTS

- Narrow through-streets, topography, US 101, and highway related traffic limit access and mobility in the neighborhood and near the Multi-Modal Facility.
- Residents have expressed concern about routing BRT through the neighborhood.

CURRENT AND FUTURE DEVELOPMENT PROJECTS

Sites such as Schlage Lock, Executive Park, Candlestick Point, Hunters Point, and Sunnydale HOPE SF will develop in the next 10 years and generate trips to and from points all over the Bay Area. The projects and their implications on a future Multi-Modal Facility are summarized below.

SCHLAGE LOCK SITE

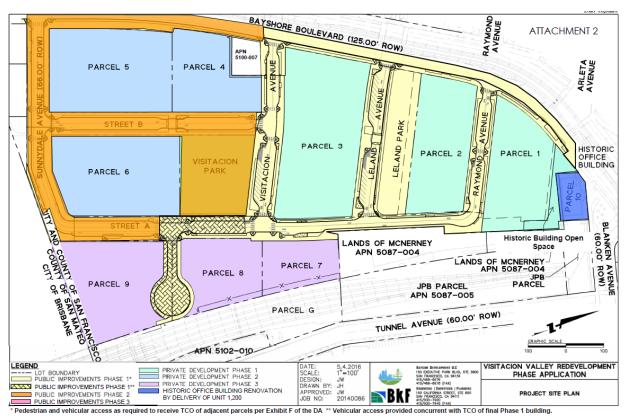
This 20-acre, transit-oriented development site comprises 1,680 housing units on 12 building parcels, two parks, and a pedestrian-oriented streetscape plan. The development will also provide up to 46,700 square feet of commercial development. A third open space, Blanken Park, is proposed adjacent to the historic Schlage Lock Office Building in the north of the site. As part of the Schlage Lock development agreement, the historic building will be rehabilitated and house community uses.

ACCESS FROM SCHLAGE AND BAYSHORE BOULEVARD

When the Schlage Lock development is complete, surrounding streets will provide walking access to the multimodal facility utilizing sidewalks of various widths. Transit riders will have several options for connecting between the Caltrain Station, the T-Third and buses along Bayshore. The options include: the preferred MM facility alternative along Sunnydale Avenue; using Schlage Lock's Street A to connect to or from the Bayshore/Arleta/Blanken intersection and the historic office building plaza; or any alternative route through the Schlage Lock street network to or from Bayshore bus stops. Class II designated bikeways are currently located on Bayshore Boulevard and Class III bikeways (with sharrows) are designed throughout the Schlage Lock street network.¹

Phase I of Schlage, as currently proposed (August 2016), will include a pedestrian and drop-off route to Caltrain via Raymond Ave, Street A and Street F on the Schlage site (see draft phase diagram). The pedestrian component of this connection would need to be completed before the temporary certificate of occupancy (TCO) for the first building in Phase I. The vehicular and bicycle access (i.e. the roadway, see hashed area in figure below) would not need to be constructed until the end of Phase I (Parcels 1,2 and 3).

¹ A Class I Bikeway is a separated right of way for the exclusive use of bicycles; Class II is defined as a bike lane striped on a street; Class III is a signed bike route in a roadway shared with pedestrian or vehicular traffic <u>http://www.dot.ca.gov/dist1/d1projects/manila-atp/bikeways_explained.pdf</u>



Although the west side has several options to access the MM facility, the east side has only one. From the east, pedestrians can access the Caltrain platform via the existing surface parking lot along Tunnel Avenue. Pedestrians currently walk from the platform entrance to the existing pedestrian bridge (~560 feet) to get to the platform on west side of the Caltrain tracks. Currently, the 56-Rutland connects the Executive Park area and Little Hollywood neighborhood, and stops at Blanken/Tunnel and Bayshore/Arleta.

OPPORTUNITIES

- The Schlage Lock site is already planned; however the design and phasing of future construction should complement a Multi-Modal Facility and support access to it. Ample sidewalks, public spaces, and urban design should encourage safe pedestrian and bike travel to BRT and bus stops, the Caltrain station and nearby land uses. The phasing and construction should be coordinated to support safe pedestrian and bicycle access to the Multi-Modal Facility.
- Wayfinding signage, maps, real-time bus and train arrival information, shelters, and pedestrianonly paseos can enhance Multi-Modal access throughout the Schlage Lock site.
- The historic office building at the north of the Schlage Lock site could provide access to a BRT alignment alternative and/or several MM facility elements. The potential opportunities will need to be considered after further environmental analysis of the Geneva Harney BRT and Phase II of this Multi-Modal Facility study.
- The owner of 2201 Bayshore Boulevard submitted a Preliminary Project Assessment (PPA) application for an early development concept on the site. While the initial concept was inconsistent with the vision of open space and pedestrian access in the area, the site represents an opportunity to enhance the public realm and pedestrian experience.

CONSTRAINTS

- The street network, street designs and parcelization of the Schlage Lock site were determined prior to recent Multi-Modal transportation planning in the area. The facility design must therefore work within the constraints of the Schlage Lock and coordinate changes with the Schlage Lock project sponsor.
- The Schlage Lock street network will be developed incrementally over several years of Phased development. A number of interim solutions may have to be designed.
- Sunnydale Avenue falls within two jurisdictions, the City of San Francisco and the City of Brisbane. The splitting of Sunnydale Ave and the Brisbane Baylands process complicate MM facility implementation (see Brisbane Baylands section below).

BRISBANE BAYLANDS

Four development alternatives for the Brisbane Baylands are still technically under environmental review in Brisbane: a Developer-Sponsored Plan (DSP), a DSP Variant (DSP-V), a Community Proposed Plan (CPP), and a CPP Variant (CPP-V) including an expansion of the Recology site. (A fifth alternative, the Renewable Energy Alternative, was not analyzed in the EIR). The alternatives include options for the amount of residential, commercial uses; the primary uses in the commercial or mixed-use core; and the Recology site. They are summarized in the following table excerpted from the revised Notice of Preparation of the Draft EIR². However, as of the August 25, 2016 recommendation of the Brisbane Planning Commission, the Brisbane City Council is considering alternatives without housing and a net increase of 1-2 million square feet in building area.

ACCESSIBILITY TO THE MULTIMODAL FACILITY FROM BRISBANE

VTA bus connections from the South access the study area from Bayshore Boulevard, while three different shuttles provide Brisbane connection to the Bayshore Caltrain Station. Vehicles from the south and US 101 currently access the Caltrain station via Tunnel Avenue.

The Bay Trail stops at Lagoon Road in Brisbane along the western side of US 101. The trail is planned to continue north, adjacent to US 101 and connect to a route under the freeway. When the trail is completed, bicyclists will have the opportunity to gain access to the multimodal facility and Caltrain from the east via Beatty Road and Tunnel Avenue.

OPPORTUNITIES

- The clearest opportunity in the Baylands lies just south of the San Francisco-Brisbane border: extending Sunnydale Avenue in a straight line to the Caltrain station. Completing the Schlage Lock street grid would improve Multi-Modal access, reduce irregularities in the street network and development parcels, and connect more seamlessly to potential future development in Brisbane.
- A temporary Multi-Modal Facility in Brisbane is possible independent of the Baylands process.
- The Baylands also present great potential for mixed-use, transit-oriented development near a Multi-Modal Facility; more proximate shuttle and transit stops; and other elements of a Multi-Modal Facility.

CONSTRAINTS

- The uncertain outcome and timing of the Brisbane Baylands EIR presents constrains the coordinating and planning a Multi-Modal Facility in Brisbane.
- The uncertain timeline and buildout of a potential Baylands development also affects the design or permanence of a temporary facility in Brisbane.
- Much of the Baylands, including areas near the MM facility, is contaminated and subject to remediation prior to development.
- Costs for building out and maintaining a temporary facility in Brisbane would present a constraint to future implementation.
- Brisbane's Baylands DEIR currently shows multiple land use and transportation scenarios, none containing a Multi-Modal Facility at the current Bayshore Caltrain station. However the Brisbane

² http://www.ci.brisbane.ca.us/baylands/eir-process/notice-preparation

City Council, on recommendation from the Brisbane Planning Commission, as part of their development review, is reviewing project alternatives without housing, up to 1-2 million net new square feet of retail/office/school/renewable energy, and open space. This direction, in terms of land use mix, does not align with Priority Development Area guidelines of which both the portion of southern San Francisco and northern Brisbane is currently identified.

	Renewable Energy Alternative (REA)	Developer- Sponsored Plan (DSP)	Developer Sponsored Plan – Entertainment Variant (DSP-V)	Community Proposed Plan (CPP)	Community Proposed Plan – Recology Expansion Variant (CPP-V)
PROJECT SITE AREA	acres	acres	acres	acres	acres
New Development	72.4	349.0	349.0	211.1	211.1
Existing Recology Site	49.0	0	0	49.0	49.0
Renewable Energy Generation	141.0	25.0	25.0	(a)	(a)
Wastewater Treatment	5.0	5.0	5.0	5.0	5.0
Total Buildable Area ^b	267.4	378.7	378.7	267.4	267.4
Lagoon	135.6	135.6	135.6	135.6	135.6
Public Use / Open Space	330.0	169.7	169.7	330.0	330.0
Total Site Area	733.0	684.0	684.0	733.0	733.0
PROPOSED LAND USES					
FROFUSED LAND USES	square feet	square feet	square feet	square feet	square feet
Residential Total	-	5,150,400	5,150,400	-	-
Residential Flats	-	4,351,800 (3,950 units)	4,351,800 (3,950 units)	-	-
Residential Townhomes	-	798,600 (484 units)	798,600 (484 units)	-	-
Hotels and Conference	-	261,100 (369 rooms)	586,800 (719 rooms)	1,392,300 (1,990 rooms)	1,046,100 (1,500 rooms
Retail/Mixed Commercial/Office/R&D	173,800	566,300	283,400	2,209,500	2,209,500
Research and Development Single Use	654,900	3,328,300	2,599,200	2,007,000	1,672,200
Office and Institutional	-	2,762,000	2,363,100	992,700	992,700
Office	-	2,651,200	2,252,300	-	-
Institutional	-	110,800	110,800	-	-
Office/ Institutional Mixed	-	-	-	992,700	992,700
Entertainment/Civic/Cultural	See above	28,200	1,066,500	1,074,500	1,074,500
Arena	-	-	630,100	-	-
Theater/ Exhibition/Performance Venue	-	-	337,200	274,500	274,500
Multiplex	-	-	71,000	-	-
Cultural/Entertainment	-	-	-	611,300	611,300
Civic/ Cultural	-	28,200	28,200	188,700	188,700
Industrial	1,153,500	142,500	142,500	469,100	1,220,100
Existing Relocated Lumberyards	142,500	142,500	142,500	142,500	142,500
New Industrial	-	-	-	66,600	66,600
Existing Resource and Recovery	-	-	-	260,000	-
Expanded/Rebuilt Resource and Recovery	1,011,000	-	-	-	1,011,000
Total Square Footage	1,982,200	12,238,800	12,191,900	8,145,100	8,215,100

The CPP will incorporate alternative energy generation within the Project; location, size, and type of facilities will be determined at a later date. Acreages of other proposed land uses may decrease as a result. The buildable area includes all planned development and associated area for streets and infrastructure. a.

EXECUTIVE PARK

Executive Park is located east of the preferred Multi-Modal Facility location and in the southeast part of San Francisco adjacent to US 101. Approved in 2011, the development consists of 70 acres, 2,800 new housing units, and 226,000 square feet of net new non-residential development. Currently, the 56-Rutland provides access between Executive Park and the Schlage Historic Office Building. A commuter shuttle also provides service between Executive Park, BART and Caltrain during morning and evening commute hours. The Bayshore Multi-Modal Facility will serve people leaving or arriving from the Executive Park development by BRT, on foot, or by bicycle.

OPPORTUNITIES

- The future Geneva Harney Bus Rapid Transit line will connect Executive Park to the Bayshore Multi-Modal Facility.
- Executive Park transportation mitigation measure TR-1³ includes changes to signals, street
 parking and striping at Tunnel and Blanken avenues. These measures should be coordinated with
 designs, signalization and striping which maximize pedestrian safety and access to the MultiModal Facility.⁴ See also mitigation measure M-TR-12, M-TR-21, and remainder of transportation
 measures which require fair share contributions to intersection improvements in the vicinity.
- Executive Park transportation mitigation measure TR-3 requires increased weekday shuttle service, implemented "as needed," as well as "revised route and stop pattern to make the Bayshore Caltrain Station a permanent stop and include two additional stops..." The Multi-Modal Facility should coordinate with these changes and accommodate additional service from this project and others in the vicinity.
- Neighborhood access to a variety of land uses could be improved.
- Increased land use intensity and densification in Executive Park will likely increase potential ridership and outreach opportunities.
- The Executive Park streetscape plan, including potential BRT routing under US 101, is currently under review. The MM Facility Study and designs should coordinate with this effort.

CONSTRAINTS

- US 101 bifurcates the area and presents difficulty in providing connections for all modes, but specifically affects pedestrian and bike access. The only east-west routes across US 101 are Blanken and Beatty/Harney.
- The Caltrain tracks (south of Blanken) are also a significant barrier.
- The light industrial zoning to the east of the surface parking limits the amount of transitsupportive land uses in the area.

³ Executive Park Subarea Plan EIR, 10/13/10*sf-planning.org/ftp/files/MEA/2006.0422E_Exec_Park_DEIR.pdf*

 $^{^4}$ Executive Park Subarea Plan Transportation Study, AECOM, 10/1/10

CANDLESTICK POINT/HUNTERS POINT SHIPYARD

Together, the Candlestick Point and Hunters Point Shipyard (CP-HPS) areas comprise nearly 800 acres of waterfront land along San Francisco's southeastern shores. The development project includes 12,100 residential units (32% affordable), over 300 acres of new waterfront parks, approximately 885,000 square feet of neighborhood retail and entertainment space; and 2.5 million square feet of commercial space oriented around a "green" science and technology campus. The 56-Rutland is planned to provide future service to CP-HPS.

OPPORTUNITIES

- CP-HPS areas are densifying, which will increase opportunities to grow ridership. With the completion of the Geneva Harney BRT connecting CP-HPS to the Bayshore MM Facility and Balboa Park BART, opportunities for Multi-Modal access, outreach and coordinating operations abound.
- The CP-HPS developer is required to make a number of phased improvements to the roadway, as well as pedestrian and bicycle facilities along Harney Way⁵. These designs should be consistent with recommendations from this MM Facility Study.
- The project includes the provision of express shuttles from both Hunter's Point and Candlestick Point to downtown San Francisco during peak hours. While distant from the MM Facility, the rollout of the service presents opportunities for coordinating Multi-Modal access and outreach in the area.
- While not timed with the CP-HPS development, T-Third service between Bayview and Chinatown via the Central Subway will ultimately be improved from one-car to two-car trains or a comparable service improvement.

CONSTRAINTS

• Several mitigations are already determined, without the benefit of coordinating with this MM Facility study.

⁵ CP-HPS Phase II Case No. 2007.0946E - Final EIR, Addendum 4, Feb 22, 2016, Exhibit I http://sfmea.sfplanning.org/Addendum%204%20Exhibits%20A-R.pdf

SUNNYDALE HOPE SF

Currently the City's largest public housing site, Sunnydale-Velasco ("Sunnydale") sits in the Visitacion Valley neighborhood at the foot of McLaren Park. The 50-acre, 785-unit site is home to more than 1,700 ethnically diverse people. The HOPE SF plan will:

- Replace 785 units of replacement housing
- Build 900 new affordable and market-rate units that in new residential buildings throughout the site.
- Create a hub of activity for the Visitacion Valley community, with a new recreational and educational center, parks, a community garden, farmer's market, neighborhood-serving retail, and other community services.
- Add new streets and blocks that are pedestrian oriented, reflect the neighborhood's scale, and incorporate green designs and bioswales.

The 8, 9 and 56 buses connect the MM facility area to Sunnydale. Leland Avenue also provides on-street bike parking (40 in total) between the Visitacion Valley Playground and Bayshore.

OPPORTUNITIES

- Improved bicycle connectivity and bike infrastructure between Sunnydale and the Multi-Modal Facility
- In addition to the existing transit infrastructure, the Geneva Harney Bus Rapid Transit line would be the major route connecting the Sunnydale Hope SF to the Bayshore Caltrain Station, as well as the Balboa Park BART Station. Neighborhood access to a variety of land uses could be improved.

RECOLOGY EXPANSION

In April 2015, the City of Brisbane held a hearing to discuss Recology's proposed application for expansion. Among other things, the proposal included consolidating existing Pier 96 and 7th Street operations into their Tunnel Avenue Facility, which overlaps the San Francisco/Brisbane border. The expansion would also include a new visitor center and auditorium, additional car parking structure, rezoning, new roadway alignments and utility easements, and new administrative offices. Taken together, the expansion would incorporate 21 additional acres in Brisbane. The proposal is currently on hold and subject to change pending conversations with the Cities of San Francisco and Brisbane.

OPPORTUNITIES

- Shared vehicle parking facilities, potentially reducing the area devoted to parking
- Negotiation for boundaries and roadway alignments to better suit the station access, amenities and circulation.

CONSTRAINTS

- Expansion plans are in progress and uncertain at this time including the street network, street design, and routing for Recology trucks, private vehicles and BRT. Bayshore MM Facility planning will have to accommodate alternative scenarios based on the information available at this time.
- Parking accommodation for Recology employees, while an opportunity, can also present a challenge to pedestrian, bicycle or transit access.

HIGH SPEED RAIL MAINTENANCE FACILITY

The California High Speed Rail Authority (CHSRA) is studying a potential storage and light maintenance facility in the Baylands as part of its Environmental Impact Report/Environmental Impact Statement (draft anticipated in 2017). The study is reviewing locations both west and east of the Caltrain tracks/proposed high speed rail corridor (see figure below).

OPPORTUNITIES

• Any potential maintenance facility will have to be carefully planned, designed and coordinated with the City of San Francisco, City of Brisbane and property owners, including UPC (owner of Schlage and Baylands) and Recology. Street designs leading to the facility and the site design should be coordinated with local efforts to enhance Multi-Modal access.

CONSTRAINTS

- A maintenance facility will limit the potential for transit-oriented, mixed-use neighborhoods adjacent to the MM facility.
- Both potential maintenance facility locations suggest moving the existing Bayshore Caltrain station further south. This would significantly affect the ridership catchment area and removes the immediate access of EJ neighborhoods along the southern edge of San Francisco. The proposed location is not near either the Geneva Harney BRT alignment currently under consideration for near or long term operations and would make it difficult to provide cross modal connection.



SAN FRANCISCO TO SAN JOSE: Potential Light Maintenance Facility*

DRAFT BRISBANE MAINTENANCE FACILITY

*Potential facility placement would be either East or West of Caltrain tracks

Task 2.4: Economic Analysis of Proposed Bayshore Multi-Modal Facility

The Bayshore Multi-Modal Facility will improve access to the Bayshore Caltrain Station by closing the existing physical gap between the station and surrounding land uses and transit connections, as shown in Figure 1. As the critical link serving more than 18,000 new housing units, infrastructure improvements and existing neighborhoods throughout southeast San Francisco, a Multi-Modal Facility would support higher transit ridership on the planned Geneva-Harney BRT route and the potential for higher level of Caltrain service at this station. In summary, the Bayshore Multi-Modal Facility will provide:

- Improved connections among various modes of transportation
- Reliable links to existing and future transit service including Caltrain, Muni, Muni Metro, SamTrans, and the planned Geneva-Harney Bus Rapid Transit (BRT) line (with access to BART)
- Enhanced amenities, including high quality shelters, platforms and signage
- Safer pedestrian and bicycle access to surrounding neighborhoods and businesses

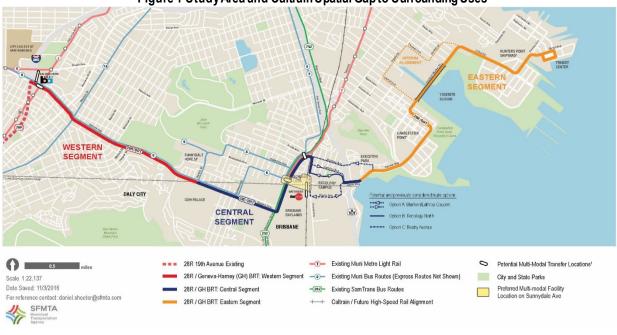


Figure 1 Study Area and Caltrain Spatial Gap to Surrounding Uses

Source: SFTMA 2017

Study Background

Phase I of the Bayshore Multi-Modal Facility Study identified Sunnydale Avenue as the preferred location for a Multi-Modal Facility, as shown in Figure 2. This proposed location is near the northern boundary of San Mateo County within a designated Priority Development Area (PDA) that encompasses area within both counties, referred to as the San Francisco/San Mateo Bi-County Area PDA. It is also within close proximity of two other PDAs that are planned for significant new growth in housing and non-residential development. Phase II develops and evaluates concept alternatives for the preferred location based on consultant analysis, public agency input and community feedback. This Study's recommendations focus on a mid-term timeframe for implementation, roughly in the 2023-2025 window, which would coincide with Geneva-Harney BRT.

