PREPARED FOR BAY AREA RAPID TRANSIT (BART)

BART DALY CITY STATION ACCESS IMPROVEMENT PLAN

Final Report

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in association with

FEHR & PEERS ARUP BMS

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(separate volume)

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EXECUTIVE SUMMARY

The Daly City BART Station Access Improvement Plan (SAIP) is a comprehensive analysis of the Daly City BART Station's shortcomings and access challenges and opportunities for improvement. The SAIP aims to improve station layout, transit operations, bicycle and pedestrian access, safety, and the patron experience.

The Daly City BART Station is one of the most frequented intermodal centers due to its robust BART, Muni, SamTrans and shuttle service, including the San Francisco State Shuttle. In addition, it is the northernmost BART Station with large park-and-ride facilities on the San Francisco peninsula. The easy auto access provided by its proximity to I-280 and surrounding arterial streets and attractive transit service help create a popular station, buzzing with activity.

The adjacent freeway, over 2,000 on-site parking spaces, John Daly Boulevard, and the BART guideway sever the station from its surroundings. In addition, the bus transfer center is perceived as dark, confined, and uninviting, traits not dispelled by the grey Modernist architecture of the station, chain link fence constraining pedestrian access, and an austere pedestrian tunnel.

Building off of these access challenges, the report outlines opportunities to improve the station's image in the BART system and in the neighborhood, including wayfinding, distinctive gateway treatments, daylighting, and public space enhancements to attract riders and create a sense of place.

The report recommends short-term, mid-term, and long-term alternatives to accommodate a substantial increase in transit service (Chapter 5). These transit alternatives range in ambition, and an extensive analysis of the tradeoffs, benefits, and costs inherent in each approach is included. The potential for transit-oriented development on the site of the existing surface parking lot at the intersection of De Long Street and John Daly Boulevard is also discussed.

The report highlights potential placemaking improvements (Chapter 6); pedestrian access and safety improvements, including an at-grade crosswalk at Niantic Avenue and John Daly Boulevard (Chapter 7); and bicycle access and safety improvements (Chapter 8). The traffic implications of the access recommendations are then analyzed in Chapter 9.

The issues studied in the Plan are not new and have been the subject of various access plans since 1985. As a continuation of these plans, the SAIP is action-oriented and intended for implementation. Therefore, Chapter 10 outlines "next steps" indicating potential short-term, mid-term, and long-term investments to improve station access.

1 INTRODUCTION

The Daly City BART Station has served as a major transfer point for commuters between the Peninsula/South Bay and San Francisco since the station opened in 1973. Currently the station is served by four BART lines, four Muni bus routes, five SamTrans bus routes, three private shuttle services, and three paratransit services. In addition, the station's proximity to I-280 and several major arterials, as well as its park-and-ride facilities, make for easy auto access. However, the physical location of the station, adjacent to the freeway, has resulted in a station that is disconnected and poorly integrated into the surrounding neighborhoods. In addition, the freeway and lack of pedestrian and bicycle facilities act as a significant barrier to those transit riders who wish to access the station on foot or by bike.

Looking ahead there is a number of major transit service changes proposed for the station as well as developments planned within a half-mile radius of the station. Most notably, the San Francisco Municipal Transportation Agency (SFMTA) Transit Effectiveness Project has recommended new bus service (Line 14 Mission[1] and Line 17 Parkmerced), SamTrans is looking to add Bus Rapid Transit service, and Parkmerced has proposed a new shuttle service to the station as part of its Master Plan. The City of Daly City is projecting an increase of approximately 500 dwelling units and 1,300 new jobs within a half mile of the station over the next 20 years. Lastly, BART and the City of Daly City have identified future transit-oriented development (TOD) opportunities at the station.

The increase in transit service and the growing number of jobs and residents in the area resulting from new development, serve to further enhance the need for improved multimodal access to the station.

[1] Pilot Project 14L Mission is now in service during morning and evening commutes at Daly City BART.

PROJECT SUMMARY

The larger study area for this project is shown in Figure 1-1.While the primary focus of the project will be on developing recommendations for the station itself and the adjacent circulation network, the study area includes the area within a half-mile radius around the station. Figure 1-2 shows the station itself.

This project is funded by Caltrans (Statewide Transit Planning Studies, Federal Transit Administration $5304 Funds). The SAIP focuses on three areas: 1) Transit operations; 2) Pedestrian and bicycle access; and 3) Safety and patron experience. Building on the 2006 Daly City BART Comprehensive Station Plan (CSP), which painted a clear picture of the multimodal access challenges facing the station area and articulated strategies to address them, this plan goes one step further by recommending, prioritizing, and developing concept drawings and cost estimates for specific operational and design projects at the station. These will accommodate planned future transit service, improve pedestrian and bicycle access and safety, and enhance the overall patron experience.

These recommendations are presented graphically in several conceptual designs. To varying degrees, the conceptual designs identify strategies to improve the bus intermodal facility to maximize operational efficiencies for buses and shuttles when they arrive, exit, and lay over for existing and future services from Muni, SamTrans, San Francisco State University (SF State), Parkmerced and others. The conceptual designs and the traffic analysis address circulation issues for all modes within the station proper and examine how the different modes can navigate with minimal operational and safety conflicts. This project also addresses bicycle and pedestrian safety and access to the station, particularly by evaluating the feasibility of a potential at-grade crosswalk across John Daly Boulevard at Niantic Avenue/East Station Road. Pedestrian crossings are currently prohibited on John Daly Boulevard at Niantic Avenue and Junipero Serra Boulevard; nonetheless, many people have been observed making this crossing.

Figure 1-1 Daly City BART Station Area

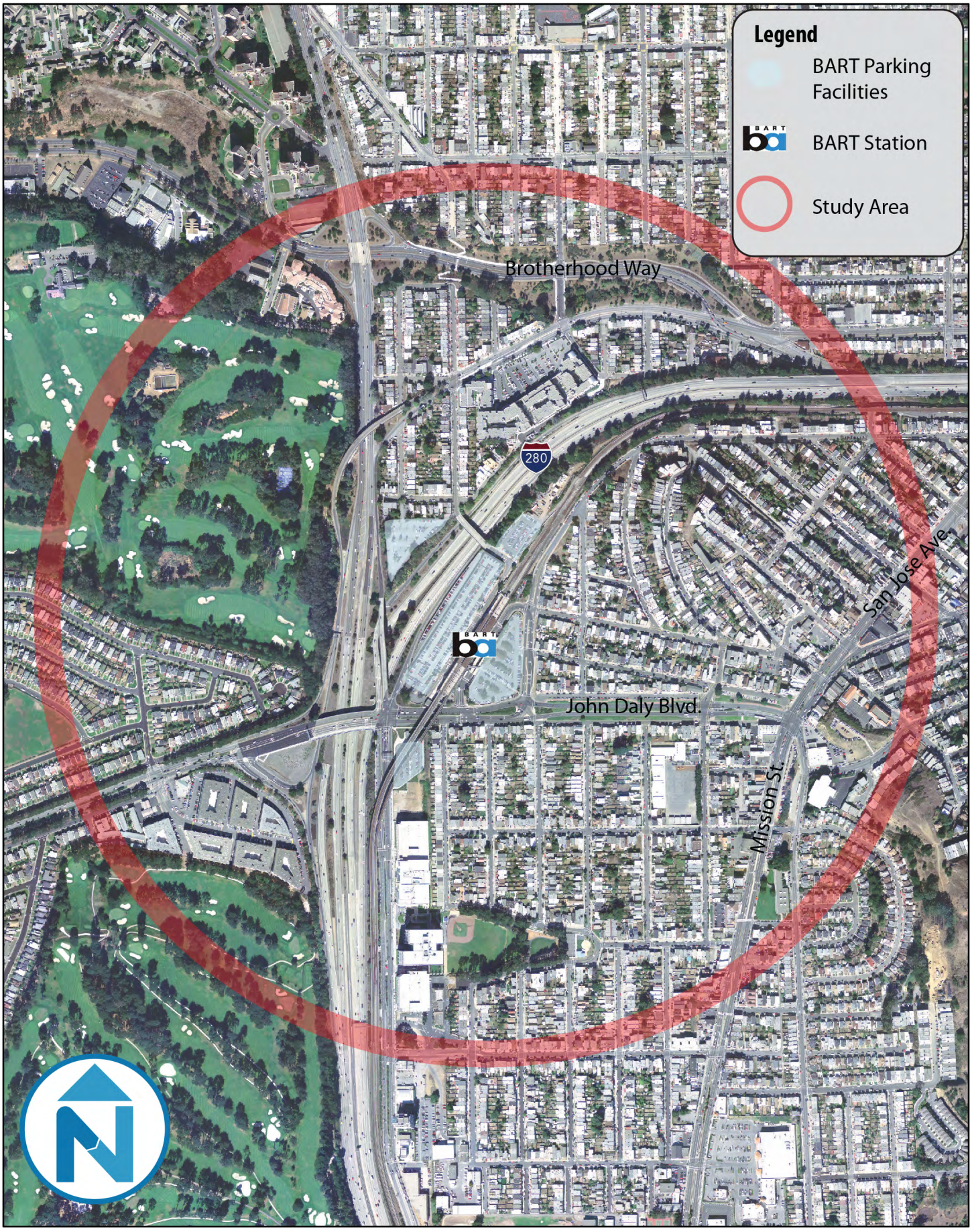
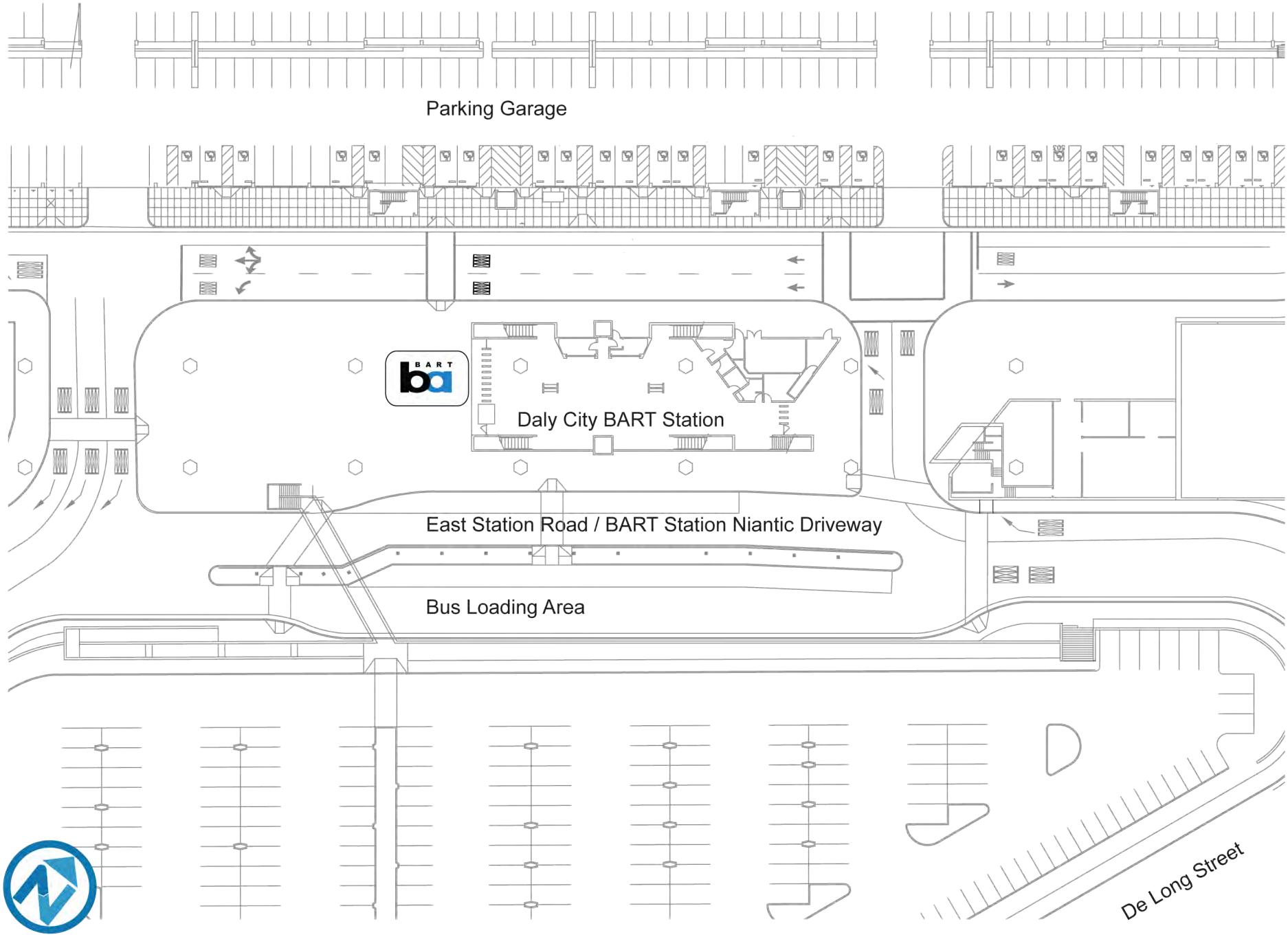


Figure 1-2 Daly City BART Station



STUDY GOALS AND OBJECTIVES

The Plan focuses on three areas: transit operations; pedestrian and bicycle access; and safety and patron experience.

For transit operations, the primary goals of the study are the following:

- Accommodate planned increases in bus and shuttle services, including the extension of Muni routes 14 and 17 to the station, additional SF State service, a new Parkmerced shuttle, potential future SamTrans Bus Rapid Transit (BRT), as well as increased frequency on several existing bus routes
- Provide more efficient drop off, pick up, and layover areas
- Preserve a terminal site for the future M Ocean View light rail line extension that maximizes transfer opportunities

For pedestrian and bicycle access, the primary goals of the study are the following:

- Strengthen pedestrian and bicycle connections to the station and surrounding communities
- Evaluate the feasibility of an at-grade crossing at John Daly Boulevard and Niantic Avenue/East Station Road

For safety and patron experience, the primary goals of the study are the following:

- Provide a higher quality passenger waiting environment and transfer experience
- Improve pedestrian and cyclist experience and amenities

Other study goals include:

- Reduce impacts, such as noise and congestion, on residential neighbors
- Facilitate vehicle circulation throughout the station for passenger vehicles, buses, and taxis
- Maximize future TOD opportunities on BART property

REPORT STRUCTURE

The report is divided into ten chapters.

- **Chapter 1: Introduction**
- **Chapter 2: Policy Framework** provides a brief summary of policy documents that have guided the SAIP process.
- **Chapter 2: Study Process** outlines the involvement by a Technical Advisory Committee and the public.
- **Chapter 4: Existing Conditions** describes the access, circulation, and operating conditions of the existing transportation network in the project vicinity.
- **Chapter 5: Conceptual Transit Access Alternatives** outlines one short-term concept, three capital mid-term project alternatives, one mid-term low-cost transportation system management alternative, and one long-term concept to accommodate future increased transit services.
- **Chapter 6: Placemaking Attributes** underpins station access and helps to create a station that is attractive and a source of distinction. This chapter articulates general design principles and station area improvements.
- **Chapter 7: Conceptual Pedestrian Access Alternatives** discusses John Daly Boulevard crossing improvements.
- **Chapter 8: Conceptual Bicycle Access Alternatives** addresses bicycle access to the station along John Daly Boulevard and De Long Street.
- **Chapter 9: Traffic Assessment** includes a discussion of the traffic impacts of transit, bicycle, and pedestrian access improvements.
- **Chapter 10: Next Steps** focuses on the next steps towards implementation.

2 POLICY FRAMEWORK

This chapter provides a brief summary of policy documents and plans that have influenced the SAIP process. For a more detailed summary of these documents, refer to Appendix A.

BART POLICIES

BART's policies offer guidance in important areas of long-term concern to the agency. The BART Board of Directors has approved the following policies:

- **Access Management & Improvement:** Goals include enhancing customer satisfaction, increasing ridership, creating access programs in partnership with communities, and management of programs and assets.
- **Station Area Planning:** Designed to use advanced transit-supportive land use policies to increase BART ridership.
- **Welfare to Work to Career:** Confirms BART's role in enhancing mobility for welfare to work clients.
- **Financial Stability:** Outlines BART's commitment to a strong and stable financial foundation.
- **Sustainability:** Reinforces BART's role in regional sustainability, quality of life, and economic growth.
- **Transit Oriented Development:** Outlines strategies to promote high quality, more intensive development on and near BART-owned properties in order to increase BART ridership, support long-term system capacity, generate new revenues for transit, and support local economic development.

BART GUIDELINES

Over the years, BART has studied its ridership, profiled each station, and developed guidelines governing access and development. These general BART guidelines inform station-specific access improvement studies, such as this one. These guidelines and studies include:

- Daly City BART Intermodal Study (1985)
- BART Bicycle Access and Parking Plan, Vol. 1 (2002)
- BART Transit-Oriented Development Guidelines (2003)
- BART Station Access Guidelines (2003) and other BART Access studies
- BART Daly City Comprehensive Station Plan (May 2006)
- BART Station Profile Survey (2008)

Daly City BART Intermodal Study

As early as 1985, operational issues at and around the Daly City BART Station were highlighted in the *Daly City BART Intermodal Study* (1985). The study identified the following issues:

- Conflict between bus flows and pedestrians crossing the bus travel lanes
- Obstruction of bus movements to the terminal by auto traffic
- Insufficient bus layover capacity
- Difficult turning movements exiting the station
- Long pedestrian delays crossing John Daly Boulevard between De Long Street and Junipero Serra Boulevard
- Illegal pedestrian movements across John Daly Boulevard to and from the station

To remedy these issues, four intermodal facility concepts were evaluated, including enhancing and expanding the existing station, incorporating a satellite intermodal facility at the Colma park-and-ride site, building a series of other park-and-ride sites, and a new intermodal facility at Colma. A pedestrian overcrossing of John Daly Boulevard at Junipero Serra Freeway was also recommended.

BART Bicycle Access and Parking Plan, Vol. 1

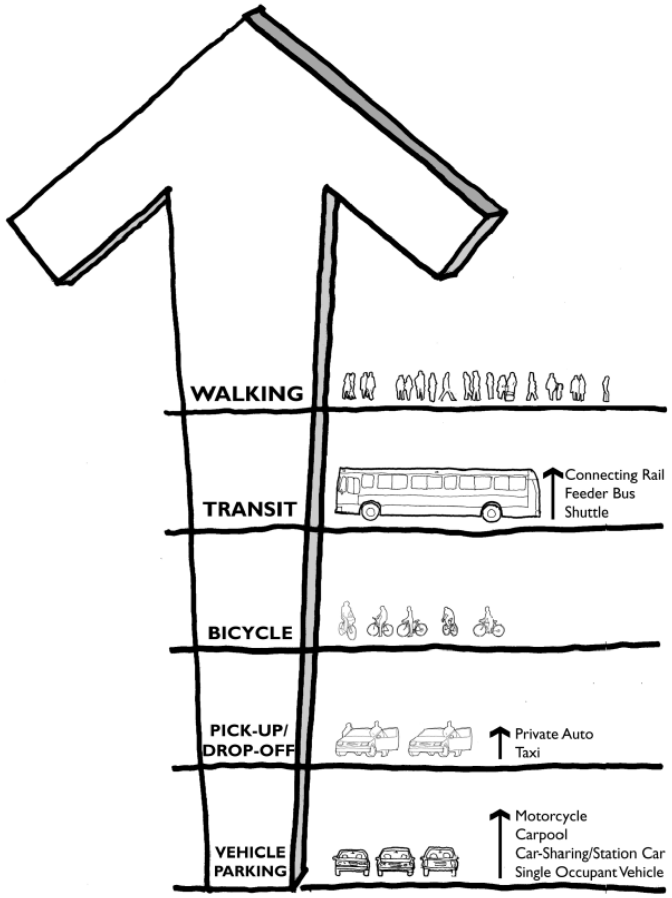
The *BART Bicycle Access and Parking Plan* (2002) detailed existing conditions of each station in the BART system and provided system-wide bicycle access and parking recommendations. BART has prioritized bicycle racks and stair channels at the Daly City BART Station. An update of the Bike Plan is will be completed at the same time as this Plan.

BART Transit-Oriented Development Guidelines

BART's *Transit-Oriented Development Guidelines* were prepared in 2003 with the purpose to help guide planning and development around BART stations. The guidelines stress the importance of defining station identity. In addition, the guidelines prioritize access in the following hierarchy, as illustrated in Figure 2.1:

1. Pedestrian
2. Transit and shuttle
3. Bicycles
4. Carpools, cabs, and drop-off
5. Single-occupant automobiles

Figure 2-1 BART Access Hierarchy



Source: BART Station Access Guidelines (2003)

BART Station Access Guidelines and other BART Access studies

The *BART Station Access Guidelines* (2003) map out how BART can optimize access to stations by all travel modes. The guidelines focus on the physical design of facilities at both new and existing stations. The guidelines provide key principles by mode for improving access. These include wayfinding; walking; transit; bicycle; drop-off, pick-up and taxi; and park-and-ride. Several station-specific access studies have since been completed.

BART Daly City Comprehensive Station Plan

In May 2006, BART completed the *Comprehensive Station Plan* (CSP) for the Daly City BART Station. With respect to station area development, recommendations included the construction of a moderately-scaled, mixed-use project of townhomes and condos/apartments, a central plaza at the station entrance, a primary pathway leading to the Top of the Hill commercial district, and new retail uses located near the plaza and paths. Recommendations were also made to improve station access for pedestrians, bicycles, transit, autos, shuttle, and taxis. Since the publication of CSP in 2006, the following recommendations made in the plan have been implemented: a St. Charles Avenue walkway, art installations, some wayfinding, relocation of shuttle services, and the extension of Muni 14L to the station in the morning and evening commute.

BART Station Profile Survey

The 2008 *BART Station Profile Survey* provides an overview of the characteristics of riders accessing each of the stations in the BART system. Data collected via rider surveys included: starting and ending stations, mode of travel to the station, demographic characteristics, where the patrons just came from, and where they were going.

SUMMARY OF OTHER RELEVANT PLANS

In addition to BART guidelines and reports, there are several recent planning documents that drive and guide development within the study area. Relevant documents discussed in this section are:

- City of Daly City General Plan (1987)
- City of Daly City Bicycle Master Plan (2005)
- Muni Transit Effectiveness Project (2008)
- San Mateo County Transit District SRTP (2008-17; 2009-18)
- San Francisco State Campus Master Plan (2007)
- Parkmerced Vision Plan (2011)
- 19th Avenue Corridor Study (2010)

City of Daly City General Plan

The City of Daly City is currently completing a comprehensive general plan update to the *1987 General Plan*. The *1987 General Plan* included a number of objectives, policies, and programs to improve the transportation system in Daly City. Transportation objectives and proposed programs included:

- Reducing the impact of new development on the transportation system
- Increasing ridership for all public transportation services
- Promoting the use of bicycles
- Ensuring the free and safe movement of pedestrians
- Ensuring adequate parking opportunities

City of Daly City Bicycle Master Plan

In 2005, the City of Daly City adopted a *Bicycle Master Plan*, which proposed additions and improvements to help provide a safe and efficient network of bikeways in Daly City. The plan noted that the share of commuters biking to the Daly City BART Station is among the lowest in the BART system. The plan proposes a Class III bicycle route along John Daly Boulevard in front of the station, along with at-grade intersection improvements at John Daly Boulevard and the Niantic Avenue/East Station Road.

Muni Transit Effectiveness Project (TEP)

In 2008, Muni completed its first comprehensive reengineering of San Francisco Municipal Railway services and operations in over 30 years. The focus of the study was on maximizing effectiveness of services and providing a sustainable, cost effective transit service that can be funded over time. The TEP recommends extending the 14 Mission to the Daly City BART Station via John Daly Boulevard (14L is now implemented in the morning and evening commute) as well as extending the 17 Parkmerced to the station, and rerouting the 28L 19th Avenue Limited from Daly City to the Balboa Park BART Station. The TEP also has a long-term goal of extending the M-Ocean View light rail line to Daly City BART.

San Mateo County Transit District Short-Range Transit Plans

The *San Mateo County Transit District 10-Year Short-Range Transit Plans* (SRTPs) are needs-based planning documents that project expenses and revenues that the District can reasonably expect over each 10-year horizon. Recent SRTPs document potential increases in ridership due to population growth, the aging of existing populations, service changes by other transit providers, and the construction of TOD. Potential SamTrans BRT service to Daly City BART is a component of these plans.

San Francisco State Campus Master Plan

Approved in 2007 in response to an anticipated 25% increase in student enrollment, the *San Francisco State Campus Master Plan* addresses all aspects related to the campus' physical environment. These include circulation, buildings, open space, and connections to neighboring communities. The Master Plan recommended universal transit passes for all students, with the "highest priority to provide free access to all Muni lines, plus access to BART stations from Embarcadero."

Parkmerced Vision Plan

The *Parkmerced Vision Plan* (2011) provides a blueprint for the phased redevelopment of Parkmerced. Plans call for the addition of 200-300 new housing units per year throughout the course of the 20-30 year Vision Plan, resulting in a net gain of 5,679 new units. As it pertains to the Daly City BART Station, the plan proposes a shuttle that would include a stop at the Daly City BART Station.

19th Avenue Corridor Study

The *19th Avenue Corridor Study* (2010) identifies the future demand for and deficiencies in transportation, public utilities, public services, recreational resources, and schools along the 19th Avenue corridor. The largest reasonably foreseeable developments identified in the study include the Parkmerced Project, SF State expansion, and expansion at the Stonestown Galleria Shopping Center site. The plan identifies the transportation and circulation improvements necessary under various development scenarios. The study discusses Muni and Parkmerced shuttle services connecting the study area with the Daly City BART Station.

3 STUDY PROCESS

PROJECT PARTNERS

The SAIP was developed in collaboration with the following local and regional entities:

- San Francisco Bay Area Rapid Transit District(BART)
- California Department of Transportation (Caltrans)
- City of Daly City
- San Francisco County Transportation Authority (SFCTA)
- San Francisco Municipal Transportation Agency (SFMTA)
- San Mateo County Transit (SamTrans)
- San Francisco State University (SF State)
- Parkmerced

The consultant team consisted of Nelson\Nygaard, BMS Design Group, Arup, and Fehr & Peers.

TECHNICAL ADVISORY COMMITTEE

A Technical Advisory Committee (TAC) was formed to provide feedback on key deliverables. The TAC consisted of the agency partners listed above. Four TAC meetings have been held throughout the project to gather input from TAC members. The first TAC meeting, held on November 8, 2010, consisted of a walking tour of the Daly City BART Station. At the second TAC meeting in May of 2011, the existing conditions analysis was presented, along with an assessment of future transit service and existing capacity. The focus of the third TAC meeting was to review and discuss multiple design concepts developed to accommodate future transit service and improve multimodal station access. At the final TAC meeting, the recommendations were presented and discussed.

COMMUNITY OUTREACH

A key component of this project is public participation. Three public meetings have been held to allow members of the community to provide input on key issues facing the station. The first meeting was held on February 12, 2011 at Woodrow Wilson Elementary School. Common issues raised by the public included the need for more signage and wayfinding, improved amenities, elevator and escalator maintenance, real-time information for transit, and improved pedestrian facilities. The second meeting was held on March 29, 2011 at the Pilipino Bayanihan Resource Center. A common issue raised at this meeting was the lack of use of the pedestrian tunnel due to safety concerns. Other comments concerned the need for wayfinding, more amenities for bus riders, and consideration for a pedestrian overpass over John Daly Boulevard. The third meeting was held on February 4, 2012 at Woodrow Wilson Elementary School. Various concepts were presented along with their benefits to and impacts on the neighborhood, station area parking, transit-oriented development, and multi-modal circulation. In general, comments concerned the unavailability of parking in the neighborhood, heavy traffic on Hillcrest Drive and John Daly Boulevard, and transit and SF State shuttles on St. Charles.

Two additional meetings have been held. In February 2011, the study was introduced by BART staff to the Council of Homeowners and Residents Association (COHRA) of Daly City. In February 2012 BART staff met with the Merced Extension Triangle Neighborhood Association, Westlake Village Apartments, business community representatives from Pacific Plaza and Westlake Shopping Center, and Peninsula Congestion Relief Alliance.

4 EXISTING CONDITIONS

This chapter briefly describes the facilities and systems that currently comprise the transportation network serving the Daly City BART station area. These facilities and systems include local and regional transit and shuttle lines, pedestrian and bicycle facilities, a network of roadways, and parking. For a more detailed description of the existing conditions, refer to Appendix B.

SETTING

The Daly City BART station area straddles the boundary between the County of San Mateo and the City and County of San Francisco. The adjacent freeway, over 2,000 on-site parking spaces, John Daly Boulevard, and the BART guideway sever the station from its surroundings. The area exhibits a sharp east to west slope from the Top of the Hill down to I-280. As a result of this natural slope, the station was designed with two terraces: an upper terrace on the east side that includes the De Long Street parking lot and a lower terrace on the west side that contains the station and parking garage. The edge of this western terrace slopes sharply down to I-280.

In addition to these physical characteristics, climate has a strong influence on the area. Strong winds carry cool air from the Pacific Ocean, leading to foggy weather patterns for much of the year. In Daly City, temperatures average around 70 degrees in the summer and in the 40s during the winter.

LAND USE

One of the more common land uses in the station area is single-family homes. The Westlake neighborhood, located to the west of the Daly City BART Station, is almost exclusively comprised of such residences.

