BART Bike Parking Capital Program

Increasing bike access while reducing bikes onboard

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TRANSPORTATION, ENVIRONMENTAL AND URBAN PLANNING

BART bike parking capital program

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Introduction

This report proposes an expanded Bicycle Parking Capital Program at BART focused on greatly improving secure bicycle parking at key stations over the next few years[1]. The program is in response to consensus following the pilots that temporarily lifted onboard commute period restrictions during Fridays in August 2012 and for one work week in March 2013:

- Assuming reconfigured car interiors and responsible cyclist behavior, BART may be able to allow cyclists on peak hour/direction trains.
- Vastly increased secure bicycle parking will be needed to make this policy shift successful. The 2012 BART Bicycle Plan supports this conclusion: it reports that about 25% of cyclists who currently bring their bikes onboard do so because of a lack of secure parking at their origin station.

Bike access represents an environmentally sustainable way to address increasingly challenging customer access issues for BART. The type of capital investments envisioned to accomplish the twin goals of increasing bicycle access and reducing onboard bicycle carriage include attended and self-serve bike stations, electronic lockers, and bicycle racks inside station paid areas/drip lines. Augmenting this bike parking may also call for security cameras, stairway channels and way-finding in some locations (see following section for more discussion).

BART stations to target new investment

16th Street Mission	Glen Park
19th Street Oakland	Lafayette
24th Street Mission	Lake Merritt
Balboa Park	MacArthur
Civic Center	North Berkeley
Concord	Rockridge
Dublin / Pleasanton	San Leandro
El Cerrito Plaza	Walnut Creek
Fremont	West Oakland

The BART Bike Parking Capital Program will benefit the entire BART system by encouraging new and existing passengers to bicycle to BART – thus freeing up precious auto parking – and allowing more bike-to-BART passengers to park (rather than bringing a bike onboard), which will help reduce train car crowding. The program will require monetary resources to make short term investments and for seed money to attract outside grant funds. As important as funding, will be a commitment of staff resources to plan, procure and construct new secure bicycle parking. Successful expansion of secure bike parking will rely on close coordination between BART Customer Access and the recently reorganized executive office of Planning and Development.

[1] Recommendation 5.3 of the 2012 BART Bicycle Plan (www.bart.gov/docs/BART_Bike_Plan_Final_083012.pdf)

Proposed bicycle capital program

The expansion plans detailed here call for investing in stations where secure bicycle parking is expected to be most effective at diverting auto access passengers to bike access and allow more passengers who currently bring their bikes onboard to feel safe leaving them at their origin station. The selection criteria for these stations were based on current usage. At these stations, during the peak parking hours of 10:00 am-2:00 pm, 35-90% of existing bicycle parking is occupied and at least 25 bicycles are parked and there are fewer than 100 secure bike parking spaces today[2]. Beyond these quantitative indicators of the potential for investment to increase bike access, in some cases, near-term county-specific opportunities for funding was also considered. The type of capital investment envisioned to improve bike access while reducing onboard bicycle carriage includes:

- Bicycle racks inside station paid areas or drip lines
- Electronic lockers[3]
- Attended and self-serve bike stations (see Appendix A for description of a modular option for constructing bike stations)

These parking types are considered secure either because of their location or limitations on access, or both. The BART system already has experience with all of these types of bicycle parking. Table 1 shows the number of existing and recommended secure bicycle parking spaces at the 18 stations that are the focus of this report (see Appendix B for the methodology used to estimate future demand at these stations). This investment will more than double BART's stock of secure bicycle parking, focused on the stations where it is expected to both attract the highest share of bike access passengers and encourage the most to park at the station rather than bringing their bikes onboard trains.

To increase and improve secure bicycle parking at these 18 stations will cost a total of $6.2 million. Through outside grants, $2.9 million has already been secured, leaving a shortfall of $3.4 million. Appendix C provides a breakdown of these costs by station and investment type.

To enhance the effectiveness of investing in secure bicycle parking, BART could also implement other recommendations from the 2012 Bicycle Plan, including:

- **1.1** Develop and install wayfinding signage
- **1.3** Evaluate and install stairway channels
- **2.2** Fight bicycle theft (through lighting, security cameras)

These features will compliment the secure bicycle parking investments called for in this Capital Program by directing passengers to the most secure bike parking locations, allowing passengers to safely wheel their bikes on stairways so they can reach parking locations not at street level, and creating safer bicycle parking (and pedestrian) environments with improved lighting and security cameras.

2 2011 Inventory conducted during the BART Bicycle Plan development. Five stations (Ashby, Downtown Berkeley, Embarcadero, Fruitvale & Pleasant Hill) fulfill these criteria, but already have either a bike station or at least 100 electronic lockers, so further investment in these stations at this time is not recommended.

3 This program focuses on shared use bicycle parking facilities, including eLockers. Although keyed lockers are an existing bicycle parking resource at some stations, they are not included in the existing inventory of secure bicycle parking spaces discussed in this report because they serve just one user.

Table 1 | Existing and recommended secure bike parking

	Existing secure parking				*Recommended secure parking*				
Target stations	*Paid area racks*	*E-lockers*	*Bike station*	*Total*	*Paid area racks*	*E-lockers*	*Bike station*	*Total*	*Grand total*
16th Street/Mission	77	0	0	77	76	0	73	149	226
19th Street Oakland	124	8	0	132	0	0	122	122	254
24th Street/Mission	70	0	0	70	76	0	73	149	219
Balboa Park	60	0	0	60	10	28	0	38	98
Civic Center	63	0	0	63	60	0	158	218	281
Concord	0	56	0	56	32	0	56	88	144
Dublin/Pleasanton	14	28	0	42	63	0	0	63	105
El Cerrito Plaza	0	72	0	72	0	80	0	80	152
Fremont	0	44	0	44	0	84	0	84	128
Glen Park	21	0	0	21	23	0	120	143	164
Lafayette	0	12	0	12	58	0	0	58	70
Lake Merritt	50	40	0	90	0	44	0	44	134
MacArthur	72	40	0	112	0	0	180	180	292
North Berkeley*	0	60	0	60	108	20	0	128	188
Rockridge	0	40	0	40	0	0	119	119	159
San Leandro	0	40	0	40	0	0	85	85	125
Walnut Creek	0	0	0	0	0	96	0	96	96
West Oakland	0	42	0	42	0	24	156	180	222
Total				**1,013**				**2,024**	**3,057**

* Recommended racks at North Berkeley, while not inside the fare gates or beneath the station drip line, are considered secure due to their visibility from and proximity to the fare gates and station agent's booth, and planned security cameras and lighting.

Station profiles

The following pages provide details about the secure bicycle parking recommendations at each of the 18 stations targeted by this effort.

16th Street / Mission Station

Secure bicycle parking recommendations

Station Characteristics

Paid area

The 16th Street/ Mission station has the system's most sophisticated stairway channel, which allows bikes to be rolled up and down the stairs that serve this deep station. The street-level plaza is often crowded, leaving no space for bicycle parking. BART currently provides well-used wave racks for 77 bicycles within the paid area; unfortunately, theft is not uncommon even inside the fare gates. Due to the location of the fare gates closest to the south/western entrance to the station, pedestrian circulation tends toward this side.

Summary of station characteristics

Average weekday passengers (2013): 12,237

Projected weekday passengers (2023): 13,330

Bike access rate (2008): 5.4% | Goal (2023): 8%

Bike parking spaces (2013): 77 secure; 0 other

Bicycle Parking Recommendations

The only viable space for secure bike parking at the 16th Street/Mission station is at the location of the current bike racks inside the paid area. To make these racks more secure, a self-serve bike station constructed around the current racks is recommended. Given the walking habits of BART patrons at this station, the narrowing required to install the bike station at this location will not interfere with passenger flows. In addition, there is space for 76 hanging, space-saver racks on the west side of the paid area, which will also not hinder passengers.

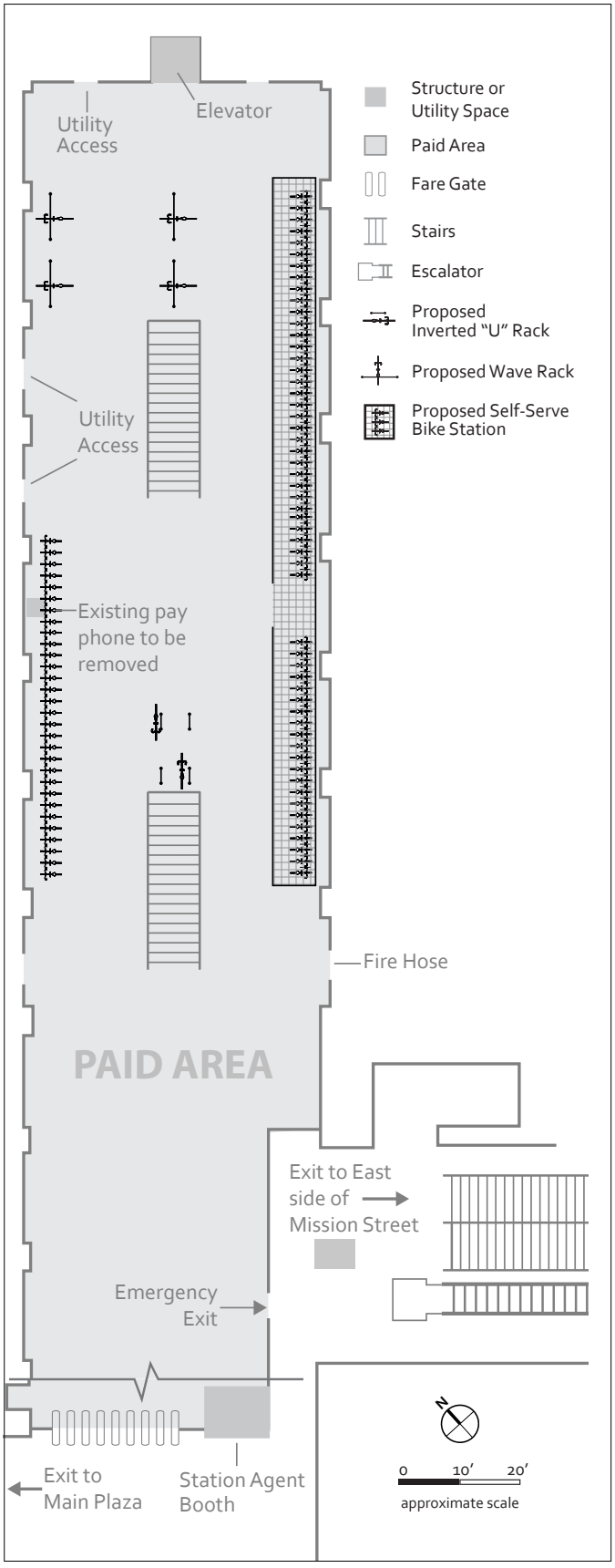
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 149

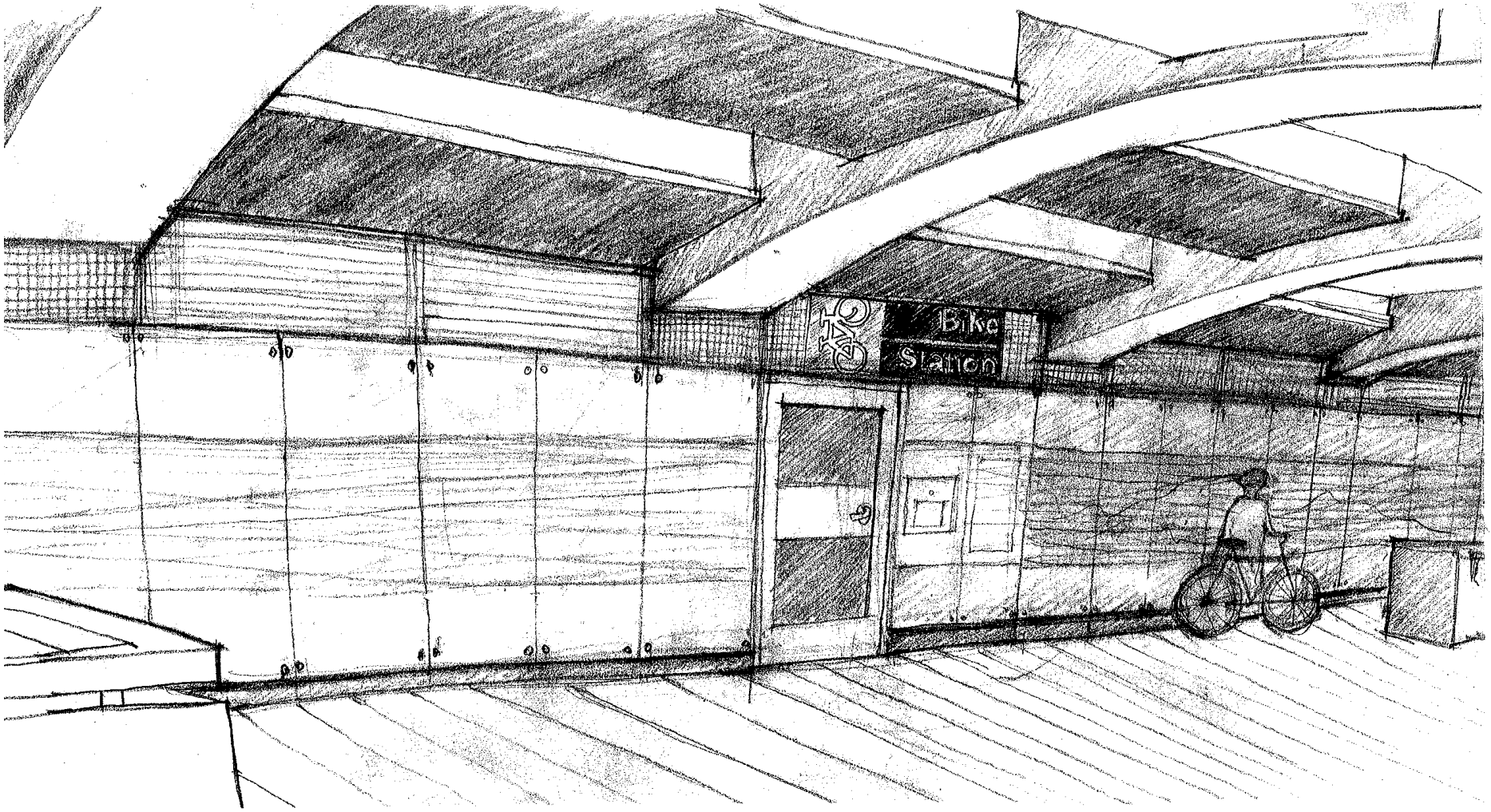
Rack spaces inside fare gates/drip line: 76

Self-serve bike station spaces: 73

Projected need of secure spaces: 130–160



Concourse level



16th Street / Mission self-serve bike station concept

19th Street Oakland Station

Secure bicycle parking recommendations

Station Characteristics

Existing Double Decker racks

There are currently 124 well-used double decker rack spaces on the concourse level of the 19th Street station. There is no auto parking at this station and very limited auto parking at adjacent stations. The growing residential population in this area seems oriented to the bicycle and it is likely that bike access will become an increasingly important access mode for this station.

