KITTELSON & ASSOCIATES
1161 MISSION STREET, OFFICE #563
SAN FRANCISCO, CA 94103
P 415.579.1778

TECHNICAL MEMORANDUM

Date: { DATE \@ "MMMM d, yyyy" }

To: Reservoir Community Partners, LLC

From: Kittelson & Associates, Inc.

Subject: Balboa Reservoir – Parking Analysis Memorandum

This memorandum summarizes the results of a parking study conducted for the Balboa Reservoir development (proposed project). The project site is located west of City College of San Francisco's (CCSF) Ocean Campus, east of the Balboa Park neighborhood, and south of Archbishop Riordan High School. The project site is currently occupied by a 1,007-space surface parking lot ("Lower Lot" or west basin) accessed by two driveways on Frida Kahlo Way. The Lower Lot serves as overflow parking for the CCSF's 1,167-space Upper Lot (or east basin), which is accessed from the same two driveways on Frida Kahlo Way.

The purpose of this analysis is to present parking supply and occupancy counts, present a methodology and framework for ongoing monitoring and reporting of parking utilization rates, and assess the impact of the proposed development on existing off-street and on-street parking under several development scenarios. The memorandum is organized as follows:

- Data collection summary
- Parking demand analysis
- Parking monitoring plan
- Conclusion

DATA COLLECTION SUMMARY

Off-Street Parking

Parking inventory and occupancy data was collected at both the Upper and Lower Lots on Thursday, December 7, 2017, Wednesday, January 31, 2018, and Wednesday, April 18, 2018 when CCSF was in session. Parking data was collected on an hourly basis between 7:00 a.m. and 9:00 p.m. The number of spaces in the Upper and Lower Lots were counted with the use of aerial photography and then verified in the field. Parking occupancy was collected manually by field technicians. The parking lots were broken into areas with one field technician responsible for collecting data in one area. Technicians walked the lots every hour, manually counting the number of full and empty stalls in each area. Data was marked by hand in the field and transferred to spreadsheets. The spreadsheet data entries were then checked against the manual entries.

Parking supply and occupancy data are summarized in Exhibit 1 and Exhibit 2. Exhibit 3 illustrates the average utilization from all three dates.

Exhibit 1: Existing CCSF Upper/Lower Lot Parking Supply and Occupancy

Time	Lower Lot (1,007 Spaces)			Upper Lot (1,167 Spaces)			Combined (2,174 Spaces)		
	Parked	Available	Utilization	Parked	Available	Utilization	Parked	Available	Utilization
Thursday, December 7, 2017									
7	0	1007	0%	39	1128	3%	39	2135	2%
8	3	1004	0%	181	986	16%	184	1990	8%
9	11	996	1%	614	553	53%	625	1549	29%
10	133	874	13%	1078	89	92%	1211	963	56%
11	235	772	23%	1071	96	92%	1306	868	60%
12	253	754	25%	1083	84	93%	1336	838	61%
13	167	840	17%	1058	109	91%	1225	949	56%
14	101	906	10%	813	354	70%	914	1260	42%
15	87	920	9%	693	474	59%	780	1394	36%
16	40	967	4%	476	691	41%	516	1658	24%
17	26	981	3%	361	806	31%	387	1787	18%
18	9	998	1%	429	738	37%	438	1736	20%
19	6	1001	1%	537	630	46%	543	1631	25%
20	2	1005	0%	445	722	38%	447	1727	21%
21	1	1006	0%	184	983	16%	185	1989	9%
Wednesday, January 31, 2017									
7	1	1006	0%	79	1088	7%	80	2094	4%
8	4	1003	0%	298	869	26%	302	1872	14%
9	139	868	14%	958	209	82%	1097	1077	50%
10	407	600	40%	1094	73	94%	1501	673	69%
11	533	474	53%	1063	104	91%	1596	578	73%
12	483	524	48%	1046	121	90%	1529	645	70%
13	297	710	29%	963	204	83%	1260	914	58%
14	186	821	18%	876	291	75%	1062	1112	49%
15	135	872	13%	726	441	62%	861	1313	40%
16	76	931	8%	555	612	48%	631	1543	29%
17	55	952	5%	482	685	41%	537	1637	25%
18	17	990	2%	621	546	53%	638	1536	29%
19	12	995	1%	745	422	64%	757	1417	35%
20	8	999	1%	612	555	52%	620	1554	29%
21	4	1003	0%	251	916	22%	255	1919	12%
Wednesday, April 18, 2018									
7	3	1004	0%	56	1111	5%	59	2115	3%
8	4	1003	0%	265	902	23%	269	1905	12%
9	9	998	1%	706	461	60%	715	1459	33%
10	126	881	13%	847	320	73%	973	1201	45%
11	238	769	24%	1078	89	92%	1316	858	61%
12	181	826	18%	1009	158	86%	1190	984	55%
13	187	820	19%	939	228	80%	1126	1048	52%
14	85	922	8%	792	375	68%	877	1297	40%
15	67	940	7%	633	534	54%	700	1474	32%
16	39	968	4%	536	631	46%	575	1599	26%
17	22	985	2%	449	718	38%	471	1703	22%
18	17	990	2%	489	678	42%	506	1668	23%
19	10	997	1%	563	604	48%	573	1601	26%
20	5	1002	0%	510	657	44%	515	1659	24%

21	5	1002	0%	141	1026	12%	146	2028	7%

Sources: Kittelson & Associates, Inc. 2019; Quality Counts, 2017 & 2018.

