

# North Concord to Antioch BART Access Study

*Final Report - February 2018*



**San Francisco Bay Area Rapid Transit District  
North Concord to Antioch BART Access Study**

**FINAL REPORT  
February 2018**

**Report Prepared By:  
CDM Smith, Inc**

## **Table of Contents**

1. INTRODUCTION .....	1
2. EXISTING CONDITIONS.....	6
3. POTENTIAL IMPROVEMENTS.....	21
4. EVALUATION.....	31

## **Appendices**

APPENDIX A: PARKING STRATEGY INITIAL SCREENING

APPENDIX B: PROJECT SHEETS

APPENDIX C: EVALUATION CRITERIA

APPENDIX D: PROJECTS INVESTIGATED BUT REMOVED FROM CONSIDERATION

*This page intentionally left blank*

# 1. INTRODUCTION

## Project Background

In June 2016, BART's Board of Directors adopted a new Station Access Policy to guide future access practices and investments. The policy includes the following goals:

- **Safer, Healthier, Greener.** Advance the region's safety, public health, and greenhouse gas (GHG) and pollution-reduction goals.
- **More Riders.** Invest in station access to connect more riders cost-effectively, especially where and when BART has available capacity.
- **More Productive and Efficient.** Manage access investments, programs, and current assets to achieve goals at the least cost.
- **Better Experience.** Be a better neighbor, and strive for an excellent customer experience, including on the first and last mile of the trip to and from BART stations
- **Equitable Services.** Invest in access choices for all riders, particularly those with the fewest choices.
- **Innovation and Partnerships.** Be an innovation leader, and establish durable partnerships with municipalities, access providers, and technology companies.

With the planned opening of two new eBART stations in Eastern Contra Costa County at Pittsburg Center and Antioch in 2018, BART undertook a study to identify potential access improvements that could be made in the vicinity of the two new stations, and at the two existing stations most likely to be affected by the BART extension, North Concord/Martinez ("North Concord") and Pittsburg/Bay Point.

These two stations were built as part of a BART extension completed in 1995/96, and were designed as end-of-line stations, with emphasis on automobile access. The construction of eBART and the changing land uses and zoning around the existing stations supports the need to identify and advance opportunities to improve non-automotive access across the entire corridor.

In addition, the cities of Concord, Pittsburg, Bay Point, and Antioch and have a series of regional bicycle and pedestrian trails that could be better connected to BART stations. These trails also connect to East Bay Regional Park District public lands, which are important recreational destinations. The Concord Base Reuse project (North Concord BART), and the eBART extension provide new opportunities to make stronger connections from the regional transit system to these park lands. The Railroad Avenue Specific Plan supports Transit-Oriented development around the Pittsburg Center Station.

This access study of these four stations identifies targeted improvements that will expand access to BART across this part of the region leveraging the significant investment in the new infrastructure. Funding for these projects is not identified as part of this study. However, many of the projects could be good candidates for Measure RR or local grant funding.

## Methodology

Through site visits, meetings with cities and other stakeholders, and examination of existing trail, bicycle, sidewalk, transit, and road networks, the study team identified the existing access conditions at each station, including gaps in service or networks, safety concerns, and other issues. For each mode, improvement projects were developed to address the issues identified. Projects included early-stage plans from cities and BART, recommendations from other stakeholders, and new projects conceived by the study team to address remaining station access challenges.

Parking management strategies were also explored for their potential to increase access to the study area. Multiple parking projects and strategies at each station were evaluated for their potential to generate ridership, balanced against cost and implementation difficulty. Those with the highest potential were added to the proposed access projects at each station.

The access projects were evaluated using scoring criteria developed from BART's Access Policy. These scoring criteria were developed to be applicable system-wide to

current and future projects at all stations. The process for selecting projects for implementation will consider the evaluation criteria as well as geographic equity, station typology, mode funding allocation, and timing of other capital projects in the general vicinity.

## Report Format

This report presents the results of the study in the following sections:

- **Existing Conditions:** This section describes the site conditions at each stations as well as list identified access issues.
- **Potential Improvements:** This section includes the full list of potential improvements listed by station, as well as system-wide improvements.
- **Evaluation:** This section describes the evaluation methodology and criteria for the potential improvements.
- **Appendices:** The appendices include the initial screening of parking strategies, detailed project fact sheets for all potential improvements, and detailed evaluation criteria.

Figure 1.1 BART System Map with Study Area

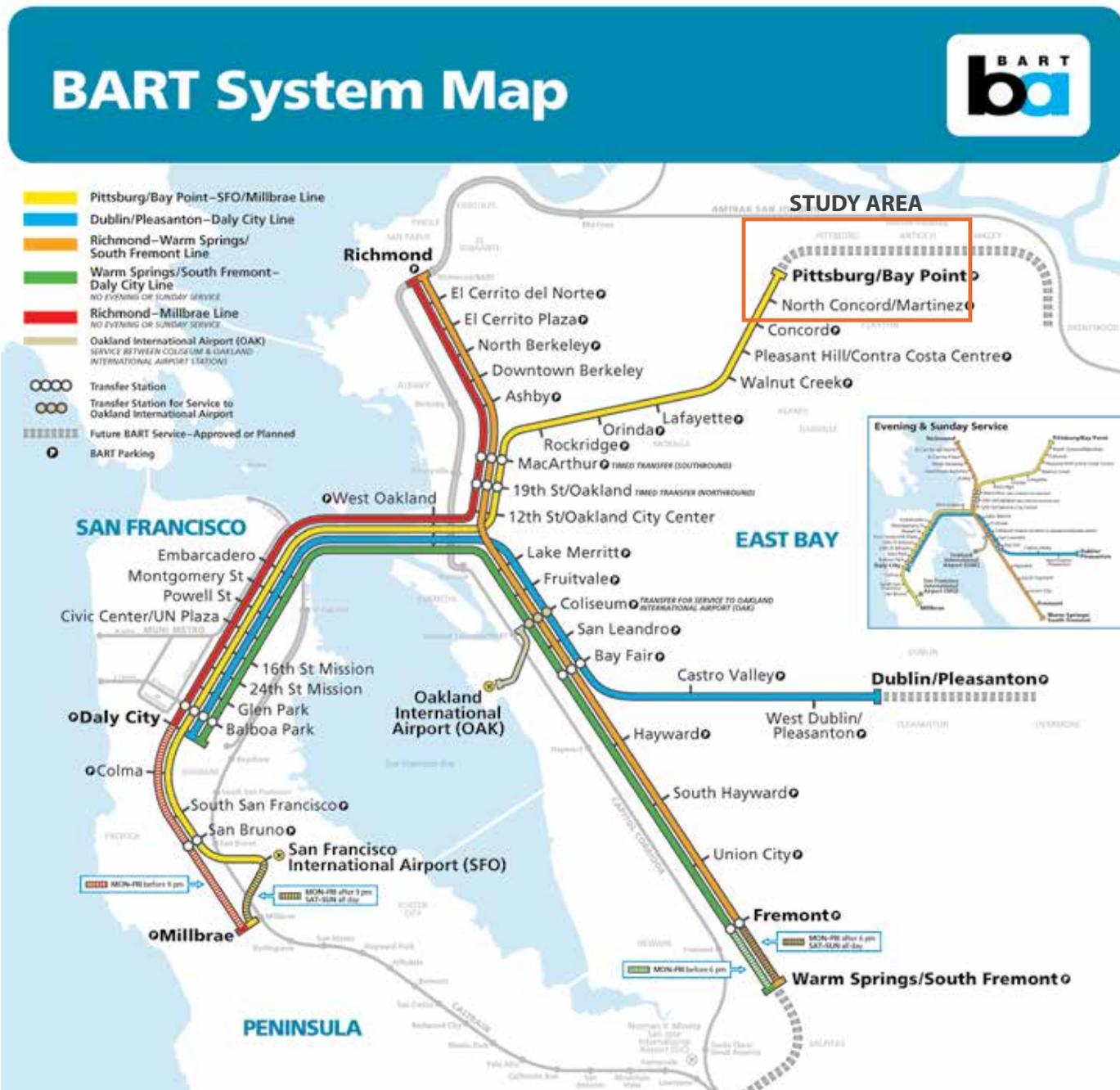


Figure 1.2 North Concord/Martinez and Pittsburg/Bay Point Station Context Map

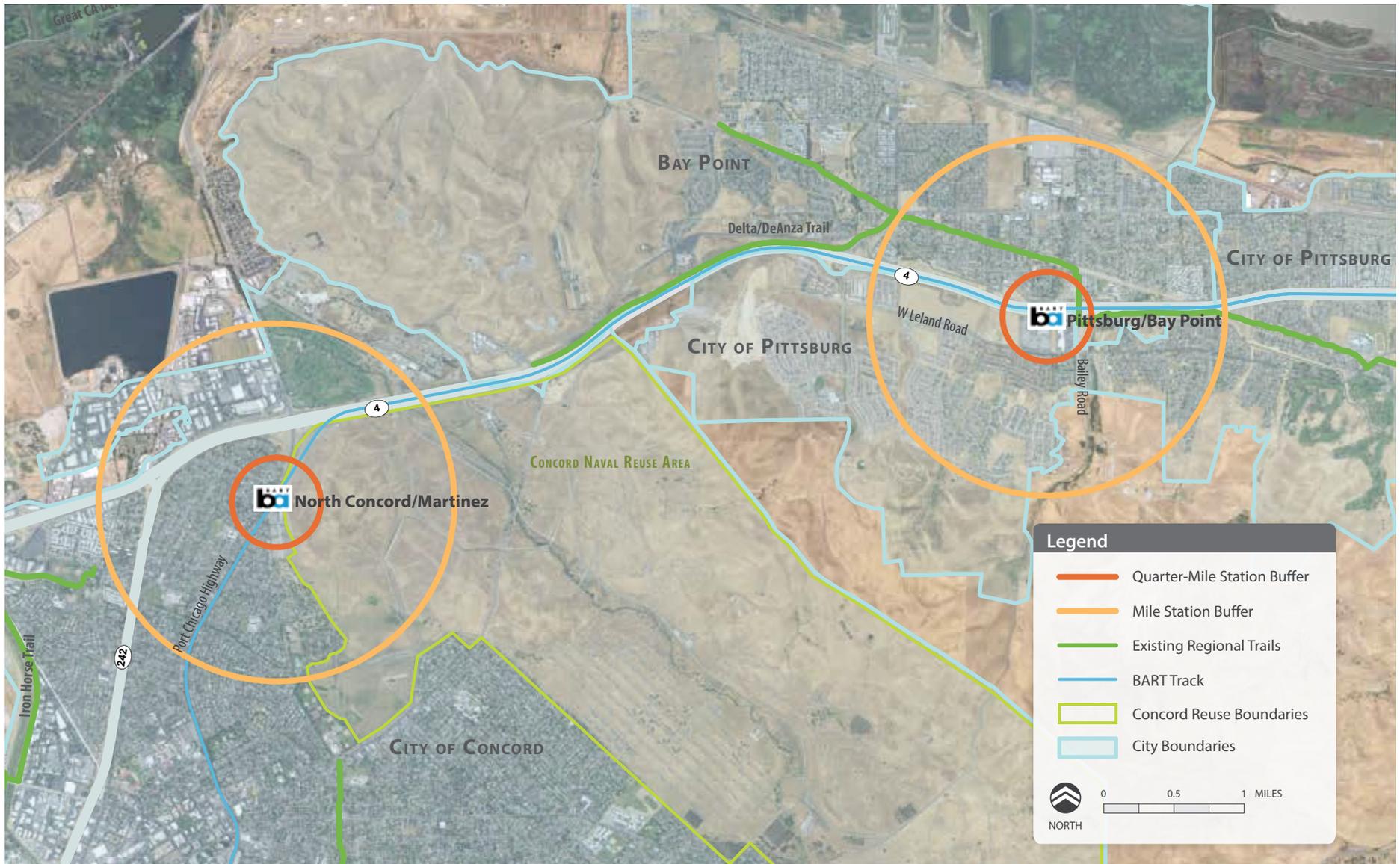
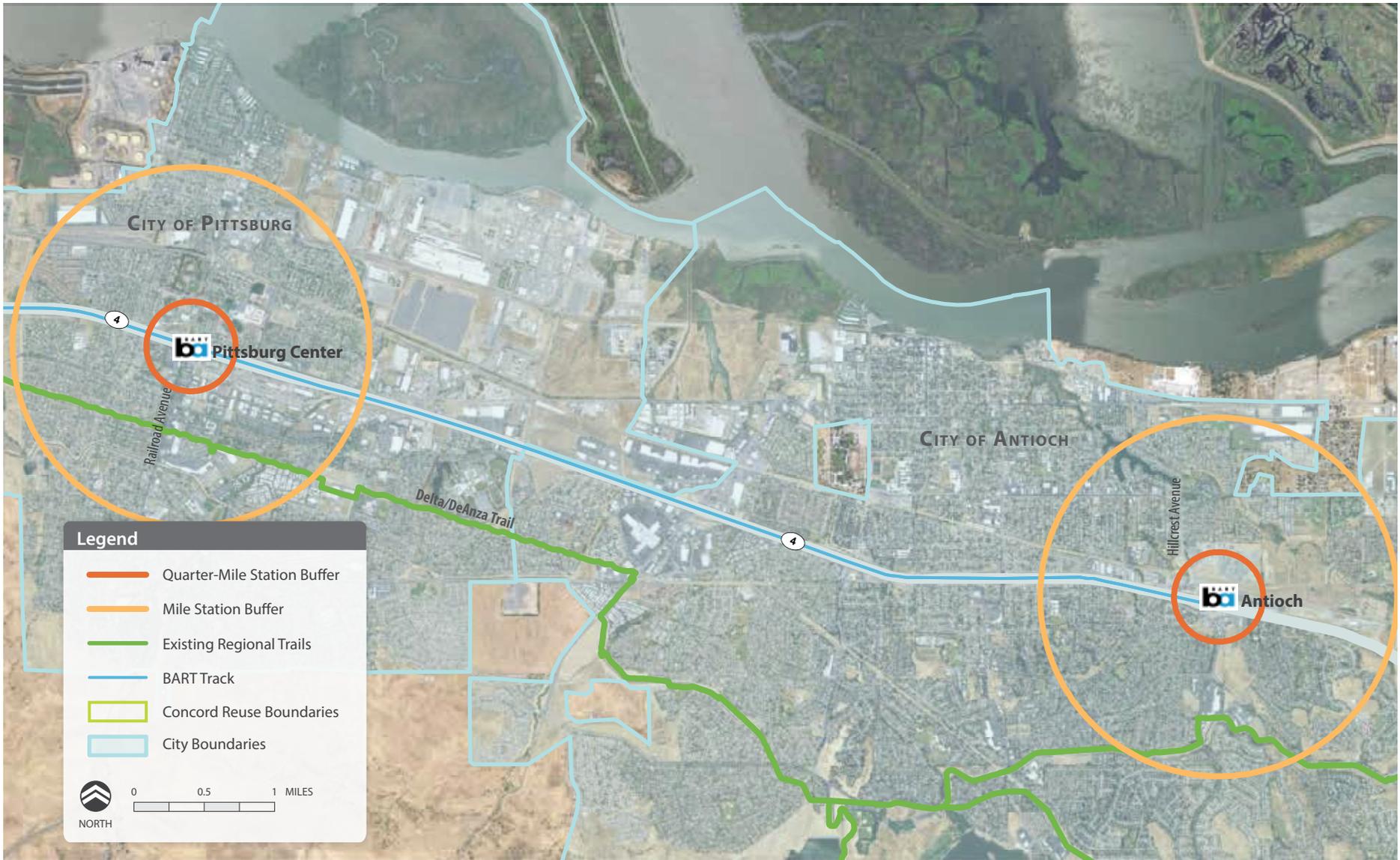


