APPENDIX I:
WSA REQUEST AND WSA

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City of San Leandro
Civic Center, 835 E. 14th Street
San Leandro, California 94577
www.sanleandro.org

March 6, 2014

David J. Rehnstrom
Water Distribution Planning Division
East Bay Municipal Utility District
P.O. Box 24055
Oakland, CA 94623-1055

RE: City of San Leandro Shoreline Development Project
Request for Water Consultation and Review of Water Supply Assessment

Dear Mr. Rehnstrom,

This letter serves as a request from the City of San Leandro to EBMUD for a review of water demand for the subject redevelopment plan, and an assessment of the supply of EBMUD water available to serve the proposed redevelopment. The City is preparing an environmental impact report (EIR) in accordance with the requirements of the California Environmental Quality Act (CEQA, Public Resources Code [PRC] Section 21000 et seq) and the CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq). This request to EBMUD is made pursuant to Section 15155 of CEQA Guidelines, which requires consultation with the relevant water agency for actions of a certain magnitude.

Project Location and Setting

As shown on Figures 1 and 2, the proposed Project is located in the City of San Leandro, in the San Leandro Shoreline Area. The San Leandro Shoreline Area encompasses approximately 1,800 acres of City-owned land situated on the eastern shore of the San Francisco Bay at the western end of Marina Boulevard, commonly referred to as the Shoreline Recreational Area. The proposed development site, totaling roughly 52 acres of land, plus a water surface area of approximately 23 acres, is the area generally west of Monarch Bay Drive between Marina Boulevard and Fairway Drive. This area consists of the two peninsulas encircling the boat harbor; the existing commercial and recreational facilities adjacent to the boat harbor; portions of the Marina nine-hole executive golf course; and the site of the existing Mulford Branch Library on the parcel at the corner of Aurora and Fairway Drives.

The Shoreline Recreational Area includes three existing commercial enterprises and one demolished restaurant/banquet facility. These include the 131-room Marina Inn opened in 1985; Horatio's Restaurant completed in 1978; and an El Torito Restaurant, which originally opened as part of the Tia Maria chain in 1970. The foundation and deck piers of the former Blue Dolphin

Restaurant remain on-site. Boating facilities currently include a 466-slip public harbor with a separate boat launch and support operations, and two private yacht clubs. Due to physical constraints caused by build-up of silt both in the harbor and the federal channel, occupancy of the harbor currently stands at approximately 30 percent.

Project Description

The San Leandro Shoreline Development Project is proposed as an integrated master planned development and a public/private partnership with the City on 52 acres of the City-owned marina.

As shown on Figure 3, the proposed components of the Project include:

- ♦ 150,000-square-foot office campus
- ♦ 200 room hotel
- ♦ 15,000-square-foot conference center
- ♦ 354 housing units:
  - 220 Flats (61 condominiums & 159 market rate apartments)
  - 92 Townhomes
  - 42 Single-family detached homes
- ♦ 3 new restaurants (totaling 21,000 square feet):
  - Restaurant at the end of Mulford Point: 8,000 square feet
  - Restaurant adjacent to hotel: 5,000 square feet
  - Café and Boat rental south of Horatio's: 8,000 square feet
- ♦ New Library/Community Building on the site of the current Mulford Branch Library
- ♦ Parking structure (approximately 800 parking spaces)

The Project would require removal of the following structures and features within the Project area:

- ♦ Wood and concrete docks and associated piers, including Blue Dolphin Restaurant platform
- ♦ Existing El Torito Restaurant building
- ♦ Existing Mulford Branch Library building
- ♦ Golf course concessions stands
- ♦ 466-slip harbor
- ♦ Harbor master's office and fuel pump/dock
- ♦ Public/private restrooms 'A', 'E/F', and 'N/O'
- ♦ San Leandro Yacht Club building

The Spinnaker Yacht Club building has been identified as the location for the Aquatic Center. The building may be repurposed or replaced.

Water Supply Assessment

It is our understanding that the current EBMUD water demand protocol is based on land use types and development intensities. Attachment A is an analysis of existing and future water

demand for the redevelopment site prepared by BKF Engineers. We request that EBMUD review the assessment and determine whether the existing infrastructure has sufficient capacity to provide the additional water demand imposed by this project. To summarize, it is estimated that the average water use of the proposed development as approximately 173,800 gallons per day (gpd). The existing water usage at the site is estimated to be 48,100 gpd. The net increase in water demand after completion of all phases of the proposed development is approximately 125,700 gpd (173,800 - 48,100). Sources for the different water uses by type of development are included for your reference.

Marina Inn and Horatio Restaurant are not included in the estimates for both proposed development and existing conditions as they are outside the scope of development. The existing Spinnaker Yacht Club, located within the proposed development, is also excluded from the estimates because it is to remain.

The City of San Leandro would appreciate EBMUD's attention to this request. Should you have questions, or require additional information, please do not hesitate to contact me or our EIR consultant, Jerome de Verrier (510-835-9886).

Thank you.

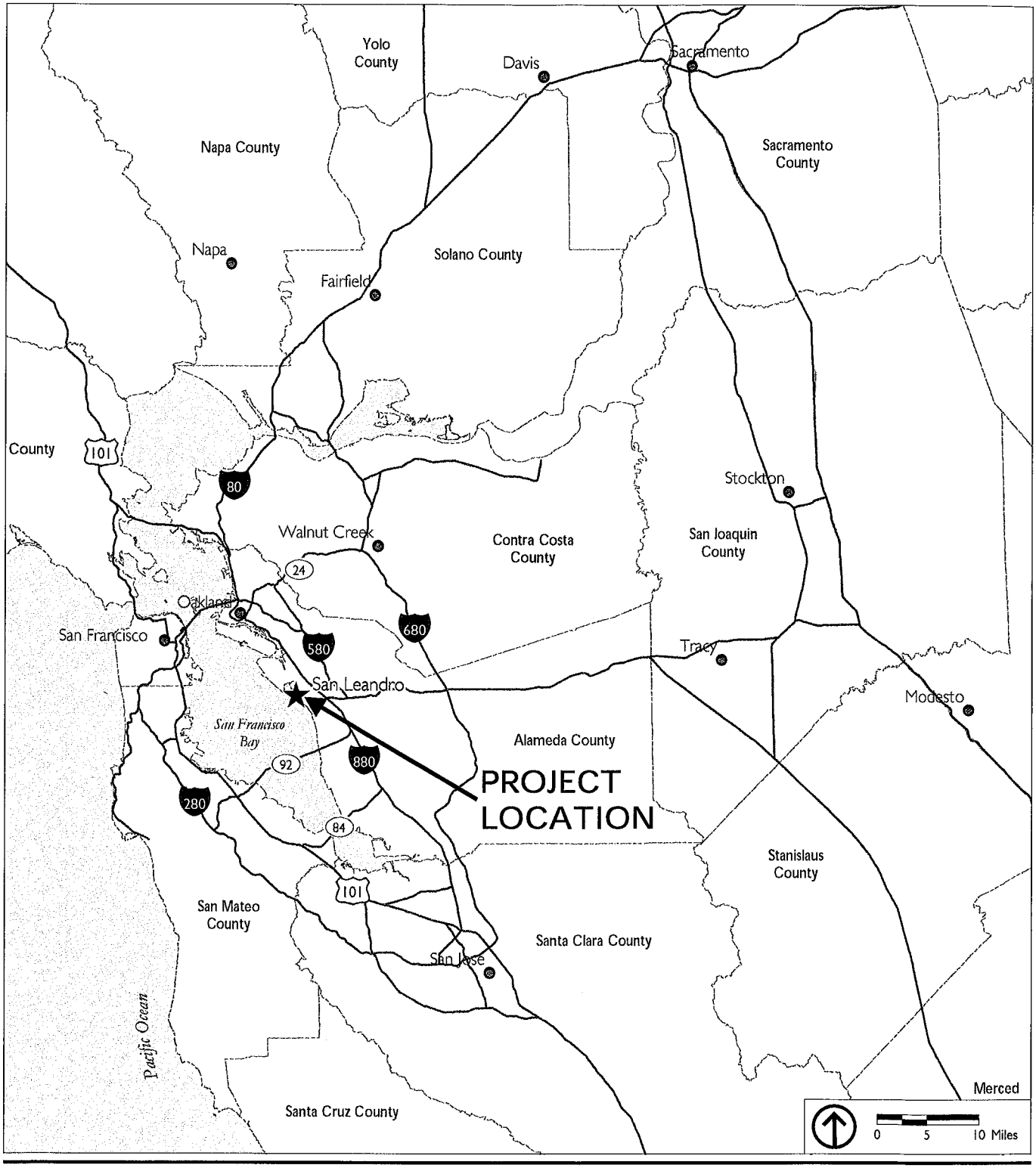
Sincerely,

Sally Barros, AICP, LEED® AP
Principal Planner, Community Development Department

Attachments: Figure 1 – Regional Location
Figure 2 – Local Context
Figure 3 – Conceptual Master Plan
Attachment A – Water Usage Calculations and Source Material