Exhibit 2: Existing CCSF Upper/Lower Lot Parking Supply and Occupancy – Thursday, December 7, 2017

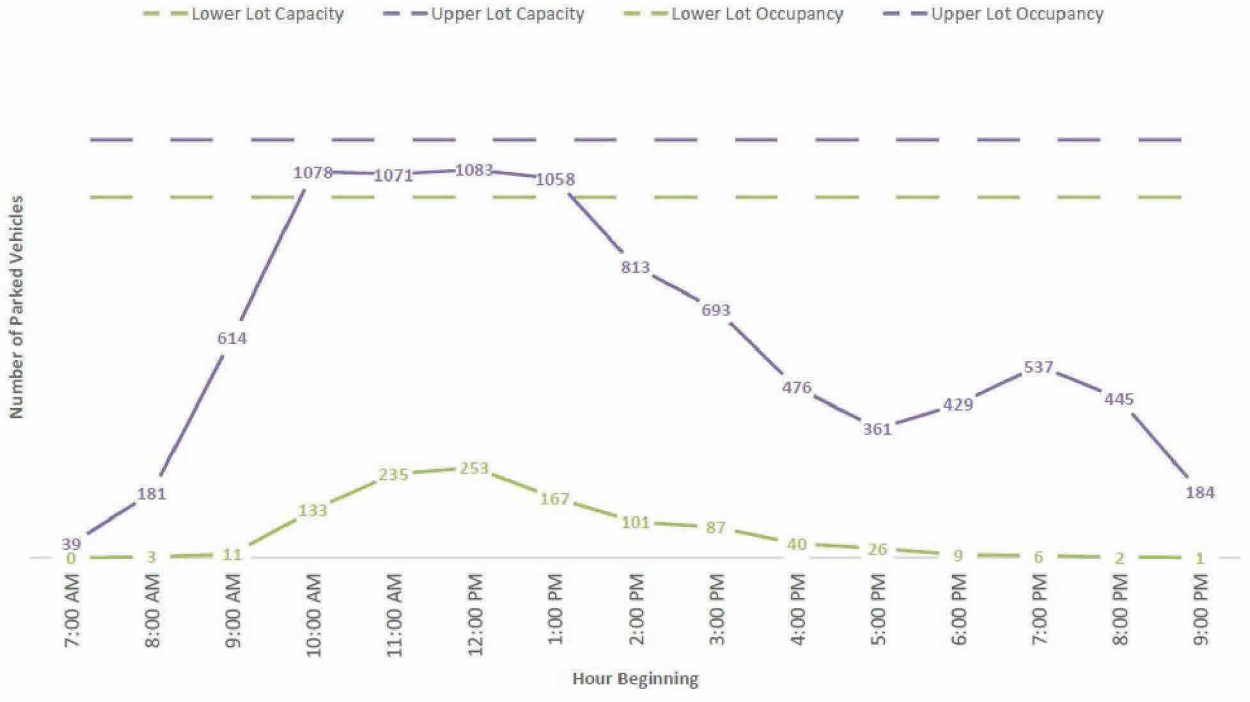


Exhibit 3: Existing CCSF Upper/Lower Lot Parking Supply and Occupancy – Wednesday, January 31, 2018

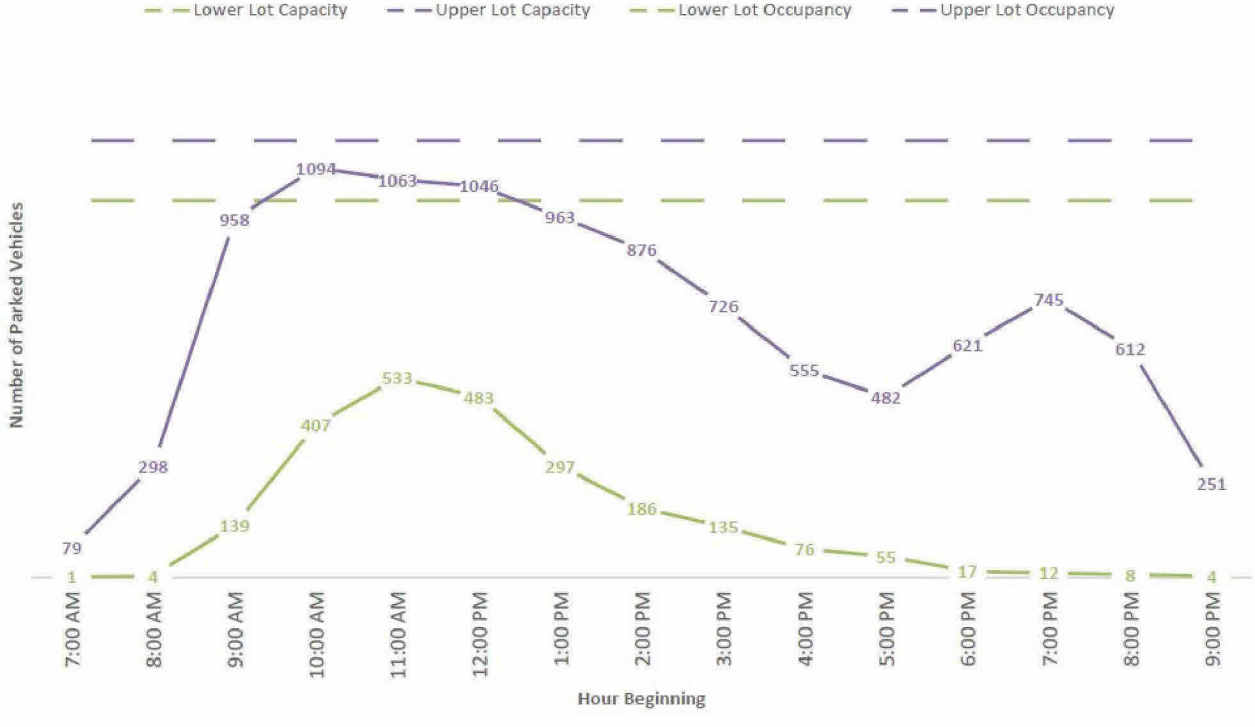
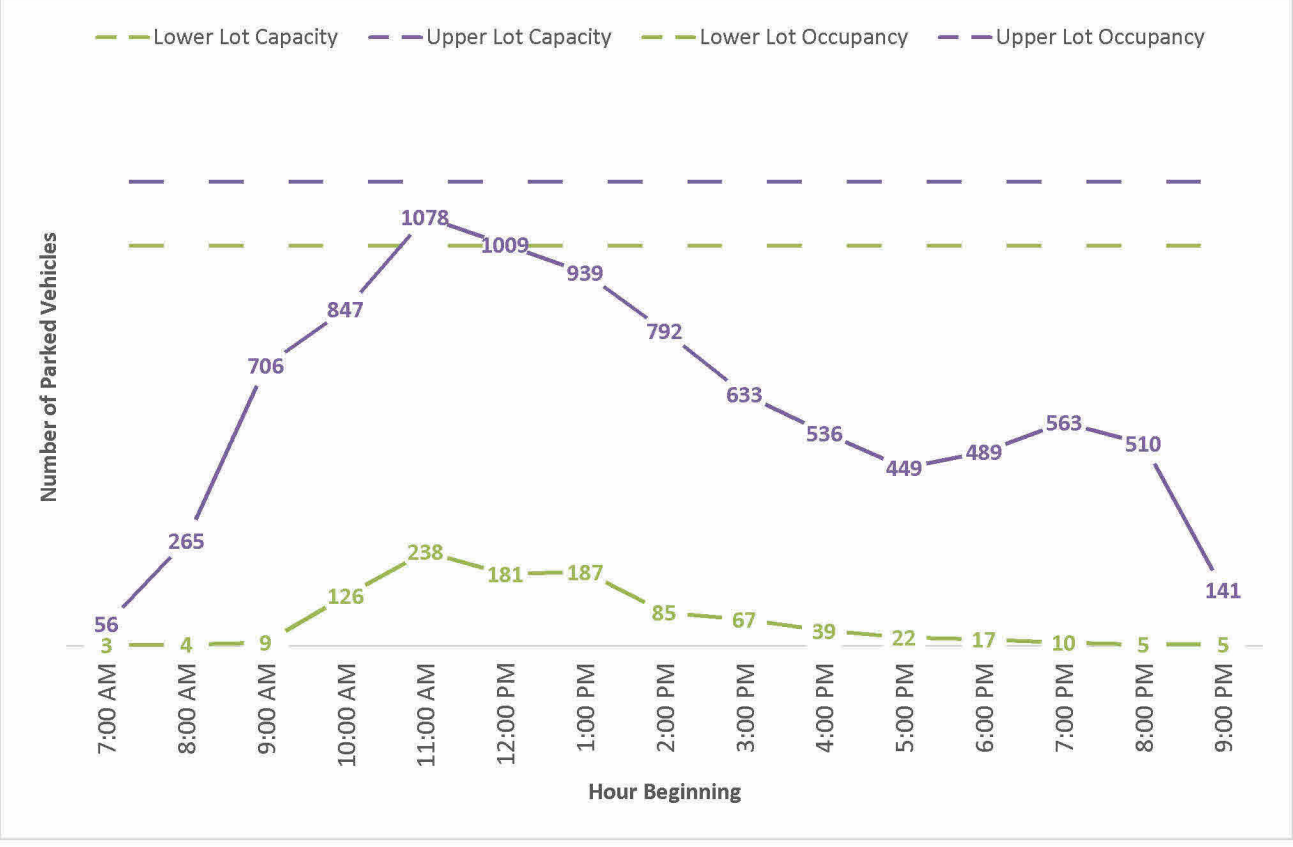