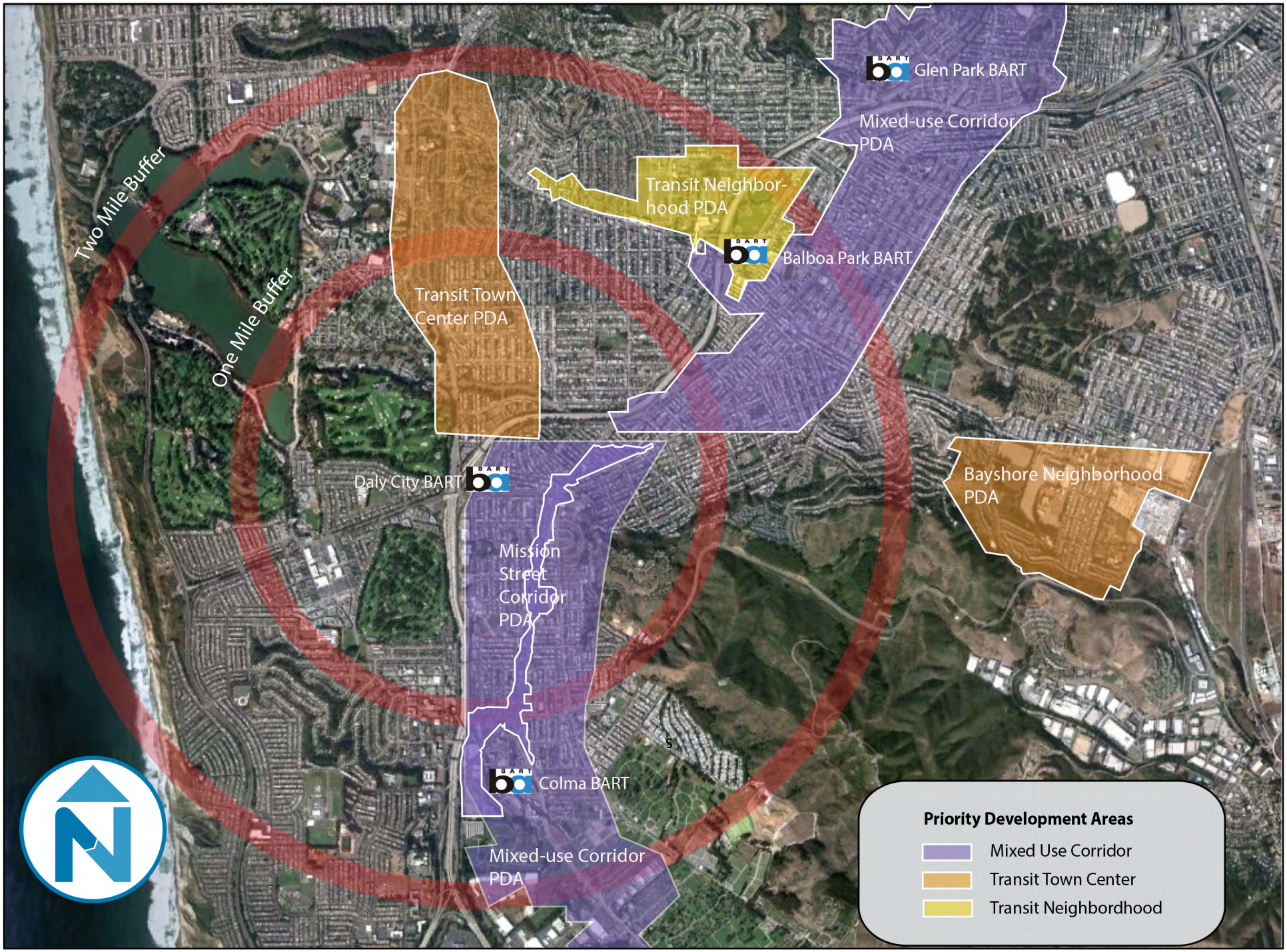
Other types of residential uses, including townhomes and multi-family buildings, exist to the southeast of the station and to the north in the Outer Mission neighborhood of San Francisco. The Top of the Hill commercial area, along Mission Street, exhibits smaller commercial lots and on-street parking, and serves these denser neighborhoods. Other neighborhoods in the vicinity include the Merced Extension Triangle neighborhood, located across I-280 and is comprised of townhomes, apartments, and retail. Parkmerced, a major residential development, and SF State are located less than a mile away from the station and generate significant trips to and through the area. Figure 4-1 depicts priority development areas (PDAs) within a two-mile radius of the station. These include three Mixed-Use Corridors, one Transit Town Center and one Transit Neighborhood. PDAs generally overlay existing rail transit lines and stations and align with El Camino Real (CA-82) to the south of the station and Mission Street to the north. There also exist significant amounts of open space in the immediate vicinity, such as golf courses, Lake Merced, and other recreation areas. Other major non-residential uses in the catchment area include the Westlake Shopping Center (located 1 mile west of the Station), Pacific Plaza, and Stonestown Galleria Mall, adjacent to SF State.

ARCHITECTURE

This architectural assessment is based on the guidelines of BART policy documents described previously, input from members of the Technical Advisory Committee, and observations of the design team.

One of the most important components of any access framework is a highly legible, attractive, and functional station. Good design practice suggests that a station and its supportive public access framework create a strong sense of place.

Figure 4-1 Proximate Priority Development Areas



Sources: ABAG, MTC, bcdc, and BAAQMD, "Focus PDA Showcase," 2008 & 2009
ABAG, "Jobs-Housing Connection Strategy," 2012

In the case of the Daly City BART Station, the need to define a positive sense of place is particularly great. The existing station area is highly utilitarian in character and generally presents an image that is more like the I-280 freeway than the residential neighborhood nearby or a world class transit system. Within the overall BART system, the Daly City station has virtually no identity that would place it as a unique arrival or departure point. Considering the station is one of the most important hubs in the system, this should be a priority. Among other older BART stations, the station is not unusual in this regard. The station also does little to mark a strong sense of place and define a legible hub within the community.

TRANSIT SERVICES

The Daly City BART Station is served by various rail, bus, and shuttle operators.

BART Service

Prior to the opening of Colma Station in 1996, the Daly City Station served as the terminus for BART on the Peninsula. Today, the station is served by four BART lines, two of which terminate at the station: Pittsburg/Bay Point to San Francisco International Airport/Millbrae, Richmond to Daly City/Millbrae, Fremont to Daly City, and Dublin/Pleasanton to Daly City (see Figure 4-2).

During the peak period, trains operate on 15-minute headways at the Daly City BART Station. Due to line configuration, which results in a train every four minutes, this station has 50% more service than the Colma BART Station.

The Daly City Station is one of the stations with the highest percentage of trips from non-home origins, attributable to students using BART to access SF State.

Figure 4-2 BART Map

Source: www.bart.gov

Daly City BART Station Profile

Daly City BART riders are generally arriving to the station from home, as shown in Figure 4-3. According to the 2008 *BART Station Profile Survey*, 9,125 riders enter the BART system at the Daly City station per day. Of those riders, 62% are coming from a home origin to the station.

Figure 4-3 Home Based versus Non-Home Based Trips

Type of Entry	Percentage
Home-Based	62%
Non-Home-Based	38%
Total	**100%**

Source: BART Station Profile Survey (2008)

Source: BART Station Profile Survey (2008)

The catchment area includes the southwest part of San Francisco and the northern parts of the Peninsula. Figure 4-4 displays the home locations and access mode for those riders coming from home. Of these patrons, 46% drive alone to get to the station while 33% walk or take transit (Figure 4-5). Most of these patrons are going to work (Figure 4-6).

Figure 4-4 Home Locations of Daly City BART Riders

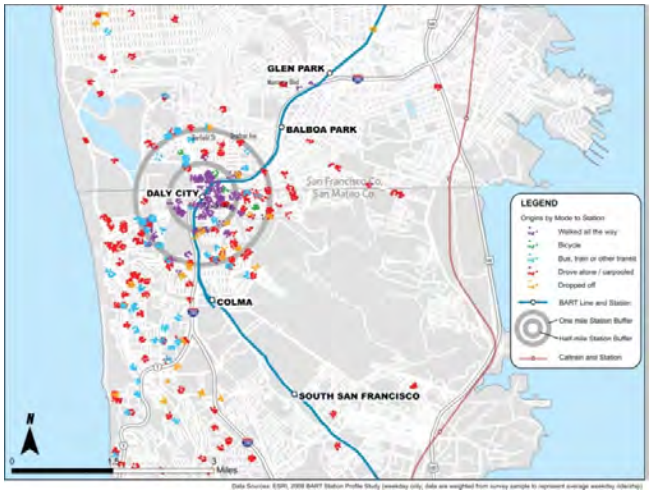
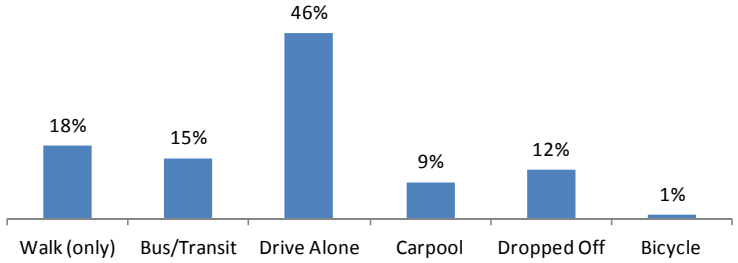
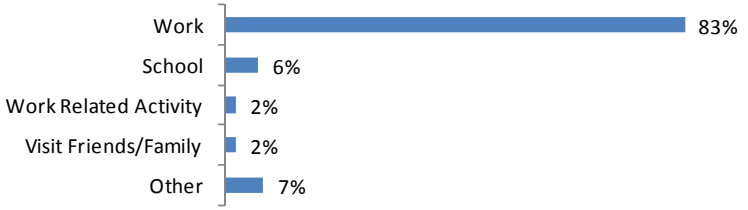


Figure 4-5 Mode Split Home Origin Riders



Source: BART Station Profile Survey (2008)

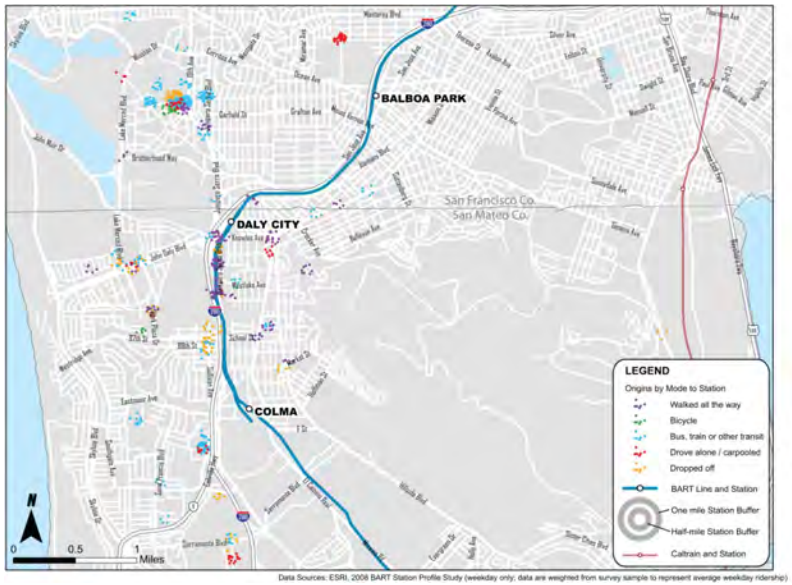
Figure 4-6 Destination Home Origin Riders



Source: BART Station Profile Survey (2008)

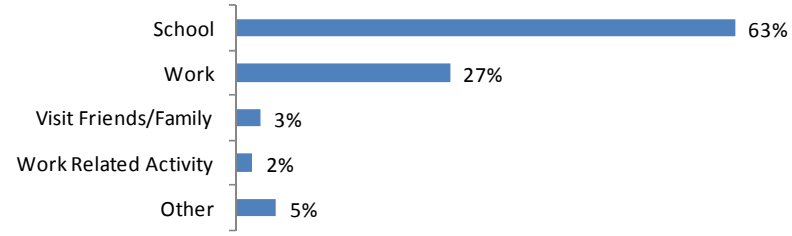
Figure 4-7 displays non-home origin trips by access mode. These are patrons who access the station after coming from school (63%) and work (27%). Figure 4-8 shows the destination of these non-home origin riders. Nearly ¾ of these patrons get to and from the station by bus, 10% walk, and only a fraction drive (Figure 4-9).

Figure 4-7 Non-Home Locations of Daly City BART Riders



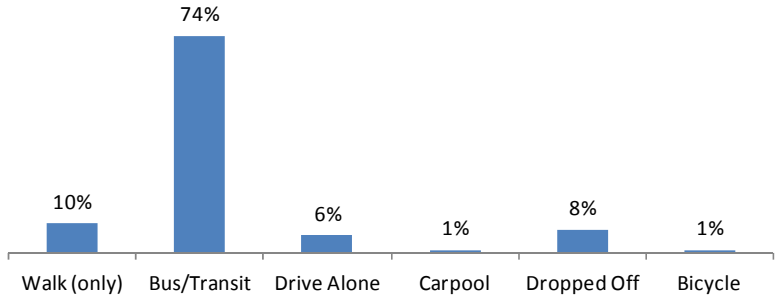
Source: BART Station Profile Survey (2008)

Figure 4-8 Destination Non-Home Origin Riders



Source: BART Station Profile Survey (2008)

Figure 4-9 Mode Split Non-Home Origin



Source: BART Station Profile Survey (2008)

Within a half mile radius of the station, 14% of households do not own cars. Citywide, 8.1 % of households do not own cars according to 2000 U.S. Census.

Bus Service

The Daly City BART Station is served by four Muni routes and five SamTrans routes. Each of these services is described in further detail below and in Appendix B.

Muni Bus Service

Four Muni routes currently serve the Daly City BART Station: the 14L Mission Limited (serves the station during peak hours), the 28 19th Avenue, 28L 19th Avenue Limited, and 54 Felton. Frequency and hours of operation vary between the routes. Route 28/28L provides the most frequent and heavily used service.

Currently, the lack of terminal space at the station proper requires the 28/28L buses to layover on De Long Street. An arriving bus first comes up John Daly, turns left at De Long and left at East Station Road to the 28/28L bus drop off/loading area close to the station. Because there is not enough room to store the bus in the bus drop off area, the bus then turns left onto John Daly, left onto De Long, and then proceeds to its layover terminal along De Long. When it is time for the bus to start its next trip, the bus continues on De Long, turns

left onto East Station Road to the 28/28L pickup location. Given the distance and the traffic signals, the second loop requires an extra 4-5 minutes. During peak periods, up to two Route 28/28L buses layover simultaneously at the De Long terminal.

The 54 bus has its own terminal location on West Station Road. With the current 20-minute schedule, only one bus at a time lays over at the terminal, requiring only one bus stall. Refer to Figure 4-10 for layover locations.

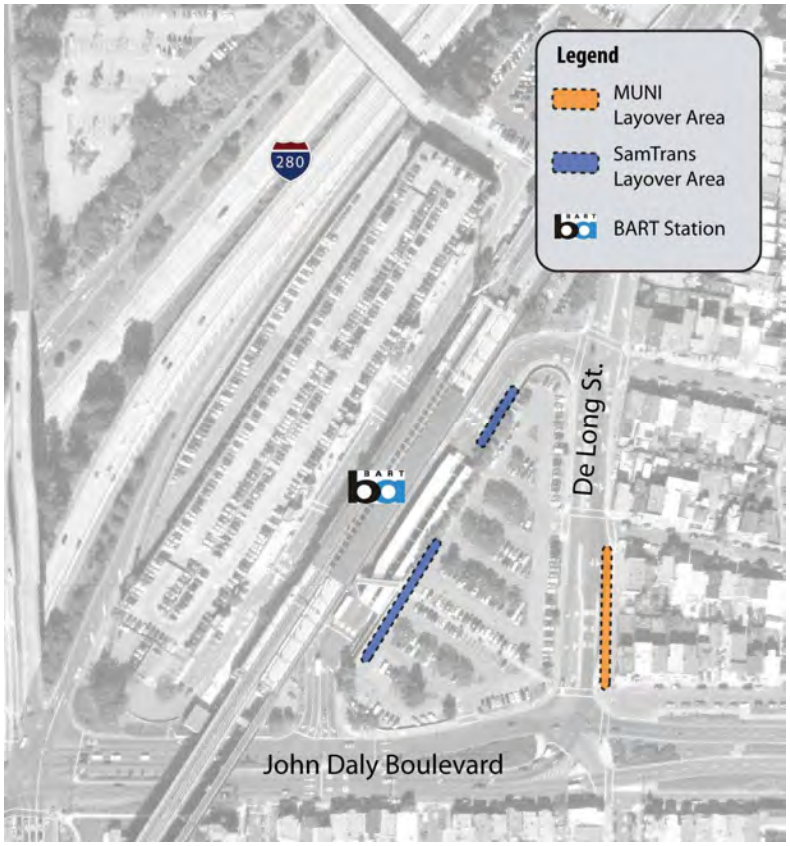
SamTrans Bus Service

Five SamTrans routes currently serve Daly City BART: Route 110 to Linda Mar, Route 120 to Colma BART, Route 121 to Skyline College, Route 130 to South San Francisco, and Route 390 to Palo Alto via El Camino. Route 120 provides the most frequent service and also has the highest ridership. SamTrans buses also need to loop around the station in order to lay over. Its layover location is provided along the western edge of the De Long Lot, as illustrated in Figure 4-10.

Other Transit Services

The Daly City BART Station is served by three shuttle services and three paratransit providers. Each of these services is described in further detail below.

Figure 4-10 Bus Layover Locations[2]



[2] Muni routes 14, 28, and 54 are currently laying over at the Daly City BART Station, along with SamTrans routes 110, 130, and 390.

Shuttle Services

There are several shuttle services that provide access to the Daly City BART Station including the SF State Shuttle, Seton Medical Shuttle, and the South City Lights Shuttle (serving a condo development).

The SF State Department of Parking and Transportation provides a free shuttle service for the campus community and general public to and from the station. While the service mirrors Muni's Route 28, the shuttles provide more direct and varied connections throughout the SF State campus. It serves a critical function and carries thousands of students, faculty, and staff daily. Currently, during the peak hours of 8:00 AM to 10:00 AM and 3:00 PM to 6:30 PM, demand is so high that there is a long queue of riders waiting for a shuttle, and many of the shuttles have to leave patrons behind.

It should be noted that in recent years the Daly City BART Station has been a transit hub for local golf events held at nearby venues in San Francisco (e.g. Harding Park, Olympic Club). BART, the USGA, and the PGA collaborate to provide service at the station for the shuttles that run between the station and the respective golf venues. These shuttles carry a large portion of spectators to and from golf events. The attendance of these events ranges from 1,500 to 25,000 people per day. Typically, these events are held during summer months and do not coincide with the SF State shuttle service, which is in operation during the academic year.

Paratransit Services

The Daly City BART Station serves as a critical transfer point for paratransit customers making transfers between RediWheels, San Francisco Paratransit, East Bay Paratransit, BART, Muni, and SamTrans. Visually-impaired customers have been travel-trained to use this location, and there is access to the station agent, a pay phone, and an accessible restroom.

RediWheels is a demand responsive transit service operated by SamTrans.

Summary

Transit service providers at the Daly City BART Station are summarized in Figure 4-11. Figure 4-12 details current operating characteristics, including peak headways, number of vehicles, and daily ridership. Figure 4-13 is an illustration of where each of the transit services picks up and drops off passengers within the station.

Figure 4-11 Current Transit Service Providers

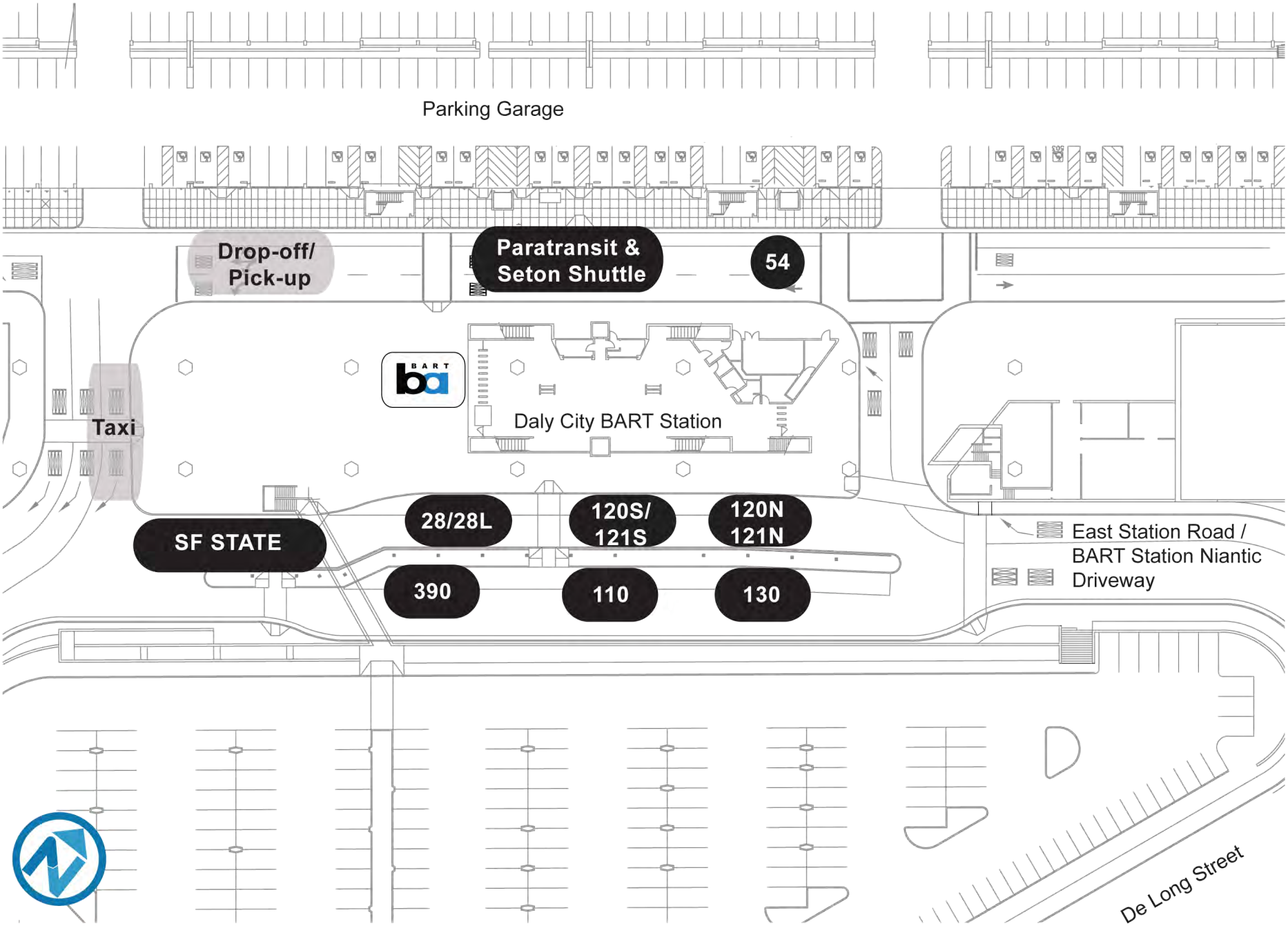
Service Provider	Description
BART	BART serves Daly City Station with four lines: Pittsburg/Bay Point to San Francisco International Airport/Millbrae, Richmond to Daly City/Millbrae, Fremont to Daly City, and Dublin/Pleasanton to Daly City. Trains operate on 15-minute headways during the peak period.
Muni	Muni serves Daly City Station with four routes: the 14L Mission Limited (serves the station during peak hours), the 28 19th Avenue, 28L 19th Avenue Limited, and 54 Felton.
SamTrans	SamTrans serves the Daly City Station with five routes: Route 110 to Linda Mar, Route 120 to Colma BART, Route 121 to Skyline College, Route 130 to South San Francisco, and Route 390 to Palo Alto via El Camino.
Shuttles	San Francisco State University, Seton Medical, and South City Lights Shuttles currently serve the Daly City Station
Paratransit	Daly City BART Station serves as a transfer point for RediWheels, East Bay Paratransit, and San Francisco Paratransit.

Figure 4-12 Current Transit Service Characteristics

Service Provider	Peak Headway (min)	Peak Buses/ Trains	Daily Ridership at Daly City BART
BART			
Pittsburg/Bay Point	15	8	9,125 (exits)
Richmond	15	Test8	
Fremont	15	8	
Dublin/Pleasanton	15	8	
Muni			
14L – Mission Limited	8-9	6	NA
28 – 19th Ave	10-12	5-6	1,360 (boardings)
28L – 19th Ave Limited	10-12	5-6	328 (boardings)
54 – Felton	20	3	361 (boardings)
SamTrans			
110 - Linda Mar	30	2	313 (boardings)
120 - Colma BART	12	10	720 (boardings)
121 - Skyline College	25	4	254 (boardings)
130 – South SF	20	3	147 (boardings)
390 - El Camino	30	2	262 (boardings)
Shuttles			
SF State	3	20	5,100 (boardings)
Seton Medical	30	2	165 (boardings)
South City Lights	60 (AM)/ 30 (PM)	2	11 (boardings)
Paratransit			
RediWheels	N/A	N/A	68 (boardings per month)
San Francisco Paratransit	N/A	N/A	

Source: BART (2010), SFMTA (2010), SamTrans (2011), SF State (2010), Seton Medical Center (2010), South City Lights (2010), RediWheels (2011), San Francisco Paratransit (2010).

Figure 4-13 Local Map of Transit Services



PEDESTRIAN ACCESS

Recent studies of commuter travel patterns have shown that travelers are more willing to consider taking transit for a trip to work if they live within a half-mile walk of a transit station and work within a quarter-mile of a station.[3]

The station's walkshed, or the area within walking distance of the station, is shown in Figure 4-15. It should be noted that John Daly Boulevard exhibits a sizeable change in elevation from West Lake to Mission Street. The effect of topography on distances commuters are willing to walk is an important consideration; people tend to walk shorter distances in hilly areas due to the effort involved.

The pedestrian facilities in the surrounding neighborhood are typical of an urban environment. Although most streets in the vicinity of the station have sidewalks and most signalized intersections have crosswalks, both I-280 (as a freeway) and John Daly Boulevard (as a six-lane arterial) remain substantial barriers to pedestrian activity to and from the station.

Figure 4-16 presents pedestrian facility deficiencies within a half-mile of the station. Identifying locations of pedestrian network deficiencies within the walkshed of the station helps prioritize locations for improvement.

Although planning and designing transportation facilities involve a series of trade-offs between modes, locations of specific pedestrian circulation challenges in the study area are identified below:

- Auto-oriented access between the freeway and the BART garage
  - John Daly Boulevard: overly wide, even given the number of lanes, and designed for high speeds
  - De Long Street: designed to minimize stops for vehicles traveling inbound to the station
- BART is elevated, as is much of the garage parking, and the surface lot on the east side. To travel between these parking facilities and the platform, people must go down to the BART pay area (ground level) then back up to the platform. To get to the parking on the south side of John Daly, pedestrians are directed to use a below-grade tunnel.
- Lack of wayfinding signage indicating pedestrian paths to the station and pedestrian tunnel
- BART tunnel crossing underneath John Daly Boulevard is well lit, but austere, uninviting, and lacks signage (Figure 4-14)

Figure 4-14 Pedestrian Tunnel

[3] Chatman, Daniel G. 2006. "Transit-Oriented Development and Household Travel: A Study of California Cities." Caltrans.

Lund, Hollie M., Robert Cervero, and Richard Wilson. 2004. "Travel Characteristics of Transit-Oriented Development in California". Caltrans.

Figure 4-15 Pedestrian Walkshed

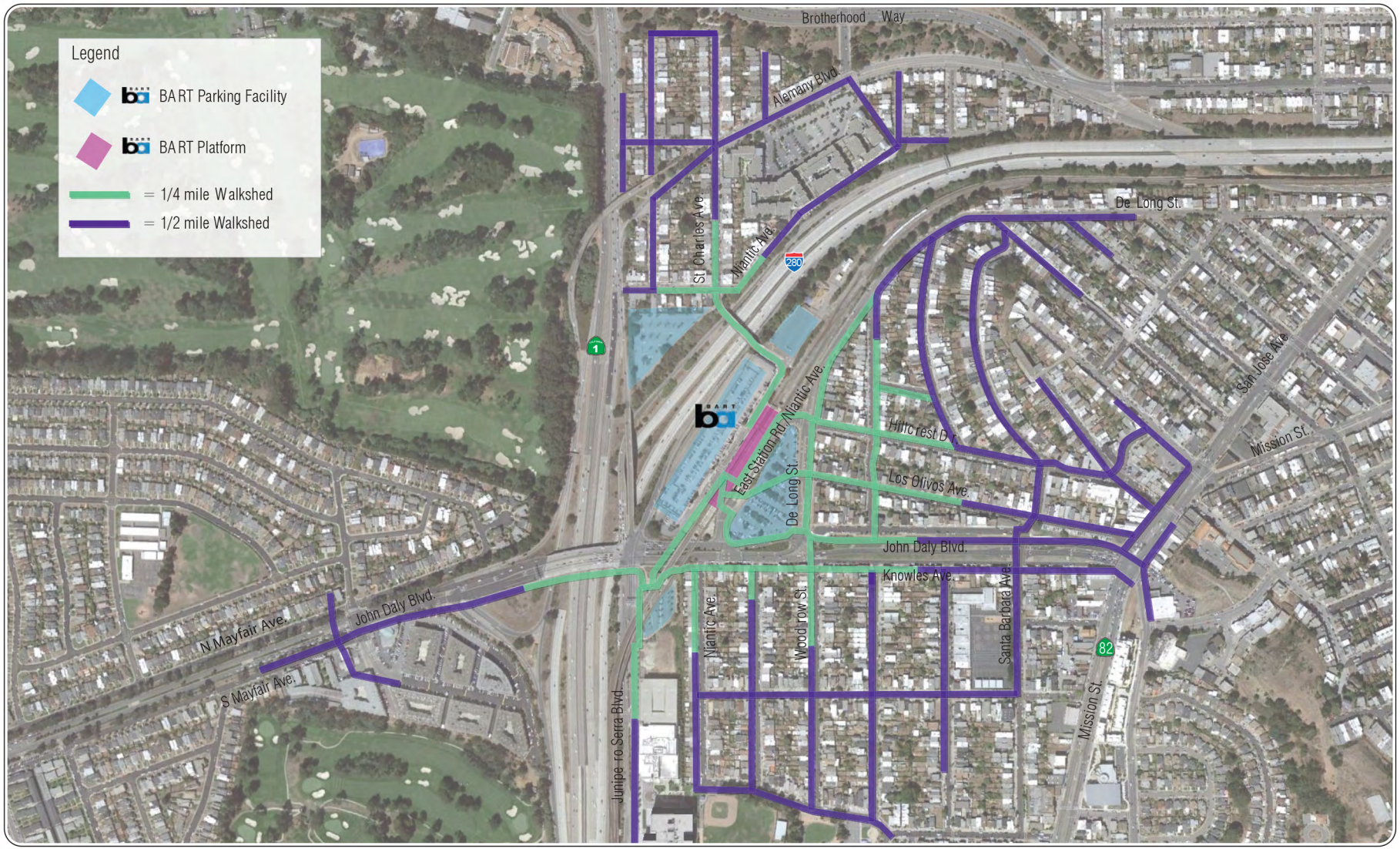


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Figure 4-16 Existing Pedestrian Deficiencies

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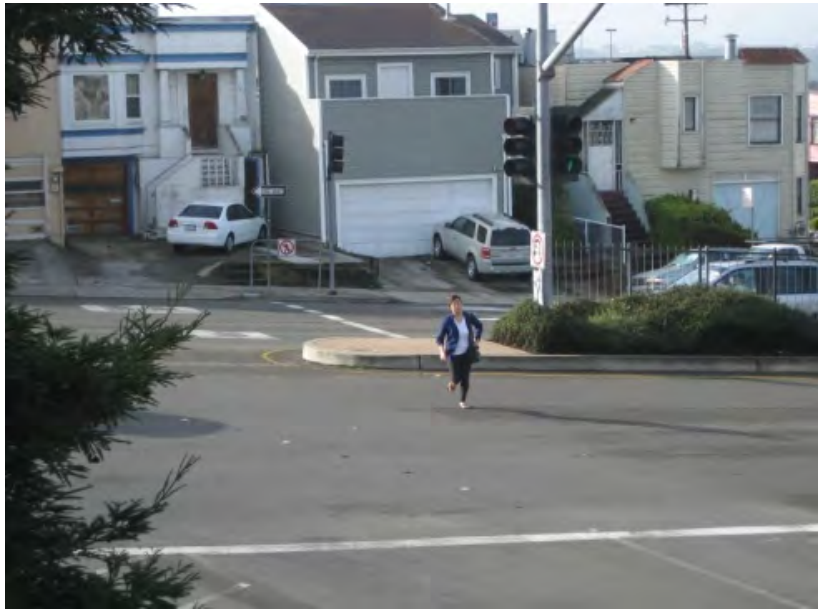
SF10-0517\graphics\0517-2-4 Existing Pedestrian Deficiencies_March_2011

Figure 4-17 Lack of Pedestrian Crossing at Niantic Ave. and John Daly Blvd.