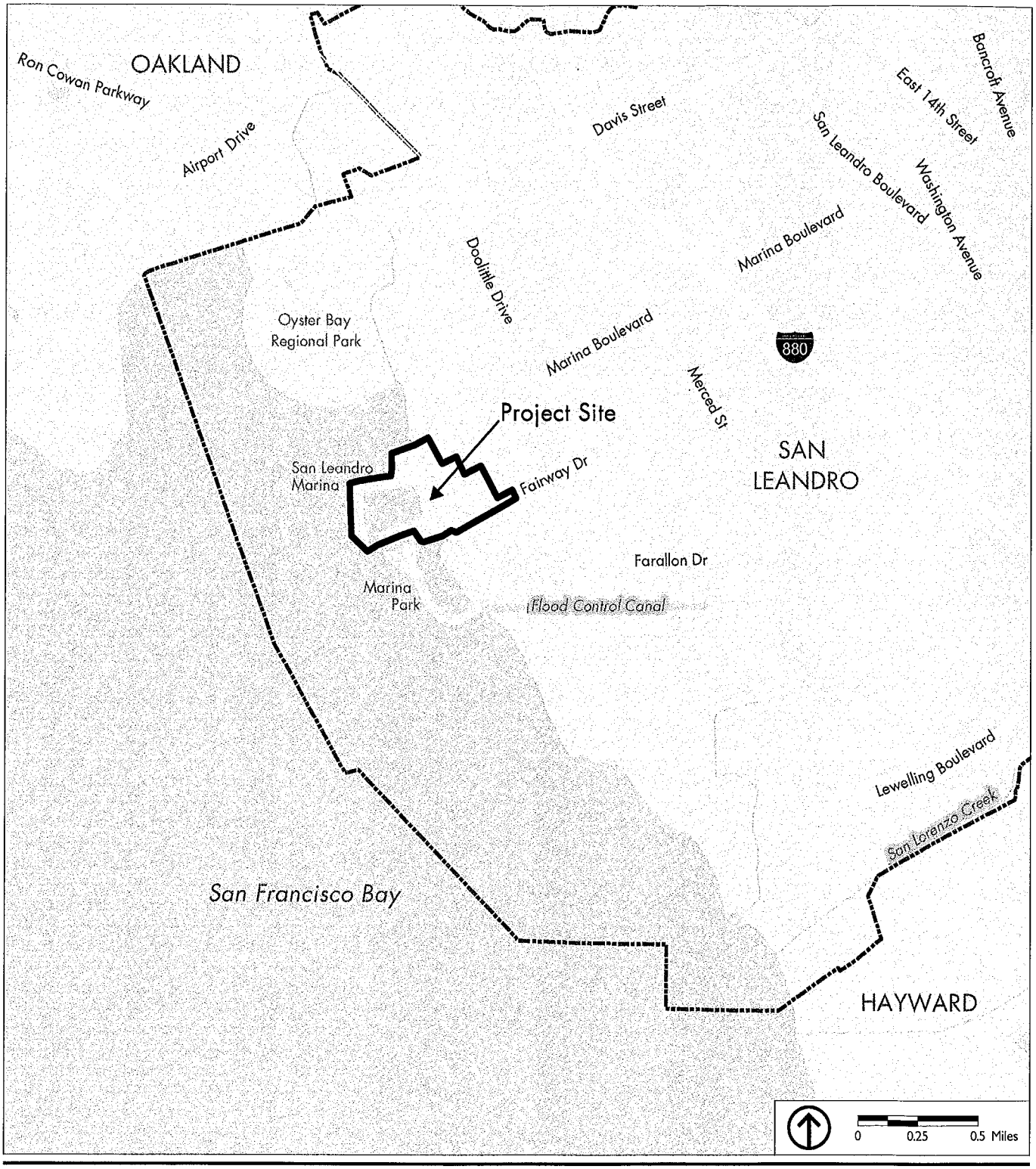
Cc: Debbie Pollart, City of San Leandro Public Works Director
Richard Pio Roda, City Attorney
Edward Miller, Cal Coast Companies, Developer
Kyle Simpson, The Planning Center | DC&E, Consulting EIR Manager
Jerome de Verrier, TranSystems, EIR consultant

FIGURES



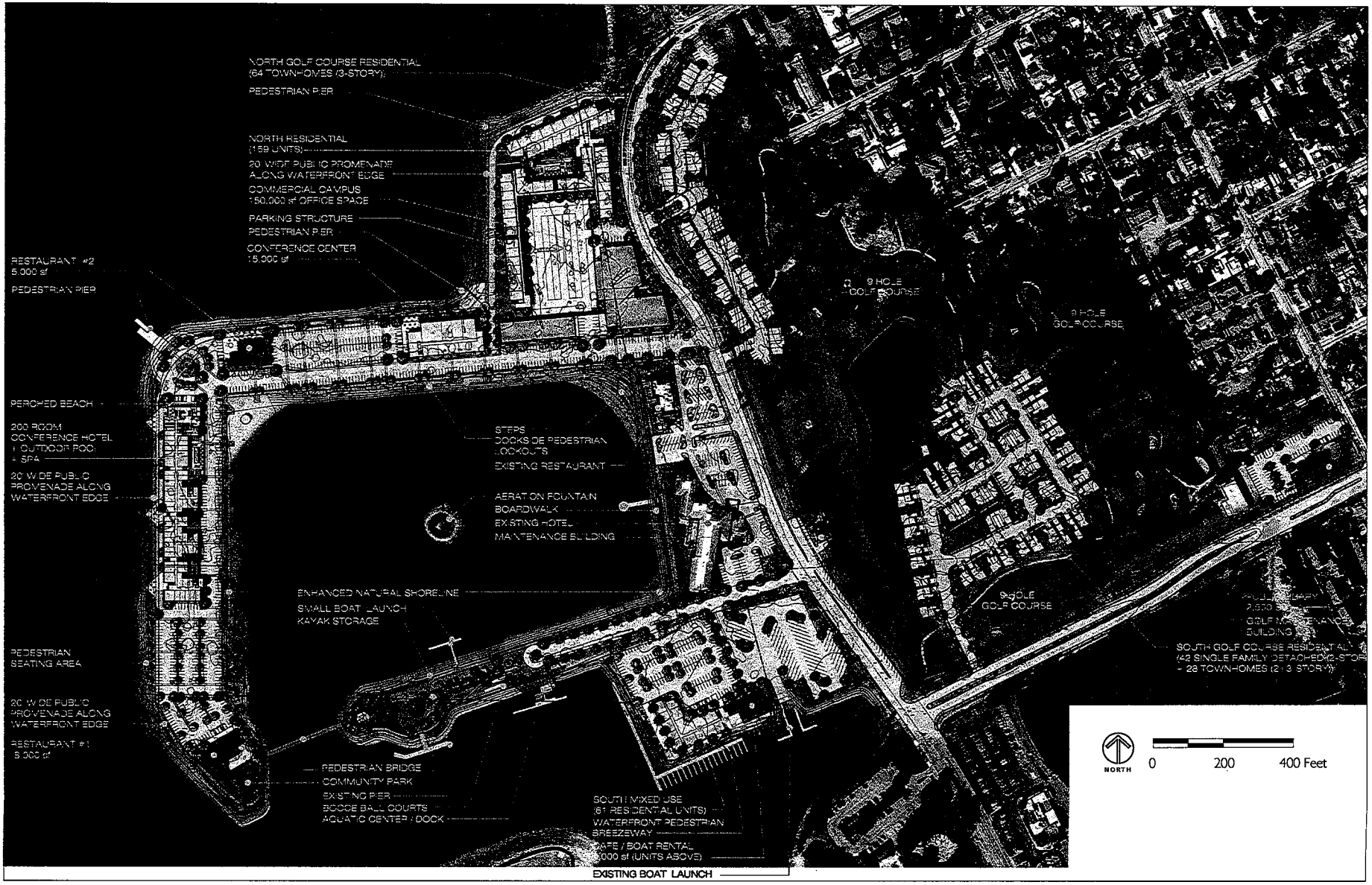
Source: The Planning Center | DC&E, 2013

FIGURE 1
REGIONAL LOCATION



Source: The Planning Center | DC&E, 2013

FIGURE 2
LOCAL CONTEXT



Source: Cal Coast Companies, LLC, 2013.

FIGURE 3

CONCEPTUAL MASTER PLAN

ATTACHMENT A

WATER USAGE ANALYSIS

BKF ENGINEERS
1650 Technology Drive, Ste 650
San Jose, CA. 95110

WATER USAGE
SAN LEANDRO SHORELINE DEVELOPMENT
(MONARCH BAY)

Job No. 20136048-10
1/23/2014

PROPOSED DEVELOPMENT WATER USAGE

Type	Quantity	Unit	*Average Water Demand (gpd/unit)	Average Daily Water Demand (gpd)	Notes
PHASE 1					
Hotel	102,550	SF	0.29	29,740	200-room hotel; Excludes existing Marina Inn
Retail/Sales	8,000	SF	0.66	5,280	Retail/marine sales and services
Office	100,000	SF	0.24	24,000	150,000 SF total from all phases
Conference Center	2,857	Person	3	8,571	Conference Center (15,000 SF) + Hotel conf/lobby (5,000 SF)
Public Library	46	Person	3	138	Assume same flow characteristic as conference center; 2,500 SF
Restaurants	321	SEAT	83.4	26,770	Rest. #1 (8,000 SF) + Rest. #2 (5,000 SF) = 13,000 SF total; excludes existing Horatio Restaurant
Residental:					
Flats	220	UNIT	165	36,300	159 multifamily + 61 condos; Assume 3.3 persons/du
			SUBTOTAL	130,799	
PHASE 2					
Residental:					
Townhomes	92	UNIT	231	21,252	Assume 3.3 persons/du
Single Family	42	UNIT	231	9,702	Assume 3.3 persons/du
			SUBTOTAL	30,954	
PHASE 3					
Office	50,000	SF	0.24	12,000	The balance of Phase 1 Office
			SUBTOTAL	12,000	
			TOTAL	**173,800**	

Note
* Flowrate factors are based on reference materials as provided by EBMUD (see attachment).

