

Pleasant Hill Station Comprehensive Plan July 2002

Bay Area Rapid Transit District



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1.0 Introduction

Vision

The Pleasant Hill BART Station is a station and area in transition, and it has been that way for close to 15 years. However, with the impending joint development on 18 acres of station property, the area will be approaching full build-out and its transformation from low density, bedroom community to high-rise office and residential suburban center will be complete. While the station's surroundings have changed dramatically since its' opening in 1972, the station itself has changed little. With the exception of a new parking facility built in the early 1990s, there has been almost no substantial change to the Pleasant Hill BART Station. The purpose of this Comprehensive Station Plan is to reconcile the changes that have and will continue to take place around the station with BART's own vision for the Pleasant Hill BART Station itself.

BART's vision for the Pleasant Hill Station centers on its' future role as the focus of a new urban center in the heart of Contra Costa County. At the same time, the station must continue to fulfill its current role of serving as magnet for San Francisco and Oakland-bound commuters from throughout central Contra Costa and southern Solano counties. The need to fulfill these very different roles will require a significant amount of attention from BART staff and partner agency personnel. This Comprehensive Plan is a work-in-progress and will likely remain one for the foreseeable future as circumstances change and the station area progresses towards its transformation. But this vision of the station as the center of a new community and as a transportation hub will dictate how BART and its partners plan for the future.

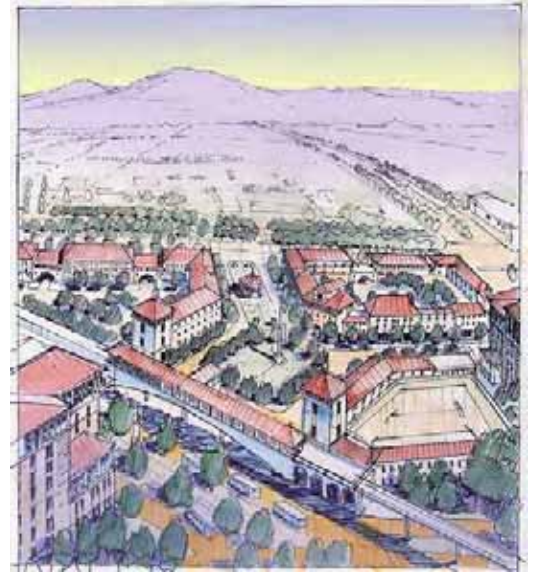
Goals and Objectives

BART's goals for the Pleasant Hill Station are an extension of the goals for the system as a whole and serve to reinforce the policy direction set by the BART Board in 1999 when it adopted the BART Strategic Plan.

Strategic Plan Goal: The BART Customer Experience.

Comprehensive Plan Goal: Deliver quality transportation to Pleasant Hill Station BART riders

Objectives:



Artist's rendering of future Pleasant Hill Station

Pleasant Hill Station Comprehensive Station Plan

- Ensure the Pleasant Hill Station meets the needs of BART commuters through quality design of station facilities such as stairs, escalators, fare gates, platforms and paid areas.
- Provide convenient access to the station by every mode. Work together with partner transit agencies, localities and others to improve rider's access to and from the station.

Strategic Plan Goal: Building Partnerships for Support

Comprehensive Plan Goal: Work proactively with local businesses, the development community, transit agencies and government partners to plan for the station and station area's future.

Objectives:

- Coordinate station upgrades and modifications with Millennium Partners, government and transit agency partners to minimize disruptions to BART passengers, area residents and neighboring businesses.
- Improve access to the station for underserved communities through active partnerships with transit agencies and government agencies.
- Seek opportunities to improve the station and station area through partnerships with local businesses and business associations.

Strategic Plan Goal: Transit Travel Demand

Comprehensive Plan Goal: Alleviate crowding and congestion on the system through effective design and efficient access at the Pleasant Hill Station.

Objectives:

- Identify design issues that address capacity concerns such as width of platforms, expansion of fare gates, and increased vertical circulation.
- Support initiatives to alleviate peak period congestion through access programs such as additional midday parking or reverse commuting.
- Facilitate transit-oriented development to encourage access to the station by walking and encourage off-peak trips.
- Plan for access improvements to the station by all modes and work with regional partners to implement a set of access recommendations.

Strategic Plan Goal: Land Use and Quality of Life

Comprehensive Plan Goal: Encourage and support transit-oriented development on-site and within the station area.

Pleasant Hill Comprehensive Station Plan Goals:

- *Deliver quality transportation to Pleasant Hill Station BART riders.*
- *Work proactively with local businesses, the development community, transit agencies and government partners to plan for the station and station area's future.*
- *Alleviate crowding and congestion on the system through effective design and efficient access at the Pleasant Hill Station.*
- *Encourage and support transit-oriented development on-site and within the station area.*
- *Accommodate the needs of BART commuters and area residents for the next 25 years.*

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Objectives:

- Work closely with the designated Pleasant Hill BART station developer, Millennium Partners and the Contra Costa County Redevelopment Agency, to ensure the success of the proposed development project.
- Work together with the Contra Costa County Redevelopment Agency to foster and encourage high-density commercial and residential development in the immediate station area.
- Respond to concerns of older residential communities such as Walden as station upgrades and development moves forward.

Strategic Plan Goal: Physical Infrastructure

Comprehensive Plan Goal: Accommodate the needs of BART commuters and area residents for the next 25 years.

Objectives:

- Develop a concept plan for upgrading the station to meet capacity needs until the Year 2025.
- Identify construction priorities and develop a conceptual understanding of the costs and time required to accomplish improvements.

Process

The Comprehensive Station Plan process was initiated by the BART Board to coordinate the disparate planning efforts within and outside of BART that affect the stations. As a result, much of the planning process involved bringing together internal and external stakeholders, developing an understanding of plans and initiatives that impact the station, and facilitating a common vision for these efforts. At the same time, the comprehensive plan team analyzed station needs and developed recommended actions in the three areas of concentration: station area development, station access and station capacity and functionality.

It should be noted that the Pleasant Hill BART Station Comprehensive Plan was developed at the same time as planning for the station’s joint development was taking place. While this gave BART the fortunate ability to enter into a dialogue with the development team as work progressed, many issues are still unresolved. At the time of publication, the developer has not submitted final designs for the site, forcing the BART staff to make certain assumptions when planning for access and capacity improvements. It is recommended that this report be viewed as a work-in-

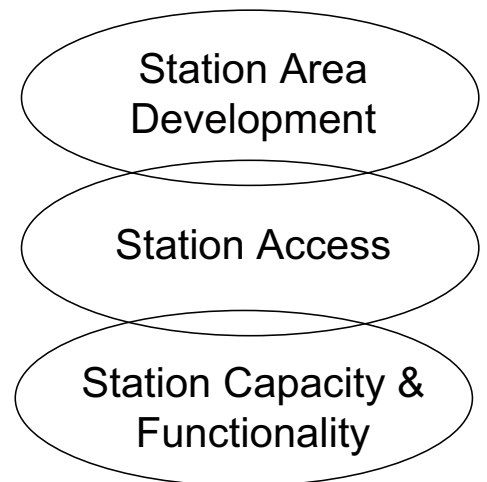


Figure 1.1 -- The Comprehensive Station Plan process incorporates three interrelated areas of concentration. The Plan identifies areas of synergy among Station Area Development, Station Access and Station Capacity & Functionality

Pleasant Hill Station Comprehensive Station Plan

progress that must be revisited as the development becomes more clearly defined.

In addition to the ongoing work with the developer, the Plan Team is also coordinating with BART's Engineering Department as it initiates planning and design activities for a crossover track in central Contra Costa County. The crossover track will allow BART to "turn back" outbound trains at the Pleasant Hill Station and return in the inbound direction. The project, which does not have an identified funding source, will provide needed extra train service to central Contra Costa County. A final location has not been determined but it is likely to be immediately west of the station. One alternative is even considering relocating the station eastward approximately 250 feet.

Comprehensive Station Plan Context

The Pleasant Hill Comprehensive Station Plan follows almost ten years of community planning in the station area intended to transform the station and surrounding vicinity into a vibrant center for residents, businesses and transportation. This process incorporated the views of a diverse group of stakeholders with a wide range of interests. The culmination of the community planning process and the efforts of the station area stakeholders occurred in January of 2001 as the Contra Costa County Redevelopment Agency hosted a weeklong Planning Charrette. The product that resulted from this effort, *Pleasant Hill BART Station Planning Charrette Summary Report*, created a concept plan for station area development and in turn helped to define the objectives of the Comprehensive Station Plan.

Smart Growth Perspective

Contra Costa County has initiated the Shaping Our Future program to develop a Smart Growth strategy for future development throughout the county. BART supports this effort and the Comprehensive Station Plan was developed to be complementary to the goals of the Shaping Our Future program. More information can be obtained at www.shapingourfuture.org.



Pleasant Hill Station Comprehensive Station Plan

Partners and Stakeholders

Some of the stakeholders that have participated in the planning for the Station Charrette and Comprehensive Station Plan are:

Community Groups	Walden District Improvement Association Diablo Commuters Alliance BART Accessibility Task Force BART Bicycle Task Force
Local Government Agencies	Contra Costa County Redevelopment Agency City of Walnut Creek City of Pleasant Hill City of Martinez City of Clayton City of Concord
Businesses and Associations	Contra Costa Centre Association Black BART, Inc. Millennium Partners
Transit Agencies	BART County Connection Benicia Transit Fairfield Transit

Internal Stakeholders

While a diverse group of BART employees participated in the Charrette process itself, an even wider array of departments and personnel contributed to the development of the Comprehensive Station Plan.

Planning & Budget	System Capacity
Real Estate	System Safety
Transportation System and Development	Engineering
Maintenance	Transportation
Operations	Customer Access
BART Police	

2.0 Existing Conditions

The Pleasant Hill BART Station was originally designed as a park-and-ride suburban station serving an area of low-density, single-family homes. It has become a regional magnet for commuters throughout Contra Costa and Solano counties due to its easy freeway access, ample parking and extra train service. In addition, the area around the station has changed dramatically since the station was developed in the early 1970s. What was once vacant property or single-family homes have now become mid-rise office buildings, apartment complexes and even urban-style lofts.



Figure 2.1 – An aerial view of the station area with notations where new development is occurring.

Local Land Uses and Community Character

Land uses in the immediate area are dominated by high-density office and commercial development along with apartment complexes. The surrounding area is a redevelopment area in unincorporated Contra Costa County known as “Contra Costa Centre”. A tenants/owners association, the Contra Costa Centre Association, markets the area and provides services such as daycare and a midday shuttle bus to area residents and employees. Prior to the recent downturn in the economy, the area was an attractive office market with vacancies around 1 percent. Even today, two new commercial buildings are under construction.

There are several other significant activity centers within the “commuter shed” of the station, which act as destinations for BART riders exiting the station in the AM peak period. Diablo Valley College is within 5 miles from the station as is John Muir Medical Center.

While County land use policies and initiatives have created intensive land uses in the immediate vicinity of the station, the larger area is characterized by low-density residential subdivisions. The unincorporated neighborhood to the east of Coggins Drive is called the Walden District and was originally developed in the 1960s. The neighborhood has been very active in planning for the BART station and is

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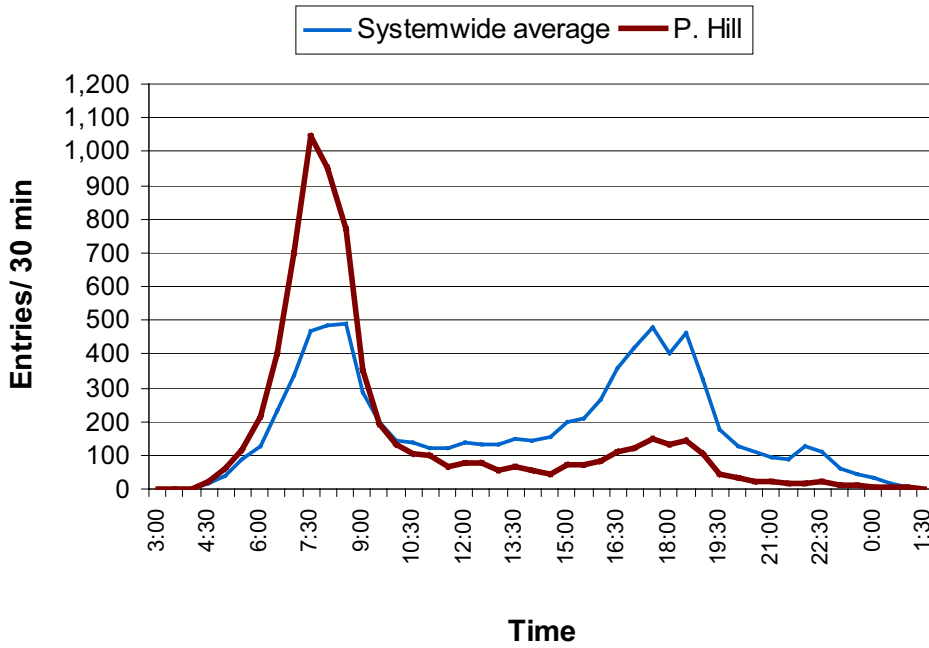
presently working with the County and its Redevelopment Agency on several initiatives in the area.

Ridership

There were 7,206 Station entries at the Pleasant Hill Station in February 2002. Over 4,000 of the entries are between the hours of 6:30 and 9:00 AM. Pleasant Hill has the highest rate of AM boardings in the BART system, over 54 percent higher than the systemwide average.

Pleasant Hill is the highest ridership station on the congested “C” line which operates between Colma and Pittsburg/Bay Point. Over 20 percent of the boardings on the “C” line occur at Pleasant Hill.

