

## Memorandum

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Subject SFPUC Balboa Reservoir Site Plan Study – Transportation Analysis  
*Task 2 of the CS-229C SFPUC Specialized and Technical Services Water Contract, Consulting Services for the Public Sites Program*

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Date March 17, 2015

This memorandum summarizes the results of the transportation analysis that AECOM has conducted for the San Francisco Public Utilities Commission (SFPUC) to assist in the conceptual planning and design of the proposed residential development on the SFPUC-owned portion of the Balboa Reservoir (Lot 190 of Assessor's Block 3180), part of the Public Sites Program. Specifically, this deliverable has been prepared in conjunction with Task 2 of the Scope of Work for CS-229C (SFPUC Specialized and Technical Services Water Contract) Task 18. Of the identified deliverables for Task 2 under the Scope of Work (summarized below), this memorandum addresses the underlined work products:

- Summary of existing transportation conditions and future baseline conditions, including major transportation projects and anticipated completion of construction dates; circulation opportunities and constraints, including analysis of existing traffic conditions and congestion levels (level of service, volume-to-capacity ratio, delay, etc.); and transit, bicycle, and pedestrian opportunities and constraints.
- Recommendations for transportation demand management (TDM) priority policies for the site, and actions and designs to mitigate transportation impacts and encourage use of alternative modes of travel to single-occupant vehicles.
- Suggestions for priority transportation criteria and metrics for evaluating development proposals.

- Conceptual circulation analysis and map of preferred development concept.
- Parking analysis for the Project (supply, demand, and *Parking Code* requirements).

## History and Existing Conditions

The Balboa Reservoir is located in an area of San Francisco that historically grew in piecemeal fashion as undeveloped land was subdivided into large developable tracts, with today's major streets serving as the boundaries between adjacent tracts. As in many other areas of the City outside of Downtown San Francisco, private developers designed, built, and marketed these tracts independently as residential neighborhoods based on the "streetcar suburbs" model. In this particular case, streetcar routes such as the one along Ocean Avenue, built and operated by the San Francisco Municipal Railway (Muni), connected these inner suburbs of the city—including areas such as Westwood Park (immediately adjacent to the Balboa Reservoir on the west), Ingleside (south of the Balboa Reservoir, encompassing the area south of Ocean Avenue), and Sunnyside (northeast of the Balboa Reservoir, north of Judson Avenue)—to downtown San Francisco. Although much of the city's former streetcar network was eventually dismantled or converted to bus routes, the streetcar route along Ocean Avenue still survives today as Muni Metro's K Ingleside service.

The independent development of these areas, however, has resulted in a somewhat haphazard and disjointed street network. Side streets that intersect Ocean Avenue from the north and south, for example, frequently are not aligned to permit through traffic, which forces traffic onto Ocean Avenue and results in an unnecessarily high intersection density that complicates traffic safety for all roadway users, including non-motorists. Other examples include the street layout of Westwood Park, a closed network of concentric ellipses that provides few options for easily connecting into the rectangular street grids of the adjacent Sunnyside and Ingleside neighborhoods.

As these residential neighborhoods grew, the sites now occupied by City College of San Francisco's Ocean Avenue Campus, the Balboa Reservoir, Archbishop Riordan High School, and what is now Balboa Park were the last remaining large pieces of land in this area. Eventually, these sites were developed as major educational campuses with limited roadway connectivity (in the case of City College and Archbishop Riordan High School) or for non-active uses that did not require roadway improvements (in the case of the Balboa Reservoir). These factors, combined with those cited above, have resulted in a network of high-volume arterials (streets that fulfill major city- or region-wide traffic circulation functions) and low-volume local streets through primarily residential areas.<sup>(1)</sup> Vehicular traffic is funneled onto a handful of major corridors that double as neighborhood commercial streets such as Ocean Avenue, Geneva Avenue, Monterey Boulevard, and San Jose Avenue. The former San Francisco and San Jose Railroad right-of-way, later used by the Southern Pacific Railroad and now converted to an interstate highway (Interstate 280), also complicates east-west access between the Balboa Reservoir and neighborhoods to the east.

The establishment of the San Francisco Bay Area Rapid Transit District (BART) and construction of a modern regional rail system for the Bay Area created a new transit hub at Balboa Park Station, improving the area's connections to downtown San Francisco, downtown Oakland, and other regional centers. The construction of the bi-level Market Street Subway for BART and Muni service was also a major milestone in the modernization of Muni's aging streetcar system into what we know today as Muni Metro. The K Ingleside was eventually converted to operate with modern light rail vehicles (LRVs) and was extended to the Curtis E. Green Light Rail Center, Muni's then-new light rail maintenance facility adjacent to Balboa Park Station, together with the M Ocean View and J Church.

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<sup>(1)</sup> Arterial streets are roadways that fulfill major city- or region-wide traffic circulation functions.

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The following sections discuss specific components of the transportation network serving the Balboa Reservoir in more detail.

### **Site Conditions and Present Use**

The Balboa Reservoir originally featured two semi-rectangular basins (the North Basin and the South Basin), each oriented lengthwise east–west and sharing a long edge. The basins were never filled, however, and in recent years the site has been partially modified and developed for use by City College of San Francisco (“City College”). In particular, the orientation of the basins was rotated by 90 degrees and the eastern half was filled, with a new multi-use building completed by City College in 2010 occupying the southeast quadrant and a surface parking lot (“Upper Reservoir Lot”), primarily for City College employees and students, occupying the northeast quadrant. City College has plans for developing the northeast quadrant, but will revisit them with a new master planning process beginning in 2015.

The western half of the Balboa Reservoir remains under SFPUC ownership and is being contemplated for development under the Public Land for Housing Program, including the conceptual planning and design efforts for which this study has been conducted. The site is currently being used as a surface parking lot (known as the “Lower Reservoir Lot”) for City College, supplementing the Upper Reservoir Lot.

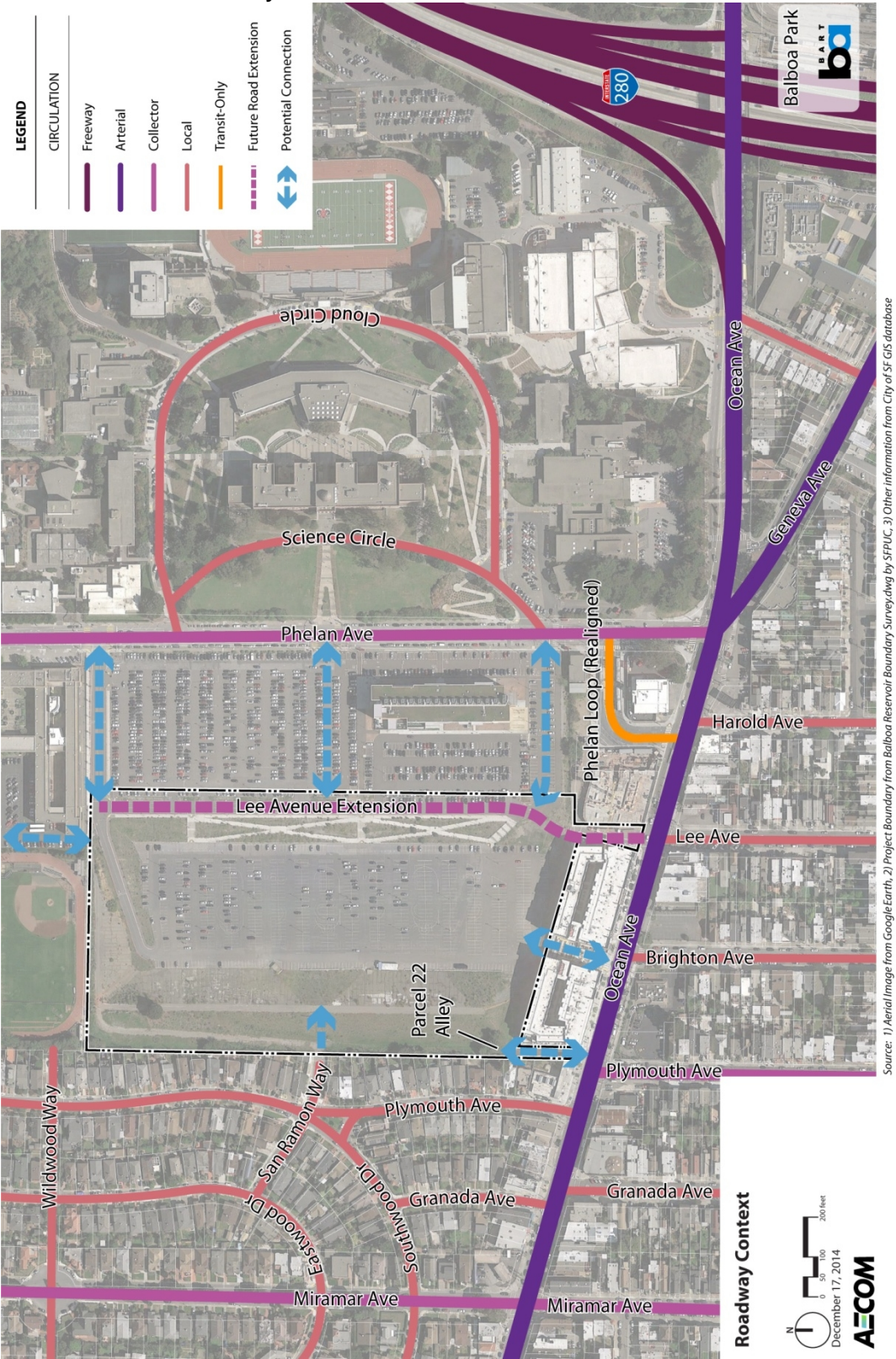
### **Roadway Context**

**Figure 1** illustrates the roadway context for the site.

The major roadways serving the Balboa Reservoir are Ocean Avenue, Geneva Avenue, and Phelan Avenue. Ocean Avenue and Geneva Avenue connect the Balboa Reservoir directly with Interstate 280 (I-280), which features a diamond interchange at Geneva Avenue and a half-diamond interchange (off-ramp from southbound I-280 and on-ramp to northbound I-280 only) at Ocean Avenue. These roadways also serve as important east–west routes across I-280 to connect to the Excelsior District, the Outer Mission, and other neighborhoods in southern and southeastern San Francisco, as well as to the Ingleside, West Portal, and the Sunset District west of the Balboa Reservoir. Phelan Avenue is the major north–south street in the vicinity of the Balboa Reservoir, although it terminates at the intersection with Ocean Avenue and Geneva Avenue and connects with the east–west Judson Avenue at the northwest corner of the City College campus. These design features limit the usefulness of Phelan Avenue for direct north–south travel through the area. Foerster Street and Gennessee Avenue serve to connect Phelan Avenue / Judson Avenue with Monterey Boulevard, while Judson Avenue continues east over I-280 to connect with San Jose Avenue.

Direct vehicular access into and out of the Balboa Reservoir is currently provided at two locations: one location opposite the main pedestrian entrance up to Science Circle, approximately at the midpoint of the Balboa Reservoir along Phelan Avenue (the “Reservoir Lot Center Access”); and another location farther north, immediately south of Archbishop Riordan High School (the “Reservoir Lot North Access”). The Reservoir Lot North Access and Central Access both connect at their western ends into a north–south accessway that was constructed by City College to accommodate circulation and access needs for City College’s new Mixed-Use Building and adjacent surface parking lots. This north–south accessway was originally intended to serve as the primary segment of a proposed extension of Lee Avenue north from Ocean Avenue onto the Balboa Reservoir site (the “Lee Avenue Extension”).

Figure 1: Balboa Reservoir Roadway Context





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The southern end of the Lee Avenue Extension has already been completed as part of construction of Avalon Ocean Avenue, a mixed-use commercial / residential complex at the former site of a Kragen Auto Parts store. However, a connection between this completed portion and the north–south accessway constructed by City College has not yet been completed, and would need to be designed to safely negotiate the steep grade and alignment change between these two segments. In addition, City College would likely need to acquire additional SFPUC property to accommodate the alignment and the connection. Additional improvements may also be necessary to bring the north–south accessway constructed by City College to the standards required in the easement agreement negotiated with the SFPUC.<sup>(2)</sup> At its northern end, the north–south accessway also connects with an access road down to City College's Lower Reservoir Lot, which can be accessed only via this ramp. The easement agreement requires City College to complete the Lee Avenue Extension by 2017, but it is uncertain whether this goal can be met given the school's financial situation.

In a separate effort, the San Francisco Municipal Transportation Agency (SFMTA) is building a pedestrian connector from the current City College bookstore and multi-use building parking lot to the City College terminal and future Unity Plaza. When the project is complete, a 15-foot-wide pedestrian path will connect City College facilities on the Upper Reservoir with the Ocean Avenue commercial corridor. The path is expected to be complete in 2015 or 2016.<sup>(3)</sup>

The Balboa Reservoir has no other public roadway access, although partially improved asphalt service roads are provided atop the west and north berms. These service roads connect into San Ramon Way, but do not directly access the bottom of the Lower Reservoir parking lot. The service roads also partially connect into the north–south accessway constructed by City College, but this connection is only partially improved, and cannot accommodate vehicular access. The connection is primarily used as a pedestrian path to access open space along the western berm of the Balboa Reservoir.

The major convergence point for traffic circulation patterns in the immediate vicinity of the Balboa Reservoir is at the Ocean Avenue / Phelan Avenue / Geneva Avenue intersection. Traffic patterns also converge farther east near the ramps connecting to I-280 at Ocean Avenue and Geneva Avenue.

Relevant traffic data—including recent intersection turning movement counts collected as part of this analysis (two sets of weekday AM and PM peak period counts and one Saturday midday peak period count) and other count data compiled from previous studies—are enclosed in **Appendix A** to this memorandum.