Conversions

Restaurants: 20.25 SF/seat (9ft x 9ft seating for 4 seats = 81 SF/4 seats); 50% is seating area
Conf. Center: 1 person/7 SF
Library: 1 person/54 SF
Clubhouses: 1 person/50 SF

BKF ENGINEERS
1650 Technology Drive, Ste 650
San Jose, CA. 95110

WATER USAGE
SAN LEANDRO SHORELINE DEVELOPMENT
(MONARCH BAY)

Job No. 20136048-10
1/23/2014

EXISTING DEVELOPMENT WATER USAGE

Type	Quantity	Unit	*Average Water Demand (gpd/unit)	Average Daily Water Demand (gpd)	Notes
Office	4150	SF	0.24	996	Harbor Master & Comcast
Restaurants	556	Seat	83.4	46,333	El Torito & Blue Dolphin (42,570 SF); Horatio to remain (excluded)
Public Library	37	Person	3	111	Assume same flow characteristic as conference center; 2,000 SF
Yacht Club	32	Person	10.5	336	San Leandro Yacht Club (1,600 SF); Spinnaker Yacht Club to remain (excluded)
Public Bathrooms	60	Person	5	300	Rough estimate
			TOTAL	**48,100**	

NET INCREASE = 173,800 - 48,100 = 125,700 gpd

Note
* Flowrate factors are based on reference materials as provided by EBMUD (see attachment).

Conversions
Restaurants: 20.25 SF/seat (9ft x 9ft seating for 4 seats = 81 SF/4 seats); 50% is seating area
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TABLE 5-3 Water requirements in selected industries

Industry	Water Required per Unit of Product Noted	
	gallons	*litres*
Food and Beverage		
Meatpacking, per ton (0.9 metric ton) carcass weight	7,200	27,200
Dairy products, per ton (0.9 metric ton) milk processed	1,700	6,400
Canned fruits and vegetables, per ton (0.9 metric ton) vegetables canned	19,700	74,600
Frozen fruits and vegetables, per ton (0.9 metric ton) vegetables frozen	22,500	85,200
Malt beverages, per 1,000 gal (3,785 L) beer and malt liquor	50,000	190,000
Cane sugar, per ton (0.9 metric ton) cane sugar	28,100	106,400
Beet sugar, per ton (0.9 metric ton) beet sugar	33,100	125,300
Petrochemical		
Plastic materials and resins, per ton (0.9 metric ton) plastics	47,000	177,900
Paints and pigments, per 1,000 gal (3,785 L) paint	13,200	50,000
Nitrogenous fertilizers, per ton (0.9 metric ton) fertilizer	28,500	107,900
Phosphatic fertilizers, per ton (0.9 metric ton) fertilizer	35,600	134,700
Petroleum refining, per 1,000 gal (3,785 L) crude petroleum input	44,000	166,500
Synthetic rubber, per ton (0.9 metric ton) synthetic rubber	110,600	418,600
Textile Products		
Textile mills, per ton (0.9 metric ton) textile fiber input	69,800	264,200
Wood Products, Pulp, and Paper		
Pulp and paper mills, per ton (0.9 metric ton) paper	130,000	492,000
Paper converting, per ton (0.9 metric ton) paper converted	6,600	25,000

Adapted from Kollar and MacAuley (1980).

Table continued next page

TABLE 5-3 Water requirements in selected industries (continued)

Industry	Water Required per Unit of Product Noted	
	gallons	*litres*
Metals and Metal Production		
Steel, per ton (0.9 metric ton) steel net tons (0.9 metric tons)	62,600	236,900
Iron and steel foundries, per ton (0.9 metric ton) ferrous castings	12,400	46,900
Primary copper, per ton (0.9 metric ton) copper	106,000	401,200
Primary aluminum, per ton (0.9 metric ton) aluminum	98,300	372,100
Manufacturing		
Automobiles	36,500	138,200

Adapted from Kollar and MacAuley (1980).

- connection to a sewer system or to individual septic systems
- the condition of the water system

Time and Day

The time of day and the day of the week can have a profound effect on water use. In most communities, water use is lowest in the early morning hours when most people are asleep. On a typical day, water use rises rapidly when customers awake and then typically levels out through the day. Usage then increases in late afternoon, peaks during the evening, and drops rather quickly around 10:00 p.m. The changing hourly rate of water use for a typical day is shown in Figure 5-3.

Different days of the week usually show different total water use, with day-to-day patterns depending on the habits of the community. Some water systems can see a significant increase in water use on Monday because it is historically "wash day" for many households. Water systems supplying industries that do not operate on weekends will often have much lighter water use on Saturday and Sunday.

Climate and Season

Water use is usually highest during summer months, particularly in warm, dry climates. More water is used for bathing, lawn and garden sprinkling, and other outside activities.

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Water Supply and Pollution Control

Warren Viessman, Jr.
University of Florida

Mark J. Hammer
Lincoln, Nebraska

FIFTH EDITION

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TABLE 4.1 COMMERCIAL WATER USE

	Unit	Average annual demand (gpd)	Maximum hourly demand rate (gpd)	Hour of peak occurrence	Ratio, maximum hourly to average annual	Average annual demand per unit	Ratio, maximum hourly demand to R-40 demand[a]
Miscellaneous residential							
Apartment building	22 units	3,430	11,700	5–6 P.M.	3.41	156 gpd/unit	2.2 : 1
Motel	166 units	11,400	21,600	7–8 A.M.	1.89	69 gpd/unit	4.0 : 1
Hotels:							
Belvedere	275 rooms	112,000	156,000	9–10 A.M.	1.39	407 gpd/room	29 : 1
Emerson	410 rooms	126,000				307 gpd/room	
Office buildings							
Commercial Credit	490,000 ft^2	41,400	206,000	10–11 A.M.	4.89	0.084 gpd/ft^2	38 : 1
Internal Revenue	182,000 ft^2	14,900	74,700	11–12 A.M.	5.01	0.082 gpd/ft^2	14 : 1
State Office Building	389,000 ft^2	27,000	71,800	10–11 A.M.	2.58	0.070 gpd/ft^2[b]	13 : 1
Shopping centers							
Towson Plaza	240,000 ft^2	35,500	89,900	2–3 P.M.	2.50	0.15 gpd/ft^2	17 : 1
Hillendale	145,000 ft^2	26,000				0.18 gpd/ft^2	
Miscellaneous commercial							
Laundries:							
Laundromat	Ten 8-lb washers	1,840	12,600	11–12 A.M.	6.85	184 gpd/washer	2.3 : 1
Commercial	Equivalent to ten 8-lb washers	2,510	16,200	10–11 A.M.	6.45	251 gpd/washer equivalent	3.0 : 1
Washmobile	Capacity of 24 cars per hour	7,930	75,000	11–12 A.M.	9.46	330 gpd per car per hour of capacity	14 : 1
Service station	1 lift	472	12,500	6–7 P.M.	26.5	472 gpd/lift	2.3 : 1

Source: Residential Water Use Research Project of The Johns Hopkins University and the Office of Technical Studies of the Architectural Standards Division of the Federal Housing Administration, 1963.

[a] Lot type R-40 (1 acre) peak hourly demand for single service is 5400 gpd. [b] Exclusive of air conditioning.

Solution. (a) Given that size. Enter Fig. 4.4 with dwelling unit. For the 300 or 1458 gpm. The combine for 3000 dwelling units an In this case the peak ho combined flow estimate.

Manufacturing

From 1970 to 1980 the n U.S. freshwater withdr only about 7% of the t This decline is attribute turing uses vary with th process waters and coo fresh and saline water bled. This water was rec and diminished somewl into products. Although the future, recycling is prospect that actual wat a decline. Consumptive

Natural Systems

Providing water for the tion of marshes and est purposes is now consid conflict with traditional become an increasingly ties of water needed for make good determinatic problems since the qua of concern include instr freshwater releases to t tecting fish and wildlife.

The water-related as systems are abundant. I data base, and close coo the auspices of various that encourage or result effects on the environm provide additional oppo not without a price to be ment and environmental

WASTEWATER ENGINEERING
Treatment, Disposal, and Reuse

Third Edition

METCALF & EDDY, INC.

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Commercial facilities. The water used by commercial facilities for sanitary purposes will vary widely depending on the type of activity (e.g., an office as compared to a restaurant). Typical water-use values for various types of commercial facilities are reported in Table 2-3. For large commercial water-using facilities such as laundries and car washes, careful estimates of actual water use should be made.

Institutional facilities. Water used by facilities such as hospitals, schools, and rest homes is usually based on some measure of the size of the facility and the type of housing function provided (e.g., per student or per bed). Water use for schools will vary significantly depending on whether the students are housed on campus or are day students. Representative water-use values for institutional facilities are reported in Table 2-4.

TABLE 2-3
Typical rates of water use for commercial facilities[a]

		Flow, gal/unit · d	
User	Unit	Range	Typical
Airport	Passenger	3–5	4
Apartment house	Person	100–200	100
Automobile service station	Employee	8–15	13
	Vehicle served	8–15	10
Boarding house	Person	25–50	40
Department store	Toilet room	400–600	550
	Employee	8–13	10
Hotel	Guest	40–60	50
	Employee	8–13	10
Lodging house and tourist home	Guest	30–50	40
Motel	Guest	25–40	35
Motel with kitchen	Guest	25–60	40
Laundry (self-service)	Machine	400–650	550
	Wash	45–55	50
Office	Employee	8–20	15
Public lavatory	User	3–6	5
Restaurant (including toilet)			
Conventional	Customer	8–10	9
Short-order	Customer	3–8	6
Bar and cocktail lounge	Customer	2–4	3
	Seat	15–25	20
Shopping center	Parking space	1–3	2
	Employee	8–13	10
Theater			
Indoor	Seat	2–4	3
Outdoor	Car	3–5	4

[a] Adapted in part from Refs. 7 and 8.

Note: gal × 3.7854 = L

TABLE 2-4
Typical water-

User
Assembly hall
Hospital, medical
Hospital, mental
Prison
Rest home
School, day
With cafeteria, g and showers
With cafeteria or
Without cafeteria
School, boarding

[a] Adapted in part fror

Note: gal × 3.7854 =

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TABLE 2-4
Typical water-use values for institutional facilities[a]

User	Unit	Flow, gal/unit · d	
		Range	Typical
Assembly hall	Seat	2–4	3
Hospital, medical	Bed	130–260	150
	Employee	5–15	10
Hospital, mental	Bed	80–150	120
	Employee	5–15	10
Prison	Inmate	80–150	120
	Employee	5–15	10
Rest home	Resident	5–120	90
	Employee	5–15	10
School, day			
With cafeteria, gym, and showers	Student	15–30	25
With cafeteria only	Student	10–20	15
Without cafeteria and gym	Student	5–15	10
School, boarding	Student	50–100	75

[a] Adapted in part from Refs. 7 and 8.