Figure 2.2 – AM Boardings at Pleasant Hill vs. Systemwide average

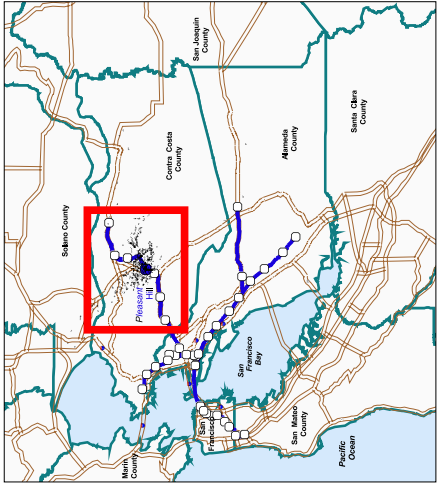
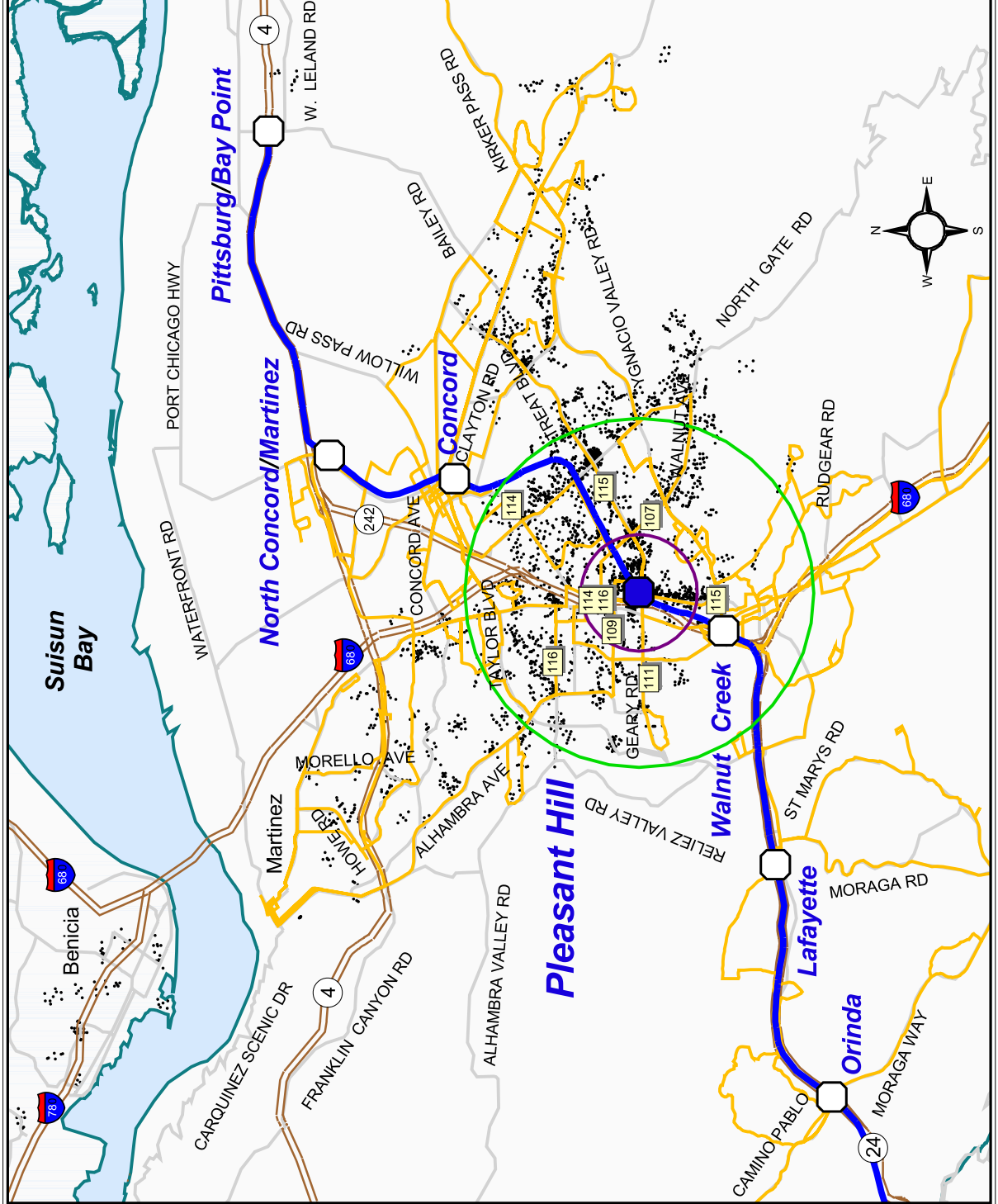


Source: 1998 BART Passenger Survey

As Figure 2.3 on the following page demonstrates, the Pleasant Hill Station draws riders from a variety of origins including Martinez and Benicia. The combination of a large amount of parking, easy freeway access and trains initiating service at Pleasant Hill attract morning riders.

Figure 2.3 Source: 1998 BART Passenger Survey

AM Weekday Home Origins : Riders Entering Pleasant Hill BART Station



LEGEND

- AM Home Origins
- BART Line
- BART Stations
- 1 Mile Radius
- 3 Mile Radius
- County and Border
- Highways
- Arterial Roads
- Contra Costa County
- Transit Bus Routes



Prepared by : **BART Marketing and Research**

Source: BART 1998 Station Profile Survey Origin point data weighted from Survey sample

Demographics

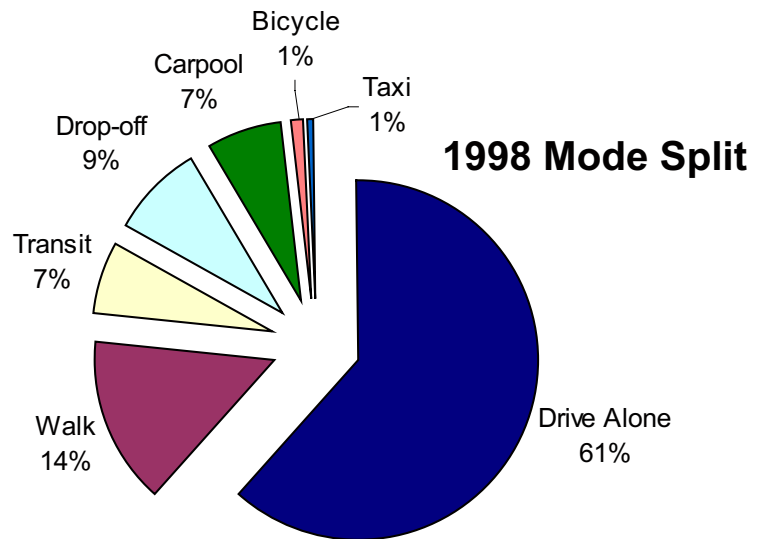
The following demographic information reflects the makeup of Pleasant Hill Station riders:

- 53% of the riders are Female.
- 48% of the riders are 25 to 44 years old and 43% are 45 to 64 years old.
- 78% are White, 2% are African American and 12% are Asian/Pacific Islander. 8% of riders are of Hispanic origin.
- 32% of the riders' household income is over \$100,000. Only 8% of the riders were in the \$30,000 or less range.
- 7% of the riders identified themselves as Disabled. They are either blind or have low vision, deaf or are hearing impaired, have mobility problems (e.g. wheelchair user), or have mental or cognitive impairment.

Mode Split

The Pleasant Hill Station, with 3,398 parking spaces, offers the most parking of any station in the BART system. It also enjoys excellent freeway access and a centralized location. As a result, the dominant mode of access to the station is Drive Alone automobiles with 61 percent of the total. However, 14 percent of the passengers walk to the station. This number has risen almost 50 percent since 1992, the result of intensive residential development in the area. Transit, carpool, drop-off and bicycle are all under 10 percent. These figures can be misleading because Pleasant Hill is such a high volume station. The gross number of bicyclists, for example is much higher, on average, than other suburban stations.

Figure 2.4 – Pleasant Hill AM Peak Mode Split



3.0 Station Area Development

On-site Development

The Pleasant Hill BART Station will be the site of a mixed-use development that will ultimately change the 18 acres of surface parking surrounding the station into a walkable urban district with shops, apartments, townhomes and offices. This joint development proposal, currently in the plan approval stage, will be carried out by a development partnership known as Iron Horse Associates, led by Millennium Partners. The development was defined on a conceptual level through a weeklong planning charrette conducted in February of 2001. The subsequent report, released in October of 2001, not only addresses the development concept but broader transportation issues and how future development will impact access to the station.

The October 2001 Charrette Summary Report defines the development concept as two possible alternatives: a residential alternative that places an emphasis on apartment and townhome development or an office alternative that weights the development towards commercial uses while maintaining a significant number of residential units. A comparison between the two alternatives is presented in Table 3.1 at right.

It is anticipated that the Millennium Development will be completed within 3-7 years. The initial phase will be the construction of a parking structure to replace the 1,480 surface parking spaces that will be lost to the development. The structure will also incorporate 581 temporary parking spaces that were constructed on the Iron Horse Trail across Coggins Drive from the station. The County Redevelopment Agency and BART have developed a plan for addressing the anticipated loss of these parking spaces in the interim period before the new parking structure can be completed. In addition to finding another location for parking, the County is suggesting enhanced transit service and other incentives for utilizing alternative modes in accessing the station.

While the final development program is still being defined, the Draft Preliminary Development Plan, recently submitted to the County Board of Supervisors, outlines the site elements as follows:

Figure 3.1 – Residential vs. Office Development Alternatives – The developer has not yet defined which alternative will be final

Residential Alternative

Use	Square Feet/# Units/Spaces	Cost (millions)	Funding Sources
Office	290,000 sq. ft.	\$ 77.0	Private
Retail	42,000 sq.ft.	\$ 13.0	Private
Residential	446 units	\$ 93.0	Private
Total for Private Uses	778,000 sq. ft.	\$ 183.0	
Public Infrastructure	Plazas, parks, new roads, sidewalks	\$ 8.0	Public
BART Replacement Parking	1,480	\$ 20.0	Public
Iron Horse Trail Replacement Parking	581	\$ 9.0	Public/Fee Financed
Total for Public Investment		\$ 37.0	
Project Total	799,000 sq. ft.	\$ 220.0	Private/Public

Office Alternative

Use	Square Feet/# Units/Spaces	Cost (millions)	Funding Sources
Office	456,000 sq. ft.	\$ 122.0	Private
Retail	42,000 sq.ft.	\$ 13.0	Private
Residential	274 units	\$ 57.0	Private
Total for Private Uses	772,000 sq. ft.	\$ 192.0	
Public Infrastructure	Plazas, parks, new roads, sidewalks	\$ 8.0	Public
BART Replacement Parking	1,480	\$ 20.0	Public
Iron Horse Trail Replacement Parking	581	\$ 9.0	Public/Fee Financed
Total Public Investment		\$ 37.0	
Project Total	772,000 sq. ft.	\$ 220.0	Private/Public

Source: Pleasant Hill Station Charrette Summary Plan, 2001

Block Descriptions

Block A – A 7-story office building facing Treat Boulevard. Features retail on the ground floor. Lower floors are dedicated to parking, offices wrap the upper parking levels. Residential uses are allowed as an alternative to office.

Block B – A 3-story structure with interior parking court. Retail uses line the ground floor on Treat Boulevard and the new service road. The south and west edges feature apartments above the stores. Townhomes wrap the north and south sides.

Block C – A new civic building sited next to the BART station. Townhomes wrap the south and east edges of Block C. Facing the BART station is a 3-story commercial building. Parking on the interior of the block.

Block D – A 12-story office building. Parking for the building is accommodated in the new parking structure.

Block E – New parking structure accommodating 2,061 BART spaces. It may or may not be an expansion of the existing 1,337-space BART structure. The north and west edges are wrapped with 4-story apartment buildings.

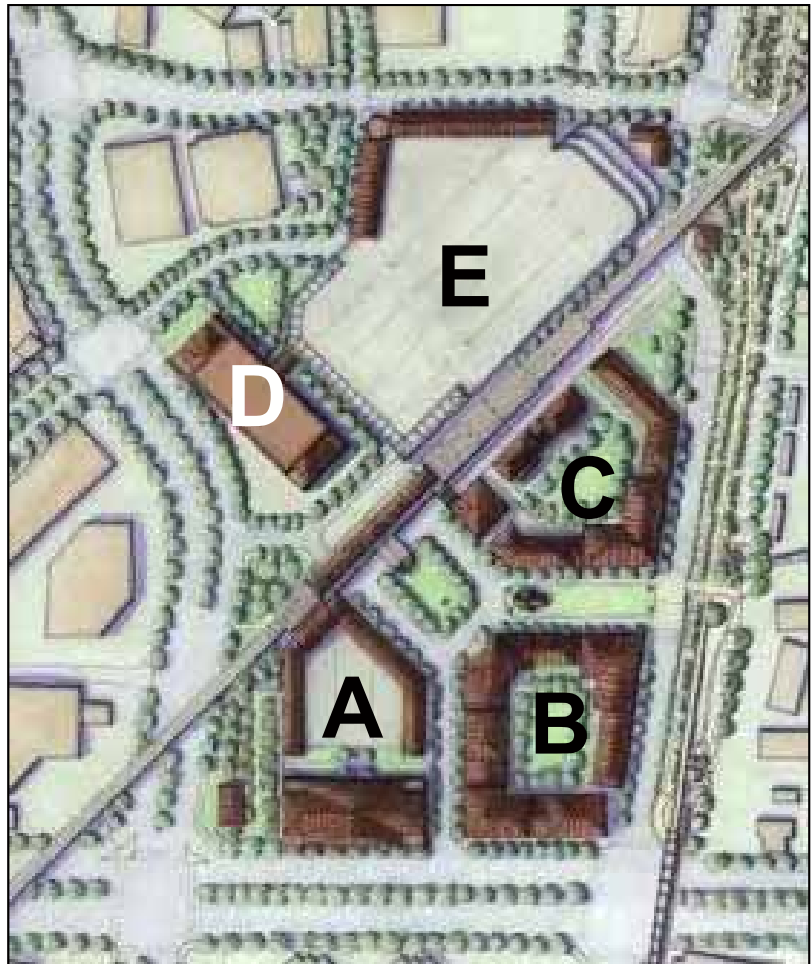


Figure 3.2 – Pleasant Hill Joint Development
Concept Plan
Source: Pleasant Hill Station Charrette
Summary Plan 2001

Off-site Development

Within a one-third mile radius of the station, nearly 140 acres of land, there are approximately 2,570 residential units, 15,230 square feet of retail and service space, 1.9 million square feet of office space, 248 hotel rooms, 3,840 non-BART parking spaces and 3,398 permanent and temporary BART parking spaces.

During the 1980s and 1990s, the Contra Costa County Redevelopment Agency began implementing the *Pleasant Hill BART Station Area Specific Plan* by assembling smaller parcels of land and financing infrastructure improvements with the purpose of facilitating development of multi-family housing, office and retail space. Much of the existing development surrounding the station was constructed during this time.

Office and hotel uses are primarily located on the west and south side of the station along Oak Road and Treat Boulevard. Most apartments, condominiums and townhomes are located to the north and east of the station along Las Juntas Way, Coggins Drive and Jones Road. Single-family housing is primarily on the outer edge of the Station Area and is generally surrounded by 6-foot fencing on sides facing the station. The majority of surface parking consists of the BART parking lot immediately surrounding the station. Most office and multi-family residential developments next to the station have structured parking.

The area is dominated by office and residential uses but lacks a complementary amount of retail services. Office developments are 5 to 10 stories in height and multi-family developments closest to the station are 3 to 4 stories over street-level parking. Multi-family units farther from the station are primarily 2 stories and have surface parking lots. Retail and service uses and public parks are relatively rare in the Station Area. There is a daycare center located just north of the station along Las Juntas Way, and a strip-style retail center with fast food establishments on Oak Road to the west of a number of multi-family developments. The Las Juntas Swim Club is located at the intersection of Las Juntas Way and Coggins Drive northeast of the station. Two restaurants are located near the intersection of Wayne Drive and Oak Road.

Three projects are currently under development to the north, west and south of the station. The Renaissance Club Sport



Figure 3.3 – Looking west from the platform at office and hotel development on Oak Street



Figure 3.4 – Coggins Square residential development, affordable housing at 50 units/acre

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Hotel and Fitness Center is under construction just south of the BART property on the corner of Oak Road and Treat Boulevard. It will include a 6-story hotel with 175 rooms and meeting facilities, a 75,000 square foot athletic club and a parking structure. Another commercial project nearing completion is Station Oaks, a 195,000 square foot office and retail complex located at the intersection of Wayne Drive and Oak Road. The building will serve as the corporate headquarters for an insurance finance firm relocating from San Francisco. It will feature a 7-story office tower with ground floor retail and a 4-story garage with 567 parking spaces. To the north of the station, the final phase of the 54-unit Iron Horse Lofts development is nearing completion. All of the units have been sold.

Residential	Number of Units
Multi-Family	
For-Sale	260
Rental	2,280
Affordable Units	170
Single-Family	32
Total Existing Units	2,572
Planned New Housing Units	
For-Sale	100
Rental	214
Total Planned Units	314
Retail	Square Feet
Constructed	12,582
Planned or Under Construction	131,104
Hotel	Rooms
Constructed	248
Planned or Under Construction	175
Services	Square Feet
Constructed	2,650
Office	Square Feet
Constructed	1,162,700
Planned or Under Construction	822,108
Additional Commercial	Square Feet
Constructed	729,084
Parking	Number of Spaces
Surface	1,765
Structured or Subterranean	2,075
Planned or Under Construction	675
BART Parking	
Surface	1,480
Temporary Iron Horse Trail Spaces	581
Structured	1,337

Figure 3.5 – Existing & Planned Land Use, Contra Costa Centre Redevelopment Area

Sources: Contra Costa County Redevelopment Agency, Contra Costa Centre

4.0 Station Access

The Pleasant Hill Station Access Plan, available under separate cover, focuses on increasing the attractiveness of transit, improving the bicycle and pedestrian environment and maximizing the efficiency of the Pleasant Hill BART Station parking lot. This chapter is a summary of the Pleasant Hill Station Access Plan.