Exhibit 4: Existing CCSF Upper/Lower Lot Parking Supply and Occupancy – Wednesday, April 18, 2018



As shown in Exhibit 1 through Exhibit 4, the peak hourly utilization of both the Lower Lot and Upper Lot occurs between 10:00 a.m. and 1:00 p.m. during all three days of observation.

- On Thursday, December 7, 2017, the peak hour of occupancy occurred between 12:00 p.m. and 1:00 p.m. in both the Lower Lot and Upper Lot; at this time, there were 253 cars parked (754 spaces available) in the Lower Lot and 1,083 cars parked (84 spaces available) in the Upper Lot. This represents a utilization rate of 25% in the Lower Lot and 93% in the Upper Lot and a combined occupancy rate of 61%.
- On Wednesday, January 31, 2018, the peak hour of occupancy occurred between 11:00 a.m. and 12:00 p.m. in the Lower Lot and between 10:00 a.m. and 11:00 a.m. in the Upper Lot; during these times, there were 533 cars parked (474 spaces available) in the Lower Lot and 1,094 cars parked (73 spaces available) in the Upper Lot during the peak hours. This represents a utilization rate of 53% in the Lower Lot and 94% in the Upper Lot.
- On Wednesday, April 18, 2018, the peak hour of occupancy occurred between 11:00 a.m. and 12:00 p.m. in both the Lower Lot and Upper Lot; at this time, there were 238 cars parked (769 spaces available) in the Lower Lot and 1,078 cars parked (89 spaces available) in the Upper Lot. This represents a utilization rate of 24% in the Lower Lot and 92% in the Upper Lot and a combined utilization rate of 61%.

- The maximum combined occupancy rate of 73% (1,596 cars parked and 578 spaces available overall) occurred on Wednesday, January 31, 2018 between 11:00 a.m. and 12:00 p.m.

Neighborhood (On-Street) Parking

On-street parking utilization data were collected by IDAX in the site vicinity on weekdays in February 2019 for the block faces shown in Exhibit 5. Each block face was observed three times a day for two days: at 9:00 a.m. (a.m.), 2:00 p.m. (midday), and 8:00 p.m. (p.m.). Days with street cleaning or abnormal parking behavior were avoided.

Each observation included the number of parked cars and for each vehicle:

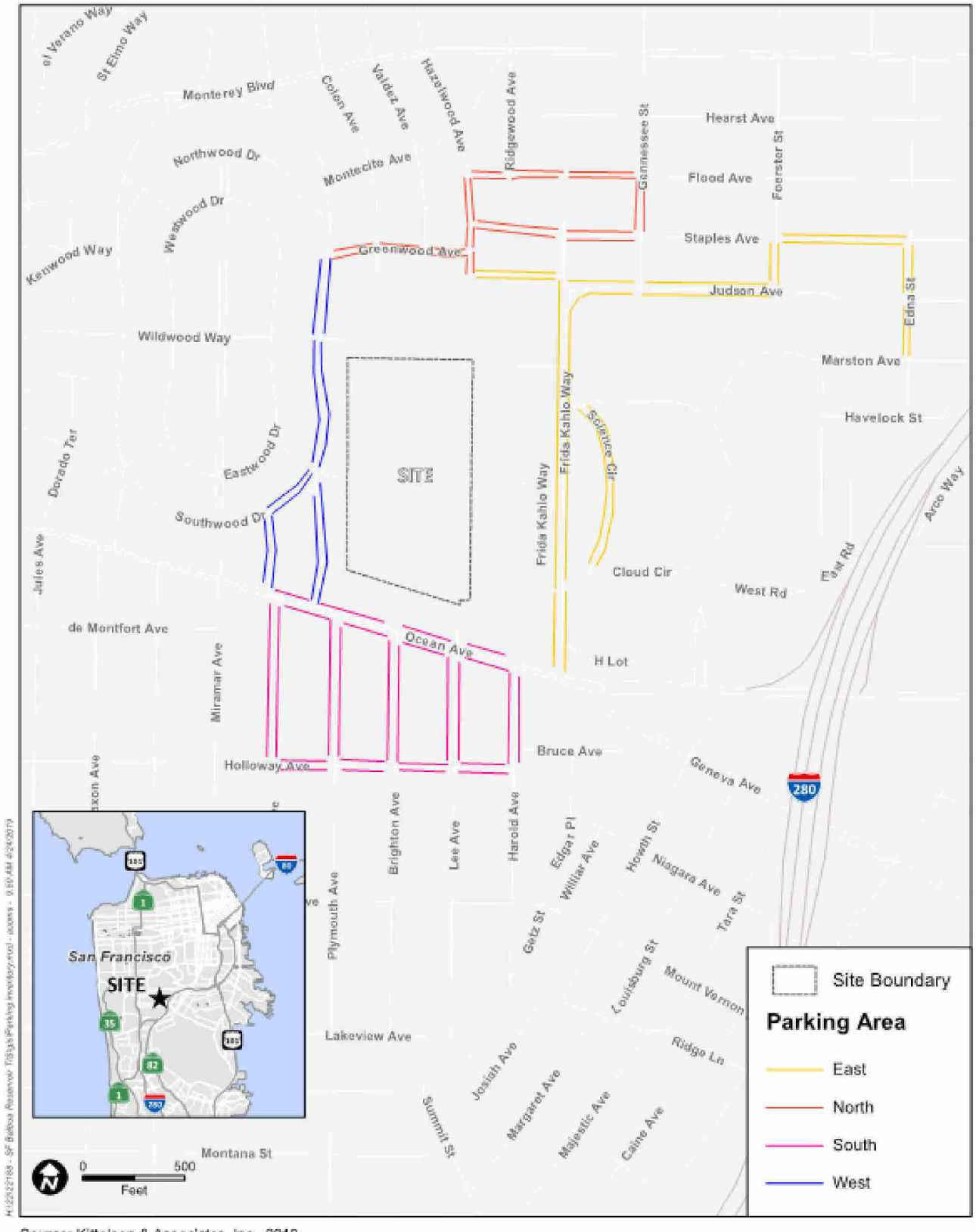
- License plate numbers
- Parking regulation for parking space
- If legally parked
- If parked in a curb cut

Vehicles parked illegally or across driveways/curb cuts were disregarded as the parking supply consists of only legal parking spaces. While these vehicles constitute parking demand, the spaces these vehicles occupy are not included in the parking supply, so they have no impact on the total available spaces. Each observation period averaged 4.8 illegally parked vehicles and 28.3 vehicles parked in curb cuts, primarily in residential blocks south of Ocean Avenue and north of CCSF.

Parking supply data in the form of number of available parking spaces per block were provided by San Francisco Municipal Transportation Agency (SFMTA). For blocks where the number of observed legally parked vehicles exceed the SFMTA provided supply, the maximum observed occupancy count was used as the parking supply.

Existing Parking Utilization

The parking utilization and supply data was grouped into four parking areas (north, east, south, and west) shown in Exhibit 5. Percent occupancy and number of available spaces were determined for each observation period for each area as shown in Exhibits 6 and 7. The parking supply and availability by area is presented in Table 1.



