

Moorreesburg Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. <sup>(D)</sup>	Other and Farms <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	5435	8424	1808	15667			
	2021	5855	9531	3675	19061			
	2026	6307	10784	6100	23191			
	2031	6795	12201	9220	28215			
	2036	7320	13804	13204	34328			
	2041	7886	15618	18262	41765			
Growth (%/year)		Growth in Population				Growth in Demand		
	2016-2021	1.50%	2.50%	15.24%	4.00%	4%	2%	
	2021-2026	1.50%	2.50%	10.66%	4.00%	4%	2%	
	2026-2031	1.50%	2.50%	8.61%	4.00%	4%	2%	
	2031-2036	1.50%	2.50%	7.45%	4.00%	4%	2%	
2036-2041	1.50%	2.50%	6.70%	4.00%	4%	2%		
Unit Demand (l/c/d) <sup>(B)</sup>	2016	100.0	75.0	40.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2016	543	632	72		250	67	1564
	2021	585	715	147		304	74	1825
	2026	631	809	244		370	81	2134
	2031	679	915	369		450	90	2503
	2036	732	1035	528		547	99	2942
	2041	789	1171	730		666	109	3465
NRW (%) <sup>(C)</sup>	2016	13.6	13.6	13.6		13.6	13.6	
	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	629	731	84		289	77	1810
	2021	651	794	163		338	82	2028
	2026	701	899	271		411	90	2372
	2031	755	1017	410		500	100	2781
	2036	813	1150	587		608	110	3269
	2041	876	1301	812		740	122	3851
Average Peak Month Daily Water Requirement (Kl/d)	2016	874	1016	116		402	107	2516
	2021	904	1104	227		469	114	2818
	2026	974	1249	377		571	126	3296
	2031	1049	1413	570		695	139	3865
	2036	1131	1599	816		845	153	4543
	2041	1218	1809	1128		1028	169	5352
Peak Day Water Requirement (Kl/d)	2016	1093	1271	145		502	134	3145
	2021	1130	1380	284		586	142	3523
	2026	1218	1561	471		714	157	4121
	2031	1312	1767	712		868	173	4832
	2036	1413	1999	1020		1056	191	5679
	2041	1522	2261	1410		1285	211	6690
Total Annual Water Requirement (Kl/year)	2016	229596	266908	30551		105487	28178	660720
	2021	237447	289903	59620		123207	29866	740043
	2026	255798	327998	98954		149900	32974	865625
	2031	275567	371100	149565		182377	36406	1015015
	2036	296864	419866	214202		221889	40196	1193016
	2041	319806	475039	296248		269962	44379	1405435
Peak Month Factor <sup>(F)</sup>	1.39							
Peak Day Factor <sup>(G)</sup>	1.25							

Notes :



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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 3.6% reduction in 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 249.7 kl/d.

(E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 66.7 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2012 to June 2017 data.

(G) - Peak Day Factor : Estimated

Moorreesburg Distribution System Projected Water Requirements (Kl/a)									
Year *	Measured Potable Water Requirement (System Input)	Projected Water Requirement from model	Other Projections					Metered Annual WWTW Flow	Percentage of WWTW Flow / System Input
			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	647,020								
2002	740,049								
2003	759,670								
2004	672,255						211,407		27.83%
2005	755,340						238,317		35.45%
2006	840,580						242,503		32.11%
2007	822,940						258,350		30.73%
2008	803,680						292,230		35.51%
2009	797,450						322,443		40.12%
2010	782,024						311,213		39.03%
2011	827,492						358,339		47.02%
2012	784,940						322,393		38.96%
2013	778,942						323,235		41.18%
2014	860,288						451,958		58.02%
2015	779,557						451,435		52.47%
2016	659,185	660,720	659,185	659,185	860,000	860,000	860,000	381,562	48.95%
2021		740,043	727,794	801,999	1,060,400	1,092,200	1,124,800	378,334	57.39%
2026		865,625	803,543	975,755	1,259,400	1,328,200	1,401,800		
2031		1,015,015	887,176	1,187,155	1,500,200	1,623,400	1,757,100		
2036		1,193,016	979,514	1,444,356	1,796,200	1,995,400	2,217,600		
2041		1,405,435	1,081,463	1,757,279					

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.