Note: gal × 3.7854 = L

Recreational facilities. Recreational facilities such as swimming pools, bowling alleys, camps, resorts, and country clubs perform a wide range of functions involving water use. Typical water-use values are reported in Table 2-5.

Industrial (Nondomestic) Water Use. The amount of water supplied by municipal agencies to industries for process (nondomestic) purposes is highly variable. Large water-using industries such as canneries, chemical plants, and refineries usually have their own supply and are not dependent on public agencies. Other industries such as those involved in "high technology," which have more modest process water requirements, may depend wholly on municipal supplies. Typical data on the magnitude of water use to be expected from various industrial operations are presented in Table 2-6. Because industrial water use varies widely, it is therefore desirable in practical design work to inspect the plant concerned and to make careful estimates of the quantities of both water used from all sources and the wastes produced.

Public Service and System Maintenance. Public service water represents the smallest component of municipal water use. Public service water uses include water used for public buildings, fire fighting, irrigating public parks and greenbelts, and system maintenance. System maintenance water uses include water for disinfecting new water lines and storage reservoirs, line and hydrant flushing, and hydraulic flushing of sewers. Only small amounts of water used for these purposes reach the sanitary sewer system, except that from public buildings.

TABLE 2-5
Typical water-use values for recreational facilities[a,b]

User	Unit	Flow, gal/unit · d	
		Range	Typical
Apartment, resort	Person	50–70	60
Bowling alley	Alley	150–250	200
Camp			
Pioneer type	Person	15–30	25
Children's central toilet and bath	Person	35–50	45
Day, with meals	Person	10–20	15
Day, without meals	Person	8–18	13
Luxury, private bath	Person	75–100	90
Trailer	Trailer	75–150	125
Campground, developed	Person	20–40	30
Country club	Member present	60–125	100
	Employee	10–15	12
Dormitory (bunk house)	Person	20–45	35
Fairground	Visitor	1–2	2
Picnic park, with flush toilets	Visitor	5–10	8
Swimming pool and beach	Customer	5–15	10
	Employee	8–15	10
Visitor center	Visitor	4–8	6

[a] Adapted in part from Refs. 7 and 8.

[b] It is assumed that water under pressure, flush toilets, and washbasins are provided unless otherwise indicated.

Note: gal × 3.7854 = L

Unaccounted System Losses and Leakage. Unaccounted system losses include unauthorized use, incorrect meter calibration or readings, improper meter sizing, and inadequate system controls. Leakage is due to system age, materials of construction, and lack of system maintenance. Unaccounted system losses and leakage may range from 10 to 12 percent of production for newer distribution systems (less than 25 years old) and from 15 to 30 percent for older systems. In small water systems, unaccounted losses and leakage may account for as much as 50 percent of production. As much as 40 to 60 percent of the unaccounted water may be attributed to meter error [1]. Therefore, while water records may be useful in forecasting wastewater flowrates, the accuracy of the records must be checked carefully.

Estimating Water Consumption From Water Supply Records. Water records of various types are kept by water supply agencies. These records usually include information on the amount of water produced or withdrawn and discharged to the water supply system and the amount of water actually used (consumed). The distinction is

TABLE 2-6
Typical rate industries

Industry
Cannery
Green beans
Peaches and
Other fruits
Chemical
Ammonia
Carbon diox
Lactose
Sulfur
Food and beve
Beer
Bread
Meat packin
Milk produc
Whisky
Pulp and pape
Pulp
Paper
Textile
Bleaching
Dyeing

[a] Live weight.

[b] Cotton.

Note: gal/U.S. t

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TABLE 2-6
Typical rates of water use for various industries

Industry	Range of flow, gal/ton product
Cannery	12,000–17,000
Green beans	3,600–4,800
Peaches and pears	960–8,400
Other fruits and vegetables	
Chemical	24,000–72,000
Ammonia	14,400–21,600
Carbon dioxide	144,000–192,000
Lactose	1,920–2,400
Sulfur	
Food and beverage	2,400–3,840
Beer	480–960
Bread	3,600–4,800[a]
Meat packing	2,400–4,800
Milk products	14,400–19,200
Whisky	
Pulp and paper	60,000–190,000
Pulp	29,000–38,000
Paper	
Textile	48,000–72,000[b]
Bleaching	7,200–14,400[b]
Dyeing	

[a] Live weight.

[b] Cotton.

Note: gal/U.S. ton (short) × 0.00417 = $m^3/10^3$ kg

important because more water is produced than is actually used by the consumer. The difference between these two values is the amount of water lost or unaccounted for in the distribution system plus the amount used for various public services that may be unmetered. Therefore, in using water supply records to estimate wastewater flowrates, it is necessary to determine the amount of water actually used by the customers. Unaccounted water and losses do not reach the wastewater system and have to be excluded in making flow estimates. Data from municipal water-use records are analyzed in Example 2-1 to determine consumption and unaccounted system losses.

Example 2-1 Estimating water consumption from water supply data. A small community water supply agency furnishes water to 147 customers from a well supply. Water records are kept showing the amount of water pumped to the system. The agency recently installed meters for all customers and total water sales records are also kept. The following data were obtained:

TABLE 2-9
Typical wastewater flowrates from residential sources[a]

Source	Unit	Flow, gal/unit · d	
		Range	Typical
Apartment:			
High-rise	Person	35–75	50
Low-rise	Person	50–80	65
Hotel	Guest	30–55	45
Individual residence:			
Typical home	Person	45–90	70
Better home	Person	60–100	80
Luxury home	Person	75–150	95
Older home	Person	30–60	45
Summer cottage	Person	25–50	40
Motel:			
With kitchen	Unit	90–180	100
Without kitchen	Unit	75–150	95
Trailer park	Person	30–50	40

[a] Adapted in part from Ref. 7.

Note: gal × 3.7854 = L

vary with the region, climate, and type of facility. The actual records of institutions are the best sources of flow data for design purposes.

Recreational Facilities. Wastewater flowrates from many recreational facilities are highly seasonal. Typical data on wastewater flowrates from recreational facilities are presented in Table 2-12.

Sources and Rates of Industrial (Nondomestic) Wastewater Flows

Nondomestic wastewater flowrates from industrial sources vary with the type and size of the facility, the degree of water reuse, and the onsite wastewater treatment methods, if any. Extremely high peak flowrates may be reduced by the use of detention tanks and equalization basins. Typical design values for estimating the flows from industrial areas that have no or little wet-process type industries are 1000 to 1500 gal/acre · d (9 to 14 m^3/ha · d) for light industrial developments and 1500 to 3000 gal/acre · d (14 to 28 m^3/ha · d) for medium industrial developments. Alternatively, for estimating industrial flowrates where the nature of the industry is known, data such as those reported in Table 2-6 can be used. For industries without internal recycling or reuse programs, it can be assumed that about 85 to 95 percent of the water used in the various operations and processes will become wastewater. For large industries with internal water-reuse programs, separate estimates must be made. Average domestic

Water Supply Planning

David W. Prasifka

Krieger Publishing Company
Malabar, Florida
1994

Table 1-6. Summary of Commercial and Institutional Water Use.

Type of Establishment or Institution	Selected Parameter	Annual Water Use (gpd/unit)		Maximum Day Water Use (gpd/unit)		Peak Hour Water Use (gpd/unit)	
		Expected	*Design*	*Expected*	*Design*	*Expected*	*Design*
Primary and secondary schools							
public elementary	gpd/student	5.38	8.67	9.68	13.00	49.10	52.40
public senior high	gpd/student	5.64	9.75				
public junior high	gpd/student	6.63	12.20	19.60	25.20	121.00	127.00
private elementary	gpd/student	2.24	6.09	3.10	6.92	25.70	29.50
private senior high	gpd/student	10.40	18.60	15.70	23.90	38.70	46.90
combined (grades 1–12)	gpd/student	8.49	18.70	16.80	27.00	51.30	61.50
Colleges							
students in residence	gpd/student	106	179	114	187	250	323
nonresident students	gpd/student	15	*	27	*	58	*
Hospitals	gpd/bed	346	559	551	764	912	1120
Nursing homes and institutions	gpd/bed	113	209	146	222	424	500
Apartments							
high-rise	gpd/occupied unit	218	322	426	530	745	849
garden-type	gpd/occupied unit	213	315	272	374	671	773
Hotels	gpd/sq. ft.	0.256	*	0.294	*	0.433	*
Motels	gpd/sq. ft.	0.224	0.326	0.461	0.563	1.55	1.65
Office buildings							
general offices (−10 years)	gpd/sq. ft.	0.093	0.164	0.173	0.244	0.521	0.592
general offices (+10 years)	gpd/sq. ft.	0.142	0.273				
medical offices	gpd/sq. ft.	0.618	*	1.660	*	4.970	*
Department stores	gpd/sq. ft. of total sales area	0.216	0.483	0.388	0.655	0.958	1.230
Shopping centers	gpd/sq. ft. of total [illegible]	0.160	*	0.232	*	0.412	*
Car washes	gpd/sq. ft.	4.78	*	10.3	*	31.5	*
Service stations	gpd/sq. ft. of garage & office space	0.251	0.485	0.590	0.824	4.890	5.120
Laundries							
commercial laundries & dry cleaners	gpd/sq. ft.	0.253	0.639	0.326	0.712	1.570	1.960
laundromats	gpd/sq. ft.	2.170	6.390	*	*	*	*
Restaurants							
drive-ins (parking only)	gpd/car space	109.0					
drive-ins (seating & parking)	gpd/seat	40.6					
conventional restaurants	gpd/seat	24.2	55.2	83.4	114	167	198

(continued)

Table 1-6. *(continued)*

Type of Establishment or Institution	*Selected Parameter*	Annual Water Use (gpd/unit)		Maximum Day Water Use (gpd/unit)		Peak Hour Water Use (gpd/unit)	
		Expected	*Design*	*Expected*	*Design*	*Expected*	*Design*
Clubs							
golf	gpd/membership	66.1					
swimming	gpd/membership	16.5					
boating	gpd/membership	10.5					
Churches	gpd/member	0.138		0.862		4.700	
Barber shops	gpd/chair	54.6	97.5	80.3	123	389	432
Beauty salons	gpd/station	269	532	328	591	1070	4330

* For some establishments, the number of samples was not sufficient to enable the selection of a design value.