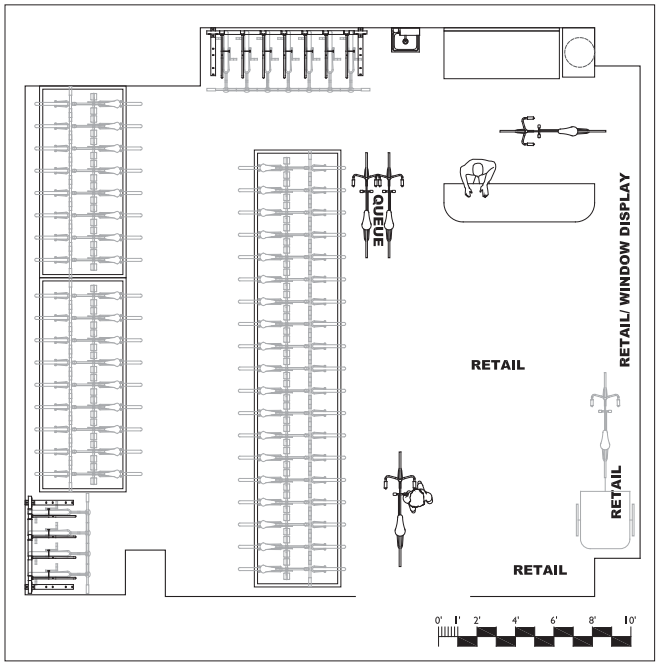
Summary of station characteristics

Average weekday passengers (2013): 11,640

Projected weekday passengers (2023): 16,540

Bike access rate (2008): 6.2% | Goal (2023): 8%

Existing bike parking (2013): 132; 132 secure, 0 other



Recommended bike station, plan view

Bicycle Parking Recommendation

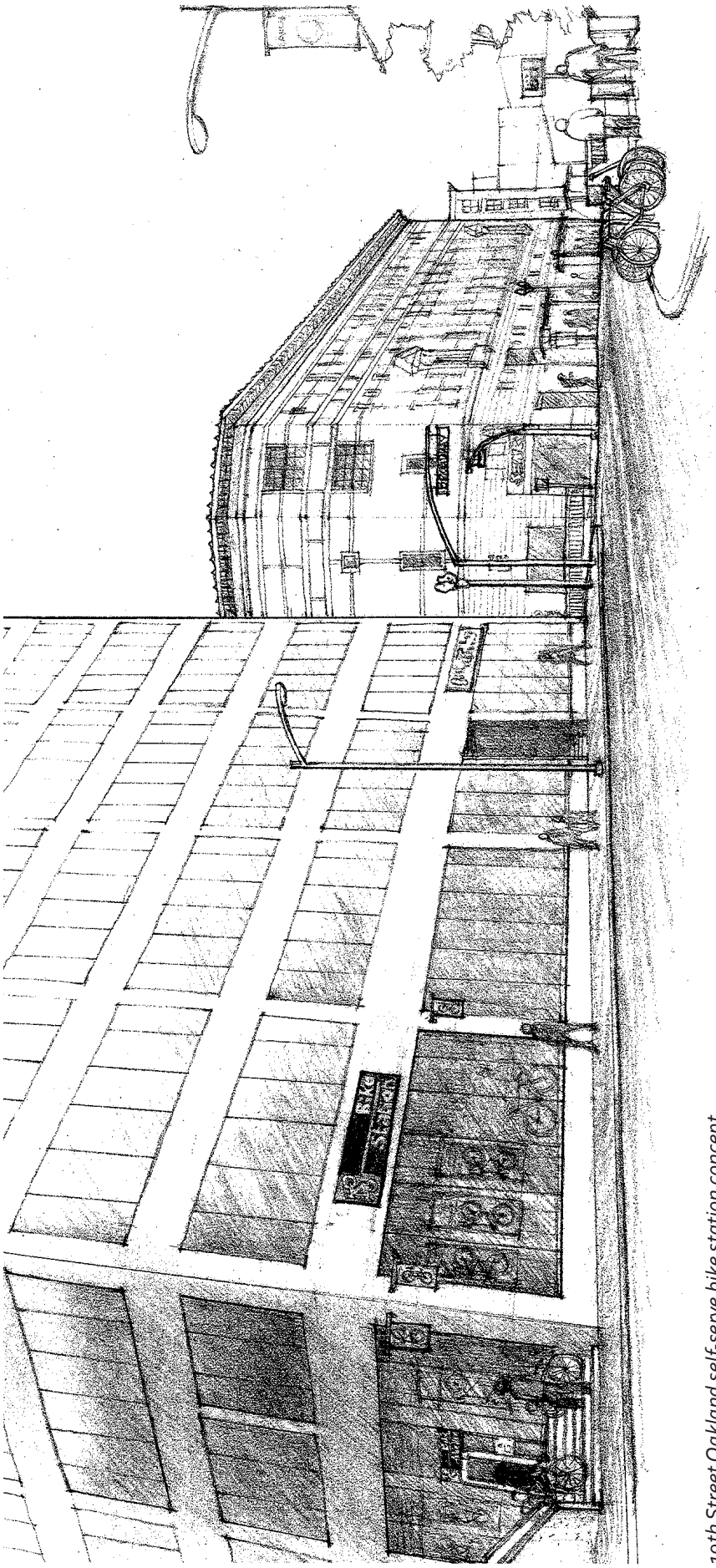
Funded with a Safe Routes to Transit grant secured by the City of Oakland, City of Oakland and BART are jointly developing an attended bike station at the 19th Street station. The tentative location is a 1,200 square foot space at 1970 Broadway, which will be able to hold approximately 120 bikes. If additional capacity is needed beyond the racks currently on the concourse level and the attended bike station, more racks can be added on the concourse level of the station.

Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 122

Self-serve bike station spaces: 122

Projected need of secure spaces: 28–32



19th Street Oakland self-serve bike station concept

24th Street / Mission Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended self-serve station

The 24th Street/ Mission station is identical to 16th/ Mission in terms of its design and orientation, the only difference being the absence of the eastern fare gates at 16th and the absence of a stairway channel at 24th. The stations have similar bike access figures and existing bike parking numbers and arrangements.

Summary of station characteristics

Average weekday passengers (2013): 12,790

Projected weekday passengers (2023): 15,129

Bike access rate (2008): 4.8% | Goal (2023): 8%

Existing bike parking (2013): 70; 70 secure, 0 other

Bicycle Parking Recommendations

Not surprisingly an identical bicycle parking configuration is recommended for the 24th Street/ Mission station as 16th Street. Existing bike racks on the east side of the paid area should be enclosed to create a self-serve bike station and 76 additional racks should be installed on the west side.

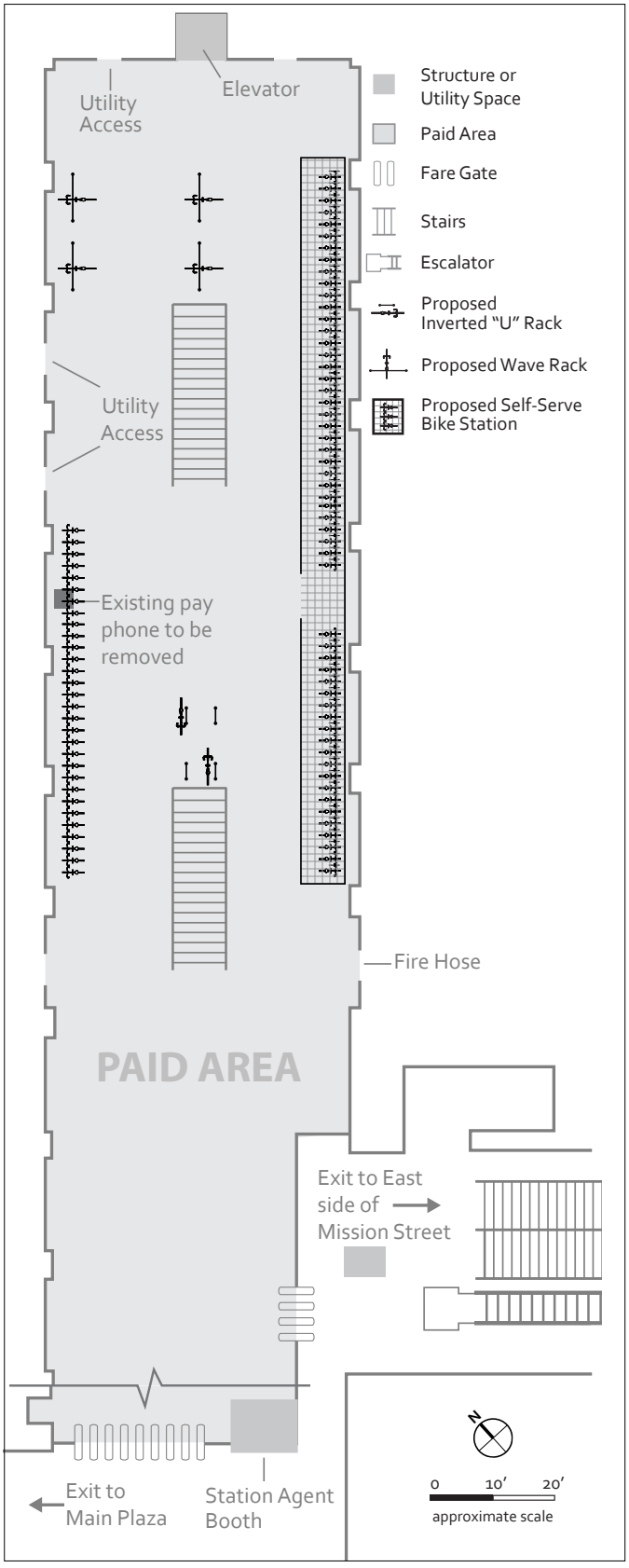
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 149

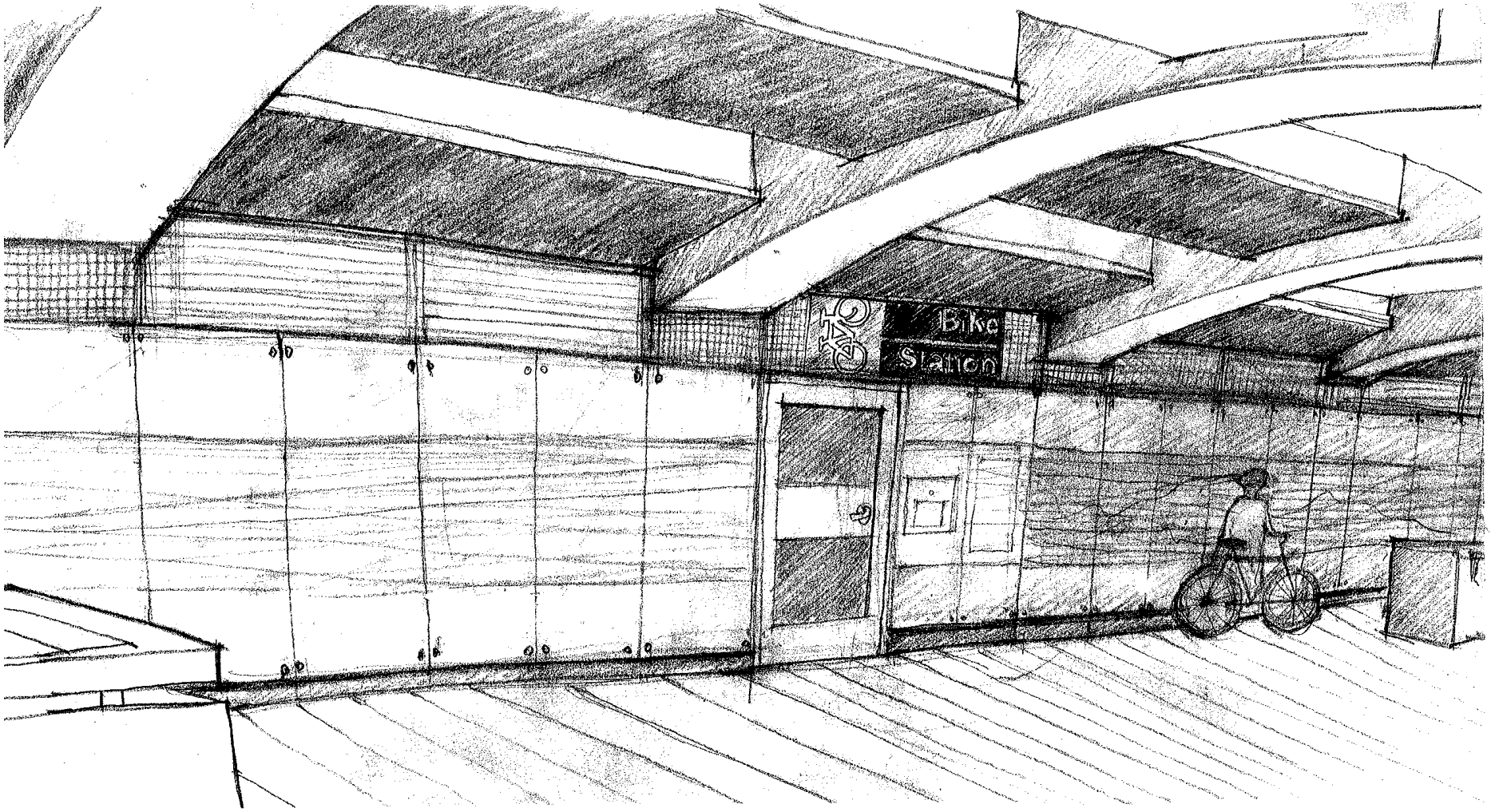
Rack spaces inside fare gates/drip line: 76

Self-serve bike station spaces: 73

Projected need of secure spaces: 280 to 340



Concourse level



24th Street / Mission self-serve bike station concept

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Balboa Park Station

Secure bicycle parking recommendations

Station Characteristics

North site of recommended lockers

San Francisco's Balboa Park BART station has 12 keyed bicycle lockers on the Geneva Avenue plaza and 30 inverted-U bike racks inside the station's paid area. The small station offers limited opportunities for additional bicycle parking within the paid area; however the recently reconstructed north entrance provides a new opportunity to install electronic lockers.

Summary of station characteristics

Average weekday passengers (2013): 12,083

Projected weekday passengers (2023): 14,974

Bike access rate (2008): 1.9% | Goal (2023): 6%

Existing bike parking (2013):95; 60 secure, 35 other

Bicycle Parking Recommendation

Given that the keyed lockers often sit empty, it is recommended that they be replaced with electronic lockers. There is space for 12 additional e-lockers at the station's north entrance, and 10 new inverted U-racks (to match the existing stock) inside the paid area.

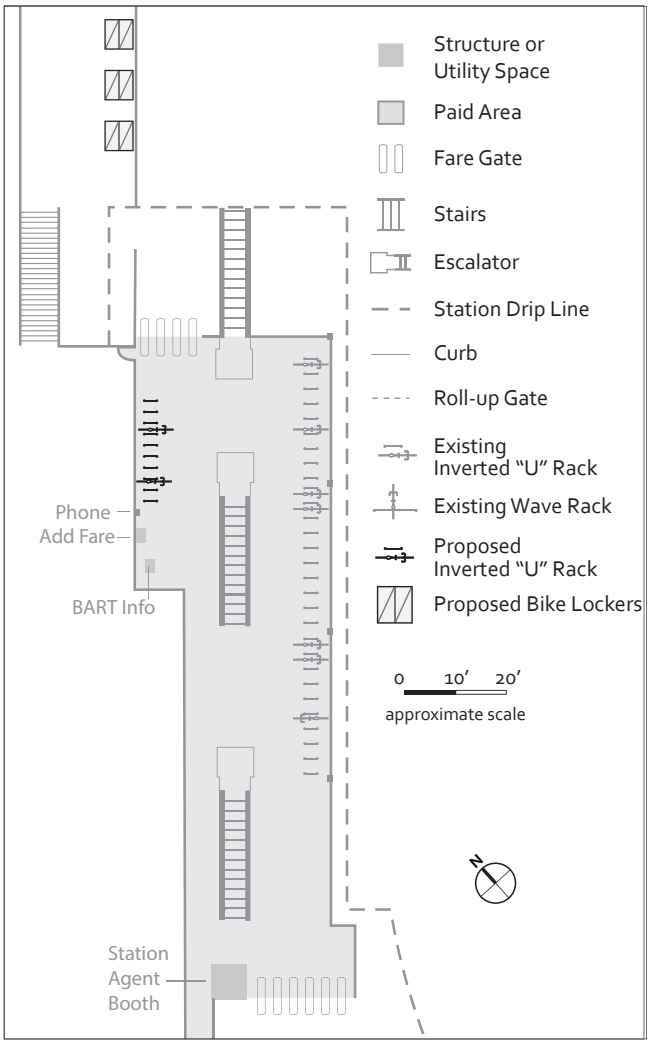
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 38

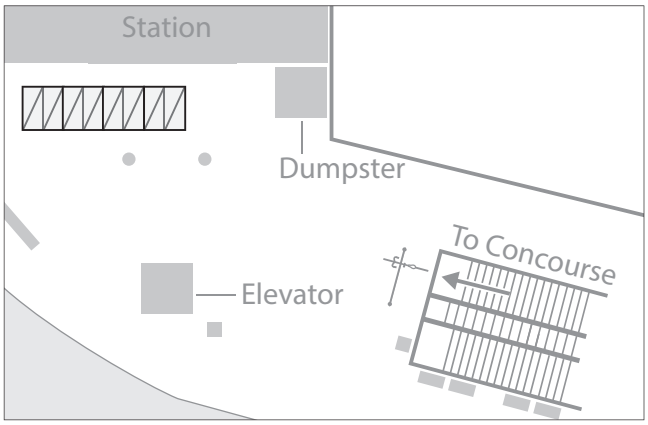
Rack spaces inside fare gates/drip line: 10

Electronic lockers: 28

Projected secure need: 190 to 230



Concourse Level, North Entrance



Plaza Level, Geneva Ave, Northside

Civic Center Station

Secure bicycle parking recommendations

Station Characteristics

Site of future self-serve bike station

There are currently bike racks for 63 bikes inside the paid area at Civic Center station. The racks are well used and there is clearly demand for additional bike parking despite the need to carry one's bike down and up several flights of stairs between the street and concourse levels. This station is located at the "entrance" to the most congested portions of Market Street and with both Muni Metro and BART service available at the station, it's a good spot for many to leave their bikes and continue their trip on transit.