## Transit Context

**Figure 2** illustrates the transit context for the site.

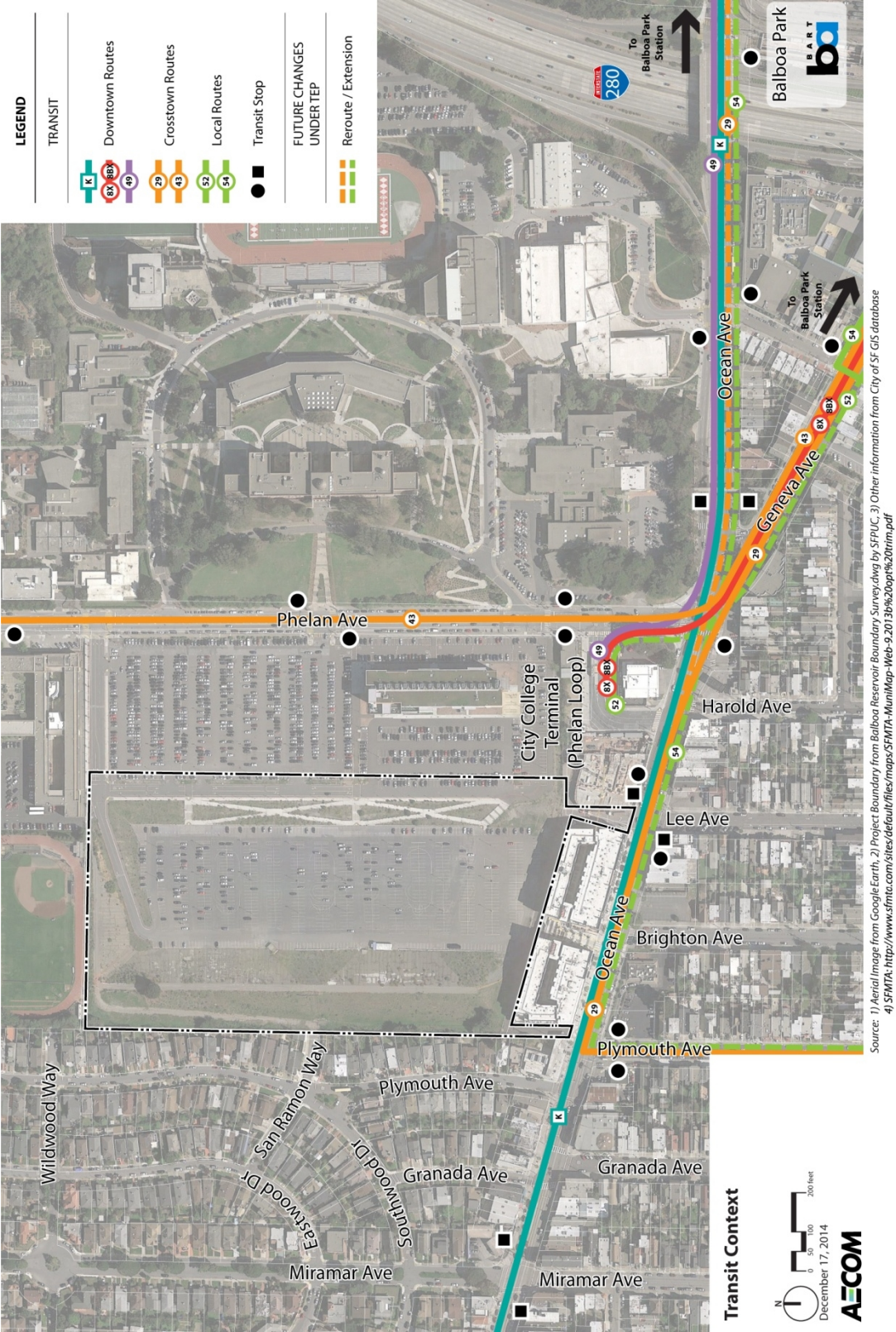
The Balboa Reservoir and the surrounding neighborhoods are well-served by public transit, although the lack of convenient pedestrian access to transit stops limits the attractiveness of these services. Muni provides local transit for destinations within San Francisco, with both Ocean Avenue and Geneva Avenue serving as major routes for transit service. Specifically, the K Ingleside provides surface light rail service in the center travel lanes along Ocean Avenue, connecting at its eastern terminus to Balboa Park Station and traveling west through the Ingleside and West Portal neighborhoods into the Twin Peaks Tunnel and Market Street Subway to downtown San Francisco.

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<sup>(2)</sup> The north–south accessway was constructed and encroaches nine to ten feet over the SFPUC property line. As a result, the accessway may need to be relocated into its final position as part of the completion of the Lee Avenue Extension, or City College will need to reimburse the SFPUC for the encroachment.

<sup>(3)</sup> A conceptual design plan for this pedestrian connector is included as **Appendix F** to this memorandum.

Figure 2: Balboa Reservoir Transit Context



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Major bus routes serving the Balboa Reservoir include the 8X Bayshore Express / 8BX Bayshore “B” Express (connecting to the Excelsior District, Visitacion Valley, Portola, Downtown, Chinatown, North Beach, and Fisherman’s Wharf) and the 49 Van Ness–Mission (connecting to the Mission District and the Van Ness Avenue corridor). Additional crosstown bus routes serving the Balboa Reservoir include the 29 Sunset (east to the Excelsior District, Portola, and Candlestick neighborhoods and west to San Francisco State University, Stonestown, Lake Merced, and the Sunset and Richmond Districts) and the 43 Masonic (traveling south / east to the Excelsior District and Crocker–Amazon and north to Sunnyside, Westwood Highlands, Laguna Honda, Forest Hill, the Inner Sunset, Parnassus Heights, Cole Valley, the Haight, Lone Mountain / Anza Vista, Presidio Heights, the Presidio, and the Marina District).

A local transit hub is provided at the City College Terminal (formerly Phelan Loop), which was recently reconfigured as part of the transportation improvements identified in the *Balboa Park Station Area Plan*. The loop originally served as a turnaround for Muni’s single-ended streetcars before the advent of Muni Metro, with ingress at Ocean Avenue / Lee Avenue and egress at Ocean Avenue / Harold Avenue just west of Fire Station No. 15. With the extension of the K Ingleside to Balboa Park Station, the loop became a bus-only turnaround, with ingress at Ocean Avenue / Harold Avenue and egress at Ocean Avenue / Lee Avenue. With the start of construction for the affordable housing development at 1100 Ocean Avenue, the loop was realigned in May 2013 with egress onto Phelan Avenue north of the fire station, improving connections to City College. The Phelan Loop currently provides three boarding bays (two island bays and one curb bay) shared between the 8X / 8BX and 49 bus routes, and egress onto Phelan Avenue is facilitated by transit-only traffic signals activated by video detection.

All routes connect to Balboa Park Station, with the 8X / 8BX, 29, and 43 traveling via Geneva Avenue and the K and 49 traveling via Ocean Avenue. At Balboa Park Station, passengers can then transfer to BART for fast service to the Mission District, downtown San Francisco, and the rest of the Bay Area; to other Muni routes (J Church, M Ocean View, 54 Felton, and 88 Mission–BART Shuttle); and to San Mateo County commuter shuttles that serve residential neighborhoods in the Bayshore area of northeast Daly City and employment centers at Crocker Industrial Park and Sierra Point in Brisbane.

Field observations, together with ridership data collected by the SFMTA as part of the Transit Effectiveness Project (TEP), indicate that passenger crowding levels on local transit services in the immediate vicinity of the Balboa Reservoir are generally low because most routes have terminals at or near the site. The exceptions to this rule are the 29 Sunset and 43 Masonic, which are heavily used crosstown routes that reach the Balboa Reservoir mid-route.

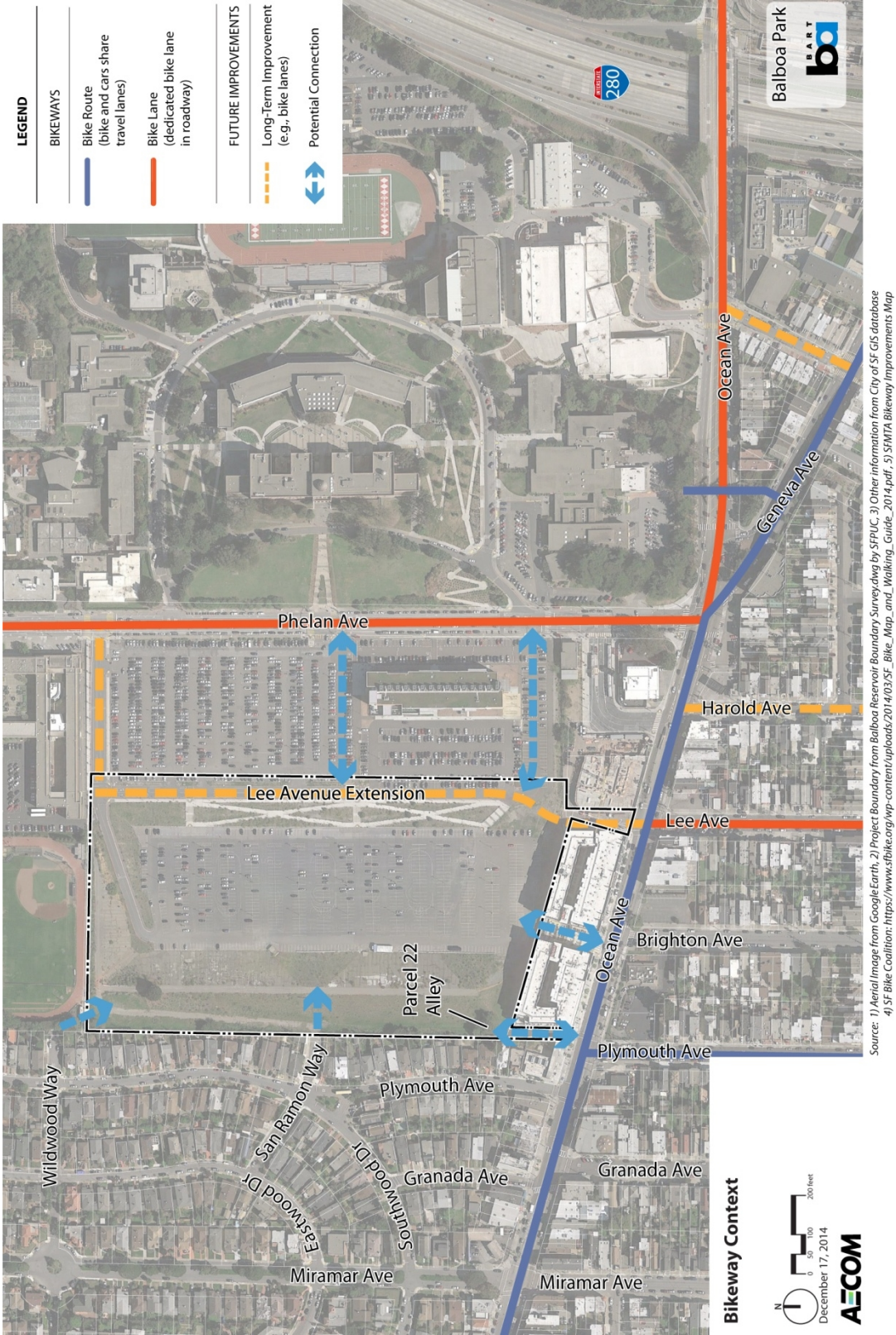
Relevant transit data—including daily boardings and alightings by stop—are enclosed in **Appendix A** to this memorandum.

## **Bicycle Context**

**Figure 3** illustrates the bikeway context for the site.



Figure 3: Balboa Reservoir Bikeway Context





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The primary bikeways serving the Balboa Reservoir are a mixture of Class 2 bikeways (bicycle lanes) and Class 3 bikeways (bicycle routes with signage and sharrows) along the area's major roadways. Major east–west bikeways serving the area include the following:

- *Route 84 (Ocean Avenue)*: Class 2 facilities between Alemany Boulevard and Phelan Avenue and Class 3 facilities between Phelan Avenue and 20th Avenue / 21st Avenue.
- *Route 90 (Geneva Avenue / Holloway Avenue)*: Class 2 facilities in the immediate vicinity of the Balboa Reservoir along Geneva Avenue, Ocean Avenue, Plymouth Avenue, and Holloway Avenue. A mixture of Class 2 and Class 3 facilities extend the route further east to Bayshore Boulevard and west to San Francisco State University.
- *Route 770 (Phelan Avenue / Genessee Street)*: A short connector between Route 70 (Monterey Boulevard) and Routes 84 and 90, consisting primarily of Class 2 facilities along Phelan Avenue and Judson Avenue and Class 3 facilities along Genessee Street.

Phelan Avenue and the segments of Ocean Avenue west of Phelan Avenue are relatively flat and generally carry lower traffic volumes, features that are generally conducive to bicycle use. The area is also located close to major transit hubs such as Balboa Park Station and bicycle-friendly uses such as institutional campuses and neighborhood-oriented retail. Field observations, however, indicate that bicycle use is low, likely for a variety of reasons that include elevation changes, the volume and speed of vehicular traffic, and the lack of protected bikeways to provide a safe route for bicyclists. In particular, Geneva Avenue is not a desirable bikeway given the steep and sustained grades, and Ocean Avenue has safety-related concerns caused by the merge zones with ramps to and from I-280 and the track grooves along light rail routes. The relatively small amount of bicycle parking at Balboa Park Station (given the significance of the station and its proximity to City College) and the high frequency and convenience of transit services also may make it more practical to use transit for short journeys to and from the station.<sup>(4)</sup>

Relevant bicycle data—including counts collected in previous studies—are enclosed in **Appendix A** to this memorandum.