While access to the station is dominated by drive alone vehicle trips, the character of the station area will change dramatically in the future making alternative modes more attractive. The pedestrian and bicycle environment in particular will improve as the Millennium Development creates walkable streets and destinations near the station. The trend to increase pedestrian access to the station began in the early 1990s as Contra Costa County encouraged high density, transit-oriented residential development near the station. With densities ranging from 35 to 70 units per acre, the walking mode share rose from 10 to nearly 15 percent in six years. This trend should continue as new development comes online. Transit should also be more attractive as the new development builds a “station square” next to the station that will facilitate BART-to-bus and bus-to-bus transfers.

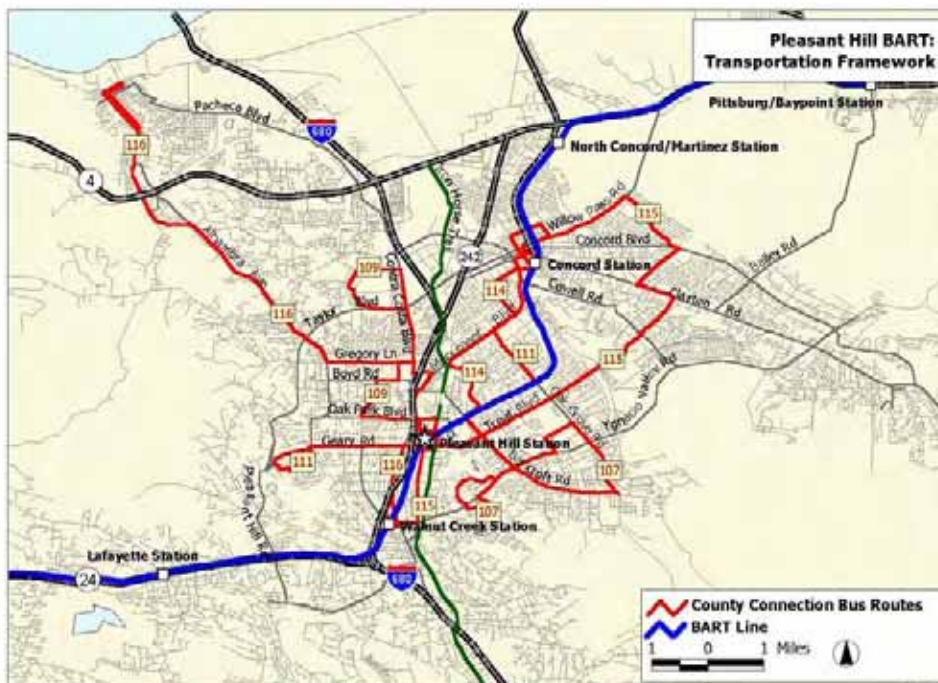


Figure 4.1 – Transportation context, the Station is ideally located for access from all modes

Source: 1998 BART Passenger Survey

Pleasant Hill Station Comprehensive Station Plan

A summary of access issues and recommendations by mode are described below. It should be noted that all access improvements will be designed to accommodate people with disabilities.

Walk

The Pleasant Hill BART Station has benefited from County policies to encourage high density, transit-oriented development for both commercial and residential properties. The County continues to engage in positive work in the area as the Redevelopment Agency is planning to develop a park and pedestrian bridge on the Iron Horse Trail which will improve pedestrian and bicycle access to the station.

While the area's land use mix is encouraging more walking to the station, the streets and sidewalks in the immediate vicinity of the station are unappealing to pedestrians with wide auto-oriented boulevards and a lack of clear signs directing pedestrians to area destinations. One of the two new developments in the area will be a hotel, joining an existing hotel immediately across the street. Because hotel patrons are likely to be unfamiliar with the area or with BART, public information for pedestrians will be critical.

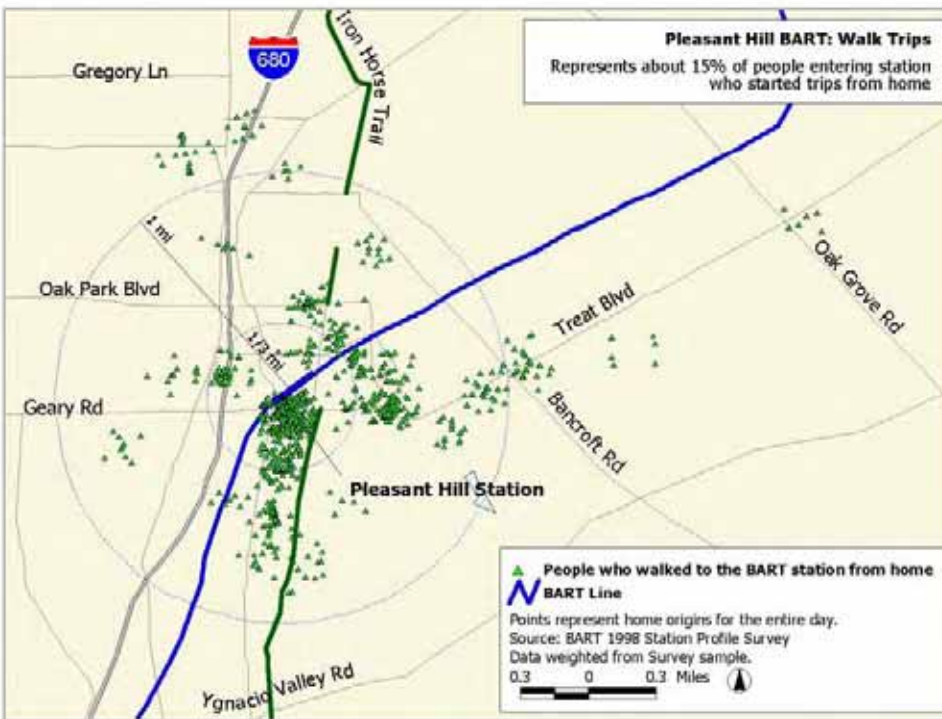


Figure 4.2 – Pedestrian origins

Source: 1998 BART Passenger Survey

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Caltrans is exploring opportunities to rent Human Transporters, electronic two-wheeled scooters initially manufactured by a company named Segway, and has identified the Pleasant Hill Station as an ideal location. The units will be rented on an hourly and daily basis by the *All Aboard BART* vendor. Because Human Transporters can safely operate at 12 miles per hour, they may be able to address the need for passengers trying to reach intermediate distances that may be too far to walk.

Finally, the Walnut Creek Channel acts as a barrier to pedestrians coming from the neighborhood immediately east of the channel. Pedestrians walking from residential areas east of the channel must take a circuitous route and cross at Treat Boulevard.

Key strategies for increasing the walk mode share are:

- Providing pedestrian amenities (such as pedestrian lighting, continuous sidewalks with curb cuts, signalized pedestrian crosswalks, street trees and wayfinding signs) along key pedestrian routes connecting the community to the station.
- Providing a more inviting environment for pedestrians through signs and more pedestrian-oriented streets
- Providing higher-density residential development and supporting retail uses near the station.

Bike

The central location of the Pleasant Hill BART Station not only serves as an attractor to motorists but bicyclists as well. The station's other advantages for bicyclists include: a location adjacent to the primary north-south bicycle route in central Contra Costa County, several east-west bicycle routes within close proximity, flat terrain, ample bicycle parking and amenable weather.

BART was recently awarded funding to develop a design and initiate construction of landscaped bicycle storage areas known as "Bicycle Pavilions". These grant funds will allow BART to install new bike lockers at Pleasant Hill in 2006.

Key strategies for increasing the bike mode share are:



Figure 4.3 – Iron Horse Trail and Regional Bike facilities

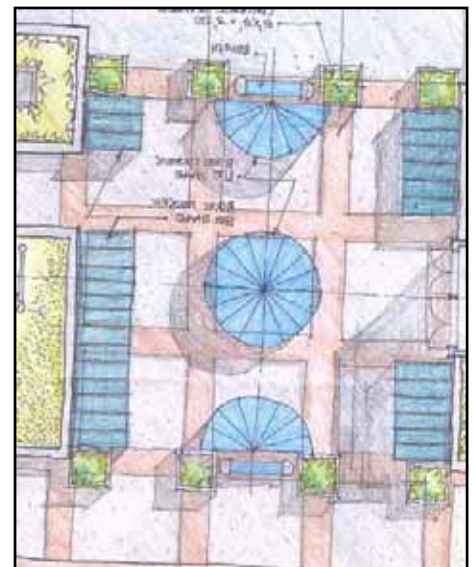


Figure 4.4 – Detail from BART's Bicycle Pavilion Concept Plan

Pleasant Hill Station Comprehensive Station Plan

- Supporting the County Redevelopment Agency in their current efforts to develop bike lanes on area streets and trails.
- Work with Millennium Partners to incorporate a bike station into the new development.
- Develop flexible options for bicycle storage at the station.

Transit

Although the transit mode share is only seven percent, transit growth is expected in the future as the population in the area grows and the station serves as a transit transfer point. Today, four separate transit operators serve the station: County Connection, Benicia Transit, Fairfield Transit and Livermore Amador Valley Transit (Wheels). Arrangements are being made to relocate the Wheels bus, which also serves the Walnut Creek BART station. County Connection is the dominant transit operator at Pleasant Hill with six lines serving the station. Figure 4.4 presents destinations, frequency of service and service hours for transit routes.

Figure 4.4
Transit Routes to/from Pleasant Hill BART

Route	Bus Line (Operator)	Peak Frequency	Off-Peak Frequency	Hours of Operation
Local Routes				
107	Mitchell Drive Park & Ride – John Muir Medical Center – BART (CCCTA)	30 min	30 min	5:23AM 6:55PM
109	Diablo Valley College -- BART (CCCTA)	30 min	30 min	5:45AM 7:25PM
111	Geary Road -- BART (CCCTA)	30 min	30 min	6:05AM 6:08PM
114	Monument Blvd – BART (CCCTA)	20 min	40 min	6:07AM 9:27PM
115	Treat Blvd – Concord BART – Pleasant Hill BART – Walnut Creek BART (CCCTA)	20 min	30 min	5:35AM 7:55PM
116	Martinez AMTRAK – Pleasant Hill BART – Walnut Creek BART (CCCTA)	30 min	30 min	5:40AM 8:42PM
Express Routes				
40	Solano BART Express (FST)	30 min	60 min	5:20AM 6:36PM
--	Vallejo – Benicia – BART (BT)	30 min	60 min	5:25AM 7:10PM

Operators:

CCCTA – County Connection

BT – Benicia Transit

FST – Fairfield Suisun Transit

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Key strategies for increasing the transit mode share are the following:

- Encourage more frequent service to residential communities east and south of the station.
- Support efforts to enhance Express Bus service in the I-680 corridor.
- Provide real time arrival information to make transfers more convenient.



Auto

Figure 4.6 – View of the existing Pleasant Hill garage from Las Juntas

Because the Pleasant Hill Station offers more parking than any other station in the system, it serves as a de facto regional parking facility for central Contra Costa County. With 3,398 parking spaces today, Pleasant Hill has 25 percent more parking than neighboring Concord and over 40 percent more than Walnut Creek. The planned development will not alter the station's role as a regional parking facility. The County Redevelopment Agency will be replacing all of the surface spaces lost to development, along with the 581 temporary spaces on the Iron Horse Trail corridor, through the construction of a new parking garage adjacent to the existing parking structure.

While a primary goal of BART's Access Plans is to increase access to the stations for modes other than the automobile, the challenge at Pleasant Hill is to accomplish this while at the same time gaining maximum efficiency from its advantageous automobile access. Therefore, improvements in automobile access focus on carpool participation and drop-

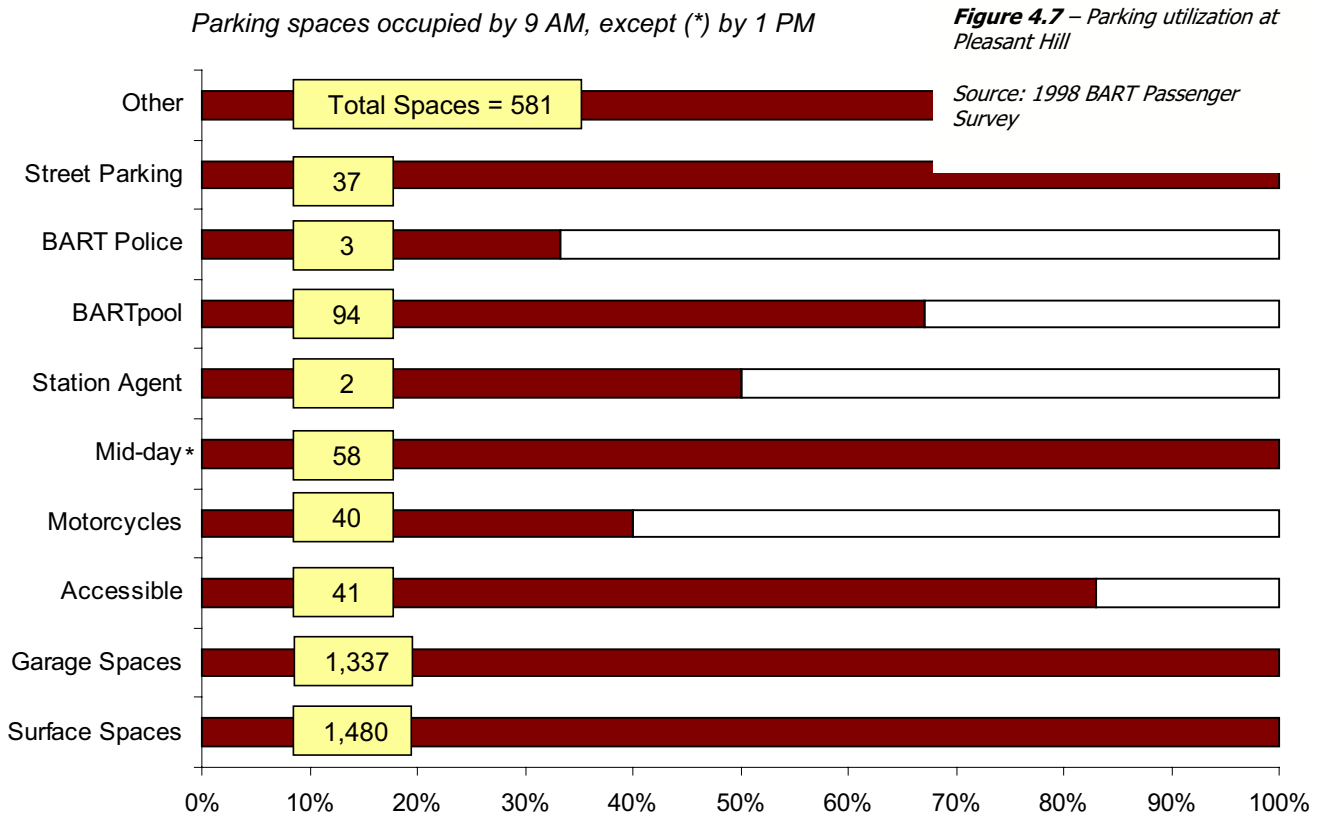
Pleasant Hill Station Comprehensive Station Plan

off facilities. In addition, several worthwhile pilot parking programs currently underway at other BART stations may have merit at Pleasant Hill.

Issues related to auto circulation within the site will be addressed once a design for the new parking facility has been developed. However, the Access Plan takes the opportunity to recommend that certain issues be explored as the design moves forward with the design.