SOURCE: Adapted from Wolff, Linaweaver, and Geyer (1975), p. 49, by permission of ASCE.

Water use by department stores was calculated differently depending on whether or not they contained restaurants, because water use increases significantly when a restaurant is present. The water use a the five department stores without restaurants ranged from 1,813 gp (gallons per day) to 10,831 gpd, with a mean of 6,555 gpd and standard deviation of 3,262 gpd. The department stores ranged in gros area from 88,000 square feet to 218,800 square feet, with a mean o 145,760 square feet and a standard deviation of 53,660 square feet The mean water-use factor was 0.04348 gallons per working day pe square foot of gross area (gdsf). Water use at the two departmen stores containing restaurants was 9,206 gpd and 15,108 gpd. The gros areas of the two stores were 159,000 square feet and 179,000 squar feet, resulting in water-use factors of 0.0579 gdsf and 0.0844 gdsf.

Other conclusions of the McCuen study can be summarized a follows:

1. A close correlation exists between sales area and (the more easil measured) gross store area.
2. The number of restrooms in a store correlates closely with gros store area.
3. A good correlation seems to exist between the number of em ployees and the number of customers, for department stores havin similar economic functions.
4. Since facilities involving water use in department stores are avai able to customers as well as to employees, estimates of both employe and customer use of water are required.
5. The size of the region that the department store serves, th population of the region, and the economic class of the clientel may also influence water use in department stores.

McCuen, Sutherland, and Kim found that water use in mall shop was considerably less than water use in department stores, becaus the restroom facilities in mall shops are usually not available fo customer use. Mall shop employees use water primarily in the restroom with smaller amounts for making coffee, for cleaning, and so on. I some specialty shops, water is also used for cleaning merchandise- such as wigs in a wig shop—or for in-house film development in sor camera shops. Thus, the type of mall shop influences water use; an therefore, water-use relationships should be derived for each ma shop classification.

EAST BAY
MUNICIPAL UTILITY DISTRICT

May 13, 2014

Sally Barros, Principal Planner
City of San Leandro
Civic Center, Community Development Department
835 East 14th Street
San Leandro, CA 94577

Re: Water Supply Assessment – City of San Leandro Shoreline Development Project

Dear Ms. Barros:

This letter responds to the City of San Leandro's request on April 16, 2014, for water agency consultation concerning the City of San Leandro Shoreline Development Project (Enclosure 1) located in San Leandro, which is within the East Bay Municipal Utility District's (EBMUD) Ultimate Service Boundary. EBMUD appreciates the opportunity to provide this response.

Pursuant to Sections 10910-10915 (SB-610) of the California Water Code, the project meets the threshold requirement for an assessment of water supply availability based on the amount of water this project would require, a mixed-use project that would demand an amount of water equivalent to or greater than the amount of water required by a 500 dwelling unit project.

Please note that this assessment addresses the issue of water supply only and is not a guarantee of service, and future water service is subject to rates and regulations in effect at the time.

Project Demand

The water demand for the City of San Leandro Shoreline Development Project is accounted for in EBMUD's water demand projections as published in EBMUD's 2010 Urban Water Management Plan (UWMP/Enclosure 2). EBMUD's water demand projections account for anticipated future water demands within EBMUD's service boundaries and for variations in demand-attributed changes in development patterns. Historical water use of the site excluding structures that are to remain is approximately 30,000 gallons per day (gpd). The project water demand is estimated to be approximately 130,000 gpd at build out.

EBMUD's demand projections indicate both densification and land use changes in a few existing land use classifications, including commercial and residential land use areas, thus increasing EBMUD's overall demand. EBMUD's 2010 UWMP projects water demands over time, accounting for estimated variations in demand usage less conservation and recycled supply sources as noted in Table 4-1, Water Demand Projections for Each Water Use Sector, of the

2010 UWMP. EBMUD's water demand projections are based on the 2040 Demand Study (Demand Study), which was completed in 2009. For planning purposes, the demands are estimated in five year increments, but it is recognized that actual incremental amounts may occur stepwise in shorter time increments. An increase in usage by one customer in a particular customer class does not require a strict gallon-for-gallon increase in conservation by other customers in that class as, in actuality, the amount of potable demand, conservation and recycled water use EBMUD-wide will vary somewhat. Future versions of the UWMP, which is updated every five years, will include an updated assessment of customer demand and water supply.

Project Area

The City of San Leandro Shoreline Development Project is bounded by Marina Boulevard to the north, Aurora Drive to the east, Fairway Drive to the south, and the San Francisco Bay to the west. The project area consists of approximately 75 acres: 52 acres of residential, hotel, office, conference center, restaurants, parking, and a library and 23 acres of water surface area. At total build out the project area will consist of 354 residential units (61 condominiums, 159 market rate apartments, 92 townhomes, and 42 single family homes), a 200-room hotel, 150,000 square feet of office space, a 15,000-square foot conference center, 21,000 square feet of restaurants, a parking structure, and a new library.

EBMUD Water Demand Projections

Since the 1970s, water demand within EBMUD's service area has ranged from 200 to 220 million gallons per day (mgd) in non-drought years. The 2040 water demand forecast of 312 mgd for EBMUD's service area can be reduced to 230 mgd with the successful implementation of water recycling and conservation programs, as outlined in the 2010 UWMP. Although current demand is lower than estimated in the Demand Study, as a result of the recent multi-year drought and the downturn in the economy, the Demand Study still reflects a reasonable expectation for growth over the long term for demand in year 2040. The City of San Leandro Shoreline Development Project will not change EBMUD's 2040 demand projection.

EBMUD Water Supply and Water Rights

EBMUD has water rights permits and licenses that allow for delivery of up to a maximum of 325 mgd from the Mokelumne River, subject to the availability of Mokelumne River runoff and the senior water rights of other users. EBMUD's position in the hierarchy of Mokelumne River water users is determined by a variety of agreements between Mokelumne River water right holders, and the terms of the appropriative water rights permits and licenses, which have been issued by the State, pre-1914 rights, and riparian rights.

Conditions that could, depending on hydrology, restrict EBMUD's ability to receive its full entitlement include:

- Upstream water use by prior right holders;
- Downstream water use by riparian and senior appropriators and other downstream obligations, including protection of public trust resources; and
- Variability in rainfall and runoff.

During prolonged droughts, the Mokelumne River supply cannot meet EBMUD's projected customer demands. To address this, EBMUD has completed construction of the Freeport Regional Water Facility and the Bayside Groundwater Facility, which are discussed below in the Supplemental Water Supply and Demand Management section of this assessment. EBMUD has obtained and continues to seek supplemental supplies.

EBMUD UWMP

The 2010 UWMP, adopted on June 28, 2011, by EBMUD's Board of Directors by Resolution No. 33832-11, is a long-range planning document used to assess current and projected water usage, water supply planning and conservation and recycling efforts. A summary of EBMUD's demand and supply projections, in 5-year increments for a 25-year planning horizon is provided in Table 4-3, EBMUD Demand and Supply Projections of the 2010 UWMP (Enclosure 3).

EBMUD's evaluation of water supply availability accounts for the diversions of both upstream and downstream water right holders and fishery releases on the Mokelumne River. Fishery releases are based on the requirements of a 1998 Joint Settlement Agreement (JSA) between EBMUD, United States (U.S.) Fish and Wildlife Service, and the California Department of Fish and Game. The JSA requires EBMUD to make minimum flow releases from its reservoirs to the lower Mokelumne River to protect and enhance the fishery resources and ecosystem of the river. As this water is released downriver, it is, therefore, not available for use by EBMUD's customers.

The available supply shown in the attached table (Enclosure 3) was derived from EBMUD's hydrologic model with the following assumptions:

- EBMUD Drought Planning Sequence is used for 1976, 1977 and 1978;
- Total system storage is depleted by the end of the third year of the drought;
- EBMUD will implement its Drought Management Program when necessary;
- The diversions by Amador and Calaveras Counties upstream of Pardee Reservoir will increase over time, eventually reaching the full extent of their senior rights;
- Releases are made to meet the requirements of senior downstream water right holders and fishery releases are made according to the JSA;
- Dry-year supply of Central Valley Project (CVP) water, through the Freeport Regional Water Facility, is available; and
- Bayside Groundwater Project, Phase 1, is available.

As discussed under the Drought Management Program section in Chapter 3 of the 2010 UWMP, EBMUD's system storage generally allows it to continue serving its customers during dry-year events. EBMUD imposes rationing based on the projected storage available at the end of September. By imposing rationing in the first dry year of potential drought periods, EBMUD attempts to minimize rationing in subsequent years if a drought persists while continuing to meet its current and subsequent-year fishery flow release requirements and obligations to downstream agencies. Table 3-2, Long-Term Drought Management Program Guidelines, in the 2010 UWMP summarizes the Drought Management Program guidelines for consumer water reduction goals based on projected system storage.