## **Pedestrian Context**

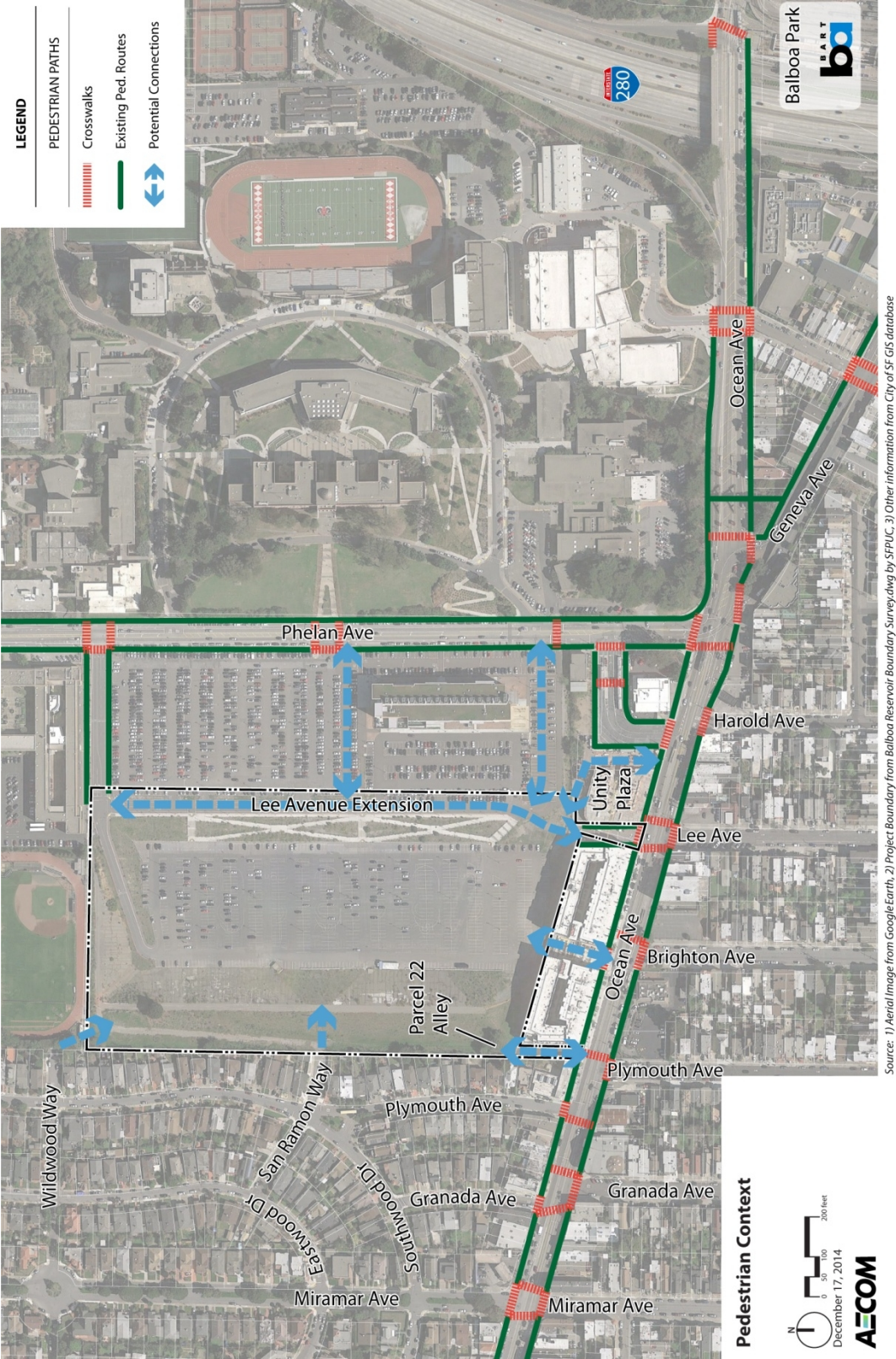
**Figure 4** illustrates the pedestrian context for the site.

Pedestrian activity in the area is generally moderate, concentrated on pedestrian routes connecting to Balboa Park Station, near City College and the Phelan Loop, and along the Ocean Avenue commercial corridor. Pedestrian access to and from the Balboa Reservoir is provided by the roadway network described above, with all streets providing sidewalks along both sides. However, there is a lack of pedestrian connections leading directly to the Balboa Reservoir (in particular, the north, south and west sides all lack a pedestrian connection onto the site).

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<sup>(4)</sup> San Francisco Municipal Transportation Agency. 2009 (October). *Balboa Park Station Pedestrian and Bicycle Connection Project* (Final Report). San Francisco, CA.

Figure 4: Balboa Reservoir Pedestrian Context



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Geneva Avenue offers the shortest pedestrian route between the Balboa Reservoir and Balboa Park Station, but this route is not desirable because of elevation changes and the safety hazards created by the diamond interchange with I-280. Ocean Avenue generally features lower traffic volumes and a more gradual grade; however, pedestrian safety along the north side of the street is hampered by the ramps serving I-280, including a high-speed off-ramp (currently striped as a “free” right turn instead of a “yield” configuration) that merges into westbound Ocean Avenue. The major intersection at Ocean Avenue / Geneva Avenue / Phelan Avenue is also problematic for pedestrians because of crossing distances (particularly across Ocean Avenue) and the lack of marked crosswalks across some intersection legs, which result in circuitous pedestrian routes. High traffic volumes on right-turn movements, such as the westbound right-turn movement from Ocean Avenue onto northbound Phelan Avenue and the eastbound right-turn movement from Ocean Avenue onto eastbound Geneva Avenue, also put vehicles in direct conflict with pedestrians in the crosswalk.

Relevant pedestrian data—including counts and collision rates collected in previous studies—are enclosed in **Appendix A** to this memorandum.

### **Vehicle Parking Context**

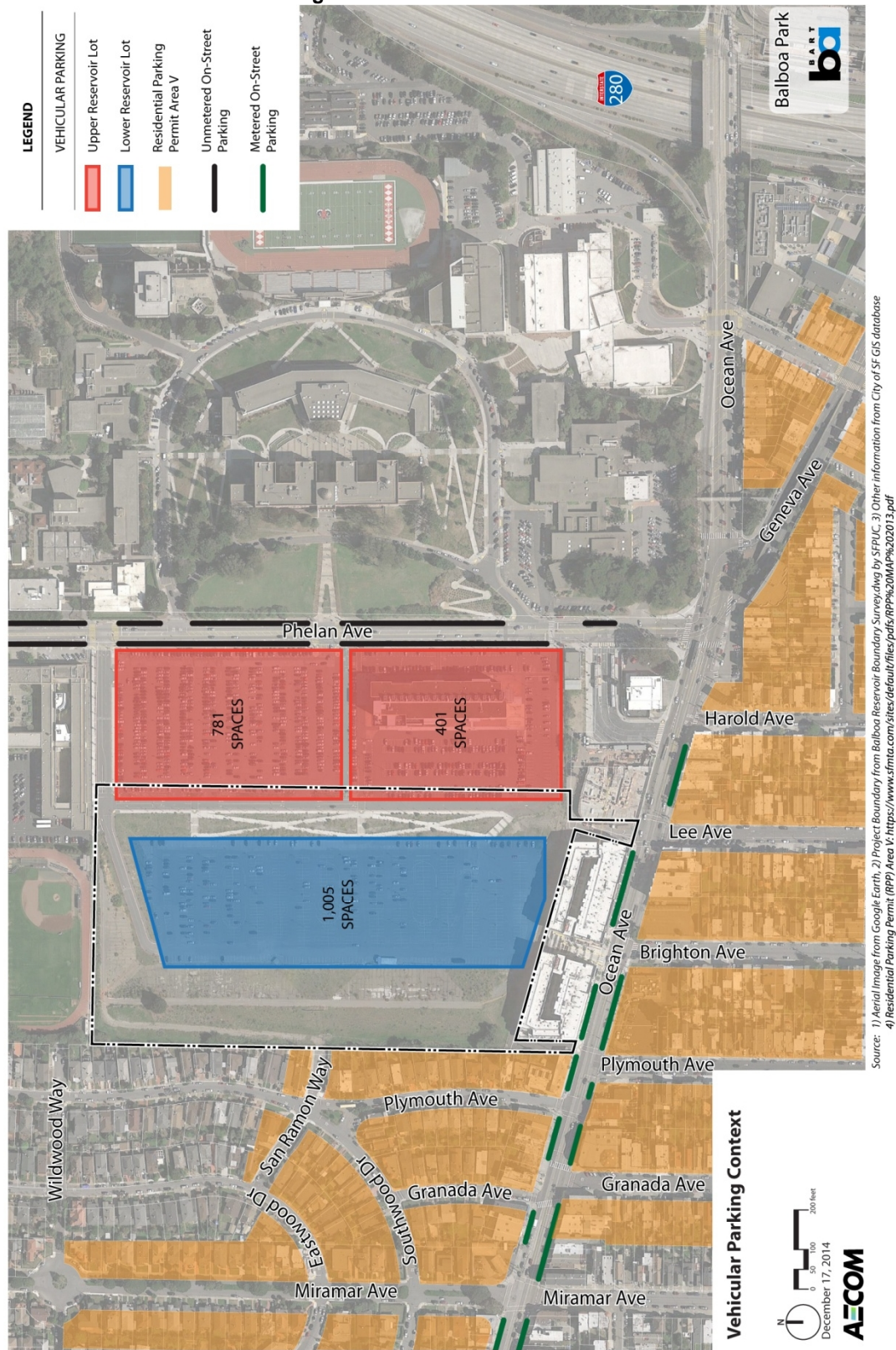
**Figure 5** illustrates the vehicle parking context for the site.

On-street parking in the immediate vicinity of the Balboa Reservoir is provided along both sides of Phelan Avenue and Ocean Avenue. However, parking is restricted on some segments and sides of Ocean Avenue by curb cuts (such as the curb cut serving Fire Station No. 15, Beep’s Burgers or the 76 service station), roadway width constraints, and other factors.

The Balboa Reservoir currently provides off-street surface lots for use by City College employees and staff members through a license between the SFPUC and City College, but most vehicles currently park in the Upper Reservoir Lot; the Lower Reservoir Lot is under-used. Parking in these facilities is permitted only between 5:00 AM and midnight; overnight parking is prohibited. A modest fee of \$3 a day is charged for the use of these spaces, but students can obtain semester permits for \$40 (reduced to \$20 for students receiving financial aid).



Figure 5: Balboa Reservoir Vehicle Parking Context





## Future Land Use and Transportation Context

Several land use development and transportation plans and projects are underway near the Balboa Reservoir. These projects are discussed in more detail below.

### Balboa Park Station Area Plan

The *Balboa Park Station Area Plan* (Area Plan) grew out of the planning efforts of the Better Neighborhoods Program, which established a vision for the neighborhoods surrounding Balboa Park Station for land use, transportation, housing, and other topics.

#### Land Use

The Area Plan encompasses the immediate surroundings of Balboa Park Station, as well as Balboa Park, City College, the Balboa Reservoir, and parcels stretching to the west along the Ocean Avenue corridor. The environmental review of the Area Plan analyzed future development at various infill sites in the Plan Area, such as the SFMTA Geneva Upper Yard (southwest corner of Geneva Avenue / San Jose Avenue), the Phelan Loop, the Kragen Auto Parts site, Fire Station No. 15, and the Balboa Reservoir. The Balboa Reservoir represents the largest of these sites in terms of land area and residential development potential.

Of projects in the Area Plan, the new Ingleside Branch Library opened at the former Sunset Garage site in 2009, and the former Kragen Auto Parts site has been developed as “Avalon Ocean Avenue”, a 173-unit apartment complex with a Whole Foods Market and other ground-floor retail uses that was completed in 2012. Construction is also underway on an affordable housing development at the former Phelan Loop site at 1100 Ocean Avenue. The historic Geneva Car Barn and Powerhouse requires a seismic upgrade and rehabilitation, but is currently envisioned as an arts and cultural center for the community. Other projects that have received entitlements include the following:

- 270 Brighton Avenue (Planning Department Case No. 2013.0083): 25 dwelling units and 3,653 square feet of retail currently under construction at the southeast corner of Ocean Avenue / Brighton Avenue;
- 1490 Ocean Avenue (Planning Department Case No. 2008.0538): 15 dwelling units and 4,356 square feet of retail at the northeast corner of Ocean Avenue / Miramar Avenue. Building permits have been filed, but construction has yet to commence.

A third infill development at 1601–1635 Ocean Avenue (Planning Department Case Nos. 2006.0592 and 2009.1050), comprising 36 dwelling units and 11,250 square feet of retail, is currently undergoing the approvals process.

For more details about specific land use assumptions at the various infill sites, see the project description for the Area Plan contained in the Area Plan EIR, which is included as **Appendix B** to this memorandum.

#### Transportation

The Area Plan also proposed various improvements to Balboa Park Station, station access, and to the surrounding street network. The proposed street improvements include major redesigns of Geneva Avenue between San Jose Avenue and I-280, San Jose Avenue between Ocean Avenue and Geneva Avenue, Ocean Avenue between San Jose Avenue and Geneva Avenue, and Phelan Avenue between Judson Avenue and Ocean Avenue. Some of the changes along Phelan Avenue—namely, the proposed road diet (from four travel lanes to two travel lanes), new bike lanes, and elimination of channelized right turns to and from Ocean Avenue—have been completed. The landscaped median along Phelan Avenue has not been completed, however. A new street design study for Ocean Avenue is near completion as of January 2015 (see below).

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The Area Plan also proposed the extension of Brighton Avenue, Lee Avenue, and Harold Avenue north of Ocean Avenue to the southern edge of the Balboa Reservoir. The Brighton Avenue and Lee Avenue extensions were completed with the Avalon Ocean Avenue development, serving primarily as public open space (Brighton Avenue) and access roads for Avalon Ocean Avenue and the affordable housing project under construction at 1100 Ocean Avenue (both Brighton Avenue and Lee Avenue). The Harold Avenue extension was completed with the redesign of the City College Terminal / Phelan Loop and is designated for use exclusively by transit vehicles.

Draft versions of the plan also had called for eliminating two of the four general-purpose travel lanes along Ocean Avenue to provide dedicated roadspace for LRVs and other transit vehicles between Phelan Avenue and Manor Drive, but this provision was removed from the Area Plan after publication of the Initial Study and Notice of Preparation (NOP) for the Area Plan EIR.

The EIR for the Area Plan also evaluated an extension of Lee Avenue into the Balboa Reservoir (the “Lee Avenue Extension” discussed previously), with one travel lane in each direction and no on-street parking. This roadway extension would serve City College campus uses along the west side of Phelan Avenue that are being developed as part of City College’s *Ocean Avenue Campus Master Plan*. City College is required to complete the Lee Avenue Extension per an agreement with the SFPUC, and the Extension is not formally part of the Area Plan, although the Area Plan EIR included an analysis of the potential impacts of the Lee Avenue Extension

In terms of transit facilities, the Area Plan also proposed changes to Balboa Park Station to improve transit connectivity, passenger convenience, and pedestrian access to transit. Closer to the Balboa Reservoir, the Area Plan also called for a redesign of the Phelan Loop (ingress via Ocean Avenue, egress via Phelan Avenue), a project that is now complete. Many of the Area Plan’s transportation goals and policies for the station itself have been evaluated in subsequent studies and projects, including the Balboa Park Station Pedestrian and Bicycle Connection Project, *Balboa Park Station Capacity & Conceptual Engineering Study* (October 2012), and the *Balboa Park Station Area Circulation Study* (April 2014).

Transportation circulation on and around the Phelan Loop site, including the Phelan Loop redesign and street extensions north of Ocean Avenue, are illustrated in the Area Plan project description contained in the Area Plan EIR, which has been included as **Appendix B** to this memorandum.

#### Other Changes

Other changes proposed in the Area Plan include new open spaces in the neighborhood, including sites adjacent to the Ingleside Branch Library (the “Parcel 22” site, a courtyard (to be open during library hours) currently in the construction phase), along the Brighton Avenue extension north of Ocean Avenue (completed as part of Avalon Ocean Avenue), at the Phelan Loop (the “Unity Plaza” project, to be built in 2015), and at the Balboa Reservoir.