Bicycle Parking Recommendation

Several bike parking improvements are currently being designed for the Civic Center station. They include a self-serve bike station with capacity for 93 bikes, an upgrade to the racks currently in the paid area that will add 32 spaces and new racks adjacent to the controlled access bike station for 65 bikes. The facility is modular in design and the controlled access portion can be expanded as demand for more secure parking increases. This station should rank high on any list of stations to receive a stair channel. Finally, given the recent increases in bicycle use in San Francisco, this area might also be a good candidate for an attended street level bike station.

Summary of station characteristics

Average weekday passengers (2013): 20,565

Projected weekday passengers (2023): 26,127

Bike access rate (2008): 4.5% | Goal (2023): 8%

Existing bike parking (2013): 63 secure; 0 other

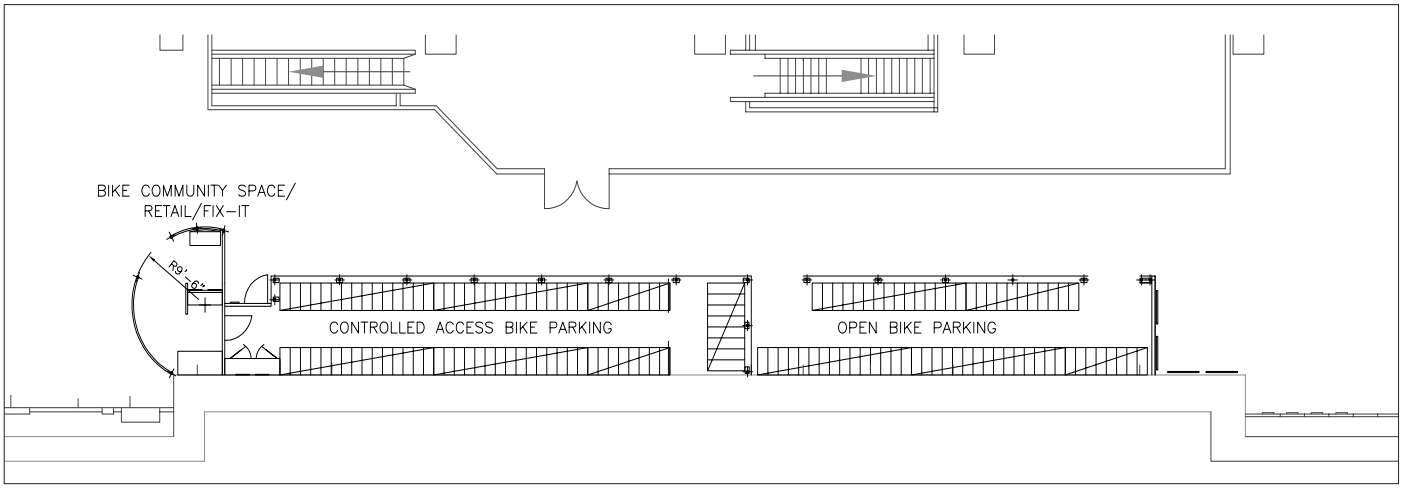
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 218

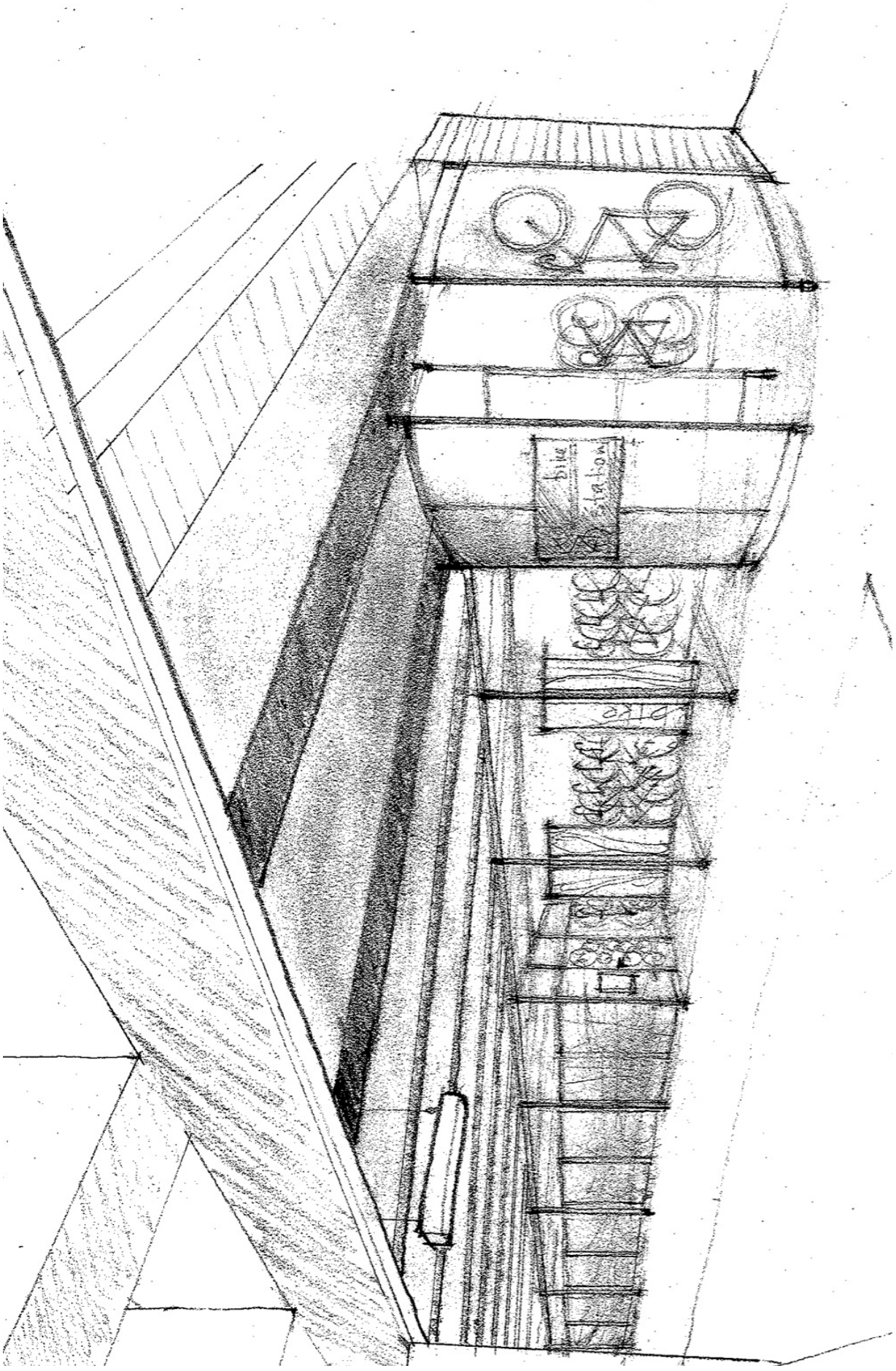
Rack spaces inside fare gates/drip line: 60

Self-serve bike station spaces: 158

Projected need of secure spaces: 120–150



Future self-serve bike station



Civic Center self-serve bike station concept

Concord Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended bike parking

The Concord BART station currently offers 56 shared use electronic lockers. In addition there are a limited number of keyed lockers and ample wave racks outside the paid area on the east and west sides of the station. A 2011 survey found that just 12% of the station's 98 racks that are farther from the fare gates were occupied.

Bicycle Parking Recommendation

To provide a more secure bicycle parking environment at the Concord BART station, a self-serve bike station in the courtyard between the paid area and the parking garage is recommended. In addition, there is room in this courtyard for double decker racks under a new canopy just outside the bike station. Concentrating the bike parking in this area will allow for efficient improved lighting, video monitoring and other bike amenities, such as a "fix-it station," which will provide a work stand, air pump and basic tools designed for public use.

Summary of station characteristics

Average weekday passengers (2013): 5,842

Projected weekday passengers (2023): 7,022

Bike access rate (2008): 3.0% | Goal (2023): 6%

Existing bike parking (2013): 175; 56 secure, 119 other

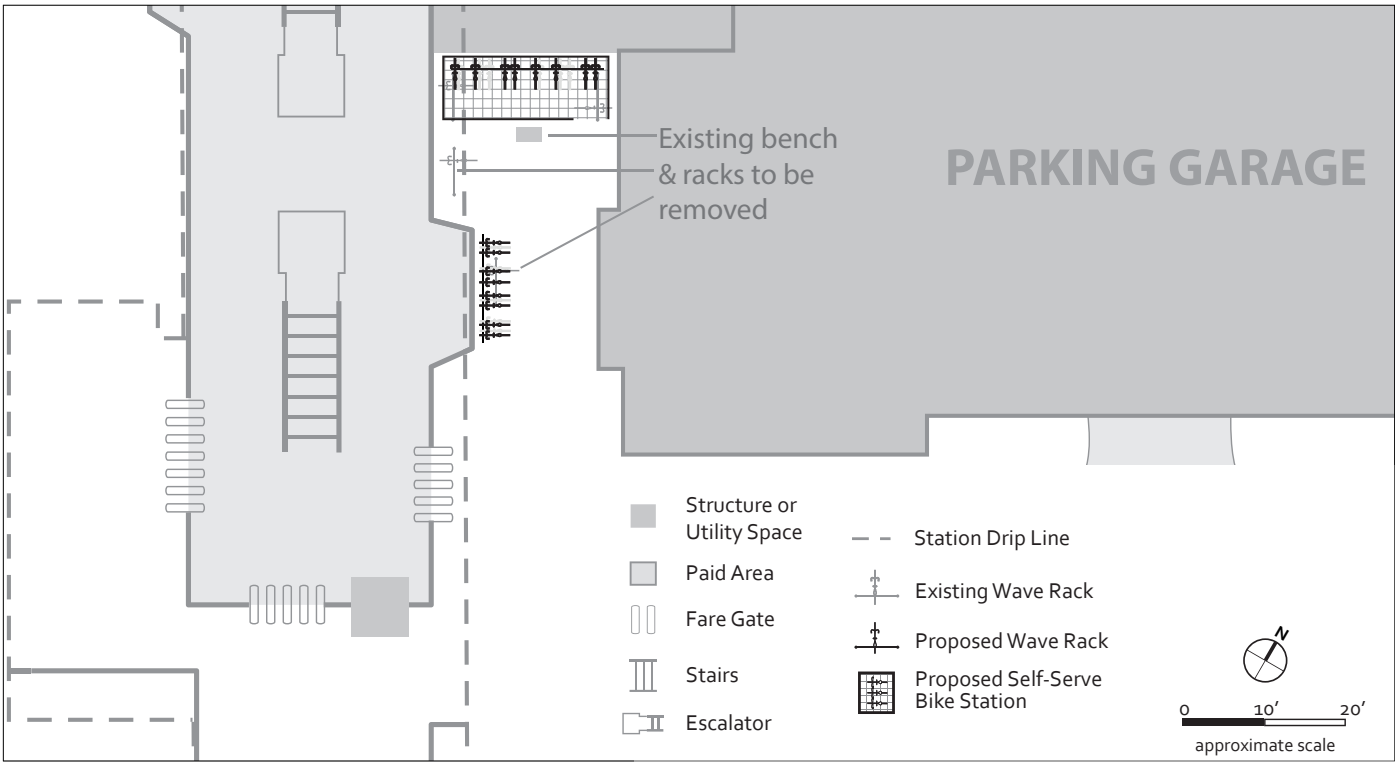
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 88

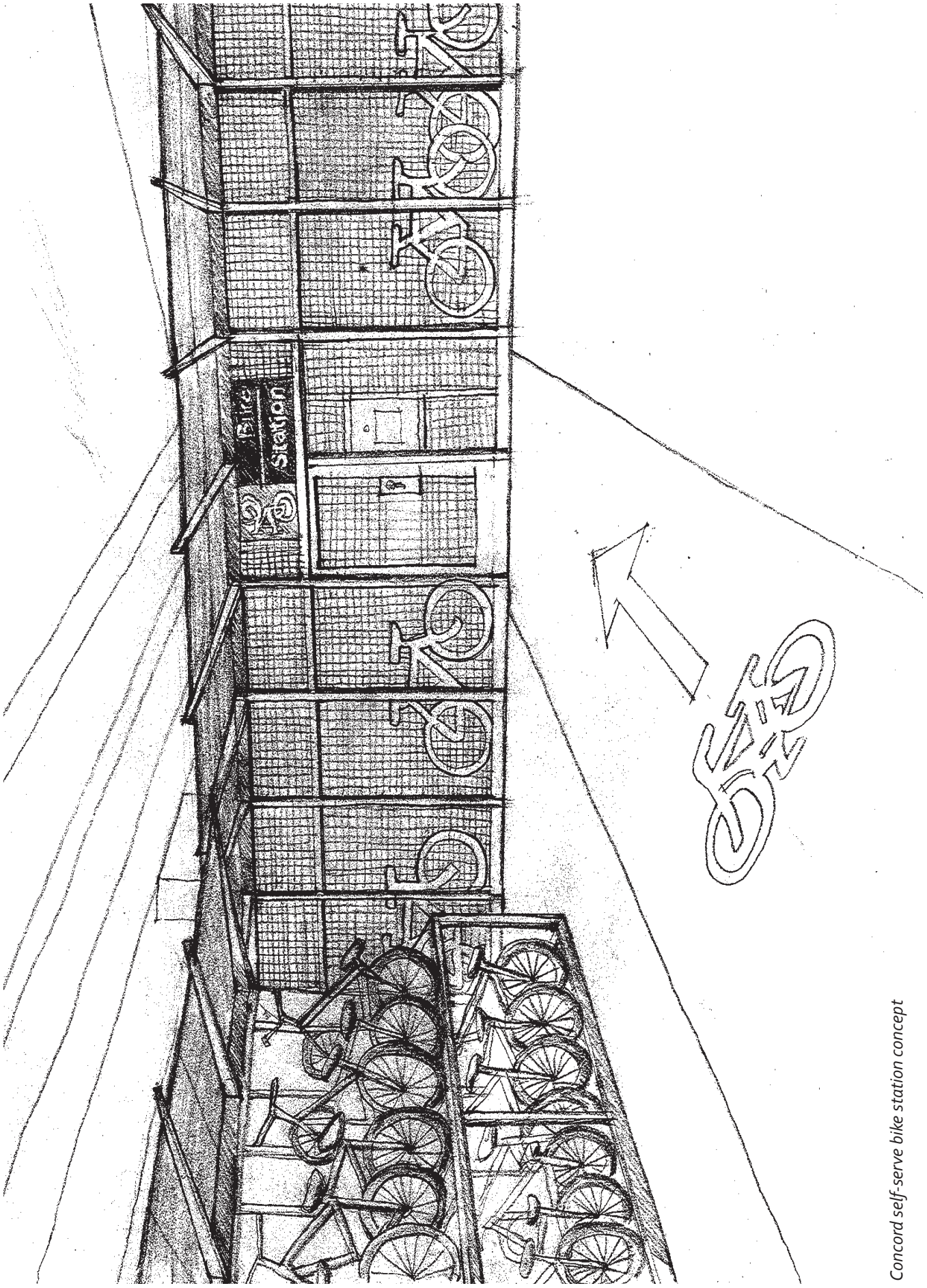
Rack spaces inside fare gates/drip line: 32

Self-serve bike station spaces: 56

Projected need of secure spaces: 90 to 100



Site of recommended bike parking



Concord self-serve bike station concept

Dublin/Pleasanton Station

Secure bicycle parking recommendations

Station Characteristics

Site of existing bike racks

Bicycles parked inside and just outside the Dublin/Pleasanton fare gates often exceed the number of bike parking spaces. The station's electronic lockers are also well-used. BART Police are currently in the process of installing video cameras focused on existing and planned racks inside the fare gates.