Figure 1.3 Pittsburg Center and Antioch Station Context Map



## **2. EXISTING CONDITIONS**

## Introduction

The following station profiles describe the existing conditions for the North Concord to Antioch BART Access Study. Each station profile is based on site visits and stakeholder meetings, and includes an overview of the station usage and access, station area maps showing existing access infrastructure, and a list of issues and barriers to access.

# North Concord Station

Concord, California

The North Concord BART Station is currently the second to the last station on the Pittsburg/Bay Point line, also referred to as the C-Line. It is a suburban station near the State Route 4 interchange with State Route 242. It is adjacent to low density residential land uses to the west and a large planned mixed-use development project on land previously part of the Concord Naval Weapons Reuse Area to the east.

## Characteristics

**Weekday Span of Service:** 4:08 a.m. to 1:13 a.m.

**Frequency:** 15 minutes (6 minutes during peak hour)

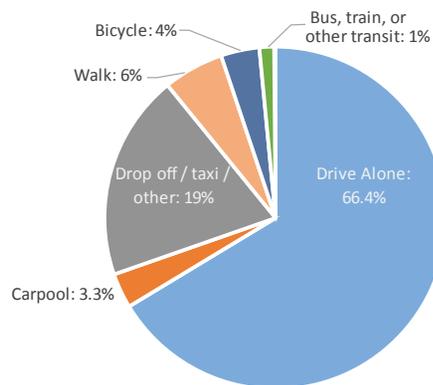
**Average Daily Ridership (Entries):** 2,813

**Peak Usage Times:** 6:45 a.m. to 7:45 a.m., 6 p.m. to 7 p.m.

**Parking spaces (on-site) :** 1,977 Total spaces, full by 8 a.m.

- 1,774 Daily spaces
- 203 Reserved and Long-term

## Existing Access Mode Split



Source: 2015 Station Profile Survey (Home Origin)

## Demographics

Demographics (within 1/2 mile)

Population	2,505
Jobs	226
Low income (under 200% poverty level)	9.9%
Minority (non white populations)	42%
Households with no vehicles	2.9%
Households with limited English	0.7%
Senior population	12.1%
Youth population	17.5%
With disabilities	11.6%

Source: 2015 US Census, 5-Year American Community Survey

There are an additional 8,000 jobs in the industrial area north of the station. About 2,000 of these jobs are within a 1-mile road distance of the station.

## Local and Regional Plans

### Concord Reuse Project

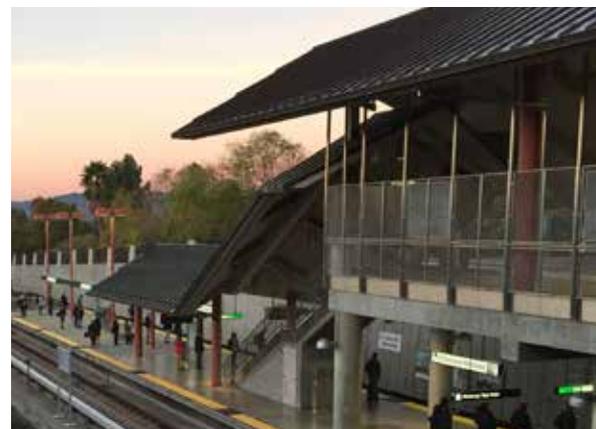
City of Concord, Area Plan - 2012, Specific Plan Ongoing

This long-range plan to redevelop the Concord Naval Weapons Reuse Area includes transit oriented development directly east of the North Concord Station. The City of Concord recently selected the Master Developer for Phase 1 of this project.

### Bicycle, Pedestrian & Safe Routes to Transit Plan

City of Concord, 2016

This plan identifies potential improvements for walking and biking throughout Concord. The short term improvements, within a 5-year horizon, include installing additional sidewalks on Port Chicago Highway near the station. Long term improvements near the station include crosswalk improvements on Olivera Road and Floyd Lane, installation of sidewalks on Port Chicago Highway, Ranchito Drive, and Sanford Street, and



designating Class III bike routes on multiple streets in the surrounding neighborhood.

### East Bay Regional Parks Master Plan

East Bay Regional Parks District, 2013

The long-range EBRP plan includes the extension of the Delta de Anza trail from Willow Pass/Evora Road in Bay Point to the Walnut Creek Channel. It would pass north of station along the Highway 4 alignment.

### Coast Guard Site Planned Development

The Coast Guard Site directly south of the North Concord Station BART parking lot is being considered for redevelopment. This long-term plan may include transit-oriented development adjacent to the station area with new multi-modal connections to the station.

## Local Connections

### County Connection

North Concord Station's primary transit connections are County Connection buses. Routes 17 and 28/627 serve the station on the weekdays. Buses stop at the station in a dedicated loading area with 8 bus bays. County Connection also runs a shuttle for bus drivers to the BART station from the bus depot in the industrial area north of the station. North Concord Station is a common location for paratransit transfers.

Figure 2.1 North Concord Station Existing Conditions - Pedestrian Safety and ADA Accessibility; Bicycle Safety and Access

Pedestrian Safety and ADA Accessibility 	
1	There is no crosswalk at the north side of the Port Chicago Highway and Panoramic intersection.
2	The main entrance is auto-centric, with narrow sidewalks, a lack of landscaping, and no pedestrian-scale signage.
3	There is no sidewalk directly adjacent to the road along the eastern side of Port Chicago Highway. Pedestrians must use the trail to the linear park, which is separated from Port Chicago Highway by the BART tracks.
4	The BART linear park and trail has few entrances/exits and the trail lacks a visual connection to either side, hampering the pedestrian experience and security.
5	The stairs and sidewalk leading to the lower parking lot are not accessible to people with limited mobility.
6	The shared-use path north of the station is not continuously paved. Highway ramp crossings are uncontrolled and there are no crosswalks, creating safety concerns for bicyclists and pedestrians along the route. It is common for BART passengers to walk along this route to employers north of Route 4.
Bicycle Safety and Access 	
7	The only access to the linear park and trail from the west is at Olivera Road, 1/2 mile south of the station.
8	Bicycle and pedestrian access to the station from the neighborhood south of the station is limited to one trail access point at Esperanza Drive.
9	There are bike lockers outside of the station on either side of the entrance, and bike racks inside the fare gates.

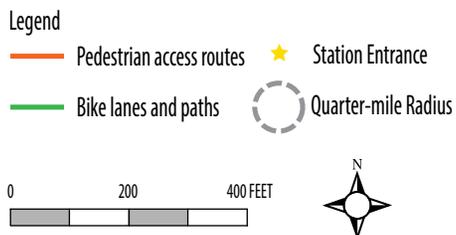
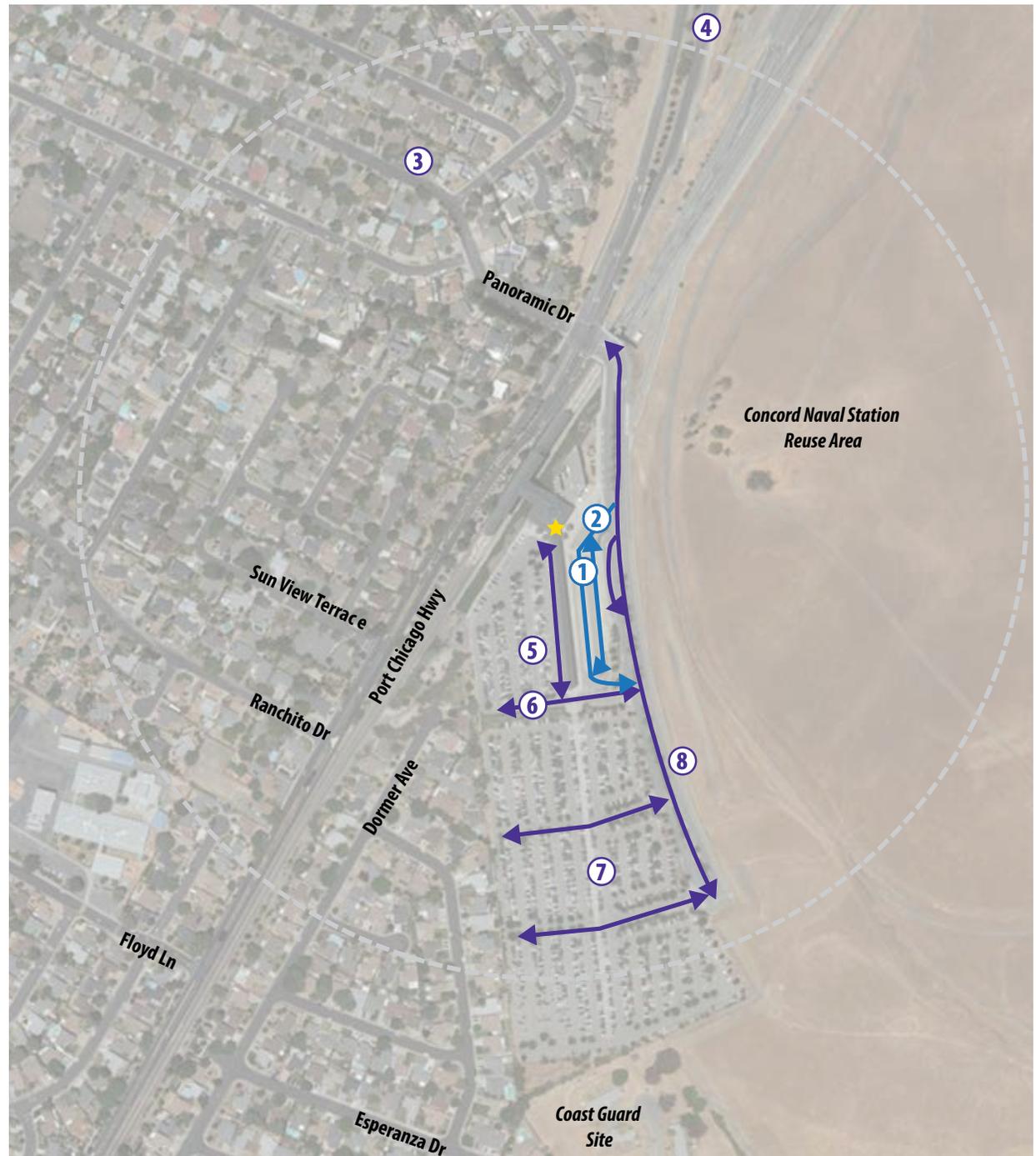
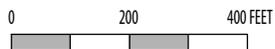


Figure 2.2 North Concord Station Existing Conditions - Transit Connections; Parking, Traffic and Passenger Loading

Transit Connections 	
1	Paratransit transfers occur in the eastern bus bays. Transfers are very common, and there is usually at least one paratransit vehicle waiting at the station. There is no shelter at this location for waiting paratransit passengers.
2	County Connection operates a shuttle for their drivers between the BART station and the bus depot on Arnold Industrial Way.
Parking, Traffic and Passenger Loading 	
3	The neighborhoods northwest of the station have a residential parking permit district in place, but the neighborhoods south of the station do not.
4	Some BART passengers who wish to park for free or cannot find a space in the lot park on the side of the road near the freeway ramp, sometimes parking on the ramp itself. Caltrans has recently started issuing citations for this, but it still occurs when the station is very full.
5	When Pittsburg/Bay Point Station parking is full, BART patrons will drive to North Concord Station to park instead, filling up the lot by 8 AM. After the opening of eBART, the parking lot will likely fill up later as drivers coming from the east will be able to stop at Antioch Station first.
6	The north lot is very busy between 9:30 a.m. and 10 a.m. as drivers wait for reserved spaces to be released. Enforcement reports that a line at the driveway into the parking lot often forms at this time.
7	The lower parking lot is not well lit. There are safety and security concerns for passengers returning to their vehicles at night.
8	Approximately 65 additional parking spaces are planned on Panoramic Drive adjacent to the existing parking lot.

