
Appendix J City of Lake Forest Utility Report

UTILITY REPORT



CITY OF LAKE FOREST

Lake Forest, CA

Prepared for:

CITY OF LAKE FOREST

25550 Commercentre Drive
Lake Forest, CA 92630

Project Manager:

John Olivier

Date Prepared: March 2005

JN: 698.01.01



Prepared by:

16795 Von Karman Avenue, Suite 100
Irvine, CA 92606
(949) 474-1960
www.fuscoe.com

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1.0 PROJECT DESCRIPTION

The proposed project site is located on thirteen vacant properties, north and south of the Foothill Transportation Corridor and adjacent to the former MCAS El Toro in the City of Lake Forest. Six of the thirteen properties approximately 793 acres are participating in the proposed project with three additional properties as potential public facilities overlays. The nine properties total approximately 964 acres.

2.0 EXISTING SEWER

2.1 EXISTING WATER SYSTEM

The existing sewer service for the project area is divided into two providers. The majority of the sanitary sewer service is provided by Irvine Ranch Water District a local governmental body. Santa Margarita Water District provides sanitary sewer service to Portola Center (site 2) approximately 243 acres. Portola Center (site 2) is located west of El Toro Road off Glenn Ranch Road. In the future, Irvine Ranch Water District (IRWD) could have an agreement with Santa Margarita Water District to redirect the sewer flow to IRWD per Malcolm Cortez. The existing sewer system within the project area includes two lift stations and a Filtration Plant. The first station, Borrego Canyon Lift Station is located at Town Centre and Pasatiempo. The second, LS11 Portola Hills Lift Station located north of Portola Parkway off Glenn Ranch Road flows to Santa Margarita Water District. The Baker Filtration Plant, 3.4 million gallon capacity is located south of Indian Ocean Drive. (For reference see the Existing Sewer Plan – Figure 1)

The following existing sewer table describes the sewer mains available to each site.

EXISTING SEWER

TABLE 1

SITE	DESCRIPTION
1	15" / 21" sewer main Bake Parkway 8" & 12" sewer stub at the end of Alton Parkway
2	10" S Force Main, 15" / 12" Sewer main with 8" stub in Glenn Ranch Road
3	8" sewer in Access Road (west), 8" Sewer stub in Indian Ocean Drive, 8" sewer stub in Commerce Centre Drive
4	8" sewer stub and 10" Sewer stub to the site in Portola Parkway, 8" sewer stub in Rancho Parkway, 8" sewer stub north of site off Portola Parkway and Glenn Ranch Road intersection.
5	8" sewer in both Regency Lane and Osterman Road and 15" sewer easement on the west side of the property.
6	8" sewer stub in Peach Wood.
7	15" sewer main in Bake Parkway and 15" sewer main in Lake Forest Drive, 8" sewer in Rancho Parkway.
8	10" sewer stub to the site of off Portola Parkway, 12" sewer main in Portola Parkway, 10" sewer main in Access Road.
9	8" sewer in Vista Terrance

10	Two 8" sewer stubs in Regency Lane
11	Two 8" sewer stubs in Regency Lane
12	Two 8" sewer line in Lake Forest Drive
13	8" sewer and 8" force main in Town Centre Drive

2.2 EXISTING SEWER DEMAND

Fusco Engineering prepared an existing versus proposed sewer demand for each site. The existing sewer demand calculations are based on the existing allowable development presented in the City of Lake Forest – Project Description – section 2.4.1 – Table 2-1 and the IRWD generation factors. The proposed sewer demand is based on the City of Lake Forest – Project Description – Table 2-5 and the IRWD generation factors. In order to analyze the sewer capacity of the existing system a Sub- Area Master Plan will have to be prepared by IRWD.

The total existing sewer demand – peak flow for the proposed project is 2.7cfs and for the overlay is 1.14cfs. The following tables 2 & 3 will describe the existing sewer demand for each site and overlay.