Bicycle Parking Recommendation

Sixty-three additional bicycle racks are recommended to be added within the paid area of the Dublin/Pleasanton station, which has ample room to prevent the racks from interfering with pedestrian circulation. Once these racks are installed, racks that are located farther from frequent pedestrian activity should be removed. TOD development at the station may provide a future opportunity for either an attended or self-serve bike station on the Pleasanton side of the station. The station's location adjacent to Hacienda Business Park also provides an excellent opportunity for a bike share system.

Summary of station characteristics

Average weekday passengers (2013): 6,896

Projected weekday passengers (2023): 8,904

Bike access rate (2008): 1.4% | Goal (2023): 6%

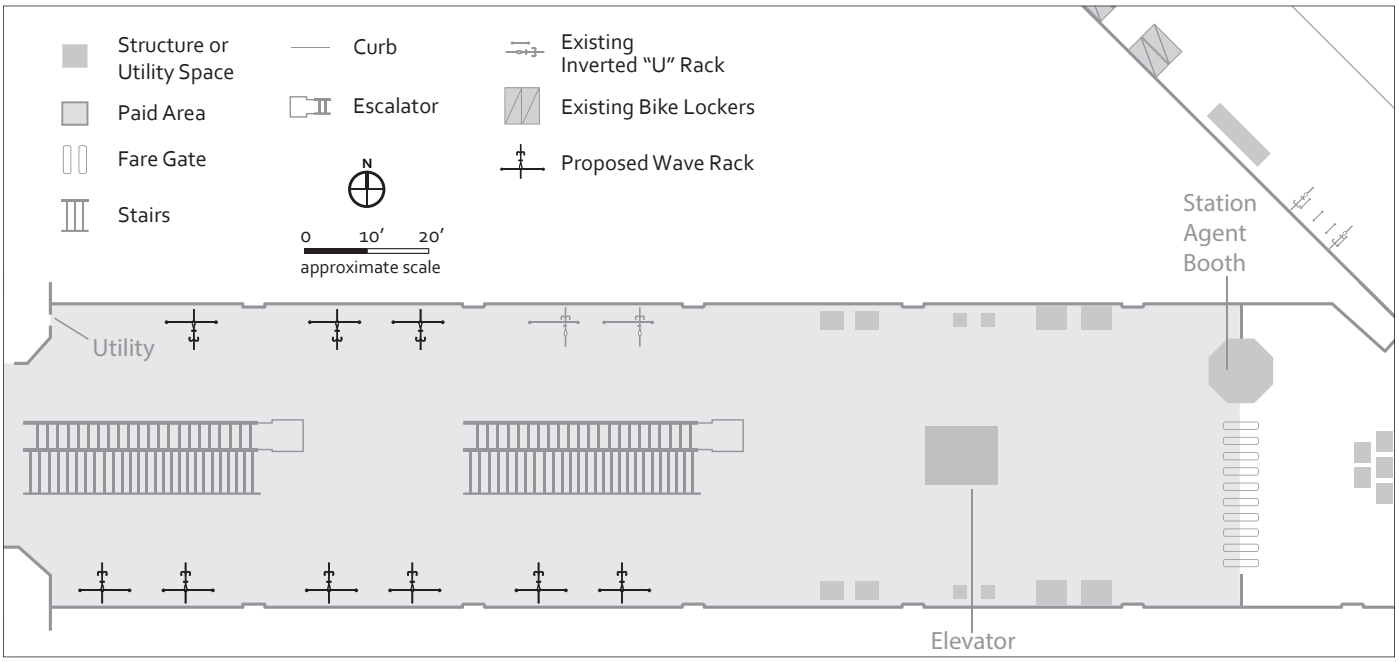
Existing bike parking (2013): 236; 42 secure, 194 other

Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 63

Rack spaces inside fare gates/drip line: 63

Projected need of secure spaces: 130 to 160



Plan view of paid area

Station Characteristics

South site of recommended electronic lockers

Over 6% of passengers arrive at El Cerrito Plaza by bike. The station offers nearly 100 moderately well-used bicycle racks south of the fare gates, as well as electronic lockers nearby and on the far side of the Ohlone Greenway. A dirt-filled planter and multiple bus benches limit options for adding bicycle parking.

Summary of station characteristics

Average weekday passengers (2013): 4,780

Projected weekday passengers (2023): 5,424

Bike access rate (2008): 6.4% | Goal (2023): 8%

Existing bike parking (2013): 166; 72 secure, 94 other

Bicycle Parking Recommendations

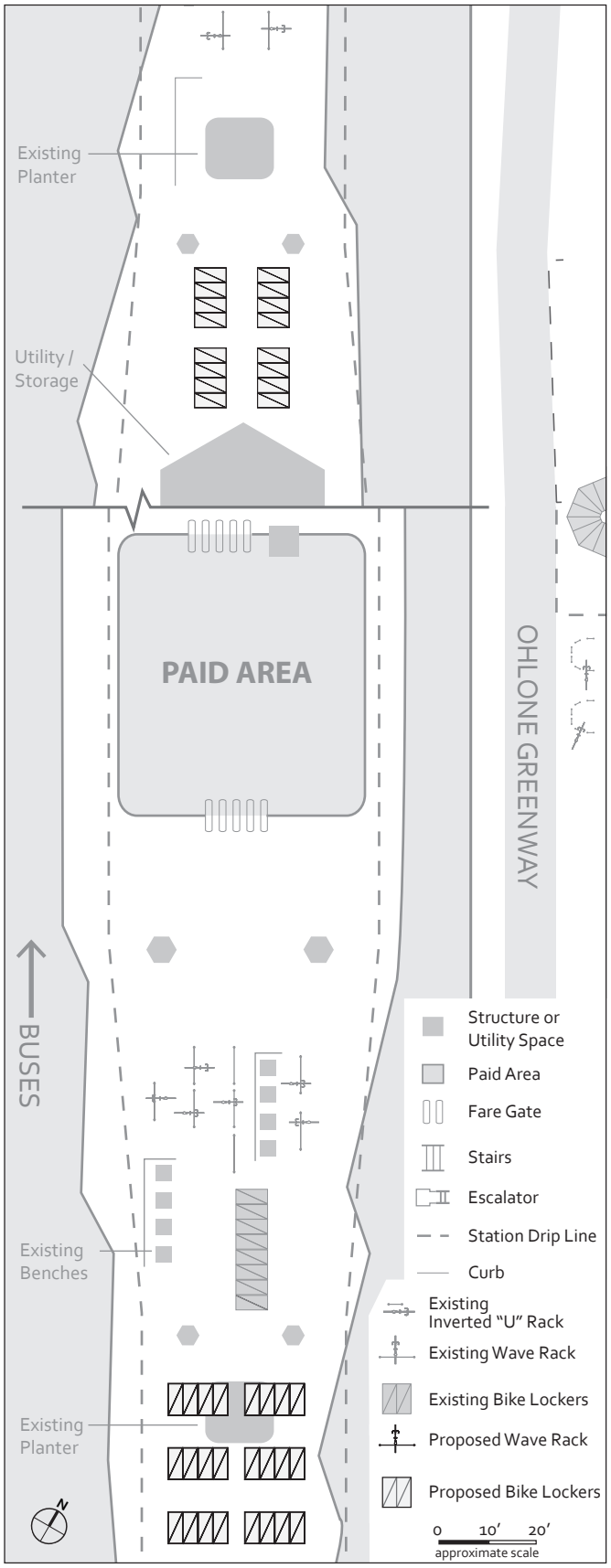
Although there is no space for additional bike parking within the paid area of the El Cerrito Plaza station, there is room at the station's north and south ends to double its supply of electronic lockers, assuming the dirt planter is removed. Bus stops line the west side of the station and provide an ongoing stream of pedestrian activity to the area.

Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 80

Electronic lockers: 80

Projected need of secure spaces: 90 to 100



Plan view

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Station Characteristics

Upper Plaza, site of recommended electronic bike lockers

The Fremont station's lower plaza on the west side currently houses 44 electronic lockers. Wave racks on the same plaza as well as wave racks east side of the station near the bus intermodal provide space for 120 or so bikes.

Summary of station characteristics

Average weekday passengers (2013): 8,213

Projected weekday passengers (2023): 8,906

Bike access rate (2008): 1.4% | Goal (2023): 6%

Existing bike parking (2013):165; 44 secure, 121 other

Bicycle Parking Recommendation

There is space in both Fremont station's upper and lower west side plazas for 84 additional electronic lockers without interfering with pedestrian circulation or access to or from the fare gates. There is also space on the east side where the bike racks are currently located to construct a controlled access bike station if future demand warrants.

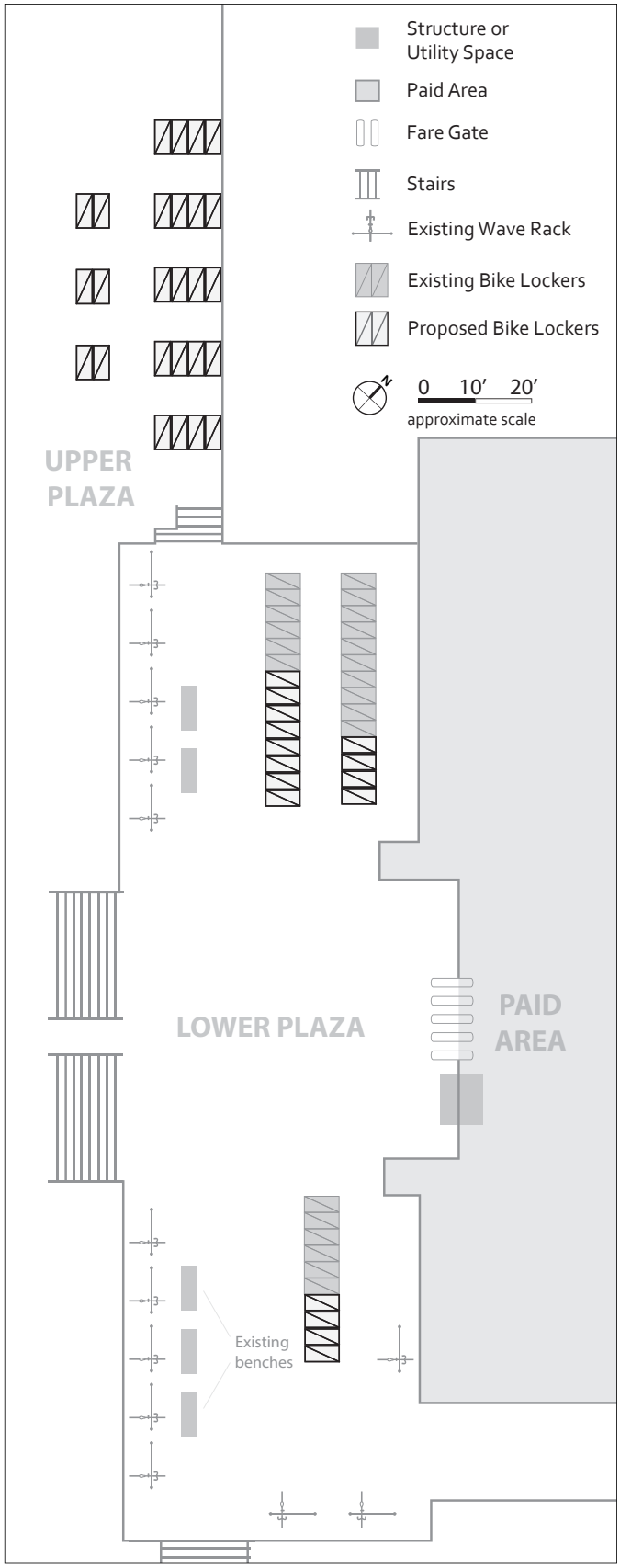
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 84

Electronic lockers: 84

Projected need of secure spaces: 130 to 160

East plaza opportunity for future self-serve bike station



Plan view

Glen Park Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended bike station

San Francisco's Glen Park station has one entrance and main plaza area. To the southwest of the entrance and main plaza, two additional plazas step up the incline along Diamond Street. The middle plaza is currently underutilized. The station currently provides wave bicycle racks inside the fare gates, on the main plaza and on the upper plaza.

Bicycle Parking Recommendation

The racks inside the Glen Park station are used at a much higher rate than those on either of the plazas outside the paid area. There is room inside the fare gates to add 23 wave bicycle rack spaces, to match the existing parking. While the main plaza cannot accommodate additional bicycle parking, the middle plaza could house a 120-bike self-serve bike station.

Site of recommended wave rack

Summary of station characteristics

Average weekday passengers (2013): 7,241

Projected weekday passengers (2023): 8,704

Bike access rate (2008): 2.1% | Goal (2023): 6%

Existing bike parking (2013): 49, 21 secure, 28 other

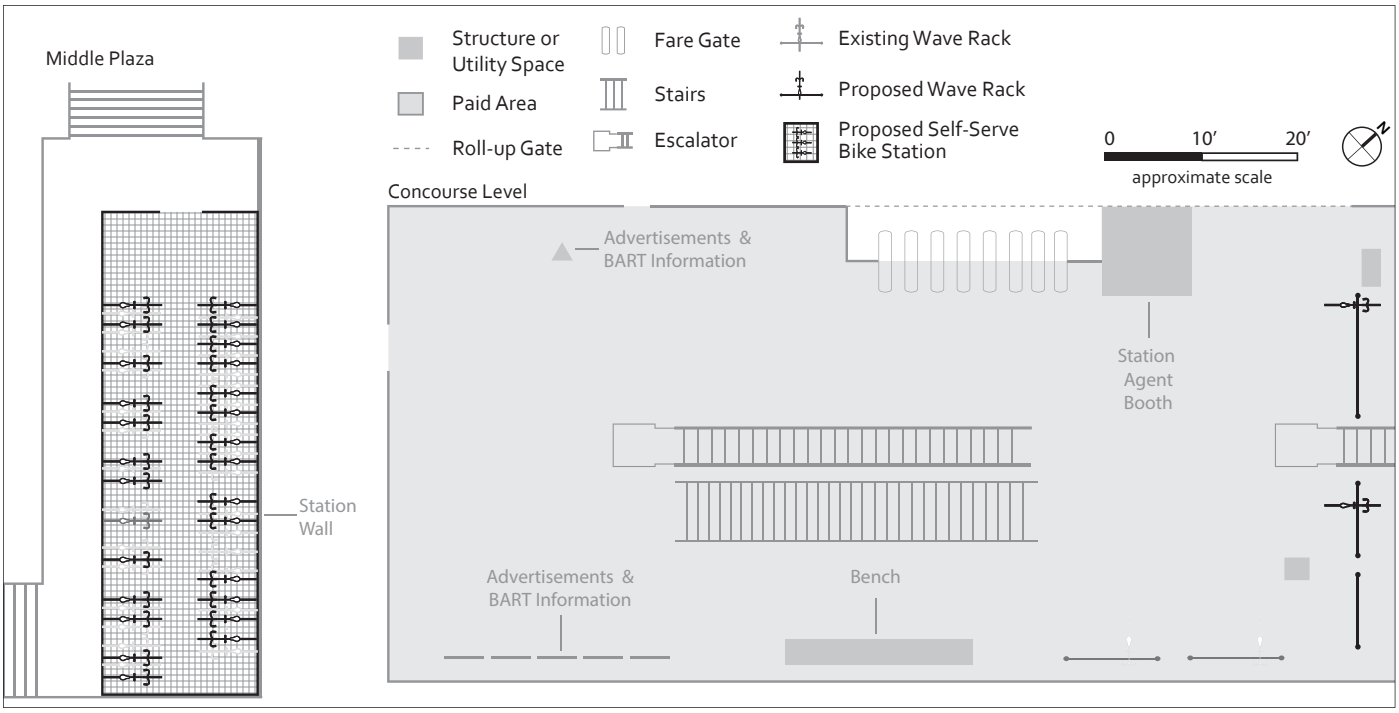
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 143