#### **Ocean Avenue Corridor Design Project**

The Ocean Avenue Corridor Design Project will implement streetscape improvements to Ocean Avenue between San Jose Avenue and Manor Avenue. The near-term phase of the project includes pedestrian realm enhancements such as greening / landscaping and consolidation of newsracks, as well as new bulb-outs and other intersection improvements for pedestrians. Design is nearly complete, with construction scheduled to take place in 2015.

The segment east of Phelan Avenue is addressed under the project’s long-term phase, with concept design also near completion. Funds for final design and construction have not been secured. The conceptual plans call for a reconfiguration of the Ocean Avenue / Geneva Avenue / Phelan Avenue intersection, including small public spaces and gateway treatments. They also include eastbound bike lanes on Ocean Avenue, wider sidewalks, bulbouts or

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sidewalk extensions, trees, and lighting along Ocean Avenue. A new contraflow bike lane along Howth Street is also called for. Geneva Avenue from Ocean Avenue east to the southbound I-280 off-ramp would also receive similar improvements, including a new planted median; corner bulb-outs at Howth Street; a new west crosswalk at Louisburg Street; and various streetscape amenities including pedestrian-scale lighting, greening, and site furnishings. Prioritization of these options is currently being vetted to the public.

For schematic illustrations of the proposed design for these improvements, see **Appendix C** of this memorandum.

### **WalkFirst Improvements**

Near-term improvements under the WalkFirst program are planned for intersections along Ocean Avenue at Capitol Avenue, Miramar Avenue, Plymouth Avenue, and Phelan Avenue. At Phelan Avenue, these improvements would include pedestrian refuge islands, raised crosswalks, advance stop bars, pedestrian warning signage, chokers, continental crosswalk striping, and a new marked (currently unmarked) crosswalk. At Plymouth Avenue, the improvements would include protected left turns, advance stop bars, intersection daylighting, signal timing changes, and continental crosswalk striping. For more details about these improvements, see **Appendix D** of this memorandum.

### **Transit Effectiveness Project**

The Transit Effectiveness Project (TEP) proposes various improvements to transit routes serving the Balboa Reservoir. Specifically, both Ocean Avenue (K Ingleside) and Geneva Avenue (8X Bayshore Express / 8BX Bayshore “B” Express) have been identified for travel time reduction proposals (TTRPs). Along these streets, SFMTA would implement various elements from its Transit Preferential Streets (TPS) toolkit—transit stop changes, lane modifications, parking and turn restrictions, traffic signal and stop sign changes, and pedestrian improvements—to reduce travel times for transit vehicles. In addition to these service-related capital improvements, the TEP would implement general service improvements, including new routes, changed route alignments, reduced headways, and new vehicle types. The changes proposed under the TEP have since been folded into SFMTA’s Muni Forward campaign, a branded program of improvements that also includes capital initiatives (such as fleet procurement) and other projects to modernize Muni service.

**Table 1** summarizes the proposed changes for Muni service near the Balboa Reservoir. For reference, see the detailed summary sheets of the TEP’s proposed changes for these routes in **Appendix E**.

As shown in **Table 1**, frequency would improve on several lines that already serve the Balboa Reservoir; the 8BX Bayshore “B” Express, the 29 Sunset, the 43 Masonic, and the K Ingleside. Two additional lines (the 52 Excelsior and 54 Felton) would also be extended or rerouted, providing additional options for traveling between the Balboa Reservoir and Balboa Park Station. Overall, combined bus and rail services between the Balboa Reservoir and Balboa Park Station would improve from approximately 40 scheduled runs to 43–48 scheduled runs in the peak hour. It should be noted, however, that the proposed changes to the 54 Felton are currently on hold pending additional community outreach by SFMTA.

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**Table 1: Transit Effectiveness Project – Proposed Service Changes**

Line	Changes to Peak Period Headway (minutes)				Other Changes <sup>(1)</sup>
	Weekday AM Peak Period		Weekday PM Peak Period		
	Existing	Proposed	Existing	Proposed	
8X Bayshore Express	7.5	6.0	7.5	7.0	TTRP.8X
8BX Bayshore “B” Express	8.0	6.0	7.5	7.0	TTRP.8X
29 Sunset	9.0	8.0	10.0	No change	Reroute from Mission Street and Geneva Avenue onto Ocean Avenue near Balboa Park Station (between Persia Avenue and Plymouth Avenue)
43 Masonic	10.0	8.0	12.0	10.0	
49R Van Ness–Mission Rapid	7.5	No change	7.5	No change	Conversion of existing 49 Van Ness–Mission to limited-stop service on Mission Street
52 Excelsior	20	No change	20	No change	Extension from the Excelsior District to Balboa Park Station and City College (new terminal on west side of Phelan Avenue between Cloud Circle and Ocean Avenue)
54 Felton	20	15	20	15	Reroute through the Excelsior District and at Balboa Park Station to a new alignment along Persia Avenue, Ocean Avenue, and Plymouth Avenue
K Ingleside	9.0	8.0	9.0	8.0	TTRP.K

Source: San Francisco Municipal Transportation Agency, *Transit Effectiveness Project Implementation Workbook* (Draft) (v.11.12) (March 24, 2014).

**Notes:**

TTRP = travel time reduction proposal

<sup>(1)</sup> Other changes shown only if they affect route segments in the vicinity of the Balboa Reservoir.

**City College Ocean Avenue Campus Master Plan**

City College of San Francisco last updated its *Ocean Avenue Campus Master Plan* in 2004. The plan identifies a need for several hundred thousand gross square feet of new facilities to meet projected enrollment demands. Some facilities have been completed to meet this demand, including the Student Health Center (2006), Community Wellness Center (2008), and the Joint Use Facility (2010). **Table 2** summarizes these recently completed projects. City College plans to initiate a new master planning process in 2015.

**Table 2: City College Ocean Avenue Campus Master Plan – Recently Completed Projects**

Facility	Size (gross square feet)	Status
Community Wellness Center	140,000	Completed 2008
Student Health Center	10,000	Completed 2006
Joint Use Facility	108,000	Completed 2010
Childcare Center	8,000	Completed 2008
<b>Program Total</b>	<b>266,000</b>	

Source: City College of San Francisco, *City College of San Francisco, Master Plan* (Approved June 10, 2004); City College of San Francisco,



## San Francisco Bicycle Plan

The San Francisco Bicycle Plan (“Bike Plan”) (June 26, 2009) identifies various improvements to the bikeway network near the Balboa Reservoir. Many of these projects have already been completed, including the following projects:

- *Route 84 (Ocean Avenue)*: Class 2 facilities along Ocean Avenue between Alemany Boulevard and Lee Avenue.
- *Route 770 (Phelan Avenue Connector)*: Class 2 facilities along Phelan Avenue to Judson Avenue, with Class 3 facilities (signage and sharrows) along Judson Avenue and Genessee Street between Phelan Avenue and Monterey Boulevard.
- *Class 3 facilities (signage and sharrows)* along various streets including Plymouth Avenue between Ocean Avenue and Holloway Avenue; Howth Street between Ocean Avenue and Geneva Avenue; Hearst Avenue between Circular Avenue and Genessee Street; and Monterey Boulevard west of Genessee Street.

Long-term improvement projects identified in the Bike Plan include Monterey Boulevard between Circular Avenue and Genessee Street; Lee Avenue (and the Lee Avenue Extension) between Phelan Avenue and Holloway Avenue; Harold Avenue between Ocean Avenue and Holloway Avenue; and Holloway Avenue between Harold Avenue and Junipero Serra Boulevard. Of these, only the improvements along Holloway Avenue west of Plymouth Avenue have been completed.

**Figure 6** illustrates the recommended improvements to the bicycle route network as proposed by the Bike Plan.

## Other Changes

The Ocean Avenue Association, a local community association comprising residents and merchants along the Ocean Avenue corridor, has drafted a “Fifteen Year Plan for the Improvement of the Ocean Avenue Commercial Corridor”, which includes many policies similar to the improvements proposed by the plans and projects described above. In addition, hypermarket chain Target has expressed interest in launching a Target Express at 1830–1850 Ocean Avenue in a space that originally housed a Rite Aid pharmacy.<sup>(5)</sup>

## Opportunities and Constraints

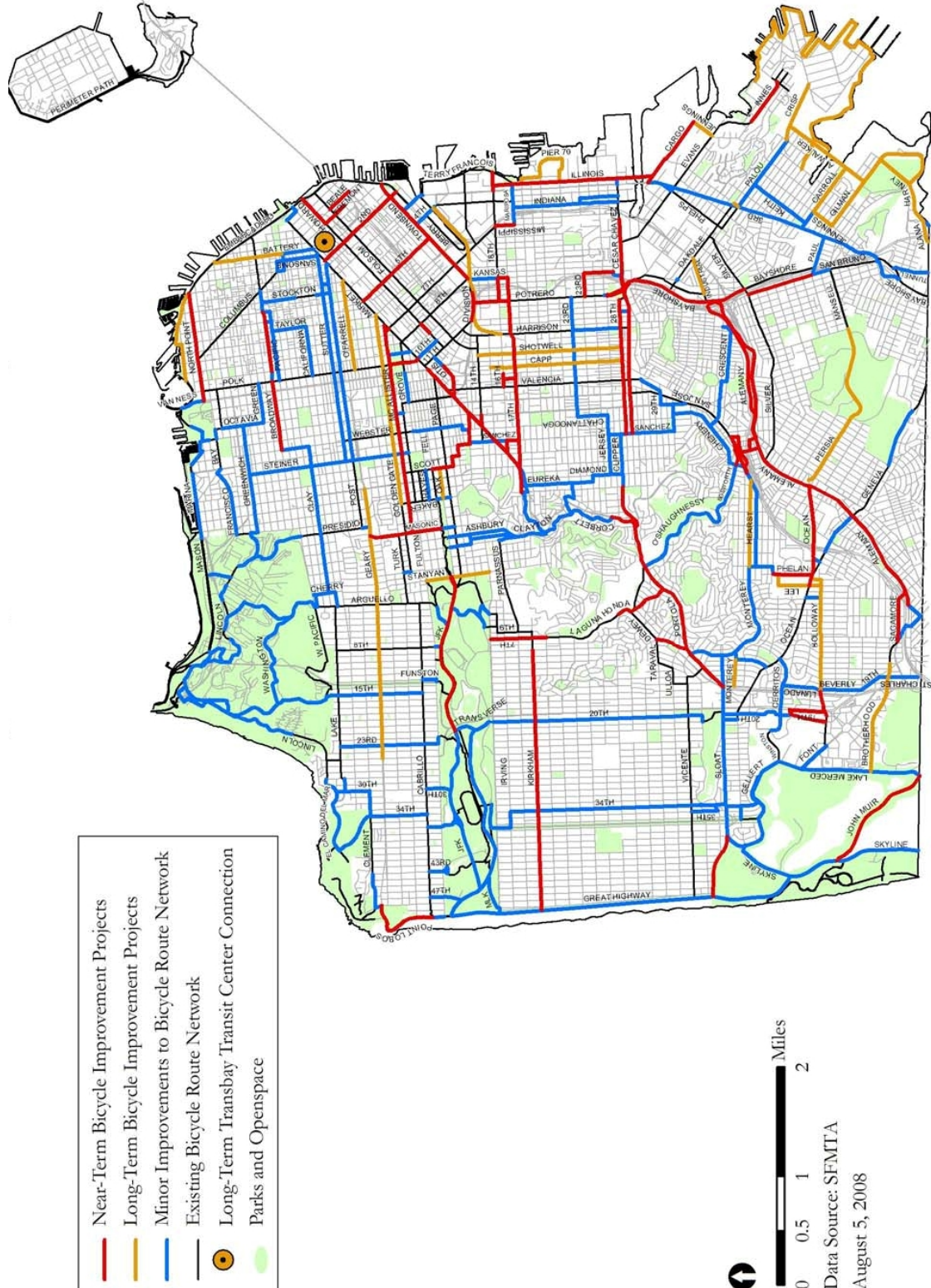
This section discusses potential site opportunities and constraints for components of the transportation network described in the preceding sections. **Figure 7** illustrates some of the major access and transportation opportunities and constraints for the Balboa Reservoir site.

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<sup>(5)</sup> Sciacca, Annie. *New Target Express store could land on Ocean Avenue in S.F.’s Ingleside* (San Francisco Business Times) (July 28, 2014). Online: <http://www.bizjournals.com/sanfrancisco/blog/real-estate/2014/07/target-express-store-1830-ocean-avenue.html>.