EXISTING SEWER DEMAND
TABLE 2

SITE	LAND USE	UNITS	GPD/UNITS	AVERAGE DAILY FLOW		PEAK* DAILY FLOW
				GPD	CFS	
1	BP	4,315,000 SF	56	241,600	.38	1.14
2	BP	2,271,654	56	127,200	.20	.60
	C	544,500	209	113,800	.20	.60
3	PF	0	180	-	-	-
	LI	0	56	-	-	-
4	C	300,000	209	62,700	.10	.30
5	P.O.	283,140	56	15,900	.02	.06
6	OPEN SPACE	-	-	-	-	-
TOTAL					0.9 CFS	2.7 CFS

EXISTING SEWER DEMAND OVERLAY
TABLE 3

SITE	LAND USE	UNITS	GPD/UNITS	AVERAGE DAILY FLOW		PEAK* DAILY FLOW
				GPD	CFS	
7	BP	2,500,00	56	140,000	0.2	0.6
8	C	491,500	209	102,720	0.16	0.48
9	BP	165,000	56	9,240	0.02	0.06
TOTAL					0.38 CFS	1.14 CFS

*NON RESIDENCE PEAK FLOW = 3.0 X AVERAGE FLOW

NOTE:

BP=BUSINESS PARK
 C=COMMERCIAL
 PF=PUBLIC FACILITY
 LI=LIGHT INDUSTRIAL
 PO=PROFESSIONAL OFFICE
 OS=OPEN SPACE

2.3 PROPOSED SEWER DEMAND

The IRWD total proposed sewer demand – peak flow for the proposed project is 4.0cfs, SMWD total proposed sewer demand – peak flow for site 2 is 1.2cfs and the overlay ranges from .21cfs to 2.1cfs. The following tables 4, 5 & 6 will defined the proposed sewer demand for each site and overlay.

**PROPOSED SEWER DEMAND
 TABLE 4**

SITE	LAND USE	UNITS	DUTY FACTOR GPD/UNIT	AVERAGE DAILY		PEAK* DAILY CFS
				GPD	CFS	
1	L-MDR	2,815 DU	215	605,200	.94	2.35
	PARK (25.9 AC)	26 AC	-	-	-	-
	COMMERCIAL	320,000 SF	209 / 1000 SF	66,900	.10	.30
2	L-DR	1,132 DU	223	254,700	.39	.98
	PARK	10 AC	-	-	-	-
	COMMERCIAL	178,720 SF	209/1000 SF	37,400	.06	.18
3	MDR	833 DU	200	166,600	.26	.65
	PARK	11 AC	-	-	-	-
4	MDR	475 DU	200	95,000	.15	.38
	COMMERCIAL	150,000 SF	209/1000 SF	31,400	.05	.15
	PARK	4 AC	-	-	-	-
5	L-MDR	75 DU	215	16,125	.03	.08
6	L-DR	85 DU	225	19,100	.03	.08
TOTAL					2.0 CFS	5.2 CFS

*NON RESIDENCE PEAK FLOW = 3.0 X AVERAGE FLOW

*Residence peak flow = 2.5 X average flow

NOTE:

L-MD=LOW-MEDIUM DENSITY RESIDENTIAL (6-9DU/AC)
 LDR=LOW DENSITY RESIDENTIAL (5-7DU/AC)
 MDR=MEDIUM DENSITY RESIDENTIAL (10-23DU/AC)