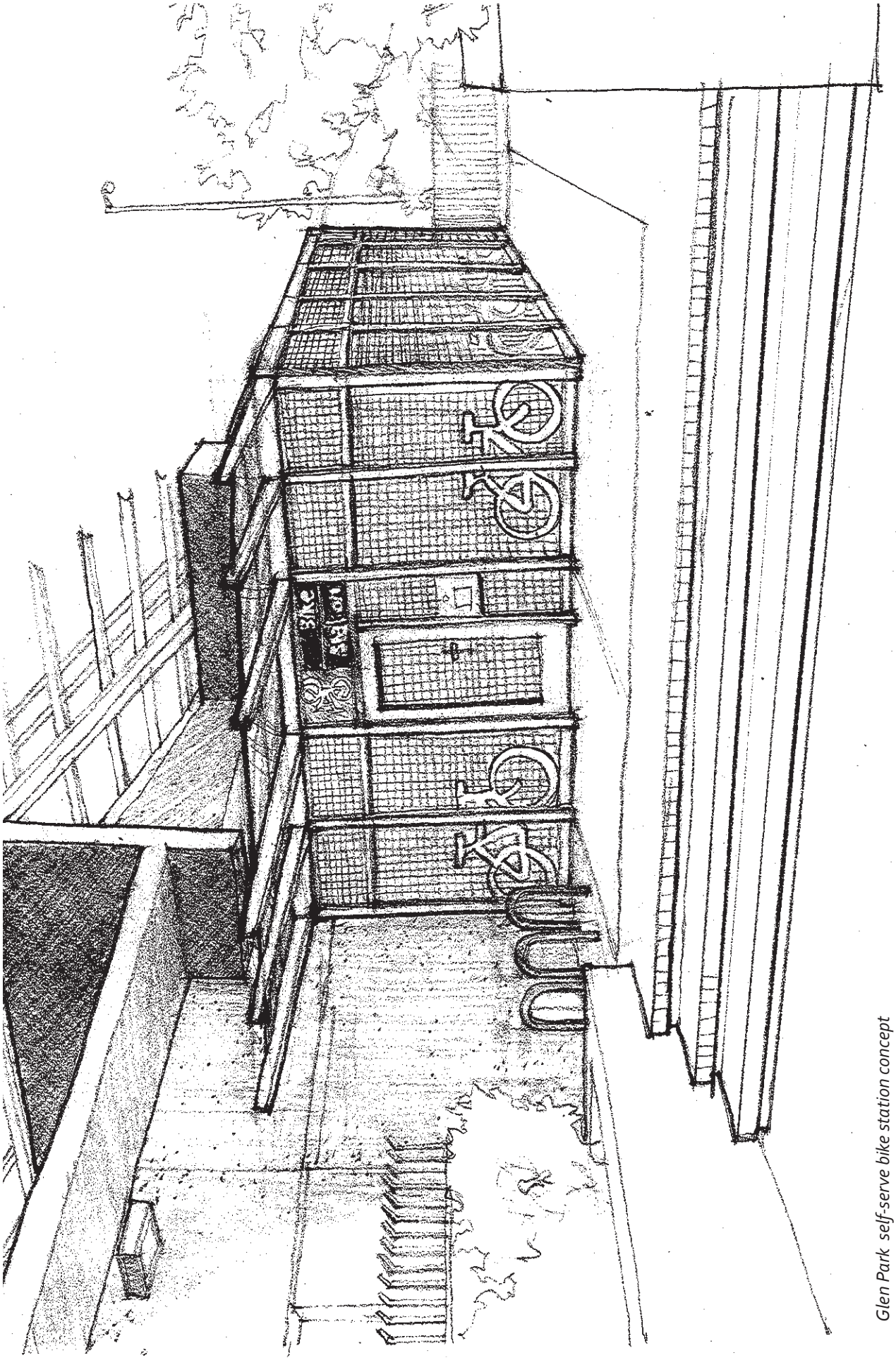
Rack spaces inside fare gates/drip line: 23

Self-serve bike station spaces: 120

Projected need of secure spaces: 160 to 200



Sites of recommended bike parking



Glen Park self-serve bike station concept

Lafayette Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended wave racks

The Lafayette BART station provides two entrances, one on either side of Highway 24. There is limited space within the paid area of this station for bicycle parking as it is currently configured, but a sparsely planted dirt area could easily be converted. There is also ample space for additional bike parking just outside the southern set of fare gates.

Bicycle Parking Recommendation

It is recommended to add wave racks (to match the existing stock) for 28 bicycles just beyond the paid area in the generously proportioned pedestrian tunnel. This area is sheltered, well lit and can efficiently be fitted with video monitoring capabilities. Inside the paid area, a retaining wall and a few steps are needed to transform the "landscaped area" into space for 30 bicycles with inverted-U bicycle racks. In addition to being in the paid area, this location is within view of the station agent and has a significant amount of pedestrian activity, which serves as a theft deterrent.

Summary of station characteristics

Average weekday passengers (2013): 3,683

Projected weekday passengers (2023): 3,832

Bike access rate (2008): 2.0% | Goal (2023): 6%

Existing bike parking (2013): 104; 12 secure, 92 other

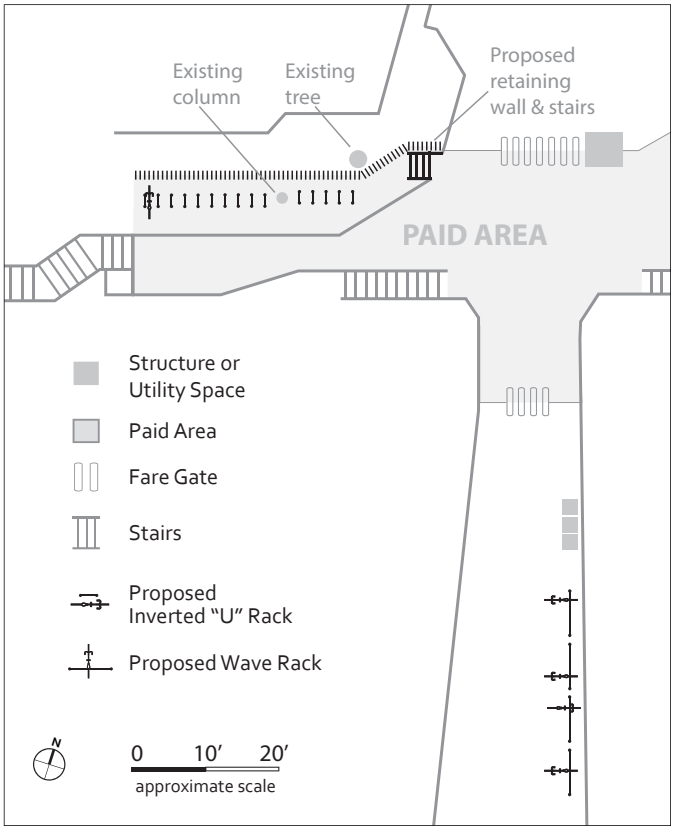
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 58

Rack spaces inside fare gates/drip line: 58

Projected need of secure spaces: 70 to 90

Site of recommended retaining wall, stairs and inverted "U" racks



Sites of recommended bike parking

Lake Merritt Station

Secure bicycle parking recommendations

Station Characteristics

West site of recommended lockers

The Lake Merritt station is located in Oakland Chinatown, with entrances at four corners of the intersections of Oak Street and Eighth/ Ninth Streets. Over 8% of passengers arrive at this station by bicycle. The station provides 40 extremely well-used electronic lockers on the eastern side of Oak and 50 equally popular bike racks inside the paid area on the Concourse level.

Bicycle Parking Recommendation

Lake Merritt has a generously proportioned concourse level. While there may not be additional space within the paid area of the station for additional bike racks, there is room on the concourse level (just outside the paid area). Street level plazas on both the east and west side of Oak Street provide space for 44 new electronic lockers.

Summary of station characteristics

Average weekday passengers (2013): 6,555

Projected weekday passengers (2023): 8,332

Bike access rate (2008): 8.2% | Goal (2023): 10%

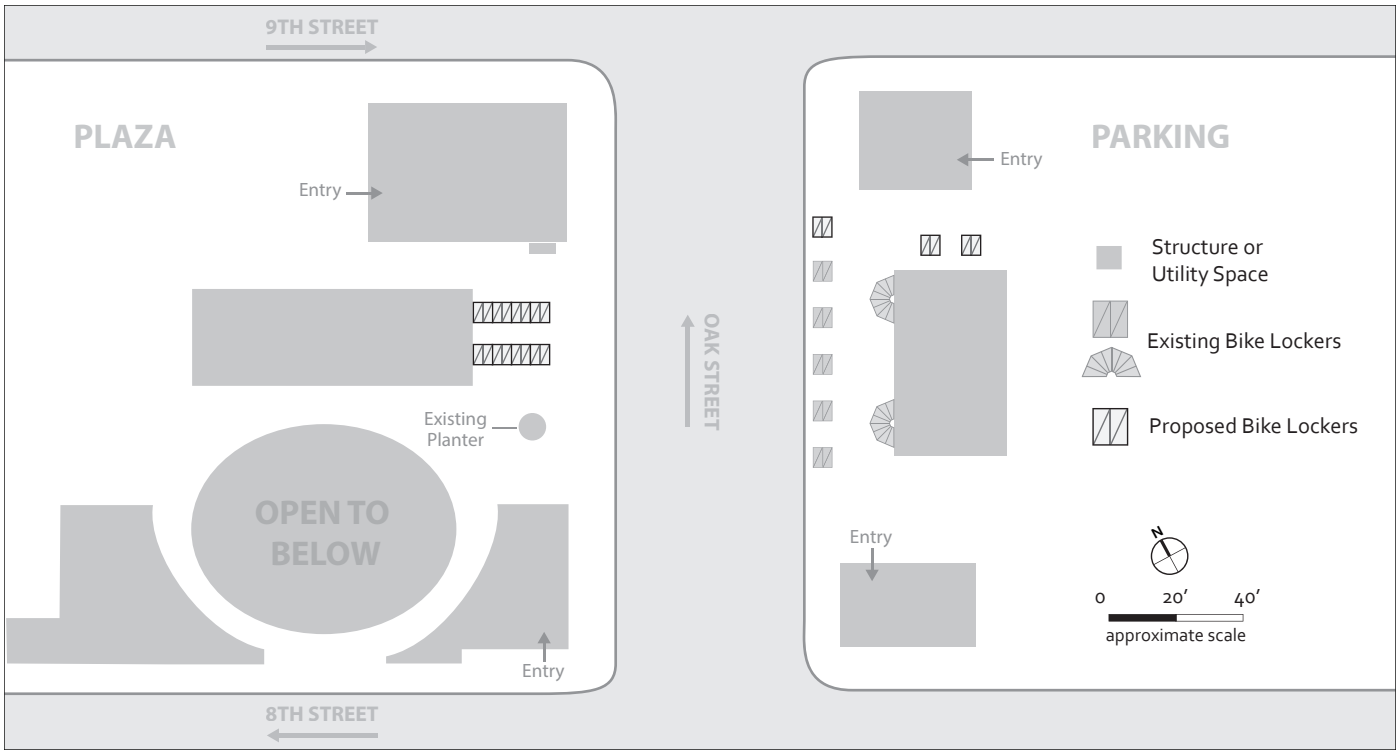
Existing bike parking (2013): 104; 90 secure, 14 other

Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 44

Electronic Lockers: 44

Projected need of secure spaces: 120 to 140



Site of recommended bike parking

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Station Characteristics

Site of recommended additional parking

Over 8% of passengers currently ride to Oakland's MacArthur station. There are 72 oversubscribed bike parking spaces inside the paid area and as many that are nearly as well-used just outside the fare gates, with 40 electronic lockers nearby. Nonetheless, theft, and the perception of theft, are huge deterrents to leaving a bicycle at this station. There is not space for additional racks within the paid area of the station, but the south side of the plaza area has ample room.

Summary of station characteristics

Average weekday passengers (2013): 9,174

Projected weekday passengers (2023): 10,493

Bike access rate (2008): 8.2% | Goal (2023): 10%

Existing bike parking (2013): 196; 112 secure, 84 other

Bicycle Parking Recommendation

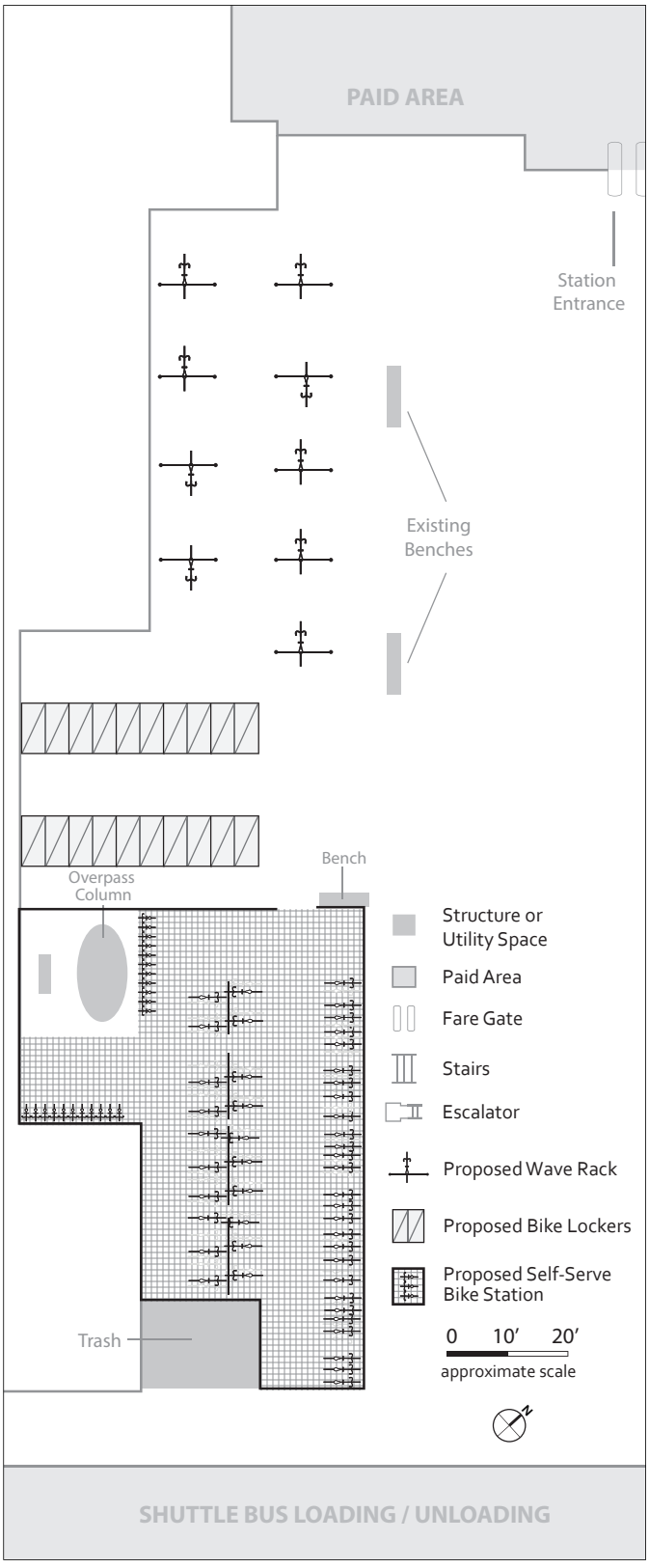
The recommendation for this station is to add a bike station with capacity for approximately 180 bikes on the south side of the plaza. This project is planned as part of a larger plaza renovation that will flip the locations of the existing bike racks and electronic lockers so the racks are located closer to the station agent in an area that is better sheltered from the elements by the freeway above. This station is likely to become BART's most popular biking station (based on recent growth) and, even with the existing racks inside the paid area and the additional 180 spaces, there may be future capacity issues.

Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 180

Self-serve bike station spaces: 180

Projected need of secure spaces: 150 to 190



Plan view

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North Berkeley Station

Secure bicycle parking recommendations

Station Characteristics

Existing electronic bike lockers

North Berkeley currently has 60 electronic bicycle lockers, a bank of about 50 bike racks under a canopy and a good number of additional bike racks scattered about the plaza. Currently almost all racks and lockers are filled, and on a typical day, bikes are locked to a number of poles in and around the plaza area. New camera installation is in progress that will provide excellent coverage of the racks under the canopy.

Summary of station characteristics

Average weekday passengers (2013): 4,616

Projected weekday passengers (2023): 4,649

Bike access rate (2008): 8.4% | Goal (2023): 10%

Existing bike parking (2013): 211; 60 secure, 151 other

Bicycle Parking Recommendation

Site of recommended double deck rack system

To allow more passengers to bike to the North Berkeley station, the existing wave racks under the canopy should be replaced with a double deck rack system. This improvement will more than double the number of bikes parked under the canopy, which provides lighting and shelter from the weather. A lighting upgrade could provide an even safer night time environment at these racks and should be looked into.

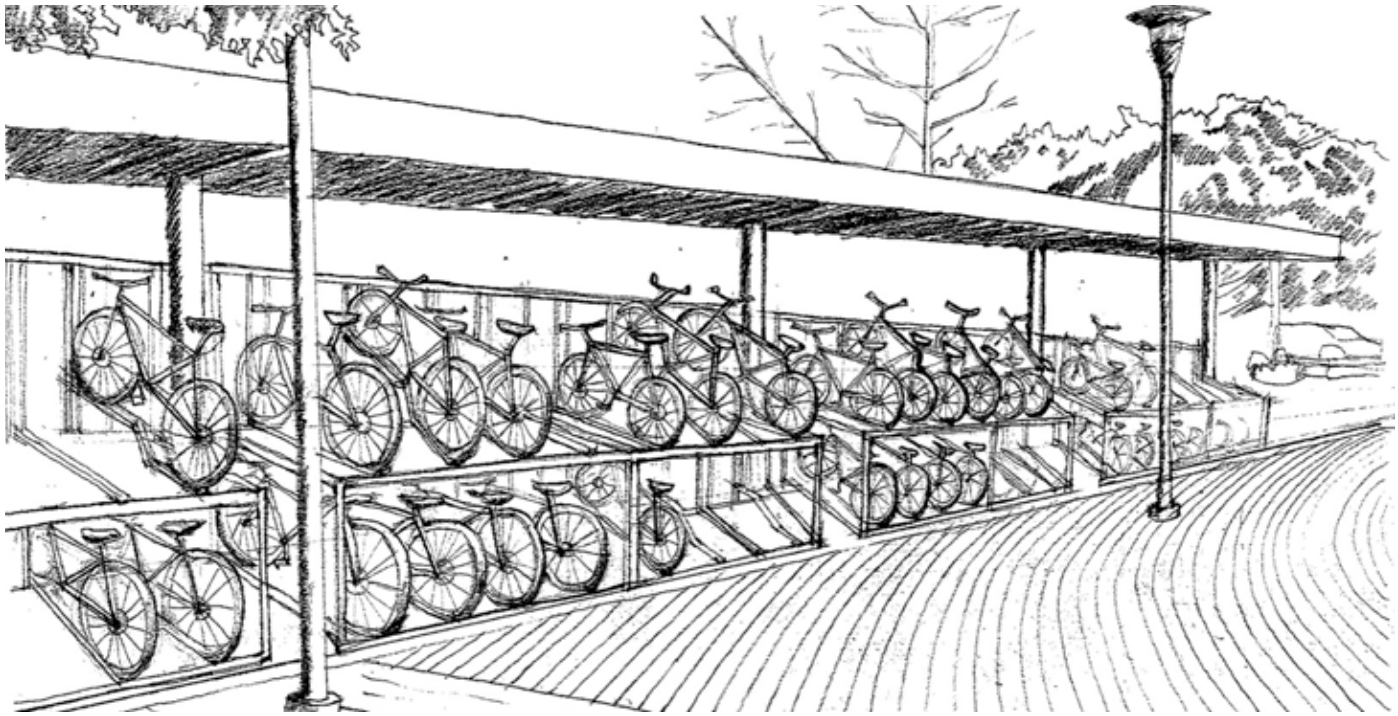
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 128

Rack spaces inside fare gates/drip line: 108

Electronic Lockers: 20

Projected need of secure spaces: 110 to 130



North Berkeley double deck rack system concept

Rockridge Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended self-serve bike station

The primary entrance to Oakland's Rockridge station is on the east side of College Avenue, with a secondary entrance on the west side. There are over 120 wave rack bike parking spaces sprinkled around the escalators that lead to the station fare gates, plus 40 electronic lockers (16 on the east side and 24 on the west side of College Avenue). The station provides limited opportunities for new bicycle racks because of the space needed to accommodate the high level of pedestrian circulation in the area, particularly near the escalator and stairway.

Summary of station characteristics

Average weekday passengers (2013): 5,937

Projected weekday passengers (2023): 5,782

Bike access rate (2008): 4.8% | Goal (2023): 8%

Existing bike parking (2013): 166; 40 secure, 126 other

Bicycle Parking Recommendation

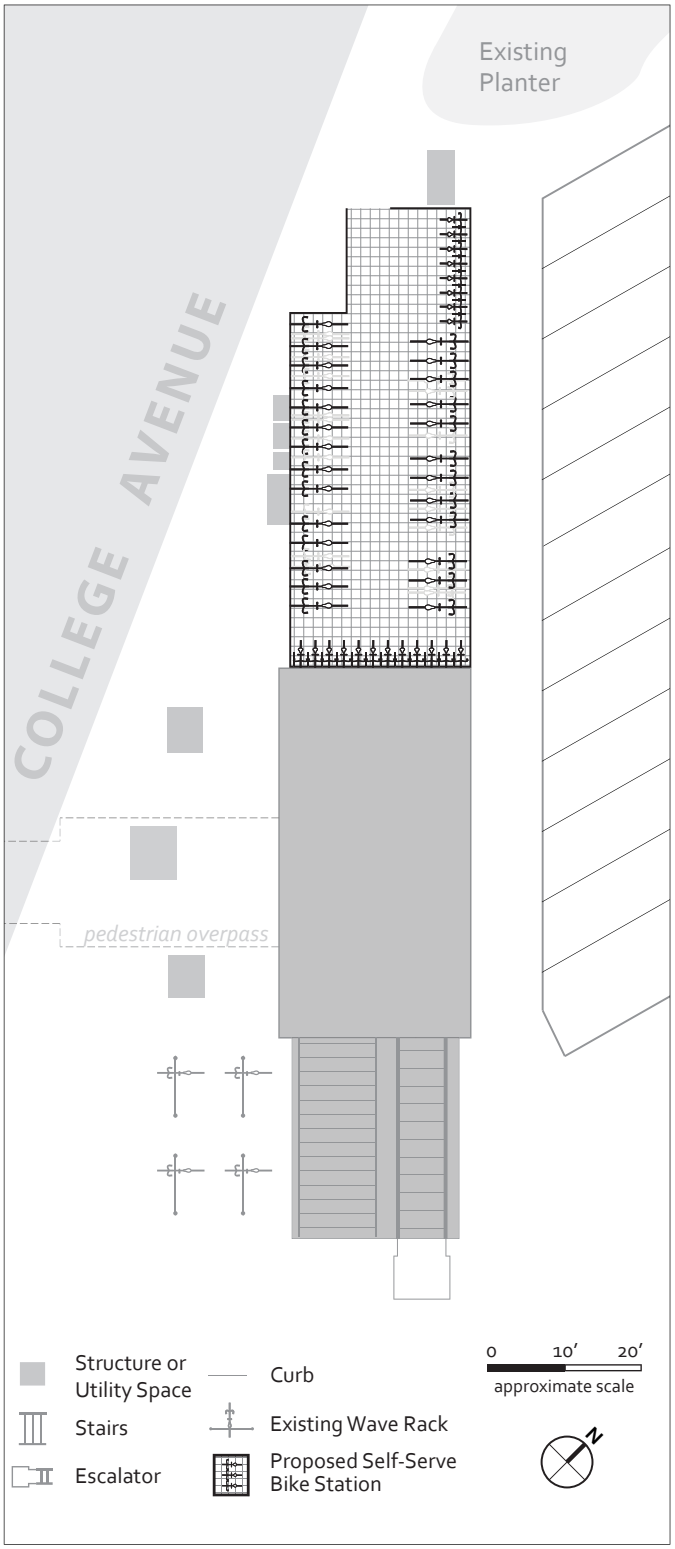
It is recommended that BART construct a self-serve bike station north of the escalators, alongside College Avenue. This space can accommodate 119 bicycles with a mix of space-saver and double decker racks. This location will not impede sidewalk circulation and there are many eyes on the street to prevent the location from feeling isolated.

Summary of bike parking recommendations

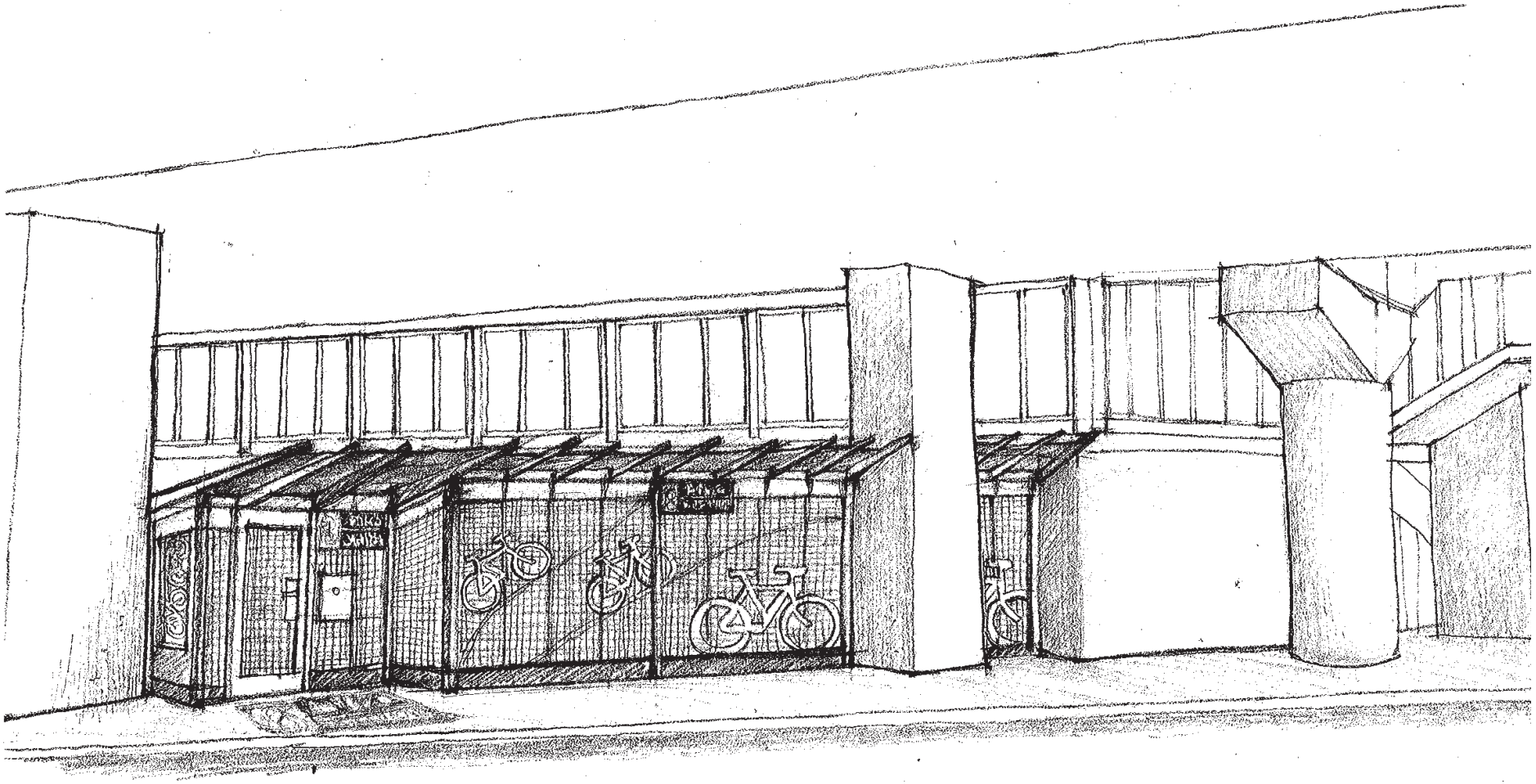
Proposed secure bicycle parking spaces: 119

Self-serve bike station spaces: 119

Projected need of secure spaces: 110 to 130



Plan view



Rockridge self-serve bike station concept

San Leandro Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended bike station

The San Leandro station provides a variety of bicycle parking. There are bike racks outside the fare gates and on the east and south sides of the station, with 40 bicycle lockers near the ticket machines and on the less-traveled west side of the station. Given that the existing electronic lockers are used to capacity, we can expect a bike station to be well used, as well. In addition, San Leandro will be the southern terminus of the AC Transit Bus Rapid Transit project. A bike station there can benefit both BART and AC Transit riders.

Bicycle Parking Recommendation

Existing lockers near site of recommended bike station

A self-serve bike station for 119 bicycles is proposed for the north end of the station near the existing bike lockers. This location is quite visible from San Leandro Blvd. and has a lot of pedestrian activity due to the nearby kiss and ride zone.