Source: Kittelson & Associates, Inc., 2019

Case No.2018-007883ENV: Balboa Reservoir Project

Exhibit 5 Neighborhood (On-Street) Parking Study Area

Exhibit 6 Parking Occupancy by Area

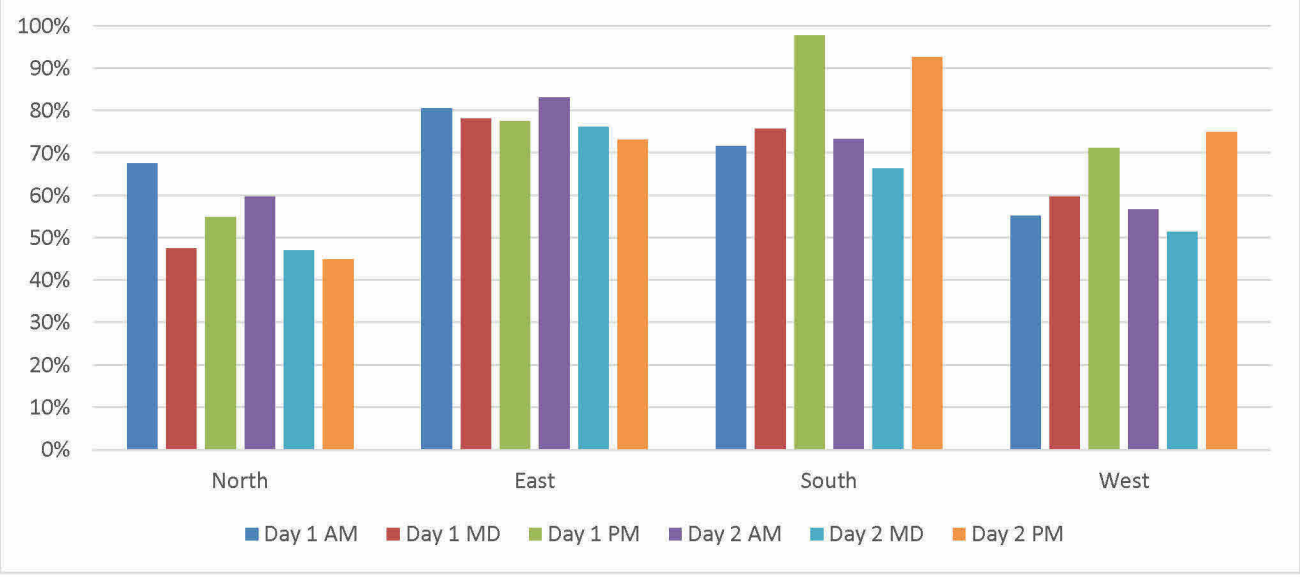


Exhibit 7 Parking Availability by Area

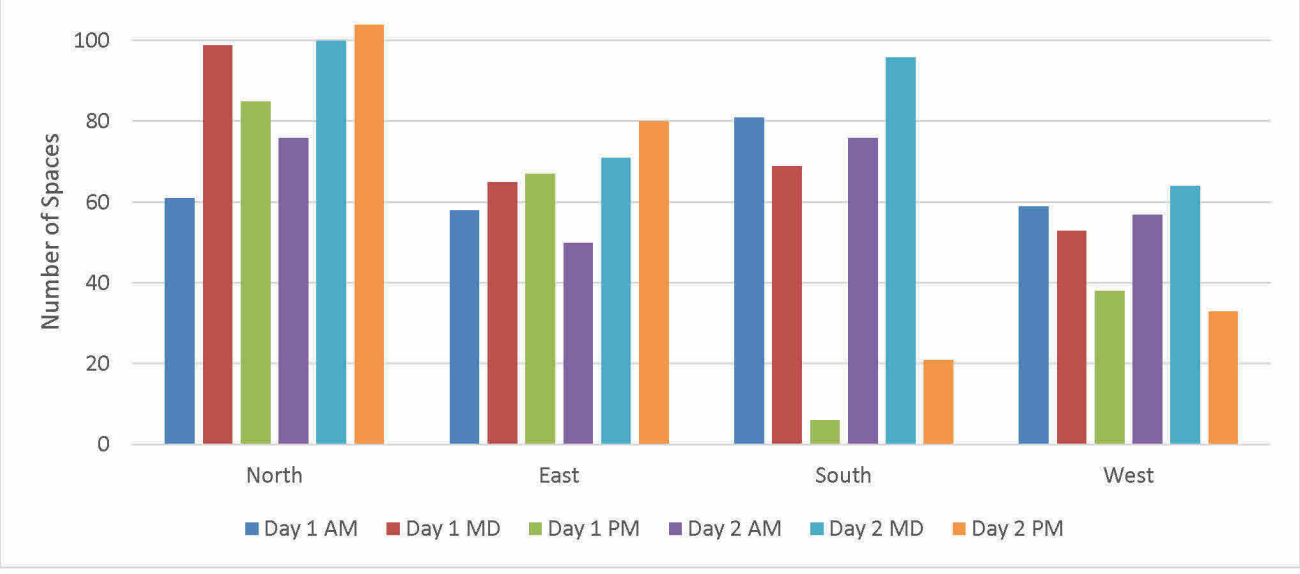


Table 5: Available Street Parking Spaces by Area and Time Period

Parking Area	Supply	Available Street Parking Spaces by Time Period						Average
		Day 1 AM	Day 1 MD	Day 1 PM	Day 2 AM	Day 2 MD	Day 2 PM	
North	189	61	99	85	76	100	104	**88**
East	299	58	65	67	50	71	80	**65**
South	286	81	69	6	76	96	21	**58**
West	132	59	53	38	57	64	33	**51**
Total	**906**	**259**	**286**	**196**	**259**	**331**	**238**	**262**

Sources: Kittelson & Associates, Inc. 2019; IDAX 2019; SFMTA 2019.
Notes: AM = weekday a.m. (9 a.m.); MD = weekday midday (2 p.m.); PM = weekday p.m. (8 p.m.)
Data presented represents the total available parking spaces by area and time period for each parking area as calculated by subtracting the observed legally parked vehicles from the maximum of the SFMTA parking supply and greatest legally parked vehicle observation.

Table 1 indicates that there are a total of 906 parking spaces within the parking study area and between approximately 200 and 300 on-street spaces are available on streets within the parking study area on weekdays during any given time period. The North and West parking areas have the highest proportion of available street parking with average occupancy of less than 60% (equivalent to 88 and 51 available spaces, respectively). The South area has the highest average occupancy at 80% (equivalent to about 58 available spaces) with the weekday p.m. period approaching 100% utilization. The weekday p.m. period was generally observed to have the highest occupancy.

Parking in the site vicinity is controlled by a of the following types of regulation:

- Parking meters
- Residential Permit Parking (RPP): 2-hour time-limited parking between 8:00 a.m. and 6 p.m. weekdays, except with residential permit
- Time Limit: 2-hour time-limited parking without exception
- Unregulated: no apparent parking regulations outside of street sweeping hours

The supply and average number of available parking spaces distributed by parking regulation type is presented in Table 2. As shown in Table 1, over 300 on-street parking spaces are available in the on-street parking study area during the midday period (2 p.m.). As shown in Table 2, the parking demand from overflow CCSF vehicles can be accommodated by the available on-street parking supply, though parking regulations may hinder use.

Exhibits 1 through 4 summarize the parking utilization in the Upper Lot and Lower Lot (project site). Table 3 presents the combined occupancy for the Upper Lot and Lower Lot and assumes that no parking spaces would be provided on the Lower Lot. The number of parked vehicles is calculated as the sum of the number of vehicles parked in the Lower Lot and the number of vehicles parked in the Upper Lot. The available spaces and utilization rate are calculated based on the Upper Lot supply of 1,167 parking spaces assuming the Lower Lot has a parking supply of zero spaces. A utilization rate less than 100% indicates that the Upper Lot could accommodate the existing combined parking demand.

As shown in Table 3, the Upper Lot can accommodate the existing combined parking demand during the a.m. and p.m. periods (7 to 9 a.m. and 5 to 7 p.m.) but would not meet the combined parking demand during the weekday midday period (10 a.m. to 12 p.m.). During the weekday midday peak hour of parking demand there would be a shortfall of up to 239 spaces. A similar analysis in the March 2019 CCSF Ocean Campus TDM Plan and Parking Analysis reported a shortfall of 91 spaces without the Lower Lot. The CCSF Ocean Campus TDM Plan and Parking Analysis was prepared by Fehr & Peers and commissioned by CCSF.

Table 2: Average Available Street Parking Spaces by Area and Parking Regulation

Parking Area	Parking Count Type	Parking Regulation				Total
		Parking Meters	Residential Parking Permit	Time Limit	Unregulated	
North	Supply	0	0	70	119	**189**
	Available	0	0	53	35	**88**
East	Supply	0	0	45	254	**299**
	Available	0	0	9	56	**65**
South	Supply	42	244	0	0	**286**
	Available	16	42	0	0	**58**
West	Supply	0	79	0	53	**132**
	Available	0	35	0	16	**51**
Total	**Supply**	**42**	**323**	**115**	**426**	**906**
	Available	**16**	**77**	**62**	**107**	**262**

Sources: Kittelson & Associates, Inc. 2019; IDAX 2019; SFMTA 2019.
Notes: Data presented represents average available parking spaces by block attributed to the predominate parking regulation for that block.