Key strategies for accommodating automobiles are the following:

- Accommodate sufficient drop-off areas within the new parking structure.



- Explore programs to increase opportunities for midday parking.
- Assure that carpool parking capacity is sufficient to meet demand.

Table 4.8: Access Improvement Recommendations

Mode	Recommendation Map Reference Number and Description	S/M/L Term*	Lead	Funding Tier, Source and Amount**
PEDESTRIAN	W1: Bicycle Pedestrian Bridge and Path over Walnut Creek Channel – Support the County Redevelopment Agency as it seeks to bridge a pedestrian and bicycle gap in access to the station through development of a bridge over the Walnut Creek Channel and path to the station.	M	County	Tier 3: County Redevelopment, BART
	W2: Redevelop Iron Horse Trail Parking into Bicycle Route and Park – Removing parking and connecting this important Countywide bicycle route to existing facilities north and south of the station will significantly improve bicycle and pedestrian access.	S	County	Tier 1: County Redevelopment
	W3: Develop quality pedestrian streets and sidewalks – Work with Millennium Partners and County Redevelopment to ensure that streets, sidewalks and pedestrian amenities are inviting to pedestrians. Work with Caltrans and cities of Pleasant Hill and Walnut Creek to improve and upgrade existing pedestrian environment leading to the station	S	Developer, County, Cities, Caltrans, BART	Tier 1: Millennium Partners, County Redevelopment, Caltrans, Cities of Pleasant Hill & Walnut Creek
New Technology	W5: Human Transporter Rental – Work with Caltrans and the All Aboard vendor to initiate a pilot program to rent Personal Transportation Vehicles to BART riders.	L	BART, Vendor	Tier 1: Caltrans, BART, Black Bart Vendor

* (S) Short Term = Up to 2005 (M) Medium Term = 2006 to 2010 (L) Long Term = 2010 and After
 ** Funding Tiers: Tier 1 = Existing BART Resources and/or Non-BART funds, Tier 2 = Limited Parking Revenue Enhancement and/or Non-BART funds
 Tier 3 = Future BART Revenues TBD and/or Non-BART funds

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BICYCLE			
Access to Station	B1: Bicycle lanes on Oak Road, Jones Road, Las Juntas Way and Wayne Drive (<i>vicinity of station</i>) – Develop Class I or II bicycle lanes on streets that serve as access points to the station.	S County	Tier 2: CC County
	B2: Bike Access across the Walnut Creek Channel (<i>see pedestrian improvements, above</i>) – A connection to residential areas east of the station for bicyclists will prevent routings over poor bicycle streets, such as Treat.	S County, BART	Tier 2: CC County, BART
	B3: Redevelop Iron Horse Trail Parking into Bicycle Route and Park (<i>see pedestrian improvements, above</i>) – Removing parking and connecting this important Countywide bicycle route to existing facilities north and south of the station will significantly improve bicycle and pedestrian access.	S County	Tier 2: County Redevelopment
	B5: Bike Bridge across Treat Blvd at the Iron Horse Trail – Because the Iron Horse Trail is a high volume bicycle route, a bridge over 6-lane Treat Blvd is required. County Redevelopment is currently designing the bridge.	S County	Tier 2: County Redevelopment
	B6: Develop Bicycle Pavilion on-site – BART has received a STIP grant to design and construct a Bicycle Pavilion, a centralized facility for locker and rack bike storage with expansion capabilities to include a bike station.	M BART	Tier 1: BART, STIP (\$150,000)
Bike Facilities/ Amenities	B7: Bike Station – Work with Millennium Partners to identify a site within the future development that can serve as a bike station, an attended facility for bicycle storage.	L Developer	Tier 2: BART
TRANSIT			
Transit Service	T1: Increased Local Bus Service – Increased frequencies are needed on the Treat Boulevard line (115) and Walnut Avenue line (107).	S County Connection	Tier 2: CCCTA
	T2: Increase late night service to/from Station – Buses do not serve the Pleasant Hill station after 9:30 PM. If the area is going to become more urbanized and serve local residents, bus operating hours will need to be extended.	M Transit Operators	Tier 2: All Transit Operators
	T3: Increase North-South I-680 Feeder Express Bus Service – The Pleasant Hill Station's location right off the freeway is optimal for express bus service originating both north and south along the I-680 corridor. BART should encourage long-haul connectivity to its station.	S Transit Operators	Tier 2: All Transit Operators
	T5: Real Time Arrival Information – Use GPS technology to provide passengers with real time arrival information for buses, shuttles and BART. Explore expanding system to neighboring buildings so office workers and residents can also access information.	S BART, Transit Operators	Tier 2: All Transit Operators
	T6: Accommodate Private Shuttles at station – Work with Millennium Partners to provide enough space in the new bus intermodal area for private shuttles such as the Contra Costa Centre MIDDAY Shuttle.	S BART, Developer	Tier 2: Millennium Partners, BART
	Transit Facilities		

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	T7: Accommodate up to 20 bus lines at station – Work with Millennium Partners to ensure adequate space is reserved for future bus operations.	L	Developer	Tier 1: Millennium Partners, All Transit Operators Tier 3: MTC
Transit Transfer Improvement	T8: Universal Fare Card – Support efforts to develop universal fare instruments (e.g. Translink and Fastpass) for all transit systems.	L	MTC	Tier 3: MTC
AUTO				
BART Parking	V1: Increase Midday Parking – Explore strategies for increasing midday parking opportunities. Examples of midday parking programs include: attendant parking, midday reservations, satellite parking facilities	S	BART	Tier 2: BART
	V2: Redesign Carpool Program – Explore changes in Carpool to BART program. Areas of concentration could include: update carpool database, implement sunset dates for carpool permits, increase fine for parking in carpool spaces.	S	BART	Tier 1: BART
	V3: Additional Parking Spaces – Restripe existing garage to gain more spaces.	S	BART	Tier 2: BART
	V4: Community Parking District Feasibility - Explore the feasibility of creating a community parking district and using the generated revenue for access improvements.	S	County	Tier 2: County Redevelopment
Kiss & Ride Facilities Area Parking	V5: Increase Carpool Spaces - Increase spaces dedicated to carpools according to demand.	S	BART	Tier 2: BART
	V6: Real Time BART Parking Information – Provide real time information of parking availability at key entrance points to surface lots and parking structures.	M	BART	Tier 2: BART
	V7: Lengthen Drop-off Zone – Work with Millennium Partners to provide space for 6-8 vehicles to drop off passengers.	S	BART, Developer	Tier 2: BART
	V8: Midday On-street Parking – Work with Contra Costa County to explore possibility of allowing limited on-street parking during the midday hours to add to midday capacity and slow down traffic for lunch time pedestrians.	L	County	Tier 3: CC County, BART
Car Sharing	V9: Highway and Arterial Real Time Parking Information – Provide real time information of parking availability at highway and arterial access points.	L	Caltrans, Cities, County	Tier 3: Caltrans, Cities, County
	V10: Car Sharing Program – Work with County Redevelopment and Contra Costa Centre Association to explore initiating a car share program. Such a program would provide local office workers and residents to 24-hour access to vehicles stored at the BART parking structure.	S	Non-profits, County, BART	Tier 1: BART, Private sources

* (S) Short Term = Up to 2005 (M) Medium Term = 2006 to 2010 (L) Long Term = 2010 and After

** Funding Tiers: Tier 1 = Existing BART Resources and/or Non-BART funds, Tier 2 = Limited Parking Revenue Enhancement and/or Non-BART funds)

Tier 3 = Future BART Revenues TBD and/or Non-BART funds

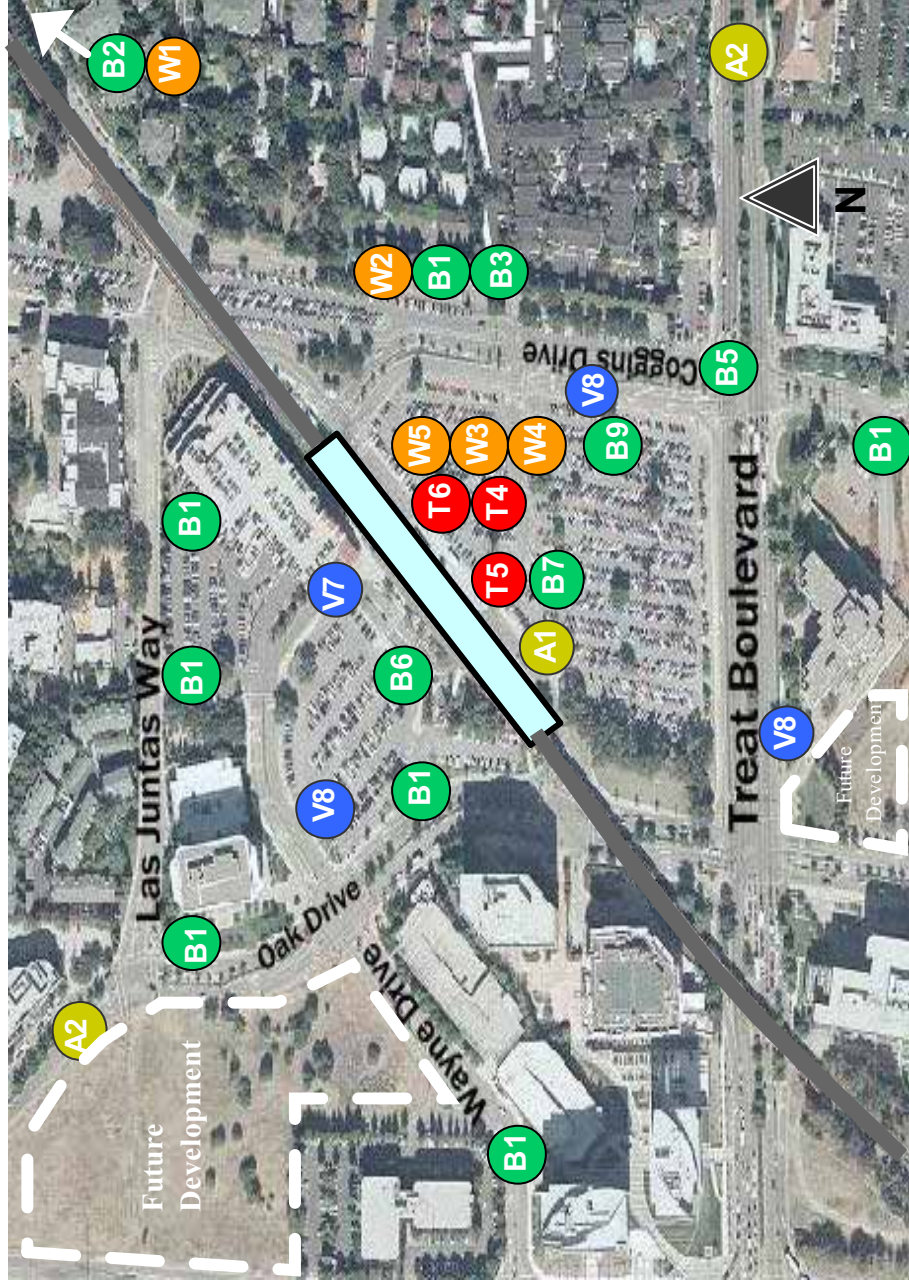
Pleasant Hill Station Comprehensive Station Plan

ALL MODES				
Intermodal Information Center	A1: Information Center - Designate a transit information center at the BART station. Display transit and bike maps, real-time transit information, and other access brochures and publications.	M	BART	Tier 3: BART
Station Identity and Orientation	A2: Wayfinding System – Install signs (e.g. BART Pathfinding Sign) directing BART passengers on all modes of transportation to and from the BART station and other major local destinations.	S, M	BART, City of Oakland	Tier 2: BART, City of Oakland, Developer
	A3: Visual Improvements - Provide landscaping and other visual improvements (e.g. public art) that will beautify the station.	M, L	BART	Tier 3: BART

Figure 4.9 – The map on the following page presents Access Recommendations superimposed on an aerial photo of the station area.

* (S) Short Term = Up to 2005 (M) Medium Term = 2006 to 2010 (L) Long Term = 2010 and After
 ** Funding Tiers: Tier 1 = Existing BART Resources and/or Non-BART funds, Tier 2 = Limited Parking Revenue Enhancement and/or Non-BART funds
 Tier 3 = Future BART Revenues TBD and/or Non-BART funds

PLEASANT HILL BART STATION AREA ACCESS PLAN RECOMMENDATIONS



WALK

- W1:** Bicycle Pedestrian Bridge and Path
- W2:** Redevelop Iron Horse Trail Parking
- W3:** Develop quality pedestrian streets
- W5:** Human Transporter Rental

TRANSIT

- T3:** Increase I-680 Express Bus Service
- T4:** Real Time Arrival Information
- T5:** Private Shuttle Space
- T6:** Increase Bus Bay Capacity

BIKE

- B1:** Bike Lanes
- B2:** Bike Access across Walnut Creek Channel
- B3:** Redevelop Iron Horse Trail Parking into Bicycle Route and Park
- B6:** Develop Bicycle Pavilion
- B7:** Develop Bicycle Station

AUTO

- V7:** Lengthen Drop-off Zone
- V8:** Mid-day On Street Parking

ALL MODES

- A1:** Informational Center
- A2:** Wayfinding System

Existing BART Line

5.0 Station Functionality

In addressing station functionality at the Pleasant Hill Station, the Plan Team considered functionality and capacity needs for existing, short-term and long-term planning horizon levels. As a result, the Plan suggests a series of design options that can be phased in over time to address growth at the station as it occurs.

Capacity and Functionality, Joint Development Context

As in other areas of the Comprehensive Plan, the analysis of capacity and functionality was dependent on the detailed development plan of Millennium Partners. As noted previously, Millennium Partners have yet to develop a detailed development design, which has forced the Plan Team to make certain assumptions regarding the program and design of future development on the station property. The Plan Team also met with the Developer and bus transit operators early in the process in an attempt to establish a boundary between the station development and future station expansion. As a result, the Plan Team and Developer have agreed to reserve space around the existing station sufficient to allow future platform widths of 20 feet. Within this “imaginary property line”, BART has the freedom to add capacity to the station without adversely encroaching on the future development.



Figure 5.1 – layout of station and proposed development

Determining Future Station Capacity Needs

Future capacity needs at the Pleasant Hill Station were based on forecasts of future ridership conducted for BART by Manual Padron and Associates. In addition, BART applied its own criteria when determining minimal dimensions such as space per passenger on platforms, stairs and escalators. A complete inventory of BART’s own criteria for passenger circulation, along with calculations to determine platform width in 2025, is included in Appendix B. Future ridership projections are presented at right in Figure 5.2.

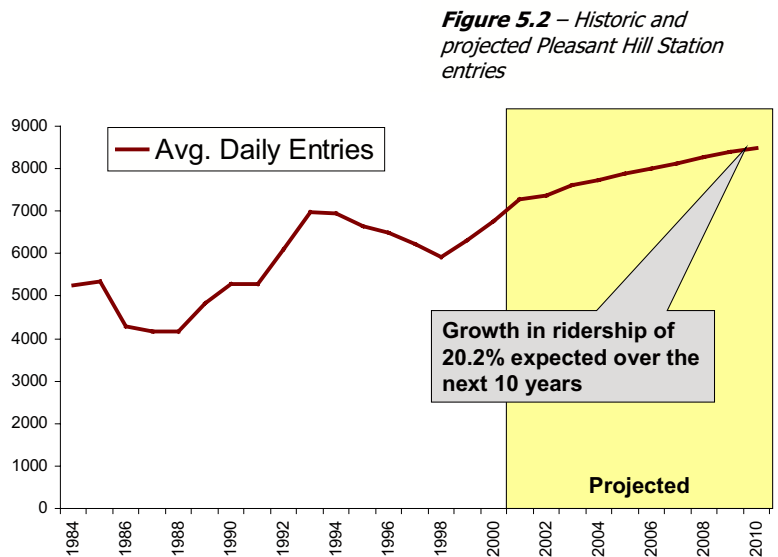


Figure 5.2 – Historic and projected Pleasant Hill Station entries

Source: BART

Pleasant Hill Station Comprehensive Station Plan

Station Design Elements

The analysis of capacity issues at the Pleasant Hill Station focused on the following components:

- Station paid area
- Vertical circulation (stairs, escalators and elevators)
- Fare gates and ticket vending machine equipment
- Platforms
- Concourse apron

Paid Area

Station paid areas must be sufficient to handle passenger flow from the fare gates to the platforms and in the opposite direction. In addition, paid areas must house passenger amenities such as restrooms, transit transfer machines or parking validation machines. Station Agent booths and staff facilities such as break rooms or meeting rooms are also needed, particularly at high-volume stations where more staff are required. Finally, paid areas must serve as landing points for stairs, escalators and elevators from the platform.