Legend

-  Auto access and circulation
-  Transit access and circulation
-  Station Entrance
-  Quarter-mile Radius



# Pittsburg / Bay Point Station

Pittsburg, California

The Pittsburg/Bay Point BART Station is an end of the line station for the Pittsburg/Bay Point Line. It is a suburban station situated along Highway 4, surrounded by low-density residential and strip commercial development. This terminus station has a large catchment area extending to Brentwood and Antioch. With the opening of the East Contra Costa BART Extension (eBART) to Antioch in winter of 2017, the catchment area will become smaller, ridership will decrease and the mode split for accessing the station will likely shift.

## Characteristics

**Weekday Span of Service:** 4:02 a.m. - 12:32 a.m.

**Frequency:** 15 minutes

**Average Daily Ridership (Entries):** 6,515

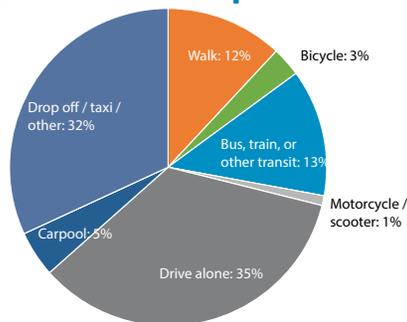
**Peak Usage Times:** 6 a.m. to 7 a.m. and 6:15 p.m. to 7:15 p.m.

**Parking spaces (on-site):** 2,016 Total spaces, full by 6:20 a.m.

- 1,696 Daily spaces
- 320 Reserved

**Bicycle Parking:** Bike racks inside the fare gates; bike racks and lockers outside west of the station entrance.

## Existing Access Mode Split



Source: 2015 Station Profile Survey (Home Origin)

## Demographics

Demographics (within 1/2 mile)

Population	4,415
Jobs	540
Low income (under 200 percent poverty level)	26.5%
Minority (non white populations)	81.50%
Households with no vehicles	6.30%
Households with limited English	11.10%
Senior population	6.40%
Youth population	28.60%
With disabilities	13.70%

Source: 2015 US Census, 5-Year American Community Survey

## Local and Regional Plans

### Pittsburg/Bay Point Station Area Master Plan City of Pittsburg, 2011

This plan proposes a mixed-use development to replace the existing parking lot with retail and multi-family housing, with new parking garages to replace the parking.

### Bailey Road/State Route 4 Interchange Improvement Project

Contra Costa County

Scheduled to be completed in late 2018, this project will improve the bicycle and pedestrian safety and access at the Bailey Road/Highway 4 interchange. Improvements include:

- Remove westbound loop off-ramp and pedestrian tunnel;
- Install continuous sidewalk and Class II bike lanes; and
- At Bailey Road and BART access road intersection, modify signal and remove free-flow right turn movements on and off the freeway.



## Local Connections

### Delta de Anza Trail

The Delta de Anza Trail generally follows the Contra Costa Canal, connecting the station area to communities to the east. The trail can be accessed from Ambros Park, east of Bailey Road, and from Bailey Road north of Route 4.

### Tri Delta Transit

Pittsburg/Bay Point Station's primary transit connections are Tri Delta Transit buses. Twelve Tri Delta Transit routes serve the station, connecting primarily to communities further east beyond the end of the BART system. Tri Delta Transit plans to shift some of this service to Antioch eBART Station after it opens.

Figure 2.3 Pittsburg/Bay Point Station Existing Conditions - Pedestrian Safety and ADA Accessibility; Bicycle Safety and Access

Pedestrian Safety and ADA Accessibility 	
1	Street-level elevator is often inoperable and ADA access is limited.
2	No curb ramps or crosswalk at pedestrian crossing.
3	No curb ramps or crosswalk at pedestrian crossing.
4	No direct pedestrian connection to station from north.
5	Path along canal is not publicly accessible.
6	Improvements currently under construction on Bailey Road will enhance pedestrian access and safety. Pedestrian tunnel will be closed and sidewalk will be improved.
7	No sidewalk on south side of access road to Bailey Road
8	Poor connection between West Leland Road and parking lot. Pedestrians often jump the retaining wall to enter the parking lot.
9	A new signal has been installed at the intersection of West Leland Road and Oak Hills Drive.
10	There are no direct connections between the shopping center and the station. However, direct access may encourage BART riders to park in the shopping center.
Bicycle Safety and Access 	
11	Bicycle parking within paid area is well used (80% full at 5:30 p.m.).
12	Bicycles use bus-only lane on BART access road.
13	Poor bicycle connection to DeAnza Regional Trail across Bailey Road. Bailey Road planned improvements will improve bicycle connection.
14	No on-street bicycle facilities on access roads from Leland Road.

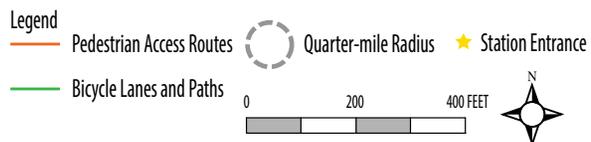
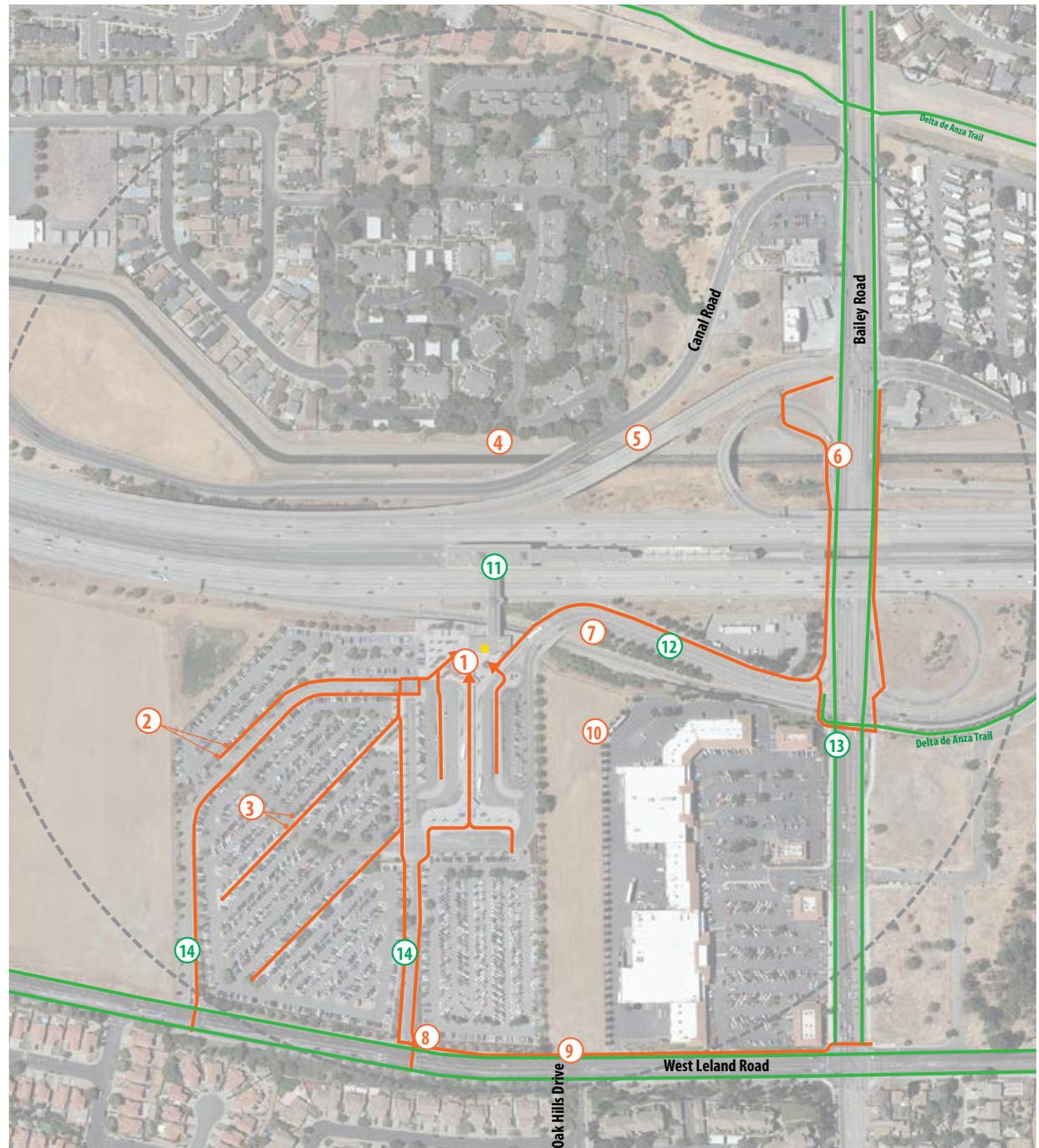
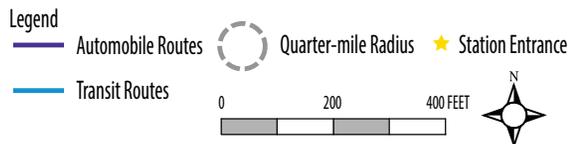
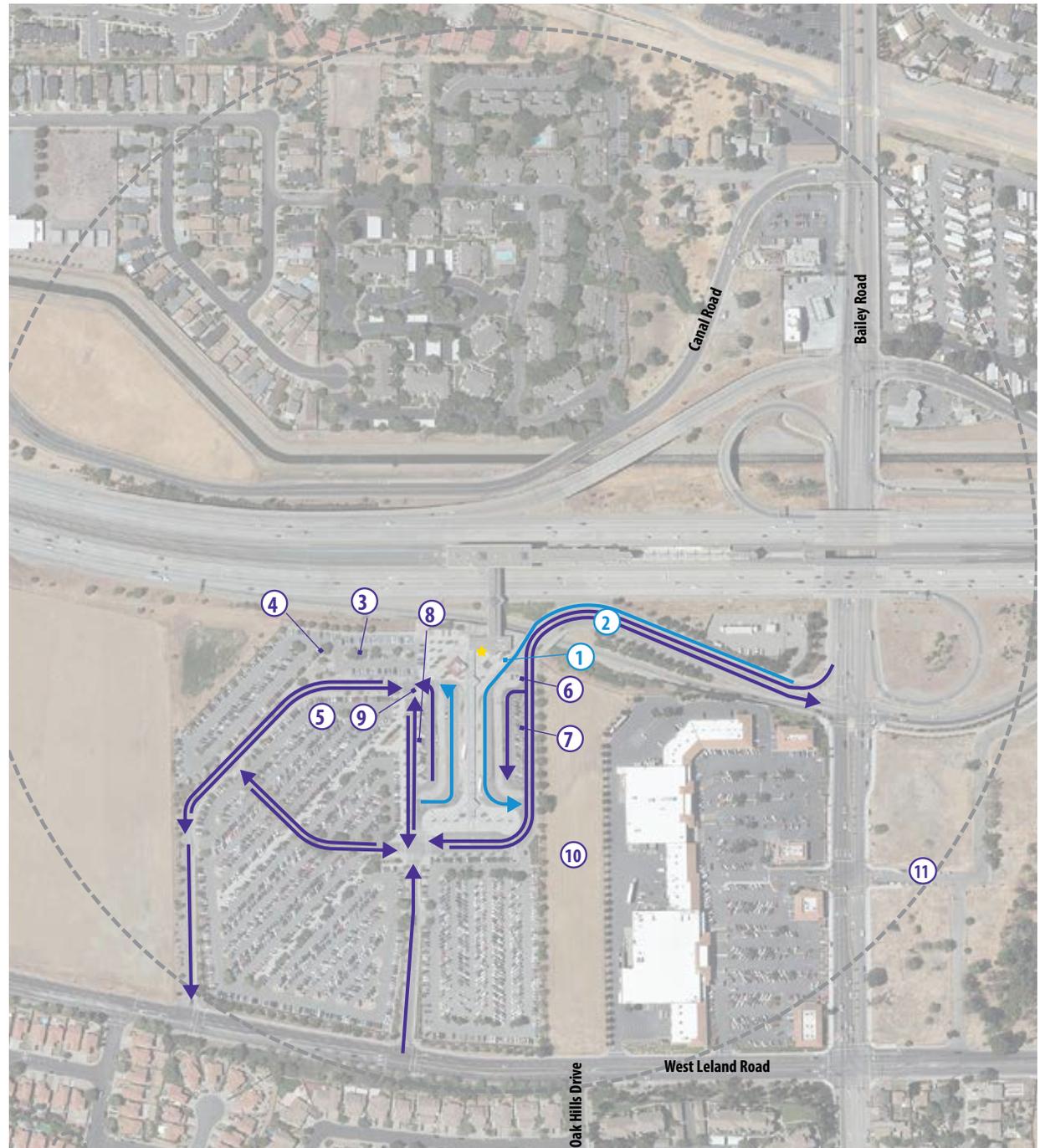


Figure 2.4 Pittsburg/Bay Point Station Existing Conditions - Transit Connections; Parking, Traffic and Passenger Loading

Transit Connections 	
1	The paratransit pick up location makes it difficult for buses to enter bus bay area and blocks the pedestrian crossing. After eBART opens, paratransit drop-offs will move to the western bus bay closest to the station.
2	The Bailey access bus lane will no longer be used by Tri Delta buses after the opening of eBART. All buses will enter the station via West Leland Road.
Parking, Traffic and Passenger Loading 	
3	Accessible vehicle parking lot is typically full.
4	Motorcycle parking is overflowing.
5	Carpool parking, when separate from permit parking, is difficult to enforce.
6	Pick up and drop off often occurs at corner because it is closer to the station entrance and cars avoid entering park and ride area. This causes congestion and delay for cars along BART access road.
7	East Pick-Up/Drop-Off (20-minute attended vehicle parking): - 100% + occupancy in PM peak - People do not walk within the crosswalk to get from island to station - No curb ramps at pedestrian crossing
8	West Pick-Up/Drop-Off (20-minute parking after 4 p.m.): - Cars parked all day after 4 p.m. - 80% occupancy at PM peak
9	Drop off often occurs at stop sign in through lane blocking through traffic.
10	Planned parking lot for 451 parking spaces, includes pedestrian sidewalk along western edge of lot.
11	Overflow parking occurs along streets west of Bailey Road.