Summary of station characteristics

Average weekday passengers (2013): 5,704

Projected weekday passengers (2023): 7,174

Bike access rate (2008): 2.6% | Goal (2023): 6%

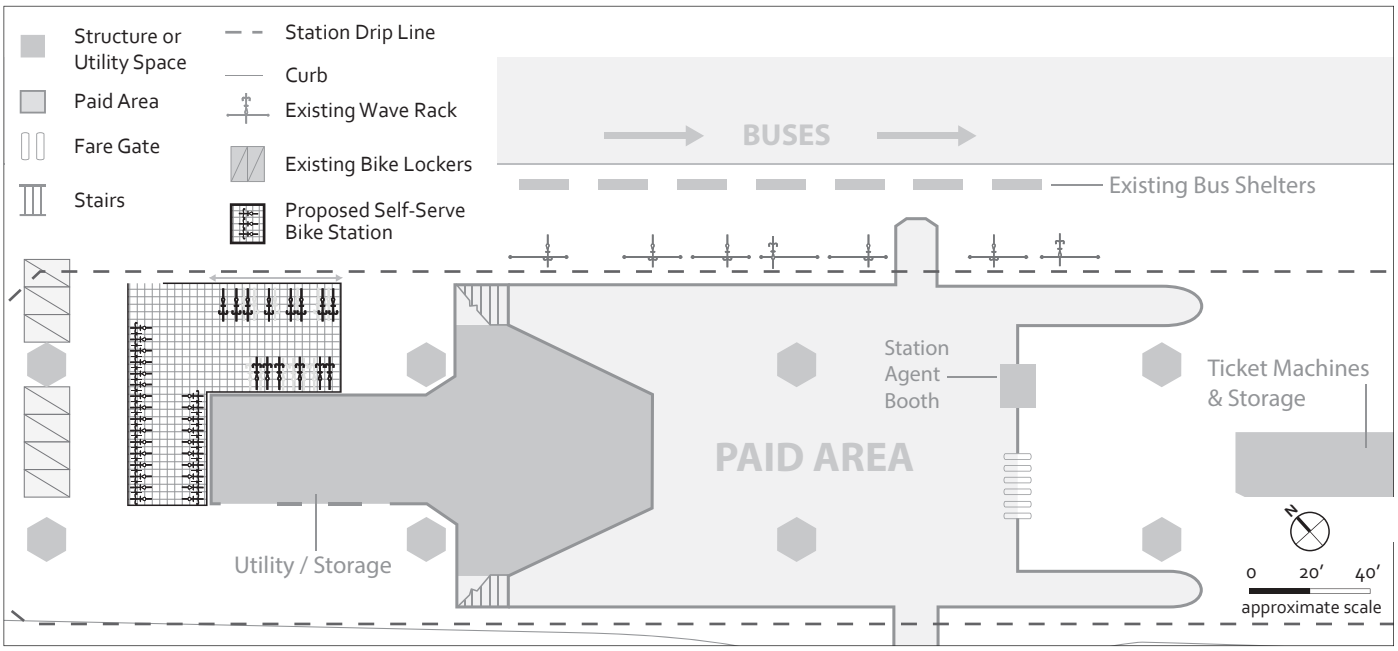
Existing bike parking (2013): 131, 40 secure, 91 other

Summary of bike parking recommendations

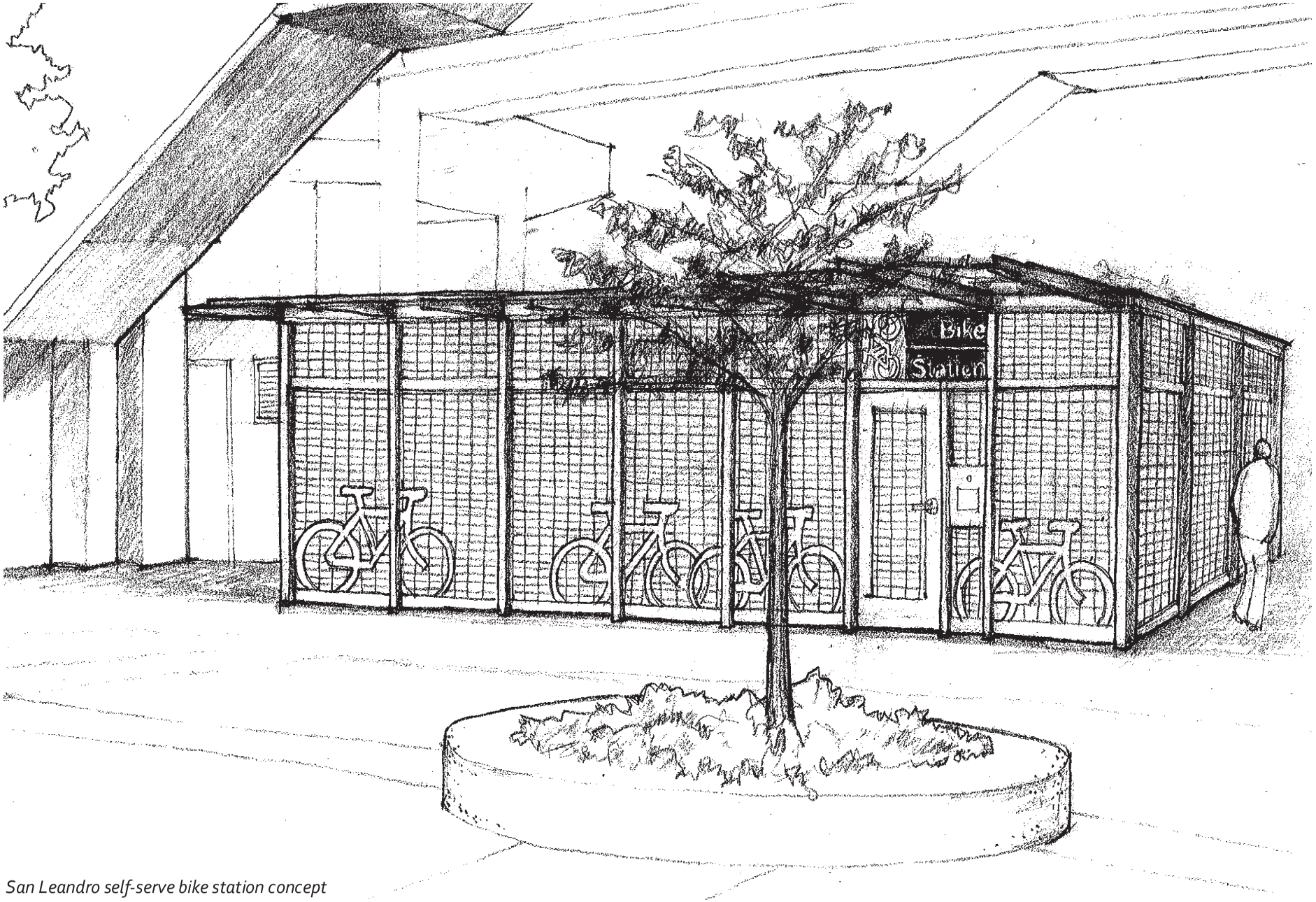
Proposed secure bicycle parking spaces: 85

Self-serve bike station spaces: 85

Projected need of secure spaces: 100 to 130



Plan view



San Leandro self-serve bike station concept

Walnut Creek Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended pavilion

Bike racks and keyed lockers are currently scattered at numerous locations around the Walnut Creek station. There is not room within the Walnut Creek station's paid area for additional bicycle parking and, although there is ample space outside the fare gates, the windowless back wall of the police station currently blocks a direct visual connection between the fare gates and the most logical location for new bicycle parking. This situation will change when the police command station is relocated as part of future TOD.

Summary of station characteristics

Average weekday passengers (2013): 6,601

Projected weekday passengers (2023): 7,972

Bike access rate (2008): 2.2% | Goal (2023): 6%

Existing bike parking (2013): 91, 0 secure, 91 other

Bicycle Parking Recommendation

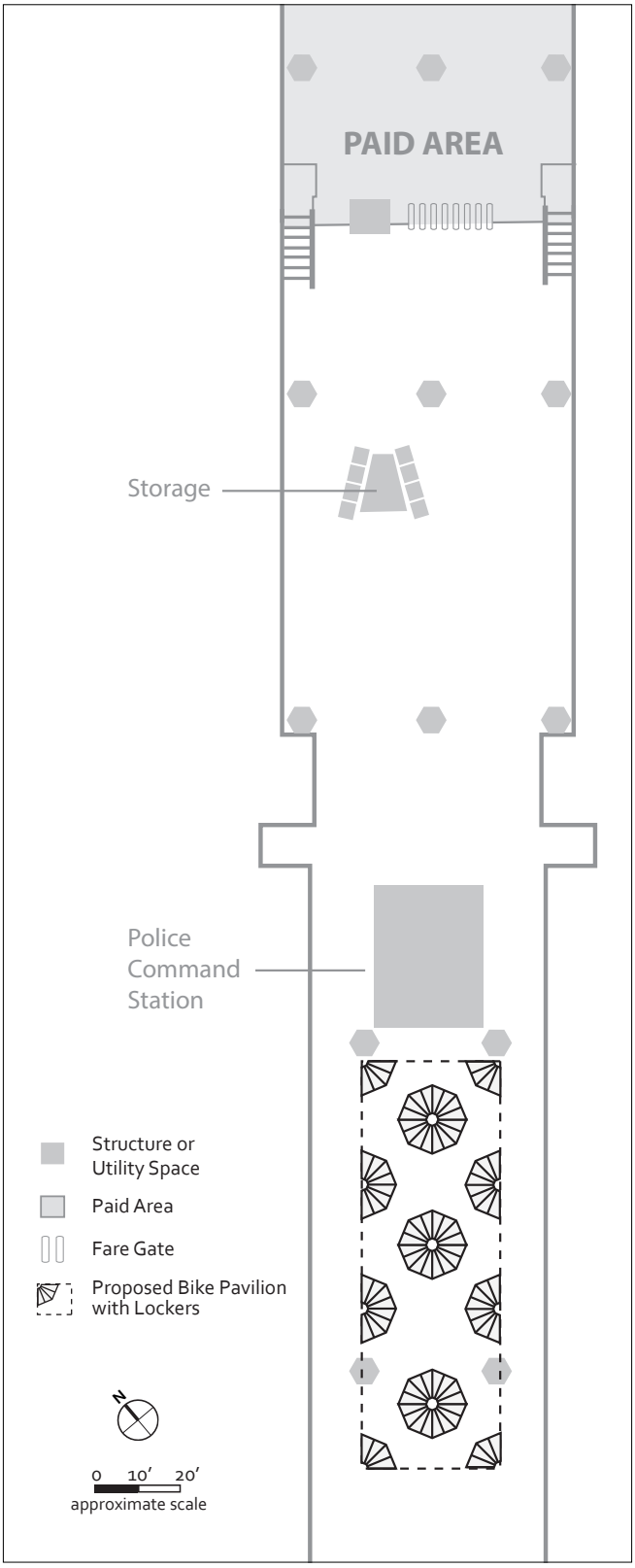
A "bike pavilion" of 96 electronic bicycle lockers is proposed for the Walnut Creek station, located just south of the existing police command station site. This project includes improving the hardscape, visibility and lighting, and aggregating the station's bike racks, in this area. Beyond allowing better sight lines to the new bike parking, the future TOD may also provide an opportunity for a future self-serve or attended bike station in the former field office of County Connection, located north of the paid area.

Summary of bike parking recommendations

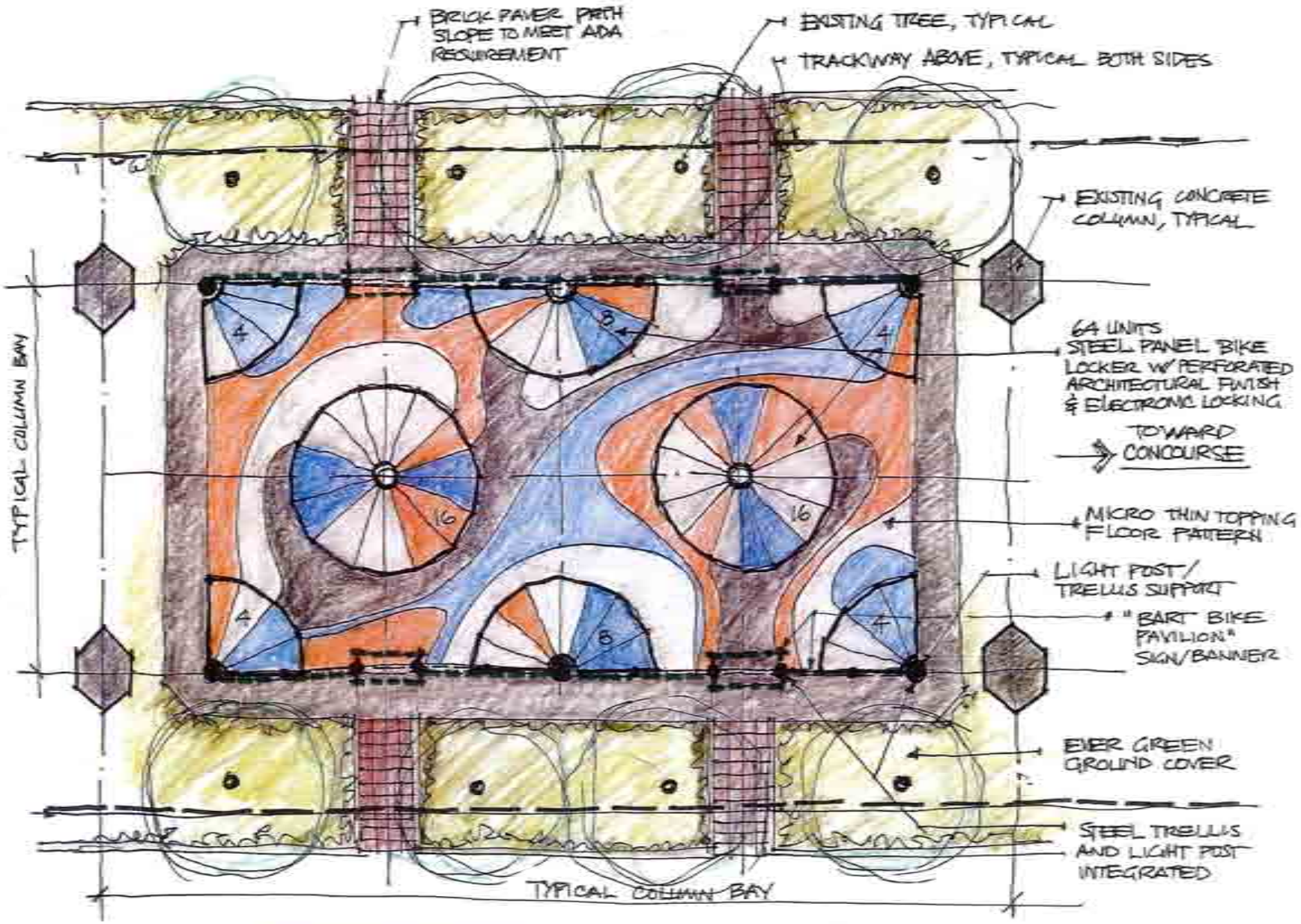
Proposed secure bicycle parking spaces: 96

Electronic lockers: 96

Projected need of secure spaces: 140 to 170



Plan view



Walnut Creek pavilion concept (64 racks shown in concept drawing; proposal expands bike parking to 96 spaces)

West Oakland Station

Secure bicycle parking recommendations

Station Characteristics

Site of recommended bike station

The West Oakland station provides bicycle racks on the street and parking lot sides of the station entrance, and lockers in two locations farther to the southeast. There is a lot of pedestrian activity at this station, as it is surrounded by an established neighborhood and new multi-family housing, and as the last East Bay station before the Transbay Tube, attracts many motorists and cyclists who just use BART to cross the Bay. The existing lockers on the northeast (street) side of the station feel isolated; the other bike parking locations have much more pedestrian activity.

Bicycle Parking Recommendation

A new 156-bike self-serve bike station is proposed to replace the racks that are southwest of the fare gates plus 24 bicycle lockers near the existing nearby lockers. In addition, more racks are recommended on the street side of the station. Both the bike station and new bike locations have excellent visibility and, beyond serving existing bicycle commuters, will suggest this BART access option to other passengers.