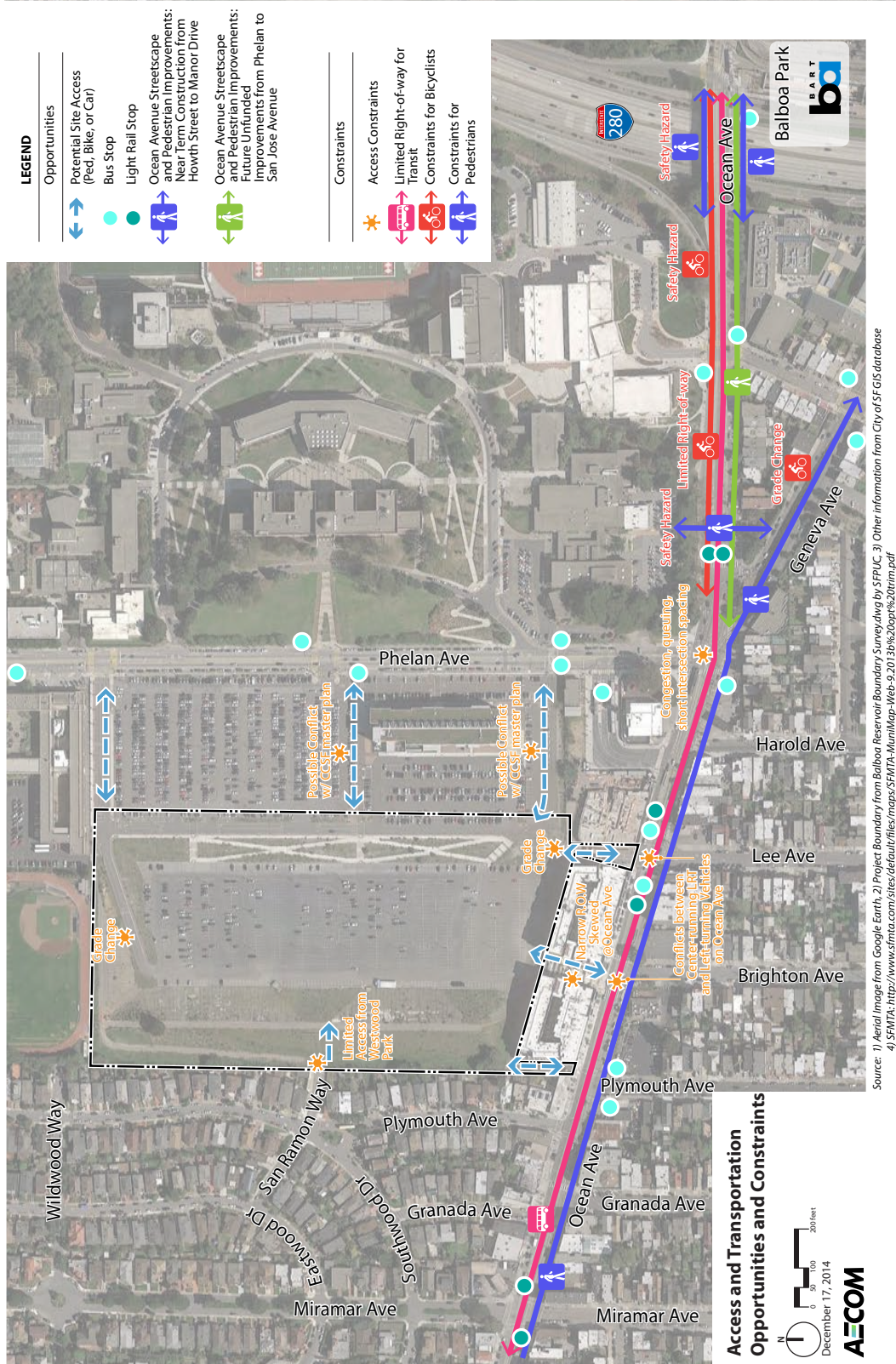
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Figure 6: San Francisco Bicycle Plan – Recommended Improvements



Source: San Francisco Municipal Transportation Agency. San Francisco Bicycle Plan (June 26, 2009). Online: [http://www.sfmta.com/sites/default/files/projects/San\\_Francisco\\_Bicycle\\_Plan\\_June\\_26\\_2009\\_002.pdf](http://www.sfmta.com/sites/default/files/projects/San_Francisco_Bicycle_Plan_June_26_2009_002.pdf).





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### Roadways

**Figure 8** illustrates the roadway context for the Balboa Reservoir (the existing roadway network, future roadway extensions, and potential roadway connections into the site).

As discussed in the previous sections of this memorandum, existing roadway connectivity is minimal at the Balboa Reservoir and limited in the existing neighborhoods surrounding the site for a variety of reasons. Therefore, connecting the Balboa Reservoir with the surrounding roadway network and neighborhoods is a key concern for a variety of site design parameters, such as walkability, multi-modal access (including access to transit), and public safety. The following subsection discusses potential opportunities and constraints for roadway access at the Balboa Reservoir.

#### *Access from the East*

Phelan Avenue provides logical options for direct access to and from the Balboa Reservoir. Access roads (the Reservoir Lot North Access and the Reservoir Lot Center Access) and signalized intersections already facilitate vehicle access into and out of City College's surface parking lots. Where feasible, SFPUC and City College could retain these alignments (and improve them, as necessary) to serve as access roads into the Balboa Reservoir. Also, City College's *Ocean Avenue Campus Master Plan* calls for enhancing pedestrian connectivity between the two parts of the campus on opposite sides of Phelan Avenue. Future development proposals, roadway alignment, and street design should carefully consider the pedestrian-oriented context of the west portion of the City College campus.

**Opportunities:** Retention and improvement of access from the north into City College surface parking. New roadway connections to Phelan Avenue at Science Circle stairs and Cloud Circle.

**Constraints:** Designs need to consider City College pedestrian activity and desire to connect west and east sides of campus across Phelan Avenue.

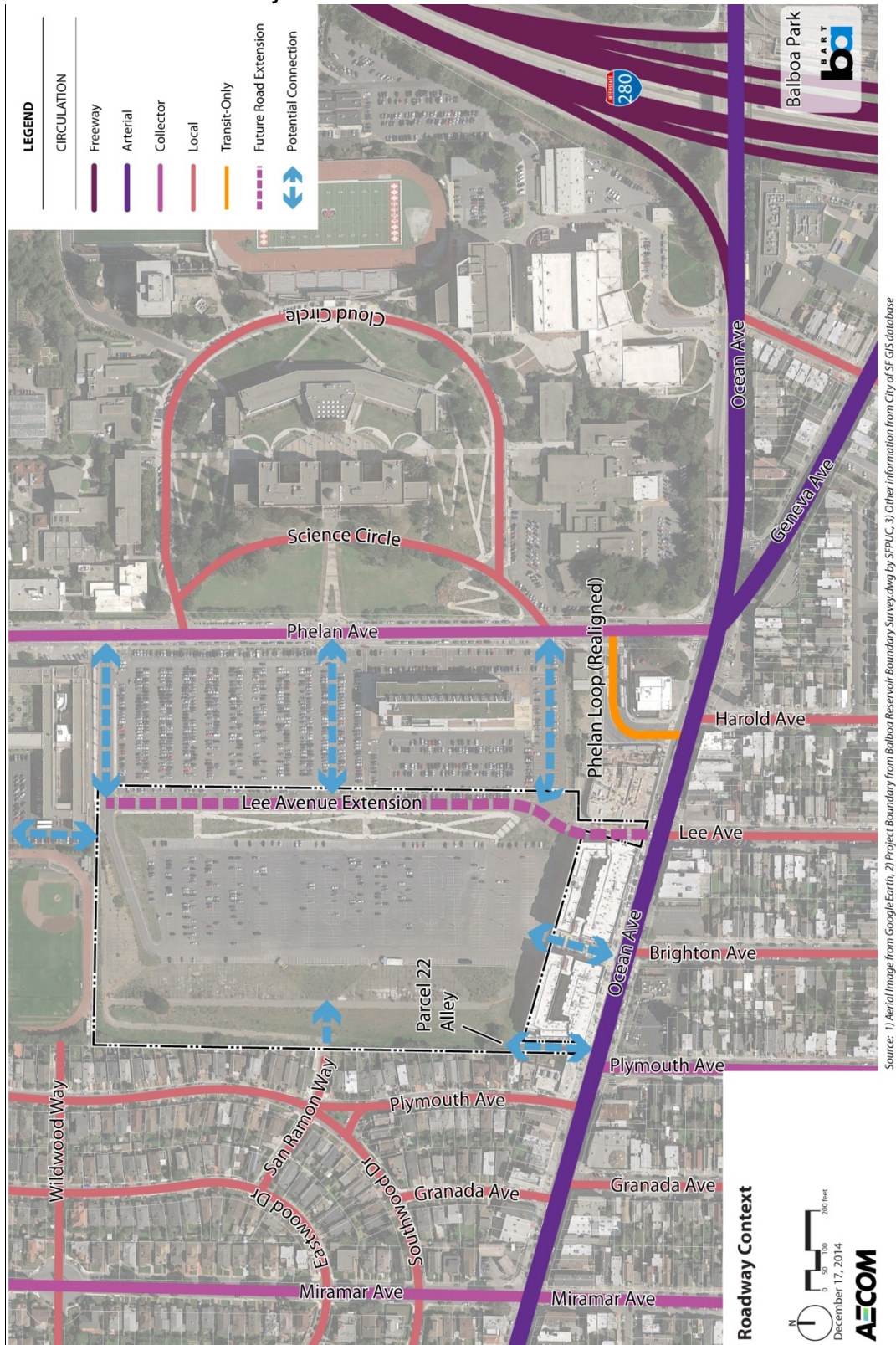
#### *Access from the South*

Along Ocean Avenue, Lee Avenue currently offers the most feasible option for direct access into the Balboa Reservoir, and City College has identified an extension of the roadway to accommodate vehicular access for its portion of the Balboa Reservoir. At the toe of the existing south berm of the Balboa Reservoir, the Lee Avenue Extension would shift slightly to the east and rise at a steep grade, connecting into the north-south accessway that has already been partially constructed as part of the land swap between City College and SFPUC and the completion of City College's new Mixed-Use Building. This scenario assumes that City College would acquire the required property to complete the improved Lee Avenue Extension from the SFPUC. The Lee Avenue Extension, once improved, could offer a potential ingress route into the Balboa Reservoir, but eastbound left-turn movements from Ocean Avenue would need to be studied further to fully assess any impacts.



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Figure 8: Balboa Reservoir Roadway Context



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Other potential right-of-way located north of Ocean Avenue could provide vehicular access into the Balboa Reservoir. These options include potential extensions of Brighton Avenue (via the main vehicular entrance into the Avalon Ocean Avenue site), Plymouth Avenue (via the SFPUC-owned pipeline right-of-way on Lot 192 of Assessor's Block 3180), or Harold Avenue into the Balboa Reservoir. The Brighton Avenue, Plymouth Avenue, and Harold Avenue rights-of-way are narrow and meet Ocean Avenue at a skewed angle, potentially increasing pedestrian safety hazards. Adding traffic controls at these intersections would also complicate traffic controls at nearby intersections and transit operations along Ocean Avenue. The steep grade change from Ocean Avenue also presents a constraint.

**Opportunities:** Connection into Lee Avenue Extension and other potential connections at Plymouth Avenue, Brighton Avenue, or Harold Avenue.

**Constraints:** Steep grade change between Ocean Avenue and the Balboa Reservoir. Conflicts between eastbound left-turn ingress and transit operations along Ocean Avenue. Narrow rights-of-way, skewed intersection layouts, and disruptions to transit operations at the Phelan Loop.

#### *Access from the North and West*

Access along the north edge of the Balboa Reservoir would require major changes to the Archbishop Riordan High School site. An access road currently provides egress from the high school's on-site parking lot onto the Reservoir Lot North Access, but this access road would need to be negotiated with the high school and substantially redesigned to serve as anything more than a pedestrian or bicycle access. This change could also negatively affect the high school's campus environment of the high school by introducing vehicular traffic through the center of the campus. Extending Wildwood Way into the Balboa Reservoir is also not feasible without requiring a redesign of the high school's sports field.

Providing access on the west edge of the Balboa Reservoir, however, is possible by extending San Ramon Way into the site. Extending San Ramon Way would increase pedestrian access, reduce local traffic at bottlenecks in the neighborhood, and improve emergency vehicle access at the site. This extension would likely attract a portion of the Balboa Reservoir site traffic heading to or from the west and could likely be accommodated without resulting in substantial negative effects on the existing Westwood Park neighborhood. Still, the need and potential effects (positive or negative) for this access must be weighed carefully. Extending San Ramon Way into the Balboa Reservoir would also require an agreement with the Westwood Park Homeowners Association, which owns the right-of-way needed to complete this roadway connection. The grade differential would also be a constraint to creating access via San Ramon Way.

**Opportunities:** New connections via Archbishop Riordan High School or San Ramon Way.

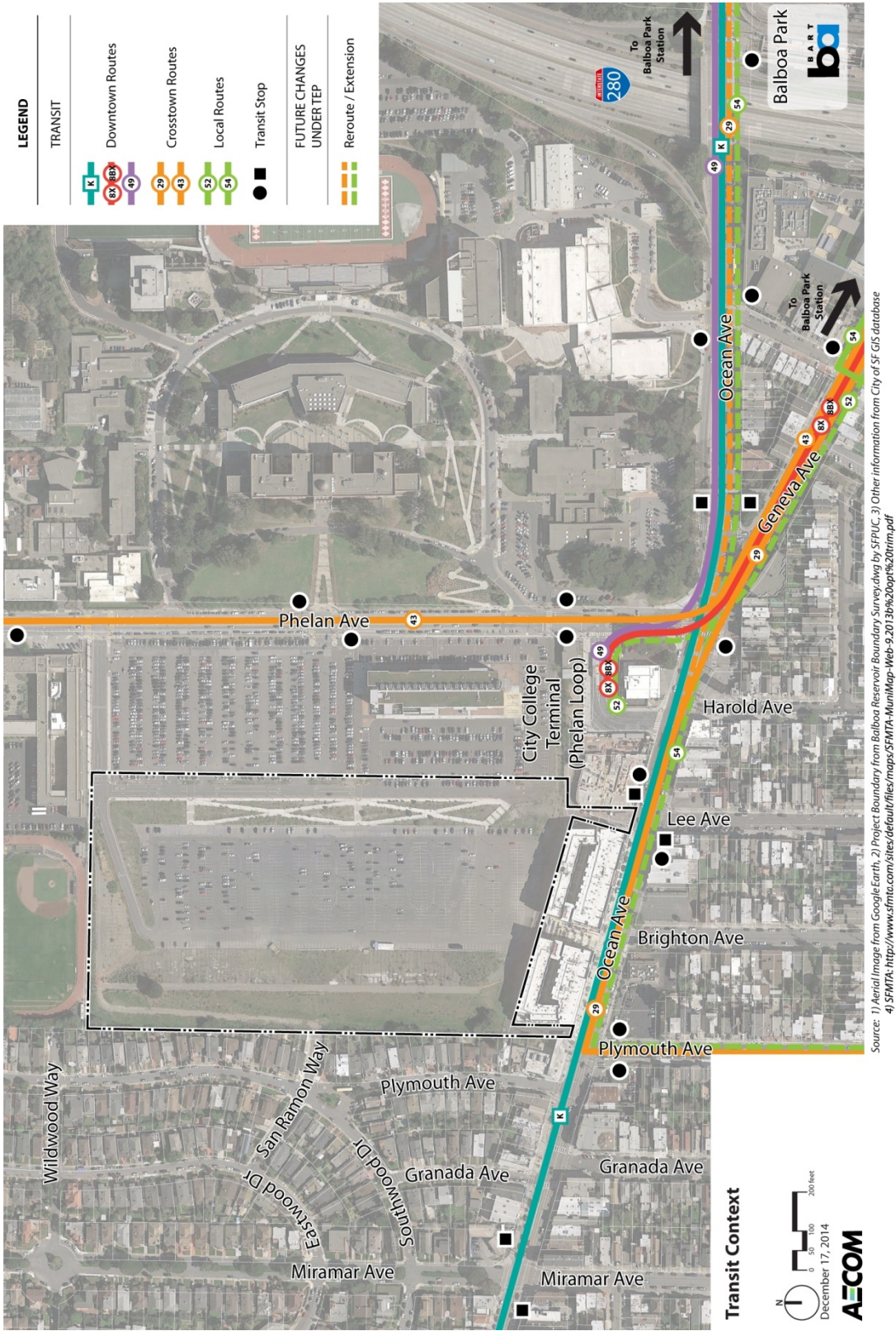
**Constraints:** Grade change. Right-of-way access and ownership.