# Pittsburg Center Station

Pittsburg, California

The Pittsburg Center Station is currently under construction and is planned to be open in May 2018. It will be an intermediate stop on the East Contra Costa BART Extension (eBART) to Antioch. The station will be situated in the median of Highway 4 with access from the Railroad Avenue overpass, adjacent to low-density commercial development to the south, City Hall and other government buildings to the north, and low-density residential neighborhoods.

## Characteristics

**Weekday Span of Service:** 4 a.m. to 12 a.m.

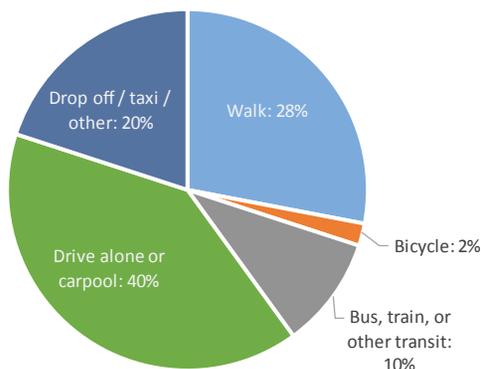
**Frequency:** 15 minutes

**Projected 2018 Daily Entries:** 525

**Projected Peak Usage:** 6 a.m. to 7 a.m., 5:45 p.m. to 6:45 p.m.

**Parking spaces:** No spaces on-site, 270 spaces available at nearby Bliss Avenue Lot

## Projected Access Mode Split



(Source: eBART EIR, 2008)

## Demographics

Demographics (within 1/2 mile)

Population	6,382
Jobs	2,699
Low income (under 200 percent poverty level)	27.8%
Minority (non white populations)	91.1%
Households with no vehicles	8.1%
Households with limited English	19.6%
Senior population	9%
Youth population	26.6%
With disabilities	12.1%

Source: 2015 US Census, 5-Year American Community Survey

## Local and Regional Plans

### Multi-Modal Transfer Facility

City of Pittsburg, 2016

Located at the corner of Railroad Avenue and California Avenue, this facility has been developed in coordination with the eBART stations to serve transit transfers and kiss-and-ride passengers, and provide ADA accessible parking. The plans for this project also include improved crosswalks at Railroad Avenue/California Avenue and Railroad Avenue/Center Drive.

### Railroad Avenue Specific Plan

City of Pittsburg, 2009

The Specific Plan covers the area within approximately 1/2 mile of the station, and includes developing the Bliss Avenue area into a transit village, including replacing the Bliss Avenue parking lot with mixed use development or structured parking, a Gateway feature along Railroad Avenue north of Highway 4, roadway improvements for pedestrian, bicycle, and transit connectivity.



## Local Connections

### Tri Delta Transit

Currently, five weekday bus routes serve the station area; three routes serve the Bliss Avenue Park and Ride and two additional routes serve stops on Railroad Avenue. Tri Delta Transit is planning service changes to coincide with the opening of the new eBART stations. Based on the new service plan, six bus routes will serve the station; four will serve the Bliss Avenue parking lot and two additional routes will serve stops on Railroad Avenue.

### Delta de Anza Trail

The Delta de Anza Trail generally follows the Contra Costa Canal, connecting the station area to communities to the east and west. The trail can be accessed south of West Leland Road, one-half mile from the station.

Figure 2.5 Pittsburg Center Station Area Existing Conditions - Pedestrian Safety and ADA Accessibility; Bicycle Safety and Access

Pedestrian Safety and ADA Accessibility 	
1	Signal timing causes long wait times to cross Railroad Avenue. Improvements to signal timing on Railroad Avenue are currently being studied.
2	The pedestrian experience at the station entry is affected by heavy traffic and limited sidewalk space.
3	Bliss Avenue lacks continuous sidewalks. A new sidewalk is planned for the north side of the street.
4	There is no crosswalk at the northern side of the Railroad Avenue and Bliss Avenue intersection.
5	There are no pedestrian crossings across Railroad Avenue between Bliss Avenue and East Leland Road.
6	There are no crosswalks at multiple Railroad Avenue intersections will be added with planned station and multi-modal facility improvements.
7	Pedestrian crossings at the highway ramps are unsafe due to wide turning radii and low visibility.
8	California Avenue, Power Avenue, Center Drive, and Frontage Road have sidewalks on only one side of the street.
Bicycle Safety and Access 	
9	Bike racks and lockers will be located at the multi-modal transfer facility, requiring bicyclists to cross California Avenue after parking to access the station.
10	The frontage road connects to Railroad Avenue via a dedicated bike and pedestrian path. Additional Class I facilities are planned to extend to the east.
11	Bicycle facilities will be added on Railroad Avenue across the Highway 4 overpass, but facilities are not continuous to the north or south.
12	A new shared use path is planned to directly connect Railroad Avenue to Power Avenue.

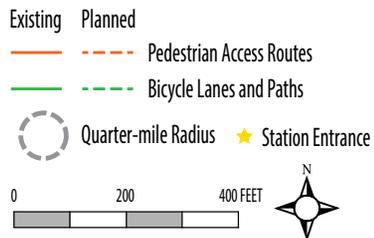
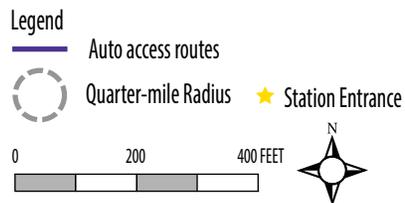
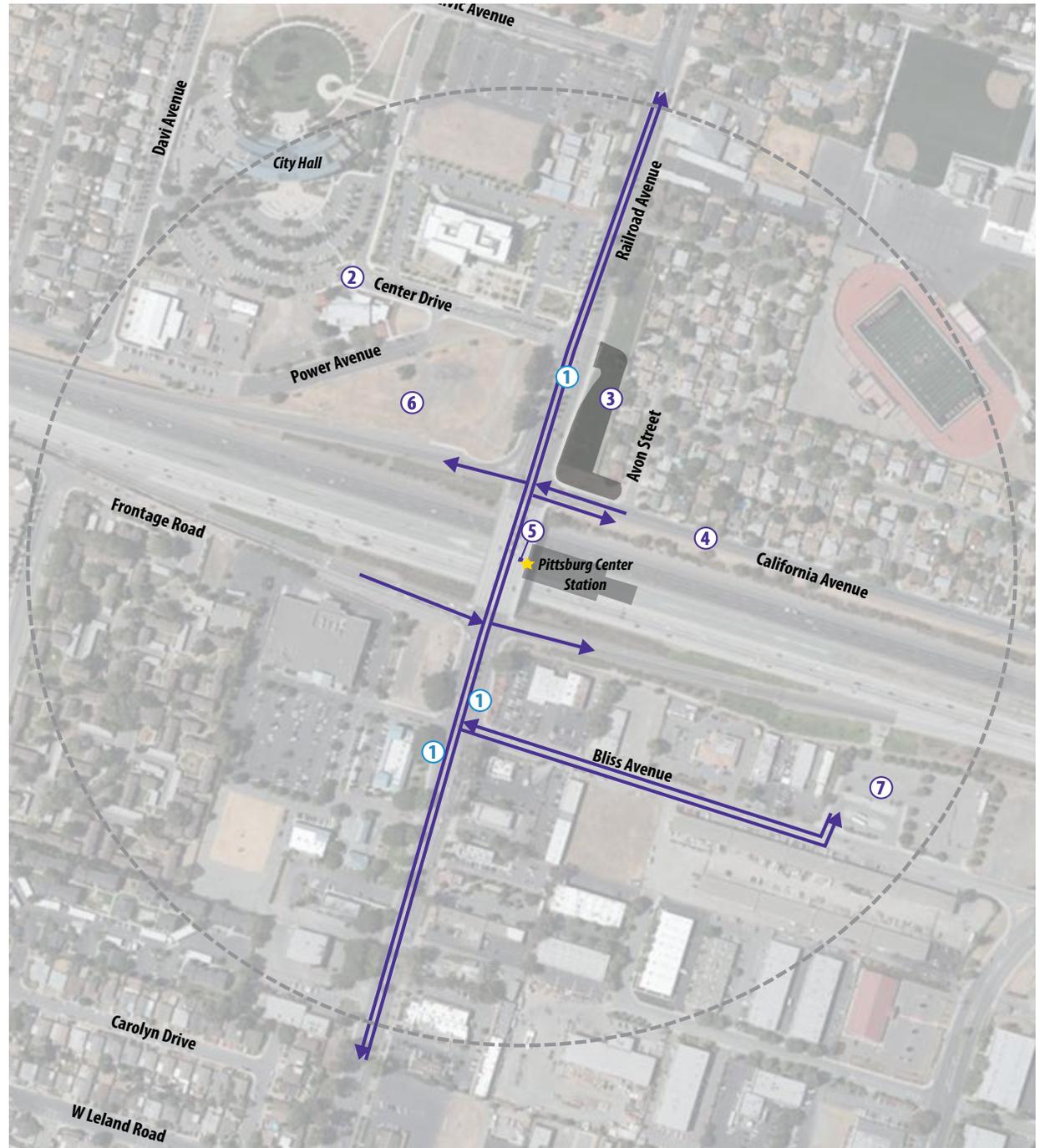


Figure 2.6 Pittsburg Center Station Area Existing Conditions - Transit Connections; Parking, Traffic and Passenger Loading

Transit Connections 	
1	Buses serving the station will stop on Railroad Avenue north and south of Highway 4. New bus stops will be added on Railroad Avenue at Center Drive. All bus stops have limited amenities and lack shelters for waiting passengers.
Parking, Traffic and Passenger Loading 	
2	If unregulated, parking lots for the Pittsburg City offices, courthouse, Police Department, and shopping centers south of the station, will be attractive to eBART riders and may fill up early in the morning.
3	A new off-street inter-modal facility will provide paratransit facilities, drop-off/pick-up areas, and bicycle parking. It will be separated from the station by California Avenue.
4	Residents have expressed concern about the impacts to on-street parking and congestion on California Avenue.
5	There is no space for passenger drop-offs or pick-ups at the station itself, and no designated drop-off location south of the station.
6	Future development on the lot at the corner of Power Avenue and Center Drive could provide opportunities for shared parking.
7	The Bliss Avenue Park-and-Ride will continue to be served by two Tri Delta transit routes, in addition to eBART parkers. The bus bays in the Bliss Avenue lot have been removed to increase the number of parking spaces. BART is planning to charge for parking starting on eBART opening day.



# Antioch Station

## Antioch, California

The Antioch Station is currently under construction and is planned to be open May 2018. It will be the last stop on the BART C-line and Eastern Contra Costa BART Extension (eBART). The station will be situated along Highway 4 at Hillcrest Avenue, with entrances on Slatten Ranch Road. As the new terminus for BART, the catchment area is expected to be large and to attract many drivers to the station. As such, a large parking facility is planned.

## Characteristics

**Weekday Span of Service:** 4 a.m. to 12 a.m.

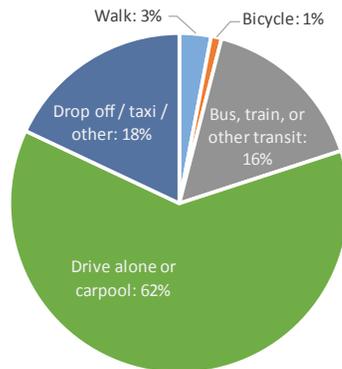
**Frequency:** 15 minutes

**Projected 2018 Daily Entries:** 2,270

**Projected Peak Usage:** 6 a.m. to 7 a.m., 5:45 p.m. to 6:45 p.m.

**Parking spaces:** 1,000 spaces by 2018, when eBART opens, and an additional 1,600 by 2030.

## Projected Access Mode Split



(Source: eBART EIR, 2008)

## Demographics

Demographics (within 1/2 mile)

Population	3,794
Jobs	360
Low income (under 200 percent poverty level)	13.9%
Minority (non white populations)	57.7%
Households with no vehicles	6%
Households with limited English	3.3%
Senior population	11.2%
Youth population	25.1%
With disabilities	12.9%

Source: 2015 US Census, 5-Year American Community Survey

## Local and Regional Plans

### Hillcrest Station Area Specific Plan

*City of Antioch, 2009*

This plan guides future growth around Antioch Station, called the Hillcrest Station Area, including a transit village residential neighborhood and new retail uses.

### Slatten Ranch Road and Connections

*City of Antioch*

The Slatten Ranch Road project will connect the roadway in from the of eBART station to Slatten Ranch Road near Lone Tree Way. This is partially funded. A connection north from Slatten Ranch Road to Viera Avenue is also positioned for grant funding in the near future.

### Hillcrest at Wildflower

*DeNova Homes*

This commercial development south of Antioch Station and SR-4 will include commercial, multi-family, and single family uses across 23 acres. Commercial development will line Hillcrest and Deer Valley, with frontages on a plaza, Hillcrest Avenue, and the parking lot.



## Local Connections

### Delta de Anza Trail

The Delta de Anza Trail generally follows the Contra Costa Canal, connecting the station area to communities to the east and west. The trail can be accessed south of Wildflower Drive, just over one mile from the station.

### Tri Delta Transit Bus Service

Currently, eight Tri Delta routes serve the Hillcrest Park-and-Ride station, primarily picking up passengers travelling to BART. After the opening of eBART, the Antioch Station will become a major transfer point for Tri Delta Transit and BART connections. Up to 10 Tri Delta bus routes would serve the station during the weekday peak period. The station is also served by paratransit.

### Other Transit

In addition to the Tri Delta service, the Hillcrest Park-and-Ride is served by County Connection route 93x and Rio Vista Breeze route 52, both of which are expected to continue serving the station after eBART opens. The park-and-ride is also currently used by carpoolers and a Genentech employee shuttle.