- No crosswalk at the John Daly Boulevard/Niantic Avenue intersection (Figure 4-17)
- Use of fencing to direct pedestrians on John Daly Boulevard and Niantic Avenue
- No crosswalk on the south leg of the un-signalized De Long Street/Hillcrest Drive intersection
- No stop sign for northbound or southbound traffic at De Long Street/Los Olivos Avenue intersection
- No crosswalk on the south leg of the un-signalized De Long Street/Los Olivos Avenue intersection
- No crosswalk on the west leg of the signalized John Daly Boulevard/De Long Street intersection
- Long crossing distance and crossing wait time at the signalized John Daly Boulevard/De Long Street intersection
- No crosswalk on the north, west, or east legs of the signalized John Daly Boulevard/Junipero Serra Boulevard intersection
- Long crossing distance and no countdown signal at the signalized John Daly Boulevard/Junipero Serra Boulevard intersection
- No sidewalk on the north side of John Daly Boulevard from Niantic Avenue to west of the I-280
- No crosswalk on the east side of the Sheffield Drive/John Daly Boulevard intersection
- No crosswalk on the east side of Junipero Serra Boulevard at the intersection with Brotherhood Way

Some access improvements included in the *Daly City Comprehensive Station Plan* (May 2006) would provide greater connectivity in the study area. These projects include the following:

- Wayfinding improvements on Saint Charles Avenue and Saint Charles Bridge
- Walking improvements around John Daly Boulevard, south and west of the station
- Improved pedestrian connections to Westlake Shopping Center
- Wayfinding and maintenance of BART tunnel to improve connection to Pacific Plaza
- Parking lot improvements east of the station and landscaping in John Daly Boulevard median

Pedestrian counts for the AM and PM peak periods were conducted at the Niantic Avenue/John Daly Boulevard intersection to capture a snapshot of the number of people who cross John Daly Boulevard illegally as opposed to using the pedestrian tunnel. A total of 58 pedestrians were observed crossing John Daly Boulevard at Niantic Avenue during that period. Ten bicyclists were observed crossing. Approximately 500 pedestrians were observed in the tunnel during the same period. Although the tunnel use is substantial during the peak hours, few pedestrians were observed during non-peak hours.

BICYCLE ACCESS

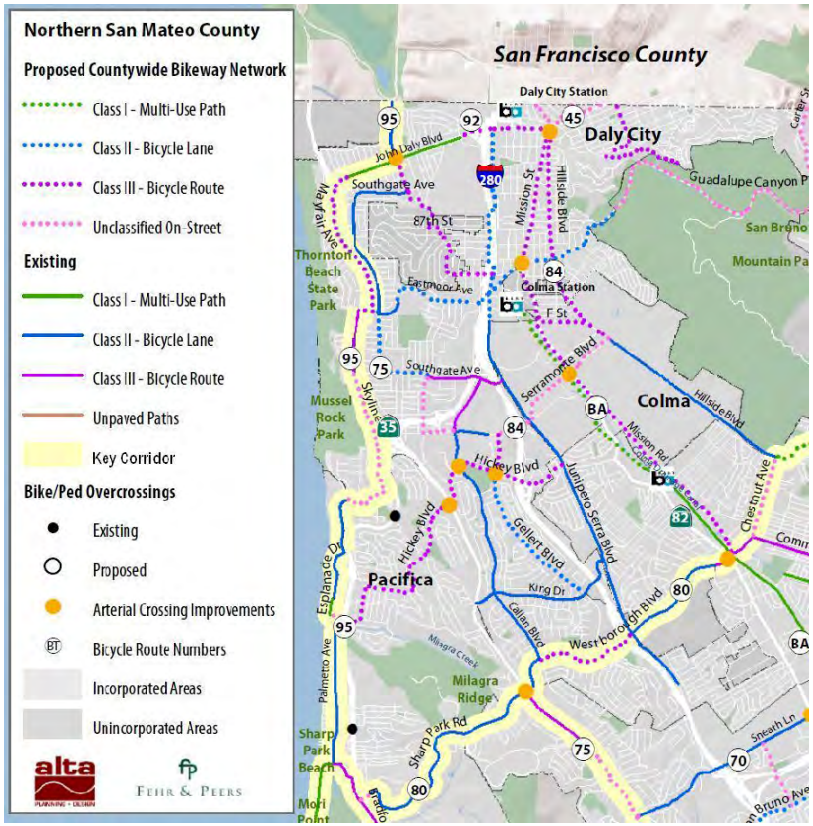
Bicycles are an important component of any City's transportation network. Bikeways are typically classified as Class I, Class II, or Class III facilities, as follows, and shown in Figure 4-18:

- Class I Bikeway – bike paths within an exclusive right-of-way, sometimes shared with pedestrians.
- Class II Bikeway – bike lanes for bicycle use only that are striped within the paved area of roadways.
- Class III Bikeway – bike routes shared with motor vehicles on the street. Class III bikeways may also be defined by a wide curb lane and/or the use of a shared-use arrow stencil marking on the pavement.

Bicycling currently represents less than two percent of all work trips in Daly City (2000 U.S. Census). Most of Daly City is within a 15-minute bicycle ride, or roughly three miles, from the station. Cycling activity relies heavily on the conditions of the existing roadway system and the connectivity of a bicycle network, and can also be influenced by vehicular traffic volumes and speeds. Observed bicycle activity around the station area is low, which may be due to the lack of bikeways leading to and from the station. The roadways surrounding the Daly City BART Station are generally wide arterials that are not conducive to on-street bicycle travel. The nearest existing bicycle facility is a shared use path (Class I bikeway) along John Daly Boulevard between Sheffield Drive and Lake Merced Boulevard.

The *2005 Daly City Bicycle Route Master Plan* and the *2011 San Mateo County Bicycle Plan* identified proposed on-street bicycle facilities on John Daly Boulevard and Junipero Serra Boulevard. Improvements to routes were also identified in the *Daly City CSP*.

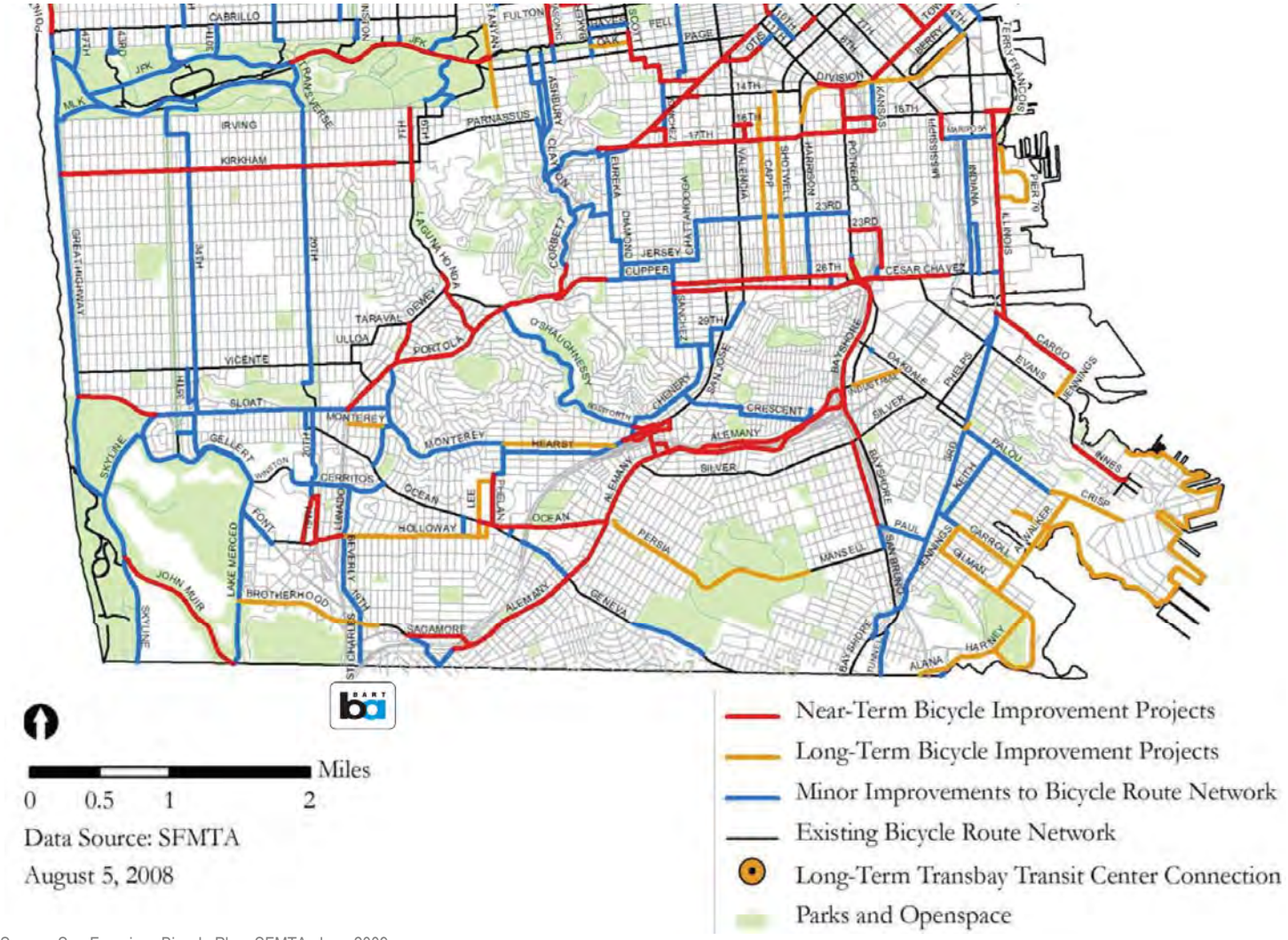
Figure 4-18 Existing and Proposed Bicycle Facilities



Source: San Mateo County Comprehensive Bicycle and Pedestrian Plan, Alta Planning + Design & Fehr & Peers.

Within San Francisco, Saint Charles Avenue is a designated Class III bicycle route that connects to the shared-use path across Brotherhood Way, which has Class II bicycle lanes east of Saint Charles Avenue. The *San Francisco Bicycle Plan* identified both these routes for future improvements (Figure 4-19).

Figure 4-19 San Francisco Bike Map



Source: San Francisco Bicycle Plan, SFMTA, June 2009

It should be noted that the *Parkmerced Vision Plan* calls for the construction of numerous bicycle facilities near the station area. This will eliminate existing barriers to bicycling to the north of the station area and could increase support for high quality bicycle connections to Daly City BART from SF State and Parkmerced.

Bicycle Parking

There are seven wave-style bicycle racks with capacity to hold up to 49 bicycles at the station. These racks are located next to the parking garage and on East Station Road/Niantic Avenue near the BART entrance. The utilization rate of the racks is 6% according to a 2011 occupancy count conducted by Nelson\Nygaard. There are also 20 bicycle e-lockers located at the station which can each accommodate one bicycle. The bicycle lockers at the station are available on a first-come, first-serve basis. The usage of bicycle lockers was approximately 5% when counted in 2011. Users must first purchase a BikeLink card with an initial value of $20. Users can then insert the card into the e-locker and rent any available locker for up to seven days. Locker rental costs three cents per hour. See Figure 4-20 for locations of bicycle facilities.

BART has been in the process of updating its bicycle plan and will complete it at the same as this document. The plan update defines the strategies BART will pursue over the next ten years to improve bicycle access, including cyclist circulation, plentiful parking, access to BART, and bicycle-supportive policies.

AUTOMOBILE AND BUS ACCESS

This section provides a discussion of the existing roadway system in the Daly City BART station area.

Interstate 280 (I-280) is a six to eight lane major freeway that serves as a major regional connector between the City of San Jose, the communities of San Mateo County, and Downtown San Francisco. It runs parallel to the BART tracks at the Daly City station.

State Route 1 (SR 1)/Junipero Serra Boulevard is a major north-south route that generally travels along the California coast. **Junipero Serra Boulevard** is the principal north-south arterial in the southwest part of San Francisco, extending from I-280 in Daly City to its intersection with Sloat Boulevard in San Francisco. The *San Francisco General Plan* has designated this street as a major arterial. In the vicinity of the Project site, Junipero Serra Boulevard has four travel lanes in each direction. It has no bicycle facilities in the study area.

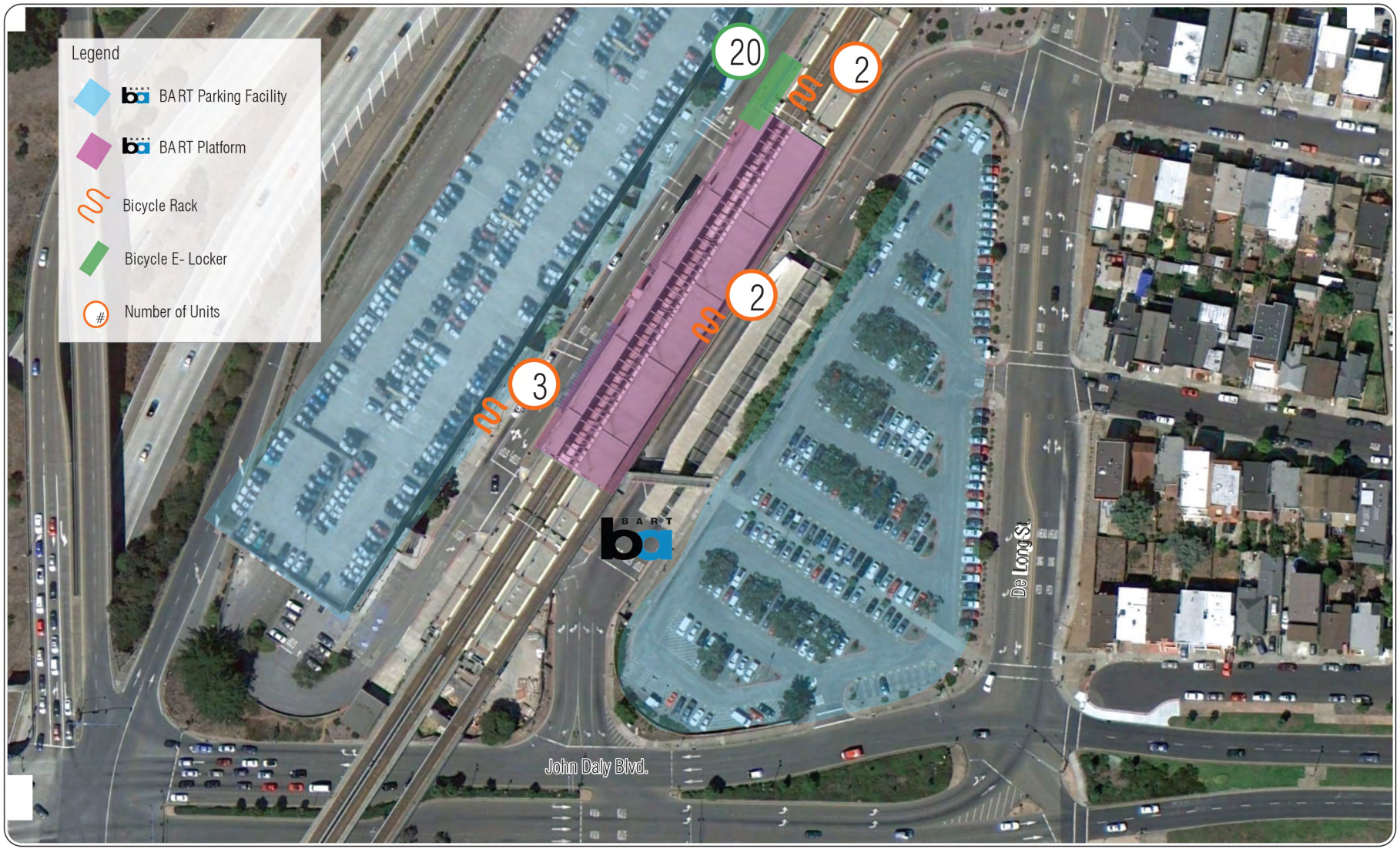
John Daly Boulevard is a four- to six-lane arterial route in Daly City between Skyline Boulevard to the west and State Route (SR) 82/Mission Street to the east. The intersection of John Daly Boulevard/Junipero Serra Boulevard provides direct access to I-280 and SR 1. At the station, John Daly Boulevard has two to three travel lanes in each direction.

De Long Street is a two-lane north-south residential street running just east of the Daly City BART Station. It provides access to the Daly City BART Station parking lot and is the main ingress to the Station from the east.

Niantic Avenue is a two-lane north-south street that connects directly to the station. North of John Daly Boulevard, the roadway is referred to as East Station Road/Niantic Avenue, providing ingress to the Daly City BART Station at De Long Street/Hillcrest Drive and egress at John Daly Boulevard.

State Route (SR) 82/Mission Street is a state route and major north-south arterial through communities in San Mateo County. In the vicinity of the project site, SR 82/Mission Street has three travel lanes in each direction.

Figure 4-20 Bicycle Facilities



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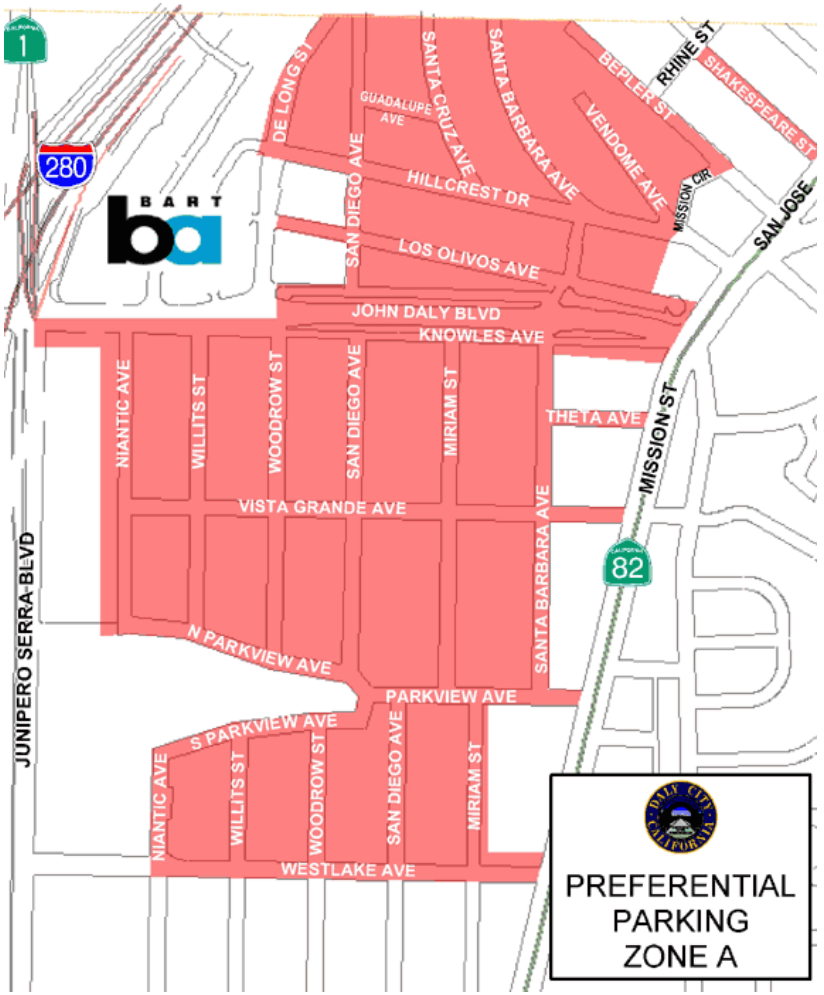
SF10-0517\graphics\0517-2-2 Bicycle Facilities

Commuter parking at the station is primarily located in a 900-space 3-story parking structure located on the West Station Road. Vehicles access this parking structure from via the East Station Road or St. Charles Avenue. In addition, there are approximately 1,000 parking spaces in surrounding surface lots, including the 260-space De Long lot at the intersection of De Long Street and John Daly Boulevard.

To help mitigate BART parking spillover onto neighborhood streets, the City of Daly City gives residential preferential parking permits to people who live near the station. These parking permits are intended to keep BART riders from parking in adjacent residential areas. Refer to Figure 4-21 for a map of the residential preferential parking area around the Daly City BART Station.

Figure 4-21 Daly City Residential Preferential Parking Zone



5 CONCEPTUAL TRANSIT ACCESS ALTERNATIVES

The coming decade could bring significant changes to the facilities and systems in and around the Daly City BART Station, including local and regional transit and shuttle routes, pedestrian and bicycle facilities, roadways, and parking. Changes in transit service are expected to have the biggest impact on the station. In 2020, transit service is predicted to increase by almost 50% to 88 peak hour buses from 60 peak hour buses in 2011. Transit service will not immediately inflate to 88 buses per peak hour, but will slowly build between 2012 and 2020. The first enhancement has already been realized with the addition of the 14L- Mission bus during commute hours. This service was added on January 23, 2012. As this service addition is considered part of the short-term transit improvements, it is in this chapter referred to as a future service change, although it has already been partially implemented. Short-term solutions center on easy to implement, stopgap measures, while mid-term solutions are designed to meet capacity needs in 2020. Long-term solutions look even further ahead.

The first section of this chapter describes expected transit service changes for the short-term (2012-2016) and articulates easy-to-implement and cost-effective strategies to accommodate relatively minimal, short-term transit service changes.

As transit service increases by almost 50% in the mid-term (2017-2020), the bulk of this chapter focuses on various alternatives to accommodate transit service and improve station access—including bicycle and pedestrian access. In addition, the impacts of these mid-term alternatives on the neighborhood, site circulation, parking, costs, and future transit-oriented development are discussed. Considering these trade-offs, one preferred alternative is presented. Finally, long-term transit assumptions are briefly discussed, along with potential alignment options. A more detailed description of the various alternatives is provided in Appendix C.

PREFERRED SHORT-TERM ALTERNATIVE

Assumed Changes in Bus Operations

For the purposes of this analysis, short-term is defined as two to four years from today. Between today and 2016, it is assumed that transit service will increase from 60 peak hour buses to 77 peak hour buses. Muni service is expected to increase by the largest margin between now and 2016, extending the 14-Mission and 17-Westlake/Lake Merced routes to Daly City BART for an additional 11 peak hour buses, increasing the 54-Fulton service by one peak hour bus, and reducing service of the 28 and 28L 19th Avenue route by two peak hour buses.[4] Collectively, SamTrans is planning on increasing service in the peak hour by three buses. In addition, the Parkmerced shuttle is expected to serve the station with six peak hour shuttles by 2017. South City Lights shuttle service is expected to remain constant at two shuttles per hour.

Currently buses operate at specific locations within Daly City BART. In addition to the RediWheels, San Francisco Paratransit, and Seton Medical Shuttle boarding and alighting area adjacent to the parking garage, a total of eight bus stops are provided on site, as follows:

- Station curb side: 4 bus bays
- Center island: 3 bus bays
- Adjacent to the garage: 1 bus bay

Note that buses can operate on all station area roads except the north connection between the East Station Road and the West Station Road. This connection passes under the BART tracks, and the vertical clearance to the structure of the BART tracks is inadequate for buses. Due to space and time constraints, planning for service increases in the short-term entails more efficiently utilizing existing curb space or relocating service.

[4] The 28L will be rerouted to serve Balboa Park BART Station.

Short-Term Alternatives Analyzed

Four short-term alternatives were analyzed. They all assign curb space needs based on the operating frequencies and dwell times of existing and short-term transit services. In the short-term, these alternatives assume that layover—which can add about eight to ten minutes to the dwell time and reduce the capacity of bus bays—will continue to occur off-site on neighborhood streets for those lines that terminate at Daly City BART Station.[5] The four alternatives are:

- Alternative A: Existing curb space within the terminal is utilized more efficiently by having more routes share the same bus bay.
- Alternative B: Relocates some bus service to John Daly Boulevard immediately east of the East Station Road.
- Alternative C: Relocates some bus and shuttle service to Colma BART Station.
- Alternative D: Dynamic bus bay sharing would direct buses to a bay upon arrival at the terminal, depending on how many and which other buses are currently at the station.

For a more detailed description of these alternatives, refer to Appendix C.

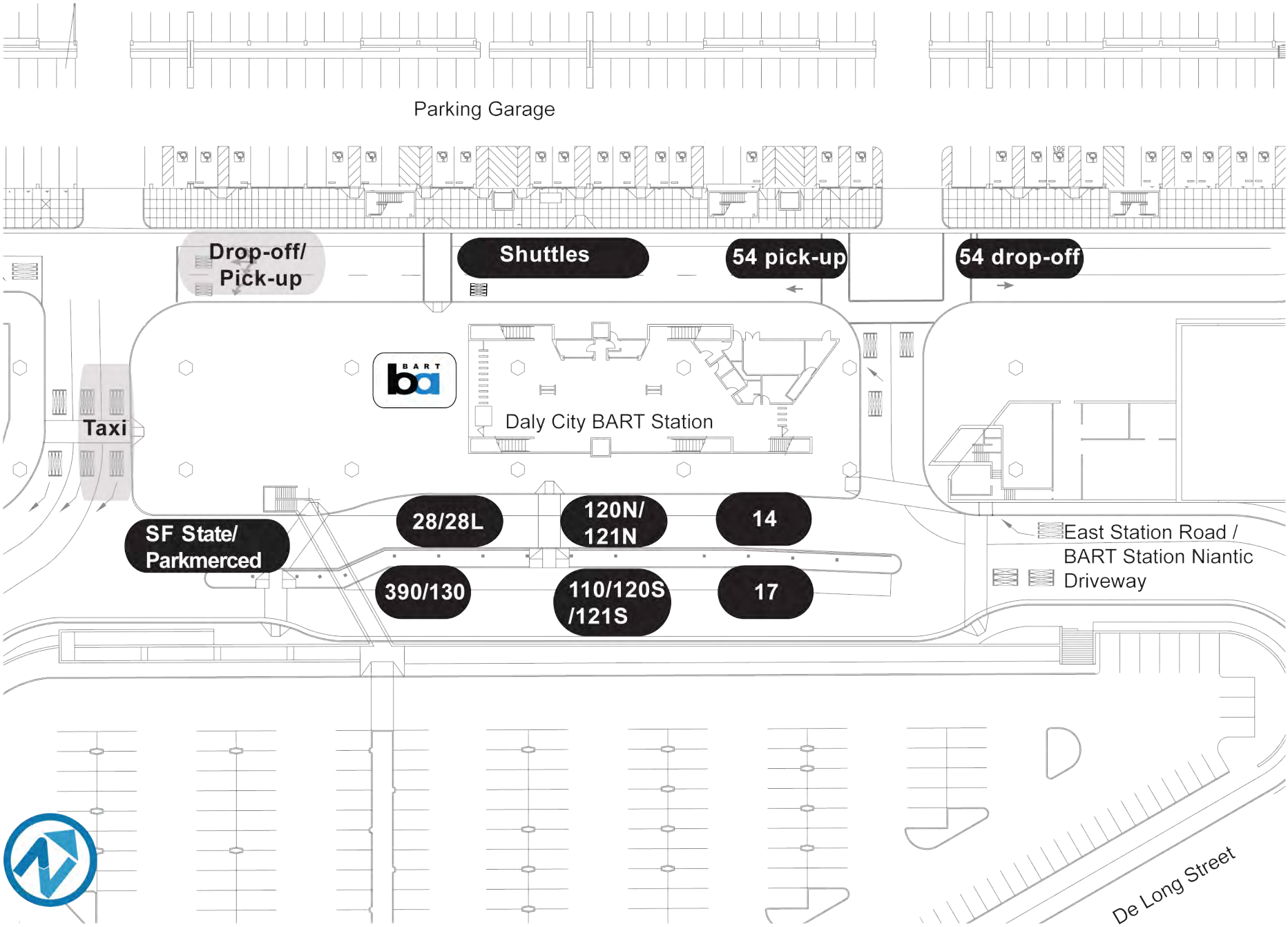
Preferred Alternative – Alternative A

Alternative A has been selected as the preferred alternative of the short-term options. This alternative has the advantages of being economical (low to no cost), easy to implement, and non-disruptive to service. It is an effective way to increase the bus capacity of the Daly City BART Station without actually building additional bus bays. As illustrated in Figure 5-1, Alternative A assumes that more routes share a bay. Given current and planned service levels, this shared bay assignment will require schedule coordination across routes.

Regarding the other alternatives, relocating transit service away from the Daly City BART Station site (Alternatives B and C) would be operationally difficult as well as inconvenient and confusing for transit riders. As for Alternative D, dynamic bus bay sharing works best with a high degree of system reliability, which is difficult for buses to achieve when operating in normal, mixed traffic. Given heavy ridership on some of the lines, this alternative could lead to congestion and confusion at the loading area(s).

[5] Muni routes 14, 28, and 54 are currently laying over at the Daly City BART Station, along with SamTrans routes 110, 130, and 390.

Figure 5-1 Short-term Alternative A



PREFERRED MID-TERM ALTERNATIVE

Of the many alternatives proposed, four mid-term alternatives were selected for further analysis. Three of the four mid-term alternatives require significant reconfiguration of the Daly City BART site and are intended to be implemented in the next five to ten years, depending on funding availability and implementation of the expanded bus service. The fourth mid-term alternative investigates a scenario in which no physical expansion is done and instead Transportation System Management (TSM) strategies are utilized. For detailed evaluations of these four alternatives, refer to Appendix C.

Evaluation Framework

The alternatives were developed to accommodate planned transit service, improve multimodal access, improve patron safety, and enhance the overall patron experience. To measure how effective the following alternatives are at meeting these project goals, alternatives were evaluated on the following metrics:

- Bus operations
  - Ease of access and egress and layover locations
- Transit patron convenience
  - Circulation, convenience, and aesthetics
- Engineering feasibility
- Costs
  - Capital, bus operations, and facility maintenance costs
- Neighborhood impacts
- Parking impacts
- Transit-oriented development opportunities
- Traffic impacts

Mid-term Transit Service Assumptions

Changes in Bus Operations

Appendix C details the assumed transit service by operator in 2017 and beyond. While BART service along the Pittsburg/Bay Point, Richmond, Fremont, and Dublin/Pleasanton lines is not expected to change at this time, bus service to Daly City BART is expected to increase substantially.

Muni service is expected to increase in the short-term, as discussed in the previous section. The biggest mid-term changes include the extension of the 14-Mission (eight new peak hour trips)[6] and the 17-Westlake/Lake Merced (three new peak hour trips) to Daly City BART.

The majority of the SamTrans lines, specifically the 110-Linda Mar, 121-Skyline College, and 130-South San Francisco, are expected to maintain current service levels in the mid-term. The 120-Colma BART service is expected to increase from 10 peak hour buses to 12 peak hour buses. Significant SamTrans service increases include a new 390-BRT line, with six buses in the peak hour, and an expansion of the 390/391 from two buses in the peak hour to eight.

Additionally, the Parkmerced shuttle (expected to begin serving Daly City in the short-term) may expand service to 10 shuttles per peak hour in 2020.

Taken together, these service changes represent a 50% increase in bus service at the Daly City station.

Changes in Station Capacity & Bus Bay Assignment

To accommodate all additional transit boarding, alighting, and layover on-site, transit operators have initially recommended bus bay allocation based on both ridership and end-of-the-line layover requirements. The final bus bay configuration will be determined in

[6] In the spring of 2012, Muni extended the 14L to the Daly City BART Station during the AM and PM peak periods, operating 6 buses each hour.

further design stages through discussion with the project partners. For the purpose of this report, the five Muni routes, six SamTrans routes, and four shuttles would share a total of 14 standard, 40'-long bays and four 60'-long bays, as detailed in Appendix C.