Like many stations constructed relatively early in BART's development, Pleasant Hill has a very small paid area of roughly 1,500 square feet. The small footprint of the paid area currently results in congestion during commute hours, particularly in the PM peak as exiting patrons are backed up the stairs to the platform. There is little space for patron amenities because even such basic elements as benches and trash receptacles are potential obstacles. Staff facilities are inadequate for the number of station agents that are required to handle peak period congestion. Finally, new stairs and escalators cannot be constructed at the station without expanding the existing paid area as there is insufficient space to land any additional vertical circulation elements.

In each of the station master plan alternatives, the Plan Team has expanded the Paid Area to approximately twice its current size. This allows for better passenger movement and more flexibility when locating passenger and staff facilities. In addition, expansion of the paid area provides enough "landing zone" to expand vertical circulation sufficient to meet future passenger demand. Finally, the larger paid area allows each alternative to accommodate a much-needed expansion of the fare gates, in most cases doubling capacity by adding a second array and station agent's booth.



Figure 5.3 – Paid Area

Vertical Circulation

Vertical circulation elements (stairs, escalators and elevators) serve two important and interconnected functions at BART stations: moving passengers between the fare gates and the platforms and evacuating passengers in the event of a platform-level emergency. Vertical circulation at the Pleasant Hill Station inadequately addresses both of these functional needs.

Each platform is accessed today by a set of opposed stairs and escalators with an elevator between the two. Each of the escalators were recently overhauled and initial feedback from station agents and passengers is that they are much more reliable. Elevators are also reliable due to recent repairs. Feedback from BART’s Accessibility Task Force highlighted the poor placement of the elevators, which force passengers in wheelchairs to navigate through people coming down from the escalators. Finally, each of the vertical circulation elements today deposit passengers in the center portion of the platform, exacerbating crowding on central cars in the AM peak.

In each of the station master plan alternatives, vertical circulation has been added along with an expanded paid area to improve passenger movement between the fare gates and platforms. Each alternative also proposes the use of “emergency stairs” that would be placed on the far outboard ends of the platforms. These elements are intended to only be used in case of an emergency as they do not land passengers within the paid area. The purpose of emergency stairs is to meet the code requirements for travel distance of passengers exiting the platform. Some of the stairways proposed in the Station Master Plans are also upgradeable to escalators.

Automatic Fare Collection and Ticket Vending Machine Equipment

Fare Gates, or Automatic Fare Collection (AFC) and Ticket Vending Machine (TVM) Equipment influence capacity and functionality at the Pleasant Hill Station by creating bottlenecks impeding passenger flow. The reliability of AFC and TVM equipment is certainly an issue when assessing station capacity. As there are already plans to replace some of the existing TVM and AFC equipment at Pleasant Hill, the Comprehensive Station Plan focuses primarily on the need to expand capacity and place arrays in an efficient manner. In addition to replacing existing AFC equipment, there are plans



Figure 5.4 – Escalator, Inbound Platform



Figure 5.5 – Repairing Ticket Vending Machines

Pleasant Hill Station Comprehensive Station Plan

to add two fare gates at the station to the existing array, depending on available funding.

Today, there is an array of eight AFC machines, which are directly opposite four TVMs. Generally, station agents program the AFC machines to be unbalanced in favor of the peak direction flow. If one unit happens to be closed for repair, the back up at the fare gates can be significant. The same issues of capacity and reliability also apply to the station’s TVM. If one machine happens to be down for repair, the lines at the remaining three machines are considerable. Passengers tend to use the newer model credit card TVM because it is more reliable than the cash transaction machines.

BART’s “Priority Station Modification Reports for Rockridge, Daly City, and Pleasant Hill”, dated August 2001, describes PM peak exit queuing time as “unacceptable”. BART has planned to add a total of two new fare gates to the existing array depending on funding availability. This will also improve exiting capacity. Unfortunately, the platform support columns limit the overall width of the array, and no further expansion is possible at the current gate array location.

Most of the Station Master Plan alternatives propose to double AFC and TVM capacity by adding another array facing the proposed second garage. The existing array, in most cases, is preserved in its current configuration but moved outward as the paid area is expanded.

Platforms

The westbound platform is under considerably more capacity pressure than the opposite (eastbound) platform. That is because it experiences crowding in the AM peak while the PM peak is much less severe. Lengthening of the platforms

Pleasant Hill Station		
<i>Platform Space Required (dimensions in square feet)</i>		
	AM Peak Platform (Inbound)	PM Peak Platform (Outbound)
Boarding Load	2,508	113
Offboard Load	4,342	5,846
Alighting Load	--	--
Total	6,850	5,959
Net Space	(3,804)	(2,913)
Net Additional Space Required	3,804	2,913
<hr/>		
Current Platform Width	12.0	12.0
Additional Width Needed	5.4	4.2
Total Platform Width Required	17.4	16.2

Figure 5.6 – Calculation of platform capacity required. The table below presents the space required to meet future growth. Detailed assumptions are included in Appendix B.

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will not relieve congestion as they already accommodate BART's longest train consist of 10 vehicles. However, expanding the width of the platforms will address much of the crowding in the AM peak. Wider platforms will also meet BART's own requirements for sufficient off-loading space in the event a train goes out of service at the Pleasant Hill Station, forcing passengers on a fully loaded train to empty onto an already crowded platform. Finally, wider platforms are needed to accommodate construction of additional stairs and escalators, something not possible given the width of today's platforms.

Existing platform width at the Pleasant Hill Station is 18 feet in the center portion and 12 feet on the outboard portions. The central area is also where stairs, escalators and elevators bring passengers from the paid area up to the platform. In addition, the central portion is protected from the elements by a cantilevered canopy. These features exacerbate train capacity as they encourage passengers to gather in the central portion of the platform and therefore board only the central cars on each train. The outboard areas of the platform are too narrow for AM passengers to queue in the typical fashion, perpendicular to the platform edge. As a result, passengers queue up parallel to the platform edge.

Given expected ridership growth in the AM peak at the station, BART estimates the required inbound platform width to be a minimum of 18 feet by the year 2012. The outbound platform width is sufficient to handle loads until 2025 when it will need to be expanded to a minimum of 16 feet. However, for the purposes of this analysis, the Plan Team has assumed that both platforms can be expanded up to 20 feet. But given the lack of pressing need on the outbound platform, BART may wish to consider phasing construction to achieve greater flexibility in funding.

Concourse Apron

The concourse apron, the concrete zone between the paid area and vehicular roadways on each side of the station, currently houses a variety of station supportive elements. Bicycle parking facilities, both lockers and racks, are one important function for the concourse apron. In addition, the station's power substation and train control equipment are housed in concrete structures currently outside the paid area. The bus intermodal area is directly adjacent to the paid area on the south side of the station. Passenger drop-off points, marked by shelters and signage, extend roughly 300 feet along a curb facing the bus-only travel lanes. Finally, a recent



Figure 5.7 – Hot dog vendor outside station

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initiative to construct a structure dedicated to a retail coffee and video rental vendor has created another use for the concourse apron. The structure, known as *All Aboard BART*, is a 400 square foot facility located between the existing fare gate array and ticket vending machines. It opened for business on July 10, 2002.

In planning for future utilization of the concourse apron, the Plan Team had to accommodate the same uses in a space that is shrinking due to the expansion of the paid area. In addition, future expansion of the concourse apron is limited as space has already been reserved for elements of the joint development. As a result, the Plan Team is making more efficient use of the space and integrating some elements into the development itself. The future bus intermodal area will be incorporated into the public square planned for the area immediately south of the station entrance. Passenger pick-up will be at designated points around the square. Drop-off will occur along the curb length on the north side of the station. Bicycle parking will now be consolidated into a “Bicycle Pavilion” which BART recently received funding for from the Contra Costa Transportation Authority. The *All Aboard BART* structure will have to be relocated or removed as a result of BART’s station improvement project, as it is currently located within the future expanded paid area of the station.

Station Design Alternatives

Each proposed option includes the addition of emergency stairs from the end of each platform, and widening the entire length of both platforms to ameliorate crowded conditions. In addition, all options will permit the addition of windscreen and canopy cover extending the entire length of the two platforms. Each expansion option includes provision of at least one new stair and one new escalator to each Platform.

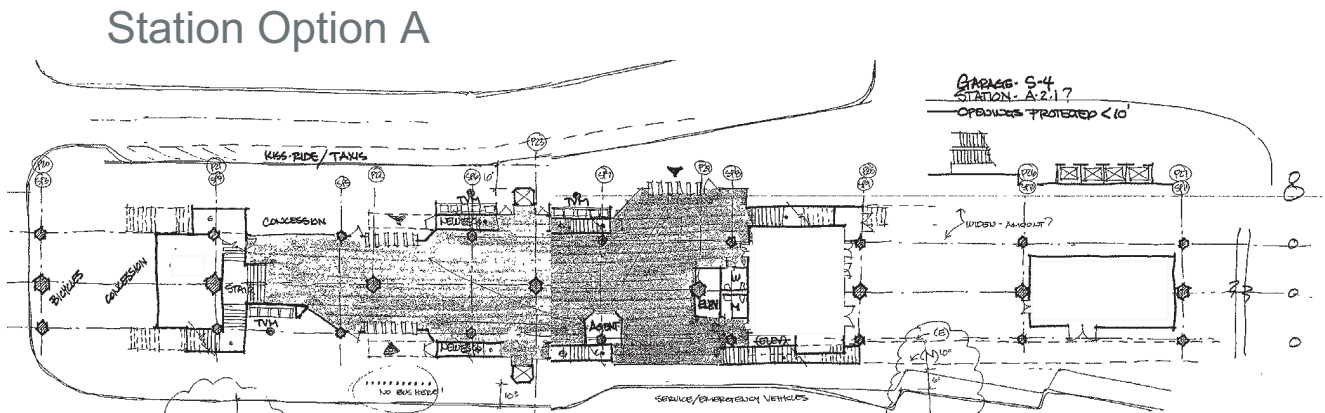
All improvements will meet current Station Design Criteria, and ADA accessibility requirements.

Enlargements of each alternative can be seen in Appendix C.



Figure 5.8 – *All Aboard BART* retail vendor

Figure 5.9 – Station Option A



Option A – Opposed Fare Gates, Compact Option

The station Paid Area is expanded south, north, and west. A new fare gate array is proposed opening toward the garage expansion and taxi zone to the west. In lieu of a single transverse fare gate array, two opposing arrays are proposed, creating a long, narrow paid area. Each array would be provided with a eight fare gates. The width of the paid area is limited by the general configuration agreed upon in the Pleasant Hill BART Station Area Plan. As a result, opposed fare gate arrays may result in congestion at peak hours.

In Option A, a new platform stair is added at both ends of the expanded paid area serving each platform. The existing stairs were originally designed with a pit to permit installation of a future escalator. Option A takes advantage of this opportunity to add new escalators in a cost effective manner. The existing stairs can be removed from service once new stairs are constructed. A disadvantage of this option is that escalator access is concentrated at the center of the platform. Heavy passenger load conditions make distribution of escalators desirable.

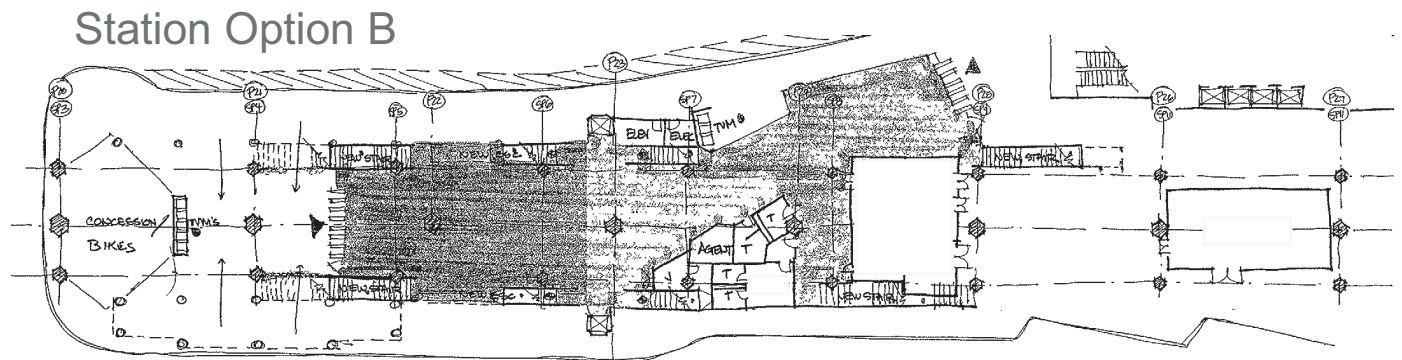
Existing elevators would remain at their present location. However, BART’s Accessibility Task Force has observed that access to these elevators is compromised by stairs and escalators terminating at the elevator boarding area.

The existing service core, containing staff and public restrooms must be removed to create an unobstructed paid area. New staff facilities are proposed at the south end of the paid area. New public facilities are proposed at the north end, adjoining the existing utility rooms.

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Concourse apron areas will be expanded and improved at locations outside the paid area – such as the plaza between the utility rooms and traction power substation, and at the south end of the station expansion. There is an opportunity at these locations to provide amenities such as bike racks and lockers, benches, map kiosks, and other site furnishings. Bus transfer activity will increase in these areas under the proposed development plan, and enhancement of these areas will integrate them, more fully into the station.

Figure 5.10 – Station Option B



Option B – Transverse Fare Gates – Compact Option

The station Paid Area is expanded south, north, and west. A new fare gate array is proposed opening toward the garage expansion and taxi zone to the west. A new transverse fare gate array, located south of the existing array, accommodates access from both the east and west sides of the station. A total of two gate arrays are proposed in this scheme, reducing cost and increasing operating efficiency. Each array would be provided with a full complement of AFC equipment. The width of the paid area is less critical because queues will form behind the gates parallel with the length of the station.

Like Option A, Option B features a new platform stair added at both ends of the expanded paid area serving each platform. Existing elevators would also remain at their present location.

The existing service core, containing staff and public restrooms, are proposed to be relocated in a single core near the center of the paid area on the east side of the concourse.