Figure 2.7 Antioch Station Existing Conditions - Pedestrian Safety and ADA Accessibility; Bicycle Safety and Access

Pedestrian Safety and ADA Accessibility 	
1	No direct access to station from the south.
2	New roads to the north and east have the potential to improve pedestrian and bicycle connections in these directions.
3	Intersections at the parking lot entrances have curb cuts and crosswalks along pedestrian access routes. Future development north of the station is expected to increase the pedestrian traffic and alter pedestrian routes, which may require intersection upgrades.
4	Pedestrians on Slatten Ranch Road must cross SR-4 ramps when accessing the station. The intersection has a signal, but two lanes of vehicles turning right onto the ramp create a safety concern. A pedestrian and bicycle bridge across the highway ramps was considered during design, but this was not constructed.
Bicycle Safety and Access 	
5	New bike lanes on Hillcrest Avenue have been completed for continuous connections to the station from the north and the south.
6	The station design includes one row of bike racks and six bike lockers outside.
7	Sidewalks and bike lanes on Larkspur Drive are not continuous.
8	At the Route 4 on-ramp, northbound bicyclists must cross two lanes of traffic to continue straight, creating a safety concern. CCTA is planning to add additional green bike lane striping across this intersection, and is studying options for a separated facility.
9	The eastbound bike lane for accessing station conflicts with right-turning vehicles from Slatten Ranch Road onto the freeway on-ramp. A pedestrian and bicycle bridge across the highway ramps was considered during design, but this was not constructed.

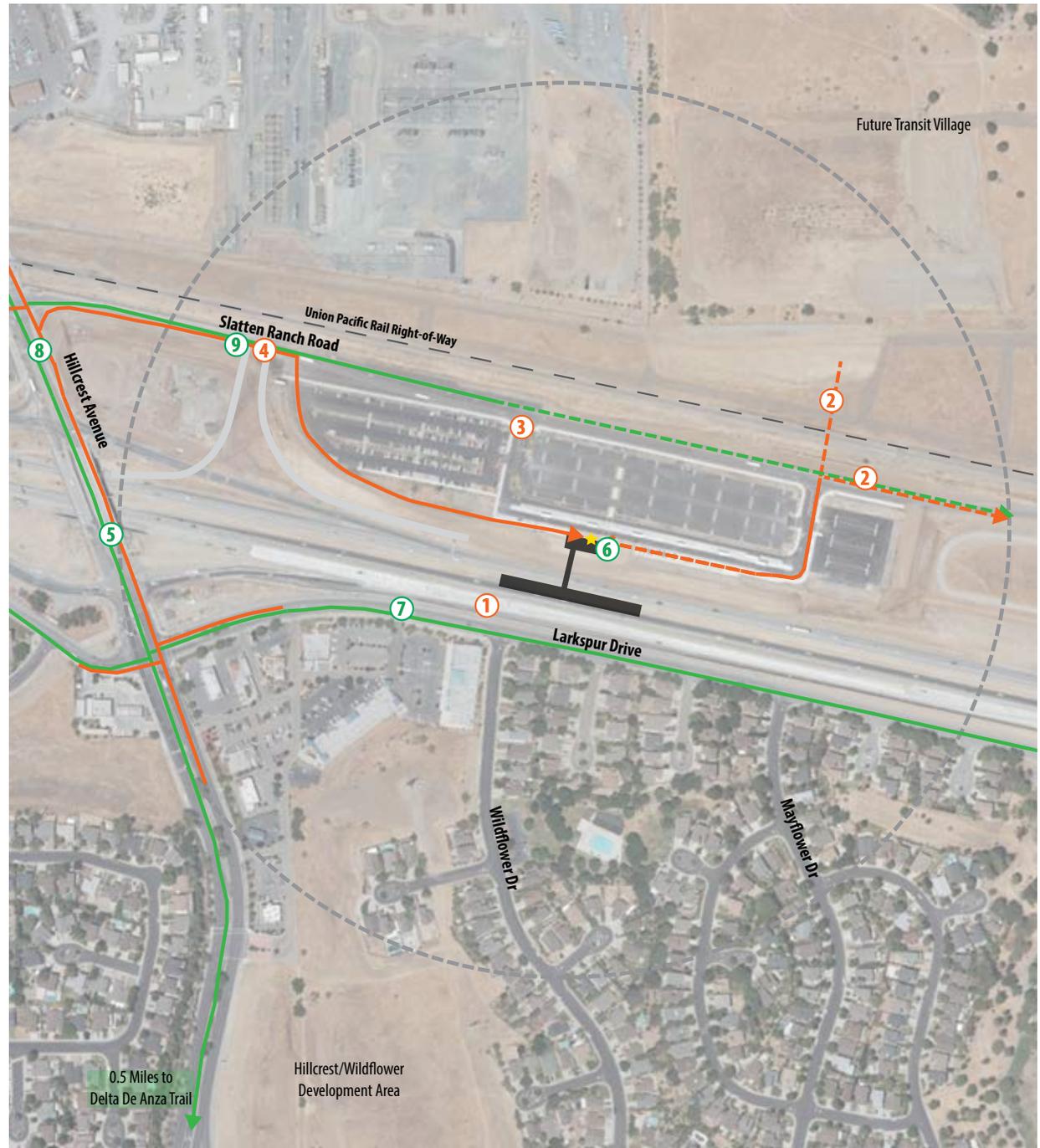
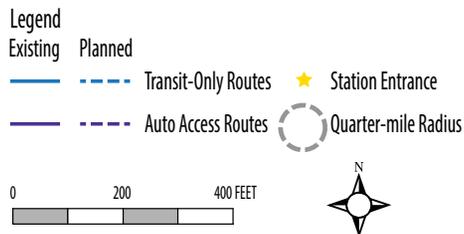
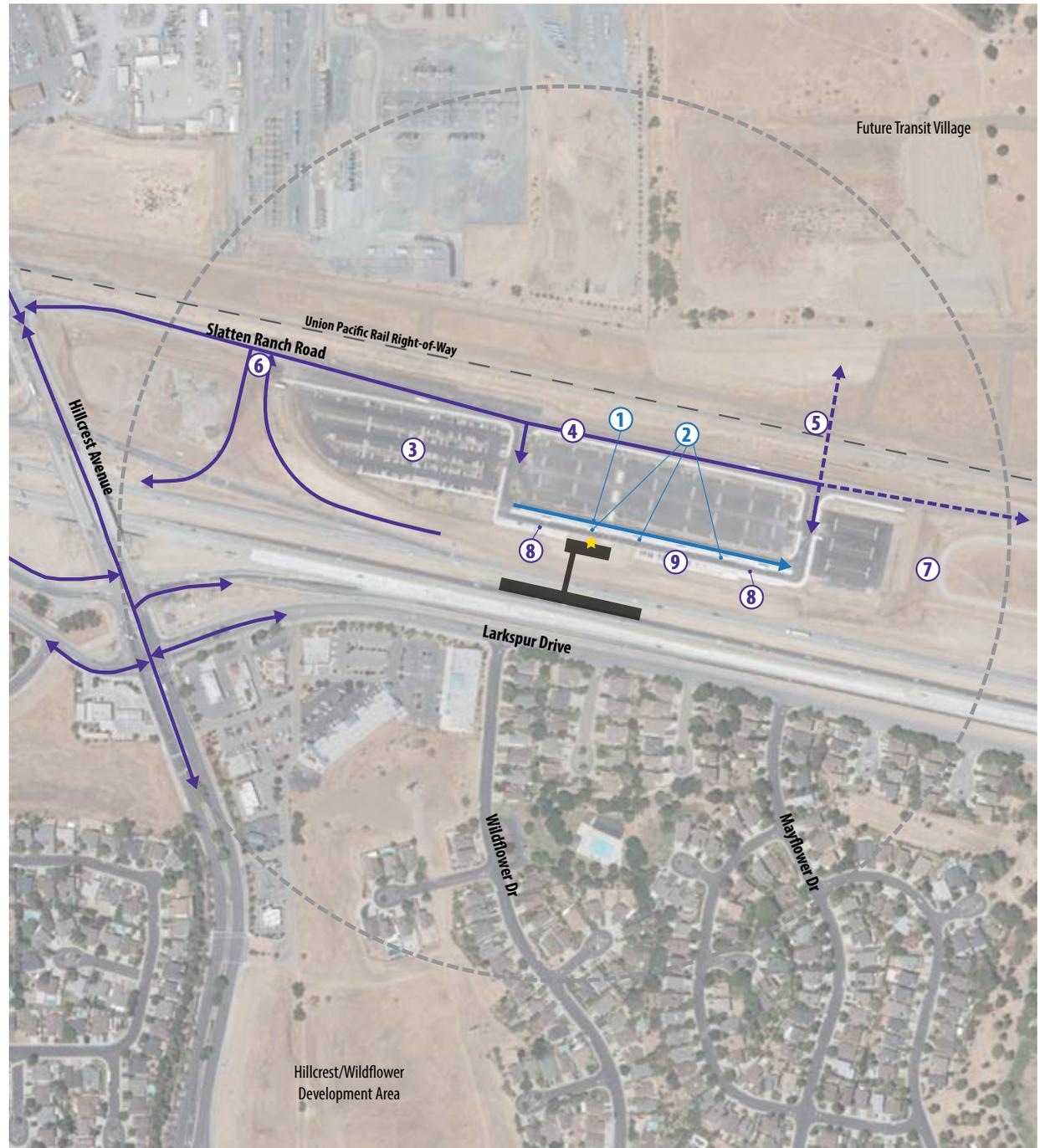


Figure 2.8 Antioch Station Existing Conditions - Transit Connections; Parking, Traffic and Passenger Loading

Transit Connections 	
1	Eleven bus bays were installed in front of the station.
2	Bus shelters at the station provide minimal overhead covering and lack side panels for rain or wind protection.
Parking, Traffic and Passenger Loading 	
3	The existing park-and-ride facility is already well-used. Any users who do not switch to eBART will no longer have access to parking at this station, creating a problem for those who still wish to park there for access to the bus transit services or to carpool. BART is planning to charge for parking starting opening day of eBART.
4	Slatten Ranch Road outside the station (previously named Sunset Drive) is planned to connect to the eastern portion of Slatten Ranch Road, creating a direct connection for travelers from Brentwood and Oakley.
5	A connection is planned to Viera Road to the north.
6	New highway ramps connecting Slatten Ranch Road to Route 4 have been completed.
7	The EIR for Antioch Station states that 1,600 additional spaces should be added by 2030.
8	Ten Kiss and Ride spaces are available just east and west of the station entrance. Roadway width and design should minimize congestion in this area.
9	ADA parking will be just east of the station entrance.



## **Existing BART Parking Management Programs**

BART's primary parking management programs include the following:

### **Daily Fee Parking**

Most BART parking lots consist of daily fee parking, for which customers can park on a first-come first-served basis, for the specified daily fee. Currently that fee at North Concord and Pittsburg/Bay Point Stations is \$3.00. The daily fee at Pittsburg Center and Antioch is planned to be \$3.00 per day upon opening of eBART.

### **Permit Parking**

BART designates a small portion of each of its lots as a Permit Parking Area, including at both Pittsburg/Bay Point and North Concord Stations. Monthly and Single Day Permits are available for purchase from BART's website. Permit Spaces are reserved for permit holders until 10 a.m., after which they are opened up for use by anyone for the regular daily fee rate. Waiting lists exist for Monthly Permits at most BART stations, as demand for Permits far outweighs supply.

### **Carpool Parking**

Most BART Stations have a limited number of designated carpool parking spaces. Riders must register online at [www.511.org](http://www.511.org), and each rider must have their own permit, which must be displayed in the front dashboard of each vehicle when parked.

### **Carpool Matching-App Pilot Program**

In 2017 BART launched a Pilot Program with rideshare app Scoop, which matches BART riders into carpools via the Scoop mobile app. The app verifies that the riders carpooled to the BART station together. Users of this service are allowed to park in BART's Permit parking area and receive a guaranteed spot until 10 a.m. on weekdays. As of December 2017, Scoop is available at seven BART stations and is planned to be introduced at Pittsburg/Bay Point in 2018.

## **3. POTENTIAL IMPROVEMENTS**

## Introduction

The previous station profiles describe the existing conditions for the North Concord to Antioch BART study segment. The access improvements analyzed in this study were developed directly from the list of issues identified in the previous chapter. This chapter lists potential projects that would address the identified issues, including some projects already in planning stages by BART or other stakeholders, by station in Figures 3.1 to 3.4. Descriptions of each of the listed access projects are included in the project sheets in Appendix B. In addition to the station-specific strategies, four programmatic parking strategies were identified as potentially beneficial to study area stations are described in this chapter.

A limited number of projects were initially identified by stakeholders or members of the public and preliminarily investigated, but ultimately removed from further consideration due to lack of feasibility. These projects are summarized in Appendix D.

## Modal Categories



Improvements are presented by mode to match the challenges identified in the existing conditions. Although the issues at each station were considered independently, similar types of improvements in each mode were found to be appropriate across the station.

### Pedestrian and ADA

These projects include sidewalk, intersection, and station entrance improvements for safety and accessibility, as well as the creation of new access routes through pedestrian bridges across barriers such as the SR-4 freeway and new pedestrian or mixed-use paths. Gaps in sidewalk and trail networks as well as visual inspection of pedestrian and accessibility features were used to identify potential projects.



### Bicycling

These projects include adding or improving bike lanes or paths within the station area, improving connections from on-street bike infrastructure into the station, and adding convenient and secure bike storage areas. Pedestrian bridges and multi-use trails will also serve bikes. Gaps in the bicycle lane network were used to identify potential projects, as well as areas from which bicycle access was hindered by a lack of infrastructure or connections.



### Connecting Transit

These projects include improvements to transit stops at and near stations and new transit service where it is missing. Identification of transit projects focused on infrastructure in the station area, as transit service is under the jurisdiction of transit agencies other than BART, who already serve the end-of-line stations well.



