

Yzerfontein Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. (D)	Other(E)	Total
		HI	MI	LI	Sub- Total			
Units are presented in brackets with the "Parameter Description" - First Column								
Population(A)	2018	851	263	386	1500			
	2023	917	305	603	1825			
	2028	988	354	879	2221			
	2033	1064	410	1228	2702			
	2038	1146	476	1665	3287			
	2043	1235	551	2213	3999			
Growth (%/year)		Growth in Population				Growth in Demand		
	2018-2023	1.50%	3.00%	9.35%	4.00%	4%	2%	
	2023-2028	1.50%	3.00%	7.83%	4.00%	4%	2%	
	2028-2033	1.50%	3.00%	6.90%	4.00%	4%	2%	
	2033-2038	1.50%	3.00%	6.29%	4.00%	4%	2%	
	2038-2043	1.50%	3.00%	5.85%	4.00%	4%	2%	
Unit Demand (l/c/d)(B)	2018	380.0	280.0	160.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2018	323	74	62		22	128	609
	2023	348	85	97		27	141	698
	2028	375	99	141		33	156	804
	2033	404	115	196		40	172	927
	2038	436	133	266		48	190	1074
	2043	469	154	354		59	210	1246
NRW (%) (C)	2018	9.1	9.1	9.1		9.1	9.1	
	2023	10.0	10.0	10.0		10.0	10.0	
	2028	10.0	10.0	10.0		10.0	10.0	
	2033	10.0	10.0	10.0		10.0	10.0	
	2038	10.0	10.0	10.0		10.0	10.0	
	2043	10.0	10.0	10.0		10.0	10.0	
Average Annual Daily Water Requirement (Kl/d)	2018	356	81	68		24	141	670
	2023	387	95	107		30	157	776
	2028	417	110	156		36	173	893
	2033	449	128	218		44	191	1031
	2038	484	148	296		54	211	1193
	2043	521	171	393		65	233	1385
Average Peak Month Daily Water Requirement (Kl/d)	2018	648	148	124		44	256	1219
	2023	705	173	195		54	286	1412
	2028	759	200	284		66	316	1625
	2033	818	232	397		80	348	1876
	2038	881	269	539		97	385	2171
	2043	949	312	716		119	425	2520
Peak Day Water Requirement (Kl/d)	2018	809	184	155		55	320	1524
	2023	881	216	244		68	357	1766
	2028	949	250	356		82	394	2031
	2033	1022	290	496		100	435	2344
	2038	1101	337	674		122	481	2714
	2043	1186	390	895		148	531	3150
Total Annual Water Requirement (Kl/year)	2018	129856	29601	24789		8834	51397	244477
	2023	141291	34659	39138		10855	57314	283257
	2028	152211	40179	57045		13207	63279	325921
	2033	163974	46578	79653		16068	69866	376139
	2038	176647	53997	108059		19550	77137	435390
	2043	190299	62597	143607		23785	85166	505454
Peak Month Factor(F)	1.82							
Peak Day Factor(G)	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 2018 to June 2019. No further estimated 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 22 kl/d.
- (E) - Others: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 33 kl/d.
 Holiday population usage 16/17: Average residential usage for Nov to Febr 729 kl/d - Mar to Oct 440 kl/d, therefore add (289 kl/d x 120) / 365 = 95 kl/d with other users.
- (F) - Peak Month Factor: Maximum value calculated from July 2014 to June 2019 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 (March 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					368,000	368,000	368,000
2017	154,611							129,161
2018	175,903							61,609
2018		244,477	248,845	248,845				95,356
2023		283,257	274,745	302,758	474,400	491,800	509,600	
2028		325,921	303,341	368,351	556,200	590,600	625,600	
2033		376,139	334,913	448,156	659,400	718,500	781,900	
2038		435,390	369,771	545,250	773,400	861,000	958,400	
2043		505,454	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 2018 is therefore from July 2018 up to June 2019.