In Table 4-3, EBMUD Demand and Supply Projections (Enclosure 3), "Single Dry Water Year" (or Year 1 of "Multiple Dry Water Years") is determined to be a year that EBMUD would implement Drought Management Program elements at the "moderate" stage with the goal of achieving a reduction between 0 to 10 percent in customer demand. Year 2 of "Multiple Dry Years" is determined to be a year that EBMUD would implement Drought Management Program elements at the "severe" stage with the goal of achieving between 10 to 15 percent reduction in customer demand. Year 3 of "Multiple Dry Years" is a year in which EBMUD would implement Drought Management Program elements at the "critical" stage. Despite water savings from EBMUD's aggressive conservation and recycling programs and rationing of up to 15 percent, additional supplemental supplies beyond those provided through the Freeport Regional Water Facility and the Bayside Groundwater Facility will be needed during Years 2 and 3 of a three-year drought. Therefore, supplemental supplies are needed in multiple-year drought periods while continuing to meet the requirements of senior downstream water right holders and the provisions of the 1998 JSA.

Supplemental Water Supply and Demand Management

The goals of meeting projected water needs and increased water reliability rely on supplemental supplies, improving reliability of existing water supply facilities, water conservation and recycled water programs.

By 2011, EBMUD completed construction of the Freeport Regional Water Facility and the Bayside Groundwater Facility to augment its water supply during drought periods. However, additional supplemental supplies beyond those provided through these facilities will still be needed, as noted above. Chapter 2 of the 2010 UWMP describes potential supplemental water supply projects that could be implemented to meet projected long-term water demands during multi-year drought periods.

The Freeport Regional Water Facility became operational in February 2011. EBMUD's ability to take delivery of water through the Freeport facility is based on its Long Term Renewal Contract (LTRC) with the U.S. Bureau of Reclamation. The LTRC provides for up to 133,000 acre feet in a single dry-year, not to exceed a total of 165,000 acre feet in three consecutive dry years. Under

the LTRC, the CVP supply is available to EBMUD only in dry years when EBMUD's total stored water supply is forecast to be below 500,000 total acre feet on September 30 of each year.

Construction of the Bayside Groundwater Project, Phase 1, was completed in 2010. A permit from the Department of Public Health, which is pending, is required before the groundwater can be extracted and treated for municipal use. The project is designed to yield 2 mgd over a 6-month period, resulting in an average annual production capacity of 1 mgd per year.

Chapter 2 of the 2010 UWMP also lists other potential supplemental water projects, including northern California water transfers, Bayside Groundwater Project Expansion, Los Vaqueros Expansion and others that could be implemented as necessary to meet the projected long-term water supplemental need during multi-year drought periods. The 2010 UWMP identifies a broad mix of projects, with inherent scalability and the ability to adjust implementation schedules for a particular component, so that EBMUD will be able to continue to pursue the additional supplemental supplies that are projected to be necessary, while also minimizing the risks associated with future uncertainties such as project implementation challenges and global climate change. The Environmental Impact Report that EBMUD certified for the Water Supply Management Program 2040 examined the impacts of pursuing these supplemental supply projects at a program level. Separate project-level environmental documentation will be prepared, as appropriate, for specific components as they are developed in further detail and implemented in accordance with EBMUD's water supply needs.

In addition to pursuing supplemental water supply sources, EBMUD also maximizes resources through continuous improvements in the delivery and transmission of available water supplies, and investments in ensuring the safety of its existing water supply facilities. These programs, along with emergency interties and planned water recycling and conservation efforts, would ensure a reliable water supply to meet projected demands for current and future EBMUD customers within the current service area.

The project area may present opportunities to incorporate water conservation measures. EBMUD requests that the City include in its conditions of approval a requirement that the project sponsors comply with the California Model Water Efficient Landscape Ordinance (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495). EBMUD staff would appreciate the opportunity to meet with the project sponsor to discuss water conservation programs and best management practices applicable to the integrated projects. A key objective of this discussion will be to explore timely opportunities to expand water conservation via early consideration of EBMUD's conservation programs and best management practices applicable to the project.

The City of San Leandro Shoreline Development Project is located within EBMUD's San Leandro recycled water pipeline serving Alameda's marina and golf courses. As part of the long-term water supply planning, EBMUD will consider the feasibility of providing recycled water to the project area for appropriate uses including landscape irrigation, commercial and industrial

process uses, as well as toilet and urinal flushing in non-residential buildings. EBMUD recommends that the City and their developers maintain continued coordination and consultation with EBMUD as they plan and implement the various projects as identified within the City of San Leandro Shoreline Development Project regarding the feasibility of providing recycled water for appropriate non-potable uses.

The project sponsor should contact David J. Rehnstrom, Senior Civil Engineer, at (510) 287-1365 for further information.

Sincerely,

William R. Kirkpatrick
Manager of Water Distribution Planning Division

WRK:KAE:sb
sb14_091a.docx

Enclosures: 1. Letter of Request for Water Supply Assessment dated April 16, 2014
2. EBMUD 2010 Urban Water Management Plan
3. EBMUD Demand and Supply Projections Table

cc: Board of Directors w/o Enclosure 2

Enclosure 1

City of San Leandro
Civic Center, 835 E. 14th Street
San Leandro, California 94577
www.sanleandro.org

April 16, 2014

David J. Rehnstrom
East Bay Municipal Utility District
Water Distribution Planning Division
375 Eleventh Street, MS#701
Oakland, CA 94607

RE: City of San Leandro Shoreline Development Project
Request for Water Consultation and Review of Water Supply Assessment

Dear Mr. Rehnstrom,

This letter serves as a request from the City of San Leandro to EBMUD for a review of water demand for the subject redevelopment plan, and an assessment of the supply of EBMUD water available to serve the proposed redevelopment. This letter replaces our March 6, 2014 letter and provides EBMUD with expected annual water usage and other revisions requested on April 1, 2014. The City is preparing an environmental impact report (EIR) in accordance with the requirements of the California Environmental Quality Act (CEQA, Public Resources Code [PRC] Section 21000 et seq) and the CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq). This request to EBMUD is made pursuant to Section 15155 of CEQA Guidelines, which requires consultation with the relevant water agency for actions of a certain magnitude.

Project Location and Setting
As shown on Figures 1 and 2, the proposed Project is located in the City of San Leandro, in the San Leandro Shoreline Area. The San Leandro Shoreline Area encompasses approximately 1,800 acres of City-owned land situated on the eastern shore of the San Francisco Bay at the western end of Marina Boulevard, commonly referred to as the Shoreline Recreational Area. The proposed development site, totaling roughly 52 acres of land, plus a water surface area of approximately 23 acres, is the area generally west of Monarch Bay Drive between Marina Boulevard and Fairway Drive. This area consists of the two peninsulas encircling the boat harbor; the existing commercial and recreational facilities adjacent to the boat harbor; portions of the Marina nine-hole executive golf course; and the site of the existing Mulford Branch Library on the parcel at the corner of Aurora and Fairway Drives.

The Shoreline Recreational Area includes three existing commercial enterprises and one demolished restaurant/banquet facility. These include the 131-room Marina Inn opened in 1985; Horatio's Restaurant completed in 1978; and an El Torito Restaurant, which originally opened as part of the Tia Maria chain in 1970. The foundation and deck piers of the former Blue Dolphin

Restaurant remain on-site. Boating facilities currently include a 466-slip public harbor with a separate boat launch and support operations, and two private yacht clubs. Due to physical constraints caused by build-up of silt both in the harbor and the federal channel, occupancy of the harbor currently stands at approximately 30 percent.

Project Description

The San Leandro Shoreline Development Project is proposed as an integrated master planned development and a public/private partnership with the City on 52 acres of the City-owned marina.

As shown on Figure 3, the proposed components of the Project include:

- 150,000-square-foot office campus
- 200 room hotel
- 15,000-square-foot conference center
- 354 housing units:
  - 220 Flats (61 condominiums & 159 market rate apartments)
  - 92 Townhomes
  - 42 Single-family detached homes
- 3 new restaurants (totaling 21,000 square feet):
  - Restaurant at the end of Mulford Point: 8,000 square feet
  - Restaurant adjacent to hotel: 5,000 square feet
  - Café and Boat rental south of Horatio's: 8,000 square feet
- New Library/Community Building on the site of the current Mulford Branch Library
- Parking structure (approximately 800 parking spaces)

The Project would require removal of the following structures and features within the Project area:

- Wood and concrete docks and associated piers, including Blue Dolphin Restaurant platform
- Existing El Torito Restaurant building
- Existing Mulford Branch Library building
- Golf course concessions stands
- 466-slip harbor
- Harbor master's office and fuel pump/dock
- Public/private restrooms 'A', 'E/F', and 'N/O'
- San Leandro Yacht Club building

Horatio's Restaurant and the Marina Inn will remain. The Spinnaker Yacht Club building has been identified as the location for the Aquatic Center. The building may be repurposed or replaced.

Water Supply Assessment

It is our understanding that the current EBMUD water demand protocol is based on land use types and development intensities. Attachment A is an analysis of existing and future water

demand for the redevelopment site prepared by BKF Engineers. We request that EBMUD review the assessment and determine whether the existing infrastructure has sufficient capacity to provide the additional water demand imposed by this project. To summarize, it is estimated that the average water use of the proposed development as approximately 130,400 gallons per day (gpd). The existing water usage at the site is estimated to be 14,600 gpd. The net increase in water demand after completion of all phases of the proposed development is approximately 115,800 gpd (130,400 - 14,600). Sources for the different water uses by type of development are included for your reference.

Marina Inn, Horatio Restaurant and the existing golf course are not included in the estimates for both proposed development and existing conditions since we understand that EBMUD will supply the actual water usage from meter records. The existing Spinnaker Yacht Club, located within the proposed development, is also excluded from the estimates due to its change of use.

The City of San Leandro would appreciate EBMUD's attention to this request. Should you have questions, or require additional information, please do not hesitate to contact me or our EIR consultant, Jerome de Verrier (510-835-9886).

Thank you.