#### Transit

**Figure 9** illustrates the transit context for the Balboa Reservoir, including the existing transit network and future changes to transit routes.



Figure 9: Balboa Reservoir Transit Context



The area surrounding the Balboa Reservoir is generally well-served by transit, but transit routes are concentrated primarily on major streets (Phelan Avenue, Ocean Avenue, and Geneva Avenue). Although all of these routes connect with Balboa Park Station, local residents have expressed concerns about reliability, travel times, and other service parameters that affect the attractiveness of transit as a travel option. Improved pedestrian access to transit, transit service enhancements, and new transit service could help improve transit service to the Balboa Reservoir. However, any transit service enhancements or new transit service would have to be considered in the context of existing Muni Forward plans for the area, capital budgets, and impacts on the overall transit system.

#### *Pedestrian Connections to Transit*

Pedestrian access to and from the site is limited for many of the same reasons that vehicle access is limited, and improving pedestrian access to existing transit should be a key consideration for site design. In particular, the neighborhood transit hub at the City College Terminal is not easily accessed from either City College or the Balboa Reservoir, given the existing network of pedestrian routes. Pedestrians must first travel east to reach Phelan Avenue before heading south to reach the Terminal, a circuitous route that increases travel distance and time.

Connecting the Lee Avenue Extension could provide a needed pedestrian connection to the Terminal for the Balboa Reservoir. Providing pedestrian access via the Lee Avenue Extension would also improve connections to the K Ingleside, which stops at the intersection of Ocean Avenue and Lee Avenue. Many of these connections would require the SFPUC to negotiate agreements with surrounding property owners in order to design for grade changes, freight loading, and emergency vehicle access.

**Opportunities:** Lee Avenue Extension and other connections to Ocean Avenue via Brighton Avenue. Improved connections to the Phelan Loop.

**Constraints:** Negotiation of agreements with third parties and design coordination.

#### *Improving Transit Frequency and Reliability*

Improving transit frequency and reliability could substantially improve the attractiveness of transit. The 43 Masonic, for example, could benefit from these improvements, because it serves a major function in carrying passengers between Balboa Park Station and City College as the only route that travels along the western and northern edges of the City College campus. As a result, the 43 frequently experiences relatively high levels of crowding on the segment approaching and between Balboa Park Station and City College. Similarly, the 29 Sunset is an important crosstown route that connects City College, San Francisco State University (SFSU), and multiple high schools (including Burton High School, Balboa High School, and Lowell High School). As a result, it frequently experiences crowding and reliability issues. Running additional buses on these route segments near the Balboa Reservoir would not only improve service for campus affiliates but also potentially attract new riders, including residents at the Balboa Reservoir.

Other options for improving transit reliability could involve transit priority treatments such as transit-only lanes or transit signal priority. In particular, transit vehicles at the Ocean Avenue / Geneva Avenue / Phelan Avenue intersection and along Ocean Avenue west of Phelan Avenue are frequently delayed by conflicts with general vehicular traffic and a lack of priority at traffic signals. LRVs traveling along Ocean Avenue, for example, are frequently delayed because they must share the center travel lanes with mixed-flow traffic. In particular, left turns from Ocean Avenue at Plymouth Avenue, Brighton Avenue, and Phelan Avenue frequently delay LRVs, which operate on a fixed track alignment and are unable to negotiate around obstructions as easily as buses. General traffic congestion also delays buses, such as those on the 29 Sunset, along this stretch of Ocean Avenue.

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Improvements such as implementing signal priority to extend green phases, as used in projects along Mission Street and other major transit corridors, would help reduce the signal delay incurred by transit vehicles. The Area Plan EIR had identified signal improvements at Ocean Avenue / Brighton Avenue to provide a short protected left-turn phase for westbound traffic, but this change has not yet been implemented. Prohibiting left turns at select locations and designating transit-only lanes would also generate tangible improvements to transit reliability. Transit-only lanes along Ocean Avenue west of Phelan Avenue would also work synergistically with proposed transit-only lanes being considered for both Ocean Avenue and Geneva Avenue east of the Ocean Avenue / Geneva Avenue intersection. With a constrained roadway width along Ocean Avenue, however, providing transit-only lanes could substantially affect general traffic operations in the general-purpose travel lanes.

Allowing trolley buses on the 49 Van Ness–Mission to share the center travel lanes east of Phelan Avenue with LRVs also would reduce transit delays caused by mixed-flow operations, but would require a redesign of the overhead lines (and potentially the pedestrian bridge at Ocean Avenue / Geneva Avenue) to permit operations of both pantographs (for LRVs) and trolley poles (for trolley buses). Consolidating the light rail platforms at Ocean Avenue / Geneva Avenue from the current side-platform configuration to a center island-platform configuration could potentially free up roadway space along Ocean Avenue, but would be fundamentally incompatible with the existing bus fleet, which is designed for right-side boarding. In addition, stakeholders have identified concerns about the current pedestrian bridge connecting the light rail platforms at Ocean Avenue / Geneva Avenue with the City College campus, particularly related to safety, crime, and the need for lighting.

**Opportunities:** Proximity to BART station and SFMTA transit routes and hubs. Increased frequency on existing routes. Enhanced reliability and efficiency through transit priority treatments, including transit signal priority and transit-only lanes.

**Constraints:** Limited roadway width along Ocean Avenue. Incompatible overhead line requirements and transit vehicle designs. Concerns about safety and crime with pedestrian bridge design.

#### *Extending or Rerouting Existing Transit into the Balboa Reservoir*

Other options for improving transit access at the Balboa Reservoir could include bringing transit services directly onto the site. Extending or rerouting one or more bus lines into the Balboa Reservoir site could increase the convenience and attractiveness of transit for many site residents by reducing the time and distance penalties associated with walking to and from transit stops. Some routes may not be ideal candidates for such an extension or reroute, because they generally serve ridership markets and travel patterns that may be substantially inconvenienced by a route change exclusively designed to serve the Balboa Reservoir. However, community service routes designed to cater to neighborhood and local-access needs could be potential candidates for such an improvement. SFMTA could also establish new routes could also be established to help supplement transit access for the Balboa Reservoir site or to serve other neighborhoods or transit hubs not readily accessible with the existing network of transit services (e.g., Glen Park Station).

Another issue regarding transit serving the Balboa Reservoir is the dispersed distribution of transit stops. Transit frequencies are generally good, but the route alignment and stop locations of existing transit services make it difficult for passengers to capitalize on the convenience and efficiency of combined frequencies, particularly between Balboa Park Station and the City College Terminal. The City College Terminal itself serves only two transit routes in the area (8X / 8BX and 49), while the K and 29 stop along Ocean Avenue and the 43 stops along Phelan Avenue. This often forces passengers to “pick and choose” lines even though they otherwise would have the option of taking other lines. Although passengers can proactively counteract these effects by using real-time arrival information published online,

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minor reroutes and streetscape improvements leading directly into the Phelan Loop would help strengthen its function as a hub for transit services. The Phelan Loop also could serve as the terminus of any enhanced “short-line” service or new routes as discussed above.

Additional opportunities to improve transit service in the area include implementation of alternative transit services such as shuttles for the Balboa Reservoir residents or City College affiliates. These services could provide an attractive alternative to existing public transit, but should be designed to minimize duplication of public transit routes or service.

**Opportunities:** Muni reroutes or extensions to directly serve the Balboa Reservoir and / or the Phelan Loop. Implementation of alternative transit services, such as shuttles for City College affiliates.

**Constraints:** Conflicts with existing passenger markets or transit services. Dispersed distribution of transit stops and routes. Route or service duplication.

#### Bicycle

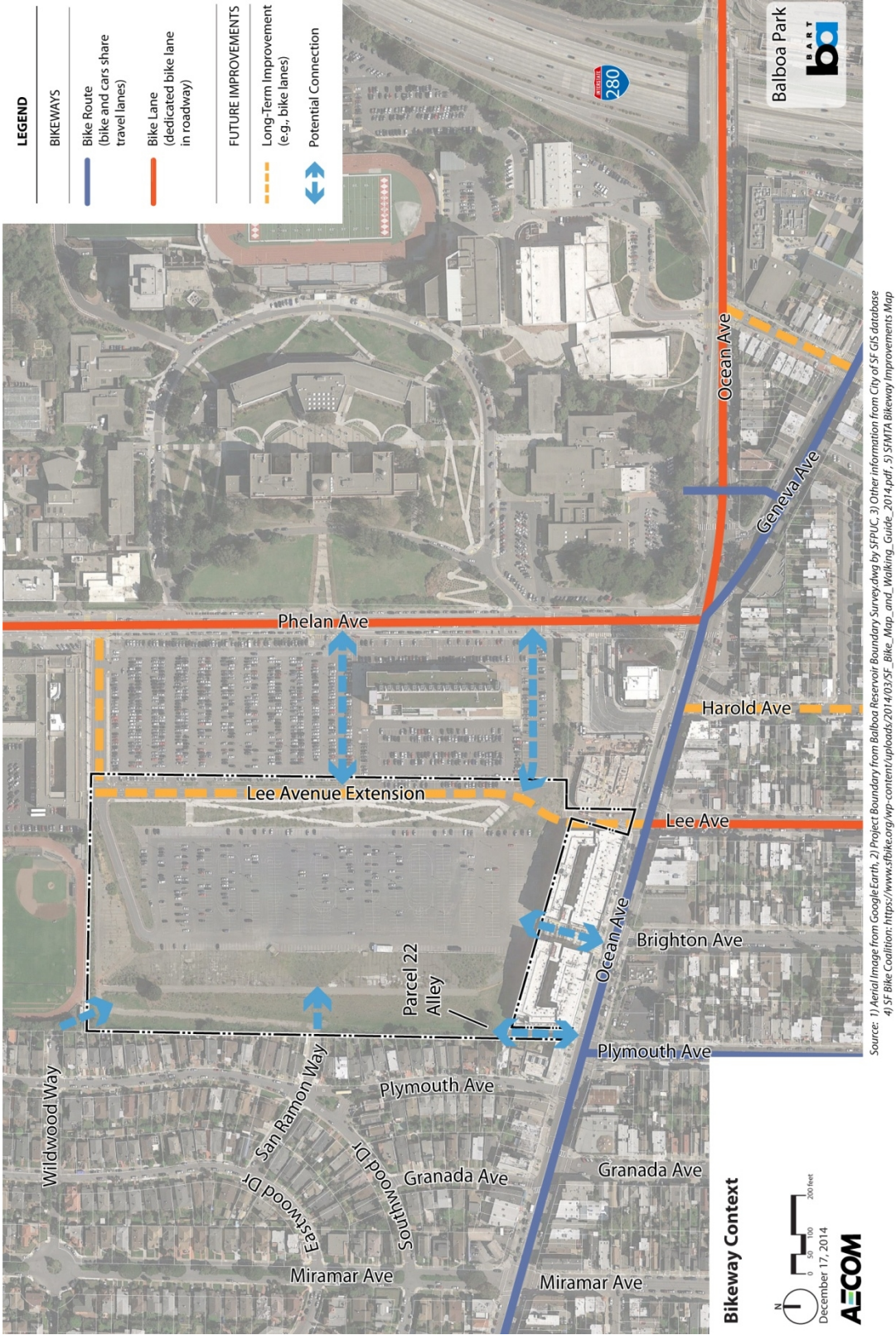
**Figure 10** illustrates the bikeway context for the Balboa Reservoir, including the existing bikeway network and future bikeway improvements.

#### *Off-site Bikeway Connectivity*

Specific recommendations for bicycle improvements surrounding Balboa Park Station have already been analyzed in other studies, including the Balboa Park Pedestrian and Bicycle Connection Project. Completing the improvements recommended in these studies would substantially improve bicycle access to the Balboa Reservoir.



Figure 10: Balboa Reservoir Bikeway Context





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In particular, bike lanes connecting to Balboa Park Station (along Ocean Avenue, Geneva Avenue, or both) could substantially improve bicycle use between the station and the Balboa Reservoir (and surrounding neighborhoods). In the case of bicycle lanes along Ocean Avenue, however, potential constraints such as roadway width (and the need to accommodate travel lanes for transit and general-purpose traffic) may limit SFMTA's ability to implement comprehensive improvements without negotiating an easement from City College and completing a major redesign of the roadway cross-section. Light rail track grooves in the center lanes along Ocean Avenue and the high-speed off-ramp from southbound I-280 onto westbound Ocean Avenue also present safety hazards for bicyclists. Grade differentials can also be expected to limit the attractiveness of bike lanes along Geneva Avenue.

**Opportunities:** New bike lanes connecting to Balboa Park Station.

**Constraints:** Limited roadway width along Ocean Avenue between Phelan Avenue and I-280 would require a City College easement for bike lanes. Safety hazards (track grooves and high-speed off-ramp). Grade changes.

#### *On-site Bikeway Connectivity*

The terrain in the immediate vicinity of the Balboa Reservoir, including Phelan Avenue and the Ocean Avenue commercial corridor, is generally flat and ideal for short-distance biking. The existing commercial corridor along Ocean Avenue would be expected to serve much of the demand for neighborhood retail and services generated by development at the Balboa Reservoir site. Thus, connecting the site with Ocean Avenue should be of utmost importance to discourage the unnecessary use of private automobiles for short-distance trips to the supermarket, bank, local restaurants, or other neighborhood destinations. Bicycles can fulfill some of these functions and contribute to more sustainable transportation choices among residents.

The Lee Avenue Extension would provide a roadway connection for bicyclists to Ocean Avenue and bicycle routes to the south of Ocean Avenue along Lee Avenue and Holloway Avenue.

Another potential option for improving bicycle access is the San Ramon Way connection discussed previously. A roadway connection open to general traffic may require additional study, but a bicycle and pedestrian connection at this location could be relatively easy to implement and would substantially improve non-motorized access to and from the Balboa Reservoir. Any community-wide resources provided at the Balboa Reservoir site, including public open space, would benefit from these connections. City College campus users also would benefit from an alternative route for bike access from the west that avoids traffic congestion at and around the Ocean Avenue / Geneva Avenue / Phelan Avenue intersection.

**Opportunities:** Enhanced bikeway connections to Ocean Avenue (e.g., Brighton Avenue). Extension of San Ramon Way to provide bicycle access along the west edge of site.