**SEWER DEMAND OVERLAY
TABLE 5**

OVER LAY	SITES	LAND USE	UNITS	GPD/UNIT	AVERAGE DAILY FLOW		PEAK DAILY FLOW CFS
					GPD	CFS	
1	1	MDR	2,470 DU	200	481,400	.75	1.9
		CF	45 AC	900	40,500	.06	.18
2	3	MDR	833 DU	200	166,600	.26	.65
		CF	6 AC	900	5,400	.01	.03
3	4	CF	45 AC	900	40,500	.06	.18
		C	150,000 SF	209/1000 SF	31,400	.05	.15
4	7	MDR	450 DU	200	90,000	.14	.35
		CF	45 AC	900	40,500	.06	.18
5	4 + 8	CF	45 AC	900	40,500	.06	.18
		MDR	300	200	76,000	.12	.36
6	4 + 9	CF	45 AC	900	40,500	.06	.18
		C	150,000 SF	209/1000 SF	31,400	.05	.15

NOTE:

MDR – MEDIUM DENSITY RESIDENTIAL (10/23 DU/AC)

CF – COMMUNITY FACILITIES

C – COMMERCIAL

**SEWER CAPACITY –OVERLAY SUMMARY
TABLE 6**

OVERLAY	AVERAGE DAILY FLOW	PEAK DAILY FLOW
1	.81 CFS	2.1 CFS
2	.27 CFS	.68 CFS
3	.11 CFS	.21 CFS
4	.20 CFS	.53 CFS
5	.23 CFS	.69 CFS
6	.11 CFS	.33 CFS

2.4 SUMMARY

Each site has an existing sewer main either thru the site or in an adjacent street available for development. The IRWD total existing sewer demand for the allowable development (except site 2) is 1.5cfs and the proposed project (except site 2) is 4.0cfs. The proposed project (except site 2) sewer demand increases 2.5cfs for IRWD. In order to analyze the capacity for the existing IRWD sewer system within the proposed project a detailed sewer capacity study will be needed. The Santa Margarita Water District (SMWD) total existing sewer demand for the allowable development -site 2 is 1.2cfs and the proposed project - site 2 is 1.2cfs. The sewer demand for site 2 will not increase for SMWD.

3.0 DOMESTIC WATER

3.1 EXISTING WATER SYSTEM

The Irvine Ranch Water District (IRWD) is the local governmental body responsible for providing domestic water service to the City of Lake Forest Proposed Project. IRWD existing water system is well developed with several reservoirs, booster stations and three emergency ties, two to Santa Margarita Water District and one to Los Alisos Water District. There are approximately six reservoirs within the project area. The following is a list of reservoirs:

No.	Size	Zone	Location
R4	5MG	3	North of Alton & East of Irvine Blvd.
R5	2.5 MG	4	South of Alton& West of Commercenter Drive
R6	--	6	End of Touraine Place
R7	2.0 MG	6A	End of Tessera Avenue
R13	7 MG	3	North of Alton & East of Irvine Blvd.
--	7.5 MG	2	South of Portola and west of El Toro Road

The existing water system includes seven booster pump stations. The pump stations are located in Zone 6 (B8), Portola Hill- Zone 8 (B17), three at Glenn Ranch (P51,P52,P53), Zone 6A (B7) and East Irvine – Zone 4 (B9). (For reference - See the Existing Water Plan)

The following table describes the existing water main available to each site.

EXISTING WATER MAINS

TABLE 7

SITE	DESCRIPTION
1	12" main in Alton Parkway, 24" water main in bake parkway, 18" water main along east property line.
2	10" water and 12" water mains in Glen Ranch Road
3	Tow 12" water stubs in Indian Ocean Drive and 17" water main along the south property line.
4	16" water stubs in Portola Parkway and Rancho Parkway and 8" water stub in Vista Terrance.
5	15" water and 12" water main in both Regency Lane and Osterman Road along with additional 12" water main in Regency Lane.
6	8" water sub in Peach Wood.
7	12" and 16" water main in Ranchso Parkway 24" water main in Bake Parkway, and 12" water main thru the south end of the property.
8	16" water stub in Portola Parkway and 12" water main in the Access Road.
9	8" water main in Vista Terrance
10	Two 12" water main and one 16" water main in the Regency Lane
11	Two 12" water main and one 16" water main in Regency Lane
12	12" water main in Lake Forest Drive.
13	12" water main in Town Centre Drive and Alton Parkway

3.2 EXISTING WATER DEMAND

Fusco Engineering prepared a preliminary existing verses proposed water demand for each site and overlay. The existing water demand calculations are based on the existing allowable development presented in the City of Lake Forest – Project Description – section 2.4.1 – Table 2-1 and the IRWD generation factors.