Individual bus routes are not assigned to specific bays in these alternatives, but some principles apply to bus bay assignment in all alternatives. Assigning bus bays should consider and prioritize high ridership, short headways, the magnitude of passenger transfers to BART, and minimizing vehicular conflicts. Thus, the SF State shuttle should be located adjacent to the faregates. Bay assignment should consider direction of travel, such that buses traveling to the same destination are located proximate to each other; for example, Muni 28 and the SF State Shuttle should be adjacent, as well as SamTrans 120 and 121 traveling to the Top of the Hill. Locating lines with similar routes near each other allows passengers to take whichever bus arrives first and reduces the need for pedestrians to dart across transit drive aisles to reach the next arriving bus serving a given destination. While the logic underlying bus bay assignments remains static, the final bay assignment and division of 60'-long and 40'-long bus bays will be determined through on-going discussions with the project partners. Appendix E reflects a potential schematic layout proposed by BART, Muni, and SamTrans in May of 2012 of Alternative 1.

BART Considerations

Proposed transit access alternatives must meet all life safety and fire code requirements and allow first responders to access the station quickly and efficiently. Any additional overhead structure should consider necessary fire suppression, pest control, and maintenance. Universal access and access for emergency vehicles must be an integral component of any access investment.

Mid-Term Alternatives Analyzed

The four selected mid-term alternatives include various approaches to meeting the capacity recommendations and increasing the supply of bus bays. They differ in the location of new bays--whether on one lower level (Mid-term Alternative 1), two stacked levels (Mid-term Alternative 2), or an upper level and a lower level (Mid-term Alternative 3). Mid-term Alternative 4 would remain in the current intermodal facility and utilize Transportation System Management strategies to allow for additional bus service to use the facility.

For a more detailed description of these alternatives, refer to Appendix C. This appendix also includes a description of additional alternatives that were analyzed and rejected for various reasons.

Preferred Alternative – Alternative 1

While each of the alternatives represents an improvement on the status quo, Mid-Term Alternative 1 was selected as preferred by the project partners and stakeholders. Alternative 1 is displayed in Figure 5-3, Figure 5-4, and Figure 5-5 and further detailed in Appendix C along with the other mid-term alternatives.

In this alternative, 17 bus bays (13 accommodate standard 40'-long buses and four accommodate 60'-long articulated buses), which is the minimum number of bus bays that would adequately accommodate the projected service, would be included immediately east of and adjacent to the existing bus bays on the east side of the station. The retaining wall would be relocated approximately 50' east, carved under the existing De Long Street surface parking lot to accommodate two additional sawtooth traffic islands and 10 new bus bays. Buses would alight, layover, and board at a designated bus bay. The facility would also include a new bridge and additional vertical circulation between the concourse level and the De Long lot, one level above the concourse and transit center.

Alternative 1 provides the most flexibility for future development on the De Long lot, as the entire transit center is built on one level below the De Long lot. By locating all transit on one level with bays assigned by route, it is operationally convenient for transit operators. Alternative 1 eliminates the station looping buses currently travel to drop-off, layover, and pick-up patrons, thus reducing travel time and realizing cost savings for bus operators.

Alternative 1 is also the most convenient alternative for transit patrons. Locating all transit on one level precludes the use of vertical circulation to transfer between buses or between bus and BART. Considering the lack of vertical circulation between bus bays and the BART faregates, the average distance to the faregates is lowest in this alternative. With an improved pedestrian bridge, Alternative 1 would greatly improve bicycle and pedestrian access.

The neighborhood impacts of Alternative 1 would be relatively minimal because the transit center would be largely submerged and not visible from the neighborhood. On the other hand, to make the transit center inviting and an enhancement to the neighborhood, superior lighting and ventilation in the transit center, wayfinding, and other public space enhancements are imperative to announce the station as a prominent Daly City destination.

Under Alternative 1, transit-oriented development could replace the existing surface parking on the De Long lot. While this loss of 260 parking spaces could reduce ridership, additional bus service is expected to generate roughly 1,300 new BART daily boardings and the TOD is projected to yield 174 daily BART trips.

Alternative 1 is the most technically challenging and the most costly to construct. The project would also have to be built in phases to avoid cutting off transit service to the station during the construction of the new facility.

Finally, it has very little impact on traffic due to the elimination of station looping of many of the existing buses. A more detailed assessment of the traffic impacts is presented in Chapter 9.

Figure 5-2 evaluates the four mid-term transit alternatives. Filled circles represent positive impacts; half-filled circles denote neutral impacts; and unfilled circles represent negative impacts.

Figure 5-2 Evaluation Matrix

Criteria	Option 1	Option 2	Option 3	Option 4
Bus Operations – Layover On-site	●	●	●	○
Bus Operations – Ease of Access/Egress	●	●	●	○
Bus Patron Experience – Circulation	●	○	○	◗
Bus Patron Experience – Aesthetics	◗	◗	●	◗
Engineering Feasibility	◗	◗	●	●
Capital Cost	○	○	○[1]	◗
Bus Operating Costs	●	●	●	◗
Facility Maintenance Costs	○	○	○[1]	◗
TOD Opportunity	●/○[2]	○	○	●
De Long Lot Parking (If No TOD)	●/○[2]	○	○	●
Traffic Congestion	◗	◗	◗	◗
Neighborhood Impact	●	●	●	○

● Positive Impact ◗ Neutral Impact ○ Negative Impact

[1] Assumes no elevator(s) needed. Cheaper option than Options 1 and 2, but still a negative impact.
[2] Positive impact if decked, negative impact if it becomes an open air facility.

Figure 5-3 Mid-term Alternative 1: Upper Level Site Plan

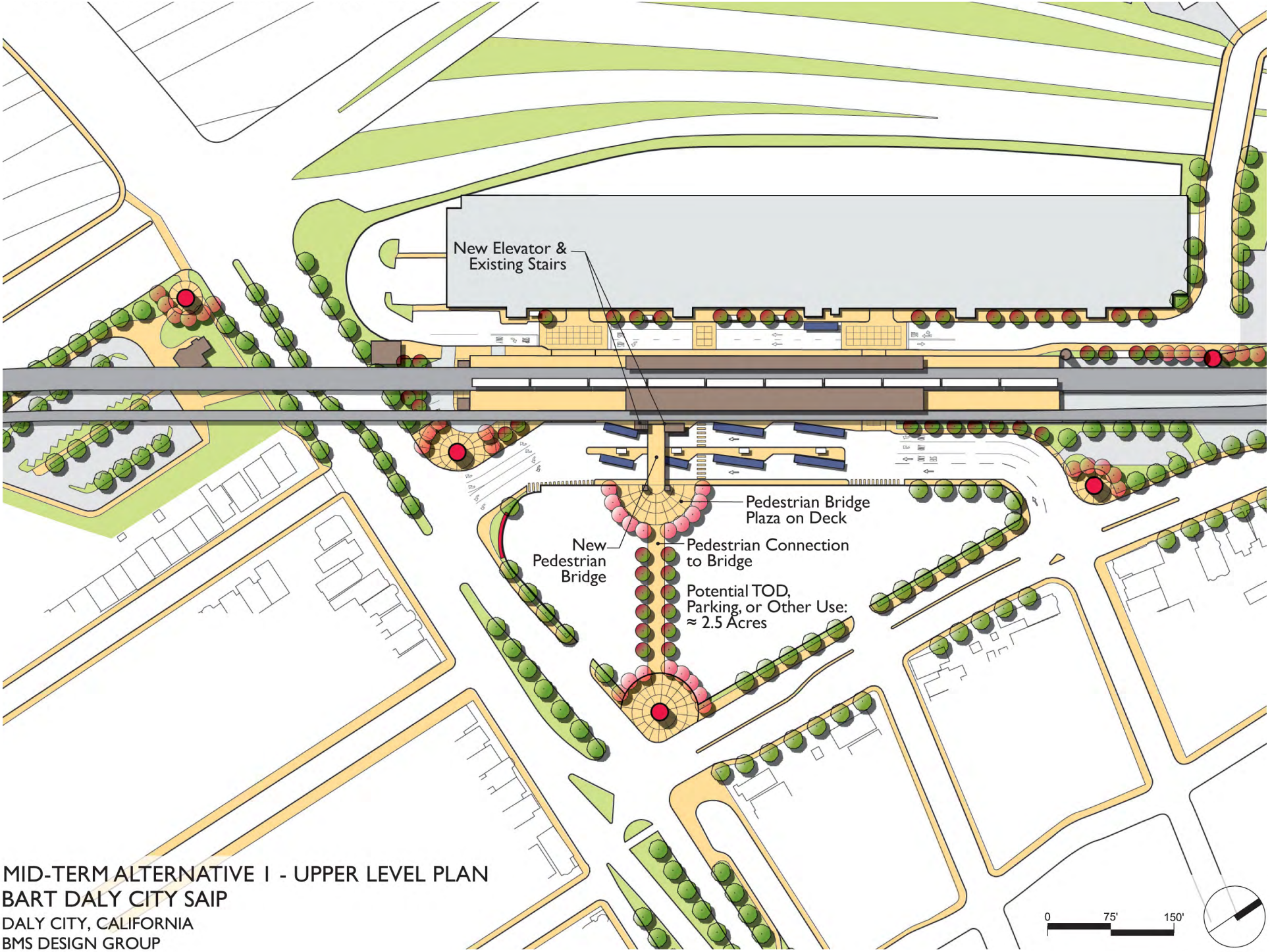


Figure 5-4 Mid-term Alternative 1: Lower Level Site Plan

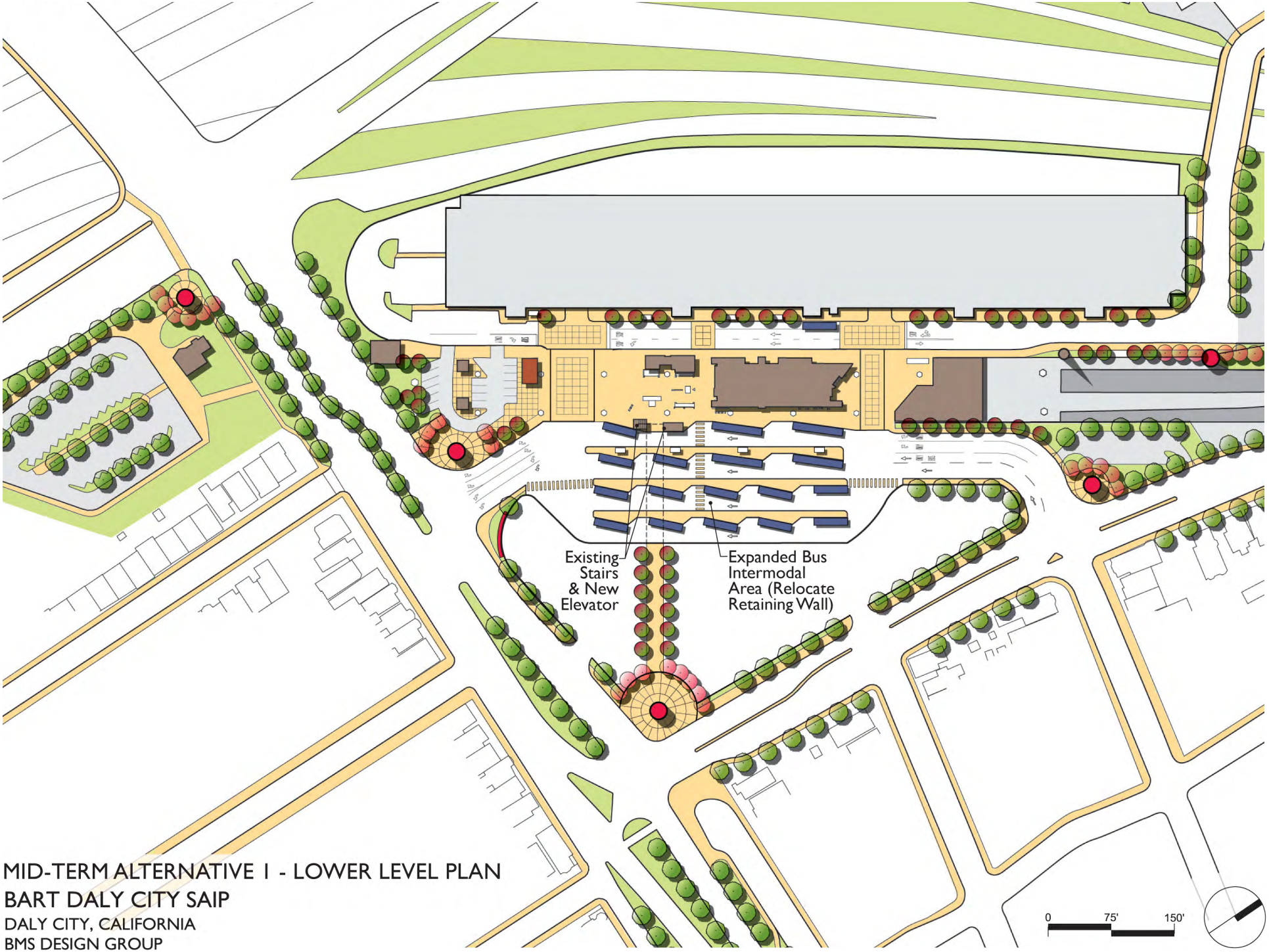
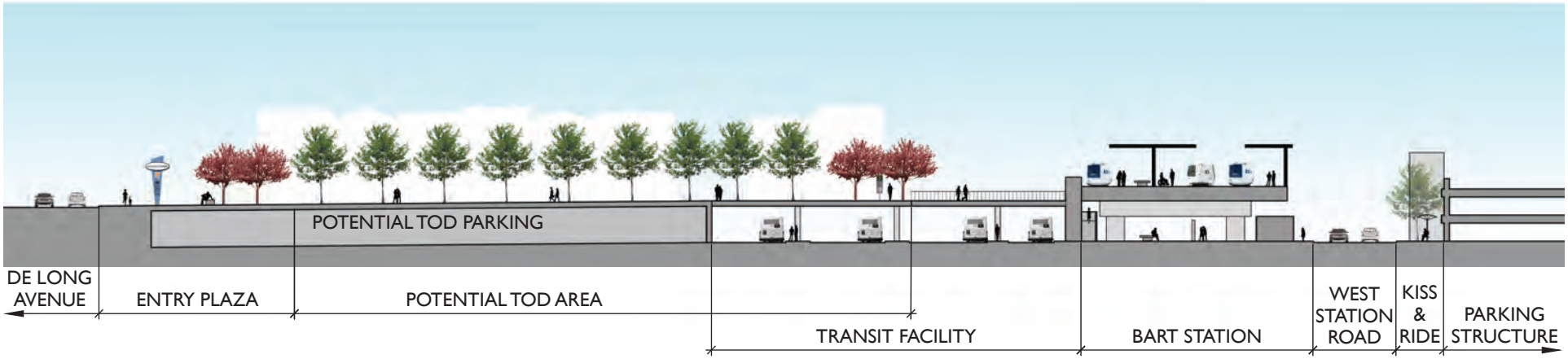


Figure 5-5 Mid-term Alternative 1: Cross Section



MID-TERM ALTERNATIVE 1 - CROSS-SECTION
BART DALY CITY SAIP
DALY CITY, CALIFORNIA
BMS DESIGN GROUP

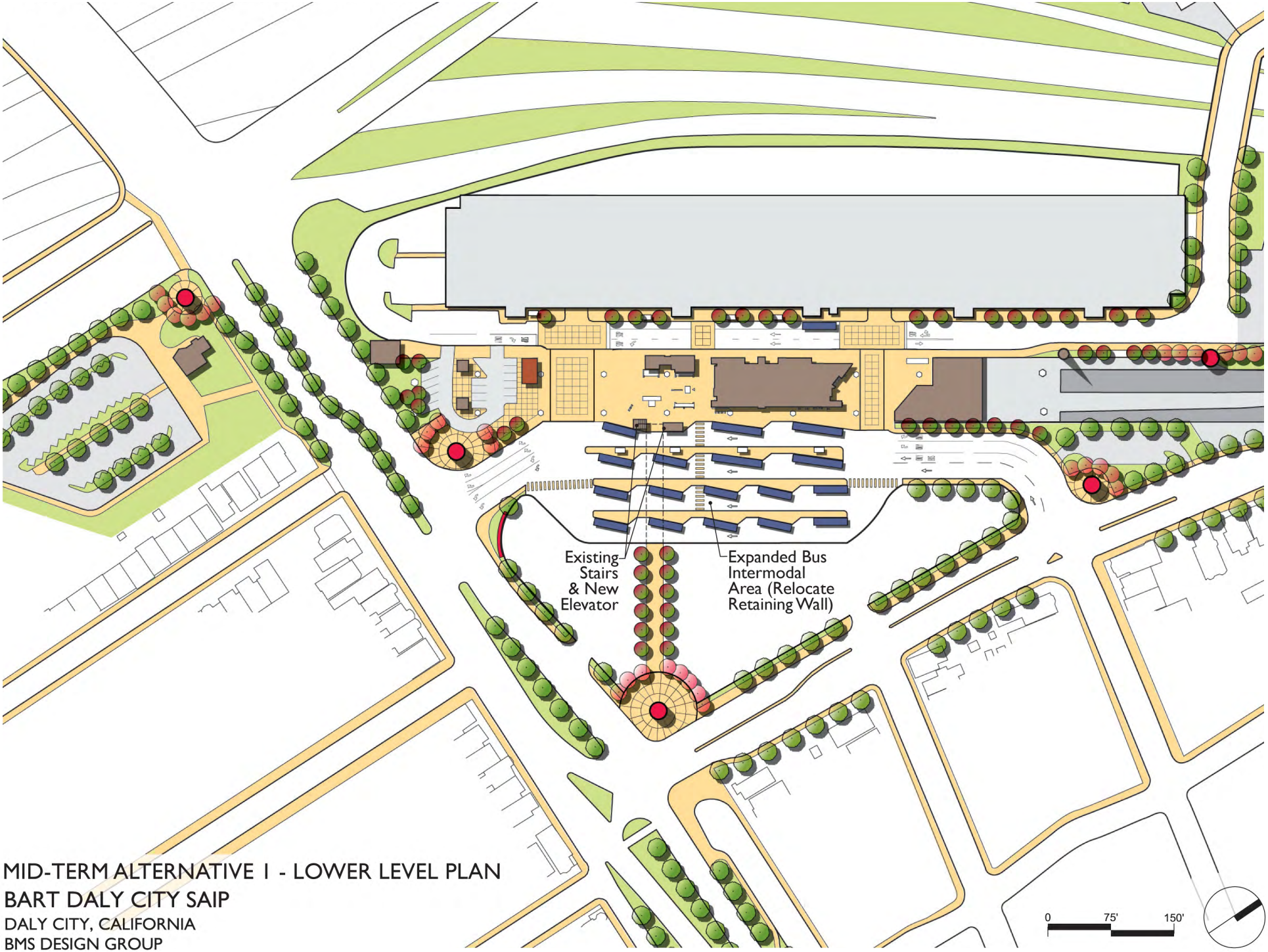
0 30' 60'
SCALE: 1 INCH = 60 FEET

LONG-TERM ALTERNATIVE

Beyond year 2020, the only planned service change includes the potential extension of the Muni M Line to the Daly City BART Station, as detailed in the SFMTA TEP. The SFMTA and Parkmerced are working in partnership to facilitate a potential M-Ocean View light rail extension to the Daly City BART Station. Currently, the M line terminates at the Balboa Park BART Station. As part of its redevelopment project, Parkmerced will be diverting the M line tracks through its property and constructing tail tracks for short-line turnaround operations. These tail tracks will be oriented towards Junipero Serra Boulevard to permit a future extension to the Daly City BART Station. Refer to Figure 5-6 for five conceptual M Line alignment options.

While the existing Daly City station site is physically constrained, a close connection between the M line platform and BART faregates will be required to make the extension a success from a ridership and cost-effectiveness perspective. Locating the M line platforms across Interstate 280 or between the freeway and the parking garage would make transfers inconvenient and potentially unsafe. No recommendations are made at this time as additional study is required to determine which alternative is the most feasible.

Figure 5-4 Mid-term Alternative 1: Lower Level Site Plan



6 PLACEMAKING ATTRIBUTES

Creating a welcoming and comfortable station area is important to meet both BART's ridership and access goals. This chapter addresses general station design principles that can be implemented with or without the preferred transit, bicycle, and pedestrian access improvements.

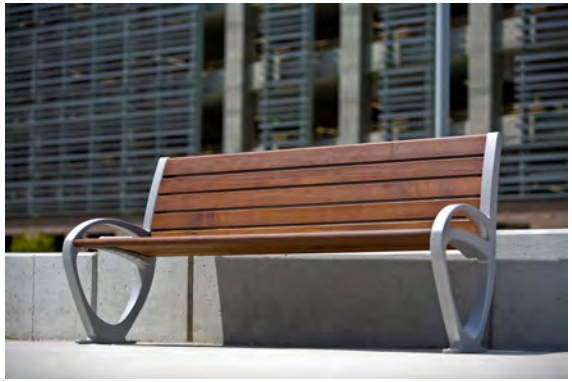
STATION DESIGN PRINCIPLES

The design principles described below are based on the conditions and character of the Daly City BART Station. Some of the physical characteristics that influence design are the confined nature of the site, the sharp east to west slope of the site, and the cool, often windy weather conditions in Daly City. The site topography has influenced the station to be designed with two terraces: an upper terrace on the east side that includes the De Long Lot and a lower terrace on the west side that contains the station and other parking facilities.

The design principles for the Daly City BART Station include:

- Develop a unique identity for the station
- Employ a consistent style, selecting elements within a design "family" (examples are provided in Figure 6-1 and Figure 6-2)
- Incorporate entertaining elements to make the station more inviting
- Select contemporary elements to fit Daly City's character
- Incorporate color to enliven the drab environment
- Use light to brighten the dark areas of the station and create an increased sense of security
- Mark pedestrian priority spaces and crossings by using different paving materials
- Introduce human-scaled elements to counteract the imposing quality of the existing structures
- Develop solutions for the efficient use of space, such as incorporating dual purpose landscape furnishings when possible

Figure 6-1 Modern Street Furniture



Source: BMS

Figure 6-2 Trash Collection

Source: BMS

STATION IDENTITY

An important step in improving access to the Daly City BART Station is to institute a clear identity for the station, establishing it as an important hub in the surrounding neighborhood, in the City, and

throughout the BART system. Branding the station will help users know where they are, whether they are arriving at the station by train, bus, car, bicycle, or foot.

Some techniques for branding the station include establishing a color scheme, style, and content theme for improvements. A bright or light color scheme will be particularly welcome at the station to contrast with the gray concrete of the existing structures and the frequently gray skies of the foggy, coastal location. When incorporating public art, murals, interpretive exhibits, or other place-making improvements, themes that are relevant to the Daly City BART Station are:

- Transportation-related branding techniques
- History of the station area
- Natural and geologic history of the area
- Diverse culture of Daly City and the station area neighborhood

GATEWAYS

There are five major entry points to the Daly City BART Station that act as gateways and offer opportunities to better connect the Station to the surrounding neighborhood as well as create a station identity.

The gateways can help potential transit users identify the entrance to the station. They are easily legible from a distance when approaching the station on foot, bicycle, or by vehicle, by providing an element featuring the name of the station and potentially including the operating agencies' logos. Lighting should be incorporated to allow the feature to be viewed at night. In this document, the element is referred to as the transit entrance identification signage. Figure 6-3 provides examples of both a gateway element and identifiable signage. Figure 6-4 illustrates the locations and additional details of the proposed gateway treatments.

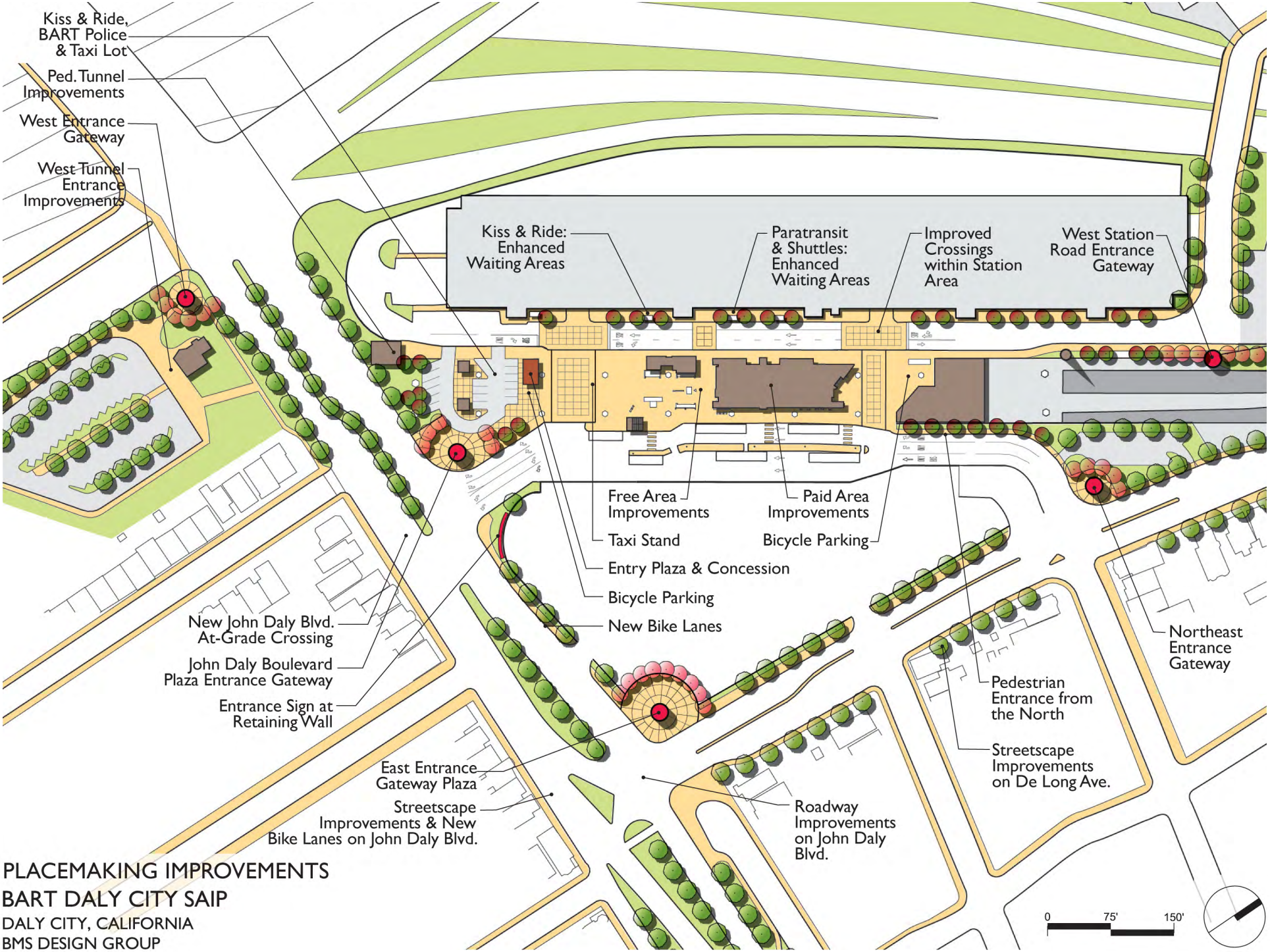
The gateways can also help establish an identifying theme for the Daly City BART Station by using the station color scheme, style, and content theme, if appropriate. In addition to transit entrance identification signage, each gateway should include a wayfinding kiosk with a map and key local destinations. The gateways could feature ornamental accent plantings that contrast with the other street and station plantings to draw attention to these visual focal points.

While gateways are important, their location and aesthetic may affect or be affected by potential transit-oriented development. Gateway design should therefore be coordinated with development.

Figure 6-3 Gateway Element & Identifiable Signage

Source: BMS

Figure 6-4 Placemaking Improvements



West Entrance Gateway

At the southeast corner of Junipero Serra and John Daly Boulevards, a gateway could be created to mark the West Station entrance. The primary goals of this gateway would be to create a sense of arrival for pedestrians and bicyclists, and direct pedestrians and bicyclists into the station. West Entrance Gateway treatments are further elaborated below, in the section on the West Tunnel Entrance Plaza.

John Daly Boulevard Plaza Entrance Gateway

At the northwest corner of John Daly Boulevard and East Station Road, a gateway could be created to mark the East Station Road pedestrian and bicycle entrance and transit and auto exit. This gateway is the arrival point for pedestrians and bicyclists using the tunnel, any future potential at-grade crossing across John Daly Boulevard, as well as some pedestrians and bicyclists approaching the station from the Top of the Hill. The gateway should include transit entrance identification signage, as illustrated in Figure 6-5, and accent planting.

West Station Road Entrance Gateway

After crossing the Saint Charles Bridge, users should be welcomed to the station by the West Station Road Entrance Gateway. At this location, West Station Road appears to end at the BART platform above. In fact, the road turns south into the heart of the station and provides pedestrian and vehicular access from the northwest. The gateway could be located at the turn in the road to let users know they have arrived at the station and to direct patrons to station locations.

Figure 6-5 Wayfinding Kiosk

Source: BMS

East Entrance Gateway

The East Entrance is an important gateway because it marks the arrival of pedestrians and bicyclists from the Top of the Hill. It is also the point where motorists turn onto De Long Street to enter the station. To improve pedestrian and bicycle safety crossing John Daly Boulevard and De Long Street, the turning radius at this corner should be reduced.

This entrance should include the standard gateway features: entrance identification, pedestrian-scale lighting, wayfinding signage, and accent planting. In addition, it should include a plaza area with seating and recycling and trash receptacles. It may also include public art, special paving, lighting, and other pedestrian amenities. To the extent possible, transit-oriented development on the De Long Lot should incorporate the East Entrance Gateway.

Northeast Entrance Gateway

The northeast entrance gateway marks the location where passenger vehicles and most buses enter the station. It is also the pedestrian and bicycle entrance from the north. This entrance should include standard gateway features.

Entrance Sign at Retaining Wall

While not a gateway, per se, adding an entrance sign on the retaining wall will serve a dual purpose: to enhance the look of the retaining wall and improve station identity. The signage would follow the form of the wall and incorporate the station color scheme, style, and content theme, if appropriate. Lighting should be used to allow the signage to be seen at night. The wall is expansive, creating an opportunity to incorporate public art.

Kiss & Ride, Paratransit, and Shuttle Waiting Areas on West Station Road

There is space along the eastern face of the parking structure to enhance the existing kiss & ride, paratransit, and shuttle waiting areas on West Station Road. Transit shelters with seating, signage, and recycling and trash receptacles should be added at these locations. The shelters should have sufficient lighting levels to be able to read a newspaper at night. Other pedestrian amenities such as newspaper stands could be provided. An example of an appropriate bus shelter is provided in Figure 6-6.