#### *Bicycle Parking*

Section 155.2 of the San Francisco Planning Code specifies requirements for providing Class 1 and Class 2 bicycle parking for residential uses. Because the Balboa Reservoir is well-served by transit and is located close to Balboa Park Station, the SFPUC could require the developer of the site to provide bike parking in excess of these requirements. A small-scale public bikeshare program with hubs at the Balboa Reservoir, at various locations on the City College campus, and at Balboa Park Station and Glen Park Station could also prove successful by attracting a

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wide variety of users. Consideration should be given to a potential focused expansion of Bay Area Bike Share (BABS) in this area.

**Opportunities:** On-site bicycle parking in excess of San Francisco Planning Code requirements. Potential expansion of Bay Area Bike Share at Balboa Park Station, Glen Park Station, City College, and the Balboa Reservoir.

**Constraints:** Lack of safe, attractive bikeway connectivity with Balboa Park Station. Limited supply of bike parking at Balboa Park Station.

#### Pedestrian

**Figure 11** illustrates the pedestrian context for the Balboa Reservoir, including existing pedestrian routes and potential pedestrian connections to the site.

Specific recommendations for pedestrian improvements surrounding Balboa Park Station have been analyzed in other studies, including the Balboa Park Pedestrian and Bicycle Connection Project. The following sections discuss potential pedestrian access opportunities and constraints specific to the site, as well as off-site opportunities and constraints that have not yet been addressed.

#### *On-site Pedestrian Connectivity*

San Ramon Way could be extended directly into the Balboa Reservoir site, either as a standard roadway or as a pedestrian- and bike-only access. Providing a new access along the northern edge of the site—such as a pedestrian connection to Wildwood Way or Hazelwood Avenue—also should be considered. Although the existing lot line configuration currently prevents direct access, SFPUC could negotiate an easement at the southwest corner of the Archbishop Riordan High School campus to provide a pedestrian- and bike-only connection to the Balboa Reservoir from Wildwood Way. Like the proposed access at San Ramon Way, an access point on Wildwood Way would improve neighborhood access to any open space or other community resources provided at the Balboa Reservoir, and would improve access for students, faculty, and staff members at both Archbishop Riordan High School and City College.

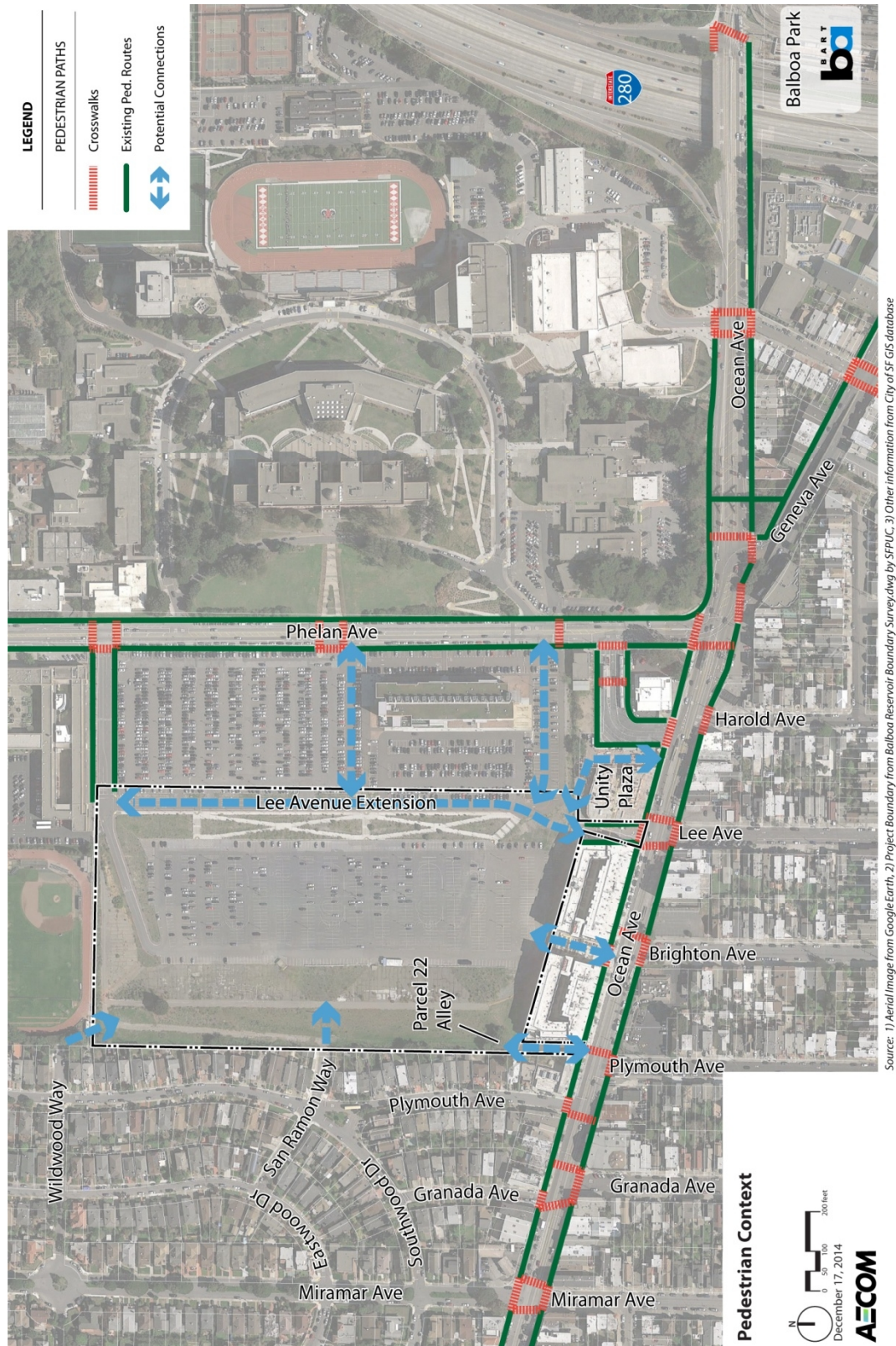
Pedestrian connections to Brighton Avenue, as discussed in preceding sections, would offer similar benefits for both the existing community and residents of the Balboa Reservoir site. New pedestrian access points on the south side could be designed to integrate with the streetscape and pedestrian improvements being implemented as part of the Ocean Avenue Corridor Design project. As with bikeway connections, these connections will require negotiated agreements with third parties.

**Opportunities:** New pedestrian connections north, south, and west of the Balboa Reservoir. Integration with Ocean Avenue Corridor Design streetscape and pedestrian improvements.

**Constraints:** Design coordination and negotiation of easements or other agreements with third parties.

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Figure 11: Balboa Reservoir Pedestrian Context





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### *Off-site Pedestrian Improvements*

The Balboa Park Pedestrian and Bicycle Connection Project considers bicycle and pedestrian access improvements in the immediate vicinity of Balboa Park Station. In addition, the Ocean Avenue Corridor Design project will implement streetscape, open space, and other improvements along the Ocean Avenue commercial corridor, including a redesign of the Ocean Avenue / Geneva Avenue / Phelan Avenue intersection to increase pedestrian safety and convenience. Further improvements could enhance pedestrian access even more.

Observations of pedestrian activity indicate that a large volume of students, faculty, and staff cross Phelan Avenue over the course of the day as they walk between the main campus and City College surface parking lots (and the new Mixed-Use Building). Crossings are provided at three locations: at the Reservoir Lot North Access in the north, at the Reservoir Lot Center Access, and at the south end of Science Circle and Cloud Circle just north of the Phelan Loop. Crosswalks at all three locations are controlled by pedestrian actuation in the form of pedestrian push buttons (PPBs). The first two locations also serve as vehicular access points into City College's Upper Reservoir Lot and Lower Reservoir Lot. Field observations indicated that many crosswalk users failed to properly activate the PPBs, resulting in unnecessary delay to pedestrians and sidewalk congestion at curb ramps. Other pedestrians simply ignored the PPBs and crossed at will. Re-programming the traffic signals at these locations for pedestrian recall, in which the crossing phase is provided during every signal cycle instead of requiring a PPB "call" or activation could eliminate these issues and improve crossing safety and convenience along Phelan Avenue.

Because of the area's piecemeal development patterns, the design of Phelan Avenue currently curves north to connect into Judson Avenue, resulting in an unsafe intersection design that is hazardous not only for motorists attempting to head northbound along Phelan Avenue but also for pedestrians crossing Phelan Avenue north of the curve. In particular, motorists focus primarily on gaps in the opposing traffic flow, not on pedestrian activity in the crosswalk. Field observations also indicated a high level of jaywalking activity at and near the Phelan Avenue / Judson Avenue intersection, primarily by City College campus affiliates crossing Phelan Avenue mid-block to and from neighborhoods north of the campus.

These pedestrian safety issues are of particular concern because of the high number of youth and young adults at these locations, given the presence of City College and Archbishop Riordan High School. Past improvements at the intersection, including a road diet and striping / signing measures, have mitigated some of these hazards. Nonetheless, more effective measures such as signalizing or redesigning the intersection (e.g., to prohibit specific turn movements) may be appropriate as build-out takes place on the City College and SFPUC portions of the Balboa Reservoir. Completing the landscaped median originally proposed for Phelan Avenue under the Balboa Park Station Area Plan would also provide a pedestrian refuge, reducing unprotected crossing distances for pedestrians. Some of these changes (such as signalization or turn prohibitions) may, however, increase traffic and transit delays and may be difficult to implement, given the need to accommodate local vehicle access to the surrounding neighborhoods.

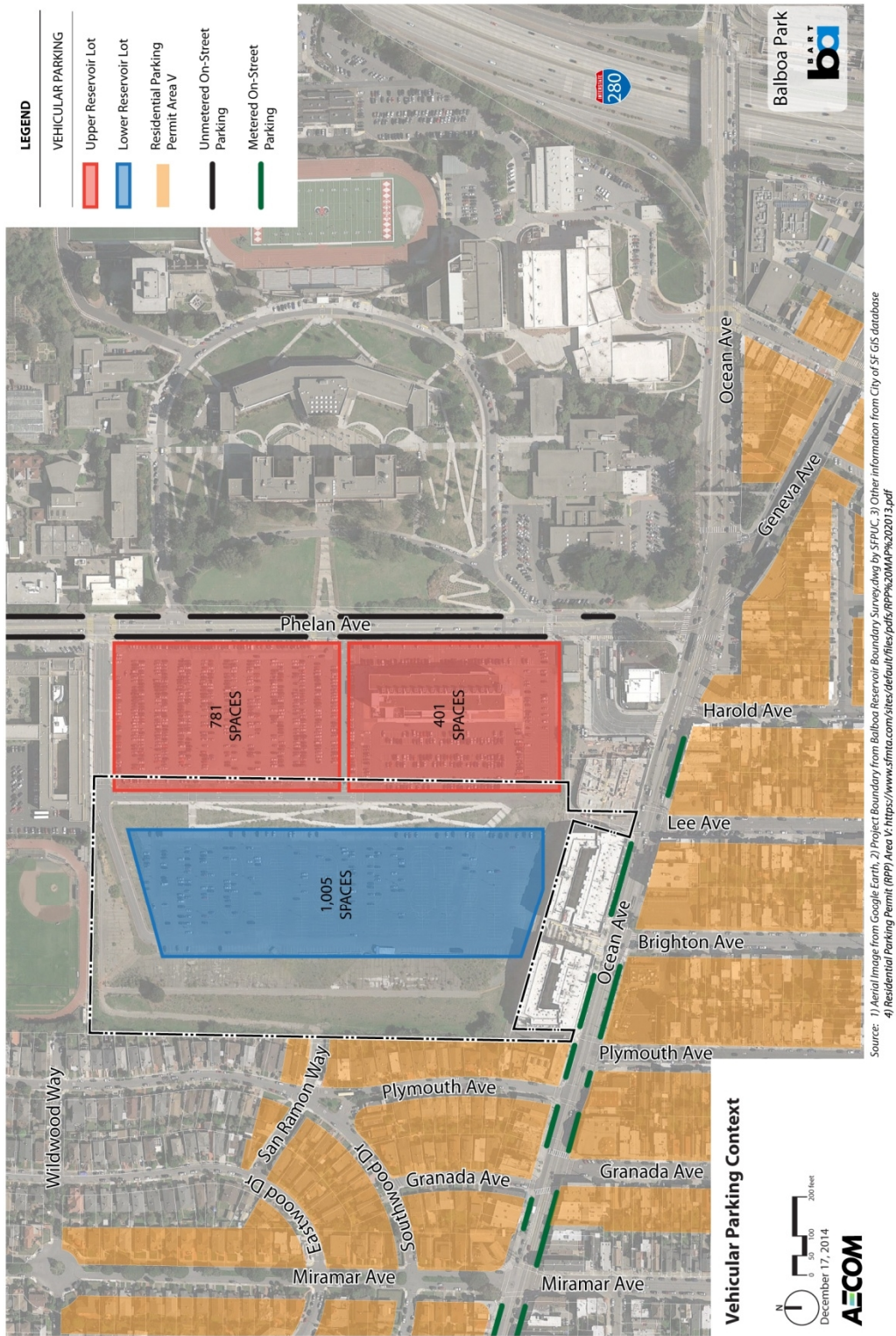
**Opportunities:** Crossing safety improvements along Phelan Avenue. Enhanced pedestrian connectivity to Balboa Park Station.

**Constraints:** Local access needs. Increased delays to traffic and transit operations.

### Vehicle Parking

This section discusses existing vehicle parking conditions at and surrounding the Balboa Reservoir, and includes both on- and off-site recommendations. **Figure 12** illustrates the vehicle parking context for the Balboa Reservoir, including existing on- and off-street parking facilities.

Figure 12: Balboa Reservoir Vehicle Parking Context



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*Parking Supply and Occupancy*

Field surveys were conducted to determine the existing parking supply and occupancy at and surrounding the Balboa Reservoir. The scope of the field surveys encompassed the Upper Reservoir Lot and Lower Reservoir Lot, currently used by City College, as well as on-street parking along Judson Avenue west of Genessee Street, Phelan Avenue south of Judson Avenue, Ocean Avenue between Phelan Avenue and Plymouth Avenue, and San Ramon Way east of Plymouth Avenue. Occupancy of these on- and off-street parking facilities was surveyed during the weekday morning (9:30 AM to 11:30 AM), midday (1:30 PM to 3:30 PM), and evening (7:00 PM to 9:00 PM) periods on two days (Thursday, November 20, 2014 and Wednesday, February 4, 2015) to capture a range of occupancies based on City College class schedules (typically Monday / Wednesday / Friday and Tuesday / Thursday). **Table 3** summarizes the collected occupancy data.