The total existing water demand – Average Daily flow for the existing allowable development is 416 gallons per minute(GPM). The total existing water demand for the Overlays is 186gpm. The following tables 8 & 9 will defined the existing water demand for each site and overlay.

EXISTING WATER DEMAND

TABLE 8

SITE	LAND USE	UNITS	AVERAGE DAY DEMAND		AVG. DAILY GPM
			GPD/UNIT	GPD	
1	BP	4,315,000	60	258,900	180
2	BP	2,271,654	60	136,300	95
	C	544,500	220	119,790	83
3	PF	-	60	-	-
	LI	-	60	-	-
4	C	300,000	220	66,000	46
5	PO	283,140	60	17,000	12
6	OS	-	-	-	-
TOTAL					416 GPM

EXISTING WATER DEMAND - OVERLAY

TABLE 9

SITE	LANDUSE	UNITS	AVERAGE DAY DEMAND		GPM
			GPD/UNIT	GPD	
7	BP	2,500,000	60	150,000	104
8	C	491,500	220	108,100	75
9	BP	165,000	60	9,900	6.7
TOTAL					186 GPM

NOTE:

BP=BUSINESS PARK

C=COMMERCIAL

PF=PUBLIC FACILITY

LI=LIGHT INDUSTRIAL

PO=PROFESSIONAL OFFICE

OS=OPEN SPACE

3.3 PROPOSED WATER DEMAND

The proposed water demand calculations are based on the proposed project presented in the City of Lake Forest – Project Description– Table 2-5 and the IRWD generation factors. The total proposed water demand for the project is 1414gpm. The proposed water demand for the overlays

ranges from 39gpm to 534gpm. The following tables 10, 11 & 12 will defined the proposed water demands for each site and overlay.

PROPOSED WATER DEMAND
TABLE 10

SITE	LANDUSE	UNITS	AVERAGE DAY DEMAND		GPM
			GPD/UNIT	GPD	
1	L-MDR	2815	350	985,250	684
	C	320,000	220	70,400	49
	PARK	26 AC	20	520	.36
2	L-DR	1132	385	435,820	303
	C	178,720	220	39,320	27
	PARK	10 AC	20	200	.14
3	MDR	833	310	258,230	180
	PARK	11 AC	20	220	.15
4	MDR	475	310	147,250	102
	C	150,000	220	33,000	23
	PARK	4 AC	20	80	.06
5	L-MDR	75	385	28,895	20
6	L-DR	85	405	34,430	24
TOTAL					1414 GPM

PROPOSED WATER DEMAND OVERLAY
TABLE 11

OVERLAY	SITES	LAND USE	UNITS	GPD/UNIT	AVG. DAILY GPD	AVG. DAILY GPM
1	1	MDR	2407 DU	310	746,170	518
		CF	45 AC	500	22,500	16
2	3	MDR	833 DU	310	258,230	179
		CF	6 AC	500	3000	2
3	4	CF	45 AC	500	22,500	16
		C	150,000 SF	220 / 1000 SF	33,000	23
4	7	MDR	450 DU	310	139,500	97
		CF	45 AC	500	22,500	16
5	4 + 8	CF	45 AC	500	22,500	16
		MDR	380 CONDO	310	117,800	82
6	4 + 9	C	150,000 SF	200 / 1000 SF	33,000	23
		CF	45 AC	500	22,500	16
		C	150,000 SF	220 / 1000 SF	33,000	23