As development in Schlage Lock continues, further discussion of the preferred design and elements of the Multi-Modal Facility will be undertaken in order to ensure what is eventually built is useful, accessible, attractive, and scalable. Dependent on other agency projects – including those from Caltrain, Caltrans, CHSRA, City of Brisbane, and City and County of San Francisco – Multi-Modal Facility elements near the Bayshore Caltrain Station may be added or relocated to better serve users in the long-term. Caltrain operations are outside the scope of this project, but coordinating transit service and local land use growth will be essential to serving the residents and employees of the bi-county area.

The Bayshore Multi-Modal Facility will facilitate better access and connectivity to different modes of transportation by providing integrated links among regional and rapid transit, local buses, shuttles, private vehicles, cycling and walking. While the Multi-Modal Facility will benefit the broader Bay Area by improving transit access, it will particularly benefit residents and workers who live or work in the surrounding San Francisco neighborhoods of Visitacion Valley, Sunnydale, Little Hollywood, Portola, Executive Park, Candlestick Point and Hunters Point Shipyard, as well as residents and workers in Daly City's Bayshore neighborhood, the City of Brisbane and in the proposed Baylands area of Brisbane.

A. How the Bayshore Multi-Modal Facility Will Help Achieve Key Community Goals

The Bayshore Multi-Modal Facility will help spur economic activity in the surrounding neighborhoods and promote mixed use, transit oriented development by providing better regional transit service and attracting new travelers, residents and businesses to the area. Several transformative, infill development projects are currently underway in the surrounding area that will create mixed-use developments at the former Schlage Lock facility, Executive Park and Candlestick Point/Hunters Point Shipyard and revitalize public housing at Sunnydale and Alice Griffith. The Bayshore Multi-Modal Facility—along with the enhanced Geneva-Harney BRT line—will provide critical transit components for these developments.

The Bayshore Multi-Modal Facility will also help achieve key goals identified in community meetings as well as local and regional goals identified in previous plans and policy documents. In summary, the Facility will help achieve the following key community goals:

- Substantially improve transportation access for residents, workers and visitors alike, encouraging community development and promoting environmental justice.
- Promote safe and easy travel to surrounding neighborhoods and the broader region by providing improved access to a variety of transportation modes at a single, convenient location.
- Increase transportation choices and provide easier access to residents, workers and visitors through enhanced station connections and complete streets.
- Improve access to the Bay Area's rapid transit systems, increasing the number of people using public transportation and helping surrounding neighborhoods become more environmentally sustainable and accessible.
- Feature specially designed streets and sidewalks that will create safe pedestrian and bicycle access in order to foster a safe, walkable and bicycle-friendly surrounding area.
- Enhance the local economy and promote new business opportunities as transportation access and transit ridership improves in the surrounding area.
- Incorporate sustainable development principles that include "green" construction, enhanced accessibility and good urban design.
- Pay prevailing wages in connection with its design and construction as a public project.

More specifically, Exhibit 1 presents the key goals (from existing plans and reports) that the Bayshore Multi-Modal Facility will help attain.

Exhibit 1: Key Planning Goals of the Approved	Plans and Tasks in the Study Area
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Bi-	County Transportation Study (Final Report, February 2015)				
0	Provide strong multimodal connections that facilitate safe travel within, among, and through neighborhoods.				
0	Support strong transit service.				
Ger	neva-Harney BRT (Feasibility Study Final Report, July 2015)				
0	Increase the transportation choices serving the Bi-County area by improving the Multi-Modal performance of the corridor.				
0	Improve near and long term transit solutions on the corridor.				
0	Enhance corridor livability and community vitality through urban design.				
Vis	itacion Valley/Schlage Lock (Development Agreement September, 2014) 1				
0	Pay prevailing wages in connection with all Public Improvements (including streets, sidewalks, utilities, bicycle infrastructure, off-site intersection improvements) and Community Improvements (including pedestrian paths, parks and open spaces).				
0	Create a livable, mixed-use urban community that serves the diverse needs of the community and includes access to public resources and amenities.				
0	Encourage, enhance, preserve and promote the community and city's long termenvironmental sustainability				
0	Create pedestrian-oriented environment that encourages walking as the primary transportation mode within the project area.				
0	Encourage the use of alternative modes of transportation by future area residents, workers and visitors and support the development of the Caltrain station as a major Multi-Modal transit facility.				
0	Create well-designed open spaces that enhance the existing community and new development.				
Sar	1 Francisco General Plan Transportation Element (adopted December 2010)				
0	Ensure the safety and comfort of pedestrians throughout the city. Give priority to public transit and other alternatives to the private automobile as the means of meeting San Francisco's transportation needs.				
0	Increase the capacity of transit during the off-peak hours.				
0	Coordinate regional and local transportation systems. Ensure choices among modes of travel.				
0	Assure expanded mobility for the disadvantaged.				
	HOPE SFGuiding Principles (2006)				
0	Integrate Process with Neighborhood Improvement Revitalization Plans, including:				
	• Improved transportation				
	• Enhanced public safety				
	 Neighborhood economic development 				
0	Create Environmentally Sustainable and Accessible Communities.				

¹ Development Agreement by and between the City and County of San Francisco and Visitacion Development, LLC, a subsidiary of the Universal Paragon Corporation relative to the development known as The Schlage Lock Development Project, September 2014

Ca	ndlestick Point/Hunters Point Shipyard (Development Plan EIR, November 2009)
0	Provide automobile, public transportation and pedestrian connections between the Shipyard, Candlestick Point, and the larger Bayview neighborhood.
0	Significantly improve accessibility to the site and reduce traffic impacts on the surrounding area; promote walking and cycling as the primary modes of transportation within the development.
Ex	ecutive Park (Area Plan, May 2011)
0 0 0	Create an urban neighborhood that balances density with livability. Provide a range of transportation opportunities to the residents of Executive Park. Improve physical connections that would encourage residents to shop in nearby neighborhood commercial districts, such as Leland Avenue. Encourage the expansion of transit services to the area.
Br	isbane Baylands (Draft Environmental Impact Report, June 2013)
0	Promote and encourage non-vehicular access and movement to and from the site (particularly from Central Brisbane) and within the site as well.
0	Provide safe and pleasant pedestrian and bike paths, and convenient access and linkages to public transit
0	Contribute to critically needed solutions to regional transit and transportation issues, which will benefit both the project and existing communities.
0	Promote land use mix and good urban design.
Su	nnydale-Velasco HOPE SF (Draft Environmental Impact Report, December 2014)
0	Create environmentally sustainable and accessible communities.
0	Establish physical and social connections between the Sunnydale-Velas co housing developments, the larger Visitacion Valley neighborhood, and the larger city.
0	Build new safe streets and open spaces.
0	Incorporate sustainable development principles that include "green" construction and healthy buildings, a walkable neighborhood, stormwater management and solar technology.

B. Description of Existing Conditions in Surrounding Areas

The Bayshore Multi-Modal Facility will primarily affect and benefit the surrounding neighborhoods located within a half-mile radius from the Bayshore Caltrain station, which are within a short walking and biking distance to the Multi-Modal Facility. (See Figure 1 for a map of the primary study area.) In addition, the Bayshore Multi-Modal Facility will benefit the neighborhoods along the planned route of the Geneva Harney Bus Rapid Transit (BRT), which will provide more reliable and frequent transit to Hunters Point Shipyard, Candlestick Point, Executive Park, Visitacion Valley, Sunnydale, Little Hollywood, Portola and the Bayshore neighborhood.

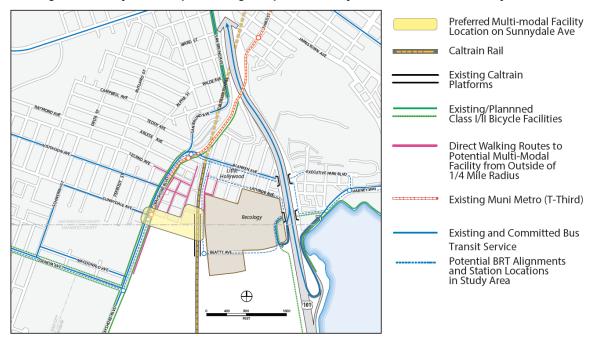


Figure 2: Study Area Map, showing the preferred Bayshore Multi-Modal Facility location

Overview of Surrounding PDAs

The Bayshore Multi-Modal Facility is located within the San Francisco/San Mateo Bi-County Area Priority Development Area (Bi-County Area PDA), which is poised for significant growth due to new residential and non-residential development. A Priority Development Area (PDA) is an area designated by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) as a key infill development location within the Bay Area for new investment, homes and job growth, which is within walking distance of frequent transit service.

As the Bayshore Multi-Modal Facility is proposed to be located next to a key transit stop along the Geneva Harney BRT route, two other PDAs poised for significant growth will also be significantly affected by the Facility: the Bayview PDA and Bayshore (Daly City) PDA. (See Figure 2 for a map of the three PDAs that will be affected by the Bayshore Multi-Modal Facility, and Table 1 for a summary of existing demographic data for each PDA.)

In summary, the three PDAs in the proximity of the proposed Bayshore Multi-Modal Facility together account for over 50,000 residents and 25,000 jobs (see Table 1). While transit access has improved in recent years to these PDAs, significant new transit improvements are proposed to occur in the PDAs, including the proposed electrification of the Caltrain line, Geneva Harney BRT, upgrades to local bus service and the T-Third Muni Metro line. The Bayshore Multi-Modal Facility will tie all these services

together, connecting southeast neighborhoods to BART, the west side and downtown San Francisco, as well as the peninsula. Significant new development is proposed to occur in all three PDAs, and new development will benefit from improved transportation accessibility to these areas.

PDA	San Francisco/San Mateo Bi-Connty Area PDA		Bayview/Hunters Point Shipyard/Candlestick Point PDA	Bayshore (Daly City) PDA	Total Surrounding PDA	
County	San Francisco San Mateo S County County S		San Francisco County	San Mateo County		
Plan Status	Planned	Planned		Planned	Potential	
Future Place Type	Transit Neighborhood	Suburban Center		Urban Neighborhood Transit Town Center		
PDA Transit	Muni, Caltrain, Sam Trans	Muni, Caltrain, Sam Trans			Muni, SamTrans	
Major Projects	Schlage Lock, Sunnydale Hope, Executive Park, and Recology Expansion	Brisbane Baylands, Recology Expansion		Candlestick/Hunters Point Shipyard	N/A	
NetAcres	283	596	879	2,133	320	3,332
Population (2010)	10,251	-	10,251	36,373	5,729	52,353
Households (2010)	2,828	-	2,828	10,320	1,550	14,698
Jobs (2010)	983	505	1,488	22,461	1,100	25,049
Agricultural & Natural Resources	11	-	11	19	1	31
Manufacturing, Wholesale, & Transportation	172	285	4 57	4,778	123	5,358
Retail	53	85	138	1,719	85	1,942
Financial & Professional Services	374	1	375	5,228	150	5,753
Health, Educational, & Recreational Services	240	41	281	4,742	604	5,627
Other	134	9 2	226	5,975	136	6.337

Table 1: Study Area Existing Conditions Based on ABAG PDA Showcase Data

Source: Plan Bay Area, July 2013 and Plan Bay Area forecast update, February 2015

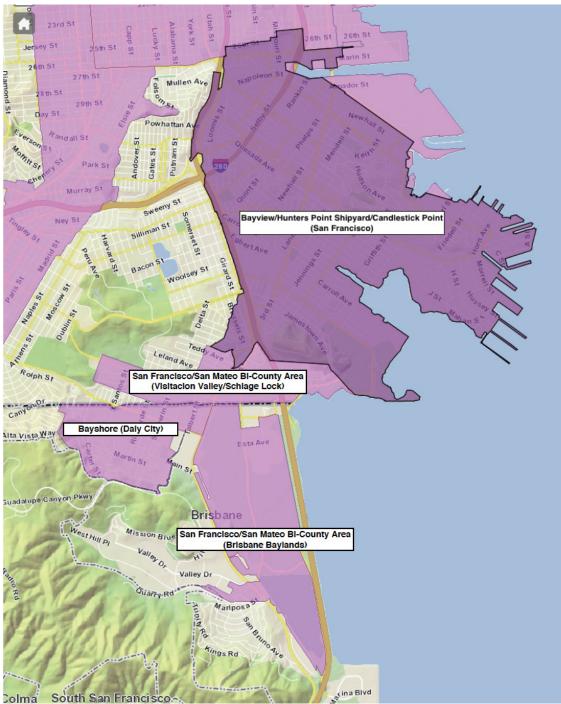


Figure 2: Priority Development Areas (PDAs) in the Study Area

Source: Association of Bay Area Governments PDA Showcase

San Francisco/San Mateo Bi-County Area Priority Development Area (Bi-County Area PDA)

The Bi-County Area PDA consists of residential neighborhoods in San Francisco to the north and the proposed Brisbane Baylands development area to the south in San Mateo County, all of which are located within the Bayshore Multi-Modal Facility study area:

- The San Francisco County portion of the Bi-County Area PDA consists of well-established residential neighborhoods (Visitacion Valley, Little Hollywood, Executive Park and Sunnydale) with commercial businesses concentrated along Leland Avenue, Geneva Avenue and Bayshore Boulevard. According to ABAG, this area houses 10,250 residents (the entire population of the Bi-County Area PDA), while local businesses provide about 1,000 jobs in the professional services, health and education, and industrial sectors. New major infill developments at Schlage Lock, Sunnydale and Executive Park are approved and will be built in the near future.²
- The San Mateo County portion contains industrial uses in Brisbane Baylands, including a lumberyard and a solid waste processing facility. It is also the site of a former solid waste landfill that is currently undeveloped. Existing Baylands businesses provide about 500 jobs, primarily in the industrial sector. No residents currently live in the San Mateo County portion of the Bi-County PDA. The City of Brisbane is currently considering a new development proposal and land use plan for the Baylands area.

Bayview/Hunters Point Shipyard/Candlestick Point PDA (Bayview PDA)

The Bayview PDA encompasses the entire Bayview Hunters Point neighborhood and spans over 2,100 acres to the east of Highway 101. The Candlestick Point portion of this PDA is anticipated to be most directly impacted by the Bayshore Multi-Modal Facility given its location along the Geneva Harney BRT route, within a short drive to the Bayshore Multi-Modal Facility. Harney Way is the main connection point from Jamestown Avenue and Gilman Avenue in Candlestick Point to Executive Park and Highway 101.

Candlestick Point is best known as the site of the former Candlestick Park Football Stadium for the 49ers. Now that the Candlestick Park Football Stadium is no longer in operation, Candlestick Point primarily consists of the Candlestick Point State Recreation Area (CPSRA, a state park along San Francisco Bay), a small number of privately owned parcels (including an RV Park), and a major public housing development (Alice Griffith). Given the current mix of land uses, only a small portion of Bayview residents and employees live or work in Candlestick Point; however, a significant portion of new growth in the Bayview PDA is anticipated to occur in Candlestick Point.

Alice Griffith is a 256-unit residential housing development with a small amount of retail and business uses. The housing complex suffers from deferred maintenance and deteriorated conditions, and only 9 percent of its residents are currently employed.³ All of the existing units will be rebuilt and replaced as part of the Candlestick Point-Hunters Point Shipyard Phase 2 mixed–use development project.

Bayshore (Daly City) PDA

² The demographic characteristics of residents in the San Francisco County portion are further discussed below.

³ Alice Griffith Redevelopment Project, Draft EIS, December 2011

The Bayshore PDA consists of the Bayshore residential neighborhood in Daly City, commercial uses along Geneva Avenue (including the Cow Palace) and a low-intensity industrial area located immediately to the north of MacDonald Avenue near the San Francisco border. The Cow Palace is an indoor arena and event space owned and operated by the California Department of Food and Agriculture, which represents the most significant opportunity for future redevelopment in Daly City. No significant new developments have occurred in Bayshore since 2009 when Pacific Place, a mixed-use project with 15,000 square feet of retail and 72 apartments along Geneva Avenue, was completed.⁴

Bayshore houses fewer than 5 percent of the Daly City population. ⁵ Most of its residents are born outside of the United States and about 25 percent speak little or no English. When compared to the entire Daly City population, the Bayshore has a higher proportion of families below the poverty level and residents with less than a high school education.

⁴ http://www.dalycity.org/about_daly_city/city_profile.htm

⁵ Ibid

C. Demographic Characteristics of Surrounding Neighborhoods

As described above, the Bayshore Multi-Modal Facility is proposed to be primarily located in the Visitacion Valley neighborhood of San Francisco. Visitacion Valley is a largely residential neighborhood with retail use concentrated along Leland Avenue and Bayshore Boulevard, which is one of San Francisco's "Invest in Neighborhoods" commercial corridors. The neighborhood is currently served by the T-Third Muni Metro line and by major bus routes along Bayshore Boulevard and Geneva Avenue. Exhibit 2 below summarizes the existing demographic conditions in Visitacion Valley.

The surrounding Sunnydale, Little Hollywood and Portola neighborhoods are also located near the Bayshore Multi-Modal Facility and will be affected by it:

- Sunnydale is located in the southwest portion of Visitacion Valley next to McLaren Park. In addition to the large Sunnydale public housing complex that consists of about 800 existing housing units, Sunnydale currently has 29,000 square feet of community facilities and three small playgrounds to serve local residents.
- Little Hollywood is San Francisco's smallest neighborhood, sandwiched between Bayshore Boulevard and Highway 101. Little Hollywood is largely a residential area with single-family homes. It is adjacent to industrial uses such as the Recology Solid Waste Disposal Facility and the closed Schlage Lock Factory, which is currently being redeveloped into a mixed-use project.
- Portola is a largely residential neighborhood located to the north of Visitacion Valley, between McLaren Park and Highway 101. The majority of retail use in Portola is located along San Bruno Avenue and includes a mix of neighborhood servicing businesses such as bakeries, restaurants, grocery stores and pharmacies.

Visitacion Valley, Sunnydale, Little Hollywood and Portola are located in San Francisco's zip code 94134, which is one of the city's most diverse areas, housing a mix of Asian, African American, Latino, and Caucasian households. Table 2 further below compares the socio-economic conditions in this zip code with that of San Francisco as a whole. Over half of its residents are born outside of the United States and speak a language other than English at home. Homeownership and families with children are much higher than the citywide average. However, compared to San Francisco, it has a lower median household income, higher unemployment rate and larger proportion of families below the poverty level.

As further discussed below, new residential and commercial development is proposed for Schlage Lock and Sunnydale Hope SF, which are proposed to significantly increase the number of residents and retail businesses within the surrounding area.

Population		Race / Background	CITYWIDE	VISITACION VALLEY
10.000		White	48%	12%
13,060		Black	6%	8%
vs. 805,240 Citywide		Asian	33%	66%
		Native American / Hawaiian or Pacific I	slander 1%	1%
Population Density		Other / Two or More	11%	13%
		% Latino	15%	18%
35 †per acre		Male / Female Ratio	51/49%	50/50%
vs. 27 Citywide		Foreign Born	36%	56%
		Linguistic Isolated Households	14%	26%
Median Age		Age		
		Under 5	4%	6%
40.4		5 to 17	9%	16%
vs. 38.5 Citywide		18 to 34	30%	23%
		35 to 59	37%	36%
		60 and over	19%	19%
	W 617 1 11			
No. of Households	% of Households Without a Car	Households	44%	75%
		Family Households	39%	13%
3,570 🕋	16%	Single-Person Households	17%	13%
vs. 345,810 Citywide	vs. 29% Citywide	Non-Family Households		
	, i i i i i i i i i i i i i i i i i i i	Average Household Size Average Family Household Size	2.3	3.7
Median Household Income	Unemployment	Income Median Family Household Income	\$86,670	\$64,885
\$57,510	12%	Per Capita Income	\$45,478	\$20,210
vs. \$'71,420 Citywide	vs. 7% Citywide	% Poverty	12%	11%
		Unemployment	7.0%	12.0%
Education		Education		
A higher percentage		High School or Less	29%	62%
of high school		Some College / AA Degree	20%	22%
graduates or less.		College Degree	31%	13%
		Post Graduate	20%	2%
		Housing		
No. of Housing Units		Renting Households	62%	36%
3,780		Rental Vacancy Rate	3.4%	3.6%
vs. 376,940 Citywide		Median Rent	\$1,260	n/a
		II		
		Housing Type	0.00/	050/
Residential Density		Single Family Housing	33%	85%
9 ^{tunits} per acre	(2 - 4 Units	21%	10%
•		5 - 9 Units	10%	2%
vs. 12 Citywide		10 units or more	35%	4%

Exhibit 2: Visitacion Valley Demographics⁶

Category	Surrounding Neighborhoods 94134		San Francisco	
	Number	Percent	Number	Percent
Population	44,500		865,913	
By Race				
White	6,772	15%	413,022	48%
African American	3,450	8%	45,709	5%
Asian	25,922	58%	297,202	34%
Other Race	8,356	19%	109,980	13%
By Ethnicity and Single Race				
Hispanic/Latino	9,938	22%	134,855	16%
Not Hispanic/Latino	34,562	78%	731,058	84%
Language Spoken at Home				
Speak Only English at Home	13,228	32%	460,487	56%
Speak Language Other than English at Home	31,272	69%	405,426	44%
Education Attainment				
Population 25+ with Less Than High School Graduation	8,664	27%	92,011	13%
Households	12,302		375,195	
Average Household Size	3.59		2.24	
Households, People < 18	4,940	40%	68,635	18%
Families	9,458		163,154	
Families Below Poverty	1,101	12%	13,279	8%
Household Income				
Median Household Income	\$65,814		\$84,160	
Business and Employment				
Civilian Labor Force Unemployed	11.69%		7.35%	
Employed Civilian 16+ Population in White Collar Occupation	11,033	52%	352,173	72%
Employed Civilian 16+ Population in Blue Collar Occupation	3,935	18%	45,148	9%
Number of Business Establishments, 2014	349		33,189	
Paid employees for pay period including March 12, 2014	3,541		573,297	
Transit				
Workers by Travel Time to Work	19,623		435,480	
Average Commute (in minutes) Workers Worked Away	36		35	

Table 2: 2016 Socioeconomic Characteristics of Surrounding Neighborhoods (Zip Code 94134)

¹ January 2016 estimates except where noted specifically

Source: The San Francisco Health Improvement Partnership (SFHIP), U.S. Census Bureau American FactFinder

⁶ Invest in Neighborhoods San Francisco: Visitacion Valley Leland Avenue and Bayshore Boulevard Neighborhood Profile, San Francisco Office of Economic and Workforce Development, February 2013

D. How Bayshore Multi-Modal Facility Will Improve Quality of Life for Disadvantaged Communities

The proposed Bayshore Multi-Modal Facility will benefit surrounding areas by providing them with improved access to the Bay Area's rapid transit systems to better reach employment, retail, and other opportunities. As a result, the surrounding neighborhoods will become more accessible and environmentally sustainable—important goals for the three adjacent cities and key planning features for developments in the surrounding PDAs. In addition, the improvements will provide better accessibility and help improve the quality of life of local residents, many of who live in disadvantaged communities (Communities of Concern (CoC) and/or Environmental Justice (EJ) Communities).