Summary of station characteristics

Average weekday passengers (2013): 6,122

Projected weekday passengers (2023): 6,902

Bike access rate (2008): 4.8% | Goal (2023): 6%

Existing bike parking (2013): 126; 42 secure, 84 other

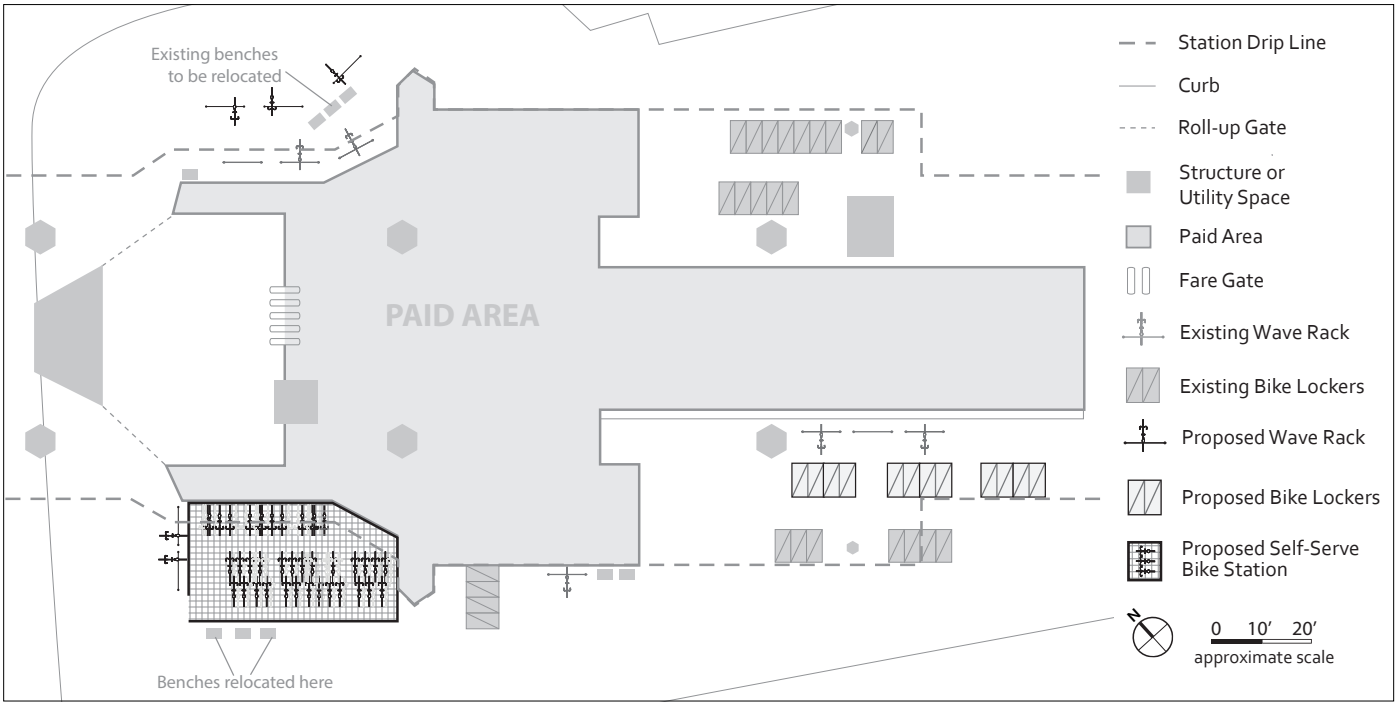
Summary of bike parking recommendations

Proposed secure bicycle parking spaces: 180

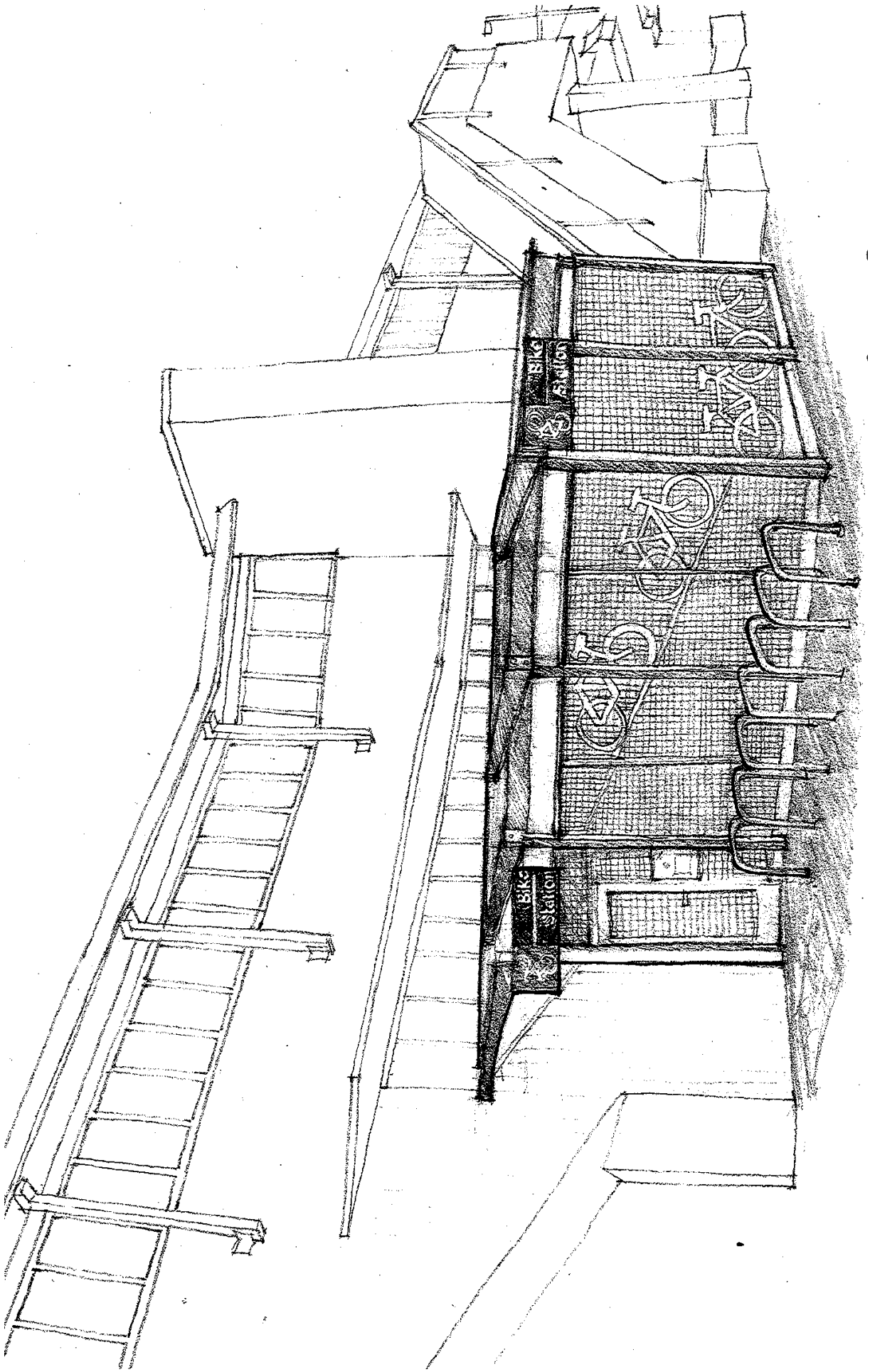
Electronic lockers: 24

Self-serve bike station spaces: 156

Projected need of secure spaces: 150 to 180



Plan view



West Oakland self-serve bike station concept

Appendix A

Self-serve bike station modular alternative

Despite efforts made here to identify space at stations where it is feasible to add secure bike parking without displacing other facilities, there may be unknown factors that show these plans to be infeasible. At some stations where a self-serve bike station would be an effective addition to a station's supply of secure bicycle parking, there is insufficient space within the paid area or pedestrian areas. In these situations, pre-fabricated, modular free-standing bike station facilities located in BART parking lots could be installed.

Currently, there is a product on the market called the Cycle Station, from the bicycle parking company DERO, which can be installed in place of five to seven car parking spaces. The stations come in a kit composed of steel columns, wire mesh enclosure panels, a wire mesh-paneled door and a galvanized roof.

The basic BART bike station will have a capacity of 64 bike parking spaces, assuming a double-tier bicycle rack system, which uses a lift-assist mechanism. The stations are approximately 20 feet by 30 feet and, because they're modular, can be increased to meet demand.

The installed cost of the basic BART bike station structure including the double-tier racks ranges from approximately $280,000 to $320,000; depending on the distance to BART station utilities, which the bike stations need to connect to.

www.dero.com/products/cycle-station

Appendix B

Estimated parking need calculations

Investments at the 18 stations targeted in this effort were identified using a two-step process. First, demand in ten years was estimated using the following factors:

- BART Ridership Model: 2023 estimate of entries by station
- 2008 Station Profile: Bike access rates
- 2012 BART Bicycle Plan: 8% systemwide bicycle access goal for 2022

Once the number of secure bicycle parking spaces that will be needed in ten years was estimated for the 18 target stations, adjustments were made to account for a goal of just 40% of bike access passengers bringing their bikes onboard (down from the current rate of over 50%), and an 80% average "turnover rate," which accounts for passengers who leave their bike parking space early enough for another passengers to use it the same day. The existing number of bike parking spaces was then subtracted from this estimate of future demand to come up with a +/- 10% range of needed parking spaces.

Armed with this information, planners investigated opportunities for additional secure bike parking spaces at each station. The station profiles included in this report reflect the secure bike parking possibilities at the 18 target stations and provide a conceptual plan for expanded secure parking that optimizes available space. Each includes a description of existing bicycle parking conditions, summary of secure bike parking recommendations, site plan of proposed improvements and, in most cases, a sketch of the site as it will appear with the new bike parking.

Table B1 | Estimated bike parking need

Station	Total estimated entries (2023)[1]	Projected home-based entries (2023)[2]	Home-based bike access % (2008)[3]	Projected home-based bike access % (2023)[4]	Home-based bike access # (2023)[5]	60% park at station[6]	Turnover[7]	Estimated demand (2023)	Existing secure bike parking	Additional secure parking needed	Recommended secure parking
16th St. / Mission	13,330	5,729	5.4%	8.0%	458	-183	-55	220	-77	130-160	149
19th St. Oakland	16,540	4,197	6.2%	8.0%	336	-134	-40	161	-132	28-32[8]	122
24th St. / Mission	15,129	9,923	4.8%	8.0%	794	-318	-95	381	-70	280-340	149
Balboa Park	14,974	9,271	1.9%	6.0%	556	-222	-67	267	-60	190-230	38
Civic Center	26,127	5,164	4.5%	8.0%	413	-165	-50	198	-63	120-150	218
Concord	7,022	5,227	3.0%	6.0%	314	-125	-38	151	-56	90-100	88
Dublin / Pleasanton	8,904	6,524	1.4%	6.0%	391	-157	-47	188	-42	130-160	63
El Cerrito Plaza	5,424	4,335	6.4%	8.0%	347	-139	-42	166	-72	90-100	80
Fremont	8,906	6,631	1.4%	6.0%	398	-159	-48	191	-44	130-160	84
Glen Park	8,704	6,969	2.1%	6.0%	418	-167	-50	201	-21	160-200	143
Lafayette	3,832	3,115	2.0%	6.0%	187	-75	-22	90	-12	70-90	58
Lake Merritt	8,332	4,134	8.2%	10.0%	413	-165	-50	198	-70	120-140	44
MacArthur	10,493	5,915	8.2%	10.0%	591	-237	-71	284	-112	150-190	180
North Berkeley	4,649	3,708	8.4%	10.0%	371	-148	-44	178	-60	110-130	128
Rockridge	5,782	4,127	4.8%	8.0%	330	-132	-40	158	-40	110-130	119
San Leandro	7,174	5,378	2.6%	6.0%	323	-129	-39	155	-40	100-130	85
Walnut Creek	7,972	5,300	2.2%	6.0%	318	-127	-38	153	0	140-170	96
West Oakland	6,902	5,329	4.8%	8.0%	426	-171	-51	205	-42	150-180	180
Total											**2,024**

[1] BART Ridership Model
[2] 2023 home based entries were estimated by applying the percent of total entries that were home based from the 2008 Station Profile to the BRM estimate of total entries in 2023.
[3] Station Profile Study (2008)
[4] 2023 bike access share estimated based on 2008 bike access share and 2023 systemwide 8% goal
[5] Corresponding 2023 bike access number
[6] Assumes 40% of bike access passengers bring their bikes onboard and, therefore, don't need bike parking.
[7] Assumes that 20% of parking spaces are shared among passengers who leave their bikes at a given bike parking space during different periods of the same day.
[8] Range is for BART passengers only, whereas planned bike station is also meant to accommodate area workers and shoppers.

Appendix C

Cost to provide recommended parking

The tables in this appendix summarize the recommended secure bike parking recommendations at each station, and a breakdown of the cost of each.

Table C1 | Cost summary

	Proposed secure parking spaces				*Estimated cost*					
	Paid area racks	*E-lockers*	*Bike station*	*Total*	*Racks*	*E-lockers*	*Bike stations*	*Total cost*	*Available funding*	*Shortfall*
16th St. / Mission	76	0	73	149	$ 13,000	$ —	$ 477,000	$ 490,000	$ —	$ (490,000)
19th St. Oakland	0	0	122	122	$ —	$ —	$ 250,000	$ 250,000	$ 250,000	$ —
24th St. / Mission	76	0	73	149	$ 13,000	$ —	$ 477,000	$ 490,000	$ —	$ (490,000)
Balboa Park	10	28	0	38	$ 6,000	$ 91,000	$ —	$ 97,000	$ —	$ (97,000)
Civic Center	60	0	158	218	$ 12,000	$ —	$ 757,000	$ 769,000	$ 769,000	$ —
Concord	32	0	56	88	$ 13,000	$ —	$ 222,000	$ 235,000	$ 235,000	$ —
Dublin / Pleasanton	63	0	0	63	$ 10,000	$ —	$ —	$ 10,000	$ —	$ (10,000)
El Cerrito Plaza	0	80	0	80	$ —	$ 260,000	$ —	$ 260,000	$ 222,000	$ (38,000)
Fremont	0	84	0	84	$ —	$ 273,000	$ —	$ 273,000	$ —	$ (273,000)
Glen Park	23	0	120	143	$ 8,000	$ —	$ 370,000	$ 378,000	$ —	$ (378,000)
Lafayette	58	0	0	58	$ 76,700	$ —	$ —	$ 76,700	$ —	$ (76,700)
Lake Merritt	0	44	0	44	$ —	$ 143,000	$ —	$ 143,000	$ 143,000	$ —
MacArthur	0	0	180	180	$ —	$ —	$ 500,000	$ 500,000	$ 500,000	$ —
North Berkeley	108	20	0	128	$ 29,000	$ 65,000	$ —	$ 94,000	$ 94,000	$ —
Rockridge	0	0	119	119	$ —	$ —	$ 695,000	$ 695,000	$ —	$ (695,000)
San Leandro	0	0	85	85	$ —	$ —	$ 402,000	$ 402,000	$ 69,000	$ (333,000)
Walnut Creek	0	96	0	96	$ —	$ 582,000	$ —	$ 582,000	$ 582,000	$ —
West Oakland	0	24	156	180	$ —	$ 78,000	$ 427,000	$ 505,000	$ —	$ (505,000)
Totals	**506**	**376**	**1142**	**2,024**	**$180,700**	**$1,492,000**	**$4,577,000**	**$6,249,700**	**$2,864,000**	**$(3,385,700)**

Table C2 | Recommended parking details

	Bike racks				Bike stations			
	U-racks	*Vertical racks*	*Double decker*	*E-lockers*	*Outdoor*	*Tenant improvement*	*Indoor*	*Notes*
16th St. / Mission	36	40	0	0	0	0	1,016 sf	
19th St. Oakland	0	0	0	0	0	1,220 sf	0	Funded with City of Oakland SR2T grant.
24th St. / Mission	36	40	0	0	0	0	1,016 sf	
Balboa Park	10	0	0	28	0	0	0	Includes $4,000 for security camera
Civic Center	0	60	0	0	0	0	1,614 sf	
Concord	0	0	32	0	480 sf	0	0	Includes $4,000 for security camera
Dublin / Pleasanton	63	0	0	0	0	0	0	
El Cerrito Plaza	0	0	0	80	0	0	0	
Fremont	0	0	0	84	0	0	0	
Glen Park	23	0	0	0	800 sf	0	0	Includes $4,000 for security camera
Lafayette	58	0	0	0	0	0	0	Includes $8,000 for two security cameras and $60,000 for site work design and construction.
Lake Merritt	0	0	0	44	0	0	0	
MacArthur	0	0	0	0	2,350 sf	0	0	Bike station funded as part of MacArthur TOD.
North Berkeley	0	0	108	20	0	0	0	
Rockridge	0	0	0	0	1,505 sf	0	0	
San Leandro	0	0	0	0	870 sf	0	0	
Walnut Creek	0	0	0	96	0	0	0	Includes $270,000 for site work, design & construction of pavilion where lockers will be located.
West Oakland	0	0	0	24	924 sf	0	0	

Note: Costs were estimated as follows and rounded up to the nearest $1,000:

1. Bike racks: Cost-per-bike includes price of rack, sales tax, freight and installation.
   - U-Racks: $150/space
   - Vertical: $187/space
   - Double Decker: $261/space
2. E-lockers: Cost-per-bike includes price of electronic bike locker, sales tax, freight and soft costs; $3,250/space.
3. Bike Stations: Cost per station includes design, engineering, construction and bike racks. Costs are based on historical costs for constructing BART's existing bike stations, taking into consideration that stations with lower capacity will cost more per bike to build than higher capacity bike stations.
   - Indoor (based on Civic Center): $469/sq ft
   - Outdoor (based on Ashby): $462/sq ft
   - Tenant Improvement (based on Downtown Berkeley): $191/sq ft