PROPOSED WATER DEMAND - OVERLAY SUMMARY
TABLE 12

OVERLAY	AVERAGE DAILY GPD	AVERAGE DAILY GPM
1	768,670	534
2	261,230	181
3	55,500	39
4	162,000	113
5	173,300	121
6	55,500	39

NOTE:

GPD = GALLONS PER DAY
 GPM – GALLON PER MINUTE

3.4 SUMMARY

Each site has an existing water main either thru the site or in an adjacent street available for development. The total existing water demand is 416gpm and the proposed is 1414gpm. The water demand for the proposed project will increase by approximately 998gpm. In the Irvine Ranch Water District Assessment of Water Supply dated Jan. 24, 2005, IRWD has indicated there is sufficient water supply available for the proposed project. The total water supplies available to IRWD during normal, single-dry and multiple-dry years within 20-year projection will meet the projected water demand of the City of Lake Forest proposed project in addition to the demand of existing and other planned future uses, including, but not limited to, agricultural and manufacturing uses.

4.0 RECLAIMED / IRRIGATION WATER

4.1 RECLAIMED / IRRIGATION WATER MAINS

The Irvine Ranch Water District (IRWD) is the local governmental body responsible for providing reclaimed/irrigation water to the City of Lake Forest Proposed Project. IRWD existing reclaimed/irrigation water system is well developed with four reservoirs. Two reservoirs – Zone 2 Phase IV (7.8 & 7.0 MG) are located south of Rancho Parkway and west of Bake Parkway. Reservoir D-1091 is located south of Vista Terrance and east of Lake Forest Drive and a small reservoir located on Saddleback Valley Community Church property. (For reference see Existing Reclaimed/Irrigation Water Plan)

The following table describes the existing reclaimed/irrigation water mains for each site and overlay.

EXISTING RECLAIMED / IRRIGATION WATER

TABLE 13

SITE	DESCRIPTION
1	12" reclaimed water main at the east property, 12" reclaimed water main in Bake Parkway, and 12" reclaimed water stub at Bake Parkway and Dimension Drive.
2	None
3	18" reclaimed water main along the east property line.
4	8" reclaimed water stub in Rancho Parkway, 16" reclaimed water main at the corner of Portola Parkway and Access Road.
5	12" reclaimed water main in Regency Lane, 8" reclaimed water main in Osterman Road.
6	None
7	12" reclaimed water main running west to east along the south end of the property.
8	16" reclaimed water main at corner of Portola Parkway and Access Road.
9	8" reclaimed water stub in Rancho Parkway
10	12" / 16" reclaimed water main thru the site
11	12" reclaimed water main off Regency Lane
12	12" reclaimed water main in Lake Forest Drive
13	None

4.2 EXISTING RECLAIMED / IRRIGATION WATER DEMANDS

Fuscoe Engineering prepared a preliminary existing verses proposed reclaimed/irrigation water demand for each site and overlay. The existing reclaimed/irrigation water demand calculations are based on the existing allowable development presented in the City of Lake Forest–Project Description – section 2.4.1 – Table 2-1 and the IRWD generation factors.

The total existing reclaimed/irrigation water demand – Average Daily flow for the existing allowable development is 456 gallons per minute (GPM). The total existing water demand for the Overlays is 245 gpm. The following tables 14 & 15 will defined the existing water demand for each site and overlay.

EXISTING RECLAIMED / IRRIGATION WATER DEMAND

TABLE 14

SITE	LAND USE	AREA AC	ADJ. AREA	GPD / UNIT	AVG. GPD	GPM
1	BP	386.7	116	4,000	46,400	32
2	BP	194.4	58	4,000	232,000	161
	C	48.6	15	3,500	52,500	36
3	PF/LI	82.3	21	4,200	88,200	61
4	C	49.9	15	3,500	52,500	36
5	PO	12.5	4	4,000	16,000	11
6	OS	18.5	18.5	1,800	33,300	23
TOTAL						456 GPM