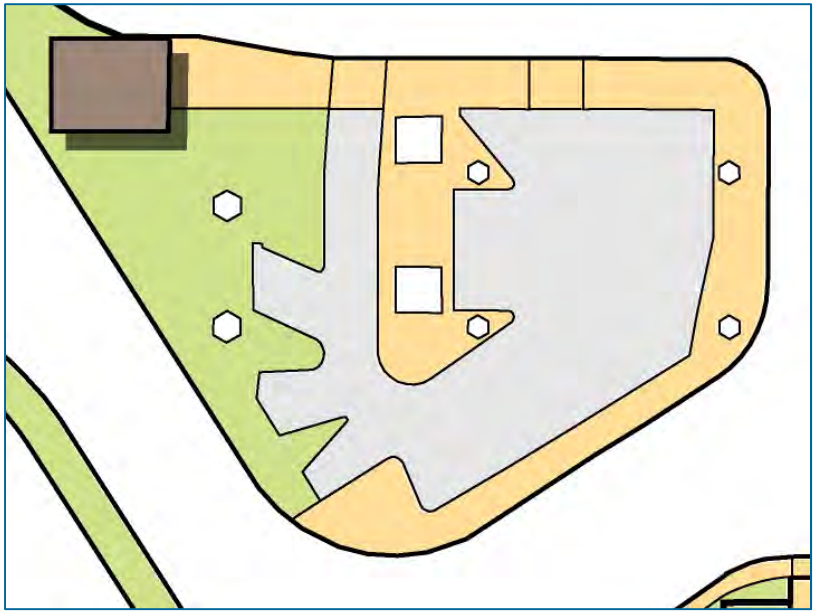
Figure 6-6 Bus Shelter

Source: BMS

Other Public Space Improvements

The existing parking lot between John Daly Boulevard and the southern entry to the station (Parking Lot F) is illustrated in Figure 6-7. The existing configuration includes an extra wide travel lane on the north side, causing inefficient use of space. It should therefore be reconfigured and reduced to provide space for a gateway and an entry plaza.

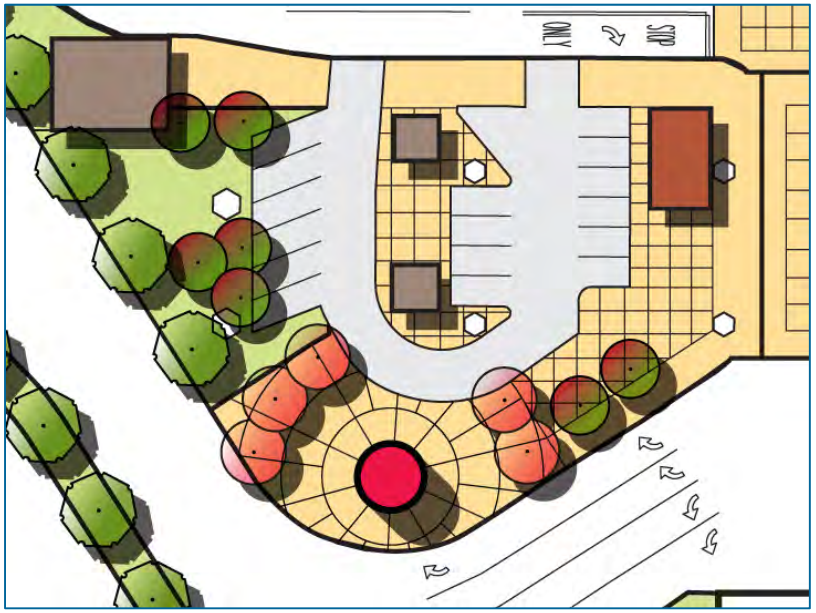
Figure 6-7 Current Kiss & Ride and Taxi Lot Configuration



Source: BMS

The configuration of the proposed one-way lot is illustrated in Figure 6-8. It would provide 14 passenger-loading spaces for taxis and kiss & ride vehicles and one parking space for a BART police vehicle. The kiss & ride spaces are in addition to those on West Station Road. By limiting the lot to a one-way circulation pattern, space is gained for the entry plaza. The number of spaces will be reduced from approximately 25 spaces in the current configuration to 15 spaces.

Figure 6-8 Proposed Kiss & Ride, Taxi, and BART Police Lot



Source: BMS

John Daly Boulevard Entry Plaza and Concession

A new entry plaza would connect two important pedestrian locations: the north pedestrian tunnel entrance and the John Daly Boulevard Plaza Entrance Gateway. It would also direct users to the southern station paid area. This would provide a significant improvement over the existing situation. As this plaza is under the BART tracks, it requires color and lighting to make it inviting.

The John Daly Boulevard Entry Plaza and Concession Stand is an excellent opportunity to reinforce the Daly City Station identity by incorporating the station color scheme, style, and content theme. The plaza should feature a wayfinding kiosk, bicycle parking, seating, and recycling and trash receptacles. This location would also be suitable for public art and other amenities.

Free Area Improvements

The free area is the space between the taxi stand and the southern faregates. Here is an opportunity to create an entrance that is vibrant and inviting. The free area should support the identifying theme for the station by reflecting the station color scheme and style in its improvements. Lighting should be added to brighten this dark plaza underneath the BART tracks.

Improved wayfinding elements would be incorporated as well as improved furnishings. As this is a primary entry point, it is an ideal location to maximize improvements such as public art, interpretive exhibits, customer convenience facilities, and other pedestrian amenities.

Paid Area Improvements

The station paid area at the ground level is a great mixing place of people and activity. It is the first place arriving BART passengers experience in Daly City after leaving the platform. It is also the place where departing passengers orient themselves to find their way to the platforms. This Great Hall has the potential to be much more expressive of the Daly City location.

Color and improved lighting should be used to enliven the paid are. New wayfinding signage could be incorporated into the paid area of the station. Public art reflecting the content theme could be added to the paid area as well as other elements (e.g. furnishings and surface treatments) that support the station color scheme and style. A public art display at the South Hayward BART Station is provided in Figure 6-9.

The Daly City Station Capacity Plan, part of the *Daly City CSP*, shows a future condition in which the paid area is expanded to the south by 6,000 square feet. In this scenario, the size of the existing free area would be significantly reduced and the John Daly Boulevard Entry Plaza would be needed to contain an employee break room and a private retail concession store. The store would be an amenity to BART riders and also brighten the dark station plaza.

Figure 6-9 Public Art at South Hayward BART Station

Source: BMS

7 CONCEPTUAL PEDESTRIAN ACCESS ALTERNATIVES

This chapter identifies pedestrian crossing alternatives and streetscape recommendations to improve pedestrian access and enhance the pedestrian environment. The recommendations discussed in this chapter are largely independent of the improvements discussed in other chapters and can be implemented independent of any reconstruction of the bus transit center. The City of Daly City will consider developing a crosswalk strategy for intersections along John Daly Boulevard in coordination with wayfinding improvements and a more detailed circulation and parking analysis.

Pedestrian crossings are prohibited at a few intersections on John Daly Boulevard, including intersections immediately adjacent to the Daly City BART Station. Despite this prohibition, pedestrians frequently cross illegally at Niantic Avenue / East Station Road, as shown in Figure 7-1.

One of the goals of this project is to improve pedestrian circulation and safety, particularly at the intersection of John Daly Boulevard and Niantic Avenue/East Station Road, the southern entrance to the station. During field observations recorded in Figure 7-2, numerous pedestrians crossed John Daly Boulevard at this intersection, despite the fact that this crossing is prohibited and barricaded with a fence. The nearest at-grade crossing is located on John Daly Boulevard at De Long Street, approximately 400 feet to the east of the BART entrance at East Station Road. The grade-separated pedestrian tunnel crossing is located approximately 400 feet west.

As a result, the additional walking distance required to make a legal at-grade crossing is approximately 800 feet, requiring an additional 3 to 4 minutes of travel time to and from the BART Station from adjacent neighborhoods. Another option is to use the pedestrian tunnel under John Daly Boulevard at the station, discussed in the following section.

Figure 7-1 Pedestrians Making Prohibited Crossing of John Daly Boulevard at East Station Road

Source: BMS

Figure 7-2 Pedestrian Crossing Volumes

Period		John Daly Boulevard @ Niantic Avenue / Niantic Ave 1		Junipero Serra Blvd @ John Daly Blvd1		John Daly Boulevard @ Junipero Serra Blvd via Pedestrian Tunnel 2	
		Pedestrians (Illegal Crossings)	Bicyclists	Pedestrians	Bicyclists	Northbound	Southbound
AM Peak Periods	7:00 – 10:00 AM	38	7	2	0	352	124
	AM Peak Hour (8:00 – 9:00 AM)	18	3	2	0	*Estimated: ~180*	*Estimated: ~70*
PM Peak Periods	4:00 – 6:00 PM	20	3	0	0	227	290
	PM Peak Hour (4:30 – 5:30 PM)	13	3	0	0	*Estimated: ~150*	*Estimated: ~190*

Notes:

1. Pedestrian and bicycle counts on John Daly Boulevard include both northbound and southbound directions.

2. AM counts in the tunnel were collected from 7:00 – 9:00 AM only. ***(Peak Hour tunnel volumes estimated based on 2-hour counts).***

Source: Fehr & Peers, 2010

CROSSING IMPROVEMENTS

Pedestrian Tunnel

The tunnel under John Daly Boulevard has been identified as a barrier to pedestrian access. The tunnel is perceived by some patrons to be unsafe and inconvenient, and despite being prohibited, pedestrians often by-pass the tunnel in favor of the prohibited at-grade crossing of John Daly Boulevard at Niantic Avenue/East Station Road. This section describes potential pedestrian crossing improvements to enhance safety and convenience for pedestrians.

The tunnel is well-maintained, but lacks visibility from adjacent uses, especially during non-peak hours. While it would be best to realign the tunnel to eliminate sharp changes in direction, this may not be feasible given the potential cost. To improve the tunnel in its existing configuration, the design should:

- Use techniques to make the space feel larger
- Add elements to make the tunnel feel more vibrant and friendly
- Add technology to improve security or security personnel, if feasible
- Formalize the tunnel entries
- Replace solid flat roof with glazed, gable roof at pedestrian tunnel entrances
- Remove concrete walls at the bottom of the stairs and add steel picket railing
- Create a sense that users are approaching an active space to enhance their sense of security
- Improve wayfinding and signage so that BART patrons can easily locate the tunnel entrances
- Improve lighting
- Install landscaping at key locations leading to the tunnel and use colors or other materials to create a more inviting environment for pedestrians

Figure 7-3 provides an example of a more attractive tunnel.

The west tunnel entrance provides an opportunity to create a small transit plaza that is inviting and usable. The plaza should include a wayfinding kiosk, pedestrian-scale lighting, seating, and recycling and trash receptacles. It may also include public art, special paving, an attended bike station if demand warrants, and/or other pedestrian amenities.

The following sections address alternatives to improve the at-grade pedestrian crossing at John Daly Boulevard and Niantic Avenue. However, improving the existing pedestrian tunnel as stated above could help mitigate the observed jaywalking across John Daly Boulevard, as well.

Figure 7-3 Pedestrian Tunnel in Hong Kong

Source: Karl Fjellstrom, ITDP-china.org

At-grade Pedestrian Crossing Alternatives

Provision of an at-grade crossing across John Daly Boulevard at the station could result in travel time savings for pedestrians traveling to or from adjacent neighborhoods south of the station. Installation of a signal-controlled surface crossing of John Daly Boulevard at Niantic Avenue or East Station Road would:

- Accommodate and regularize existing practice by installing a crosswalk and pedestrian crossing signal
- Install a degree of predictability for both pedestrians and other road users
- Alert motorists that pedestrians may be crossing the roadway

Figure 7-4 depicts the existing intersection of Niantic Avenue/East Station Road and John Daly Boulevard. The John Daly Boulevard right-of-way ranges from 100' to 150' wide, creating a barrier between neighborhoods south and south east of the Station from the BART Station.

Total curb-to-curb width adjacent to the station is approximately 100 feet including:

- Seven travel lanes, including three 11-foot wide eastbound lanes and four 12-foot wide westbound lanes
- 12-foot wide landscaped center median at the intersection of Niantic Avenue/East Station Road
- 8-foot wide on-street parking lane (eastbound)
- 6 to 9 feet wide sidewalks

Figure 7-4 John Daly Boulevard and Niantic Avenue / East Station Road Intersection (Aerial View of Existing Condition)

Source: Google Inc.

Overview of Pedestrian Alternatives

Six alternatives, called Pedestrian Alternatives P-1 through P-6, have been identified for a potential at-grade crossing of John Daly Boulevard at Niantic Avenue/East Station Road. They are summarized in Figure 7-5 and illustrated in Figures 7-6 through 7-11.

All six alternatives would require:

- Modifications to the island separating westbound and eastbound traffic exiting the BART Station
- Removal of a portion of the fence that was installed within the landscaped center median to deter illegal pedestrian crossings
- Relocation of eastbound "stop bars" for motor vehicle traffic and installation of additional signal-heads for several alternatives
- Changes to signal phasing, as described below

Signal Phasing Changes Required with Crosswalk

Installing an at-grade crosswalk on John Daly Boulevard at Niantic Avenue or East Station Road would require signal phase adjustments under all alternatives. Each of the alternatives would require a Pedestrian Clearance Interval (PCI) concurrent with the southbound signal phase at John Daly Boulevard/East Station Road:

- Currently, the southbound signal phase is allocated 25 seconds within each 55-60 second cycle at John Daly Boulevard/East Station Road.
- 25 seconds is insufficient to accommodate a PCI of 30-40 seconds that would be needed to bring pedestrians across the 90-100 feet wide John Daly Boulevard in one phase.
- Providing a one-phase pedestrian crossing would require that 5-15 seconds within each cycle be reallocated from east/west through movements to accommodate a longer southbound signal phase. Alternatively, a two-phase pedestrian crossing, in which pedestrians would cross to the center median in one phase and complete the crossing during a second phase could be accommodated with the existing signal phasing.
- The PCI is based on a walking speed of 3 feet per second and includes the following sub-intervals:
  - "Walk" interval of 4 to 7 seconds
  - Flashing "Don't Walk" interval, based on total crossing distance divided by a walking speed of 3 feet per second
  - Red clearance interval for the remainder of the PCI
- As an example, to accommodate a pedestrian crossing of 96 feet, a 32-second PCI is required, while a 120-foot crossing would require a 40-second PCI. Refer to Chapter 9 for an assessment of potential impacts on motor vehicle traffic that could result from providing an at-grade pedestrian crossing at this location.

The proposed alternatives P-1 through P-6 are compared in Figure 7-5 and described in detail on the following pages.[7]

Figure 7-5 Pedestrian Crossings Alternatives Comparison

Pedestrian Alternative	Crosswalk Location (South Terminus)	Crossing (feet)		1-Phase Pedestrian Crossing (seconds)						2-Phase Pedestrian Crossing (seconds)					
				Pedestrian Clearance Interval (seconds)		Southbound Signal Phase		East/West Signal Phase (PM Peak Hour)		*Pedestrian Clearance Interval (seconds)*		*Southbound Signal Phase*		*East/West Signal Phase (PM Peak Hour)*	
		Without Bulbout	With Bulbout	Without Bulbout	With Bulbout	Existing	Proposed with Ped Call	Existing	Proposed with Ped Call	*Without Bulbout*	*With Bulbout*	*Existing*	*Proposed with Ped Call*	*Existing*	*Proposed with Ped Call*
Existing	N/A	N/A	N/A	N/A	N/A	25	N/A	35	N/A	*N/A*	*N/A*	*25*	*N/A*	*35*	*N/A*
P-1	Niantic Avenue	98	90-95	32.7	30-31	25	30 to 33	35	27 to 30	*N/A*	*N/A*	*25*	*N/A*	*25*	*N/A*
P-2	Niantic Avenue	120	112-115	40	38-39	25	38 to 40	35	20 to 22	*19*	*16-18*	*25*	*25*	*35*	*35*
P-3	East Station Road	120	112-115	40	38-39	25	38 to 40	35	20 to 22	*19*	*16-18*	*25*	*25*	*35*	*35*
P-4	East Station Road	132	124-129	44	42-43	25	42 to 44	35	16 to 18	*19*	*16-18*	*25*	*25*	*35*	*35*
P-5	Between Niantic Avenue & East Station Road	96	88-93	32	30-31	25	30 to 32	35	28 to 30	*N/A*	*N/A*	*25*	*N/A*	*35*	*N/A*
P-6	East Station Road	102	94-99	34	32-33	25	32 to 34	35	26 to 28	*N/A*	*N/A*	*25*	*N/A*	*35*	*N/A*

[7] While the intention is that pedestrians would cross John Daly Boulevard in a single signal phase, there may be some cases where pedestrians begin crossing during the flashing don't walk interval and cannot complete the crossing of all lanes in one signal phase. Subsequent staging in the traffic median may occur and could require additional analysis.

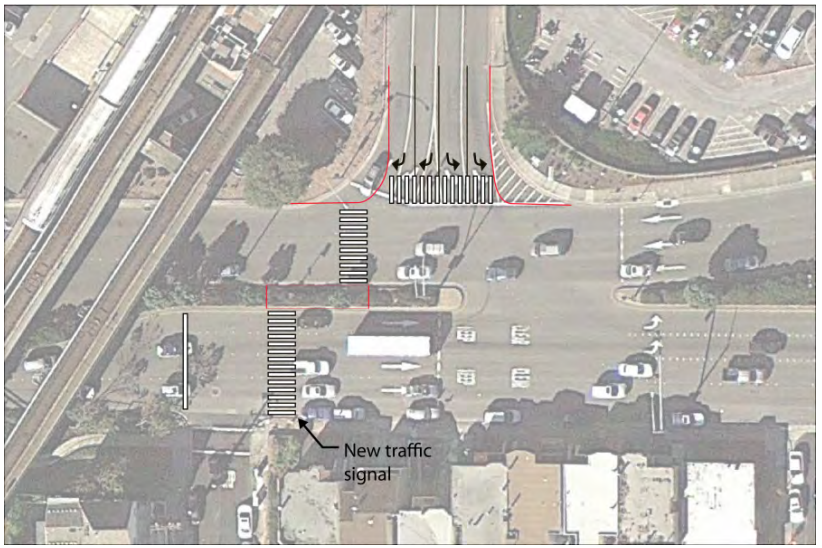
Figure 7-6 Pedestrian Alternative P-1

Pedestrian Alternative P-1

Pedestrian Alternative P-1 would provide a high-visibility crosswalk and median cut-through at Niantic Avenue (Figure 7-6):

- Crossing distance of 98' (potentially reduced to 90' to 95' with provision of 3' to 8' pedestrian bulb-out at south terminus)
- 1-phase pedestrian crossing that would require 30 to 33 seconds within each signal cycle
- No on-street parking spaces would be removed
- Installation of an additional eastbound traffic signal would be required approaching Niantic Avenue, reducing eastbound vehicle queue space by approximately 140'

Figure 7-7 Pedestrian Alternative P-2



Pedestrian Alternative P-2

Pedestrian Alternative P-2 would provide a high-visibility east-west crosswalk on the north approach and a high-visibility crosswalk and median cut-through at Niantic Avenue (Figure 7-7):

- Crossing distance of 120' (potentially reduced to 112' to 115' with provision of 3' to 8' pedestrian bulb-out at south terminus)
- 1-phase pedestrian crossing that would require 38 to 40 seconds with each cycle
- No on-street parking spaces would be removed
- Installation of a an additional eastbound traffic signal would be required approaching Niantic Avenue, reducing eastbound queue space by approximately 140 feet
- Curb radii on the east and west side of southbound Niantic Avenue could be narrowed significantly

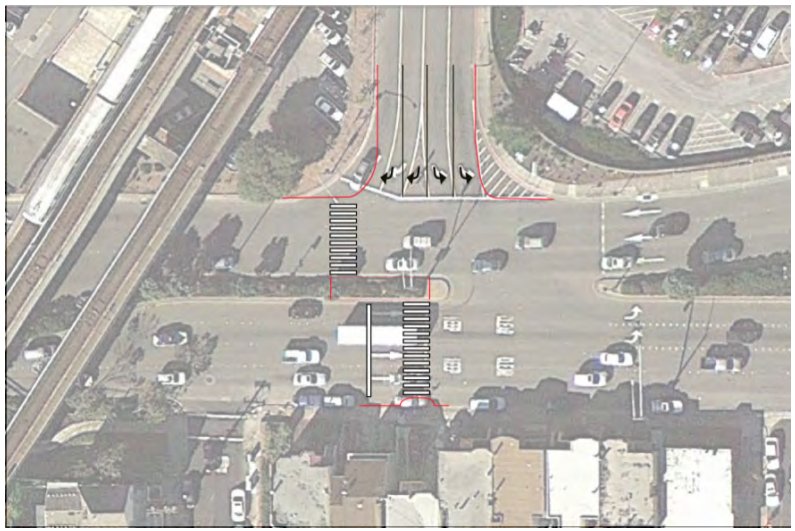
Figure 7-8 Pedestrian Access Alternative P-3

Pedestrian Alternative P-3

Pedestrian Alternative P-3 would provide a high-visibility crosswalk at the existing traffic signal at Niantic Avenue and John Daly Boulevard (Figure 7-8):

- Crossing distance of 120' (potentially reduced to 112' to 117' with provision of 3' to 8' bulb-out at south terminus)
- 1-phase pedestrian crossing that would require 38 to 40 seconds within each signal cycle
- Removal of one on-street parking space
- Eastbound vehicle queue space would be reduced by 30 feet to accommodate relocated stop-bar
- Pedestrians crossing the angled north leg of the crosswalk may not be as visible to motorists entering eastbound John Daly Boulevard with a right-turn from Niantic Avenue, due to the irregularity of this intersection

Figure 7-9 Pedestrian Access Alternative P-4



Pedestrian Alternative P-4

Pedestrian Alternative P-4 combines elements of Alternatives P-2 and P-3 (Figure 7-9).

- Crossing distance of 132' (potentially reduced to 124' to 129' with provision of 3' to 8' pedestrian bulb-out at south terminus)
- 1-phase pedestrian crossing that would require 42 to 44 seconds with each cycle
- Removal of one on-street parking space
- Eastbound vehicle queue space would be reduced by 30 feet to accommodate relocated stop-bar
- Unlike Alternative P-2, the alignment of the two staggered crosswalk sections would not force pedestrians to look into oncoming traffic before crossing the second leg of the crosswalk.

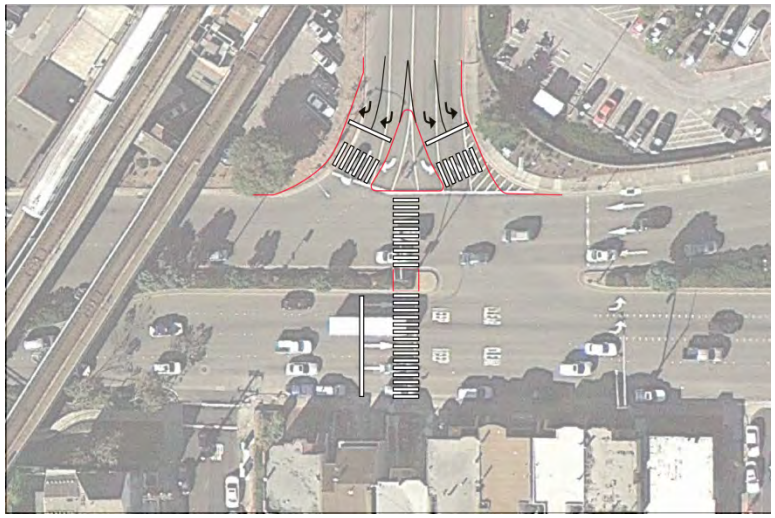
Figure 7-10 Pedestrian Access Alternative P-5

Pedestrian Alternative P-5

Pedestrian Alternative P-5 would provide a high visibility east-west crosswalk on the north approach and a high-visibility crosswalk and median cut-through east of Niantic Avenue (Figure 7-10):

- Crossing distance of 96' (potentially reduced to 88' to 91' with 3' to 8' bulb-out on the south side)
- 1-phase pedestrian crossing that would require 30-32 seconds within each signal cycle
- Removal of one on-street parking space
- Eastbound traffic stop bar on eastbound John Daly Boulevard would be relocated 50' west of its current location
- Additional eastbound signal poles may be required approaching the relocated eastbound stop bar

Figure 7-11 Pedestrian Access Alternative P-6



Pedestrian Alternative P-6

Pedestrian Alternative P-6 would provide a high-visibility crosswalk at the existing traffic signal at East Station Road (Figure 7-11)

- Crossing distance of 102' (potentially reduced to 94' to 99' with 3' to 8' bulb-out on the south side)
- 1-phase pedestrian crossing that would require 32 to 34 seconds within each signal cycle
- Removal of one on-street parking space
- Eastbound traffic stop bar on eastbound John Daly Boulevard would be relocated 30' west of its current location,
- At the north terminus of the crosswalk, the existing "pork-chop island" would be expanded to provide a generous pedestrian refuge between the southbound lanes exiting the station, with signalized pedestrian crossings across southbound travel lanes.

De Long Street

High-visibility crosswalks should be installed across De Long Street at Hillcrest Drive, Los Olivos Avenue, and John Daly Boulevard to improve pedestrian access to the station and prioritize pedestrian movements. Furthermore, curb bulb-outs should be installed at the southeast corner of Los Olivos Street and De Long Street, shortening the crossing distance at this location.

East and West Station Roads

To connect John Daly Boulevard crossing improvements to the faregates, the pedestrian crossing of East Station Road south of the faregates should be enhanced, with a high visibility crosswalk or special paving materials that signal pedestrians may be crossing.

Enhanced paving could be used to communicate pedestrians' crossing priority over vehicles within the station area. This paving should be either natural scored concrete or concrete unit pavers to facilitate street maintenance. Specially colored or textured concrete is not recommended due to the difficulty in assuring future high quality repairs and maintenance. The enhanced paving should extend the length and width of roads below the raised BART tracks. On West Station Road, a mid-block crossing with enhanced paving should connect the parking structure to the faregate entrance. For an example of enhanced paving, see Figure 7-12. More detailed information of the pedestrian circulation improvements is illustrated in Figure 7-13.

De Long Street

On the west side of De Long Street bordering the station, streetscape improvements should include:

- Sidewalks at least eight feet wide
- Street trees, wayfinding signage, pedestrian-scale lighting, and other pedestrian improvements

STREETSCAPE IMPROVEMENTS

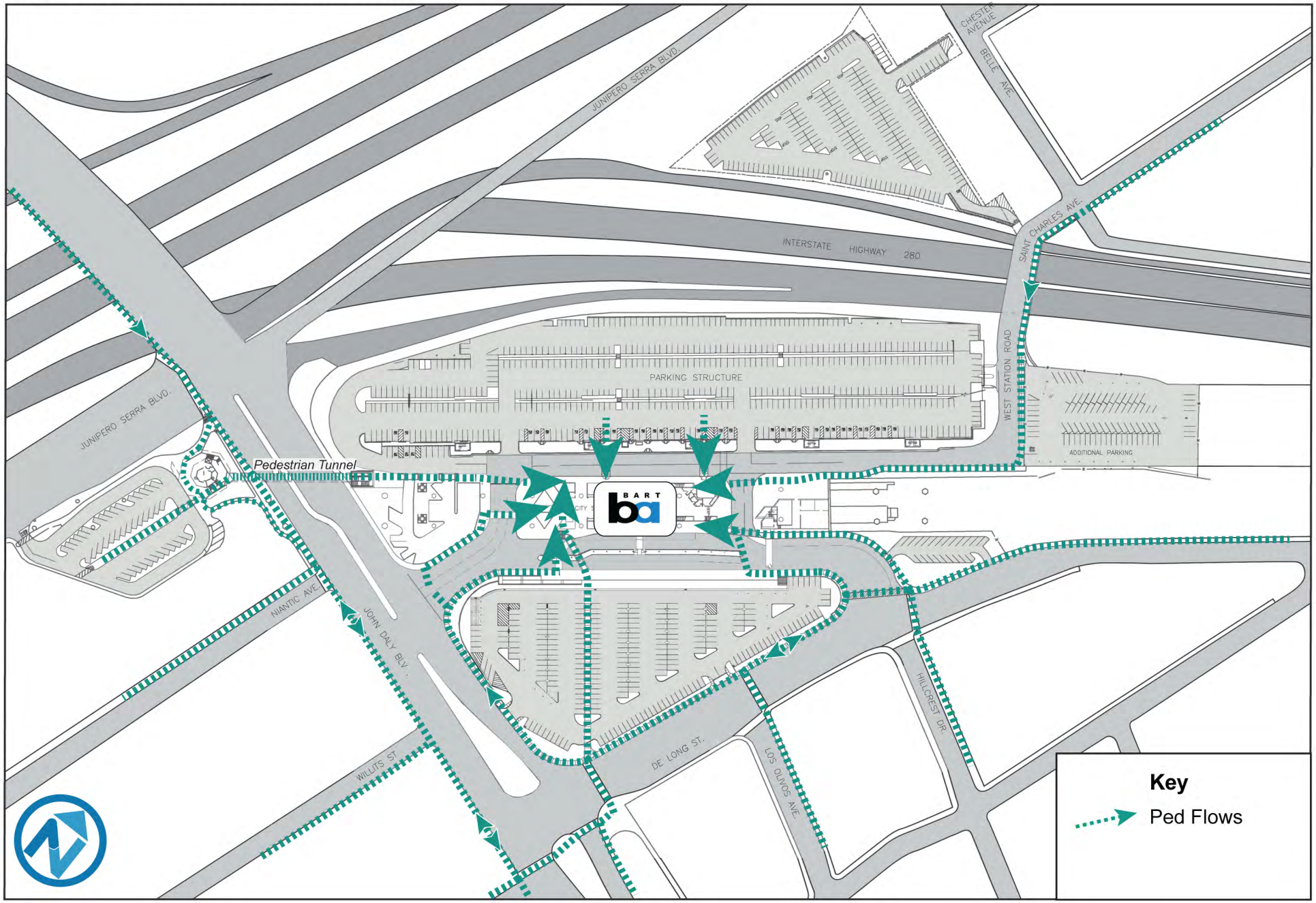
On the east side of De Long Street, adding street trees to in the vacant parcel area would create an attractive buffer zone and a more comfortable environment for pedestrians. This location is also an opportunity to add pedestrian-scaled lighting, wayfinding signage, and other pedestrian amenities. All improvements proposed for this location that are not on BART property will require City of Daly City and adjacent property owner's approval.

Both sides of the street should have treatments that relate to one another, e.g. consistent planting and furnishing types.

Figure 7-12 Special Intersection Paving

Source: BMS

Figure 7-13 Pedestrian Circulation Diagram



De Long Parking Lot

From the intersection of John Daly Boulevard and De Long Street, the most direct pedestrian path to the station entrance bisects the BART's De Long parking lot, before crossing a bridge at platform level, and descending to the concourse level.

- As elaborated in the Chapter 6, a pedestrian plaza would connect this intersection with the vertical circulation by means of a generous, tree-lined path.
- The non-ADA compliant ramp from the surface parking lot to the concourse level would also be replaced with either a universally accessible ramp or elevators, as discussed in Chapter 5.
- In the event the site is developed, pedestrian access from the east will need to be coordinated with the transit-oriented development.

East Station Road

The existing pedestrian access route from the north is a narrow sidewalk along the East Station Road with a low chain-link fence on one side and a high concrete retaining wall capped by a barbed wire-topped, chain-link fence on the other. This entrance lacks pedestrian scale and feels unwelcoming, as shown in Figure 7-14.

Widening the sidewalk does not appear to be feasible without adversely affecting transit and auto circulation. The following options would improve the pedestrian access experience and arrival image of the station:

- Remove the low chain link fence, replace with an attractive open guardrail in the identifying style of the station.
- Improve the wall with color, lighting, and/or public art.
- The upper fence in this location could be replaced with a less-visible dark colored security fence made from metal pickets.
- Pedestrian-scale lighting would further improve the conditions, especially after dark.