Table 3: Existing City College Upper/Lower Lot Parking Occupancy and Upper Lot Supply

Time Period	Time (Hour Beginning)	Combined Occupancy[1]		
		Parked Vehicles	Available Spaces	Utilization
Weekday a.m. Peak Period	7 a.m.	59	1,108	5%
	8 a.m.	252	915	22%
Weekday Midday Peak Period	10 a.m.	1,228	-61	105%
	11 a.m.	1,406	-239	120%
	12 p.m.	1,352	-185	116%
Weekday p.m. Peak Period	5 p.m.	465	702	40%
	6 p.m.	527	640	45%

Sources: Kittelson & Associates, Inc. 2019; Quality Counts, 2017 & 2018.
Notes: Data presented represents the average across three days of data collection: Thursday, December 7, 2017, Wednesday, January 31, 2018, and Wednesday, April 18, 2018.
[1] Parked vehicles calculated as the sum of the number of vehicles parked in both the Lower Lot and Upper Lot. Available spaces and utilization rate calculated based on the Upper Lot supply of 1,167 parking spaces, assuming zero parking spaces provided in the Lower Lot.

The City College of San Francisco March 2019 Facilities Master Plan Final Draft recommends a new West Parking Garage with up to 1,200 spaces to be constructed on the Upper Lot in conjunction with additional buildings. However, the plan states "the size of the structure does not include specific consideration for the potential loss of parking in the lower Balboa Reservoir." The plan also calls for transportation demand management measures to reduce vehicle and parking demand on campus.

PARKING DEMAND ANALYSIS

The project site is the 17.4-acre parcel located across Frida Kahlo Way from the City College of San Francisco campus and adjacent to a City College parking lot that fronts onto Frida Kahlo Way. The

project site is currently used as an approximately 1,000-space surface parking lot (known as the "Lower Lot") for City College, supplementing the 1,167 vehicle parking spaces in the Upper Lot.

Proposed development scenarios are shown in Table 4 including 0.5:1 residential unit parking ratio. The proposed development, both options, is assumed to be comprised of 40% one-bedroom, 30% two-bedroom, 30% three-bedroom units with 50% of the units being affordable housing. The unit mix is a conservative estimate used for analysis purposes. The actual unit mix may differ.

Table 4: Proposed Land Use Program

Land Use	Unit of measurement	Options	
		Developer's Proposed Option	Additional Housing Option
Residential[1]	Total Dwelling Units	1,100	1,550
	Total Square Feet	1,283,000	1,547,000
General Retail	Gross Square Feet	7,500	7,500
Childcare & Community Room	Gross Square Feet	10,000	10,000
Residential Vehicle Parking[2]	Spaces	Up to 550	Up to 650

Source: Reservoir Community Partners, LLC
[1] Based on information provided by Reservoir Partners LLC, the analysis assumes the following bedroom unit mix: 40% one-bedroom, 30% two-bedroom, 30% three-bedroom units. The unit mix is a conservative estimate used for analysis purposes and the actual unit mix may differ.
[2] Under the Developer's Proposed Option, up to 750 additional public parking spaces are being considered.

Parking demand for the proposed development, both options, was estimated based on the methodology in Appendix G of the *2002 Transportation Impact Analysis Guidelines*[1] (2002 Guidelines) with adjustments to account for the proposed affordable housing and transportation demand management (TDM) measures. The parking demand formulas and parameters from the 2002 Guidelines were used directly to estimate the parking demand associated with the residential units and the retail and daycare space. Affordable housing units were assumed to have a reduced parking demand relative to market rate units to reflect the lower rates of auto ownership, price of unbundled parking, and quality of transit service near the project site.

Transportation Demand Management

The development will implement transportation demand management (TDM) measures to encourage the use of non-auto modes and reduce vehicle trips. Proposed TDM measures are identified in Table 1, along with the estimated vehicle trip reduction rate associated with implementation.

[1] An update to the 2002 Guidelines was published in February 2019. However, the parking demand methodology presented in the 2019 Guidelines is based on the neighborhood parking rate and the 2002 Guidelines methodology was determined to be more appropriate for the proposed development.

Table 5: TDM Measures and Estimated Vehicle Trip Reduction

TDM Measure	Range of Vehicle Trip Reduction Rate	Estimated Vehicle Trip Reduction Rate for Developer's Proposed Option and Additional Housing Option[1]
Improve Biking/Walking Network	0% to 2%	1.0%
Provide Bicycle Parking	0.625%	0.6%
Implement Car Share Program	5% to 15%	5.0%
Unbundle Parking	2.6% to 13%	4.3%
Limit On-Site Parking Supply	5% to 12.5%	8.8%
Improved Design of Development[2]	3% to 21.3%	10.7%
TDM Program Total		**30.4%**

Source: California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, August 2010.
Notes:
[1] Vehicle trip reduction rate estimated based on the estimated level of adoption and aggressiveness of implementation of a given strategy and account for the implementation of other TDM program elements so as not to overestimate vehicle trip reduction for the overall program.
[2] Design elements include: multimodal wayfinding, real-time information displays, on-site bikeshare, bicycle repair station, showers and lockers, delivery supportive amenities, and tailored transportation marketing.

The range of effectiveness for vehicle trip reductions (VTR) identified for each measure is based on information included in the California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, August 2010 (CAPCOA Report). The quantification methods provided in the CAPCOA Report are based on an extensive literature review and are appropriate for use in this project-level analysis. The estimated vehicle trip reduction rate is based on the anticipated level of adoption and aggressiveness of implementation of a given strategy. Vehicle trip reduction is estimated by applying the vehicle trip reduction rate to the vehicle trips generated by the target user group, which would include residents, employees, and visitors to the site.

As shown in Table 5, the selected TDM measures would reduce vehicle trips generated by the project. Similar to how these treatments would facilitate non-auto trips, these amenities would reduce parking demand. Reduced auto demand reduces parking demand for visitors and employees. Actions such as unbundling parking from residential units and limiting parking supply directly impact residential parking demand. Therefore, the TDM measures were estimated to reduce residential parking demand by 30.4%.