*ADJ = ADJUSTED SPACE AVG = AVERAGE

EXISTING RECLAIMED / IRRIGATION WATER - OVERLAY

TABLE 15

SITE	LAND USE	AREA AC	ADJ. AREA	GPD / UNIT	AVG. GPD	GPM
7	BP	121	36	4,000	144,000	207
8	C	37	11	3,500	38,500	27
9	BP	13	3.9	4,000	15,600	11
TOTAL						245 GPM

4.3 PROPOSED RECLAIMED / IRRIGATION WATER DEMAND

The proposed reclaimed/irrigation water demand calculations are based on the proposed project presented in the City of Lake Forest – Project Description– Table 2-5 and Table 2-7 and the IRWD generation factors. The total proposed reclaimed/irrigation water demand- Average Daily Flow for the project is 319 gpm. The proposed reclaimed/irrigation water demand- average daily flow for the overlays ranges from 39gpm to 534gpm. The following tables 16,17 & 18 will defined the proposed water demands for each site and overlay.

PROPOSED RECLAIMED / IRRIGATION WATER DEMAND

TABLE 16

SITE	LANDUSE	AREA AC	ADJ. AREA	GPD / UNIT	AVG. DAILY GPD	AVG. DAILY GPM
1	L-MDR	329	59	3,000	177,000	123

	C	7	2	4,000	8,000	6
	PARK	26	23	3,400	78,200	54
2	L-DR	164	26	3,000	78,000	54
	C	5	4.0	4,000	16,000	11
	PARK	10	9	3,400	30,600	21
3	MDR	36	7.0	3,600	25,200	18
	PARK	11	10	3,400	34,000	24
4	MDR	45	9.0	3,600	32,400	23
	C	4	1.0	4,000	4,000	3
	PARK	4	3.6	3,400	12,240	9
5	L-MDR	12	2.0	3,000	6,000	4
6	LDR	18	3.0	3,000	9,000	6
TOTAL						319 GPM

**PROPOSED RECLAIMED / IRRIGATION WATER DEMAND
TABLE 17**

OVERLAY	SITES	LAND USE	AREA AC	ADJ. AREA AC	GPD / UNIT	AVG. DAILY GPD	AVG. DAILY GPM
1	1	MDR	342	68	3,600	244,800	170
		CF	45	34	3,500	119,000	83
2	3	MDR	76	15	3,600	54,000	38
		CF	6	4	3,500	14,000	10
3	4	CF	45	34	3,500	119,000	83
		C	5	2	4,000	8,000	6
4	7	MDR	76	15	3,600	54,000	38
		CF	45	34	3,500	119,000	83
5	4 + 8	CF	45	34	3,500	119,000	83
		MDR	37	7	3,600	25,200	18
6	4 + 9	CF	45	34	3,500	119,000	83
		C	8	3	4,000	12,000	8

**PROPOSED RECLAIMED / IRRIGATION WATER DEMAND OVERLAY SUMMARY
TABLE 18**

OVERLAY SITES		AVERAGE DAILY GPD	AVERAGE DAILY GPM
1	1	363,800	253
2	3	68,000	48
3	4	127,000	89
4	7	173,000	121
5	4 + 8	152,200	107
6	4 + 9	131,000	91

4.4 SUMMARY

Existing reclaimed/irrigation water mains are available to each site either thru the site or in an adjacent street with the exception for sites 2, 6 and 13. Sites 2 and 6 are part of the City of Lake Forest Proposed project and will need further studies to analyze the most efficient design to service the sites with reclaimed/irrigation water. The total existing reclaimed/irrigation water demand is 456gpm and the proposed is 319gpm. The reclaimed/irrigation water demand for the proposed project will decrease by approximately 137gpm. IRWD will require the sites adjacent to a reclaimed/irrigation water main to utilize the existing system for the proposed landscaping. With the decrease in the reclaimed/irrigation water demand for the proposed project, IRWD should have sufficient water supply available.