

Yzerfontein Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. ^(D)	Other ^(E)	Total
		High Income	Middle Income	Low Income	Sub- Total			
Units are presented in brackets with the "Parameter Description" - First Column								
Population ^(A)	2020	920	285	417	1623			
	2025	992	330	652	1974			
	2030	1068	383	951	2402			
	2035	1151	444	1328	2922			
	2040	1240	514	1801	3555			
	2045	1336	596	2394	4326			
Growth (%/year)		Growth in Population				Growth in Demand		
	2020-2025	1.50%	3.00%	9.35%	4.00%	4%	2%	
	2025-2030	1.50%	3.00%	7.83%	4.00%	4%	2%	
	2030-2035	1.50%	3.00%	6.90%	4.00%	4%	2%	
	2035-2040	1.50%	3.00%	6.29%	4.00%	4%	2%	
	2040-2045	1.50%	3.00%	5.85%	4.00%	4%	2%	
Unit Demand (l/c/d) ^(B)	2020	380.0	290.0	245.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2020	350	83	102		30	93	657
	2025	377	96	160		36	102	770
	2030	406	111	233		44	113	906
	2035	437	129	325		53	124	1069
	2040	471	149	441		65	137	1264
	2045	508	173	586		79	152	1497
NRW (%) ^(C)	2020	20.1	20.1	20.1		20.1	20.1	
	2025	15.0	15.0	15.0		15.0	15.0	
	2030	13.8	13.8	13.8		13.8	13.8	
	2035	12.5	12.5	12.5		12.5	12.5	
	2040	11.3	11.3	11.3		11.3	11.3	
	2045	10.0	10.0	10.0		10.0	10.0	
Average Annual Daily Water Requirement (Kl/d)	2020	438	103	128		37	116	822
	2025	443	113	188		42	120	906
	2030	471	129	270		51	131	1051
	2035	500	147	372		61	142	1222
	2040	531	168	497		73	155	1424
	2045	564	192	652		87	169	1664
Average Peak Month Daily Water Requirement (Kl/d)	2020	775	183	227		65	205	1455
	2025	785	199	333		75	213	1604
	2030	833	228	478		90	231	1860
	2035	885	260	658		107	252	2162
	2040	940	297	880		129	274	2520
	2045	998	340	1153		155	298	2945
Peak Day Water Requirement (Kl/d)	2020	969	229	283		82	256	1818
	2025	981	249	416		93	266	2005
	2030	1041	285	598		112	289	2325
	2035	1106	325	823		134	315	2703
	2040	1174	372	1100		161	343	3150
	2045	1248	425	1442		193	373	3681
Total Annual Water Requirement (Kl/year)	2020	159789	37725	46708		13476	42256	299954
	2025	161810	41109	68633		15412	43855	330819
	2030	171789	46966	98585		18479	47717	383537
	2035	182422	53669	135690		22162	51931	445874
	2040	193752	61341	181489		26584	56529	519694
	2045	205827	70123	237842		31894	61546	607232
Peak Month Factor ^(F)	1.77							
Peak Day Factor ^(G)	1.25							

Notes : →

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References:

(A) - Projected population for 2020/2021 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2020 to June 2021. Estimated 5.1% reduction in NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2020 to June 2021. Average 29.5 kl/d.

(E) - Others: Calculated from Billed Metered Consumption data for the period July 2020 to June 2021. Average 28.1 kl/d.

Holiday population usage 20/21: Average residential usage for Nov to Febr 727 kl/d - Mar to Oct 535 kl/d, therefore add (192 kl/d x 120) / 365 = 63 kl/d with other users.

(F) - Peak Month Factor: Maximum value calculated from July 2016 to June 2021 data.

(G) - Peak Day Factor : Estimated

Yzerfontein Distribution System Projected Water Requirements (Kl/a)								Wastewater Flow
Year *	Measured Potable Water Requirement (System Input Volume)	Projected Water Requirement from model	Other Projections					Annual Wastewater Flows (Estimated from Billed Metered Consumption Data)
			2% Annual growth on 2020/2021 Water Requirement	4% Annual growth on 2020/2021 Water Requirement	DWS's Reconciliation Strategy (March 2016)			
					Low	Medium	High	
1995	145 614							
1996	151 025							
1997	132 745							
1998	209 243							
1999	246 470							
2000	223 450							
2001	204 690							
2002	249 211							
2003	260 440							134 796
2004	204 773							141 493
2005	203 959							111 851
2006	251 914							128 926
2007	275 702							139 162
2008	301 621							144 631
2009	303 482							149 144
2010	320 386							157 624
2011	316 552							162 095
2012	313 423							163 765
2013	312 719							174 673
2014	367 432							183 487
2015	317 039							199 918
2016	248 845							164 281
2017	154 611							129 161
2018	175 903							61 609
2019	238 116							95 956
2020	299 537	299 954	299 537	299 537				114 604
2025		330 819	330 713	364 433	504 000	527 000	550 000	143 602
2030		383 537	365 134	443 388	591 000	633 000	676 000	
2035		445 874	403 137	539 449	705 000	775 500	852 500	
2040		519 694	445 096	656 322	819 000	918 000	1 029 000	
2045		607 232	491 422	798 517				

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 2020 is therefore from July 2020 up to June 2021.