Project Parking Demand

Parking demand was calculated for residential, short-term retail and daycare visitors, and long-term employee parking for both the retail and childcare uses, as shown in Table 6. This parking demand estimation focuses on the midday time period when the retail and childcare are active and existing CCSF parking demand would exceed capacity of the Upper Lot. While adjustments were made to account for the TDM plan and affordable housing, this parking estimate is conservative and likely overstates demand based on the site context and travel characteristics, transit proximity and quality, and existing and expected travel characteristics.

Table 6: Estimated Midday Site Parking Demand with Travel Demand Management

Land Use	Project Options	
	Developer's Proposed Option	Additional Housing Option
Residential (Midday 80% of Overnight)[1]	426	602
Retail & Childcare Short-Term	11	11
Retail Employee[2]	9	9
Childcare Employee[3]	9	9
Total Development Midday Parking Demand	**455**	**631**

Notes:
[1] Based on distribution of unit sizes and affordable housing; 20% midday reduction based on page G-2 of 2002 Transportation Analysis Guidelines. Overnight parking demand is 514 vehicles for the Developer's Proposed Option and 724 for the Additional Housing Option.
[2] Daily non-work automobile trips calculated by adjusting Table 6 of the Travel Demand Memorandum trips by Table C-2 values of 2002 Transportation Analysis Guidelines; vehicle occupancy based on SD-3 retail trips per 2002 Transportation Analysis Guidelines.
[3] Number of employees based on Table C-1 of 2002 Transportation Analysis Guidelines; Mode split per Table 4 of Travel Demand Memorandum.

As shown in Table 6, the Developer's Proposed Option would generate a total midday parking demand for 455 vehicle parking spaces (426 residential, 29 retail and childcare visitor, 18 retail and childcare employee). The Additional Housing Option would generate a total midday parking demand for 631 vehicle parking spaces (602 residential, 29 retail and childcare visitor, 18 retail and childcare employee).

The vehicle parking supply proposed under each development scenario was evaluated against the estimated parking demand generated by the project and the existing CCSF overflow demand. The summary results are shown in Table 7.

Table 7: Total Parking Analysis Summary (0.5:1 Parking Ratio [currently proposed])

Time Period	Parking Scenario	Developer's Proposed Option (0.5:1)				Additional Housing Option (0.5:1)			
			Supply				Supply		
		Dem-and	On-Site[1]	Neighbor-hood[2]	Total	Dem-and	On-Site	Neighbor-hood[2]	Total
Midday	Residential	426	550	0	550	602	650	0	650
	Public/CCSF[3]	268	0	316	316	268	0	316	316
	Total	694	550	316	866	870	650	316	966
Overnight	Residential	533	550	0	550	751	650	0	650
	Public/CCSF[3]	0	0	217	217	0	0	217	217
	Total	533	550	217	767	751	650	217	867

Notes: (0.5:1) denotes a parking ratio of 0.5 residential parking spaces for 1 residential unit; green-shaded cells have excess parking supply while red-shaded cells have parking deficits
[1] Developer's Proposed Option supply does not include the 750-space parking garage that is analyzed in the EIR. Some or all of these parking spaces could be included in the final project to meet projected demand.
[2] Neighborhood supply includes available street parking spaces within the parking study area during the given time period (Midday and Evening/Overnight).
[3] Includes 29 retail and child care visitor and employee demand and 239 overflow CCSF vehicles.

As shown in Table 7, the currently proposed 0.5:1 parking ratio meets residential parking demand under the Developer's Proposed Option during the midday and overnight periods and the Additional

Housing Option during the midday period. There would be a 101 space residential parking space shortfall during the overnight period with the Additional House Option. The parking demand associated with the retail and child care visitor and employee demand (29 spaces) and CCSF overflow demand (239 spaces) could be met by available on-street parking spaces within the study area (316 spaces during the midday period, 217 spaces during the overnight period).

Alternatively, the parking demand from the retail and daycare visitors and employees and overflow CCSF vehicles could be accommodated by a combination of reducing CCSF parking demand through planned TDM measures and/or a shared parking agreement with the Balboa Reservoir project. Additionally, under the Developer's Proposed Option, the supply shown in Table 7 does not include the 750-space parking garage that is analyzed in the EIR. Some or all of these parking spaces could be included in the final project to meet projected demand.

PARKING MONITORING PLAN

Goal of the Monitoring Plan

The goal of the monitoring plan is to conduct ongoing monitoring and evaluation of vehicle parking supply and utilization on the Balboa Reservoir project site and nearby City College of San Francisco parking facility. Data will be collected and reviewed to help inform the construction of parking facilities and to determine if parking and transportation demand management strategies are needed.

Background

The Balboa Reservoir Parking Utilization Study (2017-2018) presented above, is an analysis of the parking conditions on the proposed project site ("Lower Lot") and the adjacent Upper Lot. Data was collected at three time periods when school was in session to gauge when parking utilization would be at its highest levels of the year.

The Parking Utilization Study (2017-2018) was intended to monitor and evaluate parking supply and usage to understand the potential effects of the proposed Balboa Reservoir development on the Lower Lot and the resulting loss of parking on City College of San Francisco staff and students. This initial study will be used to develop the framework and methodology for ongoing monitoring and evaluation of parking supply and utilization on the Balboa Reservoir site and the Upper Lot to guide management of Balboa Reservoir and City College of San Francisco parking facilities. Proposed methodology and implementation of the parking monitoring plan is discussed in the following sections.

Methodology

Balboa Reservoir Parking Utilization Study (2017-2018) Methodology

For the Balboa Reservoir Parking Utilization Study (2017-2018), parking data was collected on an hourly basis over a 14-hour time period, between 7:00 a.m. and 9:00 p.m. Data was collected on three separate mid-week days (Tuesday, Wednesday, or Thursday) when CCSF was in session. The number of spaces in the Upper and Lower Lots were counted with the use of aerial photography and then verified in the field. Parking occupancy was collected manually by field technicians. The parking lots were broken into areas with one field technician responsible for collecting data in one area. Technicians walked the lots every hour, manually counting the number of full and empty stalls in each area. Data was marked by hand in the field and transferred to spreadsheets. The spreadsheet data entries were then checked against the manual entries. The cost of data collection was $560 for each of the Upper Lot and Lower Lot, or $1,120 total, for each 14-hour observation period.