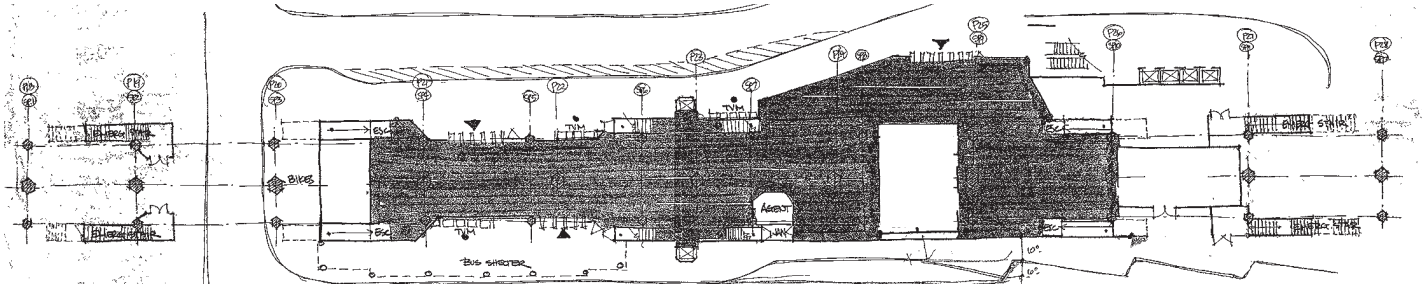
Concourse apron areas will be expanded and improved at locations outside the paid area – such as the plaza between the utility rooms and traction power substation, and at the south end of the station expansion. There is an opportunity at these locations to provide amenities such as bike racks and

Pleasant Hill Station Comprehensive Station Plan

lockers, benches, vendor kiosks, map cases and other site furnishings. Bus transfer activity will increase in these areas under the proposed development plan, and enhancement of these areas will integrate them, more fully into the station. Option B provides more available space for patron activities at the south end of the concourse.

Station Option C

Figure 5.11 – Station Option C



Option C– Opposed Fare Gates, Maximum Paid Area

The station Paid Area is expanded south, north, and west. A new fare gate array is proposed opening toward the garage expansion and taxi zone to the west. In lieu of a single transverse fare gate array, two opposing arrays are proposed, creating a long, narrow paid area. Each array would be provided with a full complement of AFC equipment. The width of the paid area is limited by the general configuration agreed upon in the Pleasant Hill BART Station Area Plan. In Option C, the large overall size of the paid area offsets congestion created by opposing fare gates.

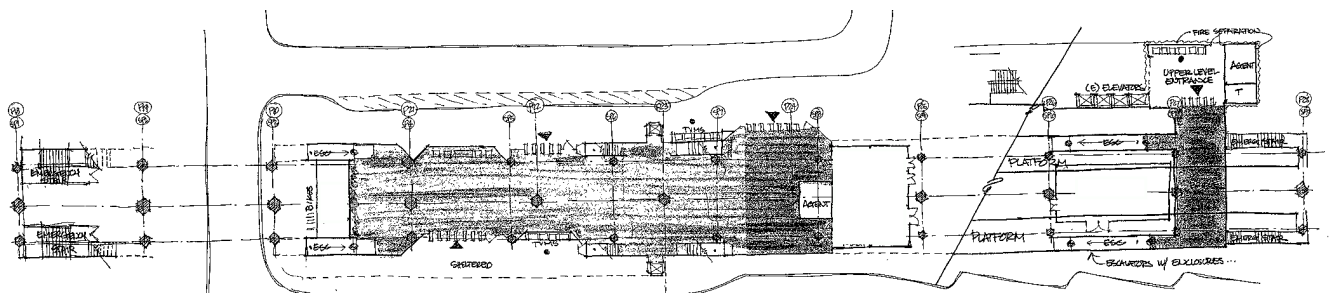
In Option C, a new platform escalator is added at both ends of the expanded paid area serving each platform. Option C addresses the issue of distributing passenger loads, and provides new BART standard escalators outboard of the station midline. Existing elevators would remain at their present location.

The existing service core, containing staff and public restrooms would be relocated to a single core near the center of the paid area. The location of the core will make station agent supervision more difficult because of obstructed sight lines. Two agent's booths may be necessary to effectively control the large station paid area.

Concourse apron areas outside the paid area will be relatively limited. Amenities such as bike racks and lockers, benches, map kiosks, and other site furnishings would be primarily located inside the station. Space available for bus waiting and transfer activities is more limited in Option C.

Figure 5.12 – Station Option D

Station Option D



Option D – Opposed Fare Gates, Bridge to Garage

The station Paid Area is expanded south, north, and west. A new fare gate array is proposed opening toward the garage expansion and taxi zone to the west. Two opposing, offset arrays are proposed, creating a long, narrow paid area. Each array would be provided with a full complement of AFC equipment.

In Option D, a new platform escalator is added at the south end of the expanded paid area serving each platform. Existing elevators would remain at their present location.

Constructing a bridge to the platform level directly from the garage would create additional access to the station. Patrons would access the bridge via a fare gate array associated with the existing garage elevators and located centrally to the expanded garage. To meet accessibility requirements, both platforms would need to be served by an elevator and an emergency stair. A subsequent development of Option D located the bridge closer to the existing station midline. In this version, the new elevators would not only serve the platform but would extend to the paid area at the concourse level, replacing the existing poorly located elevators. Based on feedback from BART's capacity analysis team, another alternative would be to construct a bridge to only the inbound platform.

Pleasant Hill Station Comprehensive Station Plan

While a bridge from the garage to the platform may be the subject of a later study, the concept was dropped in the development of a preferred alternative. Concerns over the possibly damaging effect a bridge would have on the health of future station retail activity was expressed by Millennium Partners, Contra Costa Redevelopment and BART's own Real Estate and Planning groups. Further, diverting passengers from the concourse and concourse apron area to a bridge would have a negative effect on security by limiting the number of "eyes on the street" needed to make the station feel like a secure environment, especially at night.

As in Option C, the existing service core, containing staff and public restrooms must be removed to create an unobstructed paid area. New staff and public facilities are proposed at the south end of the paid area in a compact core.

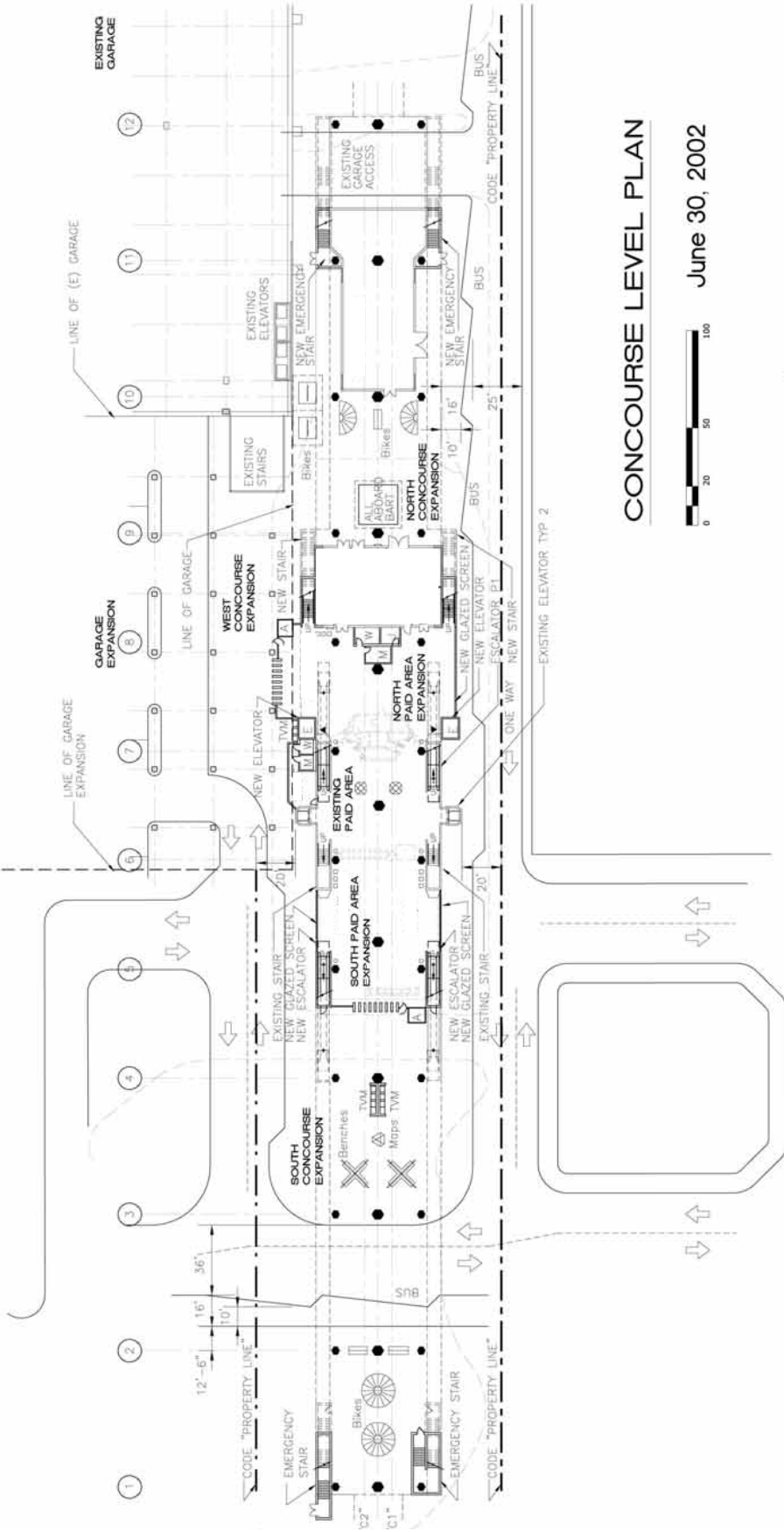
Concourse apron areas will be expanded and improved at locations outside the paid area – primarily the plaza between the utility rooms and traction power substation, and at the south end of the station expansion. There is an opportunity at these locations to provide amenities such as bike racks and lockers, benches, map kiosks, and other site furnishings. Bus transfer activity will increase in these areas under the proposed development plan, and enhancement of these areas will integrate them, more fully into the station.

Option E –Transverse Fare Gates – Preferred Alternative

The station Paid Area is expanded south, north, and west. A new fare gate array and station agent's booth are proposed opening toward the garage expansion and taxi zone to the west. A new transverse fare gate array with a station agent's booth will be located south of the existing array, encouraging access from both the east and west sides of the station. Each array would be provided with a full complement of AFC equipment.

In Option E, a new platform escalator is added at the south end of the expanded paid area serving each platform. In addition a new platform stair is added adjoining the utility core at the north end of the paid area to serve each platform.

Reference Station 13-5

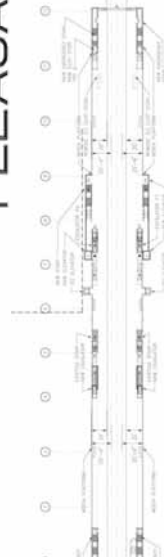


CONCOURSE LEVEL PLAN

June 30, 2002



PLEASANT HILL BART STATION



PLATFORM LEVEL PLAN
June 30, 2002

Pleasant Hill Station Comprehensive Station Plan

Existing elevators would be closed to the public and only available in emergency circumstances, when main elevators are out of service or for staff use. New elevators are proposed slightly north of the existing location to improve elevator access.

The existing service core, containing staff and public restrooms must be removed to create an unobstructed paid area. New, expanded staff facilities are proposed at the west side of the paid area. New, expanded public facilities are proposed at the north end, adjoining the existing utility rooms. This location permits good visual supervision by the agent.

Concourse apron areas will be expanded and improved at locations outside the paid area – such as the plaza between the utility rooms and traction power substation, and at the south end of the station expansion. A sense of openness and activity is desirable at these areas. There is an opportunity at these locations to provide additional amenities such as bike racks and lockers, benches, map kiosks, and other site furnishings. The initial proposal is to relocate the *All Aboard BART* vendor to the area immediately west of the traction power substation. However, there is the possibility that the vendor will be incorporated into the future retail facilities facing the public square or removed altogether. This site will be within easy reach of the fare gate array that serves the garage and will also see foot traffic from transferring bus passengers. The area across the access road west of the paid area has been initially identified as the future “Bicycle Pavilion” location where lockers and racks will be installed. Bus transfer activity will increase in these areas under the proposed development plan, and enhancement of these areas will integrate them, more fully into the station. Option E provides more available space for patron activities at the south end of the concourse.

Constructability and Logistics

This section addresses, in qualitative terms, the issues that will inform the staging and phasing of construction at the Pleasant Hill Station. A detailed breakdown of planned modifications, along with conceptual costs, is included in Appendix A of this report.

An important criterion for all of the options developed in the station planning process was the requirement that the station be kept open and that service be uninterrupted during



Figure 5.14 – Queue on Inbound Platform

Pleasant Hill Station Comprehensive Station Plan

construction. Vertical circulation between the concourse and platform must be maintained at least at its present capacity at all times.

Fare collection functions must also be continuously maintained. New or temporary restrooms and staff facilities must be provided prior to removal of existing facilities.

The Pleasant Hill Station has a freestanding utility core building and a freestanding traction power substation aligned below the tracks. Access to the existing parking structure is via a roadway immediately east of these two buildings. Cost and logistical problems are associated with relocating these facilities. In addition, the station area development plan does not provide an alternative location. Based on these constraints, the project design team considered only options that retained these facilities in place.

The structural system of the existing station will remain in place in all the options considered by the design team. The overlapping column systems for the support of the trackway, and for the support of the platform, impose restrictions on the locations available for stairs and escalators. To avoid additional columns at the concourse level, structure to support platform widening will need to be cantilevered from the existing columns.

OPTION E - IMPLEMENTATION

A. Initial Site Improvements

Construct new North Concourse expansion between existing Equipment Rooms and Traction Power Substation, nominally level with Concourse Paid Area. Include lighting, paving and site furnishings.

All Aboard BART pad and utility connections.

North Bike plaza.

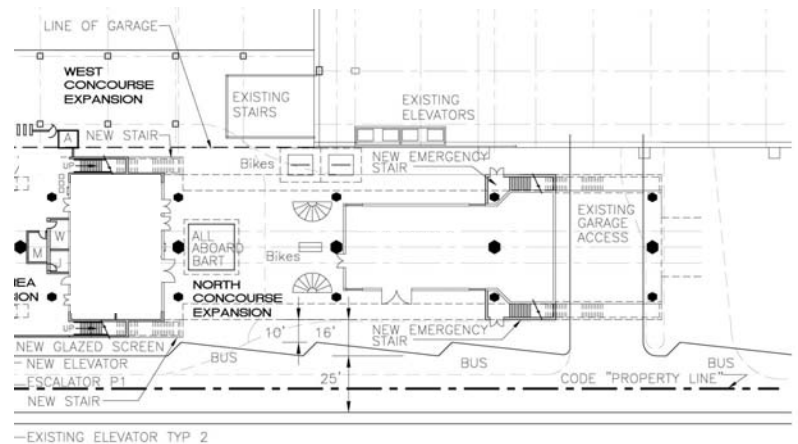
B. Emergency Stairs

Construct emergency stair and security enclosure from both ends of each platform (4 total).

Construct plaza at south end of station at termination of emergency stairs.

South Bike plaza.

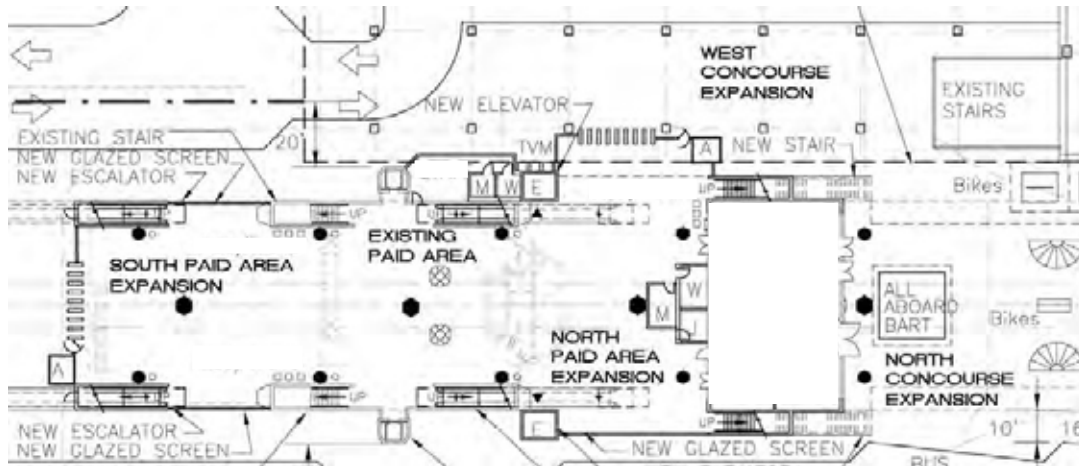
Figure 5.15 – North Concourse Expansion, Detail



C. West Concourse Expansion – (Linked to Garage expansion)

Existing service core remains and maintains closure of existing paid area functions during construction. Maintain emergency egress routes during construction.