Communities of Concern are defined by ABAG as those communities having concentrations of four or more factors such as limited English proficiency, zero-vehicle households, seniors, population with a disability, single-parent families, cost-burdened renters, or communities with concentrations of both low-income and minority populations.⁷ Although the neighborhoods surrounding the Bayshore Multi-Modal Facility haven't been specifically identified as CoCs by ABAG, they meet four of the CoC criteria as shown in Table 3 below.⁸

Disadvantaged Factor	Concentration Threshold	Surrounding Neighborhoods 94134
Minority Population	70%	85%
Limited English Proficiency Population	20%	69%
Zero-Vehicle Households	10%	15%
Cost-burdened Renters	15%	26%

Source: The San Francisco Health Improvement Partnership (SFHIP), US Census Bureau American FactFinder; City and County of San Francisco 2015-2019 Consolidated Plan OMB Control No: 2506-0117 (exp. 07/31/2015)

In addition, the feasibility study for the proposed Geneva Harney BRT Line reveals that over half of the Geneva-Harney Corridor residents are Asian, followed by Hispanic or Latino populations, which represent a quarter of the population.⁹ The Geneva-Harney Corridor encompasses Hunters Point Shipyard, Candlestick Point, Sunnydale, Visitation Valley, the Excelsior, Mission Terrace and parts of San Mateo County—a far greater area than the Bayshore Multi-Modal Facility. However, the Bayshore Multi-Modal Facility is essential to connecting future BRT passengers in these neighborhoods to destinations throughout San Francisco and the region.

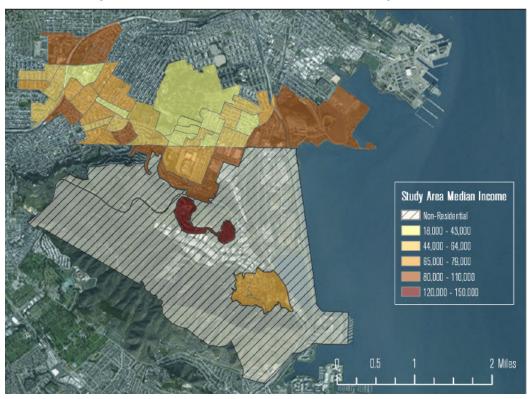
As shown in Figure 3 (taken from the Geneva Harney Feasibility Study), median household incomes vary

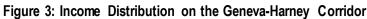
⁷ Plan Bay Area Equity Analysis Report, Appendix A: Detailed Methodology

⁸ ABAG has analyzed and designated larger areas in San Francisco as Communities of Concern.

⁹ Geneva-Harney Feasibility Study, Final Report, July 2015

from \$18,000 to \$150,000, with the higher income areas to the south of Geneva Avenue in Daly City and Brisbane and lower income areas north of Geneva Avenue, near San Francisco's Sunnydale housing projects. The neighborhoods surrounding the Bayshore Multi-Modal Facility have high concentrations of both low-income and minority populations, who stand to benefit from the Bayshore Multi-Modal Facility and the resulting improved transit connections.





Source: Geneva-Harney BRT Feasibility Study. SFCTA. 2015.

CoCs are key components of Plan Bay Area, which tackles issues such as housing a growing population while accommodating transportation needs, and reducing greenhouse gas emissions. The Bayshore Multi-Modal Facility will help fulfill Plan Bay Area goals by promoting safe and easy travel to surrounding neighborhoods (which included CoCs) and the broader region by providing improved access to a variety of public transit systems at a single, convenient location.

Environmental Justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.¹⁰ However, a significant amount of research has shown that minorities and low-income communities are disproportionately exposed to environmental harms and risks, as they often suffer from inadequate public infrastructure and poor transportation access.¹¹

¹⁰ https://www.epa.gov/environmentaljustice

¹¹ Not in My Backyard: Executive Order 12,898 and Title VI as Tools for Achieving Environmental Justice,

As discussed above, the study area of the Bayshore Multi-Modal Facility has high concentrations of both minority and low-income populations. The existing conditions in these communities do not include many of the basic amenities necessary to make them an attractive space for transit, pedestrian and bicycle use. Narrow sidewalks, large retaining walls, chain link fences and minimal landscaping make the area unsafe and unpleasant to travel through by foot or bicycle. As described further in Section F, the surrounding neighborhoods have much poorer transit and bike access, and they are not as walkable when compared to San Francisco as a whole.

San Francisco's EJ Program is committed to promoting a healthy, safe environment in San Francisco's most vulnerable communities, and the City's EJ program has particularly focused on improving the quality of life for residents in the southeast part of San Francisco where the Bayshore Facility and the study area are located. The proposed Bayshore Multi-Modal Facility will help achieve San Francisco's environmental justice goals by improving transportation accessibility, promoting healthier and safer neighborhoods, and enhancing economic growth in the following ways:

- Provide high quality and safe environments at transit stops and along bikeways, sidewalks and crosswalks.
- Help secure safer and more direct transit connections to surrounding neighborhoods and the region than would otherwise occur. (In particular, Schlage's Phase I plan does not include a Multi-Modal Facility or street connections to the Caltrain Station, and the timing of subsequent phases is uncertain. This could result in a lack of Multi-Modal Facility connections indefinitely.)
- By improving transit accessibility, encourage new employment and housing in the surrounding area, which will help spur business and improve the local retail climate.
- Connect surrounding residents with major employment centers in downtown San Francisco and along the US 101 corridor by providing them a faster and safer access to the Bay Area's rapid transit system
- As a public project, the construction of the Bayshore Multi-Modal Facility will offer prevailing wages.

E. Market Assessment

While the Bayshore Multi-Modal Facility will benefit the broader Bay Area region by improving regional transportation access, it could particularly benefit local businesses, as well as those residents who live or work nearby. Therefore, it is important to take a closer look at the market conditions in the Visitacion Valley where the Bayshore Multi-Modal Facility is located.

As described in Section B, Visitacion Valley is a predominantly residential neighborhood with a concentration of retail business along Leland Avenue and Bayshore Boulevard and a few industrial uses to the south. The majority of business establishments along the Leland Avenue corridor are small retail businesses, such as restaurants, salons and dry-cleaners, along with a post office, public library and bank. Retail spaces along Leland Avenue have traditionally experienced relatively high vacancy rates (for example, a 23 percent vacancy rate in 2012).¹² Bayshore Boulevard has a concentration of auto-oriented businesses, including gas stations and auto services that line its western frontage.

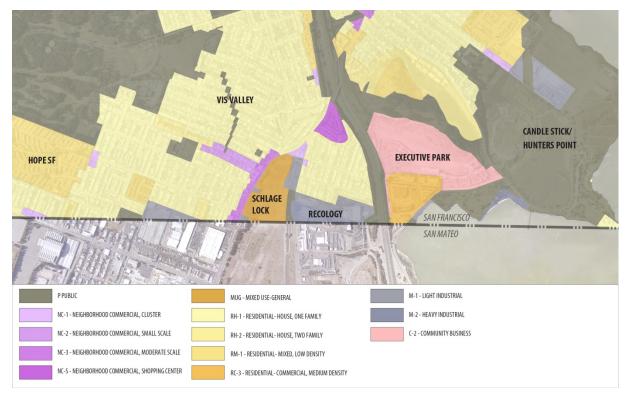


Figure 4: Land Uses in Visitacion Valley and Surrounding Developments

¹² Invest in Neighborhoods San Francisco – Visitacion Valley Leland Avenue and Bayshore Boulevard Neighborhood Profile, San Francisco Office of Economic and Workforce Development, February 2013.

Source: San Francisco Zoning Map

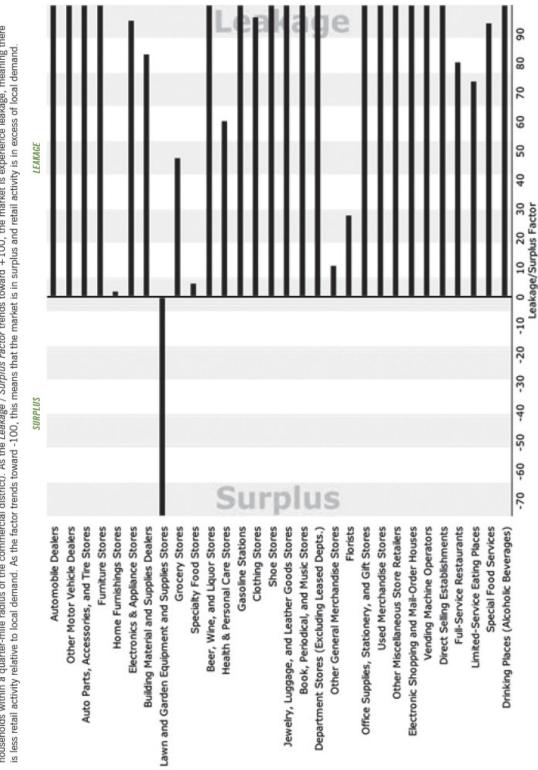
Given the lack of retail businesses in Visitacion Valley, 90 percent of spending by neighborhood residents, or \$160 million annually, was estimated to be spent by local residents on businesses outside the Visitacion Valley neighborhood in 2010.¹³ This finding is confirmed by a study conducted by the San Francisco Office of Economic and Workforce Development that indicates all retail businesses except lawn and garden supplies show significant retail leakage and do not capture much local household retail demand. (See Figure 5.)¹⁴

¹³ Visitacion Valley Retail Analysis Draft Report, Economic & Planning Systems, Inc., June 2010

¹⁴ Invest in Neighborhoods San Francisco – Visitacion Valley Leland Avenue and Bayshore Boulevard Neighborhood Profile, San Francisco Office of Economic and Workforce Development, February 2013

Figure 5: Leakage /Surplus Factor by Industry Group, Visitacion Valley

Source: Invest in Neighborhoods - Visitacion Valley, Feb 2013



The Leakage / Surplus Factor summarizes the relationship between supply (retail sales by businesses in the commercial district) and demand (consumer spending by households within a quarter-mile radius of the commercial district). As the Leakage / Surplus Factor trends toward +100, the market is experience leakage, meaning there

However, these market conditions are poised for a substantial change due to the significant amount of new development that has been approved and will bring a substantial number of new residents and businesses to the surrounding areas. The following section provides a brief overview of these major development projects and the amount of projected housing and employment that they each will generate.

Major Development Projects in the Vicinity of the Bayshore Multi-Modal Facility

Five major development projects are proposed in the vicinity of the Bayshore Multi-Modal Facility, as summarized below in Table 4. (See Figure 6 on the following page for the location of each major development project.)

Project Name	Project Location (County)	Project Description (Land Use Specific)	Status
Candlestick/ Hunters Point	San Francisco	 10,500 new housing units (includes replacement of 256 public housing units) in Phase II; Up to 1,600 new housing units in Phase I 3.68 M sq.ft non-residential space (office/R&D, hotel, retail) 	• Phase I Under construction; Phase II update under review
		• 430,000 sq.ft community space	
Schlage Lock	San Francisco	 1,679 new housing units; 46,700 sq.ft. retail; 18,000 sq.ft. refurbished office 	 Development Agreement Approved Buildings under review
Executive Park	San Francisco	 2,800 new housing units (of which 500 have been constructed); 73,200 sq.ft. of new retail 	Approved
Sunnydale Hope SF	San Francisco	 1,669 new housing units (includes replacement of 775 units); 16,000 sq.ft retail; 75,000 sq.ft community space 	Approved
Brisbane Baylands	San Mateo	• 1.639M - 2.639M sq.ft. of non- residential space	Under review

Table 4: Major Development Projects Near the Proposed Bayshore Multi-Modal Facility

These development projects will help reinvigorate the surrounding area by providing new housing, shops and services. The goal for the Bayshore Multi-Modal Facility is to open before the Geneva Harney BRT is estimated to begin operation, in 2023. However, to begin to understand some of the initial benefits of a Multi-Modal Facility, it is useful to consider what the area will be like in the year 2030. San Francisco Planning Department's informal, conservative estimation is that by 2030 the major development projects in San Francisco will be about 75 percent complete. Each of these projects is described below, along with the number of housing units and jobs that are anticipated to be in place in 2030.

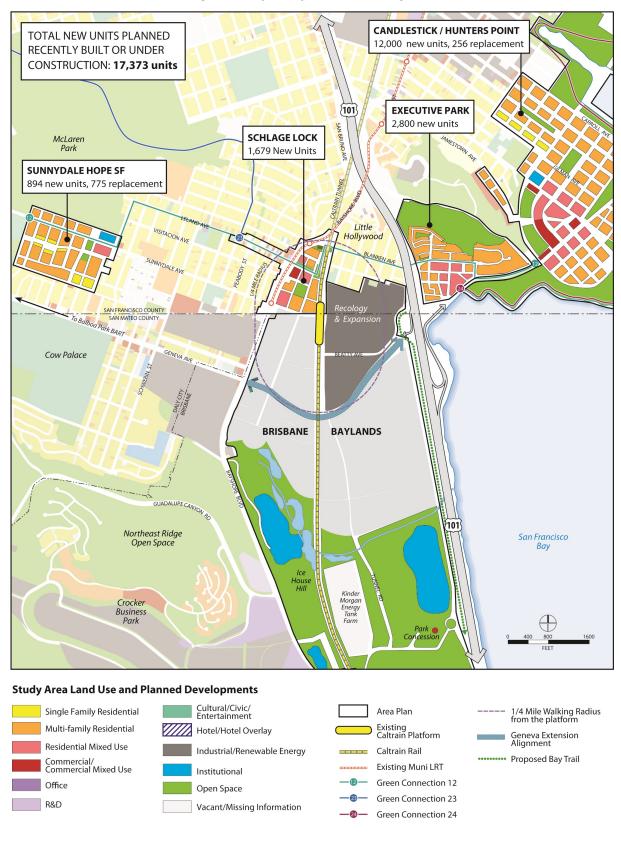


Figure 6: Major Projects in the Study Area

Candlestick Point/Hunters Point Shipyard

Candlestick Point and Hunters Point Shipyard (CP-HPS) is composed of approximately 700 acres east of Highway 101 in the southern part of San Francisco. The proposed project will develop approximately 12,000 residential units (1,500 in Phase I are built or under construction), including one-for-one replacement of the 256-unit Alice Griffith public housing complex in Candlestick Point. The development will also add over 4 million square feet of non-residential space for office, hotel, retail and R&D.¹⁵ Additionally, the project will feature artist studios, performance arena, new parks, sports fields, and waterfront recreation areas. A large portion of the proposed new development, particularly the retail and residential uses, will occur in the areas surrounding the former Candlestick Stadium and Alice Griffith within the Candlestick Point portion of CP-HPS, which is most accessible to the Multi-Modal Facility.

Upon completion, permanent employee population associated with CP-HPS is projected be 13,500 and majority of them will be in office/R&D sector. When the Bayshore Multi-Modal Facility opens, CP-HPS is projected to have about 8,000 new homes and 10,000 new jobs.¹⁶

Schlage Lock

Schlage Lock will transform an abandoned industrial facility into a new mixed-use community with 1,679 housing units, two parks, community facilities, and a pedestrian-oriented streetscape plan. The development will also provide up to 46,700 square feet of commercial development to accommodate a 15,000- to 30,000-square-foot grocery store plus complementary retail and office spaces. The vacant historic building will be refurbished and used for office and community space. At project completion, the commercial and community space is projected to generate 133 new jobs, most of which will be in the retail sector.¹⁷

Assuming the plan proceeds according to the Design for Development document, a conservative projection of 75% completion would mean that Schlage Lock would have approximately 100 jobs and about 1,260 homes by 2030.

Executive Park

Executive Park is located to the east of the Bayshore Multi-Modal Facility across US 101. The site currently contains existing office development and over 500 multi-family or townhome units that have been built since 2010. About 310,000 square feet in existing non-residential development will be replaced with new development of 2,800 housing units and 88,000 square feet of retail. ¹⁸ Once this new mixed-use development is complete, office employment is projected to decrease by about 1,100 jobs while 200 new retail jobs will be created. In addition, the existing housing stock of 500 units will increase substantially

¹⁵ Non-residential uses include 885,000 gross square feet (gsf) of retail; 150,000 gsfofoffice; 2.5 million gsfof Research & Development (R&D) uses; a 220-room, 150,000 gsfhotel; 255,000 gsfof artist live/work space; 100,000 gsfof community services; and a 75,000 gsfperformance arena.

¹⁶ Candlestick Point–Hunters Point Shipyard Phase II Development Plan Draft EIR, November 2009

¹⁷ Where employment projections were not available in published reports on these proposed developments, this report estimates future employment based on the proposed amount of non-residential development multiplied by the relevant per-square-foot-of-new-development employment factors utilized by the San Francisco Planning Department in its Transportation Impact Analysis Guidelines (October 2002).

¹⁸ Includes 15,000 square feet of approved retail for Signature Properties project.

to a total of 2,800 units. By 2030, Executive Park is projected to have about 150 jobs and 2,100 housing units.

Sunnydale Hope SF

Sunnydale Hope SF is a new development that would revitalize a 785-unit public housing development located to west of the Multi-Modal Facility. The proposed project will replace Sunnydale's existing public housing units on a one-for-one basis and build 1,000 new homes to create a new, mixed-income neighborhood with homes affordable to a wide range of household incomes. In addition to the new homes, the project is proposed to include 16,000 square feet of retail and 72,500 square feet of community space, which will replace an existing community center. Thus, upon completion the project will feature 1,750 housing units and create 170 additional jobs in the community service and retail sectors. By 2030, Sunnydale is projected to have about 1,300 housing units and about 200 retail jobs.

Brisbane Baylands

Located immediately to the south of the proposed Bayshore Multi-Modal Facility, Brisbane Baylands encompasses approximately 733 acres of former municipal landfill and former rail yard within the City of Brisbane. The project may also include part of the existing 44-acre Recology facility that is located partially within Brisbane and partially within San Francisco.

Most of this area is currently undeveloped. The existing uses include the Recology Facility, two lumberyards, Brisbane Bayshore Industrial Park, Brisbane Recycling Company, the Baylands Soil Processing facility, and buildings associated with former rail yard uses. Other existing uses include the Caltrain Bayshore Station, a horse-boarding stable, and a number of interim uses (such as plant nursery, bus yard, storage, etcetera).¹⁹ The two lumberyards together have about 35 employees. The other existing businesses together have about 60 employees, and Recology currently employs about 1,102 individuals at its existing site, although a substantial number of these employees are located within the San Francisco portion of Recology.²⁰ Employment is expected to increase significantly with the proposed Brisbane Baylands project.

After considering four alternatives in the Brisbane Baylands EIR, the Brisbane Planning Commission has recommended that the Brisbane City Council adopt a plan that would include 1.63 million to 2.64 million square feet of non-residential development and would not provide any new housing units. This level of development is subject to change as the land use approval process moves forward. Since the recommendation is dramatically different than the EIR alternatives, the site design, walkability and orientation to transit is unclear. For the purposes of this analysis, the Planning Commission's recommendation is assumed to be approved, which would replace about one-third of the existing businesses with a substantial amount of new office and R&D development. By full buildout, this is projected to increase employment on average by about 3,400 jobs in addition to Baylands' existing employment base of 1,100 jobs. However, the timing of future development within the Baylands is unclear given that the Baylands Plan has not yet been adopted by the City.

