

Merweville - 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	180	1213	510	1903	-	-	-
	2028	185	1259	606	2051			
	2033	189	1307	712	2209			
	2038	194	1357	829	2380			
	2043	199	1409	956	2564			
	2048	204	1462	1095	2762			
Growth (%/year)		Growth in Population				Growth in Demand		-
	2023-2028	0.50%	0.75%	3.52%	1.50%	1%	1%	
	2028-2033	0.50%	0.75%	3.27%	1.50%	1%	1%	
	2033-2038	0.50%	0.75%	3.07%	1.50%	1%	1%	
	2038-2043	0.50%	0.75%	2.90%	1.50%	1%	1%	
	2043-2048	0.50%	0.75%	2.76%	1.50%	1%	1%	
Unit Demand (l/c/d) ^(B)	2023	100.0	75.0	45.0	-	-	-	-
Average Annual Daily Demand (Kl/d - NRW Excluded)	2023	18	91	23	-	5	10	147
	2028	18	94	27		5	11	156
	2033	19	98	32		6	11	166
	2038	19	102	37		6	12	176
	2043	20	106	43		6	12	187
	2048	20	110	49		6	13	199
NRW (%) ^(C)	2023	20.0	20.0	20.0	-	20.0	20.0	-
	2028	15.0	15.0	15.0		15.0	15.0	
	2033	13.8	13.8	13.8		13.8	13.8	
	2038	12.5	12.5	12.5		12.5	12.5	
	2043	11.3	11.3	11.3		11.3	11.3	
	2048	10.0	10.0	10.0		10.0	10.0	
Average Annual Daily Demand (Kl/d)	2023	23	114	29	-	6	13	184
	2028	22	111	32		6	12	184
	2033	22	114	37		6	13	192
	2038	22	116	43		7	13	201
	2043	22	119	48		7	14	211
	2048	23	122	55		7	14	221
Average Peak Month Daily Demand (Kl/d)	2023	31	158	40	-	9	17	255
	2028	30	154	45		9	17	255
	2033	31	158	52		9	18	267
	2038	31	162	59		9	18	279
	2043	31	165	67		10	19	293
	2048	32	169	76		10	20	307
Peak Day Demand (Kl/d)	2023	39	198	50	-	11	22	319
	2028	38	193	56		11	21	319
	2033	38	198	65		11	22	334
	2038	39	202	74		12	23	349
	2043	39	207	84		12	24	366
	2048	39	212	95		12	25	383
Total Annual Demand (Kl/year)	2023	8215	41516	10473	-	2281	4563	67048
	2028	7927	40561	11720		2257	4513	66978
	2033	8010	41495	13566		2337	4675	70082
	2038	8095	42459	15553		2421	4843	73371
	2043	8182	43454	17691		2509	5018	76855
	2048	8272	44482	19990		2600	5201	80546
Peak Month Factor ^(F)	1.39							
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 46.5%. NRW of 20% 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

Merweville Projected Water Requirements and Allocations (Kl/a)																													WWTW Flow and Projections		
Year *	Water Requirements								Registered Volumes (DWS All Towns Reconciliation Strategy 2015)								Safe Yields GEOS WULA Report: Updated Geohydrological Assessment Merweville Town Supply, 31 Oct 2022										WWTW				
	Historical Measured Supply (Raw Water)	Projected requirements from WSDP model	Historical Measured Supply (System Input Volume)	Other Projections			Borehole [1]	Borehole [2]	Borehole [3]	Borehole [4]	Borehole [5]	Borehole [6]	Borehole [7]	Total Registered Volume	ME4 0.4 l/s @ 24 hrs	ME6 0.7 l/s @ 24 hrs	ME7 0.3 l/s @ 24 hrs	ME9 0.25 l/s @ 24 hrs	MV BH2 0.63 l/s @ 24 hrs	MV3 0.6 l/s @ 24 hrs	MV4 0.4 l/s @ 24 hrs	MV5 0.9 l/s @ 24 hrs	MV6 0.8 l/s @ 24 hrs	Total Safe Yield	WWTW						
				1% Annual growth on 2023/2024 Demand	2% Annual growth on 2023/2024 Demand	All Towns Reconciliation Strategy (2015) Low Medium High																			Estimated Effluent	Effluent / Water %	Future Projected Effluent				
2002			59 418						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2003			62 826						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2004			63 660						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2005	131 857		81 553						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2006	108 179		81 050						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2007	74 261		73 632						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2008	87 172		64 743						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2009	105 630		78 621						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2010	101 731		68 683						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2011	110 190		88 488						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2012	116 709		92 499						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2013	112 654		102 090						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2014	118 123		113 489			108 000	108 000	108 000	23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2015	128 771		123 512			109 000	109 000	110 000	23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2016	137 202		123 048						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2017	110 528		103 520						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2018	116 873		112 263						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2019	105 148		99 891						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2020	91 000		86 450			111 000	115 000	118 000	23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800															
2021	88 229		69 626						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049	27 850	32%			
2022	74 867		60 629						23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049	25 252	34%			
2023	66 660	67 048	64 961	66 660	66 660				23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049	25 984	39%			
2028	66 978		70 060	73 598		115 800	124 600	133 200	23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049		40%	22772		
2033	70 082		73 634	81 258		118 800	130 900	143 600	23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049		40%	24178		
2038	73 371		77 390	89 716		121 800	137 400	154 600	23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049		40%	25680		
2043	76 855		81 338	99 053					23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049		40%	27283		
2048	80 546		85 487	109 363					23 000	20 000	4 000	5 000	15 000	37 400	54 400	158 800	12 614	22 075	9 461	7 884	19 868	18 922	12 614	28 382	25 229	157 049		40%	28097		

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.