**Table 3: City College Reservoir Lots – Parking Supply and Occupancy**

Table of City College Reservoir Lots - Parking Supply and Occupancy													
Lot	Supply (spaces)	Occupancy											
		Thursday, November 20, 2014						Wednesday, February 4, 2015					
		Weekday Morning (9:30 AM – 11:30 AM)		Weekday Midday (1:30 PM – 3:30 PM)		Weekday Evening (7:00 PM – 9:00 PM)		Weekday Morning (9:30 AM – 11:30 AM)		Weekday Midday (1:30 PM – 3:30 PM)		Weekday Evening (7:00 PM – 9:00 PM)	
		Spa- ces	Per- cent	Spa- ces	Per- cent	Spa- ces	Per- cent	Spa- ces	Per- cent	Spa- ces	Per- cent	Spa- ces	Per- cent
Upper Reservoir Lot													
North Lot													
Faculty / staff	56	45	80%	46	82%	29	52%	53	95%	44	79%	32	57%
Student	724	558	77%	507	70%	308	43%	719	99%	492	68%	479	66%
City College Police Department	1	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
South Lot (Mixed-Use Building)													
Faculty / staff													
General use + ADA	371	240	65%	180	49%	59	16%	277	75%	172	46%	86	23%
Fuel-efficient vehicle	18	9	50%	11	61%	1	6%	10	56%	10	56%	2	11%
Diamond (carpool)	9	9	100%	2	22%	2	22%	9	100%	6	67%	2	22%
Bookstore	1	0	0%	1	100%	1	100%	0	0%	1	100%	1	100%
City College Police Department	1	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
City CarShare	1	1	100%	1	100%	1	100%	0	0%	1	100%	1	100%
Subtotal	1,182	862	73%	748	63%	401	34%	1,068	90%	726	61%	603	51%
Lower Reservoir Lot													
ADA	20	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
General use	985	65	7%	37	4%	4	0%	262	27%	101	10%	8	1%
Subtotal	1,005	65	6%	37	4%	4	0%	262	26%	101	10%	8	1%
Total	2,187	927	42%	785	36%	405	19%	1,330	61%	827	38%	611	28%

Source: AECOM, 2014.

As shown in **Table 3**, the Upper Reservoir Lot is comparatively well-used, but overall occupancy did not exceed 90 percent during any of the survey periods. In contrast, the Lower Reservoir Lot typically serves as overflow parking when the Upper Reservoir Lot is nearing capacity, and is less well-used. Occupancy levels in the Lower Reservoir Lot peaked at around 26 percent during the Wednesday morning survey period. On low-demand days, the Upper Reservoir Lot has sufficient unused capacity to accommodate all of the vehicles currently using the Lower Reservoir Lot.

On-street parking along the street segments adjacent to the City College campus (Judson Avenue west of Genessee Street and Phelan Avenue south of Judson Avenue) was approximately 90 percent occupied throughout



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the survey periods on both days, although several sections of curb were available to smaller vehicles and the utilization of designated motorcycle spaces peaked at less than 50 percent. The surveyed spaces on these street segments are currently un-metered.

On-street parking is fully metered along the surveyed street segments of Ocean Avenue, which compose the eastern end of the neighborhood commercial corridor. Occupancy is generally low, with the surveys recording less than 40 percent utilization during the morning and less than 50 percent during the midday. Utilization increased to almost 90 percent during the evening survey period, potentially indicating that low utilization during the other survey periods is due to the wide availability of free (i.e., un-metered) parking on side streets.

On-street parking along the surveyed segment of San Ramon Way is within a Residential Permit Parking (RPP) zone and is restricted to a two-hour time limit Mondays through Fridays between 8:00 AM and 6:00 PM, except for vehicles displaying a "V" RPP sticker. Parking occupancy along this segment was low, peaking at two vehicles, although there is sufficient curb space to accommodate more than ten vehicles.

#### *Off-site Parking Strategies*

The survey data indicate that there is substantial leeway to implement more rational parking policies, particularly with regard to the pricing of on- and off-street parking. In particular, SFMTA could expand metered parking to include segments of Phelan Avenue and Judson Avenue, as well as side streets intersecting either of these streets or Ocean Avenue. In addition, City College's campus parking policy does not take advantage of the campus's transit accessibility and encourages students, faculty, and staff members to drive to the campus by providing abundant parking at heavily subsidized rates—only \$3 per day or \$40 per semester (\$20 per semester for students receiving financial aid). Moreover, City College does not pay rent to the SFPUC to park on SFPUC property. These parking policies have tangible effects on the neighborhoods surrounding the campus, contributing to traffic congestion, delay, and transit unreliability (as well as secondary impacts such as noise and air quality).

A subsidized transit pass program could encourage more sustainable commute choices among campus users. Many campus users already take transit to and from the campus, even though City College does not provide subsidies to transit users like those provided to motorists through discounted parking. SFMTA offers a subsidized transit pass program for colleges, which the University of San Francisco (USF) has elected to provide by incorporating the costs into students' tuition fees. Although USF has a substantially smaller enrollment than City College, its Lone Mountain Campus is also an urban campus in a primarily residential area, with substantially less convenient transit access than City College's Ocean Avenue Campus. Large urban campuses such as the University of California, Berkeley and Stanford University where commuters constitute a substantial share of the campus population also have aggressive TDM programs that include transit passes for students. City College has arguably better local and regional transit connections than either of these campuses. If City College were to adopt transit passes and more proactive TDM measures, it could be expected to induce a substantial shift by campus users toward more sustainable transportation modes of transportation and alleviate some of the externalities to the surrounding neighborhoods created by current City College parking policies.

Implementing or expanding residential parking permit (RPP) programs to additional areas in the neighborhoods that surround City College could also discourage campus affiliates from parking in these areas.

**Opportunities:** Expansion of metered parking and more rational parking pricing for on- and off-street parking. Implementation of TDM programs at City College, including new transit subsidies for campus affiliates. Implementation or expansion of RPP programs to additional areas surrounding City College.

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**Constraint:** City College parking policy effectively subsidizes commutes by private automobiles, encouraging driving among campus affiliates.

### *On-site Parking Strategies*

In addition to the off-site parking strategies discussed above, SFPUC should specifically consider the following on-site parking strategies for development on the Balboa Reservoir.

Traffic counts conducted on two separate weekdays (Wednesday, November 12, 2014 and Tuesday, February 3, 2015) at the Ocean Avenue / Brighton Avenue and Ocean Avenue / Lee Avenue intersections may indicate that previous parking assumptions for the Avalon Ocean Avenue project (173 dwelling units and an approximately 30,000-square-foot Whole Foods Market) are potentially higher than warranted given actual automobile use among site residents. **Table 4** summarizes these results.

**Table 4: Avalon Ocean Avenue – Vehicle-Trip Counts**

Survey Date / Access	Weekday AM				Weekday PM			
	Peak Hour		Peak Period		Peak Hour		Peak Period	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
<b>Wednesday, November 12, 2014</b>								
Brighton Avenue	29	21	58	34	103	5	221	13
Lee Avenue		26		61		103		216
<b>Total</b>	<b>29</b>	<b>47</b>	<b>58</b>	<b>95</b>	<b>103</b>	<b>108</b>	<b>221</b>	<b>229</b>
<b>Tuesday, February 3, 2015</b>								
Brighton Avenue	59	18	76	42	119	7	227	19
Lee Avenue		50		88		127		222
<b>Total</b>	<b>59</b>	<b>68</b>	<b>76</b>	<b>130</b>	<b>119</b>	<b>134</b>	<b>227</b>	<b>241</b>

Source: AECOM, 2014.

Brighton Avenue accommodates ingress and egress for Avalon Ocean Avenue's residential off-street parking, as well as ingress for Whole Foods Market's off-street parking. Whole Foods Market visitors exit the parking garage via Lee Avenue. As indicated in **Table 4**, the traffic counts show approximately 20 vehicles exiting the residential off-street parking facility for Avalon Ocean Avenue during the weekday AM peak hour, defined as the four consecutive 15-minute intervals with the highest total traffic volume during the weekday AM peak period (7:00 AM to 9:00 AM). Even after one expands to the full two-hour weekday AM peak period to account for commute time differences and other factors, the counts recorded a total of approximately 35 to 40 vehicles exiting the parking facility. There is likely some additional residential traffic entering the site during the weekday AM peak period (e.g., parents returning home after dropping children off at school); however, the overall magnitude of this activity would be minor, because the inbound traffic entering via the Brighton Avenue access is approximately equivalent to the outbound traffic exiting the Lee Avenue access, which is to be expected for a retail use. In other words, during a given survey period, one would generally expect to see the same number of vehicles entering and exiting vehicles a retail use.

Subsequent doorway and driveway counts at Avalon Ocean Avenue were conducted on two separate weekdays (Tuesday, December 9, 2014 and Wednesday, February 4, 2015) to provide a more refined picture of mode share among residents of the development. The counts indicated that, over the course of the entire two-hour weekday AM peak period, only approximately 40 percent of persons leaving the residential portion of the development departed in vehicles. The remainder of those departing, comprising almost two-thirds of the total outbound person-trips surveyed for the residential portion of the development, was observed to leave the development on foot or on bike.

The weekday PM peak-hour and peak-period data indicate a similar trend of low vehicle-trip activity by residents, although the data are harder to parse because the residential and retail portions of the development share the access at Brighton Avenue.

The standard environmental review process adopted by the Planning Department for analyzing the transportation impacts associated with a land use development project typically adopts the commute-trip mode shares estimated and published by the United States Census Bureau for the census tract containing the development project when calculating travel demand. These data, however, are typically subject to some level of uncertainty due to sample size and do not consider other types of trips (school, recreational, etc.) that may take place during the weekday AM and PM peak periods. Because the Census Bureau publishes the data some time after it has collected survey responses and computed the results, the data also may not reflect the trip behavior of new residents, such as residents that have moved into a recently-completed housing development (such as Avalon Ocean Avenue). In light of these limitations, use of empirical data collected in the field—such as the doorway and driveway counts from described above—is generally recommended in lieu of Census Bureau data, when available and applicable. As such, the mode share data summarized above could be used if and when the proposed development at the Balboa Reservoir site enters the environmental review phase.

**Opportunity:** Consider alternative parking assumptions based on current and comparable developments.

*Shared Parking:* Opportunities for shared parking also merit consideration because any proposed residential use for the Balboa Reservoir would be complementary to City College in terms of peaking characteristics of parking demand. In particular, residents generally use their vehicles during the daytime but desire overnight vehicle parking for storage while they are at home. In contrast, most City College affiliates generally desire parking during the daytime while they are attending classes or conducting other activities on the campus. A shared parking solution would require coordination and negotiation between City College and the developer of SFPUC's portion of the Balboa Reservoir; however, this solution could help minimize the physical footprint of any proposed off-street parking, increasing the amount of building square footage devoted to active uses (such as housing). A shared parking solution would also allow City College and the selected developer to reach a cost-sharing agreement, thus reducing the cost burden for constructing and operating any proposed parking. Shared parking could also be achieved within structured parking on City College property. Although mentioned in the 2004 master plan prepared by City College, structured parking plans on the Ocean Avenue Campus are not known at this time.

**Opportunity:** Partner with City College and incorporate its parking plans into a shared parking program.

*On-Site Street Parking:* SFPUC's portion of the Balboa Reservoir site will likely have to provide at least some level of on-street parking to accommodate passenger loading, freight loading, and other curbside activities. Any retail uses would also likely desire some on-street parking for customers. On-street parking should be priced to discourage unnecessary automobile use and rationalize parking use. In particular, spaces located near retail uses and intended for use by retail customers should fulfill this purpose, and site residents should not use these spaces to store private automobiles. The proximity of City College and its proposed developments on the eastern half of the Balboa Reservoir may also encourage spillover if on-street parking on the SFPUC portion of the site is not metered, not priced appropriately, and / or provided in excess of actual demand. SFMTA's SFpark pilot program has already confirmed the effectiveness of parking pricing, including dynamic pricing schemes, in minimizing the negative secondary effects of on-street parking (e.g., traffic congestion, transit delays, noise, and air quality). The development of the Balboa Reservoir should provide only the amount of on-street parking needed and should price it



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appropriately relative to its intended function and actual demand. In particular, the developer should coordinate with SFMTA on expanding parking meters to any on-street parking provided at the site, and should consider potential measures to adjust parking rates periodically, similar to the SF *park* program.

**Opportunity:** Variably-priced on-street parking at the Balboa Reservoir and expansion of parking meters to Phelan Avenue.

## Other Considerations

Other considerations that may be relevant in the design, planning, or environmental clearance of a proposed development at the SFPUC portion of the Balboa Reservoir are discussed below.

### *General Trends in Traffic Activity*

Intersection turning movement counts collected for this study indicate that overall traffic levels are down by as much as 10 to 20 percent compared to counts collected in 2005 for the Area Plan EIR. **Table 5** summarizes the change in turning movement volumes.

**Table 5: Intersection Turning Movement Counts – Traffic Levels at Select Intersections**

Intersection	Approach		Weekday PM Peak Hour Count Volume		Change
			May 2005	November 2014	
Phelan Avenue / Science Hall Main Entrance	Phelan Avenue	Northbound	525	403	(23%)
		Southbound	435	380	(13%)
	City College	Eastbound	81	139	72%
	<i>Total</i>		1,041	922	(11%)
Ocean Avenue / Lee Avenue	Ocean Avenue	Eastbound	1,174	824	(29%)
		Westbound	1,186	1,032	(13%)
	Lee Avenue	Northbound	162	91	(43%)
		Southbound	29	103	255%
	<i>Total</i>		2,551	2,050	(20%)
Ocean Avenue / Brighton Avenue	Ocean Avenue	Eastbound	1,170	854	(27%)
		Westbound	1,237	1,090	(12%)
	Brighton Avenue	Northbound	60	61	2%
		Southbound	0	5	
	<i>Total</i>		2,467	2,010	(18%)

Source: AECOM, 2014.

### *Student and Faculty Housing*

As described above, surveys by City College and the San Francisco Planning Department indicated that a considerable share of City College students live in the 94112 zip code (Ingleside, Oceanview, Outer Mission, Crocker–Amazon, Excelsior District, Balboa Park, and Westwood Park). Given the proximity to the campus, including some share of student and / or faculty housing at the Balboa Reservoir may be desirable. City College could achieve this goal through several different means, including purchasing a portion of the site to be developed exclusively for student or faculty housing or leasing residential buildings. City College affiliates living near the campus would be less likely to use private automobiles regularly and would be more likely to take advantage of sustainable modes of travel such as transit, biking, and walking.

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