¹⁹ Brisbane Baylands Draft EIR, June 2013

²⁰ Brisbane Baylands Draft EIR, June 2013

Daly City Bayshore

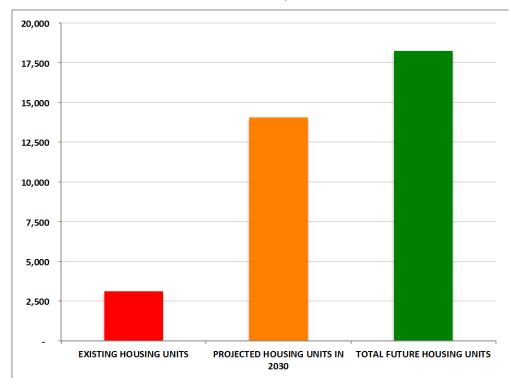
In addition to these major development projects in Brisbane and San Francisco, the Bayshore PDA, which encompasses the Bayshore neighborhood of Daly City, is also anticipated to grow from new infill development by 2040 according to ABAG projections. However, most of the growth from new development in Bayshore is attributable to the potential redevelopment of all or a portion of the Cow Palace, which is currently an actively operating arena and event venue. Given that the Cow Palace is still operating, and there are no current plans for its redevelopment or any other new developments in the Bayshore area of Daly City, no projected growth from new development is conservatively assumed to occur there by the opening of the Bayshore Multi-Modal Facility.²¹ As previously shown in Table 1, the Daly City Bayshore PDA is currently estimated to have about 1,600 existing households and 1,100 jobs, as no substantial amount of new development has occurred there since 2010.

New Housing and Employment Growth from Surrounding Area

As described above, the major development projects have significant commercial components and have the potential to draw customers and workers to the Bayshore Multi-Modal Facility study area. In addition, future residents in new housing units will increase the retail spending power of the area significantly. Together these major projects will replace more than 1,000 public housing units and remove over 600,000 square feet of older industrial and office space to make way for new mixed-use, mixed-income transit oriented development (TOD). At the opening of the Bayshore Multi-Modal Facility, surrounding areas would include more than 14,000 housing units and 16,000 jobs if new development moves forward as planned.²² (See Figures 7 and 8 on the following page.)

²¹ The projections conservatively do not assume any growth from new housing or jobs in the Eastern Daly City/Bayshore neighborhood based on the SFCTA/MTC Growth Projections between 2020-2040 for TAZ 1207.

²² Based on the assumption that 75 percent of proposed new development in the major projects will be completed by the opening of the multimodal facility per the San Francisco Planning Department.



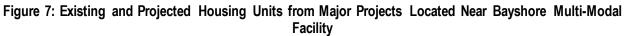
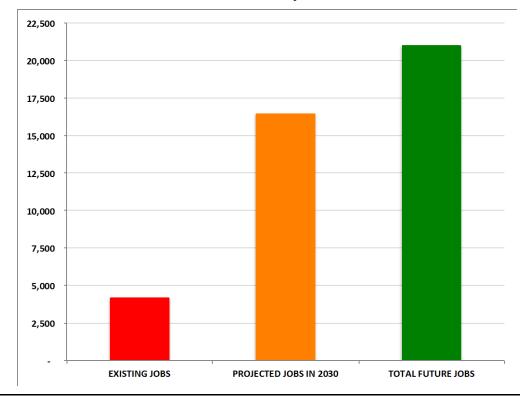


Figure 8: Existing and Projected Employment from Major Projects Located Near Bayshore Multi-Modal Facility



Seifel Consulting Inc.

F. Impact on Existing Businesses and Livability

Transportation access to a neighborhood plays a vital role in enhancing its livability and desirability as a place to live, work and visit. As evidenced in American Planning Association's May 2014 research report, more and more, residents and businesses are choosing locations based on their accessibility as measured by their walk, transit and bike scores:²³

"When asked what would strengthen their local economy, two-thirds believe that investing in schools, transportation choice, walkability and key community features is the best way. For both Millennials and Active Boomers, including those living in today's suburbs, walkability is high in demand."

Currently, the transit, pedestrian and bicycle facilities in the neighborhoods surrounding the Bayshore Multi-Modal Facility do not score well according to national metrics that rank accessibility on a scale of 1 to 100, with 100 being the highest ranked. San Francisco as a whole is one of the most transit friendly and walkable cities in the United States, second only to New York, and many of San Francisco's eastern neighborhoods achieve scores in the 90th percentile for walkability and transit access.²⁴ The neighborhoods surrounding the Bayshore Multi-Modal Facility, however, have significantly lower scores, reflective of their limited transit and bike access and inadequate pedestrian amenities (see Table 5).

Table 5: Walk, Transit and Bike Scores for the Surrounding Neighborhoods

Neighborhood	Walk Score	Transit Score	Bike Score
San Francisco City	86	80	75
Vistiacion Valley	67	68	50
Little Hollywood	66	69	56
Sunnydale	58	62	43
Candlestick Point	47	64	36
Hunters Point	47	57	38
Bayshore, Daly City	53	Unavailable	12
Baylands, Brisbane	12	9	Unavailable

Source: https://www.redfin.com/ and https://www.walkscore.com

²³ Investing in Place for Economic Growth and Competitiveness, A Research Summary, American Planning Association, May 2014

²⁴ https://www.walkscore.com/cities-and-neighborhoods/

People currently use Geneva Avenue, Sunnydale Avenue, Bayshore Boulevard and Leland Avenue to drive, walk, bike, and ride transit. In addition, Geneva Avenue is a key goods-movement corridor for trucks connecting a broad swath of San Francisco to two highways: I-280 and US 101.²⁵

These streets are not designed to accommodate vehicular and pedestrian traffic in a safe way. Narrow sidewalks, lack of bicycle lanes, large retaining walls, chain link fences, and minimal landscaping make the area unsafe and unpleasant to travel through by foot or bicycle. However, the Bayshore Multi-Modal Facility will improve transit, bicycle and pedestrian safety as well as connectivity.

With new walkable developments, redesigned streets, and additional transportation services coming to the area, the Bayshore Multi-Modal Facility will help enhance overall transportation effectiveness and improve the quality of life and desirability of surrounding neighborhoods, which will in turn promote business activity. Specifically, the Bayshore Multi-Modal Facility will improve access to local businesses and residential neighborhoods, by enhancing connections to transit and making it easier for people to get to local businesses, shops, and services.

²⁵ Geneva-Harney Feasibility Study, Draft Report, July 2015



M E M O R A N D U M

To: San Francisco Planning Department
From: Nelson\Nygaard
Date: March 6, 2017
Subject: Bayshore Multi-Modal Facility Study Phase II – Task 2.5: Operational Needs Assessment

The Bay shore Multi-Modal Facility will improve access to the Bayshore Caltrain Station by closing the existing physical gap between the station and surrounding land uses and transit connections, as shown in Figure 1.



Figure 1 Study Area and Caltrain Spatial Gap to Surrounding Uses

Source: SFMTA 2017

Currently, Muni and SamTrans services along Bayshore Boulevard do not have an accessible connection to the Bayshore Caltrain Station. Further, bicycle and pedestrian access is only available through a circuitous, out-of-direction routing via Blanken and Tunnel Avenue. Along with the Schlage Lock streetscape network, the Bayshore Multi-Modal Facility will provide safe, direct connections needed to grow ridership, increase safety and serve existing and future neighborhoods. Together with the planned Geneva-Harney BRT Line, the Multi-Modal Facility will facilitate a vast improvement in east-west mobility serving the southern portion of San Francisco. In particular, Geneva-Harney BRT will connect Caltrain to existing and planned Muni

and SamTrans services, linking Candlestick/Hunters Point in the east to destinations in Visitacion Valley and then west to the Balboa Park BART Station and the Sunset District.

Study Background

Phase I of the Bayshore Multi-Modal Facility Study identified Sunnydale Avenue as the preferred location for a Multi-Modal Facility, as shown in Figure 2. Phase II develops and evaluates concept alternatives for the preferred location based on consultant analysis, public agency input and community feedback. The facility location and design as recommended through Phase I and II focuses on a mid-term timeframe for implementation, roughly in the 2023-2025 window, which would coincide with Geneva-Harney BRT.

As development in Schlage Lock continues, further discussion of the preferred design and elements of the Multi-Modal Facility will be undertaken in order to ensure what is eventually built is useful, accessible, attractive, and scalable. Dependent on other agency projects including those from Caltrain, Caltrans, CHSRA, City of Brisbane, and City and County of San Francisco, the elements of the Multi-Modal Facility may be relocated to better serve users in the long-term.

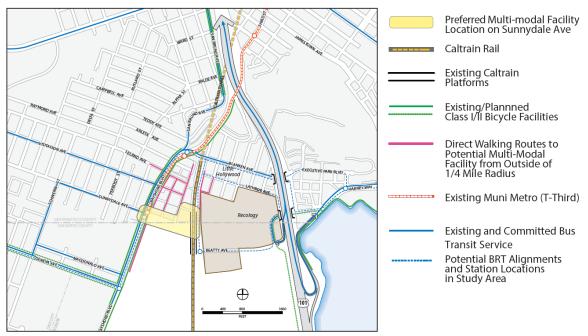


Figure 2 Sunnydale Avenue Preferred Multi-Modal Facility Location

Purpose of Task 2.5 Memo

This memorandum presents the approach to and evaluation of the four concept alternatives created for the Bayshore Multi-Modal Facility in the San Francisco-San Mateo Bi-County area. First, the high priority elements and desired minimum standards common to all alternatives are presented followed by a brief description of each concept and the key differences among them. Next, the study's evaluation framework is presented, which includes four primary categories (criteria) and a range of transportation-related metrics for each. The evaluation of alternatives is

performed separately for each category. The result of the evaluation found that all alternatives are feasible from a Multi-Modal operations perspective but Alternatives 3 and 4 provide a higher level of functionality and convenience for users of all modes. More info on construction-related feasibility of the Multi-Modal Facility can be found in Technical Memorandum 2.8.

MULTI-MODAL FACILITY SITE LOCATION

The preferred location for the Bayshore Multi-Modal Facility is illustrated in Figure 3, as shown in the yellow highlight. As part of Phase II, a total of four concept alternatives for this location were developed and evaluated. In order to develop a range of concepts which offer differing circulation patterns and passenger amenities, two alternatives (3 and 4) extend beyond the City and County line into City of Brisbane, San Mateo County.

The Schlage Lock development sits between the Caltrain tracks and Bayshore Boulevard along a busy north-south corridor in the southeast corner of San Francisco. Schlage Lock will transform an abandoned industrial facility into a new mixed-use community with 1,679 housing units, a grocery store, two parks, and a pedestrian-oriented street scape plan. Development here can help address regional growth and related transportation needs by integrating an inviting, useful, and efficient Multi-Modal Facility into the overall design and functionality of the Schlage site.



Figure 3 Preferred Multi-Modal Facility Site

MULTI-MODAL CONCEPT ALTERNATIVES DESCRIPTION

This section presents the concept alternatives developed as part of Phase II. Multi-Modal facilities link transportation services and infrastructure within a single location or area, providing better

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access and connectivity for people using regional and rapid transit, local buses and shuttles, private vehicles (cars/trucks), cycling, and walking. Facilities can take many forms including: special street designs, a kiosk, shared platforms or a station. The alternatives designed by the study team, with input and guidance from the public and stakeholders, incorporated a wide range of Multi-Modal elements (e.g. shelters, public space, bike parking) and strived to meet minimum design standards (e.g. 4 shuttle bays). They were based off the street network in the Visitacion Valley Schlage Lock Open Space and Streetscape Master Plan.

Desired Facility Elements

Every transit trip either starts or ends with a walking trip. A Multi-Modal Facility should therefore be a place where people feel safe, comfortable, and can circulate with ease. All concepts were developed with the following high-priority elements in mind:

Shuttle Loading Area: Refers to the location where first/last-mile shuttles would serve the Multi-Modal Facility. This would be a place easily and directly accessible by employee, community, senior and paratransit shuttles.

Seating and Shelter: Refers to seating for waiting passengers and protection from the elements in the form of roofs, enclosed areas, or shade. This requirement was supported by the public, many of whom commented that the area can get very windy.

Passenger Loading Area: Refers to the location where private vehicles, taxis, and transportation network companies (TNCs) would serve the Multi-Modal Facility. This would be a place easily and directly accessible by vehicles.

Pedestrian Access: Refers to the availability of direct and safe walking paths to and from the facility. This is very important given that the majority of users are expected to walk to the facility and between transit modes. The facility area will include additional pedestrian-oriented elements lay ered on the Schlage street network, making walking trips safer, more comfortable and direct.

Bicycle Access: Refers to the availability of direct and safe bicycling paths to and from the facility including connections to existing bicycle routes along Bayshore Boulevard, San Bruno Avenue, Blanken Avenue, Geneva Avenue, and Tunnel Avenue.

Bicycle Storage: Refers to the bicycle lockers and bicycle racks, and perhaps even bicycle storage rooms. Caltrain in particular has a large percentage of passengers who access its services by bicycle, suggesting a growing need for bicycle storage at this facility as the area develops around it.

Bicycle Share: Refers to a Bay Area Bikeshare kiosk. This would be a place where passengers could access or return shared bicycles. To be successful, at a minimum there would have to be multiple kiosks around the Bayshore area and in the Executive Park, Hunters Point Shipyard and Candlestick Point developments.

Way finding: Refers to the signage placed strategically around the facility area to direct people to the Multi-Modal Facility and within the Multi-Modal Facility to assist travelers to find specific modes and services.

In formation Kiosks: Are street elements or furniture where travelers can find information related to services, routes, and fares.

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All facilities would be designed to be ADA-accessible.

Minimum Standards/Design Guidelines

Each concept alternative strives to meet minimum standards for operational efficiency, effectiveness, and safety, as shown in Figure 4. These minimum standards are specific requirements for the high-priority elements (e.g. four shuttle bays for the shuttle loading area element).

Category	Design Principle	
	Minimum of four shuttle bays for 30' vehicles	
TransitOperations	170' minimum for independentshuttle movement	
	Maximize quality, size of waiting area	
	Minimum 170' curbside pick-up space	
	Direct connections for all modes (especially pedestrian and bike)	
Multi-Modal Connectivity	Safe, secure bike paths	
	Safe, secure pedestrian paths	
	Wayfinding features	
Vehicle Access	20' minimum clear-width	
Vehicle Access	30' design vehicle	
Policy	Minimize impact on developable land	
	Minimize encroachmenton neighboring parcels	

Figure 4 Desired Facility Elements: Design Principles

Concept Alternatives

In order to accommodate the required design elements, the Planning Department recommended that four alternatives with different site layouts be explored to analyze how each one could incorporate the design elements and effectively address overall multimodal facility operations. The four concept alternatives are described as:

- 1. Modified Schlage plan (cul-de-sac)
- 2. On-street (Street A)
- 3. Looproad (Sunnydale Ave/Street F)
- 4. 'Teardrop' loop multimodal facility (Sunnydale Ave)

Alternative 1

This facility concept (Figure 5) is fully contained within the City and County of San Francisco. In order to meet the facility requirements outlines above, the cul-de-sac radius is designed to allow for independent pull-in/pull-out of three 30-foot shuttles. The radius (58 feet) is larger than a

recently proposed cul-de-sac from Schlage Lock's Phase I application (48 feet). This increase in street right-of-way does reduce the amount of developable land on blocks 11 and 12, but offers significantly improved vehicular operation on a dead-end street. This concept also moves the passenger loading zone to Street A to eliminate conflicts in the cul-de-sac. Even with these operational improvements, this alternative would still have a smaller shuttle zones than the other alternatives.

Regarding connectivity to the external street network, the most direct connection between Bay shore Boulevard and the Caltrain Station would be via the public paseo/Street F which links to Visitacion Avenue, to be built in a later phase of the Schlage development. There is not a direct connection or clear line of sight, which can increase safety, ease and appeal of transit, from transit along Bayshore Boulevard to the Caltrain station. Public comments received on this alternative included the observation that Caltrain to BRT on Bayshore Boulevard would be a long walk and that a path or walkway along the southern edge of the development, directly connecting Sunnydale Avenue is desired.

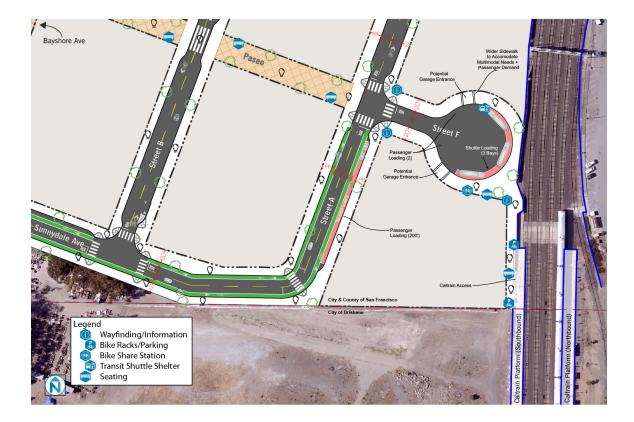


Figure 5 Bayshore Multi-Modal Facility Alternative 1

Alternative 2

Similar to Alternative 1, this facility (Figure 6) is fully contained within the City and County of San Francisco. Different from Alternative 1, Alternative 2 replaces the cul-de-sac with a 66-foot wide dead-end street with 20-foot sidewalks that ultimately connect to the Caltrain platform. All passenger loading and unloading would occur on Street A between Street F and Sunnydale Avenue. Private vehicles would load on the west curb of Street A, requiring passengers to cross Street A to reach the station entrance. Shuttles would load on the eastside curb. Since shuttles would be active primarily during peak weekday periods, private vehicles could also use the east side curb space on Street A during off peak hours. Additional passenger loading could occur, if demand warrants, north of Street F. Garage access to blocks 11 and 12 remain on Street F; east of the garage entrances this street would be reserved for pedestrians and bicyclists (past the parking garage entrances).

Connectivity to the external street network would essentially be the same as under Alternative 1. There is not a direct connection or clear line of sight, which can increase safety, ease and appeal of transit, from transit along Bayshore Boulevard to the Caltrain station. Bike access would be the least convenient of the alternatives; with most loading occurring on Street A, only a Class III facility could be accommodated. Te most direct connection to Bayshore Boulevard would be via the public paseo/Street F. Comments received at the November 3rd public meeting stated that the Caltrain station was too far to walk under this alternative and that the dead-end street could be come a traffic nightmare.¹

¹ The project team attempted to mitigate circulation issues at the dead-end street by shifting all passenger loading to Street A. The dead-end street would be for garage access and non-motorized travel only.

Bayshore Multi-Modal Facility Study Phase II – Task 2.5 Operational Needs Assessment San Francisco Planning Department

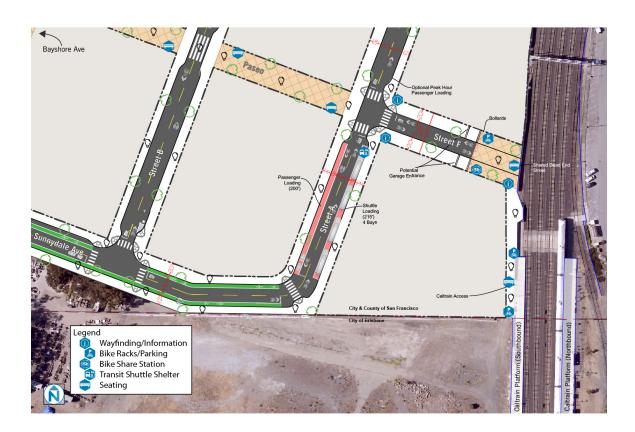


Figure 6 Bayshore Multi-Modal Facility Alternative 2

Alternative 3

This alternative (Figure 7) improves upon the operational functionality of the Multi-Modal Facility by expanding its footprint and creating a station loop road to better serve users. Since Alternatives 1 and 2 border the City and County line, the only way to expand the footprint was to encroach into the City of Brisbane on land owned by the Brisbane Baylands applicant, by approximately 26,000 square feet. This concept offers a superior sense of place, with the public area between Sunnydale Avenue/Street F devoted solely to the Multi-Modal Facility and its users.

Station access is improved compared to Alternatives 1 and 2. There is direct connection and clear line of sight along Sunnydale Avenue to the Caltrain Station from Bayshore Boulevard. Shuttle and passenger loading occurs adjacent to the southbound Caltrain platform; passengers transferring between those modes do not have to cross a street for access. Further, this alternative is able to avoid conflicts between Caltrain-bound traffic and Schlage Lock development traffic since all loading would occur on streets that do not contain residential or retail destinations. Another major non-motorized design change compared to Alternatives 1 and 2 is the addition of a Class 1 bike path on Sunnydale Ave between the Caltrain Station and Bayshore Boulevard.

This alternative was well-received at the November 3rd public meeting. Many attendees thought it had the best circulation of the four concepts for cars, bikes, and walkers.