### Autos, Parking, and Passenger Drop-Off

These projects include improvements to vehicle access and circulation, passenger drop-off areas, and reconfiguration of existing parking, expansion/conversion of reserved and carpool parking areas, and other parking management strategies. Vehicle circulation and drop-off improvements were identified primarily through discussions with BART parking enforcement officers who are aware of site conditions during the peak.

Parking management strategies were considered at each of the stations and screened to identify those with the most potential to increase ridership. These parking strategies were included in the evaluation with the remaining access projects. Several programmatic solutions which would improve parking management throughout the BART system were also analyzed. During the initial screening, which is detailed in Appendix A, three aspects of each improvement were compared: feasibility, ridership potential, and costs. Any project with a low feasibility, low ridership or high capital cost was dropped from further study. The remainder were added to list of projects for each station in packages of on-site and off-site parking improvements.

*This page intentionally left blank*

Figure 3.1 North Concord Station Recommended Improvements  
(Detailed descriptions for each project are included in Appendix B)

Pedestrian Safety and ADA Accessibility 	
1	Study feasibility of improving access from station or linear park across BART tracks. Possible pedestrian bridge across tracks to Port Chicago Highway.
2	Improve pedestrian amenities at the Panoramic Drive/Port Chicago Highway intersection, including adding missing crosswalk, ADA accessibility features, and pedestrian-scale signage.
3	Add wayfinding and signage outside of station directing passengers to bus stops, passenger pick-up areas, and bicycle and pedestrian routes.
4	Open entryway south of station to Coast Guard site and southern neighborhoods (dependent on future development on the site).
5	Add ADA-accessible ramp to lower parking lot and curb cuts on the sidewalk through lower parking lot.
6	Work with the community to determine the feasibility of providing a new, secure pedestrian and bike only connection between East Sun Terrace Neighborhood and the station parking lot. This improvement could be coordinated with recommendation #1.
Bicycle Safety and Access 	
7	Improve shared-use path north of the station to the industrial park with continuous pavement, high-visibility crossings, lighting and amenities.
8	Add bicycle wayfinding signage at linear park and at main entrance with distances to connection bicycle routes and destinations.
Transit Connections 	
9	Relocate the paratransit stop to be near the sheltered area.
10	Study feasibility of formalizing the shuttle to the County Connection bus depot, to provide a "last-mile" connection for industrial park employees.
Parking, Traffic and Passenger Loading 	
11	Install lighting in the lower parking lot.
12	Off-site parking opportunities: Manage on-street parking on Port Chicago Highway adjacent to the Highway 4 on-ramp, and in the neighborhood south of the station (dependent on future connections).
13	Improve management of existing parking: Increase reserved parking Reconfigure drop-off and bus bays Increase reserved carpool spaces Support carpool-matching app



Figure 3.2 Pittsburg/Bay Point Station Recommended Improvements  
(Detailed descriptions for each project are included in Appendix B)

Pedestrian Safety and ADA Accessibility 	
1	Install new ramp for ADA and bicycle access at BART station entrance.
2	Study feasibility of pedestrian/multi-use bridge across freeway to the north.
3	Add crosswalks and curb ramps along western parking access road.
4	Add pedestrian access stairway and ramp from West Leland Road to the southwestern parking lot corner.
5	Improve curb ramps in disabled parking area.
6	Open canal access path to public between Canal Road and Bailey Road.
7	Improve Leland and Bailey Road intersections for better pedestrian safety.
Bicycle Safety and Access 	
8	Install bicycle lanes or a buffered cycletrack on BART access road.
9	Improve bicycle and pedestrian oriented wayfinding and signage on Bailey Road to connecting routes and destinations.
10	Install bicycle facilities on access roads to/from Leland Road.
11	Install bicycle channels in station entrance stairway
Transit Connections 	
12	Relocate paratransit stop to a bus bay.
Parking, Traffic and Passenger Loading 	
13	Construct new surface lot with pedestrian and bicycle access from W. Leland Road, including recommended modifications for circulation and access, and explore pedestrian access to shopping center in north eastern area of new parking lot.
14	Reconfigure eastern drop-off area to improve flow and reduce congestion.
15	Improve signage and wayfinding within station to direct drivers to parking and drop-off locations.
16	Improve management of existing parking: Move carpool parking next to permit parking for ease of enforcement. Support carpool-matching app

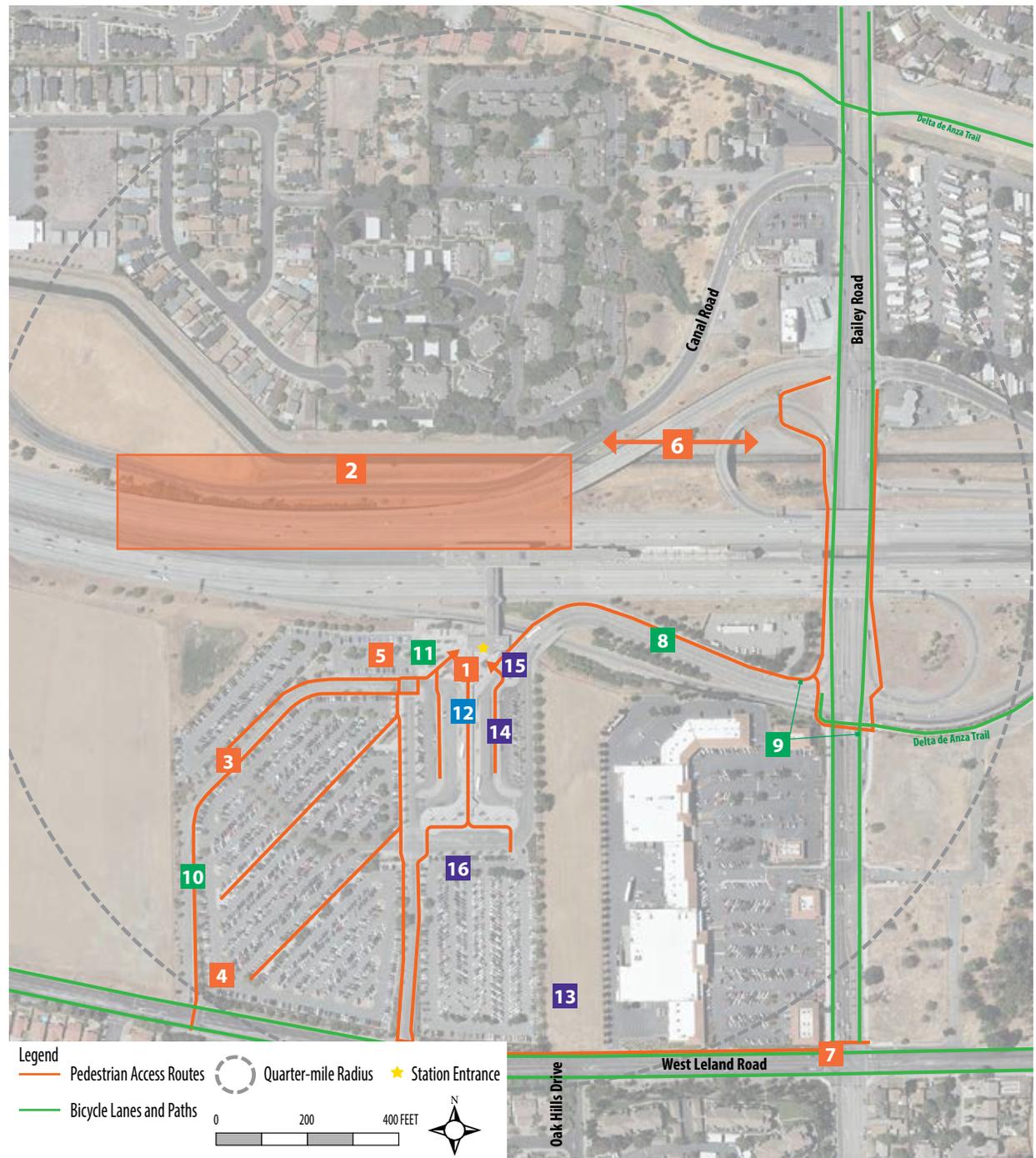


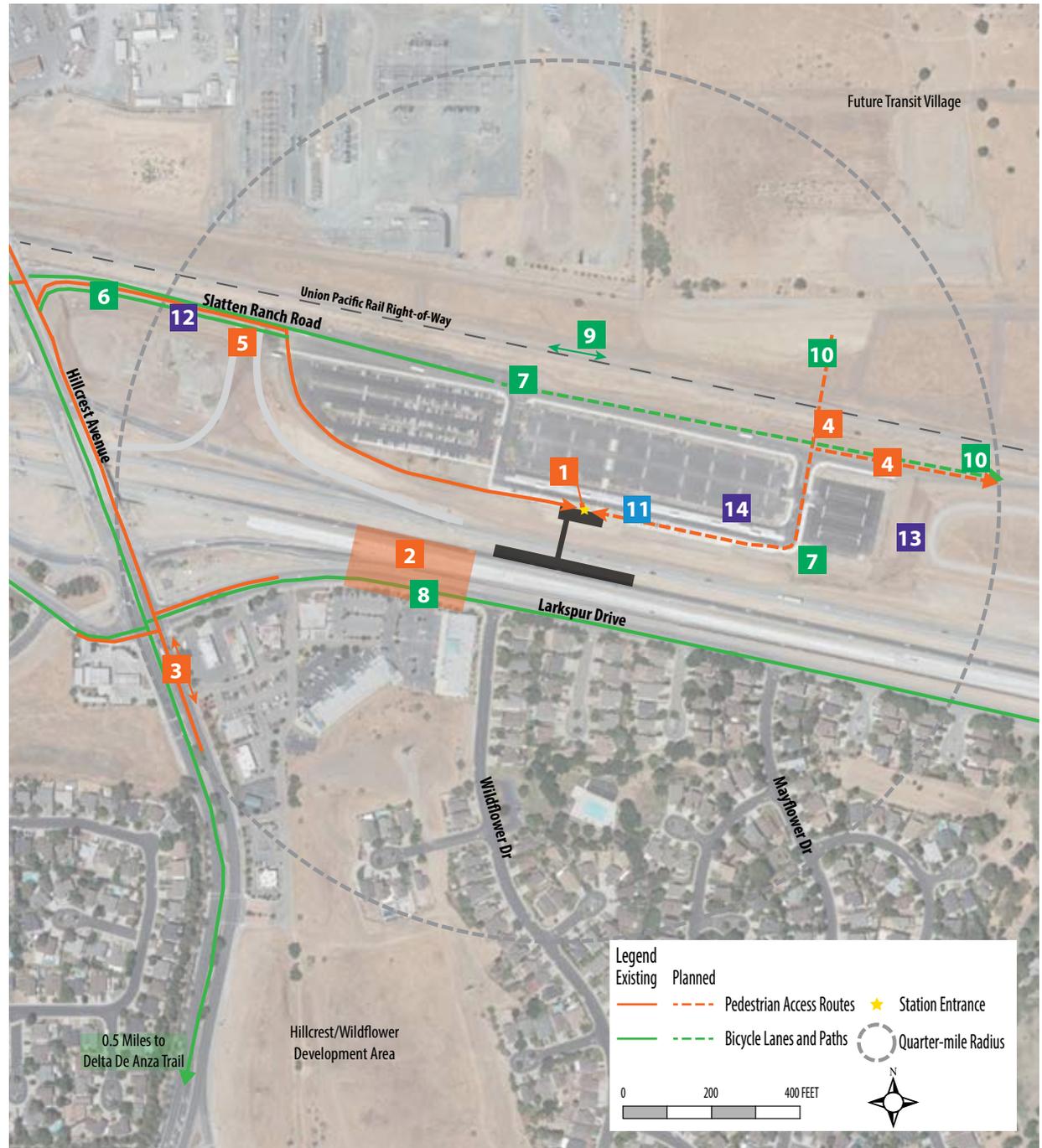
Figure 3.3 Pittsburg Center Station Recommended Improvements  
(Detailed descriptions for each project are included in Appendix B)

Pedestrian Safety and ADA Accessibility 	
1	Improve Railroad Avenue sidewalk with attractive traffic barrier, lighting, and pedestrian amenities.
2	Improve Railroad Avenue intersections at California Avenue and the Route 4 eastbound off-ramp intersection for pedestrian safety, including reducing turning radii to lower intersection travel speed.
3	Add wayfinding signage outside of station and at the Multi-modal Transfer Facility.
4	Complete sidewalks on California Avenue, Power Avenue, Center Drive, and Frontage Road.
Bicycle Safety and Access 	
5	Improve bicycle lanes south of station and add signage directing cyclists to bike parking facilities.
6	Construct bike station with controlled-access bike parking (possible locations on California Avenue or with new development south of station).
7	Install bike racks on Railroad Avenue south of station or on Highway 4 overpass.
8	Install a bicycle trail parallel to Highway 4 east of the station and bicycle lanes on Railroad Avenue.
Transit Connections 	
9	Add new bus stop and upgrade bus stops in the quarter-mile station area with shelters and seating.
Parking, Traffic and Passenger Loading 	
10	Designate a pick-up/drop-off area on Bliss Avenue for those accessing the station from the south.
11	Add wayfinding on Railroad Avenue for parking and drop-off facilities. Off-site parking opportunities: Manage on-street parking on surrounding streets
12	Develop shared parking arrangements with Mi Pueblo Food Center or city-owned parking in Pittsburg Civic Center.
13	Improve management of existing parking: Designate additional carpool parking Support carpool-matching app



Figure 3.4 Antioch Station Recommended Improvements  
(Detailed descriptions for each project are included in Appendix B)

Pedestrian Safety and ADA Accessibility 	
1	Install wayfinding and signage outside of station.
2	Create pedestrian and bike connection across the freeway to the south.
3	Widen sidewalks along Hillcrest Avenue to reduce travel speeds and improve pedestrian and bicyclist safety.
4	Add sidewalks to Viera and Slatten Ranch Road extensions to the station area.
5	Construct bicycle and pedestrian bridge along Slatten Ranch Road across the new highway ramps.
Bicycle Safety and Access 	
6	Construct bike crossings and separated bike path from Hillcrest Avenue to Antioch Station.
7	Install bike station with access-controlled bike parking and repair facilities (potential locations in the station parking lot or across Slatten Ranch Road).
8	Improve bike lane continuity on Larkspur Drive.
9	Construct separated bike path along Union Pacific right-of-way or Slatten Ranch Road.
10	Add bike lanes to Viera and Slatten Ranch Road extensions to the station area.
Transit Connections 	
11	Construct improved bus shelters at station with better weather protection for bus passengers.
Parking, Traffic and Passenger Loading 	
12	Install wayfinding to direct drivers to the parking lot and passenger drop-off locations.
13	Construct an additional parking lot or garage on the empty lot east of the parking lot.
14	Improve management of existing parking: Designate additional carpool spaces Support carpool-matching app



## Programmatic Parking Strategies

The top programmatic improvements not specific to a single station were determined to be the following:

### Relaunch Existing Carpool Program with Clipper



*BART Parking Validation Machine, CDM Smith 2017.*

#### *Description*

The current carpool program requires the driver and passenger to register online for a carpool permit, which then allows the driver to park in a dedicated carpool space. Both the driver and the passenger are also required to be in the vehicle at the time that the car pulls into the parking space. However, in order to enforce whether the vehicle was actually used to carpool to BART, enforcement officers would have to see the vehicle arrive and count the number of people getting out of the car. This system is hard to enforce, and therefore easy to cheat. BART is currently studying replacing the current carpool program with one that is based on Clipper card faregate entrances which would validate the legitimacy of the carpool for pre-registered participants.