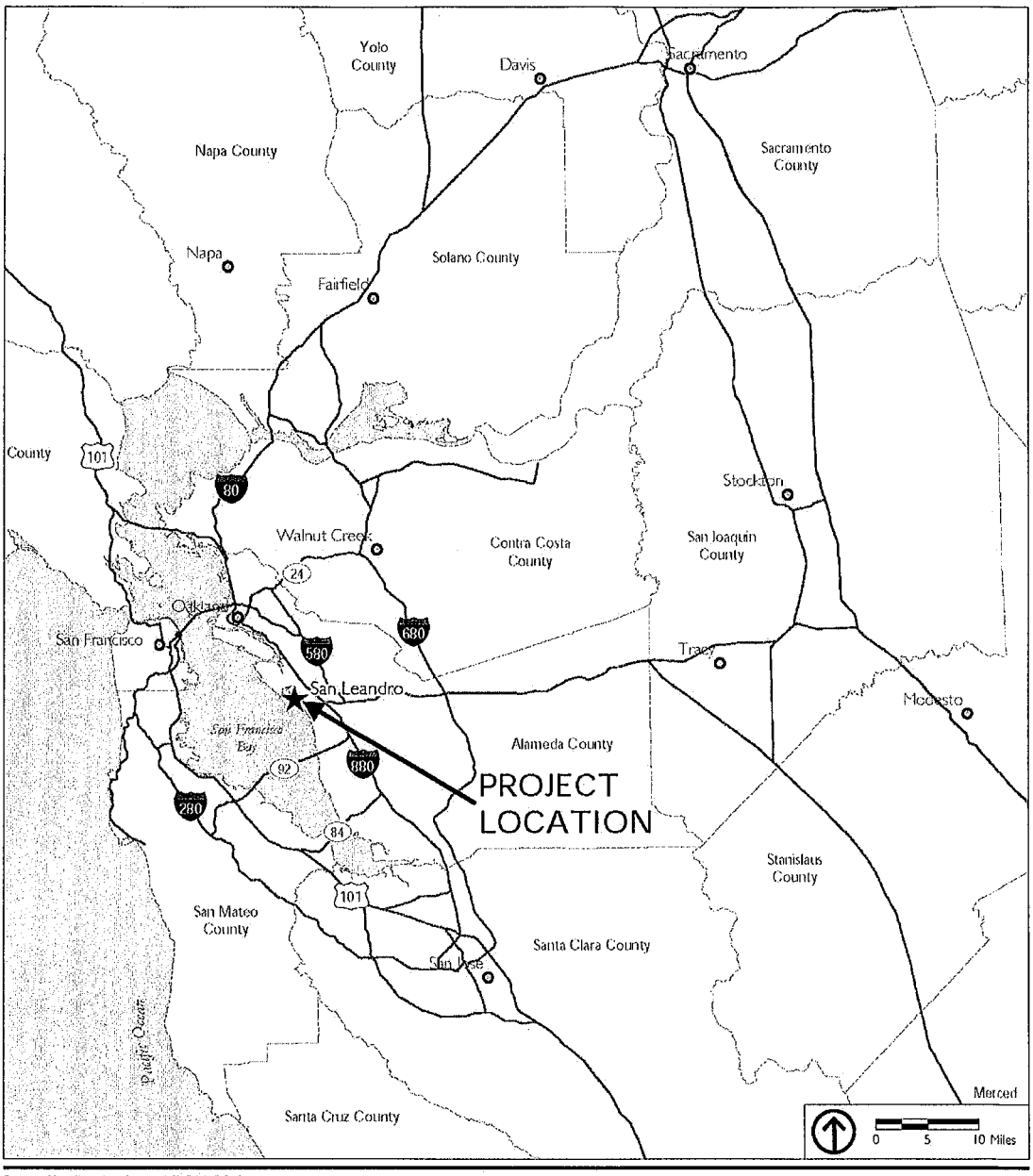
Sincerely,

Sally Barros, AICP, LEED® AP
Principal Planner, Community Development Department

Attachments: Figure 1 – Regional Location
Figure 2 – Local Context
Figure 3 – Conceptual Master Plan
Attachment A – Water Usage Calculations and Source Material

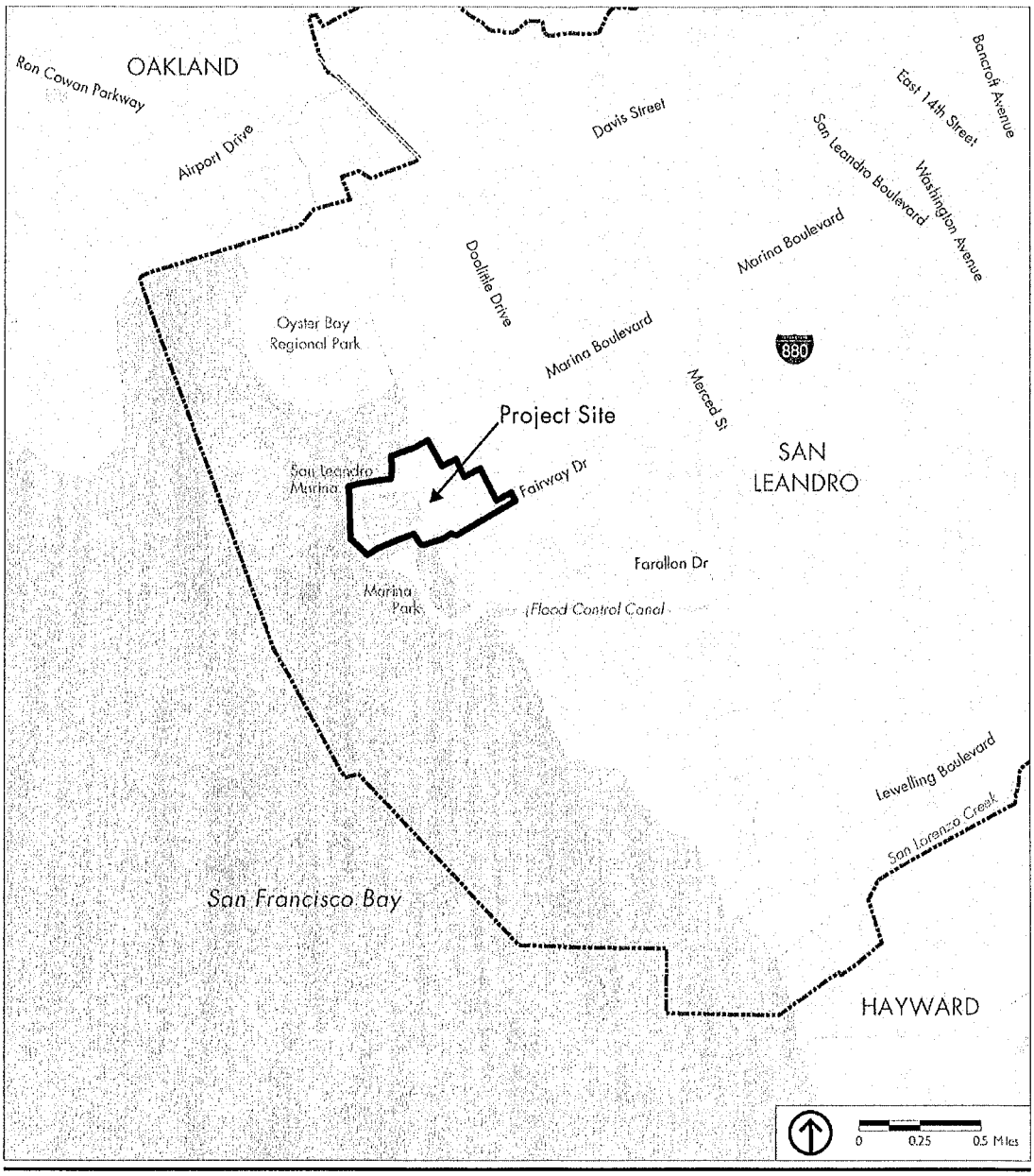
Cc: Debbie Pollart, City of San Leandro Public Works Director
Richard Pio Roda, City Attorney
Edward Miller, Cal Coast Companies, Developer
Kyle Simpson, Placeworks, Consulting EIR Manager
Jerome de Verrier, TranSystems, EIR consultant