Figure 7 Bayshore Multi-Modal Facility Alternative 3



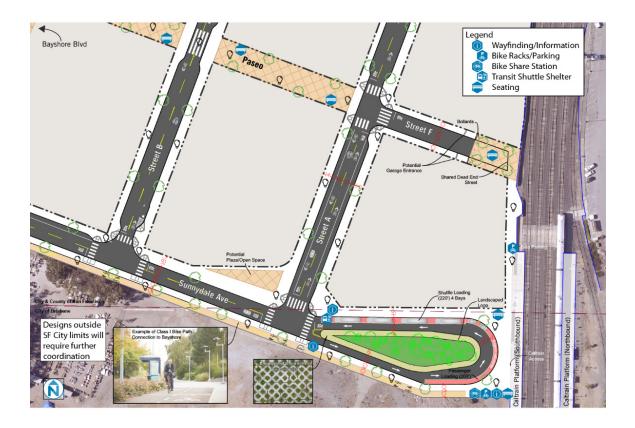
Alternative 4

This facility concept (Figure 8) is most similar to Alternative 3: it creates a unique sense of place with its tear-drop design and seamless connection to the Caltrain platform; passengers have easy access from Caltrain to shuttles and private vehicles, or vice versa, without having to cross even one street; it separates Caltrain-bound traffic from Schlage Lock retail/residential uses; and the Class 1 bike path on Sunnydale Ave provides a clear connection between the Caltrain Station and Bay shore Boulevard.

By re-envisioning the station loop road (see Alternative 3) as a tear-drop, this creates a facility that is primarily located in the City of Brisbane. By doing so, it offers the biggest footprint for developable land on the Schlage site, but encroaches into developable land owned by the Brisbane Bay lands applicant. It also maximizes the passenger waiting area amongst all the alternatives and offers the most direct sightline along Sunnydale Avenue: the Caltrain Station will be visible from Bay shore Boulevard..

This alternative was also well-received at the November 3rd public meeting, similar to Alternative 3. Community members especially liked the landscape potential, but compared to Alternative 3, felt that traffic issues would be more acute with the tear-drop design than the larger loop road.

Figure 8 Alternative 4



EVALUATION FRAMEWORK AND CRITERIA

This section presents the results of the project team's evaluation of the likely benefits and impacts of the Multi-Modal Facility project. The evaluation framework used to analyze each of the four alternative consists of four main transportation-related categories: transit operations and performance, multimodal connectivity, vehicular access, and policy and implementation considerations.

The concepts were developed to take into account existing and planned transportation services:

- Caltrain Commuter rail
- Geneva-Harney Bus Rapid Transit
- Local bus routes: Muni 8, 9, 56, and Sam Trans 292
- Muni Light Rail T-Third line
- Employer/event shuttles

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- Bicycles, bicycle storage, bike sharing
- Pedestrian access
- Park & Ride/Kiss & Ride locations
- Taxilane potential
- Carshare potential
- Bikeshare installation potential

There are no plans to divert fixed-route public transit (i.e. Muni, SamTrans) into the Schlage Lock Development site to serve the Multi-Modal Facility, but none of the alternatives preclude that possibility if demand warrants.

Criteria and Metrics

Criteria are broken into two categories: benchmark metrics and performance characteristics. The benchmark metrics are used to comparatively evaluate the alternatives against one another and take into account operational and spatial needs in each alternative. They consist of quantitative measures, such as the number of bus bays, and qualitative elements, such as ease of implementation.

Metrics such as pedestrian experience, ease of navigation by user type, and consistency with area plans are also critical to the success of the facility; for this evaluation they are included as performance characteristics, or secondary metrics that help identify important characteristics of the concepts but don't vary significantly for comparison purposes. The metrics included in the evaluation framework are shown below in Figure 9.

Metric	Description	Benchmark	Performance Characteristic
Transit Operations & Performa	nce		
Shuttle capacity	Number of independently accessible 30' bus bays	x	
	Walking distance to shuttles	х	
Distance from Caltrain platform to	Walking distance to Geneva-Harney BRT	х	
connecting transit (closest stop in pair)	Walking distance to Muni Metro T-Third		х
,,	Walking distance to Muni 8, 8BX, 9, 9R, SamTrans 292		Х
Shuttle route directness	Number of turns from Bayshore to Caltrain		Х
Shuttle conflict potential	access (qualitative)		Х
Multi-Modal Connectivity			
Distance from Caltrain platform to	Walking distance to passenger loading	х	
connecting mode	Distance to the bicycle network		Х
Programming potential of waiting area and amenities	Programming of the space for all users		х
Programming potential of bike access	Facility type		Х
Pedestrian experience	Sidewalk connection, ease of use		Х
Sightline between Caltrain and Bayshore Blvd	Clear sightline/directness		Х
Vehicular Access			
Width of access lane	in feet	х	
Length of passenger loading and drop-off zone	in feet	х	
Internal roadway conflict and congestion potential	Potential for conflict between vehicles and all modes	х	
Route directness (in private vehicle)	Number of turns from Bayshore to Caltrain		Х
Policy & Implementation Cons	iderations		
Size of development parcel footprint	in square feet	х	
Development Potential	Based on street frontage and accessibility to the Station and Bayshore Blvd. (qualitative)	x	
Ease of implementation	Based on administrative efforts and design considerations (qualitative)	x	
Consistency with Schlage Lock Plan	ls the alternative consistent with the original Schlage Lock Plan		Х
Consistency with planning/design policy	Consistency with Phase 1 and regional TOD guidelines		Х
Cost (i.e. 12% design)	Order of magnitude		х
Extent of facility sited in Brisbane	Original plans to stay within the SF city limits preferred		Х

Figure 9 Multi-Modal Facility Evaluation Framework

The resulting evaluation details the strengths and weaknesses of each alternative based on the four transportation-related categories and their related performance metrics. All four concepts were designed to meet minimum design standards; thus minimum standards such as safety measures and ADA accessibility are not included in this evaluation. Any design concept with unsafe features or lacking ADA accessibility was removed from consideration or refined during the concept development stage to ensure minimum design standards were met. Figure 10 presents the legend used for scoring in the four primary categories.

Supporting data for quantitative measures can be found in Appendix A.

Figure 10	Scoring
I Iguic IV	ocomig

\bigcirc	Deficient
\bullet	Satisfactory
•	ldeal

MULTI-MODAL FACILITY ALTERNATIVES EVAULATION

Transit Operations and Performance

The metrics evaluated for transit operations and performance are shown in Figure 11. The defining strengths or weaknesses of each alternative are discussed below.

Metric	Description	Benchmark	Performance Characteristic	Al i 1	Alt 2	Alt 3	Alt 4
Shuttle capacity	Number of independently accessible 30' bus bays	x		•	•	•	•
Distance	Walking distance to shuttles	X		\bullet	0	•	•
from Caltrain	Walking distance to Geneva-Harney BRT	х		0	0	\bullet	\bullet
platform to connecting	Walking distance to Muni Metro T-Third		х	0	0	ightarrow	\bullet
transit (closest stop in	Walking distance to Muni 9, 9R, SamTrans 292		х	0	0		
pair)	Walking distance to Muni 8, 8BX		х	0	0	0	0
Shuttle route directness	Number of turns from Bayshore to Caltrain		х	\bullet		●	•
Shuttle conflict potential	Severity of conflicts with other modes for station access (qualitative)		Х	0	•	•	•

Figure 11 Transit Operations and Performance Metrics

The benchmark metrics include:

- The number of bus bays for 30-foot employer/event shuttles that can operate independently of one another. The number of desired shuttle bays was set at four. This would more than accommodate existing operations and this standard would also accommodate anticipated future activity when additional Caltrain service is projected.
- The walking distance between the Caltrain platform and the designated area for employer/event shuttles. With shuttles expected to provide first/last mile solutions for regional trips beginning or ending at the Bayshore Station, convenient and proximate access to/from Caltrain is a highly desired feature for many facility users.
- The walking distance between the Caltrain platform and the proposed Geneva-Harney BRT station on Bayshore Boulevard at Sunnydale Avenue (distance measured to northbound station). The Geneva-Harney BRT line would provide east-west connectivity through the Study Area between Balboa Park BART and Candlestick-Hunters Point Shipyard. It would be a logical connecting mode for regional trips south along the Peninsula Caltrain corridor.

Other performance characteristics reported include walking distance to other transit options on Bay shore Boulevard (closest stop relative to the Caltrain platform) and shuttle route directness and conflict potential. While there are multiple transit options on Bayshore Boulevard the connection between Caltrain and the Geneva-Harney BRT line is the key connecting service; the other Muniroutes (8, 8BX, 9, 9R, and T-Third) are focused on serving intracity trips north to downtown SF and SamTrans 292 parallels the Caltrain corridor. Although these routes demonstrate high ridership in the Study Area, they are not expected to have a high volume of transfers.²

Alternative 1

As part of the concept alternative development process, the radius of the cul-de-sac was designed to allow for independent shuttle operation. With this design there enough curb space (170 feet) for three 30-foot buses to operate independently of each other. The four bus standard would have required a larger cul-de-sac radius that would have taken away too much developable land from blocks 11 and 12. The potential for conflict for employer/event shuttles with other modes, and with each other, is higher than the other alternatives specifically due to the constraints of a cul-de-sac design. The walking distance required to transfer between the Caltrain platform and Geneva-Harney BRT is the longest under this alternative: a pedestrian would walk north to the paseo, then west to Bayshore Boulevard and south to Sunnydale Ave or south on Street A to Sunnydale Avenue, then west to Bayshore Boulevard.

Alternative 2

This concept reduces the potential conflict and congestion in the cul-de-sac by moving the shuttle operations to Street A. This location allows for four shuttle bays, meeting the minimum standard of the desired facility elements. The drawback is that passengers transferring between Caltrain and shuttles have the longest most and indirect path to walk among all alternatives. Passengers

² Ridership data used in this study was obtained from the Geneva Harney BRT Feasibility Study (SFCTA, 2015) which analyzed Muni data from 2011. The Phase II Task 2.7 Memo presents this ridership data at the stop-level in the study area.

transferring between Caltrain and Geneva-Harney BRT would follow the same indirect path as Alternative 1.

Alternative 3

This concept provides a direct path and clear sightline between the site of the future Geneva-Harney BRT stop at Bayshore Boulevard Sunnydale Avenue to the Caltrain platform for pedestrians making transit connections. This alternative also offers a direct path for shuttles coming from Bayshore Boulevard to the station loop road that borders the Caltrain platforms, which reduces the potential for conflict between shuttles and other modes due to the stationserving nature of the loop.

Alternative 4

Similar to Alternative 3, this concept provides a direct route from Bayshore Boulevard for shuttles and pedestrians connecting to/from Caltrain. It also reduces the severity of potential conflict between shuttles and other modes compared to Alternatives 1 and 2, since all pick-up/drop-off activity is designed to occur within the tear-drop loop serving the Caltrain Station. It simplifies the shuttle routing from Bayshore Boulevard, allowing for ingress and egress to occur at the Sunnydale Avenue/Bayshore Boulevard intersection.

Multi-Modal Connectivity

The metrics evaluated for Multi-Modal connectivity are shown in Figure 12. The defining strengths or weaknesses of each alternative follow.

Metric	Description	Benchmark	Performance Characteristic	Al i 1	Al i 2	Al i 3	Alt 4
Distance from Caltrain	Walking distance to passenger loading	х		ightarrow	\bullet	•	•
platform to connecting mode	Distance to the bicycle network		Х	0	\bigcirc	\bullet	•
Programming potential of waiting area and amenities	Programming of the space for all users		х	ightarrow	0	•	•
Programming potential of bike access	Facility type		х	\bullet	•	•	•
Pedestrian experience	Sidewalk connection, ease of use		Х	\bigcirc	\bigcirc	•	•
Sightline between Caltrain and Bayshore Blvd	Clear sightline/directness		Х	0	0	•	•

Figure 12 Multi-Modal Connectivity Metrics

The benchmark metric identified in this category is the walking distance between the Caltrain platform and passenger loading area (i.e. private vehicles, taxis, transportation network companies). Pick-up/drop-off by private vehicles is expected to be a primary mode of access to Caltrain, and along with a designated shuttle loading zone, this is a necessary curb space component of the Multi-Modal Facility.

The performance characteristic metrics help evaluate the quality and functionality of the facility for pedestrians and bicyclists. This group of metrics is important for ensuring that the facility fosters a sense of place for users of all modes, and that connections between modes is as intuitive and user-friendly as possible.

Alternative 1

Space is allocated for passenger loading on Street A, however the location would require the second longest walk of the four alternatives. The cul-de-sac is not designated for passenger loading, but it will attract vehicles dropping off or picking people up and add to the congestion potential of this alternative. The cul-de-sac, while not directly adjacent to the Caltrain platform, provides a sense of place to users with its wide sidewalks and potential for a dedicated plaza area. Pedestrians and bicyclists will be required to travel between the back of a building to the west and the Caltrain tracks to access the Caltrain platform from Street F, which is less desirable than the pedestrian experience of Alternatives 3 and 4. Bicyclists could access Class II lanes south of Street F (cul-de-sac) and Class III lanes with sharrows to the north. As mentioned in the previous section, the design of this facility alternative, in conjunction with the Schlage site plan, would preclude a direct sightline between Caltrain and Bayshore Boulevard.

Alternative 2

As with Alternative 1, pedestrians and bicyclists will be required to travel between the back of Schlage development on blocks 10 and 11 and the Caltrain tracks to access the Caltrain platform from Street F. The passenger loading area exceeds the minimum design standard but has been placed on the west side of Street A, requiring passengers to cross the street unlike under the other three alternatives. The wide sidewalks and limited access for vehicles east of Street A enhances the non-motorized experience on Street F, with street space dedicated to pedestrians and bikes east of the blocks 11 and 12 garage entrances. With loading on either side of Street A, there is no longer space for the Class II bike lane shown in Alternative 1, making the bicycle networkslightly less attractive to users. Multi-Modal connectivity is otherwise similar to Alternative 1. There is no direct sightline between Caltrain and Bayshore Boulevard.

Alternative 3

This concept focuses on improving efficiency and convenience by locating the passenger loading area adjacent to the Caltrain platform and adding a Class I shared-use path along Sunnydale Avenue. The distance between the platform and a pick-up/drop-off is nominal for southbound Caltrain passengers; transferring between those modes does not require crossing a street for access. The station loop road also allows for more public space adjacent to the Caltrain platform. It offers a superior sense of place compared to Alternatives 1 and 2. Pedestrian and bicycle access to Bay shore Boulevard is direct and simple along the Class I shared-use path. Facility users can see the Caltrain platform from Bayshore Boulevard, and vice versa. Under this alternative, unlike

the others, facility users can access the Caltrain platform two ways: from the paseo/Street F or Sunnydale Avenue.

Alternative 4

Similar to Alternative 3, this concept enhances Multi-Modal connectivity by providing a one-way loop for efficient and convenient station circulation. Passenger loading is adjacent to the Caltrain platform. The tear-drop design of the facility offers the largest amount of space for public serving uses, and together with attractive landscaping inside the station loop road this alternative would offer the greatest sense of place among the four concepts. Pedestrian and bicycle access to Bay shore Boulevard is direct and simple along the Class I shared-use path.

Vehicular Access

The metrics evaluated for vehicular access are shown in Figure 13. The defining strengths or weaknesses of each alternative follow.

Metric	Description	Benchmark	Performance Characteristic	Al i 1	Al i 2	Al i 3	Alt 4
Width of access lane	in feet	Х		ullet	ullet	\bigcirc	\bullet
Length of passenger loading and drop-off zone	in feet	х		\bullet	•		•
Internal roadway conflict and congestion potential	Potential for conflict between vehicles and all modes	Х		0	0	•	•
Route directness (in private vehicle)	Number of turns from Bayshore to Caltrain		Х	lacksquare	•		•

Figure 13 Vehicular Access Metrics

There are three benchmark metrics identified in this category:

- Curb-to-curb roadway width requires a 20-foot minimum, set by the San Francisco Fire Department. But the design and ease of movement among modes in each alternative helps to dictate whether wider lanes might be desirable. The Multi-Modal Facility roadways were designed to be consistent with the OSSMP and to meet the minimum standard.
- Passenger loading is a high priority facility element. The longer the passenger loading zone the more flexibility the facility will have in accommodating a range of Caltrain service types. The desired minimum standard is 170 feet, or approximately eight vehicles. Since passenger loading/unloading at key transit stations often occurs where it is most convenient for the driver, it is imperative to encourage loading in designated areas by making those areas convenient and easily accessible zones.

• Internal roadway conflict potential is a qualitative metric (in lieu of microsimulation) that seeks to identify the alternatives that provide the most efficient circulation amongst all modes. In addition to station-bound traffic, each alternative maintains block 11 and 12 garage access, with varying degrees of mixing between the two types of traffic based on Multi-Modal Facility design.

Route directness is being reported as a performance characteristic to help identify which alternatives are most easily accessible from Bayshore Boulevard.

Alternative 1

Alternative 1 maintains at least a 26-foot wide lane throughout the facility. This concept moves the passenger loading zone to Street A to eliminate conflicts in the cul-de-sac. However, the cul-de-sac provides the most proximate area to load/unload Caltrain passengers and those motorists together with shuttles, private vehicle ingress/egress from the garages of Schlage Lock blocks 11 and 12, and bicycles creates the greatest conflict potential of the four alternatives. Similar for pedestrians and bicyclists, motorists do not have a direct sightline to the Caltrain platform under Alternative 1.

Alternative 2

With no designated turnaround, Street F becomes ingress/egress only for blocks 11 and 12; all loading/unloading would occur on Street A. Shuttles would load on the eastside curb and private vehicles would load on the west side. Since shuttles would be active primarily during peak weekday periods, private vehicles could also use the curb space northbound on Street A. Additional passenger loading could occur, if demand warrants, north of Street F. Thus, this alternative has the most flexibility and space for passenger loading among the four alternatives.

Since Street A would accommodate passenger loading, shuttle loading, and local Schlage Lock trips there is potential for vehicular conflict; however, the northbound shuttle and southbound private vehicle loading areas help spread out the activity to help mitigate this concern. Similar for pedestrians and bicyclists, motorists do not have a direct sightline to the Caltrain platform under Alternative 2.

Alternative 3

This alternative is flexible from a vehicular access standpoint as the portion of the station loop road between Street F and Street A was designed specifically to enhance Multi-Modal access. It maintains an access way of at least 22 feet and traffic can circulate bi-directionally for station access. The primary passenger loading area is adjacent to the Caltrain platform and meets the minimum standard of 170 feet. The project team has identified optional passenger loading across from the designated area to accommodate additional demand, if warranted. Since the station loop road serves the facility exclusively and passengers can access the platform without crossing streets, the conflict potential is minimized compared to Alternatives 1 and 2.

Alternative 4

Similar to Alternative 3, this concept includes a station loop road designed specifically to facilitate Caltrain transfers. The tear-drop design has a smaller radius than the loop in Alternative 3 and its

interior would contain landscaping rather than developable land. Its one-way design provides an 11-foot travel lane with 9 feet of mountable "grasscrete" in order to meet the minimum access lane width of 20 feet. Passenger loading would occur adjacent to the Caltrain platform with 200 feet designated but could be increased with a commensurate reduction in center landscaping. The one-way travel results in the lowest conflict potential of the four alternatives. On the curve adjacent to the Caltrain platform the lane width is 20 feet which would allow for unobstructed circulation even if private vehicles are double-parked in front of the station.

Policy and Implementation Considerations

The metrics evaluated for policy and implementation considerations are shown in Figure 14. The defining strengths or weaknesses of each alternative follow.

Metric	Description	Benchmark	Performance Characteristic	Al i 1	Al i 2	Al i 3	Alt 4
Size of development parcel footprint	in square feet	х		•	•	•	•
Development Potential	Based on street frontage and accessibility to the Station and Bayshore Blvd. (qualitative)	x			0		•
Ease of implementation	Based on process and design considerations (qualitative)	Х		●		\bullet	
Consistency with Schlage Lock Plan	How consistent is the alternative with the original Schlage Lock Plan?		х		•	0	•
Consistency with planning/design policy	Consistency with Phase 1 and regional plans and TOD guidelines		Х	0	•	•	•
Cost (i.e. 12% design)	Order of magnitude		Х	•	•	\bullet	
Extent of facility sited in Brisbane	Original plans to stay within the SF city limits preferred		Х	•	•	•	•

Figure 14 Policy and Implementation Considerations Metrics

The benchmark metrics in this category include:

• The developable size of the Schlage Lock blocks 11 and 12 with the inclusion of the facility alternative as designed. Generally, the better the facility the larger the land area it will consume.

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- The development potential which is a qualitative assessment of synergy between mixeduse development and the facility itself.
- The ease of implementation takes into account process and design considerations, such as whether the approval, construction, and maintenance would be a multi-jurisdictional effort.

Other metrics reported include each alternative's consistency with Schlage Lock's approved plan, consistency with regional plans and policies, ³ order of magnitude cost, and the estimated square footage of the Multi-Modal Facility that would fall within the City of Brisbane.

