

Yzerfontein Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. <sup>(D)</sup>	Other <sup>(E)</sup>	Total
		HI	MI	LI	Sub- Total			
Units are presented in brackets with the "Parameter Description" - First Column								
Population <sup>(A)</sup>	2016	787	243	357	1387			
	2021	848	282	558	1687			
	2026	913	327	813	2053			
	2031	984	379	1135	2498			
	2036	1060	440	1540	3039			
	2041	1142	510	2046	3697			
Growth (%/year)		Growth in Population				Growth in Demand		
	2016-2021	1.50%	3.00%	9.35%	4.00%	4%	2%	
	2021-2026	1.50%	3.00%	7.83%	4.00%	4%	2%	
	2026-2031	1.50%	3.00%	6.90%	4.00%	4%	2%	
	2031-2036	1.50%	3.00%	6.29%	4.00%	4%	2%	
	2036-2041	1.50%	3.00%	5.85%	4.00%	4%	2%	
Unit Demand (l/c/d) <sup>(B)</sup>	2016	400.0	300.0	150.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2016	315	73	54		22	128	591
	2021	339	85	84		27	141	675
	2026	365	98	122		33	156	774
	2031	393	114	170		40	172	889
	2036	424	132	231		48	190	1025
	2041	457	153	307		59	210	1185
NRW (%) <sup>(C)</sup>	2016	13.5	13.5	13.5		13.5	13.5	
	2021	10.0	10.0	10.0		10.0	10.0	
	2026	10.0	10.0	10.0		10.0	10.0	
	2031	10.0	10.0	10.0		10.0	10.0	
	2036	10.0	10.0	10.0		10.0	10.0	
	2041	10.0	10.0	10.0		10.0	10.0	
Average Annual Daily Water Requirement (Kl/d)	2016	364	84	62		25	148	683
	2021	377	94	93		30	157	750
	2026	406	109	135		36	173	860
	2031	437	126	189		44	191	988
	2036	471	147	257		54	211	1139
	2041	507	170	341		65	233	1317
Average Peak Month Daily Water Requirement (Kl/d)	2016	713	165	121		50	290	1340
	2021	738	184	182		58	308	1471
	2026	795	214	266		71	340	1685
	2031	857	248	371		86	375	1937
	2036	923	287	503		105	414	2232
	2041	995	333	668		128	457	2581
Peak Day Water Requirement (Kl/d)	2016	891	207	152		62	362	1674
	2021	923	230	228		73	384	1838
	2026	994	267	332		89	424	2106
	2031	1071	310	463		108	469	2421
	2036	1154	359	629		131	517	2790
	2041	1243	416	836		160	571	3226
Total Annual Water Requirement (Kl/year)	2016	132807	30814	22579		9283	53969	249453
	2021	137507	34333	33924		10855	57269	273888
	2026	148134	39801	49445		13207	63230	313817
	2031	159583	46140	69041		16068	69811	360643
	2036	171916	53489	93663		19550	77077	415694
	2041	185202	62008	124475		23785	85099	480569
Peak Month Factor <sup>(F)</sup>	1.96							
Peak Day Factor <sup>(G)</sup>	1.25							

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

- (A) - Total population based on Census 2011 data. Future estimated growth agreed with Municipality in January 2014
- (B) - Residential unit demands estimated.
- (C) - Non Revenue Water (NRW): Calculated NRW from July 2016 to June 2017. Estimated 3.5 % reduction of NRW over the next five years.
- (D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 21.7 kl/d.
- (E) - Others: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 33.0 kl/d.  
 Holiday population usage: Average residential usage for Nov to Febr 728.8 kl/d and Mar - Oct 440.2 kl/d, therefore add  $(288.6 \text{ kl/d} \times 120) / 365 = 94.9 \text{ kl/d}$  with other users.
- (F) - Peak Month Factor: Maximum value calculated from July 2012 to June 2017 data.
- (G) - Peak Day Factor : Estimated

Yzerfontein Distribution System Projected Water Requirements (Kl/a)								
Year *	Measured Potable Water Requirement (System Input Volume)	Projected Water Requirement from model	Other Projections					Annual WWTW Flows (Estimated from Billed Metered Consumption Data)
			2% Annual growth on 2016/2017 Water Requirement	4% Annual growth on 2016/2017 Water Requirement	DWS's Reconciliation Strategy (February 2016)			
					Low	Medium	High	
2001	204,690							
2002	249,211							134,796
2003	260,440							141,493
2004	204,773							111,851
2005	203,959							128,926
2006	251,914							139,162
2007	275,702							144,631
2008	301,621							149,144
2009	303,482							157,624
2010	320,386							162,095
2011	316,552							163,765
2012	313,423							174,673
2013	312,719							183,487
2014	367,432							199,918
2015	317,039							164,281
2016	248,845	249,453	248,845	248,845	368,000	368,000	368,000	129,161
2021	273,888	274,745	274,745	302,758	444,800	456,600	469,200	
2026	313,817	303,341	303,341	368,351	521,400	548,200	575,200	
2031	360,643	334,913	334,913	448,156	613,800	661,500	711,300	
2036	415,694	369,771	369,771	545,250	727,800	804,000	887,800	
2041	480,569	408,257	408,257	663,380				

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2016 is therefore from July 2016 up to June 2017.