FIGURES



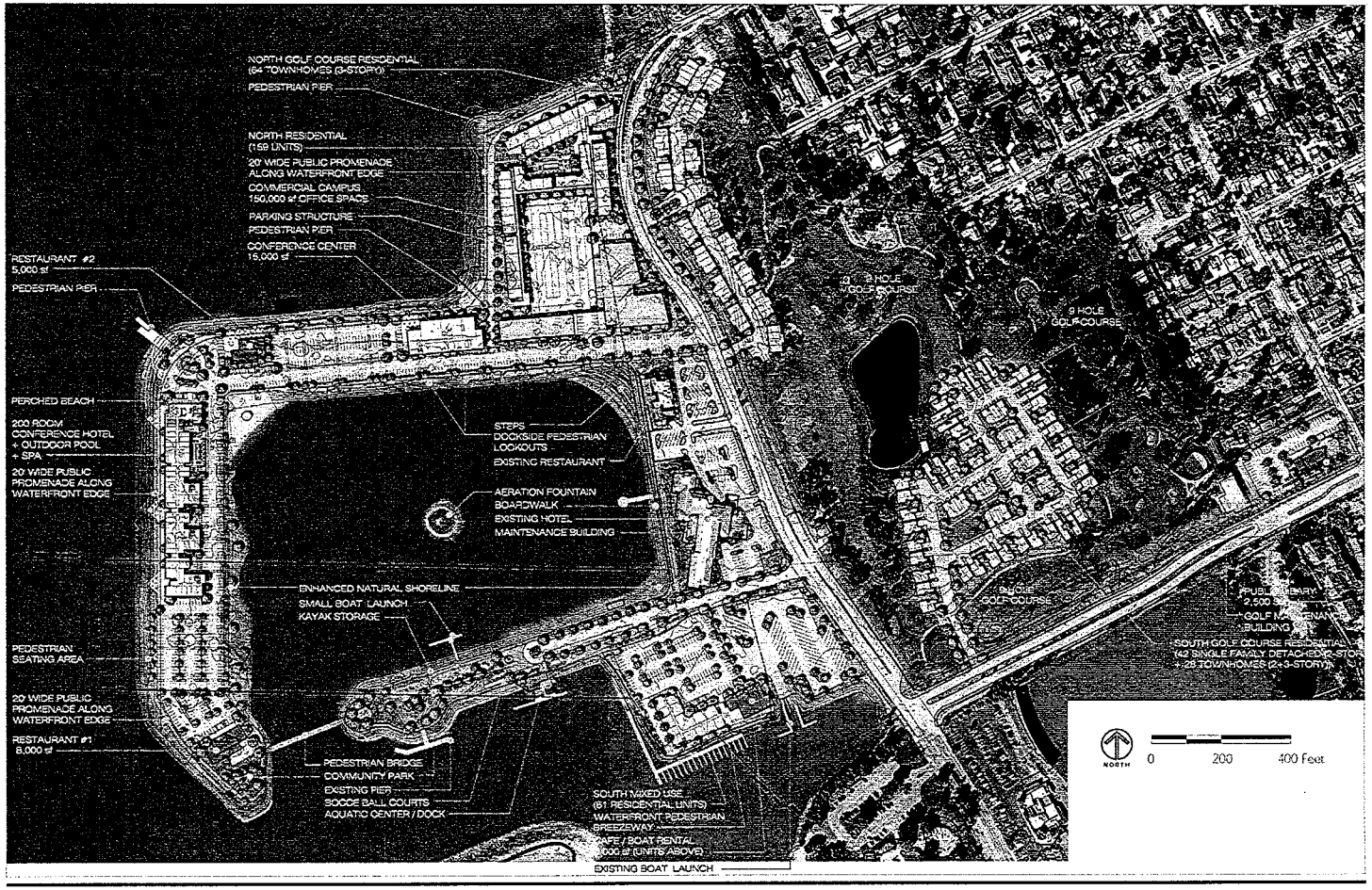
Source: The Planning Center | DC&E, 2013

FIGURE 1
REGIONAL LOCATION



Source: The Planning Center | DC&E, 2013

FIGURE 2
LOCAL CONTEXT



Source: Cal Coast Companies, LLC, 2013.

FIGURE 3

CONCEPTUAL MASTER PLAN

ATTACHMENT A

WATER USAGE ANALYSIS

BKF ENGINEERS
1650 Technology Drive, Ste 650
San Jose, CA. 95110

WATER USAGE
SAN LEANDRO SHORELINE DEVELOPMENT
(MONARCH BAY)

Job No. 20136048-10
4/11/2014

PROPOSED DEVELOPMENT WATER USAGE

Type	Quantity	Unit	*Average Water Demand (gpd/unit)	Average Daily Water Demand (gpd)	Notes
PHASE 1					
Hotel	102,550	SF	0.26	26,663	200-room hotel; Excludes existing Marina Inn
Retail/Sales	8,000	SF	0.22	1,760	Retail/marine sales and services
Office	100,000	SF	0.09	9,000	150,000 SF total from all phases
Conference Center	2,857	Person	3	8,571	Conference Center (15,000 SF) + Hotel conf/lobby (5,000 SF)
Public Library	46	Person	3	138	Assume same flow characteristic as conference center; 2,500 SF
Restaurants	519	SEAT	24.2	12,548	Rest. #1 (8,000 SF) + Rest. #2 (5,000 SF) + Café (8,000 SF)= 21,000 SF total; excludes existing Horatio Restaurant
Residental:					
Flats	220	UNIT	165	36,300	159 multifamily + 61 condos; Assume 3.3 persons/du
			SUBTOTAL	94,981	
PHASE 2					
Residental:					
Townhomes	92	UNIT	231	21,252	Assume 3.3 persons/du
Single Family	42	UNIT	231	9,702	Assume 3.3 persons/du
			SUBTOTAL	30,954	
PHASE 3					
Office	50,000	SF	0.09	4,500	The balance of Phase 1 Office
			SUBTOTAL	4,500	
			TOTAL	**130,400**	

Note
* Flowrate factors are based on reference materials as provided by EBMUD (see attachment).

Conversions
Restaurants: 20.25 SF/seat (9ft x 9ft seating for 4 seats = 81 SF/4 seats); 50% is seating area
Conf. Center: 1 person/7 SF
Library: 1 person/54 SF
Clubhouses: 1 person/50 SF

BKF ENGINEERS
1650 Technology Drive, Ste 650
San Jose, CA. 95110

WATER USAGE
SAN LEANDRO SHORELINE DEVELOPMENT
(MONARCH BAY)

Job No. 20136048-10
4/11/2014

EXISTING DEVELOPMENT WATER USAGE

Type	Quantity	Unit	*Average Water Demand (gpd/unit)	Average Daily Water Demand (gpd)	Notes
Office	4150	SF	0.09	374	Harbor Master & Comcast
Restaurants	556	Seat	24.2	13,444	El Torito & Blue Dolphin (42,570 SF); Horatio to remain (excluded)
Public Library	37	Person	3	111	Assume same flow characteristic as conference center; 2,000 SF
Yacht Club	32	Person	10.5	336	San Leandro Yacht Club (1,600 SF); Spinnaker Yacht Club to remain (excluded)
Public Bathrooms	60	Person	5	300	Rough estimate
			TOTAL	**14,600**	

NET INCREASE = 130,400 - 14,600 = 115,800 gpd

Note
* Flowrate factors are based on reference materials as provided by EBMUD (see attachment).

Conversions
Restaurants: 20.25 SF/seat (9ft x 9ft seating for 4 seats = 81 SF/4 seats); 50% is seating area
Conf. Center: 1 person/7 SF
Library: 1 person/54 SF
Clubhouses: 1 person/50 SF

Enclosure 3

EAST BAY MUNICIPAL UTILITY DISTRICT DEMAND AND SUPPLY PROJECTION
(Reference: Table 4-3, UWMP 2010 – EBMUD)

	2010	2015	2020	2025	2030	2035[1]	2040
PROJECTED DEMAND (MGD)							
CUSTOMER DEMAND [2]	251	266	280	291	304	308	312
ADJUSTED FOR CUMULATIVE CONSERVATION [3]	(26)	(32)	(43)	(49)	(56)	(59)	(62)
ADJUSTED FOR RECYCLED WATER [4]	(9)	(11)	(16)	(18)	(19)	(20)	(20)
PLANNING LEVEL OF DEMAND	216	223	221	224	229	229	230
PROJECTED AVAILABLE SUPPLY AND NEED FOR SUPPLEMENTAL SUPPLY (MGD)[5]							
NORMAL YEAR	>216	>223	>221	>224	>229	>229	>230
SUPPLEMENTAL SUPPLY NEED	0	0	0	0	0	0	0
SINGLE DRY YEAR (MULTIPLE DRY YEARS – YEAR 1)							
AVAILABLE SUPPLY	211	217	215	218	223	222	222
CUSTOMER RATIONING [6]	2%	3%	3%	3%	3%	3%	4%
SUPPLEMENTAL SUPPLY NEED [7]	5	6	6	7	7	8	8
MULTIPLE DRY YEARS – YEAR 2							
AVAILABLE SUPPLY	183	189	188	190	194	194	195
CUSTOMER RATIONING [6]	15%	15%	15%	15%	15%	15%	15%
SUPPLEMENTAL SUPPLY NEED [7]	21	21	21	21	22	22	22
MULTIPLE DRY YEARS – YEAR 3							
AVAILABLE SUPPLY	183	189	188	190	183	164	144
CUSTOMER RATIONING [6]	15%	15%	15%	15%	15%	15%	15%
SUPPLEMENTAL SUPPLY NEED [7]	21	21	21	21	33	53	73
THREE-YEAR DROUGHT							
TOTAL SUPPLEMENTAL SUPPLY NEED (TAF)[7]	53	54	54	55	69	93	115

[1] Projected demand for 2035 is interpolated.

[2] Customer demand values are based on the demand projections from the "2040 Demand Study," Feb 2009. These projected water demands are based on land use in EBMUD's ultimate service area and is unadjusted for conservation and non-potable water. The values are also unadjusted for the current suppressed demand due to the 2007-2010 rationing period and the economic downturn.

[3] Existing conservation saving from the "1994 Water Conservation Master Plan" and planned conservation program savings based on the "2011 Water Conservation Master Plan".

[4] Existing recycled water achieved per the "1993 Water Supply Management Program" and planned recycled water program savings as outlined in Chapter 5 of the UWMP 2010.

[5] Projected available supply data includes dry year supply deliveries from the Freeport Regional Water Project (FRWP) and Bayside Groundwater Project, Phase 1. Delivery rules for the FRWP follow the rules as developed in the Freeport EIR, 2003.

[6] Rationing reduction goals are determined according to projected system storage levels in the Long-Term Drought Management Program guidelines per Table 3-2 in Chapter 3 of the UWMP 2010.

[7] The supplemental supply need is based on EBMUDSIM modeling studies. It is the amount of water needed based on EBMUD's updated demand projections, the provisions of the 1998 Joint Settlement Agreement and the rationing policy stated in Table 3-2, Chapter 3 of the UWMP 2010. The actual need will be dependent on antecedent conditions and the severity of actual drought conditions. Supplemental supply stored during the initial year of the drought could be later released, diminishing supplemental supply needs. During the drought that continued into 2010, the combined effects of water rationing and an economic downturn suppressed demand below the planning level of demand to maintain a sufficient water supply and deferred the need for supplemental water. However, if the drought had continued into its second year, most likely supplemental supplies would have been obtained from the Freeport Regional Water Facility as anticipated in the Interim Drought Management Program Guidelines discussed in Appendix G-2.