Figure 5.16 – West Concourse Expansion, Detail



Realign roadway access to parking structure along west side of station.

Construct new apron west of existing Station.

Construct new north platform stairs (2 total), associated platform widening, windscreen and overhead shelter.

Expand existing utility rooms adjacent to new stairs.

Construct two new elevators, utilizing existing machine room if possible.

Construct new staff break and restroom facilities west of existing paid area, ADA compliant.

Construct new public restrooms, ADA compliant.

Extend weather cover over North Paid Area Expansion and provide finished ceiling.

Provide new floor and wall finishes in North Paid Area Expansion.

Extend fire sprinkler system to expansion.

Install new AFC equipment, fare gate array, and agent's booth.

D. Central Concourse Improvements

Remove existing service core.

Repair floor finishes.

Clean existing paid area overhead and repair leaks.

Upgrade fire sprinkler system

E. South Concourse Expansion – (Linked to Construction of Transit Green)

Existing expanded paid area remains and functions during construction. Maintain emergency egress routes during construction.

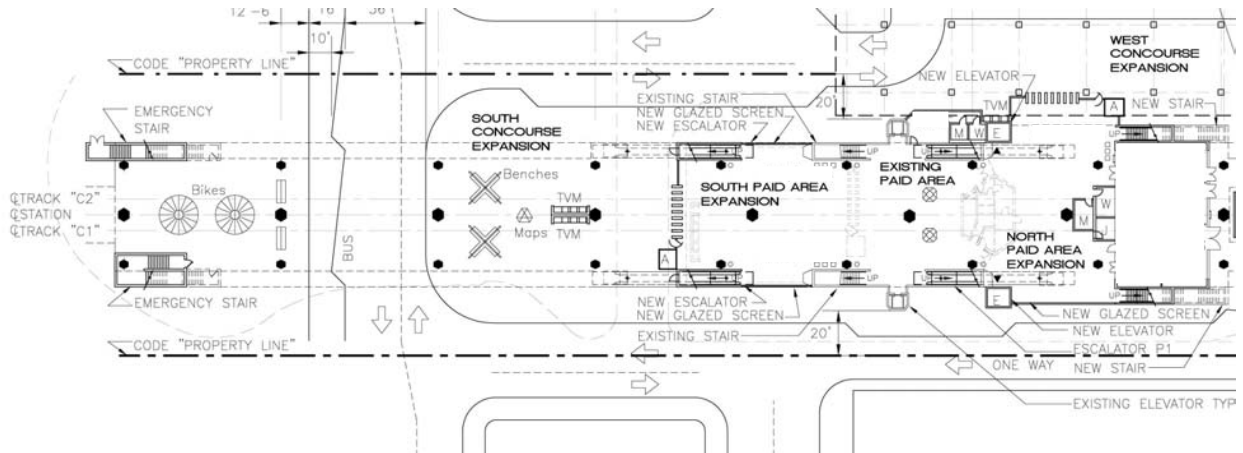
Realign roadway access to below BART tracks.

Construct new apron.

Construct new south platform escalators (2 total).

Widen platform south of Line 4 and north of Line 9 to 65 feet, nominal out to out.

Figure 5.17 – South Concourse Expansion, Detail



Extend weather cover over South Paid Area Expansion and provide finished ceiling.

Extend fire sprinkler system to expansion.

Install new AFC equipment, fare gate array, and agent's booth.

Install new site furnishings.

TIMS, Clock

F. Bus Layover Area– (Prior to Construction of Block C)

Realign roadway along east side of station.

Construct new bus apron.

Maintain existing access to parking garage.

G. Platform Windscreen

Construct new windscreen and overhead shelter at platform level, full length both platforms.

Extend fire sprinkler system to new sheltered area.

H. New Station Façade

Construct new façade to enhance Transit Green and future development.

Appendix A. Breakdown of Planned Modifications and Conceptual Cost Estimates

BART PLEASANT HILL STATION

OUTLINE OF PLANNED MODIFICATIONS

(Reference Draft Narrative by Merideth Marschak, dated 5/1/02)

- A. CONSTRUCTABILITY CONSIDERATIONS AND REQUIREMENTS
 - 1. Maintain station's passenger operations at current capacity at all times.
 - 2. Maintain fare collection operations continuously.
 - 3. Construct temporary restroom and staff facilities prior to removal of existing facilities.
 - 4. Retain Station freestanding utility core.
 - 5. Retain Station freestanding traction power substation aligned below tracks.
 - 6. Retain roadway between Station and Parking Structure.
 - 7. Minimize disruption to Station structures, provide temporary supports where needed.
 - 8. Limited options for locating stairs and escalators due to existing columns that support trackway and platforms.
 - 9. Avoid new columns at concourse level with platform widening. Extend bent hammerhead cantilever, and/or consider 'thru' girder concept for platform barrier wall/façade structure.

- B. TYPICAL SCOPE OF CONSTRUCTION
 - 1. Concourse Expansion
 - a. Add new emergency exits.
 - b. Modify pathway for exiting patrons at existing elevators.
 - c. Enlarge apron in 'free' area just outside 'paid' area to accommodate concessions.
 - d. Install new Star Center concession in the area immediately south of the fare gates.
 - e. Install new escalators and stairs to ends of platforms.

 - 2. Emergency-only Stairs
 - a. Install new emergency-only stairs at each platform end, with enclosure.

 - 3. Widen Existing Platform
 - a. Local widening at new stairs.
 - b. Local widening at new emergency stairs.
 - c. Continuous widening of entire platform length.
 - d. Provide platform canopies and windscreens.

 - 4. Expand Fare Collection Capacity
 - a. Near-term addition of two fare gates to existing array.
 - b. Consider structural modifications to allow above-mentioned placement.

- c. Longer term, relocate array to proposed new north Station Entrance to enable installing eight gates (capability to expand).
- 5. Upgrade BART Employee Facilities
 - a. Expand, upgrade restrooms.
 - b. Expand, upgrade breakrooms.
 - c. Provide accessibility.
- 6. ADA Accessibility Improvements
 - a. New apron at each Station entrance.
 - b. An accessible path from buses.
 - c. Fully accessible public and staff restrooms.
 - d. New fully accessible elevators.
 - e. Signage
 - f. Fire alarm strobes and voice annunciators.

C. CONCEPTUAL ALTERNATIVES

- 1. Option A: Opposed Fare Gates, Compact Option
 - a. Expand Station Paid Area south, north, and west.
 - b. Install new fare gate array (two opposing arrays) opening toward garage expansion and taxi zone to the east.
 - c. Add new platform stairs at both ends of the expanded paid area serving each platform.
 - d. Replace existing stairs with new escalators (pit already in place).
 - e. Construct new staff facilities at south end of paid area, and new public facilities at the north end adjoining the existing utility rooms.
 - f. Remove existing service core of staff and public restrooms to create unobstructed paid area.
 - g. Expand and improve concourse areas outside of paid areas
 - (i) Plaza between utility rooms and traction power substation.
 - (ii) South end of station expansion.
 - (iii) Passenger amenities: bike racks, lockers, benches, map kiosks, site furnishings, etc.
 - (iv) Bus waiting area improvements.
- 2. Option B: Transverse Fare Gates, Compact Option
 - a. Expand Station Paid Area south, north, and west.
 - b. Install one new longitudinal fare gate array on west side
 - c. Install one new transverse fare gate array to south of existing array
 - d. (two opposing arrays) opening toward garage expansion and taxi zone to the east.
 - e. Add new platform stairs at both ends of the expanded paid area serving each platform.
 - f. Replace existing stairs with new escalators (pit already in place).
 - g. Remove and relocate (single core, near center of the paid area) existing service core of staff and public restrooms to create unobstructed paid area.
 - h. Expand and improve concourse areas outside of paid areas

- (v) Plaza between utility rooms and traction power substation.
 - (vi) South end of station expansion.
 - (vii) Passenger amenities: bike racks, lockers, benches, map kiosks, site furnishings, etc.
 - (viii) Bus waiting area improvements.
3. Option C: Opposed Fare Gates, Maximum Paid Area
- a. Expand Station Paid Area south, north, and west.
 - b. Install one new longitudinal fare gate array on west side.
 - c. Install one new transverse fare gate array on east.
 - d. Add new escalators at both ends of expanded paid area serving each platform.
 - e. Replace existing stairs with new escalators (pit already in place).
 - f. Remove and relocate (single core, near center of the paid area) existing service core of staff and public restrooms to create unobstructed paid area.
 - g. Add one more agent's booth.
 - h. Provide certain limited improvements in paid area:
 - (i) Passenger amenities: bike racks, lockers, benches, map kiosks, site furnishings, etc.
 - i. Provide certain limited improvements outside of paid area
 - (i) Concourse between utility rooms and traction power substation (minimal)
 - (ii) South end of station expansion (minimal).
 - (iii) Bus waiting area improvements (limited).
4. Option D: Opposed Fare Gates, Bridge to Garage
- a. Expand Station Paid Area south, north, and west.
 - b. Install two new longitudinal fare gate arrays on west side.
 - c. Install one new longitudinal fare gate array on east side.
 - d. Add one new escalator at south end of expanded paid area serving each platform.
 - e. Construct new bridge connecting Garage to Station Platform Level
 - (i) Install one new fare gate array at Garage
 - (ii) Construct one new elevator and one new emergency stairs at north end of each platform.
 - (iii) Provide one spare elevator shaft for future elevator addition (verify).
 - f. Remove and relocate (single core, at south end of the paid area) existing service core of staff and public restrooms to create unobstructed paid area.
 - i. Expand and improve concourse areas outside of paid areas
 - (ix) Plaza between utility rooms and traction power substation.
 - (x) South end of station expansion.
 - (xi) Passenger amenities: bike racks, lockers, benches, map kiosks, site furnishings, etc.
 - (xii) Bus waiting area improvements.

5. Option E: Transverse Fare Gates, Preferred Alternative
 - a. Expand Station Paid Area south, north, and west.
 - b. Install one new longitudinal fare gate array on west side.
 - c. Install one new transverse fare gate array south of existing array.
 - d. Construct one new escalator at south end of expanded paid area serving each platform.
 - e. Remove existing elevators, construct new elevators located slightly north of existing locations to improve access.
 - f. Construct new bridge connecting Garage to Station Platform Level
 - (iv) Install one new fare gate array at Garage
 - (v) Construct one new elevator and one new emergency stairs at north end of each platform.
 - (vi) Provide one spare elevator shaft for future elevator addition (verify).
 - g. Remove and relocate (staff facilities to west side of paid area, public facilities to north end adjoining utility rooms) existing service core of staff and public restrooms to create unobstructed paid area.
 - h. Expand and improve concourse areas outside of paid areas
 - (i) Plaza between utility rooms and traction power substation.
 - (ii) South end of station expansion.
 - (iii) Passenger amenities: bike racks, lockers, benches, map kiosks, site furnishings, etc.
 - (iv) Bus waiting area improvements.

D. OPTION E, PREFERRED ALTERNATIVE: STAGED IMPLEMENTATION
(Staging nomenclature follows Narrative's descriptions)

Stage A—Initial Site Improvements

- Construct initial phase of new North Concourse Expansion (incl lighting, paving, site furnishings).
- Construct new Star Center
- Construct bike plaza (north).

Stage B—Emergency Stairs 1 (south)

- Construct one new emergency stair and security enclosure from each platform.
- Construct plaza at south end of station at termination of emergency stairs.
- Construct bike plaza (south).

Stage C—Emergency Stairs 2 (north)

- Construct one new emergency stair and security enclosure from each platform.

Stage D—Completion of North Concourse Expansion (Garage Expansion)

- Maintain emergency egress.
- Maintain weather protection of existing paid area functions.
- Maintain existing service core facilities.
- Realign roadway access to parking structure along west side of station.
- Construct new apron.

Pleasant Hill Station Comprehensive Station Plan: Appendix A

- Construct new north platform stairs, and widen platform locally.
- Expand existing utility rooms adjacent to new stairs.
- Construct two new elevators, utilizing existing machine room.
- Construct new staff break and restroom facilities west of existing paid area, ADA compliant.
- Construct new public restrooms, ADA compliant.
- Extend weather cover over paid area expansion and provide finished ceiling.
- Install new AFC equipment, fare gate array, and agent's booth.

Stage E—Central Concourse Improvements

- Remove existing service core
- Repair floor finishes
- Clean existing paid area overhead and repair leaks, install new ceiling??

Stage F—South Concourse Expansion (Construction of Transit Center)

- Existing expanded paid area remains functional during construction.
- Maintain emergency egress.
- Realign roadway access to below BART tracks.
- Construct new apron.
- Construct new south platform escalators.
- Widen entire platform to 65 ft, nominal, provide new structural support framing. Strengthen existing structures as needed.
- Extend weather cover over paid area expansion and provide finished ceiling.
- Install new AFC equipment, fare gate array, and agent's booth.
- Install new site furnishings.
- TIMS? Clock?

Stage G—Bus Layover Area (Prior to Construction of Block C)

- Realign roadway along east side of station.
- Construct new bus apron.
- Maintain existing access to parking garage.

Stage H—Platform Protection

- Construct new platform canopy and windscreen.