Figure 7-14 East Station Road Security Fencing

Source: BMS

West Station Road

To visually connect the West Station Road Entrance Gateway, the station and the pedestrian tunnel under John Daly Boulevard:

- Trees should be planted and pedestrian-scale lighting should be installed along the entire length of the West Station Road.
- Distinctive paving materials should be used to help prioritize pedestrian access between the parking structure and the station.
- BART may also want to consider sand blasting columns and adding public art along the West Station Road.

8 CONCEPTUAL BICYCLE ACCESS ALTERNATIVES

Potential changes to the transit center at the Daly City BART Station in the mid-term presents an opportunity to implement some of the bicycle access recommendations outlined in the 2002 *BART Bicycle Access and Parking Plan*, the 2009 *San Francisco Bicycle Plan*, the 2006 *Daly City Comprehensive Station Plan*, the 2005 *Daly City Bicycle Master Plan* and the 2011 *San Mateo County Bicycle Plan* described in the existing conditions chapter. However, a comprehensive circulation analysis should be conducted to further evaluate the impacts of potential bicycle access improvements.

The roadways surrounding the Daly City BART Station are designed to prioritize motor vehicle travel. There are no bicycle lanes today on John Daly Boulevard or any of the other streets that connect the surrounding areas to the station.

There are three primary paths bicyclists utilize to access the station:

1. Bicyclists, along with automobiles and transit, enter the station along East Station Road via De Long Street. Some bicyclists traveling from the top of the hill cut-through the De Long Lot, and travel over the bridge and down a flight of stairs to access the concourse level.
2. Bicyclists from the northwest access the station via St. Charles Avenue, a designated bicycle route (Route 75).
3. Finally, while the East Station Road at John Daly Boulevard is one-way, southbound only, bicyclists coming from the south or southwest have been observed to enter the station at this location, counter traffic flow.

JOHN DALY BOULEVARD

As a four- to seven-lane arterial, John Daly Boulevard can be an intimidating street to bicyclists. Traffic volumes and speeds are high, and currently it has no bicycle facilities.

This section proposes three alternatives for eastbound and westbound dedicated bicycle lanes on John Daly Boulevard between Niantic Avenue and De Long Street, intended to provide options for implementing the bicycle route adopted in Daly City's *Bicycle Master Plan*.

Bicycle facilities work best when they are continuous and convenient. The frontage roads along John Daly Boulevard—Los Banos Avenue on the north and Knowles Avenue on the South—provide comfortable and less steep routes for bicycles from De Long Street to Mission Street. For eastbound bicyclists traveling on John Daly Boulevard, signage should be incorporated to guide bicyclists to continue east on Knowles Avenue, the frontage road.

All three bicycle access alternatives would benefit from an at-grade pedestrian crossing at Niantic Avenue/East Station Road and John Daly Boulevard. The at-grade crossing improvements proposed in Chapter 7 (and recommended in the City of Daly City *Bicycle Master Plan* and Daly City *Comprehensive Station Plan*) would allow eastbound bicyclists to dismount and cross John Daly Boulevard during an appropriate signal phase.

Westbound Bicyclists

Los Banos Avenue/John Daly Boulevard Frontage Road (East of De Long Street): For bicyclists traveling from the Top of the Hill to BART, signage should direct bicyclists to utilize the Los Banos Avenue frontage road, in lieu of using John Daly Boulevard, until the frontage road terminates at De Long Street. Bicyclists traveling to BART could continue on John Daly Boulevard to Niantic Avenue or to cross the De Long Lot to reach the faregates.

John Daly Boulevard (West of De Long Street): West of De Long Street, westbound cyclists would be accommodated via one of the two following options:

- On-street westbound bicycle lane could be provided between De Long Street and East Station Road by narrowing the existing westbound travel lanes to 10 feet each

- Off-street westbound travel by bicyclists could be accommodated by the existing 9-foot wide sidewalk segment, provided that appropriate signage and sidewalk treatments are installed to limit potential pedestrian/bicycle and bicycle/motor vehicle conflict points

Eastbound Bicyclists

Eastbound bicycle facilities are also proposed on the south side of John Daly Boulevard to connect the neighborhoods west of the station to BART. West of Junipero Serra Boulevard, a bi-directional off-street bicycle path parallels John Daly Boulevard and connects the neighborhoods on either side of I-280. An eastbound bicycle lane on John Daly Boulevard would extend this path into the Daly City BART Station and connect the faregates and bicycle parking with the existing off-street bicycle facility. Continuing eastbound, at the intersection of John Daly Boulevard and De Long Street, the bicycle lane could funnel bicyclists onto the low traffic frontage road, Knowles Avenue, to connect to the Top of the Hill.

The three bicycle alternatives, B-1 to B-3, differ in their approach for accommodating eastbound bicyclists, as described below.

Bicycle Alternative B-1

Bicycle Alternative B-1 (Figure 8-1) would provide space for an eastbound bicycle lane by removing on-street parking along John Daly Boulevard from Niantic Avenue to Willits Street:

- Seven on-street parking spaces would be remove:
  - Five spaces between Niantic and Willits Street
  - Two spaces east of Willits Street
- No changes to the eastbound motor vehicle travel lane configuration would be required for Bicycle Alternative B-1

Bicycle Alternative B-2

Bicycle Alternative B-2 (Figure 8-2) would preserve on-street parking on John Daly Boulevard by locating the eastbound bicycle lane north of the parking lane by removing a portion of one of the two eastbound left-turn lanes approaching the BART Station via De Long Street.

- No on-street parking spaces would be removed
- Eastbound left-turn configuration would be modified

Bicycle Alternative B-3

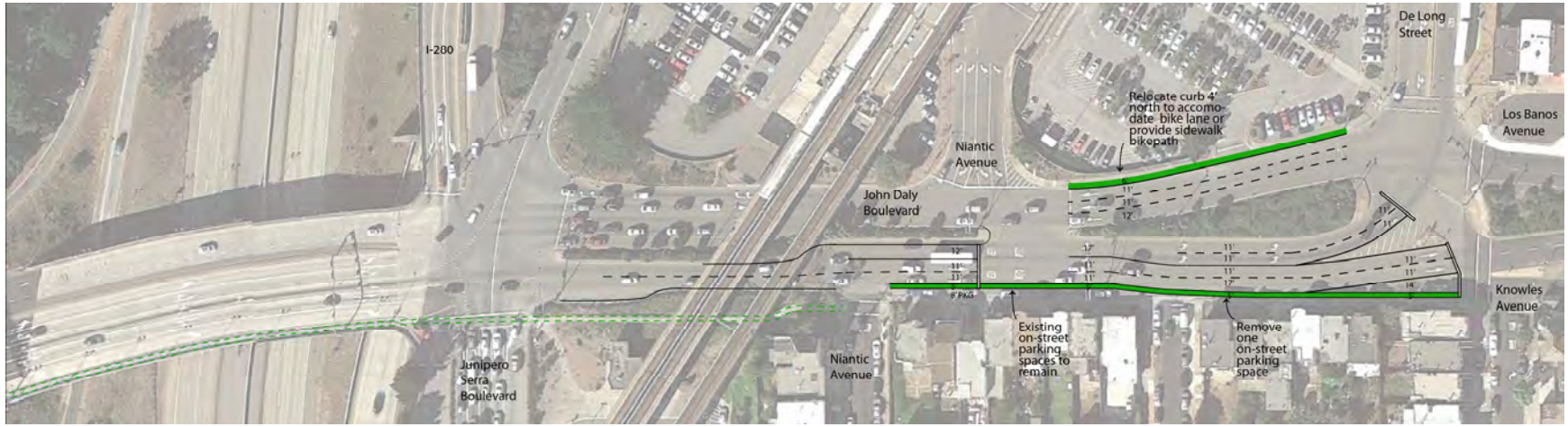
Bicycle Alternative B-3 (Figure 8-3) would preserve most of the on-street parking on John Daly Boulevard, locating the eastbound bicycle lane north of the parking lane.

- Two existing on-street parking spaces would be removed, east of Willits Street
- Eastbound left-turn configuration would be modified

Figure 8-1 Bicycle Alternative B-1

Figure 8-2 Bicycle Alternative B-2

Figure 8-3 Bicycle Alternative B-3



Summary of Preferred Bicycle Alternative

Bicycle Alternative B-3 provides a continuous bicycle connection from the off-street facility to Knowles Avenue, a lightly trafficked frontage road connecting De Long Street and Santa Barbara Avenue. The dedicated bicycle lane on John Daly Boulevard also has the least impact on automobile traffic—both eastbound and westbound. Two continuous eastbound through lanes are provided along John Daly Boulevard, while maximizing the distance of storage or queue space for eastbound left turns onto De Long Street. Finally, only two parking spaces are removed, while the other six spaces remain along John Daly Boulevard.

De Long Street

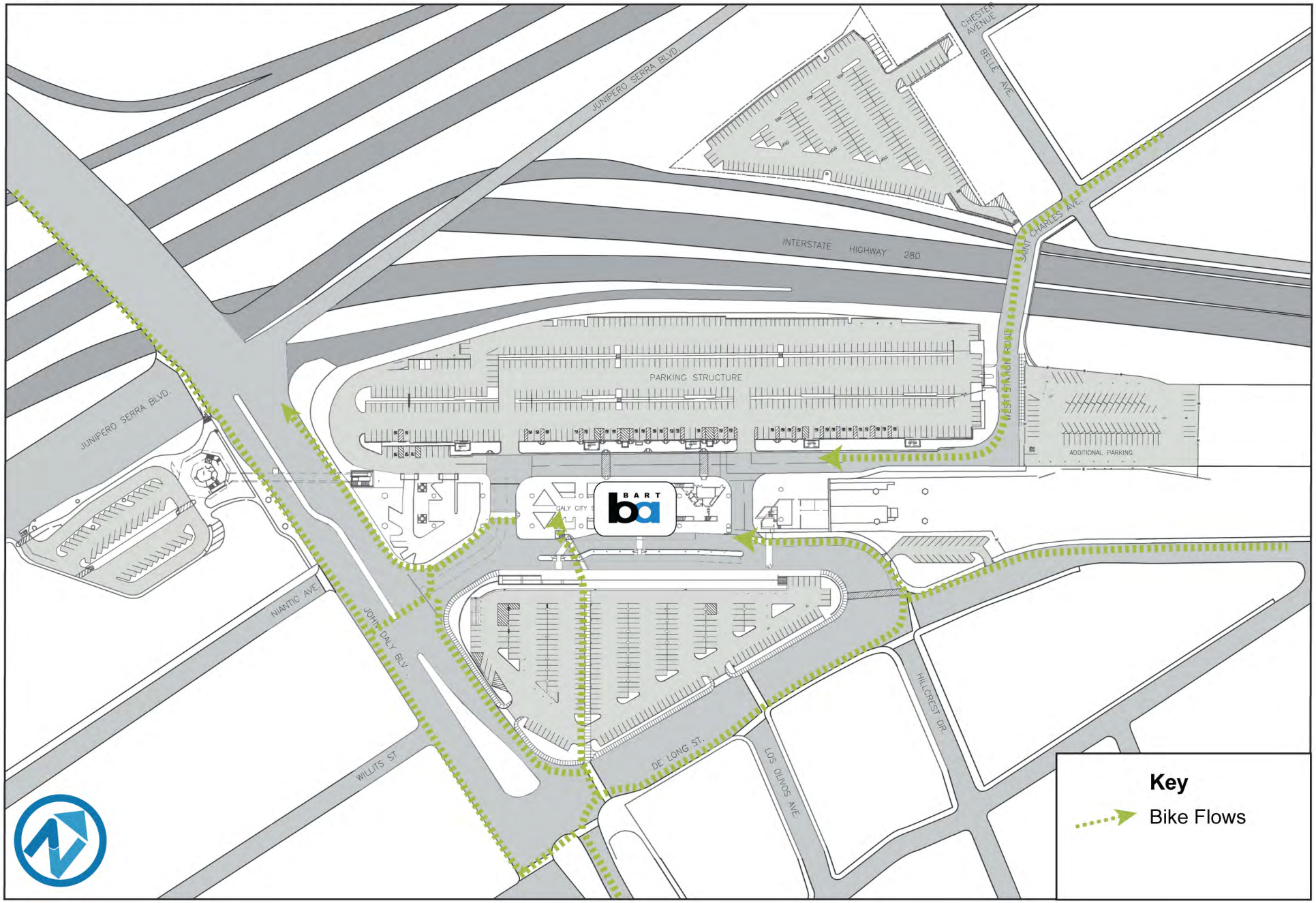
Improved bicycle facilities on De Long Street between John Daly Boulevard and the intersection of Alemany Boulevard and San Jose Avenue would connect the Daly City BART Station with the Outer Mission and Ocean View neighborhoods. De Long Street carries very little vehicular traffic north of the station. Therefore, the segment between the East Station Road/Hillcrest Drive and Alemany Boulevard/San Jose Avenue could be an ideal location for a bicycle boulevard, prioritizing bicycles with shared lane markings and traffic calming elements, such as curb bulb-outs, diverters, roundabouts, and wayfinding signage.

St. Charles Avenue

Within San Francisco, St. Charles Avenue is a designated Class III bicycle route (Route 75) that connects to the shared-use path and crosswalk that crosses Brotherhood Way just east of the SR 1/Brotherhood Way interchange. Brotherhood Way has Class II bicycle lanes east of St. Charles Avenue. West of St. Charles Avenue, a proposed off-street bicycle and pedestrian path (per the 2009 San Francisco Bicycle Plan and Parkmerced Master Plan) will bridge Junipero Serra Boulevard on the northern edge of Brotherhood Way connecting St. Charles Avenue (via Brotherhood Way) to the neighborhoods west of Junipero Serra Boulevard. A traffic signal facilitates bicyclists crossing Brotherhood Way south to St. Charles Avenue and the Daly City BART Station. Shared lane markings and wayfinding signage should be installed on St. Charles Avenue between Brotherhood Way and the Daly City BART Station.

Refer to the bicycle circulation diagram shown in Figure 8-4.

Figure 8-4 Bicycle Circulation Diagram



9 TRAFFIC ASSESSMENT

Purpose of Traffic Assessment

This chapter provides an assessment of potential traffic impacts that could result from the preferred Mid-Term Transit Access Alternative and implementation of proposed Conceptual Pedestrian and Bicycle Access Alternatives. The purpose of this assessment is to identify potential traffic-related constraints and provide information to assist reviewers in considering and refining the Preferred and Conceptual Alternative(s).

This assessment is not intended to serve as a transportation impact analysis (TIA) for environmental review purposes, such as would be prepared for an Environmental Impact Report or Environmental Impact Study, since the Station Area Improvement Plan (SAIP) is not a legislative document subject to the California Environmental Quality Act (CEQA).

Chapter Overview

This assessment report is divided into the following sections:

- ***Traffic Assessment Methodology***
  - Definition of "Project Description" for traffic assessment purposes
  - Description of key assumptions and assessment scenarios
  - Overview of traffic Level of Service (LOS) methodology and Daly City evaluation criteria for assessment purposes
- ***Existing Traffic Conditions***
  - Summary of existing traffic volumes, LOS and traveler delay at key intersections
- ***Existing Plus Potential Pedestrian Alternative P-6 Traffic Assessment***
  - This traffic assessment scenario focuses solely on the potential near-term impacts that could result from implementation of Pedestrian Alternative P-6. This assessment scenario is based on existing traffic volumes and lane configurations.
- ***Cumulative Traffic Assessment***
  - Assessment of potential effect on Cumulative (Year 2030) LOS that could result from implementation of the proposed physical improvements identified in the SAIP under:
    - Mid-term Transit Alternative 1; and
    - Conceptual Pedestrian Alternative P-6; and
    - Conceptual Bicycle Alternative B-3.
- ***Summary of Traffic Assessment Findings***
  - Summary of potentially significant traffic impacts identified by this assessment

TRAFFIC ASSESSMENT METHODOLOGY

Project Description for Assessment Purposes

This assessment focuses on the potential traffic impacts that could result from implementation of the following proposed station access improvements described in Chapters 5, 7 and 8, defined as the "Project" for traffic assessment purposes:

- Transit Access: Preferred SAIP mid-term transit access improvements described as **Mid-Term Transit Alternative 1 (see Chapter 5);** and
- Pedestrian Access: Potential SAIP pedestrian access improvements described as **Pedestrian Alternative P-6 (see Chapter 7);** and
- Bicycle Access: Potential bicycle access conceptual improvement option described as **Bicycle Alternative B-3 (see Chapter 8).**

Key Assumptions

Preparation of this traffic assessment incorporates the following key assumptions concerning the potential improvements identified in the SAIP:

- ***Traffic Generation.*** The traffic assessment includes projected land use growth in the area. The improvements identified in the SAIP are not anticipated to generate new motor vehicle trips, because:
  - There would be no increase in motor vehicle parking for BART patrons at the BART Station, and
  - There would be no increase in bus service, beyond the level of bus service already planned by SamTrans, Muni, and local shuttle services.
  - There would be a potential reduction in total bus trips, resulting from the proposed SAIP transit access improvements, since the provision of additional bus stops would reduce or eliminate the need for some buses to make a "double-loop" (two inbound trips and two inbound trips) on a single run.
- ***Traffic Distribution & Operations.*** Potential traffic impacts could result from potential changes to traffic conditions (resulting from the improvements identified in the SAIP) during the AM and PM Peak hours
  - Changes to traffic LOS could result from proposed changes described in the alternatives that are evaluated in this traffic assessment:
    - Potential modification to traffic signal timing plan at John Daly Boulevard / Niantic Avenue intersection, to accommodate the potential at-grade pedestrian crossing (as described for Pedestrian Access Alternative P-6; see Chapter 6).
    - Potential modifications to travel lanes on John Daly Boulevard to accommodate bicycle lanes,
  - The traffic assessment provides a Level of Service (LOS) analysis at six study intersections:
    - John Daly Boulevard intersections with Junipero Serra Boulevard, Niantic Avenue (BART Station Exit), De Long Street, and Santa Barbara Avenue
    - De Long Street intersection with Niantic Avenue (BART Entrance)
    - Saint Charles Ave with the Parking Garage

Assessment Scenarios

Nelson/Nygaard analyzed potential traffic impacts based on the following assessment scenarios:

- **Existing Conditions**
  - Based on Year 2010 traffic counts

- **Existing Plus Potential Pedestrian Alternative P-6 Conditions**
  - This assessment scenario focuses solely on the potential installation of a pedestrian crossing on John Daly Boulevard, as described under Conceptual Pedestrian Alternative P-6, at the signalized intersection with Niantic Avenue, immediately bordering the BART Station
- **Cumulative Baseline Conditions**
  - Cumulative (Year 2030) traffic forecast
  - Cumulative (Year 2030) Baseline LOS based on current intersection configurations and station access provisions
- **Cumulative Plus Project Conditions**
  - LOS analysis, at each study intersection, based on proposed changes to intersection configurations described in the "Project" as defined for assessment purposes (Mid-Term Transit Alternative 1, Pedestrian Alternative P-6 and Bicycle Alternative B-3).

Assessment Criteria

This section describes the relevant local criteria for determining the "significance" of potential traffic impacts resulting from the SAIP. For purposes of this assessment:

Traffic impacts are identified as "Potentially Significant" if one of the following occurs:

- The Project causes LOS to degrade from an acceptable LOS to an unacceptable LOS (see below for description of Level of Service Standards that define acceptable LOS in Daly City and adjacent neighborhoods in San Francisco); or
- At intersections operating unacceptably, the Project causes LOS to degrade by a single letter grade (such as from E to F), or
- At intersections operating at LOS F under Existing or Cumulative (Year 2030) Baseline No Project conditions: impacts would be significant if approach delay (for a single intersection approach) were to degrade to an unacceptable level.

Level of Service Standards

- Traffic LOS C or better is currently considered acceptable at Daly City intersections, based on the adopted LOS standard described in the Daly City *General Plan* (adopted 1995).

Potential Changes to Daly City LOS Standard

The Administrative Draft of the Daly City *General Plan Update* (published in December 2011) recommended a tiered level of service (LOS) standard into the City's Local Thresholds of Significance Guidelines.

The potential new standards (if adopted) would serve as the evaluation measure for the traffic impacts created by new projects and according to Task CE-1.6 of the General Plan Update should be applied as follows:

- Require that a minimum LOS C be maintained during the AM peak traffic period and that a LOS D be maintained during the PM peak traffic periods at all principal intersections.
- Where a traffic study identifies that a discretionary project will degrade the Level of Service at any of the City's principal intersections to below acceptable levels, the City shall, through the environmental review process, require measures to mitigate the anticipated impact to a level of insignificance.
- New vehicular traffic created by a discretionary project that causes any of the City's principal intersections to degrade to LOS F during any traffic period shall be considered a significant impact subject to the preparation of an Environmental Impact Report (EIR). The EIR shall provide

both mitigation measures and feasible project alternatives that would effectively mitigate anticipated traffic impacts to a level of insignificance.

- Mitigation measures shall include construction of or financial contribution toward traffic improvements that can effectively mitigate the impact within a ten-year timeframe from the project approval date. Traffic impacts which are not fully mitigable within a ten-year timeframe shall be considered temporarily immitigable and subject to the adoption of a Statement of Overriding Considerations in addition to mitigation measures.
- The City staff shall recommend the adoption of a Statement of Overriding considerations related to traffic in instances where there is substantial evidence to support the notion that the project possesses qualities (including environmental, legal, technical, social, and economic factors) that merit the project's approval despite the traffic impacts caused by the project.[8]

EXISTING TRAFFIC CONDITIONS

Vehicle Access

Regional vehicle access to the Daly City BART Station is provided by the proximity to Interstate 280; major arterial streets, including John Daly Boulevard, Junipero Serra Boulevard and Mission Street. Over 2,000 parking spaces are provided for BART patrons (an attribute not shared by BART Stations to the north in San Francisco).

Local vehicle access is constrained by some of these same attributes; adjacency to a 10-lane freeway and two major arterial streets creates barriers to local vehicle circulation, due to a lack of direct and/or continuous local street connections. Figure 9-1 depicts transit and automobile traffic on De Long Street, a four-lane street adjacent to the station.

Figure 9-1 Mixed Transit and Auto Traffic on De Long St

Study Intersections & Assessment Periods

Traffic conditions are typically at their most congested for automobiles during the weekday AM and PM peak commute periods (7:00 to 9:00 AM and 4:00 to 6:00 PM).

To assess traffic conditions in the study area, existing intersection operating conditions were evaluated during the AM and PM peak hours at the following six intersections near the Daly City BART Station:

6. Junipero Serra Boulevard/John Daly Boulevard
7. Niantic Avenue/John Daly Boulevard
8. De Long Street/John Daly Boulevard
9. Santa Barbara Avenue/John Daly Boulevard
10. De Long Street/Hillcrest Drive-BART Entrance
11. Saint Charles Avenue/Parking Garage

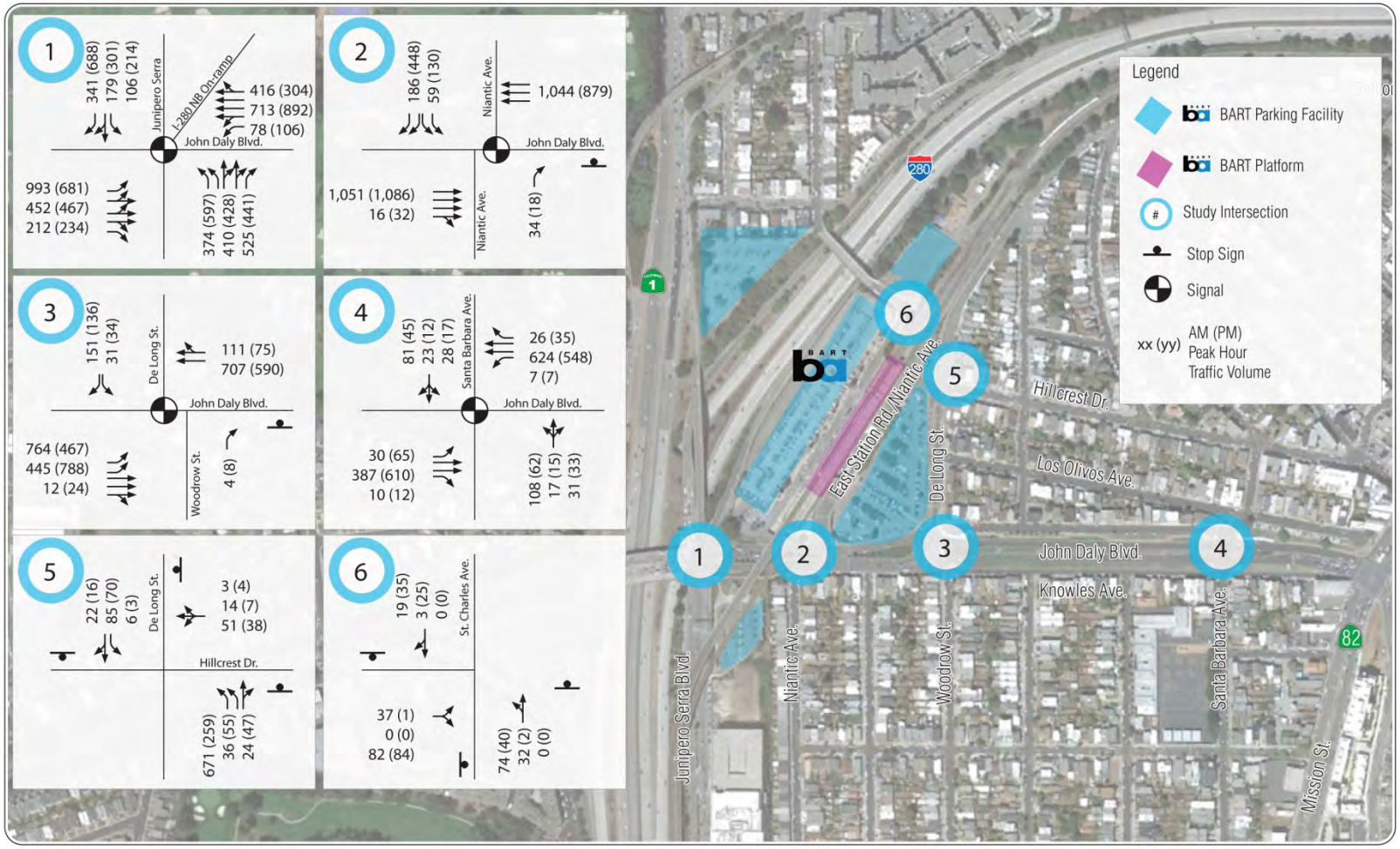
Motor Vehicle Traffic Volumes

Existing motor vehicle traffic volumes, traffic controls, and lane configurations at the six intersections adjacent to the Daly City BART station are presented on Figure 9-2.

[8] City of Daly City. Daly City 2030: A Plan for the Future Administrative Draft, December 2011.

Figure 9-3 shows AM and PM peak period traffic flows on eastbound John Daly Boulevard adjacent to the Daly City BART Station. Overall traffic volumes are relatively constant in the morning and afternoon peak period. However, in the morning, 63% of traffic on eastbound John Daly Boulevard turns left onto De Long Street northbound toward the station entry. In the evening peak period, the reverse is true: 37% of eastbound traffic on John Daly Boulevard turns north onto De Long Street. In the afternoon peak, 63% of traffic continues through on John Daly Boulevard eastbound. Traffic at the intersection of John Daly Boulevard and De Long Street is highly dependent on time of day.

Figure 9-2 Existing Baseline (Year 2010) Peak Hour Traffic Volumes

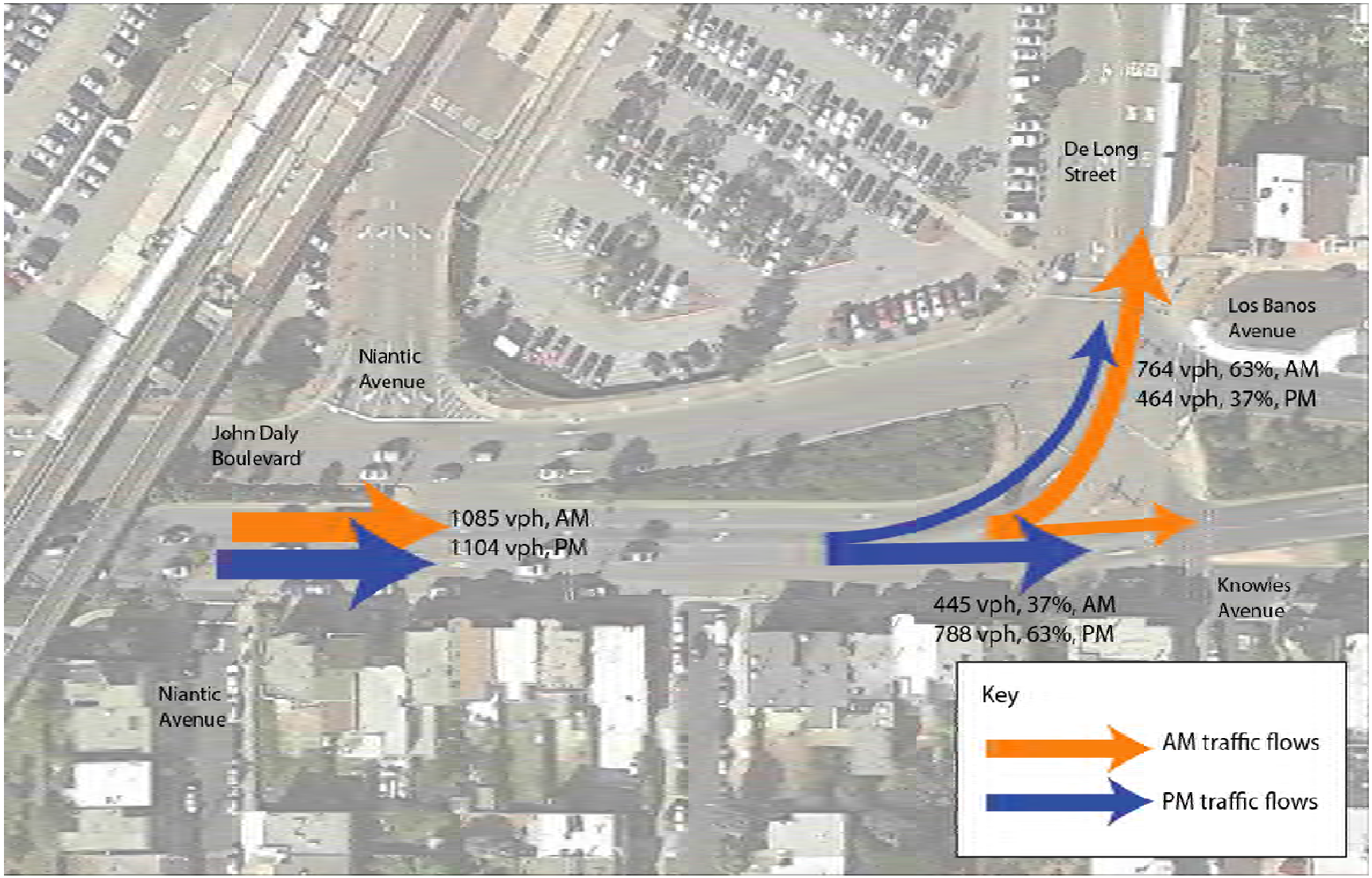


Existing Intersection Configuration, Traffic Control, and AM and PM Peak Hour Turning Movement Volumes

FEHR PEERS

March 2011
SF10-0517\graphics\0517-2-5 Existing Intersection Configuration March 2011

Figure 9-3 Eastbound John Daly Boulevard Existing Traffic Volumes



Bicycle and Pedestrian Volumes

Pedestrian and bicyclist traffic volumes were also measured at three popular pedestrian access points to the Daly City BART station:

- Niantic Avenue and John Daly Boulevard
- Junipero Serra Boulevard and John Daly Boulevard,
- Pedestrian tunnel under John Daly Boulevard.

