

**APPENDIX 3.13-A -
WASTEWATER EDU CALCULATIONS**

Lake of the Pines Wastewater Treatment Plant Capacity Assessment

2090 Connected

156 Standby EDUs (already paying)*

20 Bear River Plaza (finish development after 16 EDUs are used)

48 Higgins Village assume same assessment

21 Saddle Ridge addition connections

65 Higgins Marketplace

84 Higgins Marketplace (finish development after 65 EDUs are used)

273 Darkhorse future homes (241 for homes and 32 more for club house)

45 Crossroads Church

3 10-unit industrial condominium park

5 Combie Plaza

2810 Connected, standby, and committed EDUs

280 Rincon Del Rio (3.3 cassetts)

10 Higgins Firehouse

300 Other connections on Combie (3.5 cassetts)

590 Possible projects or expansion

3400 Realistic Buildout

4300 Total Buildout (Facility Master Plan KJ 2004)

Average Dry Weather Loadings 2010

	June	July	Aug	Sept	Oct (rain)
0.3468 Avg MGD	0.386	0.343	0.317	0.318	0.37
166 gpd/EDU					
565 Avg Lbs/day BOD	506	392	543	627	758
0.270 Lbs/day/EDU BOD					
641 Avg Lbs/day TSS	550	475	560	723	895
0.307 Lbs/day/EDU TSS					

LOP Design

2707 Current Design (guarantee)

3790 Current design with 7/5ths expansion - *Confident*

4737 New membrane design with 7/4ths expansion *optimistic*

12 cassetts = \$ 1,000,000

0.55 MGD design ADWF

203 Design gpd/EDU

1261 Lbs/day BOD

0.466 Lbs/day/EDU BOD

1261 Lbs/day TSS

0.466 Lbs/day/EDU TSS

184 gpd/EDU LAFCO Sphere of influence updates

Standby EDUs (already paying)*

70 Saddle Ridge

30 School District

16 LOP Partners (Bear River Plaza?)

40 Misc in and out of LOP

156 Total

Unit Description	Number of Buildings	Number of Units	Persons /Unit	Persons	Employees	GPD/Person	GPD/Unit	Wastewater Flow Rates (see note 1)			Equivalent Dwelling Units (see note 2)			CA plumbing code Table K-3		
								Total gal/day	EDU's	EDU's/unit	EDU's	EDU's /Person	GPD	GPD	EDU's	
1. Residential Independent Living																
a. Cottages	78	78	1.6	125		76	122	9,485	48.7	0.75	58.5	75	9,360	46.1		
b. Duplex	21	42	1.2	50		97	116	4,889	24.1	0.66	27.7	75	3,760	18.6		
c. 4-Plexes	11	44	1.2	53		97	116	5,122	25.2	0.66	29.0	75	3,960	19.5		
d. Cohousing Duplex	6	12	1.2	14		97	116	1,397	6.9	0.66	7.9	75	1,080	5.3		
e. Cohousing 4 plex	2	8	1.0	8		97	776	776	3.8	0.50	4.0	75	600	3.0		
f. Group House ~ 6 suites/floor	2	12	1.0	12		97	97	1,164	5.7	0.50	6.0	75	900	4.4		
g. Lodge ~ 1L (includes guest rooms)	2	28	1.0	28		97	97	2,716	13.4	0.50	14.0	75	2,100	10.3		
h. Employees					4			40	0.2		0.0	20	80	0.4		
								25,588	126		147		21,860	108		
	Subtotal	122	224		290											
2. Residential Nursing Care																
a. Hospice ~16 beds	1	16	1.0	16		100	100	1,600	7.9	0.50	8.0	125	2,000	9.9		
b. Group House Memory Care ~ 24 beds	2	24	1.0	24		100	100	2,400	11.8	0.50	12.0	125	3,000	14.8		
c. Lodge Nursing Care	1	21	1.0	21		100	100	2,100	10.3	0.50	10.5	125	2,625	12.9		
d. Employees					10			100	0.5		0.0	20	200	1.0		
								6,200	31		31		7,825	39		
	Subtotal	4	61		61											
3. Village Center																
a. Village Center Residential	5	98	1.0	98		100	100	9,800	48.3	0.50	49.0	75	7,350	36.2		
					98			9,800	48		49		7,350	36		
	Subtotal	5	98		98											
4. Common Area - Project Amenities																
a. Gatehouse	1	935						20	0.1	0.50	0.5	20	40	0.2		
b. Events Lawn - Bathrooms/ Outdoor Kitchen	1	1000		20			80	80	0.4	0.40	0.4	10	100	0.5		
c. Clubhouse (14,000 sf)	1	14000					776	776	3.8	6.44	6.4	1 per 10 ft ²	1,400	6.9		
d. Common House	5	2165					120	600	3.0	0.50	2.5	1 per 10 ft ²	1,082	5.3		
e. Tennis/Aerobic Pool - Bathrooms	1	1000		100			270	270	1.3	2.24	2.2	10	1,000	4.9		
f. Pool Building (4,700 sf)	1	4700		100			320	320	1.6	2.24	2.2	10	1,000	4.9		
g. Community Barn (3,600 sf)	2	3600		10			120	240	1.2	0.50	1.0	1 per 10 ft ²	360	1.8		
h. Dining Facilities	1	3000		240			7	1,680	8.3	26.40	26.4	14	3,360	16.6		
i. Village Center - Retail (see note 4)	1	31350					0	0	0.0	11.91	11.9	1 per 10 ft ²	3,135	15.4		
j. Employees					29			290	1.4		0.0	20	580	2.9		
	Subtotal	14	383		449			4,276	21		54		12,057	59		
	TOTAL	145	383		449			45,864	226		280		49,092	242		

- Notes:
- Wastewater Flow Rates were obtained from *Wastewater Engineering, Treatment and Reuse, by Metcalf and Eddy, Fourth Edition, 2002*
 - Residential: Typical Flowrate = 97 gal/capita/day for household size of 1 person; and 76 gal/capita/day for household size of 2 persons
 - Institutions other than hospitals: Typical Flowrate = 100 gal/bed/day; and 10 gal/employee/day
 - Public Lavatory: Typical Flowrate = 4 gal/user/day (assume 20 users per day per restroom)
 - Clubhouse: Typical Flowrate = 25 gal/member/day; and 13 gal/employee/day (assume 30 members/day and 2 employees)
 - Commonhouse, Pool Building, Barn: Includes two restrooms - assume 15 users per day per restroom; Typical Flowrate = 4 gal/user/day
 - Pool: Typical Flowrate = 10 gal/user/day (assume 15 users/day for Aerobic Pool and 20 users/day for Inletor Pool)
 - Dining: Typical Flowrate = 7 gal/meal/day - assume Dining is for 80 persons x 3 meals/day
 - Retail: Typical Flowrate = 10 gal/employee/day or 2 gal/garaging space/day (assume 5 employees)
 - Per Nevada County Sanitation District, the design value per EDU in Lake of the Pines, Zone 2 is 203 gpd for Average Dry Weather Flow. EDU's per unit = gallons per day per unit (GPD/Unit) / 203 GPD/EDU
 - Centralized laundry will be provided for some residents, however the flow rate for laundry is included as a part of the residential and institutional flow rates per unit.
 - A Unit consists of one residential living unit (independent living) or one residential suite (nursing care).
 - A 20% reduction in flow rates could be anticipated from facilities utilizing low-flow toilets and other water conservation devices.
- For the purposes of this analysis, we have assumed a 10% reduction is appropriate for the overall development.
- Chloreminets and strings/lyophil/Dark/Explosion - Preliminary Sewer EDU Calc_v03