Stage I—New Station Façade

- Construct new façade to enhance Transit Center and future development

Pleasant Hill Station Comprehensive Station Plan: Appendix A

**BART Pleasant Hill Station
Conceptual Cost Estimates
OPTION E: 'PREFERRED ALTERNATIVE'**

Description	Quantity	Unit	Unit Price	Item Cost	Unadjusted Construction Cost
Stage A - Initial Site Improvements					
General demo/removals	7,350	SF	\$10	\$73,500	
North concourse improvements	7,350	SF	\$75	\$551,250	
Sitework & installation for new All Aboard BART kiosk (Note 4)	1	LS	\$50,000	\$50,000	
North bike plaza	1	LS	\$70,000	\$70,000	
Temporary construction	1	LS	\$20,000	\$20,000	
Miscellaneous	1	LS	\$50,000	\$50,000	
				Subtotal Stage A	<u>\$814,750</u>
Stage B - Emergency Stairs					
General demo/removals	7,200	SF	\$10	\$72,000	
New emergency stair/encl. (27'-6" rise)	4	EA	\$400,000	\$1,600,000	
South concourse plaza	7,200	SF	\$75	\$540,000	
South bike plaza	1	LS	\$100,000	\$100,000	
Provide platform custodial storage (north end)	1	LS	\$100,000	\$100,000	
Other site improvements	1	LS	\$50,000	\$50,000	
Miscellaneous	1	LS	\$50,000	\$50,000	
				Subtotal Stage B	<u>\$2,512,000</u>
Stage C - West Concourse Expansion (Linked to Garage Expansion)					
Temporary structures (Note 4)	1	LS	\$150,000	\$150,000	
Traffic maintenance (Note 4)	1	LS	\$50,000	\$50,000	
Roadway improvements (Note 4)	1	LS	\$100,000	\$100,000	
New apron	9,000	SF	\$100	\$900,000	
New platform stairs	2	EA	\$650,000	\$1,300,000	
Widen landing @ stairs	2,000	SF	\$150	\$300,000	
Expand exist utility rooms	1	LS	\$150,000	\$150,000	
Construct new elevators (with shafts)	2	EA	\$500,000	\$1,000,000	
Construct new staff facilities	1	LS	\$100,000	\$100,000	
Construct new public restrooms	1	LS	\$150,000	\$150,000	
Construct new police facility	1	LS	\$100,000	\$100,000	
Expand canopy over paid area	6,000	SF	\$50	\$300,000	
Extend fire sprinkler system to expansion	6,000	SF	\$50	\$300,000	
Install new fare gate arrays, AFCs, etc.	1	EA	\$200,000	\$200,000	
Miscellaneous	1	LS	\$150,000	\$150,000	
				Subtotal Stage C	<u>\$5,250,000</u>
Stage D - Central Concourse Improvements					
Remove existing service core	1	LS	\$200,000	\$200,000	
Repair floor finishes	7,000	SF	\$50	\$350,000	
Clean and repair leaks at ceiling overhead	7,000	SF	\$15	\$105,000	
Upgrade fire sprinkler system	7,000	SF	\$30	\$210,000	
Miscellaneous	1	LS	\$200,000	\$200,000	
				Subtotal Stage D	<u>\$1,065,000</u>

Pleasant Hill Station Comprehensive Station Plan: Appendix A

Stage E - South Concourse Expansion (Linked to Construction of Transit Green)

Temporary construction	1	LS	\$100,000	\$100,000
Traffic maintenance	1	LS	\$50,000	\$50,000
Roadway improvements (Note 4)	1	LS	\$150,000	\$150,000
Construct new apron	11,000	SF	\$100	\$1,100,000
Construct new platform escalator (south)	2	EA	\$900,000	\$1,800,000
Widen platform, strengthen structures	5,500	SF	\$550	\$3,025,000
Expand canopy over paid area	5,000	SF	\$110	\$550,000
Extend fire sprinkler system to expansion	5,000	SF	\$50	\$250,000
Install new fare gate arrays, agent booth	1	LS	\$200,000	\$200,000
Install new site furnishings	1	LS	\$150,000	\$150,000
Miscellaneous	1	LS	\$200,000	\$200,000
Subtotal Stage E				<u>\$7,575,000</u>

Stage F - Bus Layover Area (Prior to Construction of Block C)

Roadway improvements (Note 4)	1	LS	\$100,000	\$100,000
Construct new bus apron (Note 4)	1	LS	\$300,000	\$300,000
Traffic maintenance (Note 4)	1	LS	\$50,000	\$50,000
Miscellaneous (Note 4)	1	LS	\$100,000	\$100,000
Subtotal Stage F				<u>\$550,000</u>

Stage G - Platform Windscreens

Extend platform canopy (say, Phase 1 of Stage H, 4 x 210 LF each end of platform)	10,080	SF	\$110	\$1,108,800
Subtotal Stage G				<u>\$1,108,800</u>

Stage H - New Station Façade

Architectural enhancements and integration to Transit Village: façade, cladding, reconstruction, etc. (Note 4)	1	LS	\$4,000,000	\$4,000,000
Subtotal Stage H				<u>\$4,000,000</u>

Construction, Unadjusted Total

\$22,875,550

Mobilization @ 8% \$1,830,044

Adjusted for Mobilization \$24,705,594

Contingency on Construction @ 25% \$6,176,399

Construction, Total \$30,881,993

Project Development @ 41% (Note 5) \$12,661,617

Design Services (12%)

Construction Management Services (4%)

Project Administration (BART) (25%)

Total Project Budget Estimate (Present Worth) \$43,543,609

Say **\$44 million**

Total of Adjustments on Unadjusted Construction Cost:

$$[(100\% + \text{Mobilization}) * (100\% + \text{Contingency})] * (100\% + \text{Project Development})$$

$$[1.08 \times 1.25] \times 1.41 = 1.90$$

Summary of Project Costs

Stage	Unadjusted Costs	Adjustment	Adjusted Cost
A	\$814,750	1.90	\$1,548,025
B	\$2,512,000	1.90	\$4,772,800
C	\$5,250,000	1.90	\$9,975,000
D	\$1,065,000	1.90	\$2,023,500
E	\$7,575,000	1.90	\$14,392,500
F	\$550,000	1.90	\$1,045,000
G	\$1,108,800	1.90	\$2,106,720
H	\$4,000,000	1.90	\$7,600,000
Total	\$22,875,550		\$43,463,545
		Say	\$44 million

Supplemental Notes:

- (1) Cost of Phased Implementation: According to the above estimate, the cost estimate for the entire project if built into one construction would be \$44 million. Multiply this amount by 1.15 to obtain the budget (present worth basis) for an extended phased implementation involving several projects in several years.
- (2) Basis of Costs: All costs are based on present worth costs at mid-year 2002.
- (3) Contingencies: These costs are subject to field verification, schematic design, cross-checking with project development narrative, and confirming of phasing plans. The above noted 25 percent contingency recognizes the uncertainties inherent in concept phase planning.
- (4) Joint Development: When so noted, this amount is assumed to be BART's share only. Costs borne by the developer, the municipality, or by others are not included.
- (5) Project Development: Equivalent to BART's typical "soft costs".

Appendix B. – Passenger Space Requirements

Platform, Station Capacity Assumptions:

- 7 sq. ft. (2x3 ft.) per waiting passenger on the platform to board
- 8 sq. ft. per walking passenger or LOS D for walk density (emergency off-board where the platform has to accommodate a full train load for evacuation)
- Take the worst case platform (platform 2 during AM peak hour)
- Peaking factor of 1.5 (the heaviest loaded train has a 50% higher load than the average train load - per NFPA 130 guidelines)
- Extra space for queues at escalator and stairway approaches
- Capacity flow rates for platforms (PPM), walk speed, and lane width are all based on NFPA 130 guidelines.

Appendix B. – Passenger Space Requirements (cont'd)

Pleasant Hill Station, Inbound Direction (AMPKHR) 2025

Step 1: Peak Boarding Load = (Projected Peak Hr Boarding/(60/Headway))*Peaking Factor

Direction	Platform	PkHrOns	Hdwy	PeakFactor	PkBoard
East	1	63	7.5	1.5	12
West	2	2867	5	1.5	358
Total (for worst platform)					358

Step 2: Sq. ft./Boarding Pax = 7.00 sq. ft. (LOS D per *Highway Capacity Manual*, 1997)

Step 3a: Peak Off-Board Load = (Projected Peak Hr Arriving Train Load/(60/Headway))*Peaking Factor

Step 3b: Pick worst case

Direction	Platform	PkHrTrainLoad	Hdwy	PeakFactor	PkOffBoardLoad
East	1	676	7.5	1.5	127
West	2	4342	5	1.5	543
Worst Case Total					543

Step 4: Peak Alighting Load (Platform 2) = (Projected Peak Hr Alighting Load/(60/Headway))*Peaking Factor

Direction	Platform	PkHrOffs	Hdwy	PeakFactor	PkAlightLoad
East	2	112	5	1.5	14
Total (for worst platform)					14

Step 5: Sq. ft./Alighting Pax = 8.00 sq. ft. (LOS D)

Flow(p/ft-min)=p/in-min*in/ft	WalkWidth(in)	sq.ft./per	Speed(ft/min)	Density(psf)
24.96	96	8.00	199.68	0.1250

Step 6: Space Requirement (sq. ft.)

	BoardingLoad	OffBoardLoad	AlightLoad	Total	Net Space	Net Additional Required	Comments
	2,508	4,342	-	6,850	-3,804	3,804	platform 2
							platform 2

Current Platform Width	12.0	ft
Additional Platform Width	5.4	ft
Total Platform Width	17.4	ft

Notes:

- 1) The additional platform space would allow for sufficient room for existing passengers on the platform, waiting to board the train, in addition to off-boarding an entire arriving train that is taken out of service at the platform.
- 2) The **peak factor** accounts for the peak-of-the-peak load in addition to a missed headway as a result of delays.

Appendix B. – Passenger Space Requirements (cont'd)

Pleasant Hill Station , Outbound Direction (PMPKHR) 2025

Step 1: Peak Boarding Load = (Projected Peak Hr Boarding/(60/Headway))*Peaking Factor

Direction	Platform	PkHrOns	Hdwy	PeakFactor	PkBoard
East	1	130	5	1.5	16
West	2	277	7.5	1.5	52
Total (platform 1)					16

Step 2: Sq. ft./Boarding Pax = **7.00** sq. ft. (LOS D per Highway Capacity Manual , 1997)

Step 3a: Peak Off-Board Load = (Projected Peak Hr Arriving Train Load/(60/Headway))*Peaking Factor

Step 3b: Pick worst case

Direction	Platform	PkHrTrainLoad	Hdwy	PeakFactor	PkOffBoardLoad
East	1	5846	5	1.5	731
West	2	564	7.5	1.5	106
Total (platform 1)					731

Step 4: Peak Alighting Load (Platform 2) = (Projected Peak Hr Alighting Load/(60/Headway))*Peaking Factor

Direction	Platform	PkHrOffs	Hdwy	PeakFactor	PkAlightLoad
East	2	32	5	1.5	4
West				1.5	

Step 5: Sq. ft./Alighting Pax = **8.00** sq. ft. (LOS D)

Flow(p/ft-min)=p/in-min*in/ft	WalkWidth(in)	sq.ft./per	Speed(ft/min)	Density(psf)
24.96	96	8.00	199.68	0.1250

Step 6: Space Requirement (sq. ft.)

		Comments
BoardingLoad	113	platform 1
OffBoardLoad	5,846	platform 1
AlightLoad	-	
Total	5,959	
Net Space	-2,913	
Net Additional Required	2,913	

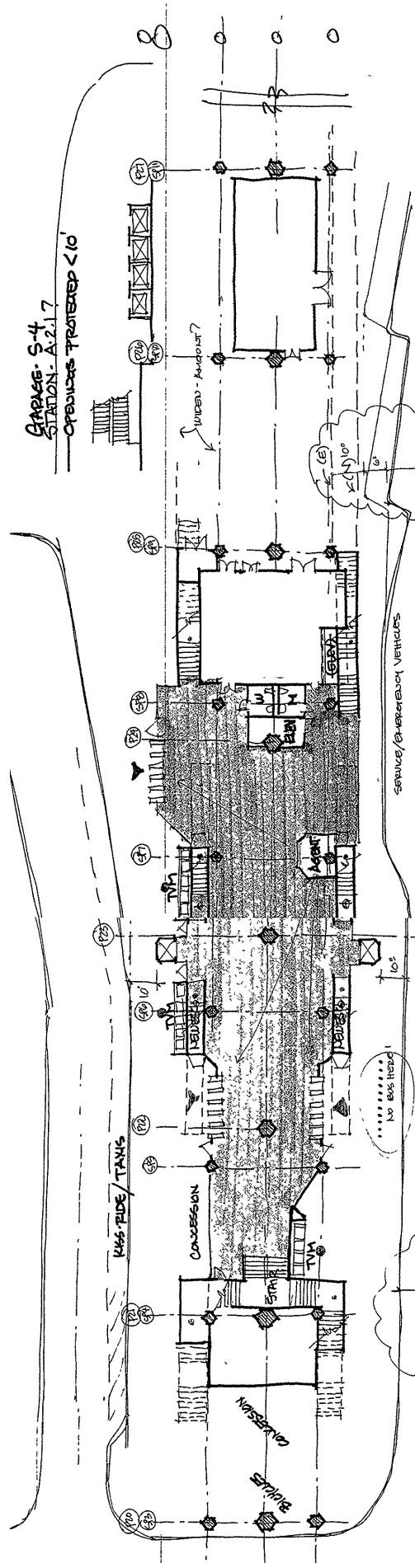
Current Platform Width	12.0	ft
Additional Platform Width	4.2	ft
Total Platform Width	16.2	ft

Notes:

- 1) The additional platform space would allow for sufficient room for existing passengers on the platform, waiting to board the train, in addition to off-boarding an entire arriving train that is taken out of service at the platform.
- 2) The **peak factor** accounts for the peak-of-the-peak load in addition to a missed headway as a result of delays.

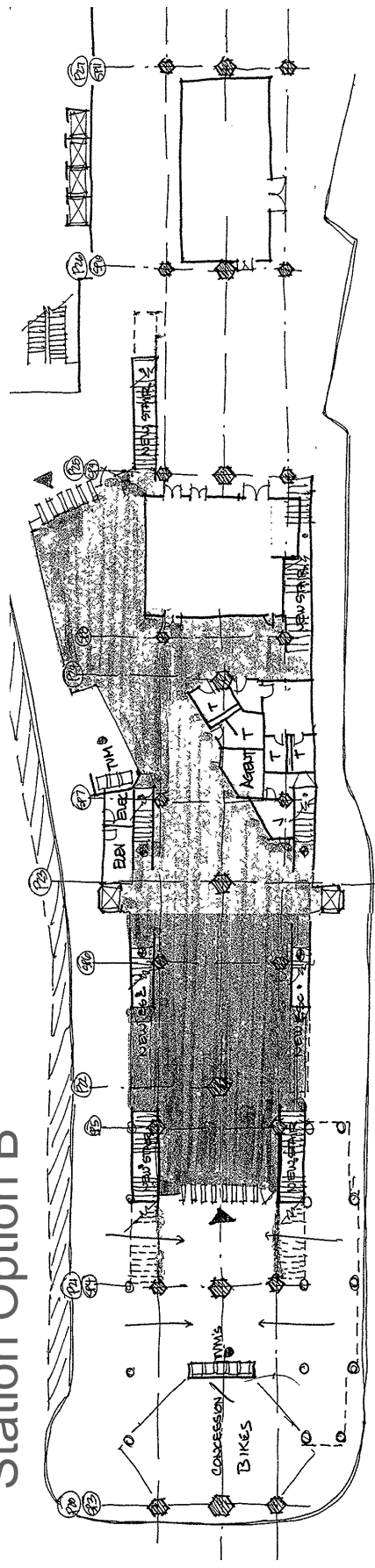
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Station Option A



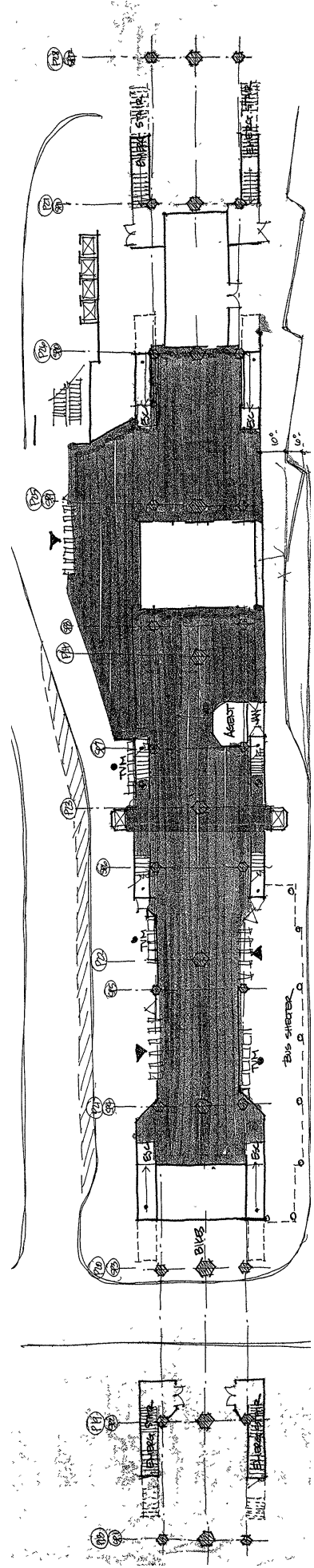
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Station Option B



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Station Option C



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Station Option D