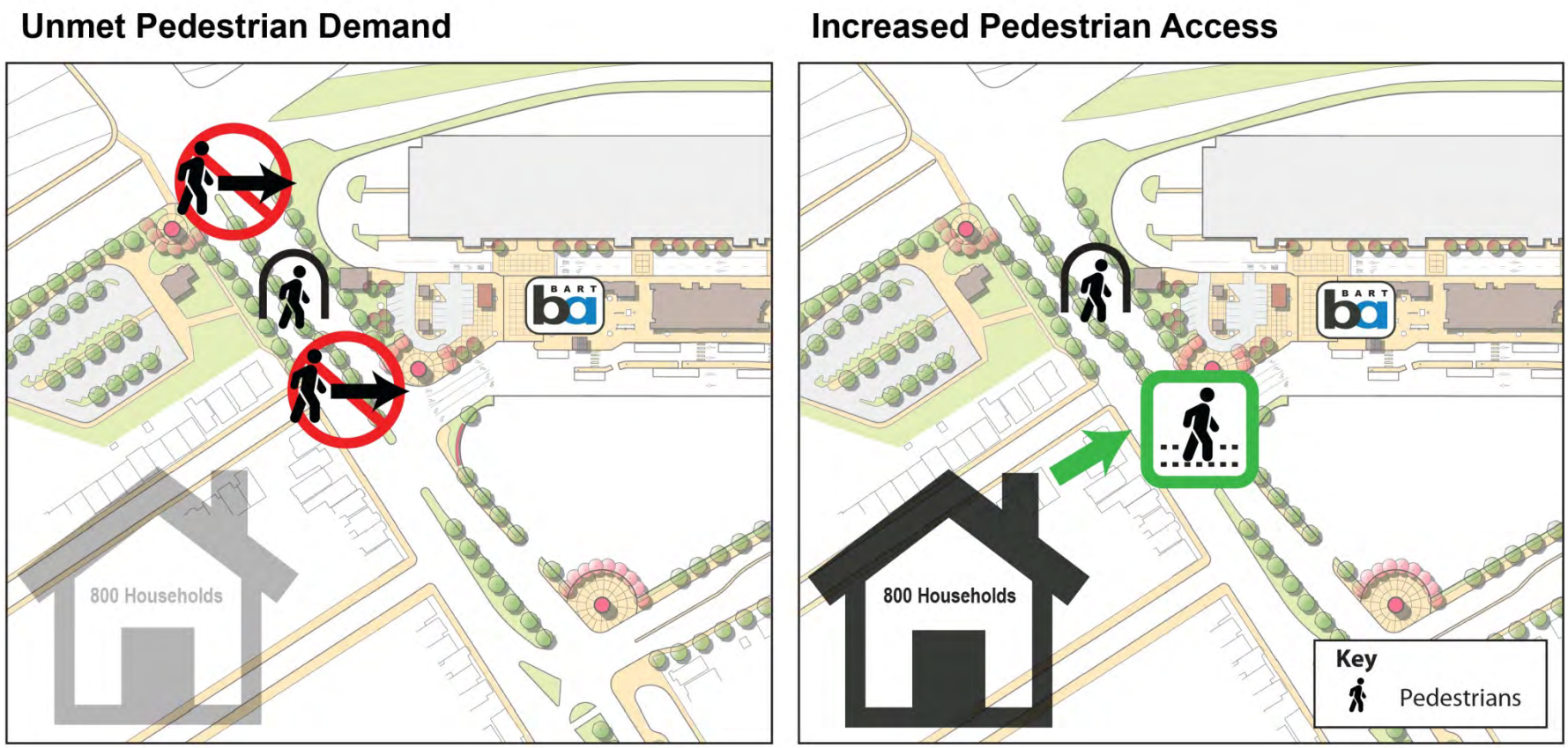
Despite the fact that both the surface John Daly Boulevard crossings at Niantic Avenue and Junipero Serra Boulevard are illegal, 38 pedestrians were observed crossing John Daly Boulevard at Niantic Avenue during the morning peak period, and 20 jaywalkers during the afternoon peak period. Figure 9-4 shows pedestrians jaywalking at John Daly Boulevard and Niantic Avenue. An additional seven bicyclists were also observed to cross this intersection illegally during the AM peak; and three during the PM peak. During the same peak periods, these two intersections also carry the heaviest auto traffic volume in the station area. Approximately 10% of pedestrians crossing John Daly Boulevard utilized the illegal at-grade crossing rather than the tunnel.

Many of the pedestrians utilizing the tunnel may use it out of necessity, not convenience. Residents from the neighborhood south of John Daly Boulevard and the Daly City BART Station who wish to walk to the station have to walk out of the way to the Junipero Serra Boulevard /I-280 tunnel to cross John Daly Boulevard legally or cross at the De Long Street/John Daly Boulevard intersection.

Figure 9-4 Pedestrians Crossing John Daly Boulevard at Niantic Avenue at the Prohibited Crosswalk.

There are approximately 800 homes in the area south of John Daly Boulevard, generating potential latent demand for pedestrian crossings directly to the BART Station. Figure 9-5 depicts potential latent pedestrian demand at John Daly Boulevard and Niantic Avenue, where currently, pedestrians are prohibited from crossing at grade (the red in the left pane). The green arrow in the right pane indicates potential increased pedestrian access to the station with a protected signal phase and crosswalk.

Figure 9-5 Latent Pedestrian Demand



Traffic Level of Service

LOS Methodology

The operating characteristics of signalized and unsignalized intersections are described by the concept of Level of Service ("LOS"). LOS is a qualitative description of a facility's performance based on the average delay per vehicle. Intersection levels of service range from LOS A, which indicates free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. LOS A through D are considered excellent to satisfactory service levels, LOS E is undesirable, and LOS F conditions are unacceptable. Figure 9-6 presents the level of service definitions for signalized and unsignalized intersections.

The study intersections were evaluated using the *Highway Capacity Manual 2000* methodology (*HCM 2000*).[9] For signalized intersections, this methodology determines the capacity for each lane group approaching the intersection. The LOS is then based on average delay per vehicle (in seconds per vehicle) for the various movements within the intersection. A combined weighted average delay and LOS is presented for each intersection. In Daly City, LOS E and F are considered unacceptable operating conditions for signalized intersections. For unsignalized intersections, average delay and LOS operating conditions are calculated by approach (e.g., northbound) and movement (e.g., northbound left-turn), for those movements that are subject to delay. For the purpose of this assessment, the operating conditions (LOS and delay) for unsignalized intersections are presented for the worst approach (i.e., the approach with the highest average delay per vehicle) for side-street stop-controlled intersections.

Figure 9-7 presents the results of the intersection LOS analysis for the existing weekday AM and PM peak hour conditions.

- Failing conditions were identified at one study intersection:
  - John Daly Boulevard & Junipero Serra Boulevard
    - During the weekday AM and PM peak periods, Junipero Serra Boulevard/John Daly Boulevard currently operates at LOS F, with approach delays well over 80 seconds per vehicle on vehicles accessing the I-280 NB on-ramp from John Daly Blvd.
- All other study intersections operate acceptably at LOS C or better. The poor operating conditions at the Junipero Serra Boulevard/John Daly Boulevard intersection are due to the delay incurred by traffic headed to I-280 (including traffic approaching from the west, south and north).

Pedestrian Delay

Applying an equivalent LOS methodology to pedestrian delay at signalized and unsignalized intersections reveals that along John Daly Boulevard, pedestrian delay is substantial. As shown in Figure 9-8, pedestrians desiring to cross John Daly Boulevard at the Niantic Avenue experience a LOS F, or a delay of more than 120 seconds. The Junipero Serra Boulevard crossing of John Daly Boulevard also contributes substantial pedestrian delay (greater than 55 seconds) and carries a level of service E.

[9] As part of the *HCM* methodology, adjustments are typically made to the capacity of each intersection to account for various factors that reduce the ability of the streets to accommodate vehicles (such as the urban grid, number of pedestrians, vehicle type, lane widths and queues). These adjustments are performed to ensure that the LOS analysis results reflect the operating conditions that are observed in the field.

Figure 9-6 Level of Service Definitions

Control/LOS	Description of Operations	Average Control Delay (seconds per vehicle)
Signalized		
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	≤ 10
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10.0 and ≤ 20.0
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20.0 and ≤ 35.0
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35.0 and ≤ 55.0
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long queues form upstream.	> 55 and ≤ 80
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80.0
Unsignalized		
A	No delay for STOP-controlled approach.	≤ 10.0
B	Operations with minor delays.	> 10.0 and ≤ 15.0
C	Operations with moderate delays.	> 15 and ≤ 25.0
D	Operations with some delays.	> 25.0 and ≤ 35.0
E	Operations with high delays and long queues.	> 35.0 and ≤ 50.0
F	Operations with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50.0

Source: Highway Capacity Manual – Special Report 209 (Transportation Research Board, 2000)

Figure 9-7 Existing Conditions: Traffic Level of Service

	Intersection	Control[2]	AM Peak Hour		PM Peak Hour	
			Avg Vehicle Delay[1]	Traffic LOS	Avg Vehicle Delay[1]	Traffic LOS
1	Junipero Serra Boulevard & John Daly Boulevard	Signal	**Overall: >80 (EB: >80, WB: 55) {NB: 54, SB: 53}**	**F (F, E) {D, D}**	**Overall: >80 (EB: >80, WB: 76) {NB: 60, SB:>80}**	**F (F, E) (E, F)**
2	Niantic Avenue & John Daly Boulevard	Signal	Overall: 5 (EB: 3, WB: 3) {SB: 21}	A (A, A) {C}	Overall: 10 (EB: 5, WB: 8) (SB: 22)	A (A, A) {C}
3	De Long Street & John Daly Boulevard	Signal	Overall: 25 (EB: 28, WB: 15) **{SB: 48}**	C (C, B) **{D}**	Overall: 20 (EB: 20, WB: 10) **{SB: 53}**	B (C, B) **{D)**
4	Santa Barbara Avenue & John Daly Boulevard	Signal	Overall: 25 (EB: 15, WB: 14) **{NB: 80, SB: 60}**	C (B, B) **(F, D)**	Overall: 20 (EB: 14, WB: 11) {NB: 66, SB: 48)	B (B, B) **{E, D}**
5	De Long Street & Hillcrest Drive-BART Entrance	Stop-signs on minor approaches (SSSC)	Worst approach: 25 (WB)[4]	C[4]	Worst approach:13 (WB)	B
6	Saint Charles Avenue & West Station Road	Stop-signs on all approaches (AWS)	Worst approach[3]: >10 (all approaches)	A	Worst approach[3]: >10 (all approaches)	A

Notes: **BOLD = unacceptable LOS for intersections (and/or individual intersection approaches where applicable) based on current Daly City adopted LOS standard of C or better.**

1. Average Control Delay presented in seconds per vehicle. Approach delay presented as EB (eastbound), WB (westbound), NB (northbound) and SB (southbound).
2. Signal = signalized; SSSC= side-street stop-controlled; AWS=all-way stop.
3. As specified by Daly City criteria, LOS at AWS intersections is based on delay to the worst approach, which differs from standard HCM methodology for all-way stop-controlled intersections (HCM methodology based LOS on average delay for all approaches at AWS intersections) In this case, all approaches to Saint Charles Avenue & West Station Road operate similarly at LOS A.
4. During AM Peak Hour observations, downstream delay within BART Station resulted in queue spillback and periodic delays to NB approach (not reflected in LOS calculation for this location).

Source: Fehr & Peers, 2011

Figure 9-8 Existing Conditions: Pedestrian Delay Estimate

Intersection		Pedestrian Crossing Control[3]	AM Peak Hour		PM Peak Hour	
			Estimated Pedestrian Delay (seconds)[1]	*LOS (Vehicle Equivalent)* [2]	Estimated Pedestrian Delay (seconds)[1]	*LOS (Vehicle Equivalent)* [2]
1e	John Daly Blvd crossing (east leg of intersection with Junipero Serra Blvd)	Grade-separated pedestrian tunnel	<10	*(A)*	<10	*(A)*
1s	Junipero Serra Blvd crossing (south leg of intersection with John Daly Blvd)	Signal	**>55**	***(E)***	**>55**	***(E)***
2w	John Daly Blvd crossing (west leg of intersection with Niantic Avenue)	Pedestrian Crossing Prohibited	**>120**[4]	***(F)***	**>120**[4]	***(F)***
2n	Niantic Avenue crossing (north leg of intersection with John Daly Boulevard)	Pedestrian Crossing Prohibited	**N/A**	***N/A***	**N/A**	***N/A***
3e	John Daly Blvd crossing (east leg of intersection with De Long Street)	Signal	**>55**	***(E)***	**>55**	***(E)***
3n	De Long Street crossing (north leg of intersection with John Daly Blvd)	Signal	<20	*(B)*	<20	*(B)*

Notes:

1. Estimated Delay presented in seconds per pedestrian to cross intersection.
2. Equivalent LOS is presented conceptually for purposes of this table, based on LOS vehicle delay criteria for signalized intersections described in HCM 2000 (not based on Pedestrian LOS criteria described in HCM 2010). **BOLD = unacceptable delay (based on equivalent LOS E or F average delay standard for motor vehicles).**
3. Signal = signalized; SSSC= side-street stop-controlled; AWS=all-way stop.
4. Estimated 120-second delay is based on the additional walking time required to make a legal crossing of John Daly Boulevard via the Pedestrian Tunnel (approximately 450 feet of added walking distance in each direction when walking between the BART fare-gates and the south side of the John Daly Boulevard intersection with the BART Station Niantic Drive. Added walking distance applies to approximately 800 residences in adjacent neighborhoods south of John Daly Boulevard.

Source: Nelson\Nygaard, 2011

Collision Data

Reported Collisions

Collision records for the study intersections over the past five available years (2005 to 2009) were obtained from Caltrans in the Statewide Integrated Traffic Records System (SWITRS). The SWITRS database includes records for each collision that include vehicles that have been reported within the State, including any collisions between vehicles and pedestrians or vehicles and bicycles. The study intersections had 88 total collisions between 2005 and 2009, most of which occurred at the Junipero Serra Boulevard/John Daly Boulevard intersection. There were eight collisions involving pedestrians or bicyclists in the study area, refer to Figures 9-9 and 9-10.

- The majority of collisions occurred during the PM (61 of 88) and were caused primarily by unsafe speeds (30 of 88).
- Other primary causes of collisions were driving too close, lane change, and improper turning. The most common type of collisions were rear end (36 of 88) and several that were broadside or sideswipe.
- Nine percent (8 of 88) of all reported collisions at signalized intersections between the years 2005 and 2009 within the study area were motor vehicle collisions with bicycles or pedestrians.

Figure 9-9 Types of Collisions (2005-2009)

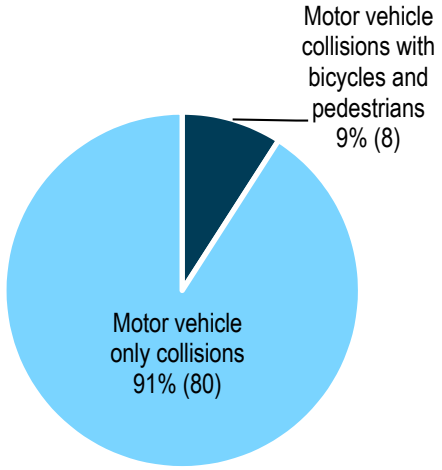


Figure 9-10 Reported Collisions (2005-2009)

	Intersection	Control	Total Reported Collisions	Collisions involving Pedestrians or Cyclists	
				Pedestrian-Involved	Bicyclist-Involved
1	Junipero Serra Boulevard & John Daly Boulevard	Signal	66	2	2
2	Niantic Avenue & John Daly Boulevard	Signal	6	1	1
3	De Long Street & John Daly Boulevard	Signal	13	2	0
4	Santa Barbara Avenue & John Daly Boulevard	Signal	3	0	0
5	De Long Street & Hillcrest Drive-BART Entrance	All-way stop-sign controlled except northbound left-turn	Data not available.		
6	Saint Charles Avenue & West Station Road	All-way stop-sign controlled (AWS)			

Source: SWITRS, 2010

EXISTING CONDITIONS PLUS POTENTIAL PEDESTRIAN ALTERNATIVE P-6 ASSESSMENT

This section provides an assessment of potential near-term traffic impacts that could result from installation of the potential crosswalk, described as **Pedestrian Alternative P-6** in Chapter 7.

As noted in Chapter 7, installation of a crosswalk would include the following:

- Signal phase modifications at John Daly Boulevard / East Station Road.
  - Figure 9-11 depicts the potential traffic signal phase modification at the East Station Road intersection to accommodate Pedestrian Alternative P-6. The eastbound and westbound phase would be reduced by nine seconds, and the southbound and crosswalk phase would be increased by nine seconds. The extra nine seconds in this phase would provide adequate time for pedestrians to cross based on Federal MUTCD standards.
- No signal modifications would be required at upstream or downstream traffic signals on John Daly Boulevard.

Traffic LOS with Potential Pedestrian Alternative P-6

Automobile Delay

While the potential pedestrian improvements have minimal impact on traffic volumes, they do potentially impact intersection delay and level of service. Installing a new crosswalk and pedestrian signal phase at the intersection of John Daly Boulevard and Niantic Avenue may potentially impact delay, thus the Existing Plus Potential Pedestrian Alternative P-6 intersection analysis is confined to the impacts of installing a crosswalk and signal phase modification at John Daly Boulevard and Niantic Avenue (Pedestrian Alternative P-6 in Chapter 7).

Modeling the six intersections studied previously, Nelson\Nygaard extended the existing conditions traffic assessment to include the effects of the potential crosswalk. The project's impacts to average vehicle delay at the intersections on John Daly Boulevard are graphically presented in Figure 9-12.

Figure 9-13 demonstrates the 90th percentile queue length, or distance cars are stopped and waiting, at the intersection of John Daly Boulevard and Niantic Avenue. On John Daly Boulevard eastbound, the total approach distance, or total available queue space, is 390'. Currently, during the morning peak, cars are stacked or queued 53' deep. During the afternoon peak, the 90th percentile queue length is 82'. With the implementation of Potential Pedestrian Alternative P-6, these queue lengths increase to 127' in the AM peak and 125' in the PM peak. On John Daly Boulevard westbound at Niantic Avenue, the approach distance is 285'. Under existing conditions, in the morning peak, the vehicle queue is 46'; and in the afternoon peak, the vehicle queue is 201' long. With the implementation of Potential Pedestrian Alternative P-6, queues increase to 238' in the morning peak and 234' in the afternoon peak period.

Figure 9-14 graphically depicts the impact the new crosswalk and signal phase adjustments have on vehicle delay and level of service. As shown in Figure 9-14 average vehicle delay at Niantic Avenue increases from less than 10 seconds to less than 15 seconds, or from LOS A to LOS A or B (depending on approach), in the Existing Plus Potential Pedestrian Alternative P-6 scenario. This level of service is still among the best of any of the study intersections. The other five intersections in the study area would

operate under practically the same delay conditions with the project as without the project.

Installing a crosswalk, in particular, may actually help prevent westbound queues at the intersection with Junipero Serra Boulevard from backing-up on John Daly Boulevard by serving to meter traffic approaching the intersection. The additional pedestrian phase essentially transfers a portion of the delay at Junipero Serra Boulevard and John Daly Boulevard to the Niantic Avenue intersection. A co-benefit of the additional pedestrian green phase is a reduction in the outbound delay for buses and vehicles leaving the BART Station via Niantic Avenue making a right turn, westbound along John Daly Boulevard, as this turn could be conducted in conjunction with pedestrians crossing John Daly Boulevard.

Pedestrian Delay with Potential Pedestrian Alternative P-6

One of the goals of this project is to improve pedestrian circulation and safety, particularly at the intersection of John Daly Boulevard and the Niantic Avenue, the southern entrance to the station. Figure 9-15 details the pedestrian delay under existing conditions, alongside pedestrian delay under the Existing Plus Potential Pedestrian Alternative P-6 scenario. Currently, pedestrians are encouraged to cross John Daly Boulevard at the east leg of the intersection with Junipero Serra Boulevard via a grade-separated tunnel. For those pedestrians traveling from the residential neighborhoods south of John Daly Boulevard and Niantic Avenue, delay to cross John Daly Boulevard is over 120 seconds as pedestrians travel west to the pedestrian tunnel and then back east to the faregates. With the implementation of Potential Pedestrian Alternative P-6, delay at John Daly Boulevard and Junipero Serra Boulevard remains the same, as the tunnel remains for those pedestrians choosing to cross under John Daly Boulevard. However, at the intersection of John Daly Boulevard and Niantic Avenue, the at-grade pedestrian crossing and signal phase modifications reduce pedestrian delay by more than one minute. Findings are presented in the rightmost column.

Figure 9-11 Existing Conditions plus Pedestrian Alternative P-6: Potential Traffic Signal Phasing

JOHN DALY BLVD & Niantic Ave			
Existing Traffic Signal Phases (seconds)			
Period	Eastbound & Westbound	Southbound	*Total Cycle Length*
AM Peak	30	25	*55*
PM Peak	35	25	*60*
Potential Traffic Signal Phases with Crosswalk (seconds)			
Period	Eastbound & Westbound	Southbound & Crosswalk	*Total Cycle Length*
AM Peak	21	34	*55*
PM Peak	26	34	*60*

FDW = FLASHING DON'T WALK

Figure 9-12 Existing Conditions Plus Pedestrian Alternative P-6: Traffic Level of Service

Intersection		Control[2]	AM Peak Hour		PM Peak Hour	
			Avg Vehicle Delay[1]	Traffic LOS	Avg Vehicle Delay[1]	Traffic LOS
1	Junipero Serra Boulevard & John Daly Boulevard	Signal	**Overall: >80 (EB: >80, WB: 55) {NB: 54, SB: 53}**	**F (F, E) {D, D}**	**Overall: >80 (EB: >80, WB: 76) {NB: 60, SB:>80}**	**F (F, E) (E, F)**
2	Niantic Avenue & John Daly Boulevard	Signal	Overall: 15 (EB: 13, WB: 19) {SB: 9}	B (B, B) {A}	Overall: 16 (EB: 16, WB: 22) (SB: 9)	B (B, C) {A}
3	De Long Street & John Daly Boulevard	Signal	Overall: 25 (EB: 28, WB: 15) **{SB: 48}**	C (C, B) **{D}**	Overall: 20 (EB: 20, WB: 10) **{SB: 53}**	B (C, B) **{D)**
4	Santa Barbara Avenue & John Daly Boulevard	Signal	Overall: 25 (EB: 15, WB: 14) **{NB: 80, SB: 60}**	C (B, B) **(F, D)**	Overall: 20 (EB: 14, WB: 11) {NB: 66, SB: 48)	B (B, B) **{E, D}**
5	De Long Street & Hillcrest Drive-BART Entrance	Stop-signs on minor approaches (SSSC)	Worst approach: 25 (WB) [4]	C[4]	Worst approach:13 (WB)	B
6	Saint Charles Avenue & West Station Road	Stop-signs on all approaches (AWS)	Worst approach[3]: <10 (all approaches)	A	Worst approach[3]: <10 (all approaches)	A

Notes: **BOLD = unacceptable LOS for intersections (and/or individual intersection approaches where applicable) based on current Daly City adopted LOS standard of C or better.**

1. Average Control Delay presented in seconds per vehicle. Approach delay presented as EB (eastbound), WB (westbound), NB (northbound) and SB (southbound).
2. Signal = signalized; SSSC= side-street stop-controlled; AWS=all-way stop.
3. As specified by Daly City criteria, LOS at AWS intersections is based on delay to the worst approach, which differs from standard HCM methodology for all-way stop-controlled intersections (HCM methodology based LOS on average delay for all approaches at AWS intersections) In this case, all approaches to Saint Charles Avenue & West Station Road operate similarly at LOS A.
4. During AM Peak Hour observations, downstream delay within BART Station resulted in queue spillback and periodic delays to NB approach (not reflected in LOS calculation for this location).

Source: Nelson\Nygaard, 2012

Figure 9-13 Existing Conditions Plus Pedestrian Alternative P-6: Vehicle Queue Lengths

JOHN DALY BLVD & Niantic Ave (Traffic Signal at BART Entrance / East Station Road)			
Eastbound Approach – 90th Percentile Queue Length			
Period	Approach Distance (ft)	Existing Conditions	Existing Plus Potential Pedestrian Alternative P-6
AM Peak	390	53	127
PM Peak	390	82	125
Westbound Approach – 90th Percentile Queue Length[1]			
Period	Approach Distance (ft)	Existing Conditions	Existing Plus Potential Pedestrian Alternative P-6
AM Peak	285	46	238
PM Peak	285	201	234

Notes:

1. Westbound approach queue lengths based on approach to traffic signal at BART Station entrance (Niantic Avenue / East Station Road); does not reflect queue spill-back from downstream westbound approach to Junipero Serra Boulevard that extends upstream during AM & PM Peak Periods. (See queue reports in Appendix).

Source: Nelson\Nygaard, 2012

Figure 9-14 Vehicle Delay Comparison with Proposed Pedestrian Alternative P-6

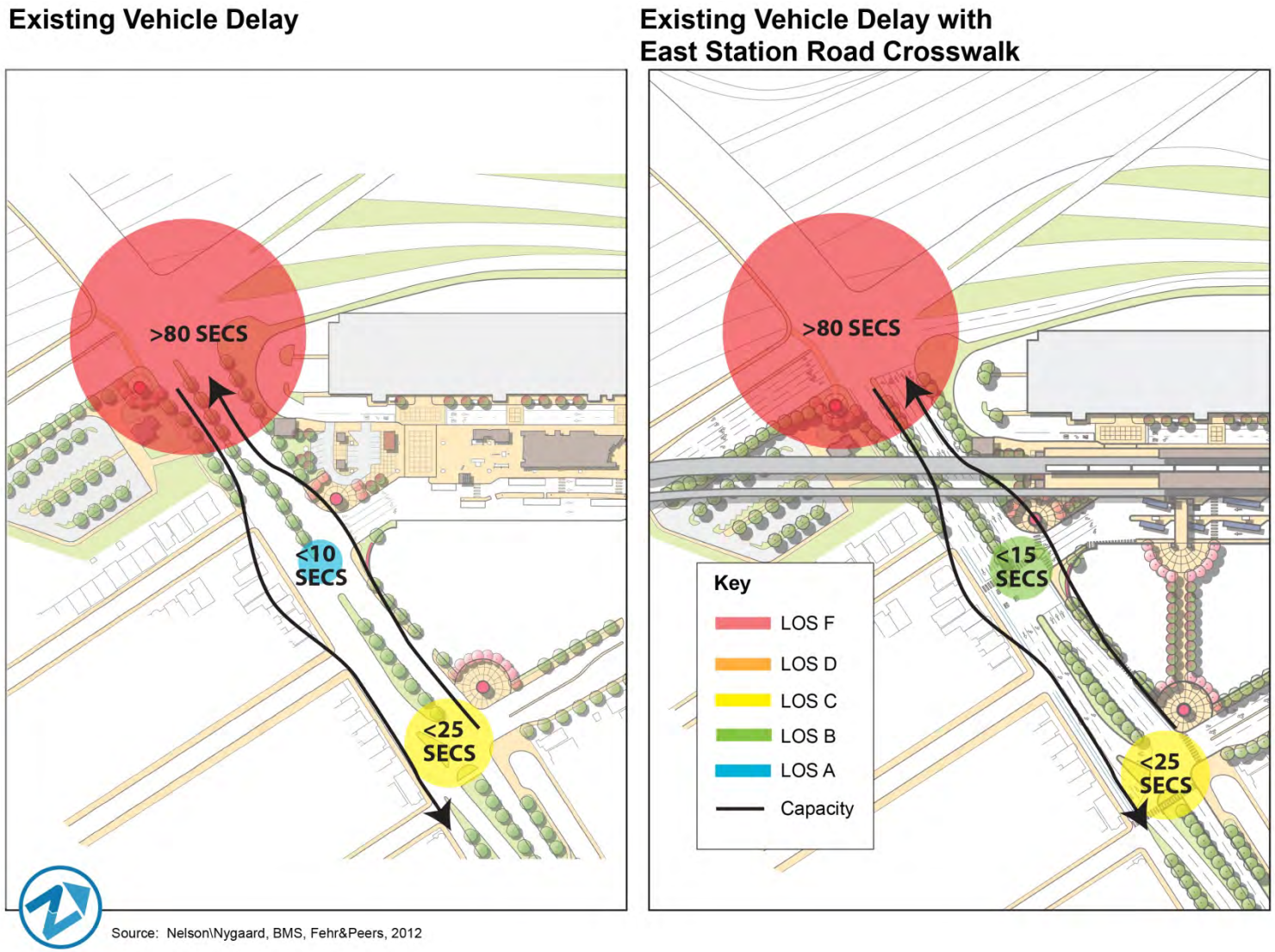


Figure 9-15 Existing Conditions Plus Potential Pedestrian Alternative P-6: Pedestrian Delay Comparison

Intersection		Pedestrian Control[3]	Existing Conditions (AM & PM Peak Hours)		Existing Plus Potential Crosswalk Conditions (AM & PM Peak Hours)		Findings
			Estimated Average Pedestrian Delay[1]	LOS (Vehicle Equivalent)[2]	Estimated Average Pedestrian Delay[1]	LOS[2] (Vehicle Equivalent)	
1	John Daly Blvd crossing (east leg of intersection with Junipero Serra Blvd)	Grade-separated tunnel	<10	(A)	<10	(A)	No change to estimated pedestrian delay at the tunnel itself Potential decrease in pedestrian volumes using the tunnel (due to provision of alternate crossing location for commuters to/from adjacent neighborhoods at Niantic Avenue).
2	BART Station Niantic Avenue & John Daly Blvd (west leg crossing of John Daly Blvd)	Existing Signal with Potential At-Grade Pedestrian Crossing [5]	**>120[4]**	**(F)**	Peak Direction[5] of Pedestrian Travel: <30 Reverse-peak[5] Direction: <55	Peak Direction[5]: (C) Reverse-peak [5] Direction: (D)	Over one minute of time savings in each direction) to/from adjacent residential neighborhoods south of John Daly Blvd @ Niantic Avenue (approximately 800 residences) Reduction in illegal pedestrian crossings.