Alternative 1

This concept is completely contained within the City/County of San Francisco. In order to accommodate Multi-Modal activity, the cul-de-sac reduces the amount of developable land on blocks 11 and 12. The cul-de-sac does provide greater development potential than Alternative 2 and would be easy to implement, relative to the other alternatives.

With regards to the other policy and implementation performance characteristics, Alternative 1 could be implemented at a relatively low order of magnitude cost and is consistent with an interim proposal by the Schlage Lock developers. However, compared to the other alternatives, the cul-de-sacit is not as consistent with regional design policy guidelines that are meant to ensure Multi-Modal facilities are sustainable and efficient.

Alternative 2

This concept is also completely contained within the City/County of San Francisco. With the removal of the cul-de-sac in favor of placing all passenger loading onto Street A, this alternative max imizes the amount of developable land on blocks 11 and 12. However, a consequence of removing the cul-de-sac is a negative impact on development potential along the Street A since street fronting residential uses would be less desirable in front of passenger loading zones. It would be easy to implement, since Street F, east of Street A is most consistent with the original Schlage Open Space Streetscape Master Plan (OSSMP). However, this alternative deviates from the original OSSMP in that Sunnydale Avenue would not connect directly to the Caltrain station and curbs on Street A would prioritize Multi-Modal operations.

Similar to Alternative 1, Alternative 2 could be implemented at a relatively low order of magnitude cost.

Alternative 3

This alternative expands the Multi-Modal Facility footprint with the creation of a station loop road. With this design, the amount of developable land on block 12 is reduced compared to the other alternatives. It also encroaches into the City of Brisbane (approximately 26,000 square feet). From a development potential perspective, this alternative removes facility elements from Street A, allowing for curb use more consistent with residential building frontages. With its new

³ Regional plans and policies reviewed for consistency are documented in the Phase I Memo, Appendix A: Data Collection (Stantec, December 2015).

street network, wider sidewalks, and plaza in the southeast corner, this alternative would have the highest construction costs.

This alternative has more implementation challenges than the other three alternatives, because it includes new streets, reduces developable land on block 12, and would require coordination and agreement with the City of Brisbane and the Brisbane Baylands landowner. It is less consistent with the Schlage Lock site plan than the other three alternatives but is consistent with regional guidelines, by including elements such as direct sightlines, expanding the street grid, and street space dedicated to solely to the Multi-Modal Facility and its users.

Alternative 4

This facility concept is almost fully located outside of San Francisco City and County lines (41,000 square feet) and would offer the most developable land on block 11 and 12. Thus it is consistent with the Schlage Lock site plan but this concept would be at the expense of developable land on the Brisbane Baylands site. However, the Multi-Modal access, amenity and circulation benefits it would offer to potential future development in Brisbane is justifiable. Similar to Alternative 3, this alternative removes facility elements from Street A, allowing for curb uses more consistent with residences. Requiring coordination and agreement with the City of Brisbane and the Brisbane Baylands landowner, it has several implementation challenges similar to Alternative 3. This alternative would have a higher cost of construction than Alternatives 1 and 2, and depending on construction costs of the roadway, could surpass Alternative 3 as the most expensive.

It is consistent with regional guidelines, including direct sightlines, convenient pedestrian and bicycle connections, and street space dedicated to solely to the Multi-Modal Facility and its users.

SUMMARY

More detailed recommendations and implementation steps will be discussed in the final report. This evaluation found that all four alternatives are feasible; none have a fatal flaw with regards to transit operations and performance, multimodal connectivity, vehicular access, or policy and implementation considerations as evaluated.

Alternatives 3 and 4 consistently ranked higher than Alternatives 1 and 2 in operations, functionality, non-motorized connectivity, and consistency with regional guidelines. Alternatives 3 and 4 provide a greater sense of place and offer more land area for facility elements such as shelters, waiting area/benches, landscaping, wayfinding, kiosks, etc. since they connect directly to the southbound Caltrain platform.

Implementation of Alternatives 1 and 2 would be far easier than Alternatives 3 and 4. Alternatives 3 and 4, with their expanded footprint and new, Multi-Modal streets would require construction in the City of Brisbane, requiring significant coordination and contractual agreements. Alternatives 1 and 2 could be constructed at a much lower order of magnitude cost than Alternatives 3 and 4.

Appendix A

Quantifiable measures used to evaluate the four Alternatives are presented in the following figures, organized by the categories in the report.

Transit Operations & Performance

Alternatives 3 and 4 provide a significantly shorter walk to the Caltrain platform for pedestrians getting dropped off from employer or community shuttles, as shown in Figure A1.

All other transit connections are expected to take place along Bayshore Boulevard, which means that the distances pedestrians would have to walk to connect from the Caltrain platform are influenced greatly by whether or not their path is direct. Besides the northbound Muni stop that is north of the proposed paseo in the development, having a direct connection along Sunnydale Avenue, as in Alternatives 3 and 4, reduces the walking or biking distance to Bayshore Boulevard.

Definition	Alt 1	Alt 2	Alt 3	Alt 4
Employer/community shuttles	225	435	30	70
Geneva-Harney BRT, Muni 9/9R, Muni Metro T- Third, SamTrans 292	1,065	1,070	890	885
Muni 8, 8BX, 9 Owl	1,275	1,285	1,305	1,290
Southbound Muni 9/9R	1,445	1,425	1,035	1,030

Figure A1 Proximity from Caltrain platform to connecting transit (in feet) – closest stop

Multi-Modal Connectivity

Alternatives 3 and 4 provide a significantly shorter walk to the Caltrain platform for pedestrians getting dropped off at the passenger loading zone, as shown in Figure A2.

Figure A2 Proximity of passenger loading zone to Caltrain platform (in feet)

Definition	Alt 1	Alt 2	Alt 3	Alt 4
Walking distance from Caltrain platform to passenger loading zone	430	500	50	40
Distance from Caltrain platform to bicycle network	430	430	35	35

Vehicle Access

The length of the passenger loading zone was desired to be at least 170 feet, or the length of approximately eight cars. All alternatives met this criteria, but Alternative 3, with 140 feet more space than the others, was not ranked higher because it is not necessarily more ideal. The space could ultimately be programmed for something other than passenger pick up at full build out of the project.

All alternatives are consistent with width of the access lane required by the city of San Francisco Fire Department.

Figure A3 Convenience to Caltrain via Automobile (in feet)

Definition	Alt 1	Alt 2	Alt 3	Alt 4
Length of passenger loading zone	200	200	340	200
Width of access lane	26	26	22	20

Policy and Implementation Considerations Metrics

Although it is preferred that the alternatives are sited fully in the City and County of San Francisco, there is a benefit of having more room for development and accessibility for all users to the Caltrain Station on the Schlage development site, and therefore was not considered a fatal flaw. The extent to which the facility is sited in Brisbane is shown in Figure A4. The breakdown of developable space by alternative is presented in Figure A5.

Figure A4 Extent of facility development sited in Brisbane (in s	in square feet)
--	-----------------

	Alt 1	Alt 2	Alt 3	Alt 4
Extent of facility located in Brisbane	0	0	26,321	41,386

Block	Alt 1	Alt 2	Alt 3	Alt 4
11	31,800	36,400	38,900	38,900
12	51,900	58,100	47,900	55,900
Total	83,700	94,500	86,700	94,700

Figure A5 Approximate total square footage of developable space



M E M O R A N D U M

To: San Francisco Planning Department

From: Nelson\Nygaard

Date: March 6, 2017

Subject: Bayshore Multi-Modal Facility Study Phase II – Task 2.7: Station Operations and Multi-Modal Connectivity

The Bay shore Multi-Modal Facility will improve access to the Bayshore Caltrain Station by closing the existing physical gap between the station and surrounding land uses and transit connections, as shown in Figure 1.

YOSENT WESTERN SEGMENT DALY CITY CENTRAL 101 Option B: Recology North SEGMENT RRISBANE ----- Oction G Bealty Avenus O Potential Multi-Modal Transfer Location Ω. 28R 19th Avenue Existing -T- Existing Muni Metro Light Rail 0.5 28R / Geneva-Hamey (GH) BRT: Western Segment — Existing Muni Bus Routos (Express Routos Not Shown) City and State Parks Scale 1.22 137 Date Saved: 11/3/2016 28R / GH BRT: Central Segment Preferred Multi-modal Facility Location on Sunnydale Ave -292- Existing SamTrans Bus Routes For reference contact: daniel.sheeter@sfmta.com 28R / GH BRT: Eastern Segment +--+ Caltrain / Future High-Speed Rail Alignment SFMTA

Figure 1 Study Area and Caltrain Spatial Gap to Surrounding Uses

Source: SFMTA 2017

Currently, Muni and SamTrans services along Bayshore Boulevard do not have an accessible connection to the Bayshore Caltrain Station. Further, bicycle and pedestrian access is only available through a circuitous, out-of-direction routing via Blanken and Tunnel Avenue. Along with the Schlage Lock streetscape network, the Bayshore Multi-Modal Facility will provide safe, direct connections needed to grow ridership, increase safety and serve existing and future neighborhoods. Together with the planned Geneva-Harney BRT Line, the Multi-Modal Facility will facilitate a vast improvement in east-west mobility serving the southern portion of San Francisco. In particular, Geneva-Harney BRT will connect Caltrain to existing and planned Muni

and SamTrans services, linking Candlestick/Hunters Point in the east to destinations in Visitacion Valley and then west to the Balboa Park BART Station and the Sunset District.

Study Background

Phase I of the Bayshore Multi-Modal Facility Study identified Sunnydale Avenue as the preferred location for a Multi-Modal Facility, as shown in Figure 2. Phase II develops and evaluates concept alternatives for the preferred location based on consultant analysis, public agency input and community feedback. The facility location and design as recommended through Phase I and II focuses on a mid-term timeframe for implementation, roughly in the 2023-2025 window, which would coincide with Geneva-Harney BRT.

As development in Schlage Lock continues, further discussion of the preferred design and elements of the Multi-Modal Facility will be undertaken in order to ensure what is eventually built is useful, accessible, attractive, and scalable. Dependent on other agency projects including those from Caltrain, Caltrans, CHSRA, City of Brisbane, and City and County of San Francisco, the elements of the Multi-Modal Facility may be relocated to better serve users in the long-term.

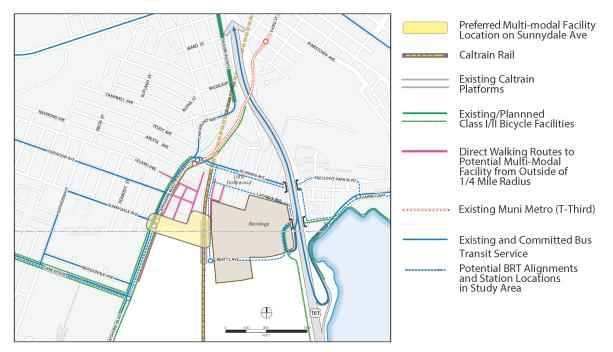


Figure 2 Sunnydale Avenue Preferred Multi-Modal Facility Location

Purpose of Task 2.7 Memo

The following memorandum consists of an assessment of the non-motorized conditions (i.e. pedestrian/bicycling) in the Multi-Modal Facility Study A rea with a focus on connections to surrounding land use and transit opportunities. It recommends improvements to enhance connectivity and accessibility to surrounding land uses and transit opportunities. This connectivity assessment takes into account qualities relevant to the non-motorized environment, including buffer from traffic, pedestrian crossing conditions, pedestrian supportive infrastructure, bicycle infrastructure, transit amenities, slopes, auto speeds, and safety.

LAND USE CONNECTIVITY

The preferred location for the Bayshore Multi-Modal Facility would be adjacent to the southbound Bayshore Caltrain Station platform along the future Sunnydale Avenue corridor. This facility would be fully contained within the Schlage Lock development (Alternatives 1 & 2) or partially within the Schlage Lock development and partially within Brisbane Baylands (Alternatives 3 & 4). There are several essential land uses, both planned and in development, that the Multi-Modal Facility must connect to. They include:

- Existing residences to the **west** of Bayshore Boulevard (i.e. the Visitacion Valley neighborhood)
- Potential commercial areas to the **south** of the City-Countyline (i.e. the Brisbane Baylands project) and the Brisbane commercial core off Bayshore Boulevard.
- Existing residences and employers to the **east** of Tunnel Avenue and Bayshore Boulevard (i.e. Recology, Executive Park, and Candlestick Point), as well as existing residences to the **north** of Arleta and Blanken (i.e. the Little Hollywood neighborhood)

Access and connectivity between Study Area land uses and the Multi-Modal Facility are essentially the same across all four alternatives currently under consideration. Each alternative under consideration includes a facility concept between Bayshore Boulevard and the Bayshore Caltrain Station along or near Sunnydale Avenue. Multi-Modal Facility users would utilize the existing street network (i.e. sidewalks, bicycle facilities, etc.) to travel to/from destinations. The only significant difference between the alternatives is that Alternatives 3 & 4 offer the most convenient access for people walking and biking from Bayshore Boulevard via a proposed mixed use path on Sunnydale Avenue (directly connecting Bayshore Boulevard with the Caltrain Station).

Multi-Modal Access Assessment

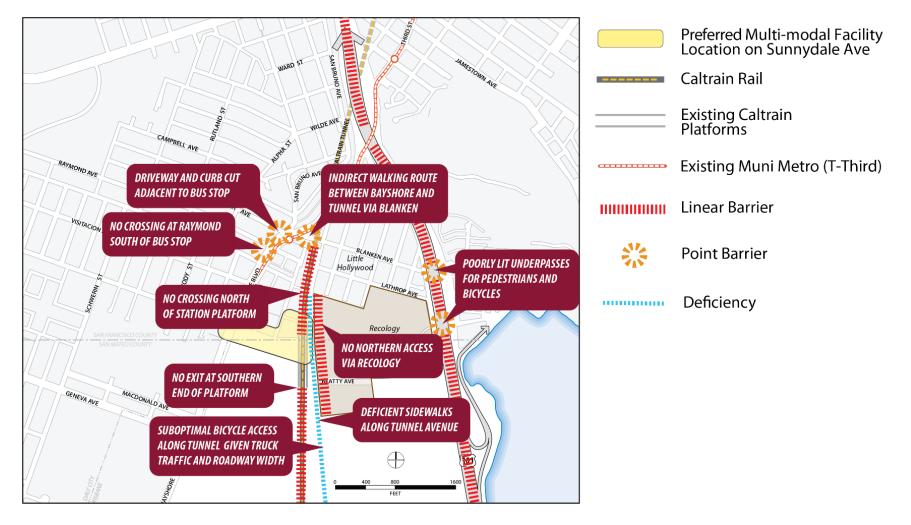
Walkability and bikability is especially important in creating an environment that makes for desirable places to live and work. This assessment looks at access to the various land uses and land use types to the west, south, east, and north of the Multi-Modal Facility location and recommends improvements that increase convenience, comfort, and safety for non-motorized modes, such as walking and biking.



Figure 3 Immediate Facility Study Area

The development of the Schlage Lock street network, as shown in Figure 3, provides opportunities for greater walkability to and around the Multi-Modal Facility. However, the existing area surrounding the facility site still presents many barriers to the convenience, comfort, and safety of users who will be walking and biking to the facility. These barriers, as shown in Figure 4, exist in the form of linear barriers (such as wide and high-speed rights-of-way and property fences), point barriers (such as dangerous intersections), and deficiencies (such as non-existent or currently dilapidated sidewalks).

Figure 4 Barriers for Pedestrian and Bicycle Access



The barriers and opportunities for facility access via non-motorized transportation are described below and are categorized by the direction of travel to and from the facility.

From the West

In general, connections to points west require the crossing of Bayshore Boulevard (as well as the right-of-way for the T-Third light railline). As shown in Figure 6, Bayshore Boulevard is a busy corridor for many vehicles, some of which are travelling at speeds over the limit of 35 miles per hour. Overall, the pedestrian experience up and down Bayshore Boulevard is lacking in appeal, and faces many safety compromises in the form of curb cuts for businesses ingress and egress, as well as encroachment of vehicles on the sidewalk space besides auto-oriented businesses along the west side of Bayshore Boulevard near Visitacion Avenue (see Figure 5).

Figure 5 Bayshore Boulevard facing south from Visitacion Avenue



Despite the many street trees along Bayshore Boulevard's sidewalks and medians, there is little comfort for pedestrians or safe sense of enclosure due to a lack of active pedestrian-oriented storefronts, as well as amenities along the street frontage zone, such as benches, planters, and short-term bicycle racks. Although they are clearly marked in the roadway, the bicycle facilities

¹ Source: Google (All pictures taken in 2016)

along Bayshore, also pictured in Figure 6, lack actual physical protection from vehicular traffic, as well as parked and stopping vehicles (both legally and illegally).





Immediately to the west from Bayshore, connections can be easily made with the commercial corridor of Leland Avenue (pictured in Figure 7). The crossing with Leland is the only signalized crossing of Bayshore Boulevard between A rleta Avenue and Visitacion Avenue. The block of Leland Avenue immediately west of Bayshore is a positive example of recently designed streetscaping standards that ensure sufficiently accessible paths of travel, safe and convenient provision of on-street bicycle parking, effective drainage, clearly designated and metered on-street parking, human-scaled street lighting, street trees, seating areas, public art, and textured crosswalks for greater driver awareness of pedestrians (pictured in Figure 8).

² Source: Nelson/Nygaard (all NN pictures taken in September 2016)



Figure 7 Leland Avenue facing northwest from Bayshore Boulevard

 $^{^3}$ Source: Nelson \Nygaard



Figure 8 Leland Avenue facing west from Bayshore Boulevard

Access from South

Facility users could use Tunnel Avenue or Bayshore Boulevard to access the facility from points south—particularly the City of Brisbane's commercial district via Bayshore Boulevard. Tunnel Avenue, south of the City-County line, lacks complete sidewalks on either side, as evidenced in Figure 9. Tunnel Avenue is also a Class III bike route and provides the direct bicycle access to central Brisbane via Old County Road and the Bay Trailvia Lagoon Road and Sierra Point Parkway.

⁴ Source: Google



Figure 9 Tunnel Avenue, facing north towards City-County line

The west side of Bayshore Boulevard has pedestrian infrastructure stretching as far south as the Brisbane City limit, just past the intersection with Geneva Avenue.

The most tangible bicycle infrastructure surrounding the site is a Class II on-street marked bicycle lane along Bayshore Boulevard. This is a logical opportunity for additional marked and protected lanes to provide lateral connections, wayfinding signage oriented to bicycle routes and major transit nodes, and possible changes in textures/paint to encourage greater driver awareness of non-motorized travelers for safety purposes. This is also apparent for access to and from the west.

Access from East

The greatest challenge of accessing the facility from the east is the self-evident barrier caused by the railroad right of way (pictured on Figure 10). To cross the tracks, one must either use the Caltrain pedestrian bridge (constructed in 2004) to the south, or walk north to Blanken Avenue. If one were to take the Blanken Avenue route from the facility, their route would be an indirect one (which is described in the section detailing northern access north below).

⁵ Source: Google



Figure 10 Caltrain Right-of-Way Facing South from Blanken Avenue

Immediately adjacent to the existing Caltrain station platform, along the parking spaces serving the station (shown in Figure 11), the pedestrian facilities have a path of travel that is barely sufficient for A mericans with Disabilities Act (ADA) standards. The constrained path of travel, caused by the placement of utility poles, protective fencing, could be easily subject to blockage by for eign objects or debris.

⁶ Source: Nelson\Nygaard



Figure 11 Caltrain station parking lot facing south toward platform

Bey ond the immediate station, a key access need to and from the east includes Executive Park. Getting to that location, however, necessitates crossing the Bayshore Freeway (U.S. Highway 101).

Although there is a Class III signed bicycle route providing access from points east beyond the Bay shore Freeway to the station v ia Alana Way and Beatty Avenue (which is also the most direct route between the Caltrain station entrance and Ex ecutive Park), it appears that there are no visible markings or protections for bicyclists. This segment, which is technically part of Bicycle Route #805, was identified in the 2009 San Francisco Bicycle Plan as a "long-term bicycle improvement project." Additionally, there are non-existent sidewalks along the Alana Way underpass, as shown in Figure 12, as well as along Beatty Avenue, shown in Figure 13.

⁷ Source: Nelson\Nygaard

Figure 12 Alana Way under the Bayshore Freeway facing east



Figure 13 Beatty Avenue facing west towards the Bayshore Station



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Access from North

The Bay shore Freeway, Recology site, and the topography stretching from the Excelsior district, through Mc Claren Park, and Candlestick Point all act as major barriers for access from the north and portions of Little Hollywood. Pedestrians and bicycles coming from the north are essentially

⁸ Source: Google

⁹ Source: Google

forced onto Bayshore Boulevard or Tunnel Avenue to access the Multi-Modal Facility, Schlage Lock Development, or the Bayshore Caltrain Station. There are some shortcuts at dead ends in the street grid that allow non-motorized passage; however, like in Figure 14, these paths of travel are not paved or ramped, and are therefore not accessible to contemporary standards whatsoever.

