

Malmesbury Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. ^(D)	Other and Farms ^(E)	Total
		HI	MI	LI	Sub- Total			
<i>Units are presented in brackets with the "Parameter Description" - First Column</i>								
Population ^(A)	2018	19909	29127	13927	62963			
	2023	21447	32954	24322	78724			
	2028	23105	37285	38129	98519			
	2033	24891	42184	56328	123403			
	2038	26814	47727	80171	154712			
	2043	28887	53999	111257	194143			
Growth (%/year)		Growth in Population				Growth in Demand		
	2018-2023	1.50%	2.50%	11.80%	4.57%	4%	2%	
	2023-2028	1.50%	2.50%	9.41%	4.59%	4%	2%	
	2028-2033	1.50%	2.50%	8.12%	4.61%	4%	2%	
	2033-2038	1.50%	2.50%	7.31%	4.63%	4%	2%	
2038-2043	1.50%	2.50%	6.77%	4.65%	4%	2%		
Unit Demand (l/c/d) ^(B)	2018	90.0	65.0	40.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2018	1792	1893	557		1179	947	6368
	2023	1930	2142	973		1434	1046	7525
	2028	2079	2423	1525		1745	1154	8928
	2033	2240	2742	2253		2123	1275	10633
	2038	2413	3102	3207		2583	1407	12713
	2043	2600	3510	4450		3143	1554	15257
NRW (%) ^(C)	2018	14.1	14.1	14.1		14.1	14.1	
	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	2086	2204	649		1373	1102	7413
	2023	2145	2380	1081		1594	1162	8361
	2028	2311	2693	1695		1939	1283	9920
	2033	2489	3047	2503		2359	1416	11815
	2038	2681	3447	3563		2870	1564	14125
	2043	2889	3900	4945		3492	1726	16952
Average Peak Month Daily Water Requirement (Kl/d)	2018	2795	2953	869		1839	1477	9934
	2023	2874	3189	1449		2136	1557	11204
	2028	3096	3608	2271		2598	1719	13292
	2033	3335	4082	3355		3161	1898	15832
	2038	3593	4619	4775		3846	2095	18928
	2043	3871	5226	6626		4680	2313	22716
Peak Day Water Requirement (Kl/d)	2018	3494	3692	1086		2299	1847	12417
	2023	3592	3987	1811		2670	1946	14005
	2028	3870	4510	2839		3248	2148	16615
	2033	4169	5103	4193		3952	2372	19789
	2038	4491	5774	5968		4808	2619	23660
	2043	4839	6532	8282		5850	2892	28394
Total Annual Water Requirement (Kl/year)	2018	761357	804458	236717		500972	402392	2705896
	2023	782834	868707	394563		581743	424035	3051881
	2028	843334	982862	618545		707779	468168	3620688
	2033	908510	1112018	913768		861121	516896	4312314
	2038	978724	1258146	1300545		1047686	570695	5155795
	2043	1054363	1423477	1804837		1274670	630093	6187441
Peak Month Factor ^(F)	1.34							
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. Estimated 4.1 % 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 1 179 kl/d.
- (E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 947 kl/d.
- (F) - Peak Month Factor: Maximum value calculated from July 2014 to June 2019 data.
- (G) - Peak Day Factor : Estimated

Malmesbury 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 (March 2016)				
					Low	Medium	High		
2001	2,376,180								
2002	2,509,473								
2003	2,575,832								
2004	2,521,004						1,230,105	47.76%	
2005	2,631,087						1,208,985	47.96%	
2006	2,756,470						1,323,050	50.29%	
2007	2,995,580						1,428,997	51.84%	
2008	3,107,700						1,566,877	52.29%	
2009	2,892,103						1,865,596	53.60%	
2010	3,146,105						1,575,871	54.49%	
2011	3,113,432						1,613,910	51.30%	
2012	3,149,412						1,570,887	50.46%	
2013	3,140,999						1,642,281	52.15%	
2014	3,349,489						1,785,223	56.84%	
2015	3,141,356						1,755,627	52.41%	
2016	2,708,884				3,363,000	3,363,000	3,363,000	1,706,420	54.32%
2017	1,973,521							1,590,479	58.71%
2018	2,186,436	2,705,896	2,708,884	2,708,884				1,423,288	72.12%
2023		3,051,881	2,990,827	3,295,772	4,623,600	4,810,200	5,003,600	1,494,426	68.35%
2028		3,520,688	3,302,114	4,099,810	5,625,400	5,994,600	6,386,400		
2033		4,312,314	3,845,801	4,878,547	6,929,700	7,588,700	8,311,100		
2038		5,155,795	4,025,259	5,935,498	8,384,200	9,388,200	10,509,600		
2043		6,187,441	4,444,211	7,221,441					

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.