Notes:

1. Estimated delay presented in seconds per pedestrian.
2. **BOLD** = unacceptable LOS E or LOS F operating conditions (based on equivalent motor vehicle delay criteria for signalized intersections)
3. Signal = signalized; SSSC= side-street stop-controlled; AWS=all-way stop.
4. Represents the time it takes pedestrians from the residential neighborhood (approximately 800 residences) located south of John Daly Blvd and the Daly City BART station to walk from the intersection of John Daly Blvd and Niantic Ave to a legal crossing at the John Daly Blvd pedestrian tunnel (over 2 minutes, given added walking distance of over 450 feet in one direction).
5. Assessment assumes 1-phase pedestrian crossing in peak direction of pedestrian travel to/from BART Station (30-second crossing time including 4-second WALK and 26-second FLASHING DON'T WALK) and 2-phase pedestrian crossing In reverse-peak direction (55-second total crossing time including 30-second wait in median refuge). No change to eastbound traffic signal phase. Westbound green time would be reduced by nine seconds when pedestrian calls occur.

Source: Nelson\Nygaard, 2012.

CUMULATIVE TRAFFIC ASSESSMENT

The City of Daly City is forecasting an anticipated increase of approximately 500 dwelling units and 1,300 new jobs within a half mile of the station over the next 20 years (by 2030). This forecast includes future transit-oriented development (TOD) at the Daly City Station, as identified in the Daly City *General Plan* (adopted 1995). While this TOD would supplant the existing 260 parking spaces on the De Long lot, this assessment does not subtract auto trips as a result of the potential loss of surface parking at this location.

Fehr & Peers provided a forecast of future traffic growth anticipated to occur by the year 2030 (based on anticipated traffic growth rates identified for the area by the SF CHAMP travel demand model):

- AM Peak Hour traffic volumes are forecasted to increase by 20 percent between 2010 and 2030
- PM Peak Hour traffic volumes are forecasted to increase by 8 percent between 2010 and 2030

To be conservative, the trips generated by future TOD are included in this assessment and existing trips to and from the parking spaces are included as well, because at this time it is not known whether potential future TOD will replace the lost BART parking.

Year 2030 Traffic Volumes

Cumulative (Year 2030) Baseline traffic volumes were forecasted by Fehr & Peers, as described below:

- Due to limited information on future projects in the vicinity of Daly City BART Station, Fehr & Peers forecasted the future traffic growth forecasts by applying a growth factor to existing (Year 2010) traffic volumes.
- Traffic forecasts in the Study Area were determined using the San Francisco County Transportation Authority's SF-CHAMP travel demand model and modified based on engineering judgment.
- The intersection turning movement volumes in Year 2030 were calculated by applying a growth rate factor to all study intersections based on growth forecasted at major gateways to the Study Area using the forecasting model. These growth factors include all planned development in the station area, including the planned future transit-oriented development on the De Long Street / John Daly Boulevard surface parking lot. AM and PM peak hour traffic are expected to increase by 20 percent and eight percent, respectively, from Existing Conditions to Year 2030, as shown in Figure 9-16. This is equivalent to one percent annual growth for the AM peak hour, and 0.4 percent for PM peak hour. Year 2030 intersection turning movement volumes were calculated by applying this growth rate factor to the existing turning movement volumes.[10]

Figure 9-17 applies these growth factors to the six study intersections to demonstrate peak hour traffic volumes in 2030.

These growth factors include all planned development in the station area, including the planned future transit-oriented development on the De Long surface parking lot.

Figure 9-16 Cumulative Traffic Growth Forecast (Year 2030)

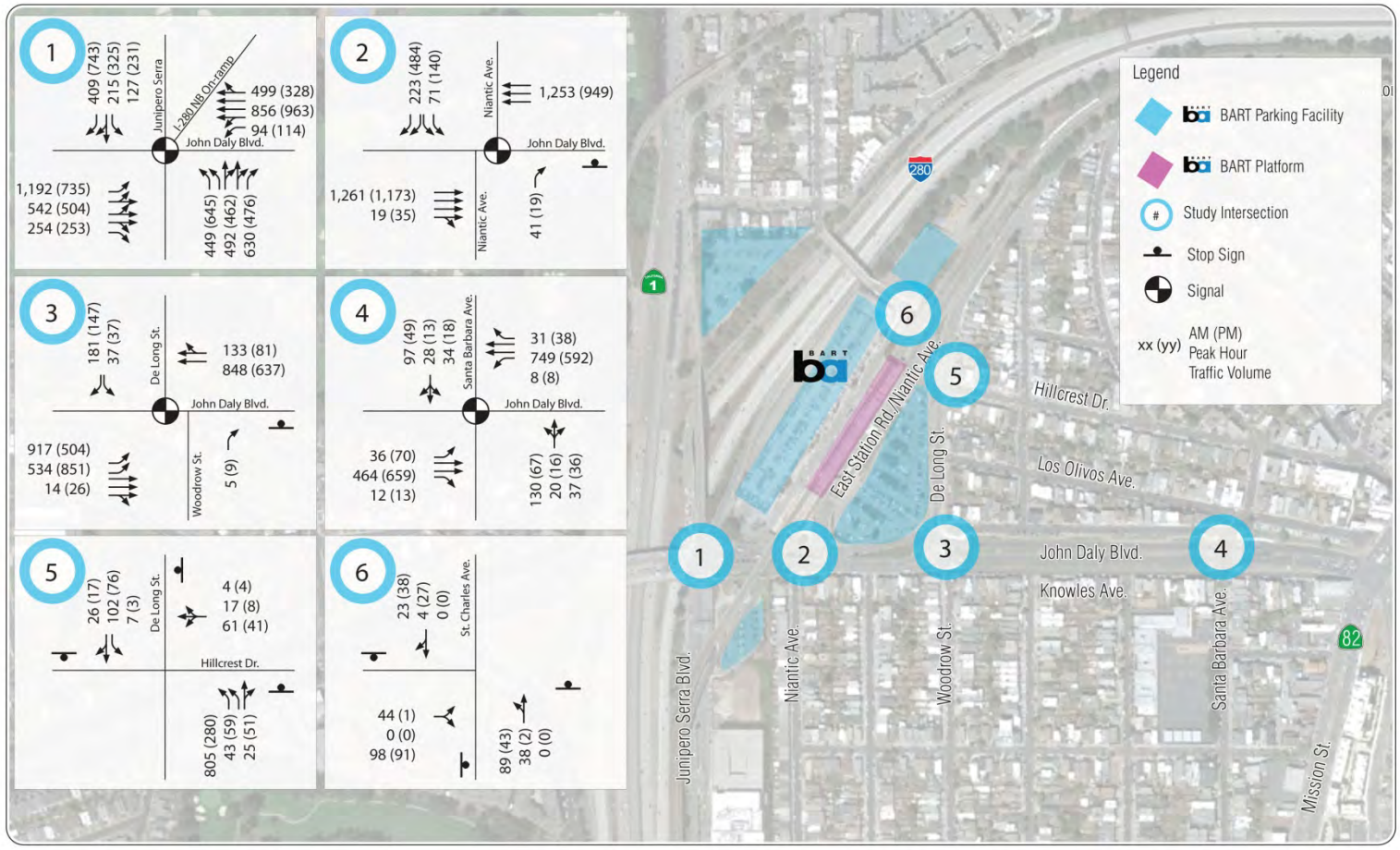
Growth Factors between Year 2010 and Year 2030	
Peak Hour	**Growth Factor[1]**
AM	1.20
PM	1.08

1. Growth factors are calculated based on Year 2010 and Year 2030 SF CHAMP travel demand forecasting models.

Source: Fehr & Peers, 2011.

[10] Fehr & Peers 2011, Notes on Forecast

Figure 9-17 Cumulative Baseline (Year 2030) Peak Hour Traffic Volumes



N

Not to Scale

Year 2030 Cumulative Intersection Configuration, Traffic Control, and AM and PM Peak Hour Turning Movement Volumes

FEHR PEERS

March 2011
SF10-0517\graphics\0517-2-5 Existing Intersection Configuration_March_2011

Cumulative Level of Service (2030 Baseline)

Automobile Delay

This section describes the anticipated intersection delay at the six study intersections in year 2030 should no site conditions change (the no-build scenario). The traffic level of service and average vehicle delay for this no-build scenario, the cumulative baseline, is shown in Figure 9-18.

- In 2030, the intersection of Junipero Serra Boulevard and John Daly Boulevard will remain heavily congested, with average vehicle delay above 80 seconds per vehicle.
- The other five study intersections see marginal increases in average vehicle delay as a result of increased traffic volumes (20% in the AM and 8% in the PM).

Figure 9-18 Cumulative Baseline Conditions: Traffic Level of Service

	Intersection	Control[2]	Weekday AM Peak Hour		Weekday PM Peak Hour	
			Avg Vehicle Delay[1]	LOS	Avg Vehicle Delay[1]	LOS
1	Junipero Serra Boulevard & John Daly Boulevard	Signal	**>80**	**F**	**>80**	**F**
2	Niantic Avenue & John Daly Boulevard	Signal	<10	A	11	B
3	De Long Street & John Daly Boulevard	Signal	27	C	20	B
4	Santa Barbara Avenue & John Daly Boulevard	Signal	27	C	21	C
5	De Long Street & Hillcrest Drive-BART Entrance	Stop-signs on minor approaches (SSSC)	**<35**	**D**	<15	B
6	Saint Charles Avenue & West Station Road	Stop-signs on all approaches (AWS)	<10	A	<10	A

Notes: **BOLD = unacceptable LOS based on current Daly City criteria.**

1. Delay presented in seconds per vehicle.
2. Signal = signalized; SSSC= side-street stop-controlled; AWS=all-way stop.
3. Delay and LOS presented for worst approach for SSSC and AWS intersections. (Per Daly City criteria: intersection LOS is based on worst approach at SSSC and AWS intersections).

Source: Fehr & Peers, 2011.

Cumulative (Year 2030) Level of Service with Project

Automobile Delay

Significant impacts to motor vehicle circulation are not anticipated to result from improvements identified in Mid-term Transit Alternative 1, Pedestrian Alternative P-6, or Bicycle Alternative B-3, collectively called the "Project."

Cumulative traffic delay along John Daly Boulevard (with and without the potential SAIP improvements, including the potential crosswalk at Niantic Avenue and bike lane on John Daly Boulevard) is shown graphically in Figures 9-19 and 9-20.

Transit Delay

The cumulative year 2030 average vehicle delay shown in Figures 9-19 and 9-21 of 20 seconds or less at Niantic Avenue and John Daly Boulevard masks the fact that buses exiting the Station would face reduced delay as a result of the project, because the signal phase for exiting buses would be extended by nine seconds, each time the pedestrian signal was actuated.

Reducing transit delay aligns with Daly City General Plan goals and policies. In particular, the Administrative Draft of the Daly City General Plan Policy CE-8 states that the City shall, "Accommodate the transit system by considering mechanisms which help public agencies reduce the headway times of their vehicles." Signal modifications at John Daly Boulevard and Niantic Avenue conform to this policy as these modifications reduce transit delay, while still maintaining acceptable levels of automobile delay.

Figure 9-19 Cumulative Plus Project Conditions: Traffic Level of Service

	Intersection	Control[2]	Weekday AM Peak Hour		Weekday PM Peak Hour	
			Avg Vehicle Delay[1]	LOS	Avg Vehicle Delay[1]	LOS
1	Junipero Serra Boulevard & John Daly Boulevard	Signal	**>80**	**F**	**>80**	**F**
2	Niantic Avenue & John Daly Boulevard	Signal	16	B	15	B
3	De Long Street & John Daly Boulevard	Signal	30	C	17	B
4	Santa Barbara Avenue & John Daly Boulevard	Signal	27	C	21	C
5	De Long Street & Hillcrest Drive-BART Entrance	Stop-signs on minor approaches (SSSC)	**<35**	**D**	<15	B
6	Saint Charles Avenue & West Station Road	Stop-signs on all approaches (AWS)	<10	A	<10	A

Notes: **BOLD = unacceptable LOS based on current Daly City criteria.**

1. Delay presented in seconds per vehicle.
2. Signal = signalized; SSSC= side-street stop-controlled; AWS=all-way stop.
3. Delay and LOS presented for worst approach for SSSC and AWS intersections. (Per Daly City criteria: intersection LOS is based on worst approach at SSSC and AWS intersections).

Source: Nelson\Nygaard, 2012.

Figure 9-20 Cumulative Plus Project Conditions: Vehicle Queue Lengths

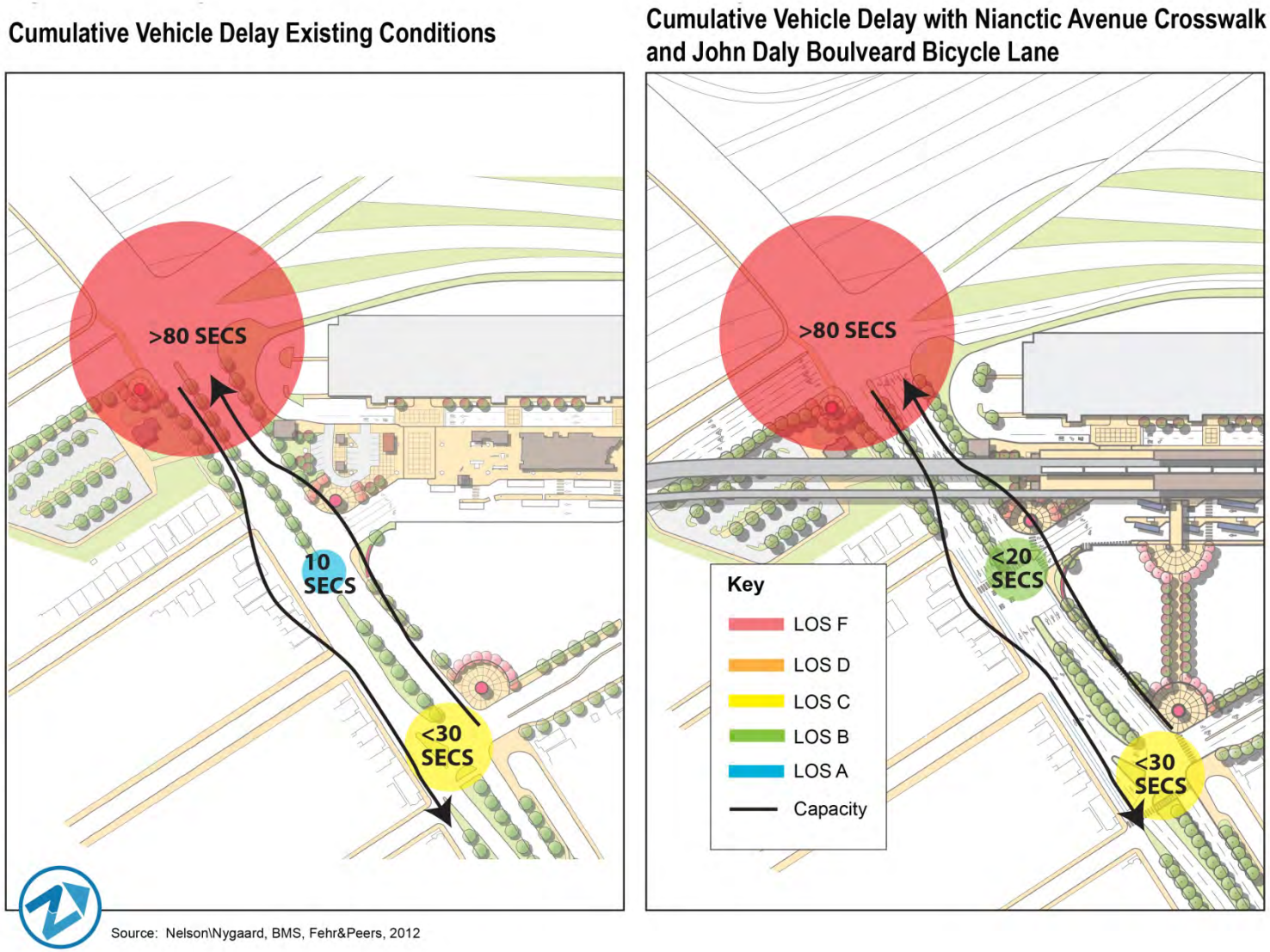
JOHN DALY BLVD & Niantic Ave (Traffic Signal at BART Entrance / East Station Road)			
Eastbound Approach – 90th Percentile Queue Length (feet)			
Period	Approach Distance (ft)	Cumulative Baseline Conditions	Cumulative plus Project Conditions
AM Peak	390	74	255
PM Peak	390	95	187
Westbound Approach – 90th Percentile Queue Length (feet) [1]			
Period	Approach Distance (ft)	Cumulative Baseline Conditions	Cumulative plus Project Conditions
AM Peak	285	95	180
PM Peak	285	224	255

Notes:

1. Westbound approach queue lengths based on approach to traffic signal at BART Station entrance (Niantic Avenue / East Station Road); does not reflect queue spill-back from downstream westbound approach to Junipero Serra Boulevard that extends upstream during AM & PM Peak Periods. (See queue reports in Appendix).

Source: Nelson\Nygaard, 2012

Figure 9-21 Cumulative (Year 2030) Vehicle Delay Comparison without the Project and with the Project



TRAFFIC ASSESSMENT FINDINGS

The findings identified in this Chapter indicate:

- Proposed improvements described under Preferred Mid-Term Transit Alternative 1, Conceptual Pedestrian Alternative P-6 and Conceptual Bicycle Alternative B-3 would not cause unacceptable LOS, based on Daly City criteria, at any study intersection
- Proposed improvements would not significantly worsen delay at intersections that are operating unacceptably under Existing or Cumulative Baseline conditions.

Potential traffic impacts are summarized for each study intersection below, followed by descriptions focusing on delay to transit, bicyclists, and pedestrians, with implementation of the "Project" as defined for traffic assessment purposes.

Junipero Serra & John Daly Boulevards

Traffic impacts at this intersection would be less than significant based on Daly City LOS criteria:

- The signalized intersection operates at LOS F under Existing Conditions and is forecasted to continue operating at LOS F under Cumulative (Year 2030) Baseline Conditions.
- Proposed SAIP improvements would not result in physical changes to the intersection, nor would the proposed SAIP improvements result in increased traffic volumes.
- Potential benefit to operations at this intersection could result from potential crosswalk at John Daly Boulevard and Niantic Avenue. This would occur due to the allocation of additional signal time to accommodate pedestrian crossings (thus requiring an extension to the length of "red light" periods for westbound motorists on John Daly Boulevard).
- Since westbound queues extend back from the Junipero Serra Boulevard during peak periods (occasionally blocking the BART exit via Niantic Avenue), extending the "red light" phase would more efficiently "meter" the westbound approach traffic (similar to freeway on-ramp metering in some respects).

Niantic Avenue / East Station Road & John Daly Boulevard

Traffic impacts at this intersection would be less than significant based on Daly City LOS criteria:

- The signalized intersection operates at LOS A under Existing and Year 2030 Baseline conditions (with prohibition on pedestrian crossings).
- Proposed physical changes under Pedestrian Alternative P-6 would provide a crosswalk to be coordinated with the existing signal, resulting in a substantial reduction in pedestrian delay (and a potential reduction in transit delay as described further below).
- Would operate at LOS A or B with the proposed crosswalk under Mid-term Transit Alternatives 1.
  - The LOS assessment described in this report (and in the level of service and vehicle queue reports provided in the Appendix) is based on a "worst-case traffic assessment scenario" with pedestrian calls during all signal cycles (which would only occur with 60 or more pedestrian calls per hour), then this intersection would operate at LOS B.
    - In this scenario, delay to motorists and buses exiting the BART Station would be reduced (improving southbound LOS from C to A) due to the extended "green time" for southbound traffic when pedestrian calls occur.
    - However, pedestrian calls would be unlikely to occur during all cycles. Counts conducted in Year 2010 indicated 20 pedestrians per hour crossing (illegally) at that location (and more than one pedestrian can share a single "pedestrian call". Therefore, the

intersection could continue to operate at LOS A (although without the same benefit to southbound traffic exiting the BART station).

De Long Street & John Daly Boulevard

Traffic impacts at this intersection would be less than significant based on Daly City LOS criteria:

- Excess capacity is currently provided for eastbound and westbound through movements.
  - In particular, the eastbound approach capacity is much higher than needed to accommodate the volume of eastbound through movements. The excess capacity results from the signal timing plan, which allows eastbound through movements to occur concurrently with eastbound left-turns (to De Long Street / BART Station Entrance) except when pedestrian calls are triggered (for the east-leg pedestrian crossing).
  - Pedestrian delay for the east-leg crossing (via the median) could be reduced with signal timing modifications (to trigger the pedestrian call sooner when triggered by a pedestrian). Given excess eastbound & westbound through capacity, such modifications would not be expected to significantly impact eastbound & westbound approach LOS (but could impact southbound left-turn movements, including potential bus movements under Transit Alternatives 2 and 3).
- Motor Vehicle Delay at this intersection is primarily limited to left-turn movements:
  - Southbound left-turn from De Long Street to John Daly Boulevard eastbound has very low volumes. As a result, the signal timing plan allocates just a small portion of the signal cycle to this approach, which may result in unacceptable delay for this approach. Modifications to signal timing could mitigate delay to this approach, if warranted by higher volumes of traffic.
  - The use of this approach by a portion of buses (exiting BART via De Long Street to John Daly Boulevard eastbound under Transit Alternatives 2 and 3) may result in increased bus delay (compared to exiting eastbound via Niantic Avenue).
  - Eastbound left-turn from John Daly Boulevard to De Long Street operates acceptably under all scenarios and could be further reduced with signal timing modifications to prioritize transit and pedestrian travel time (while still allowing for acceptable eastbound & westbound LOS).
- Potential installation of bicycle lanes on John Daly Boulevard (as described in the Conceptual Bicycle Alternatives) between Niantic Avenue and De Long Street would not result in unacceptable LOS, given the excess capacity noted above.

Santa Barbara Avenue & John Daly Boulevard

No physical changes are proposed at this location. Traffic impacts would be less than significant.

De Long Street & Hillcrest Drive

Traffic impacts at this intersection would be less than significant at the primary vehicle entrance to the BART Station located at the intersection of De Long Street with Hillcrest Drive.

- The key delay factors for the majority of motorists are related to the following existing conditions:
  - **Upstream merge on De Long Street**, where two eastbound left-lanes are provided from John Daly Boulevard. Since just one of those two left-turn lanes allows for a left-turn into the BART Station, motorists must merge into one lane after making the left-turn on to De Long Street.

  - **Pedestrian conflict points** (where motorists must yield to pedestrians) at each intersection and where buses and motorists make a left-turn into the BART Station
  - **Downstream delays** (for motorists entering the BART parking garages), which primarily occur when high volumes of pedestrian crossings occur near the north entrance to the BART Station
- Average vehicle delay, based on traffic volumes directly at the intersection, is acceptable, since the vast majority of vehicles on De Long Street enter the BART Station via a left-turn movement (that is not stop-controlled).
  - However, the average vehicle delay calculations for intersections (based on HCM Methodology) do not incorporate the potential for downstream delays where pedestrian crossings may occur (between De Long Street and West Station Road).
- Although average intersection delay is within acceptable ranges, LOS at side-street stop-controlled intersections is based on delay at the "worst approach".
  - The low-volume westbound (stop-controlled) approach may operate with unacceptable delay under Cumulative Baseline conditions. However, delays to this approach would be less than significant for traffic assessment purposes, since westbound approach volumes are very low and do not warrant signalization.

West Station Road & St. Charles Avenue

No physical changes are proposed at this location. Traffic impacts would be less than significant.

Transit Delay

The likelihood of potentially significant impacts to public transit service are summarized below for each Mid-term Transit Alternative.

The potential crosswalk at Niantic Avenue and John Daly Boulevard (included in all four transit alternatives) would result in potential benefits to transit circulation, due to the signal-timing changes that would be required to provide additional "green" time for pedestrians (when pedestrian calls occur). The potential bicycle lane alternative (Alternative B-3 in Chapter 8) would not result in transit circulation benefits, but may be worth pursuing for reasons discussed in Chapter 8. Buses, and other vehicles exiting the BART Station, would also have an extended "green" period based on the potential design as shown in Mid-term Transit Alternatives 1, 2, 3, and 4.

Mid-term Transit Alternative 1

Under Alternative 1, significant impacts to transit are not anticipated.

- Improved capacity to accommodate forecasted bus volumes.

Mid-term Transit Alternatives 2 & 3

Under Alternative 2 and 3, potential impacts to transit could result from increased travel time for some buses (eastbound buses that would exit via De Long Street, with a left-turn to John Daly Boulevard eastbound). However, even with such delay, both alternatives would alleviate the need for buses to layover off-site (thus avoiding the additional delay that would result from "double-loops"). Therefore, impacts to transit delay are anticipated to be less than significant.

Inbound buses would follow the same path of travel as today (inbound from John Daly Boulevard via De Long Street), but the outbound path of travel would be altered for some buses:

- A portion of outbound bus trips would occur via De Long Street (rather than exiting directly to John Daly Boulevard).
- For those buses exiting via De Long Street to John Daly Boulevard westbound:
  - Given lower southbound traffic volumes on De Long Street approaching John Daly Boulevard (compared to higher southbound traffic volumes exiting the BART

Station via Niantic Avenue approaching John Daly Boulevard), buses should experience a reduction in delay in reaching the intersection with John Daly Boulevard, and making a right-turn on to John Daly Boulevard (as that right-turn can occur concurrent with eastbound left-turns from John Daly Blvd to De Long Street, which occurs during a significant portion of each signal cycle). However, this reduction in delay would not occur with significant pedestrian volumes along De Long Street.

- For those buses that would exit via De Long Street to John Daly Boulevard eastbound:
  - The southbound left-turn from De Long Street to John Daly Boulevard experiences higher levels of delay based on the current signal allocation. Although modifications to the signal timing plan could reduce the level of increased bus delay, this may still require longer waits for buses to enter John Daly Boulevard eastbound at this location.

Mid-term Transit Alternative 4

Transit operating conditions would be similar to Year 2030 Baseline conditions. Therefore, impacts to transit, under this alternative, would likely be less than significant for transportation assessment purposes.

Pedestrian Delay

Delay to pedestrians would be reduced at the intersection of Niantic Avenue with John Daly Boulevard due to provision of the potential crosswalk in all transit alternatives.

Delay to pedestrians at the intersection of De Long Street and John Daly Boulevard could be potentially reduced under Mid-term Transit Alternatives 1 and 4:

- Under Transit Alternatives 1 and 4, delay to pedestrians at the intersection of John Daly Boulevard at De Long Street could potentially be reduced with signal-timing modifications as feasible, such as increasing the green period for eastbound left-turns, from John Daly Boulevard to De Long Street, which can occur concurrent with an extended pedestrian crossing phase. Given excess eastbound and westbound through capacity, such measures would be unlikely to result in unacceptable LOS.
- However, under Transit Alternatives 2 and 3, a portion of buses would exit BART via a left-turn from De Long Street to John Daly Boulevard (a movement that conflicts with the south-leg pedestrian crossing). As a result, measures to reduce pedestrian delay may be less feasible at this location under Transit Alternatives 2 and 3.

Bicycle Delay

The potential bicycle lanes on a portion of John Daly Boulevard (between De Long Street and Niantic Avenue) would improve bicycle access to the station. Bicycle lanes on John Daly Boulevard westbound would preclude westbound bicyclists from traveling across the De Long Street lot and crossing the pedestrian bridge to access the faregates, or traveling an indirect route down De Long Street to East Station Road.

Eastbound bicyclists on John Daly Boulevard would similarly benefit from a connection to the Niantic Avenue crosswalk. Delay to bicyclists accessing the BART Station from the south and west would be reduced at the intersection of Niantic Avenue with John Daly Boulevard due to the provision of the proposed crosswalk, where cyclists could dismount and cross John Daly Boulevard during a protected signal phase.

10 NEXT STEPS

With the *Daly City BART Station Access & Improvement Plan* completed, BART and its project partners now have a better understanding of the challenges and potential strategies to improve multimodal station access. However, the partners also understand that more work and coordination are required to advance key station area improvement projects. Full examination of the range of potential impacts to local circulation and parking will also need to be performed and certain implementation actions may be amended, added, or removed. This chapter articulates the steps necessary to realize the vision of this Plan.

Figure 10-1 identifies key access improvements, issues to resolve, and action items to perform in the short-term (1-5 years), along with the lead agency or agencies responsible for overseeing the line item. This list is by no means exhaustive; there are other improvements noted in this report, and it is possible that additional items and projects may emerge during future discussions and analysis that should be added to this list.

While they are numbered for clarity, it does not necessarily reflect ranking in importance or schedule. The suggested lead(s) is/are noted in the table, but coordination with the project partners and potentially with the community is expected.

Potential capital funding sources are included in Appendix D.

Figure 10-1 Short-term Projects and Action Items (1 – 5 Years)

	Recommendations	Suggested Lead
Transit		
1	Decide whether to pursue TOD on De Long Street Lot	Daly City/BART
2	Draft multi-party Agreement Letter to outline roles and responsibilities	SFMTA/SamTrans
3	Reach consensus on bus bay assignment and fair share contribution to maintenance and opportunity costs	SFMTA/SamTrans
4	Create a design and implementation schedule	SFMTA/SamTrans
5	Secure funding for advanced design and project cost refinement	SFMTA/SamTrans
6	Obtain environmental project clearance	BART
7	Investigate impacts of BART Daly City Fast Pass study	
Pedestrian and Bicycle		
8	Implement wayfinding and real time transit information in 2012-2013	BART
9	Install bicycle and pedestrian wayfinding signage on streets surrounding the BART Station	Daly City
10	Further develop John Daly Boulevard at Niantic Avenue crossing strategy (may be revisited following completion and subsequent analysis of action item 7 (Wayfinding Improvements)	Daly City/BART
11	Mark pedestrian priority spaces and crossings with different pavement materials	Daly City/BART

	Recommendations	Suggested Lead
12	If TOD is not pursued, improve pedestrian connection from the intersection of John Daly Boulevard and De Long Street through the parking lot to the pedestrian bridge	BART
13	Develop pedestrian nodes and gathering spaces at the station with seating areas and other attractions	BART
14	Eliminate or replace low chain link fence on East Station Road north of the Station with a more attractive, open guardrail	BART
15	Formalize tunnel entry ways, remove concrete walls at the bottom of the stairs, replace solid flat roof at the tunnel entry, and create small transit plazas at tunnel entries to improve perception of safety	BART
16	Create an unobstructed ADA-compliant sidewalk along either side of Niantic Avenue to link the St Charles Bridge with Oceanview Village	Daly City
Multimodal		
17	Pursue station improvements: - Reorienting station circulation in Kiss-and-Ride, Taxi & BART police vehicle lot - Streetscape improvements along West Station Road	BART
18	Prepare a more detailed parking and circulation analyses to help inform decisions about: - Crosswalk improvements - Parking strategies - Bike improvements on John Daly Boulevard and De Long Street	Daly City/BART
TOD		
19	Investigate TOD on City- and BART-owned parcels south of the pedestrian tunnel	Daly City/BART

Less immediate access improvements, including large scale construction projects and project evaluation, should be considered for implementation in the 5-15 year time frame and are listed in Figure 10-2.

Figure 10-2 Mid-term Projects and Action Items (5 – 15 Years)

	Recommendations	Suggested Lead
Transit		
1	If capital project is pursued, develop schematic, design and construction drawings of preferred transit alternative	SFMTA/SamTrans
2	Obtain funding for construction	SFMTA/SamTrans
3	Develop construction staging and temporary bus plan	SFMTA/SamTrans
4	Construct intermodal transit center	BART
Multimodal		
5	Advance implementation of feasible projects from the parking and circulation analyses	Daly/BART
TOD		
6	Investigate TOD on City- and BART-owned parcels south of the pedestrian tunnel	Daly City/BART