Figure 14 Hester Avenue facing south towards Wheeler and Blanken Avenues

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To get to the facility walking south along Bayshore, one will have to cross Bayshore Boulevard. In all likelihood, the crossing may occur at the intersection involving Blanken Avenue. This intersection has an irregular design, complex signal timing, multiple transit routes, and the site of multiple pedestrian collisions (as detailed in the safety section below). Additionally, the current sidewalk conditions of Blanken Avenue between Bayshore Boulevard and Tunnel Avenue, shown in Figure 15, are uneven and inaccessible.

¹⁰ Source: Google



Figure 15 Blanken Avenue facing west toward Bayshore Boulevard

The most direct path to the facility from the north is currently not in the plans for the Schlage Lock development. If space permits, there could be a direct pedestrian connection through a public space from the corner of Street A and Raymond Avenue to Blanken Avenue (pictured in Figure 3), parallel to the railroad right of way and coordinated with any public space adjacent to the old office building. Without that design improvement, people would be forced to turn west onto Raymond Avenue until Bayshore Boulevard, and then backtrack (or decide to take an eastern route walking up Tunnel Avenue altogether). This is inconvenient to some walking routes that terminate in Little Hollywood. Safety

Even over the past several years, the immediate Study Area surrounding the Multi-Modal Facility has been the site of multiple pedestrian collisions. The locations of such collisions are identified in Figure 16. This section highlights where safety or other improvements should be considered through an analysis of collision data. In particular, the noteworthy hotspots of collisions that are most proximate to the Multi-Modal Facility include the intersections along Bayshore Boulevard, including:

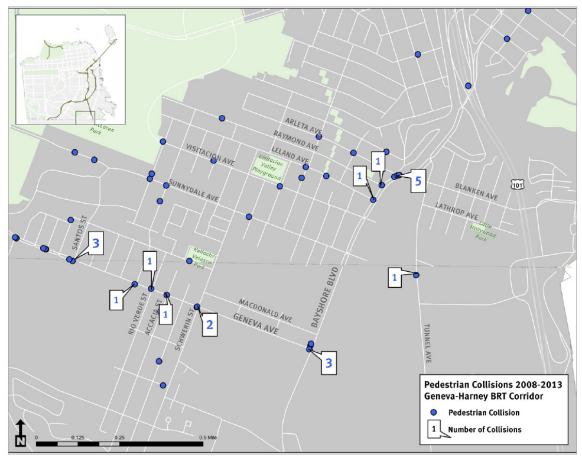
 Arleta Avenue/Blanken Avenue/San Bruno Avenue (which also includes the site of a bicycle collision as noted in Figure 17)

 $^{^{11}}$ Source: Nelson \Nygaard

- Ray mond Avenue
- GenevaAvenue

The dominance of Bayshore Boulevard in the Study Area with regards to safety issues (along with transit and businesses accessibility), underscore the recommendations that follow at the end of this memo. In particular, that improvements in support of the Multi-Modal Facility depend on improvements made to the Bayshore Boulevard corridor and—at the very least—its intersection with Arleta, Blanken, and San Bruno Avenues.

Figure 16 Pedestrian Collisions 2008-2013



12

¹² Geneva-Harney BRT Feasibility Report, 29.



Figure 17 Bicycle Collisions 2008-2013

13

TRANSIT CONNECTIVITY

Walkability is a critical component of a successful transit system, since every transit trip begins or ends with a walk trip. This section details multimodal access with regards to accessing transit stops (both existing and planned) from the facility location. Existing barriers and priorities for future improvement are influenced by many factors, including the design of the bus stops and intersections, the ease of transferring between services, and the context of where service will see tangible improvements and frequency. Therefore, it is important to first look at the overall context of transit services in proximity to the facility.

Existing Transit Services

The transit services specified in Figure 18 are accessible within a reasonable walking distance (1/4 mile or 7.5 minutes) of the Multi-Modal Facility and Bayshore Caltrain Station.

¹³ Geneva-Harney BRT Feasibility Report, 31.

Route	Destination	Daily Headway Range (mins.)	AM / PM Peak Headway (mins.)	Weekday Hours of Operation
Muni Bus				
8-Bayshore	Balboa Park to Downtown San Francisco via Bayshore Blvd and US 101	8-15	8/8	4:40 am-1:15 am
8AX-Bayshore A Express	Geneva/Schwerin to downtown San Francisco and North Beach via San Bruno Avenue and US 101	8	8/8	6:40–10:00 am; 3:30–7:40 pm
8BX-Bayshore B Express	Balboa Park to Downtown San Francisco via Bayshore Blvd and US 101	8	8/8	6:20–10:00 am; 3:30–7:50 pm
9-San Bruno	Visitacion Valley to Downtown San Francisco via US 101 and Potrero Ave	12-20	12/12	4:55 am-1:40 am
9R-San Bruno Rapid	Visitacion Valley to Downtown San Francisco via US 101 and Potrero Ave	8	8/8	6:00 am-7:00 pm
90-San Bruno (Owl)	San Bruno Ave/Arleta Ave to Downtown San Francisco via US 101 and Potrero Ave	30	30	12:40 am-5:50 am
56-Rutland	Visitacion Valley and Executive Park via Blanken Ave	30	30/30	7:00 am-9:30 pm
Muni Metro (Light)	Rail)		-	-
T-Third	Embarcadero to Visitacion Valley / Sunnydale via Mission Bay, Dogpatch and Bayview	9-20	9/9	5:00 am-12:50 am
SamTrans (Bus)				
24	Brisbane to Westmoor HS (Daly City) via Geneva Ave and Mission St	(one bus)	-	7:10–7:50 am; 3:00–3:40 pm
29	Templeton/Brunswick (Daly City) to Lipman MS (Brisbane) via Geneva Ave and Bayshore Blvd	(one bus)	-	7:45–8:15 am; 3:10–3:40 pm
292	Hillsdale Shopping Center to Downtown San Francisco via Caltrain line and SFO	15-60	15/20	3:55 am-2:35 am
397	San Francisco to Brisbane and Palo Alto via Bayshore (Overnight)	60	-	12:45 am-6:25 am
Commuter Rail				
Caltrain	North to San Francisco; South to Peninsula (Bayshore Station)	60	60	6:35 am-12:10 am
Shuttle				
Bayshore-Brisbane Senior	Bayshore Caltrain Station to Daly City Library to downtown Brisbane via Bayshore Blvd	55-100	-	9:45 am-3:45 pm
Brisbane-Crocker Business Park	Balboa Park Station to Brisbane-Crocker Industrial Park via the Bayshore Caltrain Station	10-30	20/20	5:45–9:35 am; 2:45–7:30 pm
Brisbane-Bayshore Caltrain	Bayshore Caltrain Station to Brisbane-Crocker Industrial Park via Bayshore Blvd and San Bruno Ave	60	60	5:50–9:00 am; 4:45–7:10 pm
Daly City Bayshore	Serramonte Transit Center to Bayshore Blvd via Daly City and Balboa Park stations	65-100	65/65	6:30 am –8:03 pm
Executive Park	Balboa Park Station to Executive Park via Recology	30-45	30-45	6:10–8:15 am; 3:05–5:50 pm

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¹⁴ Geneva-Harney BRT Feasibility Report, p. 24

Caltrain Ridership

With such limited accessibility and a lack of station area serving uses, current and historical Caltrain ridership at the Bayshore Station is consistently near the bottom of all stations along the line. Roughly 250 people board at the station each day, which has remained constant over between 2014 and 2016. A major benefit of the Schlage Lock development and Geneva-Harney BRT combined with the Bayshore Multi-Modal Facility is that together they would hopefully result in higher level of Caltrain service at this station. This greater ridership potential is reflected in both the high planned development levels around the station and major upgrades in station accessibility, security, and potential transit-oriented development.

Muni Ridership

As shown in Figure 19, most of the Muni ridership in the study area is lightly distributed (with less than 50 daily boardings plus alightings per stop) on the streets surrounding the Multi-Modal Facility site location on Sunnydale Avenue. The busiest stop, at Bayshore Boulevard and Blanken Avenue, has a combined daily stop activity of 56 boardings and alightings The next stop that comes close in ridership is outside the study area (and City limits) at the intersection of Geneva Avenue and Schwerin Street. These ridership counts were taken in 2011, during the Muni Transit Effectiveness Project planning process, and then used in the Geneva-Harney BRT Feasibility Study, published by SFCTA in 2015. Since these ridership counts occurred prior to any Muni Forward service improvements, todays' ridership in the study area is expected to be somewhat higher than shown, and will continue to increase as new development comes online.

Just like in the safety assessment, Bayshore Boulevard's relative dominance of ridership and overall traffic within the study area necessitates its improvement as a top recommendation.

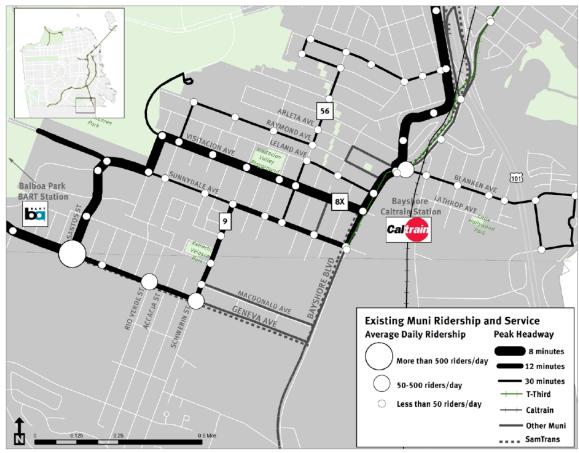


Figure 19 Existing Muni Ridership and Service Map

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Planned Transit Service Improvements

Within the Study Area there are several planned transit improvements that would affect the use and operation of the Multi-Modal Facility, as well as facilitate travel between the facility and key destinations. These transit improvements include the Geneva-Harney Bus Rapid Transit route, the Geneva Avenue & Visitacion Valley Multimodal I mprovement Project (benefiting the 8 Bay shore), and Caltrain Electrification.

The Geneva-Harney Bus Rapid Transit (BRT) line is a proposed service envisioned to provide existing and future neighborhoods along the San Mateo-San Francisco County border with a bus connection to the border area's key regional transit system hubs. Initial service would offer 8 minute headways and would improve based on demand. From its northern terminus in the Inner Richmond neighborhood, the route would assume the 28R routing along 19th Avenue to Daly City BART and then to Balboa Park BART. The From Balboa Park BART/Muni Station in the west the corridor extends to Hunters Point Shipyard in the east, including making a connection to the Bayshore Caltrain Station.

¹⁵ Geneva-Harney BRT Feasibility Report, 23.

Ex act routing east of the Caltrain tracks has yet to be determined, but within the Study Area, the closest station connecting to the Bayshore Caltrain Station would be on Bay shore Boulevard at Sunnydale Avenue. Additional connections could be made at a stop northwest of the Multi-Modal Facility on Bayshore Boulevard at Arleta/Blanken Avenues.

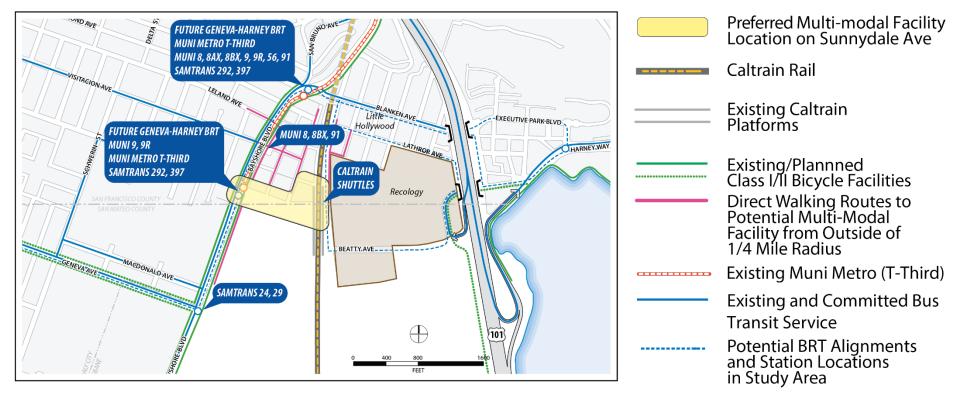
- As part of Muni Forward, SFMTA is proposing transit priority and pedestrian safety improvements along the route that will make it safer to walk, increase the frequency and reliability of service, and enhance the customer experience—on and off the bus. Within the Study Area, Muni Forward would make improvements to Visitacion Avenue and Bay shore Boulevard.
- The Caltrain Modernization Program would electrify the Caltrain Corridor from San Francisco's 4th and King Station to Tamien Station in San Jose, converts diesel-hauled to Electric Multiple Unit (EMU) trains, and increases service up to six Caltrain trains per peak hour per direction. At the Bayshore Caltrain Station service frequency could be increased from 1 train per hour per direction to 2 trains per hour per direction based on demand. A successful Multi-Modal Facility would encourage activity at the Bayshore Caltrain Station and have a synergistic effect on justifying more Caltrain service.

Transit Access Assessment

Although the Study Area currently has an abundance of transit service, the majority of it is focused on connections to downtown San Francisco. One notable exception is that the 8-Bayshore currently provides service to Balboa Park BA RT. Ultimately, the planned Geneva-Harney BRT route will be the only true east-west route traversing southern San Francisco/northern San Mateo counties linking Daly City to Candlestick-Hunters Point via the Bayshore Multi-Modal Facility. Safe, convenient, and proximate connections between the Multi-Modal Facility and key transit service-- such as Geneva-Harney BRT -- are a critical component for overall success. The following assessment looks at access to transit to the west, south, east, and north of the Multi-Modal Facility location and recommends improvements.

As shown in Figure 20, the closest stops for each transit route serving the facility study area are not all in one place. This is partially a function of ensuring efficient transit operations (rather than require diverting bus routes), but it requires extra consideration to the journey one must take between these stops, as well as the stop designs themselves.

Figure 20 Transit Stops Proximate to Multi-Modal Facility Along Bayshore Boulevard



From the West

Along Bayshore Boulevard between Sunnydale and Visitacion Avenues is an existing and planned regional transit stop, serving Muni local services, Muni express services, Muni Metro, Samtrans services, and the planned Geneva-Harney BRT. A ccessing the stop will be the first essential connection for people using the facility, primarily because it will be the most proximate transit connection serving the majority of connecting transit services.

Currently, the straightaway along this stretch Bayshore Boulevard, along with a current restriction for on-street parking on the east side of the street, ensures ample room for buses to stop and, if just north of Sunnydale Avenue, layover between runs. This substantial space for both vehicles and waiting passengers is shown in Figure 21. The nortbound transit boarding areas are currently being coordinated with the developer of Schlage Lock and should be built when adjacent parcels are developed.



Figure 21 Bayshore Boulevard facing north towards Visitacion Avenue

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Regarding southbound buses, the current bus stops split at this intersection. Buses going to wards Balboa Park BART (the 9 series of Muni buses) turn west onto Sunnydale and stop, while buses going southbound stop on the far side of Sunnydale Avenue. It will be easier to make a connection between the 9 series buses and Samtrans routes at the Bayshore/Arleta stop, as they both stop at

¹⁶ Source: Nelson\Nygaard

the exact same location. Nevertheless, the possibility of a transfer should still be accounted in future intersection improvements, especially as the Geneva-Harney BRT gets constructed, which will amplify supply and demand for the critical east-west link.

As people move west from the facility, regardless of the Alternative chosen, they will reach Bay shore Boulevard at the intersection of either Sunnydale or Visitacion Avenues. Ensuring there is a safe and accessible route within the rights-of-way of both those streets and Bayshore Boulevard (sidewalk and median included) to all stops and stations is critical. These improvements should be done in advance, and in tandem with, the development of the Geneva-Harney BRT service.

From the South

South of Sunnydale Avenue, the next major transit stop that is planned to serve the Geneva-Harney BRT line at the intersection of Bayshore Boulevard and Geneva Avenue, located within San Mateo County (which also serves Samtrans school trippers). Because this intersection is situated a quarter-mile south of a planned stop that is more convenient to the facility at Sunnydale Avenue, the important priority for southern transit access is simply to ensure that there is a complete and accessible pedestrian connection between Sunnydale and Geneva Avenues. Ensuring sidewalk continuity along Bayshore Boulevard will increase the convenience and accessibility of the neighborhood.

From the East

As noted above, the main barrier involving any eastern access are the railroad tracks. It will be important to monitor activity on the Caltrain overpass stairwells and elevators for congestion during peak travel times as people access multiple transit and shuttle services (ranging from Caltrain to the private shuttles). However, it is expected that activity will be minimal on the east side, especially as shuttle stops will be reconfigured to serve the facility directly on the west side.

Making a connection to Geneva-Harney BRT service (the primary east-west transit serving the facility area in the future), will be preferable for some people using the facility on the eastern side—especially people disembarking a northbound Caltrain service (as they may not want to cross the tracks using the pedestrian bridge). This non-motorized connection to Geneva-Harney BRT will be dependent on the alignment selected for the project. While routing between Bayshore Boulevard and Ex ecutive Park is still under development, three options are currently being considered. Two of the three options would include a stop near the northbound Caltrain platform. The nearest stop under consideration for the east side of the facility is located at the corner of Recycle Road and Tunnel Avenue. Another routing option would include an easement granted by Recology for a new bus-only road along Visitacion Avenue.

Figure 22 Tunnel Avenue facing north at Beatty Avenue



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From the North

Serving light rail, local buses, and express buses the Arleta/Blanken/San Bruno intersection with Bay shore Boulevard is an important transit node—owed in part to the fact that it currently has a higher ridership than any other location in the study area. However, safe access for pedestrians and bicyclists at this location is also complex and hindered by the existing conditions along Bay shore Boulevard.

The T-Third Muni Metro stop ("Arleta Station"), which opened in 2007, is up to code on pedestrian accessibility standards. The northbound and southbound bus stops along San Bruno and Bay shore, however, are spatially constrained.

The northbound bus stop's spatial constraints are mostly owed to its placement on an incline of over 5% along San Bruno Avenue between a westbound curve in the road and its eventual merger with Bayshore Boulevard. From a pedestrian perspective, the stop provides sufficient paths of travel, accessible curb ramps at the intersection, and a level waiting area at the front of the stop. However, the bus stop itself, with an estimate "red curb" length of 90 feet, may be too short for 60-foot articulated buses (Muni policy sets a typical length of 100 feet for farside 60-foot bus stops).¹⁸ Insufficient room for buses to pull in and out of the stops may compromise the overall multimodal transportation system with regards to both efficiency and safety. Although this could be remedied by extending the designated "red curb" bus stop zone, it would interfere with both a

¹⁷ Source: Google

 $^{^{18}} http://nacto.org/wp-content/uploads/2016/05/1-7_Tanner-Transit-Stop-Spacing-Location-and-Infrastructure_2015.pdf$

private residential driveway and a curve in the road. Therefore, a bus bulb may be more appropriate if space is constrained.

A different, yet also important, design concern exists in the southbound stop. Overall, the estimated "red curb" length of the stop is approximately 105 feet. However, about 60 feet from the point of curvature, there is a two-way driveway that directly serves the 7-Eleven convenience store at 2200 Bayshore Boulevard. This may cause a point of conflict between traffic on Bayshore Boulevard, but it also endangers people walking along the roadway or waiting for the bus. Additionally, as evidenced in Figure 23 there may not be sufficient space for two buses stopping consecutively, as is the case during weekday peak travel times (the policy for a farside stop accommodating consecutive 60-foot buses is a minimum of 165 feet). In Figure 23, a bus has no choice but to stop directly in the crosswalk, blocking the views of drivers on Arleta Avenue, and compromising the ability of pedestrians to safely cross Bayshore Boulevard and access the facility.



Figure 23 Bayshore Boulevard facing west, just south of Arleta/Blanken

In addition to accommodating access from this stop to the facility, there is also a need to improve currently existing transit connections—namely between buses and light rail. In such instances (demonstrated in Figure 24, passengers disembarking the T-Third light rail at A rleta Station may

 $^{^{19}}$ Source: Nelson \Nygaard

currently be inclined to cross Arleta Avenue in the median of Bayshore Boulevard in hopes of reaching the southern side of the intersection—and in turn, the southbound bus stop along Bay shore Boulevard.