Ongoing Monitoring and Evaluation

The following methodology for ongoing monitoring is recommended to provide efficient and accurate of data collection, to align reported space types with parking management categories, and to make the utilization report simple and accessible to all audiences.

- **Survey Study Area.** Collect data within the Lower Lot and Upper Lot. When construction of the Balboa Reservoir project begins, collect data within the Upper Lot only. After construction of the Balboa Reservoir project, if public parking is provided on the Balboa Reservoir site, collect data at the public parking facility and the Upper Lot.
- **Survey Time Period.** Conduct the survey over a four-week period, during the third, fourth, fifth, and sixth weeks of the fall academic term, alternating weekly between Wednesday and Thursday in order to capture daily variations in class schedules and allow for two surveys on each day to get a broader representation of parking demand. This survey period is intended to be inclusive of the period of peak CCSF enrollment.
- **Survey Duration.** Conduct data collection between the hours of 7 a.m. and 9 p.m. to capture hourly variation and peak periods of parking demand.
- **Parking Space Classification.** Classify vehicle parking spaces into the following categories to align with existing parking types provided by CCSF[2] and the Balboa Reservoir project: student; faculty/staff; Americans with Disabilities Act (ADA); reserved; short-term/metered; public (free); public (paid); and private (residents only). Additional categories that could be considered depending on applicability, include electric vehicle charging spaces and dedicated carpool spaces. The Balboa Reservoir Parking Utilization Study (2017-2018) collected and reported

[2] City College of San Francisco 2019 Facilities Master Plan, March 2019. P. 2-32. https://www.ccsf.edu/en/about-city-college/administration/vcfa/facilities_planning/facilities-master-plan.html, accessed April 5, 2019.

utilization data for each facility but did not classify the parking spaces into categories. This approach made data collection and reporting simple and easy to understand, however, it offers limited utility to match space types with parking management categories and patterns of parking demand.

- **Parking Capacity.** Parking capacity is a measure of the number of parking spaces available within the surveyed locations at the time of the survey. Year-to-year changes in capacity are influenced by the physical addition or removal of parking lots and spaces as well as by changes in the management of individual spaces and lots.
- **Parking Utilization.** The overall parking utilization rate is calculated as the ratio of occupied spaces to the total number of parking spaces in the surveyed lots. The percent utilization reported would be an average of the four survey days. Parking utilization should be reported overall (for both facilities combined), by location (for each individual facility), and by parking space category.
- **Reporting.** The parking utilization study should be conducted on an annual basis and build on prior year's data to allow for a longitudinal/historical evaluation.

Future Management of Parking Facilities

Balboa Reservoir development intends to manage its parking efficiently while working to encourage the use of transportation modes other than the single occupancy vehicle. These efforts are being pursued concurrently and in partnership with City College of San Francisco, Public Utilities Commission, and the City of San Francisco to address the future parking needs for CCSF Ocean Campus.

City College of San Francisco approved its Facilities Master Plan in March 2019. The document outlines a vision for the future of the campus that directs cars to routes at the perimeter of campus, emphasizes a more pedestrian atmosphere on Frida Kahlo Way, and limits on-campus circulation to ADA and service vehicles. City College of San Francisco is developing a transportation demand management program aimed at actively reducing single occupancy vehicle trips to the campus through strategies including designated carpool and carshare vehicle parking and provision of passenger loading and short-term parking spaces. According to information included in the Facilities Master Plan, the West Parking Structure would replace surface parking in the Upper Lot due to the construction of the Performing Arts Education Center. The structure may include up to 1,200 vehicle parking spaces on six floors. Additional vehicle parking would be provided in the East Surface Parking lot located on the east side of the east campus.

With regular monitoring of parking utilization and careful management, Balboa Reservoir and CCSF can support efficient use of the facilities by implementing parking and transportation demand management measures that could include, but are not limited to:

- **Private parking partnerships**. Shared parking arrangement between Balboa Reservoir and City College of San Francisco.

- **Parking policies**. Implement changes to policies and practices that optimize parking occupancy and turnover, such as adding time limits or paid parking, including variable demand-based pricing.
- **Physical improvements**. Make physical improvements, including sidewalk widening, installation of bike facilities and amenities, and wayfinding to increase use of non-auto modes.
- **Shuttle service**. Provide fixed-route or on-demand shuttle service between the project site and key destinations to increase use of non-auto modes.
- **Valet parking**. Implement centralized valet service, thereby increasing capacity of existing parking facilities by enabling tandem parking.
- **Increase parking supply**. Construct a new garage or expand the existing facility.

SUMMARY OF FINDINGS

The key findings of the parking supply and utilization data collection and the parking demand analysis are summarized below:

- The peak hourly utilization of both the Lower Lot and Upper Lot occurs between 10 a.m. and 1 p.m. The observed maximum combined occupancy rate of 73% (1,596 cars parked and 578 spaces available) occurred between 11 a.m. and 12 p.m.
- The Upper Lot can accommodate the existing combined parking demand (the total demand observed at both the Lower Lot and Upper Lot) during the a.m. and p.m. periods (7 to 9 a.m. and 5 to 7 p.m.) but would not meet the combined parking demand during the weekday midday period (10 a.m. to 12 p.m.). During the weekday midday peak hour of parking demand, assuming parking was available only at the Upper Lot, there would be a shortfall of up to 239 parking spaces.
- There are a total of 906 parking spaces within the neighborhood on-street parking study area and between approximately 200 and 300 on-street spaces are available on weekdays during any given time period (a.m., midday, and p.m.).
- Projected residential parking demand can be met at a 0.5:1 parking ratio except during the overnight period for the Additional Housing Option, which would have a 101 space shortfall.
- Projected parking demand from the retail and daycare visitors and employees and overflow CCSF vehicles could be accommodated by available on-street parking spaces, reduced Balboa Reservoir and CCSF parking demand through planned TDM measures, and/or a shared parking agreement with the Balboa Reservoir project.
- The Balboa Reservoir development intends to monitor and manage its parking efficiently while working to encourage the use of transportation modes other than the single occupancy vehicle. Shared or flexible parking designations between residential, retail, and CCSF uses would help to minimize the total number of parking spaces needed to meet project-generated parking demand and overflow CCSF parking demand resulting from the redevelopment of the Lower Lot. Implementation of TDM measures and a shared parking agreement with CCSF would reduce the impacts of parking shortfalls on the neighborhood parking supply.