#### *Feasibility*

A Clipper-based carpool program would be simple for riders to use and could be enforced without observing each vehicle. BART is already considering

this improvement, and it would not require significant capital investment, coordination with other stakeholders, or design. It is considered a high-feasibility option.

#### *Ridership Potential*

A Clipper-based carpool program would increase the number of carpools at each station due to increased ease of use, but this would be constrained by the number of carpool spaces in each lot. The Clipper carpool parking program would be implemented throughout the BART system, and it is assumed that on average, it would result in over 25 new riders per station.

#### *Cost*

Implementing this program would not require significant capital costs, but would require additional BART Customer Access staff resources for setup and ongoing administration. Enforcement would not need to be increased due to the ability to track carpools via Clipper payments, which is an additional function that could not be completed with existing parking section resources.

### Update Parking Pricing Structure

#### *Description*

Parking fees at BART stations are set by a system-wide parking pricing policy which sets maximum daily fees and rules for increasing prices. Most stations in the BART system, including North Concord and Pittsburg Bay Point, have reached the maximum fee of \$3 per day. Parking fees for Pittsburg Center and Antioch stations have been set at a beginning fee of \$3 per day. The low flat daily fee does not match the demand for parking: demand on most weekdays at North Concord and Pittsburg/Bay Point is higher than capacity, indicating that prices are too low. On Fridays, however, there are often open spaces.

A restructuring of the pricing policy could include a variety of progressive parking policies, including increasing the cap, variable pricing based on time of day or day of week, or congestion-based pricing that charges a different fee based on the arrival time of the driver.

#### *Feasibility*

BART already has equipment and authority to charge for parking, but would need Board approval to increase fees and a new policy and mechanisms to charge variable fees. New equipment might also be needed for variable parking fees. The requirement for Board approval and increased administrative resources give this improvement a moderate feasibility.

#### *Ridership Potential*

An effective solution will be one that encourages more usage outside of the peak times, which will reduce crowding on BART and could increase ridership by shifting some drivers to other modes and alerting potential riders when there is most likely to be availability in the parking lots, such as Fridays. These changes would be applied throughout the BART system, and on average would be expected in add at least 25 new daily riders per station, and potentially much more on Fridays.

#### *Cost*

Adding complexity to the parking fee structure may require significant capital investment, but would not add much administrative enforcement costs beyond the current resources of the parking section.

### Real-Time Parking Availability Information

#### *Description*

The high demand for parking at BART stations causes some uncertainty for many drivers who may arrive just after the lot fills up, requiring them to park elsewhere or drive to their destination. This may discourage some potential riders who do not want to spend time looking for a space if they are not going to find one. Additionally, some spaces may be left open after a lot appears to be full because drivers do not want to drive through every aisle.

Real-time parking availability can reduce the uncertainty of driving to BART and help drivers find open parking spaces. Precise real-time availability can be achieved with sensors at each parking space or at entrances and exits to each lot or garage, but

this method requires a large capital investment and significant maintenance and recurring service contracts. Alternatively, parking availability can be estimated using cameras or sensors strategically placed to determine when the parking spaces furthest from the lot or garage entrance fill up, which can be used as an estimate for whether the lot has filled completely. Either of these methods can be connected to the website, an app, or email and text alerts to communicate availability to drivers. It could also help BART passengers determine at which station to park based on parking availability, allowing full utilization of BART's parking supply.

**Feasibility**

The feasibility of this option depends on the technology used. Installing sensors in each space would be a very large capital investment which would be costly to implement. Strategically placed cameras or sensors at the last spaces to fill up would give an approximation of the parking facility's fill time and would be a much more feasible option.

**Ridership Potential**

This improvement has the potential to increase ridership during low usage times, such as Fridays, or unpredictable times, such as during events. It would also

promote a small increase in ridership on weekdays by helping drivers find the last few available spaces in each lot.

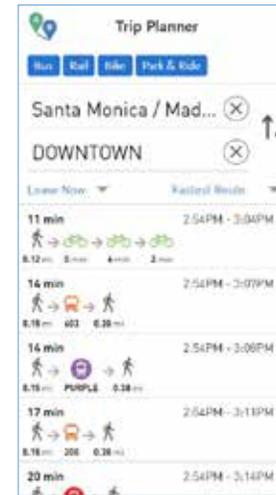
**Cost**

While adding sensors throughout the lots would be a large capital investment, other options for parking availability would have low capital costs but would require additional administrative resources to help monitor and communicate parking availability to riders.

**Centralized Access Information**

**Description**

Although there are resources on the BART website for various modes of access to BART stations, users generally must go to the website looking for specific information in order to find it. An integrated access website or app could provide information to passengers when they are looking up schedules or departure times. This could be used to show information about parking availability, including at nearby stations, parking prices, and to advertise programs such as Scoop, as well as information about other access modes. Providing information integrated with other features of the website or app will increase exposure and help riders think about their access options while planning their trip.



Multi-Modal Trip Planner, LA Metro, 2017.

**Feasibility**

Much of this information is already available on the BART website. This improvement would centralize resources and make them accessible at important points of intervention, such as when a passenger is deciding to make the trip, by displaying it along with trip planner or real-time departure information. This improvement has a high feasibility.

**Ridership Potential**

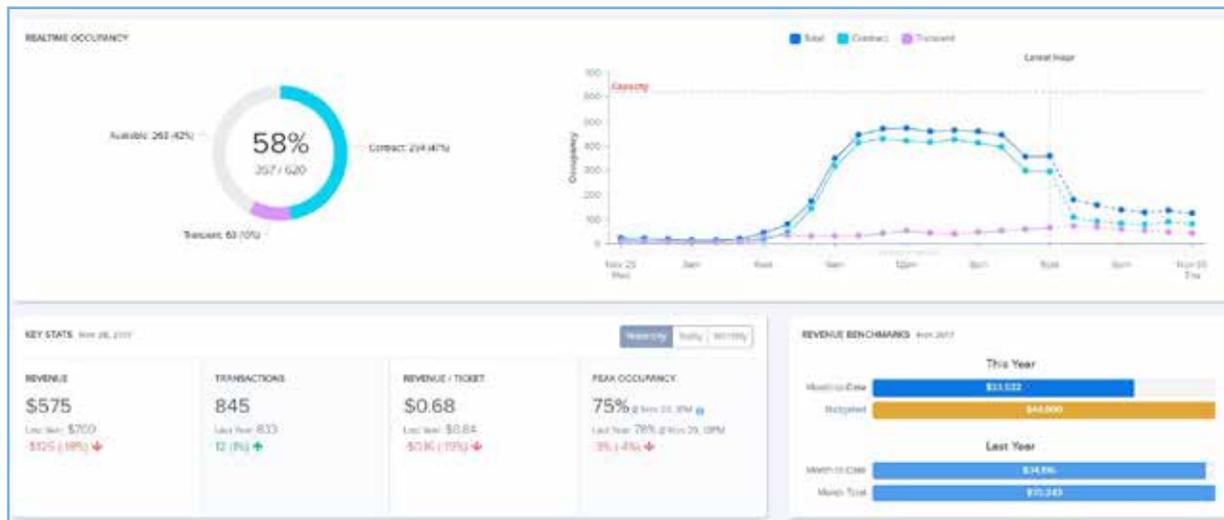
By providing information about parking availability as well as other access modes, this improvement has a moderate potential to increase ridership, at least 25 riders per station.

**Cost**

This improvement would require some small setup costs as well as administration costs to keep the information up to date and track the success of the program.

**Summary**

A key success factor to implementing any of these proposed parking management programs is dedicated BART staff for launching and administering the programs. Currently the lack of staff resources for administering parking programs restricts BART's ability to quickly roll out new pilot or permanent parking initiatives.



Real-time Parking Occupancy Dashboard, Smarking, 2017.

*This page intentionally left blank*

## 4. EVALUATION

## Introduction

Each of the access projects identified has been evaluated based on criteria relating to the BART Station Access Policy, adopted in June 2016, which guides access practices and projects at all BART stations. The Access Policy includes the following goals:

**A. Safer, Healthier, Greener.** Advance the region's safety, public health, and greenhouse gas (GHG) and pollution-reduction goals.

**B. More Riders.** Invest in station access to connect more riders cost effectively, especially where and when BART has available capacity.

**C. More Productive and Efficient.** Manage access investments, programs, and current assets to achieve goals at the least cost.

**D. Better Experience.** Be a better neighbor, and strive for an excellent customer experience, including on the first and last mile of the trip to and from BART stations.

**E. Equitable Services.** Invest in access choices for all riders, particularly those with the fewest choices.

**F. Innovation and Partnerships.** Be an innovation leader, and establish durable partnerships with municipalities, access providers, and technology companies

These goals were developed into measurable criteria as shown in the following table. Projects were scored on a scale of 0 to 1 in increments of 0.25, with 1 being the best score for each criterion. The definitions for each scoring level are described in Appendix C.

## Next Steps

While there is currently no defined budget for the implementation of access projects identified in this study, many of the projects would be strong candidates for grant funding from state, local, and federal programs, as well as Measure RR BART access funds.

Measure RR BART access funds are to be guided by BART's access policy, however as of the date of this report, BART has not yet confirmed its process for selecting projects for implementation, or whether some access goals will be weighted more heavily than others. Besides the evaluation criteria listed on the following pages, other factors that may influence a project to be selected for implementation include geographic distribution, timing of other major improvements, and availability of matching grant funds.

Following on this study, BART Plans to:

- Recommend a subset of the highest performing projects for additional design and/or construction funding from Measure RR;
- Collaborate with local municipalities as needed on grant applications to identify additional funds for implementation;
- Monitor development proposals in the vicinity of each station to determine whether some access projects could be delivered by others;
- Incorporate relevant improvements and strategies into future BART station improvement projects and transit-oriented development; and
- Monitor station access patterns at all four stations that result from the opening of the eBART as an additional input into selecting projects for implementation.

Table 4.1 North Concord Evaluation Results

North Concord Projects		Safer, Healthier, Greener	More Riders		More Productive & Efficient		Better Experience		Equitable Services		Innovation & Partnerships		Unweighted Total Score ***	Capital Cost		
		Supports Mode Shift	Generates Ridership	Won't Exacerbate Peak Crowding	Ease of Implementation	Impact on BART Operations & Other Lifecycle Costs	Placemaking	Supports TOD	Serve Disadvantaged Communities	Use Universal Design Principles	Partnerships	Innovations		Early Design/Feasibility Cost	Design Cost	Construction Cost
<b>Pedestrian Safety and ADA Accessibility</b>																
1	Pedestrian Bridge Across BART Tracks	1.00	1.00	0.75	0.25	0.00	1.00	0.50	0.25	1.00	0.75	0.25	7.75	\$500,000**	\$2,000,000	\$20,000,000
2	Panoramic Drive/ Port Chicago Highway Intersection Improvements	0.75	0.25	0.50	0.50	0.75	0.75	0.50	0.25	1.00	0.75	0.25	7	N/A	N/A	\$17,000
3	Pedestrian Wayfinding	0.50	0.25	0.50	0.75	0.50	1.00	0.50	0.25	0.75	0.75	0.25	6.5	N/A	N/A	\$3,000
4	Pedestrian Connection to Coast Guard Site	0.50	0.75	0.75	0.00	0.50	0.75	0.50	0.25	1.00	0.75	0.25	6.5	N/A	N/A	\$70,000
5	Construct ADA Ramp to Lower Parking Lot and Add Curb Cuts	0.50	0.25	0.50	0.50	0.50	0.50	0.50	0.25	1.00	0.75	0.25	6	N/A	N/A	\$400,000
6	Pedestrian and Bike connection to Dormer Avenue	0.75	0.75	0.75	0.25	0.50	0.75	0.50	0.25	1.00	0.75	0.25	7.25	N/A	N/A	\$50,000
<b>Bicycle Safety and Access</b>																
7	Multi-Use Path to Industrial Park	1.00	0.75	1.00	0.50	0.75	1.00	0.50	0.25	1.00	0.75	0.50	9	N/A	N/A	\$290,000
8	Bicycle Wayfinding at Trail Connections North and South of Station	0.50	0.25	0.50	0.75	0.75	1.00	0.50	0.25	0.75	0.75	0.25	6.75	N/A	N/A	\$3,000
<b>Transit Connections</b>																
9	Paratransit Shelter	0.50	0.25	0.50	0.75	0.25	0.75	0.50	0.25	1.00	0.75	0.25	6.25	N/A	N/A	N/A
10	Implement Public Shuttle North to the Industrial Park	0.75	1.00	1.00	0.50	0.75	0.25	0.50	0.25	1.00	0.75	0.25	7.75	N/A	N/A	\$47,000
<b>Parking, Traffic and Passenger Loading</b>																
11	Lighting in the Lower Parking Lot	0.25	0.25	0.50	0.75	0.50	1.00	0.50	0.25	0.75	0.75	0.25	6	N/A	\$50,000	\$470,000
12	Off-Site Parking Opportunities	0.00	0.50	0.25	0.50	0.75	0.25	0.50	0.25	0.25	0.75	0.25	4.25	N/A	N/A	\$75,000
13	Improvements to Existing Parking	0.50	0.75	0.25	0.75	0.75	0.25	0.50	0.25	0.25	0.75	0.50	6	N/A	N/A	\$32,000

\* See Appendix C for evaluation criteria framework

\*\* Feasibility study cost would include multiple locations studied simultaneously

\*\*\* Unweighted total scores assume equal weights for each of the six main access goals. All criteria are summed without weights, except "Supports Mode Shift" is multiplied by two to weight Safer, Healthier, Greener equally to the other main access goals. The process for selecting projects, and whether some criteria may be weighted more heavily than others, has not yet been determined.