Figure 24 Bayshore Boulevard facing west, just north of Arleta/Blanken



 $^{^{20}}$ Source: Nelson \ Nygaard

RECOMMENDATIONS

This assessment has highlighted a number of challenges, barriers, and opportunities to access to surrounding land use and transit in the Study Area. The improvements that will improve facility access are necessary regardless of which alternative facility design is ultimately chosen. Once a facility user walks or bikes away from the Caltrain platform, their spatial choices outside of the Schalge Lock development will be identical. Improvements are summarized by access direction below:

Improvement and Location	Details of Necessary Infrastructure and Improvements	Transit Connections Supported
West of Facility		
Enhance pedestrian safety, convenience, and aesthetic improvements along Bayshore Boulevard between Geneva and Arleta	High visibility crosswalks and pavement markings, bulbouts, sidewalk re-surfacing, short-term bicycle parking racks and other items that protect pedestrians while providing a greater sense of enclosure and caution for all transportation modes.	 Geneva-Harney BRT Muni 8, 8X, 9, 9R Muni Metro (T-Third) Samtrans 24, 29, 292, 397
South of Facility		
Rehabilitate sidewalk connections along Bayshore and Tunnel on both sides of the City-County border.	ADA accessible sidewalk facilities, including a sufficiently wide and level path of travel, with detectable panels and ramps at all curb cuts	 Geneva-Harney BRT Samtrans 24, 29
East of Facility		
Improve non-motorized connections between to Executive Park via Beatty and Alana	ADA accessible sidewalk facilities, and buffered or protected bicycle facilities (which are currently planned)	 Geneva-Harney BRT
Monitor usage of existing pedestrian bridge and vertical circulation	N/A	CaltrainShuttles
North of Facility		
Reconfigure the intersection of Blanken/Arleta/Bayshore/San Bruno to enhance safety and accommodate expanded BRT service.	Signal timing improvements, high- visibility crosswalks, automatic pedestrian signal actuation, automatic bus and light rail signal priority, bulbouts for both pedestrians and bus stops	 Muni 8, 8X, 9, 9R, 56 Muni Metro (T-Third)
Open a direct pedestrian access route running due north from the facility to Blanken Avenue, parallel to the railroad right of way and coordinated with any public space adjacent to the old office building.	ADA accessible sidewalk facilities, including a sufficiently wide and level path of travel for both bicycles and pedestrians – plus sufficient protections from railroad right-of- way	 Muni 8, 8X, 9, 9R, 56 Muni Metro (T-Third)

Figure 25 Recommended Improvements for Facility and Study Area Access



M E M O R A N D U M

To:	San Francisco Planning Department	
From:	Nelson\Nygaard	
Date:	March 30, 2017	
Subject	Subject: Bayshore Multi-Modal Facility Study Phase II – Task 2.8: Preliminary Feasibility	
	Assessment	

The Bay shore Multi-Modal Facility will improve access to the Bayshore Caltrain Station by closing the existing physical gap between the station and surrounding land uses and transit connections, as shown in Figure 1. As the critical link serving more than 18,000 new housing units, infrastructure improvements and existing neighborhoods throughout southeast San Francisco, a Multi-Modal Facility would support higher transit ridership on the planned Geneva-Harney BRT route and the potential for higher level of Caltrain service at this station.

Figure 1 Study Area and Caltrain Spatial Gap to Surrounding Uses



Source: SFMTA 2017

Study Background

Phase I of the Bayshore Multi-Modal Facility Study identified Sunnydale Avenue as the preferred location for a Multi-Modal Facility, as shown in Figure 2. This proposed location is within a

designated Priority Development Area (PDA) that encompasses area within both San Francisco and San Mateo Counties. It is also within close proximity of two other PDAs that are planned for significant new growth in housing and non-residential development.

Phase II develops and evaluates concept alternatives for the preferred location based on consultant analysis, public agency input and community feedback. The facility location and design as recommended through Phase I and II focuses on a mid-term timeframe for implementation, roughly in the 2023-2025 window, which would coincide with Geneva-Harney BRT.

As development in Schlage Lock continues, further discussion of the preferred design and elements of the Multi-Modal Facility will be undertaken in order to ensure what is eventually built is useful, accessible, attractive, and scalable. Dependent on other agency projects – including those from Caltrain, Caltrans, CHSRA, City of Brisbane, and City and County of San Francisco – Multi-Modal Facility elements near the Bayshore Caltrain Station may be added or relocated to better serve users in the long-term. Caltrain operations are outside the scope of this project, but coordinating transit service and local land use growth will be essential to serving the residents and employees of the bi-county area.

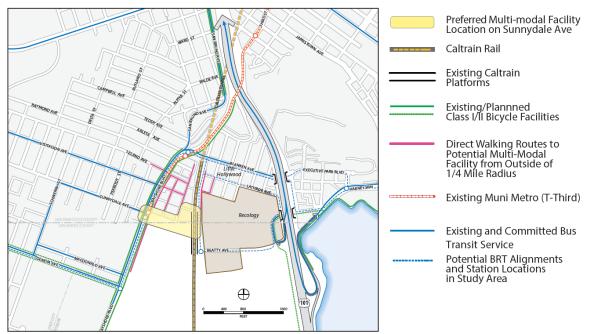


Figure 2 Sunnydale Avenue Preferred Multi-Modal Facility Location

Purpose of Task 2.8 Memo

The following memorandum consists of the preliminary feasibility assessment for the four concept alternatives created for the Bayshore Multi-Modal Facility at the Schlage Lock site in San Francisco. A feasibility analysis was necessary to determine a framework for moving forward and any fatal flaws associated with any of the alternatives. Specific refinements for each alternative were also considered as part of this review.

INTRODUCTION/OVERVIEW

Concept Alternatives

Phase 1 of the Bayshore Multimodal Facility Study determined several "required" elements for a Bay shore Multimodal Facility. Phase 2 of the Study developed four concept alternatives, each of which accommodate the required design elements and multimodal facility operations in a different way. The 4 concept alternatives are described as:

- 1. Cul-de-sac
- 2. On-street (Street A)
- 3. Loop road (Sunnydale Ave/Street F)
- 4. 'Tear drop' loop multimodal facility (Sunnydale Ave)

 $Figure {\tt 2} through Figure {\tt 5} show the {\tt 4} alternatives, their layout on the Schlage Lock site, and the conceptual locations of the multimodal facility elements.$

Intent of the Planning-level Review

Task 2.5 evaluated the concept alternatives based on a number of evaluation measures. This memo summarizes Task 2.8, a planning-level feasibility analysis of each alternative. A feasibility analysis was necessary to determine a framework for moving forward and any fatal flaws associated with any of the alternatives. Specific refinements for each alternative were also considered as part of this review.

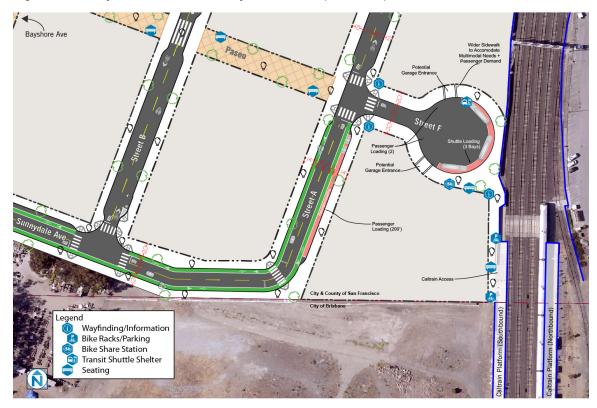
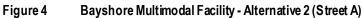
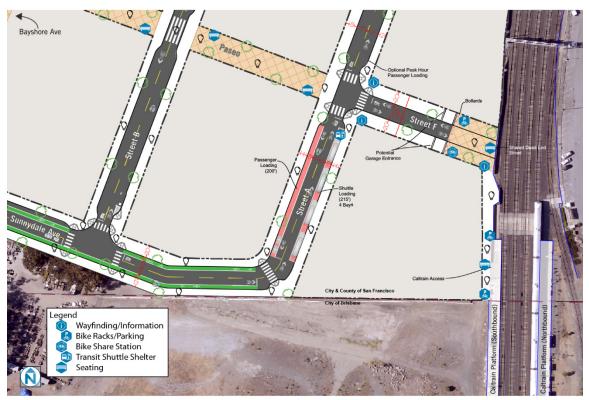


Figure 3 Bayshore Multimodal Facility - Alternative 1 (Cul-de-sac)





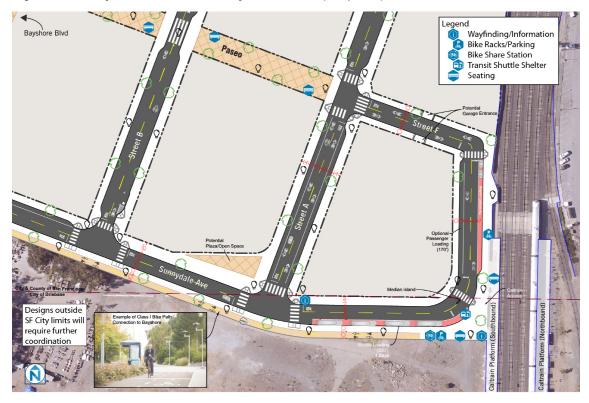


Figure 5 Bayshore Multimodal Facility - Alternative 3 (Loop road)

Figure 6 Bayshore Multimodal Facility - Alternative 4 (Tear drop)



PRELIMINARY FEASIBILITY ASSESSMENT

Areas of Analysis and Methodology

The project team was tasked to analyze the feasibility of all four multimodal facility concepts to determine opportunities, constraints, and any fatal flaws. The alternatives were analyzed with respect to the following key considerations:

- Grades and geotechnical considerations
- Order of magnitude cost estimates for Multi-Modal Facility elements
- Potential utility conflicts with relation to underground utilities and loading factors for MM facility elements
- Waiting and walking areas
- Ability to expand to accommodate other transportation uses and increased demand

Since the alternatives have much in common and include the same set of required multimodal facility elements, the feasibility assessment focused on areas where differences in the alternatives were significant.

Feasibility Assessment Results and Findings

The following sections detail the findings for each alternative as it relates to the areas of analysis listed above. Opportunities and challenges for each alternative are the centerpiece of this feasibility assessment, and are noted for each alternative.

Grades and Geotechnical Considerations

The four alternatives' site layouts were analyzed with respect to the grading plan in the proposed Schlage Plan to determine if any fatal flaws existed with any new roadway layouts and multimodal facility designs. The elevation of the existing Caltrain platform is slightly lower than the planned Schlage site, and grading up to the desired height needed to be considered.

The street configuration and access to the Bayshore Caltrain station in Alternative 1 are nearly the same as Schlage's proposed Phase I construction drawings. The fundamental difference is a larger cul-de-sac radius (see Task 2.5 memo). Due to these consistencies, grading or geotechnical conflicts are not anticipated. Since Alternative 2 is also largely consistent with the Alternative 1 and Schlage's proposed Phase I drawings, it is assumed that grading will not be an issue for this Alternative either.

Alternative 3 contains a roadway alignment that is different from the other alternatives by creating a parallel roadway adjacent to the Caltrain platform. Because the Caltrain platform is lower than Block 12 to the west, a cross-sloped roadway will need to be constructed to match the desired height of the block. If the cross slope is too great, a stepped entrance may have to be created at Block 12 to accommodate the elevation gain to the ground level of the building.

The grading in Alternative 4 will be similar to that of Alternative 2 along the southern edge of the Caltrain platform, and no critical issues are expected with this design.

Potential Utility Conflicts and Vehicle Loading Factors

The alternatives were evaluated with respect to any changes in the Schlage Plan that may cause issues or concerns with the proposed underground utility plan as well as examined the feasibility of ac commodating multimodal facility loading on the physical roadbed. It was determined that all alternatives are not expected to alter the existing Schlage Plan's roadway alignment significantly enough to require complete redesign of future underground utilities. Alternatives 3 and 4 contain additional roadway segments and blocks which will require additional utilities underground, but are not expected to conflict with the Schlage Plan utilities and may introduce additional opportunities for tie-ins beneath the new block segments.

Shuttle loading areas would ideally need to be constructed with appropriate concrete bus pads to endure the load of shuttle operations over time. These concrete pads are the same type as the ones used at Munistops and some general purpose vehicle parking lanes. Typically, an 8-9' concrete pad is constructed adjacent to the curb where the heavy vehicle will stop and start. The feasibility analysis concluded that concrete bus pads can be constructed at the shuttle loading areas for each alternative, including any passenger loading areas that may warrant them to withstand heavy vehicle use. Curved roadway segments where frequent shuttle stopping may occur can also be constructed in this manner.

Waiting and Walking Areas

Alternative 1 provides a relatively short walking distance for shuttle passengers from the cul-desac loading area, while people utilizing the passenger loading area will need to walk further if they are dropped off on Street A. The single access point at the end of the cul-de-sac constrains access and creates a longer journey for people walking and biking from west of Bayshore Avenue. The phy sical constraints of the access way itself may also create an undesirable place to walk, depending on the footprint of Block 11, its frontage, and pathway design elements. This alternative provides the least amount of sidewalk space for waiting areas and amenities like seating, bicycle parking, and a bike share station. Due to these constraints, some multimodal facility elements may be less substantial than in other alternatives.

In alternative 2, the walking and waiting areas adjacent to the Caltrain station for both passenger loading and shuttle passengers in this alternative is a longer distance and less desirable than in Alternative 1. In addition, the walking and biking routes to the Caltrain platform require walking around a building block in an indirect path from Sunnydale Avenue, as in Alternative 1. When compared to the cul-de-sac in Alternative 1, the additional pedestrian and shared spaces in Alternative 2 can accommodate more multimodal facility amenities, such as seating, bicycle parking, and bike share pods. The additional space, however, is not at the Caltrain station itself and may be an undesirable waiting area for Caltrain passengers.

A more open transition between the roadway and the Caltrain platform is introduced in Alternative 3, as opposed to the constrained access ways in Alternatives 1 and 2. This alternative provides unconstrained access to Caltrain from Sunnydale Ave, all points along the loop road. Alternative 3 offers the most direct access for people walking and biking from Bayshore Boulevard through a proposed mixed-use path on Sunnydale Avenue. Because of the new loop road's curve to the north at the Caltrain station, a large section of open sidewalk space can be utilized for the required multimodal facility elements, such as bicycle parking, waiting areas, and a bike share pod. Alternative 4 also provides the same direct access as Alternative 3 for people walking and biking from Bayshore Boulevard and to the west through a proposed mixed use path on Sunnydale Avenue. The location of both the shuttle loading and passenger loading offer a close proximity to the Caltrain platform. Access via Street F and the east side of Block 11 will remain, providing access for pedestrians and cyclists from the north. The end of the tear drop loading area provides an open transition between the roadway and the Caltrain platform, and allows for the greatest amount of sidewalk space for waiting areas and placement of multimodal facility elements.

Ability to Accommodate Increased Demand

Alternative 1 differs from the other alternatives in that the cul-de-sac shuttle bays can only support 3 independent loading operations. This could become a capacity issue in the future if there is an increase in shuttle demand. Operationally, the future placement of potential parking garage access points in the cul-de-sac may create conflicts during peakhours when general purpose traffic is mixed with the 3 shuttle bays. There may also be delays during the peak hours at the Street A and Street F intersection with shuttles and garage traffic exiting along with passenger loading, however it is not anticipated to be significant. Another constraint in Alternative 1 is the ability to expand the multimodal facility to accommodate increased demand. Limited public space is available to install additional amenities such as bicycle parking, bus shelters, and seating. There are few locations to repurpose for additional shuttle loading curb space if needed, all of which are designated for on-street parking. The building footprint set against a narrow access point to the Caltrain station provides further constraint that cannot be expanded in the future if needed.

Alternative 2 also contains a design that causes the building on Block 11 to constrain an already narrow access point to the Caltrain station, and limits further expansion of the facility or its elements in the future. There is some, but limited, curb space on Street A that can be repurposed for additional shuttle or passenger loading if future demand warrants it. Because of the separated, bi-directional passenger loading and shuttle operations in comparison to Alternative 1, traffic operations is not anticipated to create conflicts if there is increased demand.

Alternative 3's plaza feature at the southeast corner of the multimodal facility offers more open space for street amenities and their expansion if necessary. Because this space is adjacent to the Caltrain platform, it would be easier to swap out different features as demand dictates in the future. An example of this would be adding additional bike share infrastructure or seating. Expansion of curb space for additional passenger loading and shuttle loading operations would be as challenging as Alternatives 1 and 2, and would likely take from on-street parking planned on Street A. It is important to note that Alternative 3 creates new curb space for passenger loading and shuttle operations, so the net change if expansion is necessary would be less severe than in Alternatives 1 and 2.

The tear drop feature in Alternative 4 contains a similar amount of space for expansion of multimodal amenities as demand warrants, however allocating additional curb space for additional passenger loading or shuttle operations may require space to be taken from planned on-street parking on Street A. The planned curb space for passenger loading and shuttle operations is technically on the same side of the roadway on the same street and gives the unique opportunity to adjust the proportion of curb space allocated to passenger loading and shuttle operations as demand changes over time.

Development Yield Comparison

Each alternative yields a different amount of developable area surrounding the multimodal facility. A summary of each block's developable area by alternative can be found in Table 1 below. The values are an approximation and will ultimately vary based on final designs, sidewalk widths and other easements.

A reference of block numbers from the site developer can be seen in Figure 5 below.

Figure 7 Blocks Surrounding Multimodal Facility



Source: Schlage Open Space Streetscape Master Plan, June 2014

	Alternative			
Block	1	3	4	
11	31,800	36,400	38,900	38,900
12	51,900	58,100	47,900	55,900
Approximate total square footage of developable space	83,700	94,500	86,700	94,700

Table 1 Developable Area Comparison

Conceptual Cost Estimate

A planning-level cost estimate was created to highlight the differences in costs associates with construction of the four alternatives. The layout of the cost estimate separates the costs of construction line items that are common to all four alternatives, and those that are specific to each individual alternative. Markups and contingencies are included for each alternative.

Because the multimodal facility is located on the Southeast corner of the Schlage Lock site, only the costs surrounding the facility are listed in the estimate in Table 2 below. The itemized list contains elements located from Street B on the west to the Bayshore Caltrain Station on the east, and the City limits (or edge of site) on the south to Street F on the north. The exception to these limits is the pedestrian and bicycle pathway along Sunnydale Avenue from Bayshore Boulevard to the Caltrain Station. Roadway construction cost estimates are including at a planning level for all of the streets mentioned above. General site grading for the multimodal facility is assumed to be completed with similar effort for all four alternatives regardless of the roadway layout, and is imbedded into the roadway costs.

Table 2	$Bay shore {\rm Multimodal} {\rm Facility} {\rm Conceptual} {\rm Cost} {\rm Estimate}$
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ITEM	ALTERNATIVE	UNIT	QUANTITY	UNIT COST	TOTAL COST
	1	EA	10	\$650	\$6,500
Dike meke	2	EA	10	\$650	\$6,500
Bike racks	3	EA	20	\$650	\$13,000
	4	EA	20	\$650	\$13,000
	1	EA	10	\$8,000	\$80,000
Bike lockers, on-demand	2	EA	10	\$8,000	\$80,000
Bike lockers, on-demand	3	EA	20	\$8,000	\$160,000
	4	EA	20	\$8,000	\$160,000
	1	EA	3	\$25,000	\$75,000
Bus shelters	2	EA	4	\$25,000	\$100,000
Dussileiteis	3	EA	4	\$25,000	\$100,000
	4	EA	4	\$25,000	\$100,000
	1	LF	1310	\$450	\$589,500
Enhanced lighting around multimodal facility	2	LF	1310	\$450	\$589,500
	3	LF	1290	\$450	\$580,500
	4	LF	1390	\$450	\$625,500
	1	LF	2390	\$60	\$143,400
Conduit for multimodal facility lighting	2	LF	2390	\$60	\$143,400
	3	LF	2580	\$60	\$154,800
	4	LF	2490	\$60	\$149,400
Padastrian and biovala nathway on Sunnydala	3	SF	8000	\$60	\$480,000
Pedestrian and bicycle pathway on Sunnydale	4	SF	8000	\$60	\$480,000
Wayfinding signage (materials)	All	EA	15	\$500	\$7,500
Information kiosk (digital)	All	EA	1	\$5,000	\$5,000
Bikeshare station	All	LS			
Grasscrete (alternative 4 only)	4	SF	4500	\$10	\$45,000
Enhanced Planted Median (alternative 4 only)	4	LS			\$200,000

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		1	\$906,900
	MULTIMODAL FACILITIES SUBTOTAL	2	\$931,900
		3	\$1,500,800
		4	\$1,785,400
	MULTIMODAL FACILITIES + MARKUPS (30%)	1	\$1,178,970
		2	\$1,211,470
IVI		3	\$1,951,040
		4	\$2,321,020
		3 4	

Table 3	Bayshore Multimodal Facility Conceptual Cost Estimate

ROADWAY COST ESTIMATE	1	\$4,000,000	
	2	\$4,000,000	
	3	\$4,500,000	
	4	\$4,500,000	
	1	\$5,179,000	
ROADWAY + SOFT COSTS (30%)	2	\$5,211,000	
	3	\$6,451,000	
	4	\$6,821,000	

TOTAL COST (Rounded)	1	\$6,379,000
	2	\$6,411,000
	3	\$7,801,000
	4	\$8,171,000

The conceptual cost estimate shows many similarities in the alternatives. This is expected, as the multimodal facility requirements determined during the planning phase of this project set minimum criteria for amenities that were placed in the site plan for each alternative. Special attention was given to allow for adequate street and sidewalk space for these features, and the cost estimate reflects the estimated maximum number of each item that would be allowed to be placed given the space provided for each alternative. The overall cost of Alternatives 1 and 2 are lower partly because of the lack of space available to provide as many required multimodal facility elements as in Alternatives 3 and 4.

2 major components that cause the cost of Alternatives 3 and 4 to be higher is the mixed use path from Bayshore Boulevard to the Caltrain station and the additional roadway loops. The mixed-use path is an enhancement to the bicycle network over traditional bicycle lanes, and the additional roadway allows more direct access to the Caltrain station.