

Murraysburg - Input Variables for Water Demand Model								
Parameter / Variable	Year	Income Categorization				Bus. ^(D)	Other ^(E)	Total
		High	Medium	Low	Sub- Total			
		Units are presented in brackets with the "Parameter Description" - First Column						
Population ^(A)	2023	396	3604	2061	6061	-	-	-
	2028	406	3741	2382	6529			
	2033	417	3883	2734	7034			
	2038	427	4031	3119	7577			
	2043	438	4184	3540	8163			
	2048	449	4344	4001	8794			
Growth (%/year)		Growth in Population				Growth in Demand		-
	2023-2028	0.50%	0.75%	2.94%	1.50%	1%	1%	
	2028-2033	0.50%	0.75%	2.79%	1.50%	1%	1%	
	2033-2038	0.50%	0.75%	2.67%	1.50%	1%	1%	
	2038-2043	0.50%	0.75%	2.57%	1.50%	1%	1%	
	2043-2048	0.50%	0.75%	2.48%	1.50%	1%	1%	
Unit Demand (l/c/d) ^(B)	2023	280.0	170.0	85.0	-	-	-	-
Average Annual Daily Demand (Kl/d - NRW Excluded)	2023	111	613	175	-	20	30	949
	2028	114	636	202		21	32	1005
	2033	117	660	232		22	33	1064
	2038	120	685	265		23	35	1128
	2043	123	711	301		24	37	1196
	2048	126	738	340		26	38	1268
NRW (%) ^(C)	2023	25.0	25.0	25.0	-	25.0	25.0	-
	2028	20.0	20.0	20.0		20.0	20.0	
	2033	18.8	18.8	18.8		18.8	18.8	
	2038	17.5	17.5	17.5		17.5	17.5	
	2043	16.3	16.3	16.3		16.3	16.3	
	2048	15.0	15.0	15.0		15.0	15.0	
Average Annual Daily Demand (Kl/d)	2023	148	817	234	-	27	40	1265
	2028	142	795	253		26	39	1256
	2033	144	812	286		27	41	1310
	2038	145	831	321		28	42	1367
	2043	146	849	359		29	44	1428
	2048	148	869	400		30	45	1492
Average Peak Month Daily Demand (Kl/d)	2023	249	1372	392	-	45	67	2125
	2028	239	1335	425		44	66	2110
	2033	241	1365	480		46	69	2201
	2038	244	1395	540		47	71	2297
	2043	246	1427	604		49	73	2399
	2048	248	1460	672		51	76	2507
Peak Day Demand (Kl/d)	2023	311	1715	490	-	56	84	2656
	2028	299	1669	531		55	83	2637
	2033	302	1706	601		57	86	2751
	2038	304	1744	675		59	89	2871
	2043	307	1784	755		61	92	2999
	2048	311	1824	840		63	95	3134
Total Annual Demand (Kl/year)	2023	54011	298140	85240	-	9733	14600	461724
	2028	51914	290146	92369		9590	14386	458405
	2033	52406	296557	104386		9925	14887	478161
	2038	52915	303182	117292		10273	15409	499071
	2043	53442	310026	131150		10636	15954	521207
	2048	53985	317095	146030		11014	16521	544645
Peak Month Factor ^(F)	1.68							
Peak Day Factor ^(G)	1.25							

Notes : →

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

References:

(A) - Projected population for 2023/2024 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality.

(B) - Residential unit demands estimated.

(C) - Non-Revenue Water (NRW): Calculated NRW from July 2023 to June 2024 was 93.4%. NRW of 25% was however included in the model, because it is estimated that the billed metered consumption data from the Finance Department is not correct. Reduction of 5% over the next five years.

(D) - Businesses: Estimated

(E) - Others: Estimated

(F) - Peak Month Factor: Maximum value calculated from July 2019 to June 2024 data.

(G) - Peak Day Factor: Estimated

Murraysburg Projected Water Requirements and Allocations (Kl/a)																			WWTW Flow and Projections (Kl/a)		
Year *	Water Requirements									Safe Yield Volumes							Registered Volume	WWTW			
	Historical Measured Supply (Raw Water)	Projected requirements from WSDP model	Historical Measured Supply (System Input Volume)	Other Projections					Steenwerke BH1 (Solar)	Steenwerke BH2 (Solar)	Steenwerke BH3 (Solar)	Victoria West BH	Rugby Field	Moddergat MBD3 (Victoria West BH3, Solar)	Riverside MBD2A (Victoria West BH2, Solar)	Total Safe Yield Volume		Measured Effluent (Estimated)	Effluent / Water %	Future Projected Effluent	
				1% Annual growth on 2023/2024 Demand	2% Annual growth on 2023/2024 Demand	All Towns Reconciliation Strategy (2015)															
						Low	Medium	High													
2014	240 511		234 499			311 000	311 000	311 000										88 549			
2015	258 253		251 797			313 000	314 000	316 000										104 008	40%		
2016	250 522		244 259															104 498	42%		
2017	299 703																	112 269	37%		
2018	281 498																	120 512	43%		
2019	278 755																	127 206	46%		
2020	375 013					320 000	330 000	340 000										142 351	38%		
2021	344 848																	168 798	49%		
2022	325 375																	143 919	44%		
2023	461 992	461 724	391 143	461 992	461 992							179 755	157 680	210 240	134 028	681 703		156 457	34%		
2028		458 405		485 558	510 076	333 600	358 000	384 000	26 280	3 942	7 884	179 755	157 680	210 240	134 028	719 809			55%	201698	
2033		478 161		510 327	563 166	342 100	376 400	413 900	26 280	3 942	7 884	179 755	157 680	210 240	134 028	719 809			60%	233103	
2038		499 071		536 358	621 780	350 600	395 400	445 400	26 280	3 942	7 884	179 755	157 680	210 240	134 028	719 809			65%	267627	
2043		521 207		563 718	686 496				26 280	3 942	7 884	179 755	157 680	210 240	134 028	719 809			70%	305558	
2048		544 645		592 473	757 947				26 280	3 942	7 884	179 755	157 680	210 240	134 028	719 809			75%	347211	

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 2023 is therefore from July 2023 up to June 2024.