Table 4.2 Pittsburg/Bay Point Evaluation Results

Pittsburg/Bay Point Projects		Safer, Healthier, Greener	More Riders		More Productive & Efficient		Better Experience		Equitable Services		Innovation & Partnerships		Unweighted Total Score ***	Capital Cost		
		Supports Mode Shift	Generates Ridership	Won't Exacerbate Peak Crowding	Ease of Implementation	Impact on BART Operations & Other Lifecycle Costs	Placemaking	Supports TOD	Serve Disadvantaged Communities	Use Universal Design Principles	Partnerships	Innovations		Early Design/Feasibility Cost	Design Cost	Construction Cost
<b>Pedestrian Safety and ADA Accessibility</b>																
1	ADA Ramp at Entrance	0.50	0.25	0.50	0.50	0.50	0.25	1.00	1.00	1.00	0.75	0.25	7	N/A	N/A	\$160,000
2	SR-4 Pedestrian Bridge	1.00	0.75	0.75	0.25	0.00	0.75	1.00	1.00	1.00	0.75	0.25	8.5	\$500,000**	\$2,000,000	\$20,000,000
3	Crosswalks and Curb Ramps on Access Road	0.50	0.25	0.50	0.75	0.75	0.50	1.00	1.00	1.00	0.75	0.25	7.75	N/A	N/A	\$48,000
4	Access Stairway from West Leland Road	0.50	0.25	0.50	0.75	0.50	0.50	1.00	1.00	0.25	0.75	0.25	6.75	N/A	N/A	\$250,000
5	Ramp Improvements in Disabled Parking Area	0.25	0.25	0.50	0.75	0.75	0.50	1.00	1.00	0.75	0.75	0.25	7	N/A	N/A	\$16,000
6	Canal Rd/Bailey Rd Path	0.75	0.50	0.75	0.25	0.75	1.00	1.00	1.00	1.00	0.75	0.25	8.75	N/A	N/A	\$90,000
7	West Leland Rd Intersection	0.75	0.25	0.50	0.75	0.75	0.75	1.00	1.00	0.75	0.75	0.25	8.25	N/A	N/A	\$88,000
<b>Bicycle Safety and Access</b>																
8	Bicycle Lanes on BART Access Rd to Bailey Rd	0.75	0.75	0.75	0.50	0.50	0.75	1.00	1.00	0.25	0.75	0.75	8.5	N/A	N/A	\$300,000
9	Improve Bicycle and Pedestrian Wayfinding	0.50	0.50	0.75	0.75	0.50	1.00	1.00	1.00	0.75	0.75	0.25	8.25	N/A	N/A	\$3,000
10	Bicycle Facilities on Station Access Roads	0.50	0.25	0.50	1.00	0.50	0.75	1.00	1.00	0.25	0.75	0.50	7.5	N/A	N/A	\$27,000
11	Install bicycle channels in station entrance stairway	0.50	0.25	0.50	0.75	0.75	0.25	1.00	1.00	0.25	0.75	0.25	6.75	N/A	N/A	\$130,000
<b>Transit Connections</b>																
12	Paratransit Stop Relocation	0.50	0.25	0.50	1.00	0.75	0.25	1.00	1.00	1.00	0.75	0.25	7.75	N/A	N/A	N/A
<b>Parking, Traffic and Passenger Loading</b>																
13	Parking Lot Expansion	0.25	1.00	0.25	0.50	0.50	0.25	1.00	1.00	0.75	0.75	0.25	6.75	N/A	\$720,000	\$6,000,000
14	Eastern Passenger Drop-off Area Reconfiguration	0.25	0.25	0.50	1.00	0.75	0.25	1.00	1.00	0.75	0.75	0.75	7.5	N/A	N/A	\$100,000
15	Signage and Wayfinding	0.00	0.25	0.50	0.75	0.50	0.25	1.00	1.00	0.25	0.75	0.25	5.5	N/A	N/A	\$5,000
16	Improvements to Existing Parking	0.50	0.75	0.25	1.00	0.75	0.25	1.00	1.00	0.25	0.75	0.50	7.5	N/A	N/A	\$30,000

\* See Appendix C for evaluation criteria framework

\*\* Feasibility study cost would include multiple locations studied simultaneously

\*\*\* Unweighted total scores assume equal weights for each of the six main access goals. All criteria are summed without weights, except "Supports Mode Shift" is multiplied by two to weight Safer, Healthier, Greener equally to the other main access goals. The process for selecting projects, and whether some criteria may be weighted more heavily than others, has not yet been determined.

Table 4.3 Pittsburg Center Evaluation Results

Pittsburg Center Projects		Safer, Healthier, Greener	More Riders		More Productive & Efficient		Better Experience		Equitable Services		Innovation & Partnerships		Unweighted Total Score ****	Capital Cost		
		Supports Mode Shift	Generates Ridership	Won't Exacerbate Peak Crowding	Ease of Implementation	Impact on BART Operations & Other Lifecycle Costs	Placemaking	Supports TOD	Serve Disadvantaged Communities	Use Universal Design Principles	Partnerships	Innovations		Early Design/Feasibility Cost	Design Cost	Construction Cost
<b>Pedestrian Safety and ADA Accessibility</b>																
1	Railroad Avenue Sidewalk Improvements	0.50	0.50	0.75	0.50	0.75	0.75	1.00	0.75	0.75	0.75	0.25	7.75	N/A	N/A	\$140,000
2	Railroad Avenue Intersection Safety Improvements	0.75	0.50	0.75	0.50	0.75	0.50	1.00	0.75	0.75	0.75	0.25	8	N/A	N/A	\$160,000
3	Wayfinding Outside of Station and at Multimodal Facility	0.50	0.25	0.50	0.75	0.50	1.00	1.00	0.75	0.75	0.75	0.25	7.5	N/A	N/A	\$3,000
4	Sidewalk Improvements Within Station Area	0.75	0.25	0.50	0.75	0.75	0.75	1.00	0.75	0.75	0.75	0.25	8	N/A	\$160,000	\$1,700,000
<b>Bicycle Safety and Access</b>																
5	Bicycle Lanes South of Station and Bicycle Wayfinding	1.00	0.75	0.75	0.50	0.75	1.00	1.00	0.75	0.25	0.75	0.50	9	N/A	N/A	\$6,500
6	Bike Station	0.75	0.75	0.00	0.75	0.25	0.75	1.00	0.75	0.25	0.75	0.75	7.5	N/A	\$100,000	\$1,200,000
7	Bike Racks South of Station or on Overpass	0.50	0.50	0.75	0.75	0.75	0.25	1.00	0.75	0.25	0.75	0.50	7.25	N/A	N/A	\$2,500
8	Bicycle Trail and Bike Lanes in Station Area	1.00	1.00	0.75	0.50	0.75	0.75	1.00	0.75	0.25	0.75	0.50	9	N/A	\$130,000	\$1,400,000
<b>Transit Connections</b>																
9	Bus Stop and Shelter Upgrades	0.50	0.50	0.75	0.75	0.75	0.50	1.00	0.75	0.75	0.75	0.25	7.75	N/A	N/A	\$440,000
<b>Parking, Traffic and Passenger Loading</b>																
10	Pick-Up/Drop-Off Area on Bliss Avenue	0.25	0.25	0.50	0.50	0.75	0.25	1.00	0.75	0.50	0.75	0.25	6	N/A	N/A	\$29,000
11	Wayfinding on Railroad Avenue for Drivers	0.00	0.25	0.50	0.75	0.50	0.25	1.00	0.75	0.25	0.75	0.25	5.25	N/A	N/A	\$3,000
12	Off-Site Parking Opportunities	0.00	0.50	0.25	0.50	0.75	0.25	1.00	0.75	0.25	0.75	0.25	5.25	N/A	N/A	\$450,000
13	Improvements to Existing Parking	0.50	0.50	0.25	0.75	0.75	0.25	1.00	0.75	0.25	0.75	0.50	6.75	N/A	N/A	N/A

\* See Appendix C for evaluation criteria framework

\*\* Feasibility study cost would include multiple locations studied simultaneously

\*\*\*Unweighted total scores assume equal weights for each of the six main access goals. All criteria are summed without weights, except "Supports Mode Shift" is multiplied by two to weight Safer, Healthier, Greener equally to the other main access goals. The process for selecting projects, and whether some criteria may be weighted more heavily than others, has not yet been determined.

Table 4.4 Antioch Evaluation Results

Antioch Projects		Safer, Healthier, Greener	More Riders		More Productive & Efficient		Better Experience		Equitable Services		Innovation & Partnerships		Unweighted Total Score ***	Capital Cost		
		Supports Mode Shift	Generates Ridership	Won't Exacerbate Peak Crowding	Ease of Implementation	Impact on BART Operations & Other Lifecycle Costs	Placemaking	Supports TOD	Serve Disadvantaged Communities	Use Universal Design Principles	Partnerships	Innovations		Early Design/Feasibility Cost	Design Cost	Construction Cost
<b>Pedestrian Safety and ADA Accessibility</b>																
1	Pedestrian Wayfinding	0.50	0.25	0.50	0.75	0.50	1.00	0.25	0.75	0.75	0.75	0.25	6.75	N/A	N/A	\$1,500
2	Pedestrian and Bicycle Bridge Across Highway 4	1.00	0.75	0.75	0.25	0.00	1.00	0.25	0.75	1.00	0.75	0.25	7.75	\$500,000**	\$2,000,000	\$20,000,000
3	Sidewalk Widening on Hillcrest Avenue	0.50	0.50	0.75	0.50	0.75	0.75	0.25	0.75	0.75	0.75	0.25	7	N/A	\$150,000	\$1,500,000
4	Sidewalk Extensions on Viera Avenue and Slatten Ranch Road	0.75	0.75	0.75	0.00	0.75	0.75	0.25	0.75	0.75	0.75	0.25	7.25	N/A	\$250,000	\$2,500,000
5	Pedestrian and Bicycle Bridge Across Highway 4 Ramps	1.00	0.50	0.75	0.25	0.75	1.00	0.25	0.75	1.00	0.75	0.25	8.25	N/A	\$2,000,000	\$20,000,000
<b>Bicycle Safety and Access</b>																
6	Bike connection from Hillcrest Ave to Station	1.00	0.75	0.75	0.75	0.75	0.75	0.25	0.75	0.25	0.75	0.25	8	N/A	N/A	\$350,000
7	Bike Station	0.75	0.50	0.75	0.50	0.00	0.75	0.25	0.75	0.25	0.75	0.75	6.75	N/A	\$100,000	\$1,100,000
8	Bike Lanes on Larkspur Drive	1.00	0.75	0.75	0.50	0.75	0.75	0.25	0.75	0.25	0.75	0.50	8	N/A	N/A	\$90,000
9	Bike Path Parallel to Slatten Ranch Road	1.00	0.75	0.75	0.25	0.75	0.75	0.25	0.75	0.25	0.75	0.50	7.75	N/A	\$200,000	\$1,900,000
10	Bike Lane Extension to Viera Avenue and Slatten Ranch Road	1.00	0.75	0.75	0.00	0.75	0.75	0.25	0.75	0.25	0.75	0.50	7.5	N/A	N/A	\$60,000
<b>Transit Connections</b>																
11	Bus Shelter Upgrades at Station Bus Bays	0.50	0.25	0.75	0.75	0.50	0.75	0.25	0.75	0.75	0.75	0.25	6.75	N/A	N/A	\$280,000
<b>Parking, Traffic and Passenger Loading</b>																
12	Wayfinding for Drivers	0.00	0.25	0.50	0.75	0.50	0.25	0.25	0.75	0.25	0.75	0.25	4.5	N/A	N/A	\$3,000
13	New Parking Garage	0.00	1.00	0.25	0.50	0.75	0.25	0.25	0.75	0.25	0.75	0.50	5.25	\$500,000	\$10,000,000	\$100,000,000
14	Improvements to existing parking	0.50	0.75	0.25	0.75	0.75	0.25	0.25	0.75	0.25	0.75	0.50	6.25	N/A	N/A	\$4,000

\* See Appendix C for evaluation criteria framework

\*\* Feasibility study cost would include multiple locations studied simultaneously

\*\*\* Unweighted total scores assume equal weights for each of the six main access goals. All criteria are summed without weights, except "Supports Mode Shift" is multiplied by two to weight Safer, Healthier, Greener equally to the other main access goals. The process for selecting projects, and whether some criteria may be weighted more heavily than others, has not yet been determined.