

<b>OV - Estimated Catchment Rain Volume</b>		
Annual rainfall=	20-30 inches	
Average Roof Area=	1296sf	(HPM 1056 sf Home-includes 2' eaves)
<i>Roof area * 0.625 = gallons collected/1 inch of rain (Wentworth, Chester K., 1959)</i>		
1296sf * 0.625 =	810 gal/in of rain	
810 gal * 20-30" rain/year=	16,200-24,300 gal/year/household	
16,200 gal/365 days/ 2.39 (av fam size)=	18.6 gpd/person	(@ 20" rain)
24,300gal /365 days/2.39=	27.9 gpd/person	(@ 30" rain)
<b>Average OV Catchment=</b>	<b>23 gpd/person</b>	

<b>S. Kona - Estimated Catchment Rain Volume</b>		
Annual rainfall=	20-30 inches	
Average Roof Area=	1296sf	(HPM 1056 sf Home-includes 2' eaves)
<i>Roof area * 0.625 = gallons collected/1 inch of rain</i>		
1296sf * 0.625 =	810 gal/in of rain	
810* 20-30" rain/year=	16,200-24,300 gal/year/household	
16,200/365 days/ 2.84 (av fam size)=	16 gpd/person	(@ 20" rain)
24,300/365 days/2.84 (av fam size)=	23 gpd/person	(@ 30" rain)
<b>Average S. Kona Catchment=</b>	<b>20 gpd/person</b>	

<b>CALCULATION OF WATER DEMAND BASED ON USE</b>			
<b>GAL</b>	<b>Time</b>		
5000 gal hauled hshld'	45 days		111 gal/day/hslhd
<b>KAU</b>			
111 gal/day/hslhd /	2.39 av fam size=	46 gal/pn./day Hauled	
		19 gal/pn.day Catchment**	
		<b>65</b>	OV Water Use
<b>SOUTH KONA</b>			
111 gal/day/hslhd /	2.84 av fam size=	39 gal/pn.day Hauled	
		16 gal/pn.day Catchment**	
		<b>55</b>	S. Kona Water Use
<b>PROJECT AREA AVERAGE</b>			
		43 gal/pn./day Hauled	
		17 gal/pn.day Catchment	
		<b>60</b>	Average Water Demand

**S. Kona Population (Hookena-Honomalino)**

2000 1,950 (Accounts for 25% under-reporting)  
 2020 5,950 (Increased by 2000 each decade)

**2000 SK Hauled Water Demand**

	<u>Pop</u>	<u>Hauled Water</u>	<u>Gallons</u>		
Area 1=	500	*40	20,000	0.25641	1525.641
Area 2=	600	*40	24,000	0.307692	1830.769
Area 3=	150	*40	6,000	0.076923	457.6923
Area 4=	700	*40	28,000	0.358974	2135.897
Total	1950	*40	78,000		5950

2000 1,950 population 78,000 gpd

**2020 SK Hauled Water Demand**

	<u>Pop</u>	<u>Hauled Water</u>	<u>Gallons</u>
Area 1=	1500	*40	60,000
Area 2=	1850	*40	74,000
Area 3=	500	*40	20,000
Area 4=	2100	*40	84,000
Total	5950	*40	238,000

2020 5,950 population 238,000 gpd

**2000 SK Catchment Water Demand**

	<u>Pop</u>	<u>Hauled Water</u>	<u>Gallons</u>
Buffer 1=	500	*20	10,000
Buffer 2=	600	*20	12,000
Buffer 3=	150	*20	3,000
Buffer 4=	700	*20	14,000
Total	1950	*20	39,000

2000 1,950 population 39,000 gpd

**2020 SK Catchment Water Demand**

	<u>Pop</u>	<u>Hauled Water</u>	<u>Gallons</u>
Buffer 1=	1500	*20	30,000
Buffer 2=	1850	*20	37,000
Buffer 3=	500	*20	10,000
Buffer 4=	2100	*20	42,000
Total	5950	*20	119,000

2020 5,950 population 119,000 gpd

**Ocean View Population**

2000	3,000 (Accounts for 25% under-reporting)
2020	11,000 (Increased by 4000 each decade)

**OV Total Water Demand**

*Population \* 60gpd= household demand*

Year	Pop	GPD
2000	3,000 *60	180,000
2020	11,000 *60	660,000

**2000 OV Hauled Water Demand**

	Pop	Hauled Water	Gallons	
Buffer 1=	687	*40	27,480	pop blocks * 25%
Buffer 2=	984	*40	39,360	
Buffer 3=	628	*40	25,120	
Buffer 4=	698	*40	27,920	
Total	2997	*40	119,880	

2000 3,000 population 120,000 gpd

**2020 OV Hauled Water Demand**

	Pop	Hauled Water	Gallons
Buffer 1=	2519	*40	100,760
Buffer 2=	3610	*40	144,400
Buffer 3=	2305	*40	92,200
Buffer 4=	2562	*40	102,480
Total	10996	*40	439,840

2020 11,000 population 440,000 gpd

**2000 OV Catchment Water Demand**

	Pop	Hauled Water	Gallons
Buffer 1=	687	*20	13,740
Buffer 2=	984	*20	19,680
Buffer 3=	628	*20	12,560
Buffer 4=	698	*20	13,960
Total	2997	*20	59,940

2000 3,000 population 60,000 gpd

**2020 OV Catchment Water Demand**

	Pop	Hauled Water	Gallons
Buffer 1=	2519	*20	50,380
Buffer 2=	3610	*20	72,200
Buffer 3=	2305	*20	46,100
Buffer 4=	2562	*20	51,240
Total	10996	*20	219,920

2020 11,000 population 220,000 gpd