

Darling Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. ^(D)	Other ^(E)	Total
		HI	MI	LI	Sub- Total			
		Units are presented in brackets with the "Parameter Description" - First Column						
Population ^(A)	2018	3681	6988	1301	11969			
	2023	3868	7715	1632	13215			
	2028	4066	8518	2007	14591			
	2033	4273	9404	2432	16109			
	2038	4491	10383	2911	17786			
	2043	4720	11464	3453	19637			
Growth (%/year)		Growth in Population				Growth in Demand		
	2018-2023	1.00%	2.00%	4.63%	2.00%	4%	2%	
	2023-2028	1.00%	2.00%	4.23%	2.00%	4%	2%	
	2028-2033	1.00%	2.00%	3.91%	2.00%	4%	2%	
	2033-2038	1.00%	2.00%	3.67%	2.00%	4%	2%	
2038-2043	1.00%	2.00%	3.47%	2.00%	4%	2%		
Unit Demand (l/c/d) ^(B)	2018	85.0	60.0	30.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2018	313	419	39		369	80	1220
	2023	329	463	49		449	88	1378
	2028	346	511	60		546	98	1561
	2033	363	564	73		665	108	1773
	2038	382	623	87		809	119	2019
	2043	401	688	104		984	131	2308
NRW (%) ^(C)	2018	25.8	25.8	25.8		25.8	25.8	
	2023	20.0	20.0	20.0		20.0	20.0	
	2028	18.8	18.8	18.8		18.8	18.8	
	2033	17.5	17.5	17.5		17.5	17.5	
	2038	16.3	16.3	16.3		16.3	16.3	
	2043	15.0	15.0	15.0		15.0	15.0	
Average Annual Daily Water Requirement (Kl/d)	2018	422	565	53		497	108	1644
	2023	411	579	61		561	110	1722
	2028	425	629	74		672	120	1921
	2033	440	684	88		806	131	2149
	2038	456	744	104		965	142	2411
	2043	472	809	122		1157	154	2715
Average Peak Month Daily Water Requirement (Kl/d)	2018	573	768	72		676	147	2236
	2023	559	787	83		763	150	2342
	2028	578	855	101		914	163	2612
	2033	599	930	120		1095	177	2922
	2038	620	1012	142		1313	193	3279
	2043	642	1101	166		1574	210	3692
Peak Day Water Requirement (Kl/d)	2018	717	961	89		845	183	2795
	2023	699	984	104		954	188	2928
	2028	723	1069	126		1143	204	3265
	2033	748	1163	150		1369	222	3653
	2038	775	1265	177		1641	241	4099
	2043	802	1376	207		1967	262	4615
Total Annual Water Requirement (Kl/year)	2018	153894	206240	19200		181516	39353	600204
	2023	150018	211197	22335		204831	40299	628680
	2028	155244	229591	27047		245374	43809	701066
	2033	160691	249647	32274		294012	47636	784260
	2038	166368	271516	38066		352372	51809	880130
	2043	172283	295367	44480		422410	56360	990900
Peak Month Factor ^(F)	1.36							
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 5.8% 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 369 kl/d.
- (E) - Others: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 80 kl/d.
- (F) - Peak Month Factor: Maximum value calculated from July 2014 to June 2019 data.
- (G) - Peak Day Factor : Estimated

Darling Distribution System Projected Water Requirements (KI/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	407,210								
2002	466,990								
2003	427,210								
2004	329,030								
2005	437,922								
2006	442,554								
2007	421,210								
2008	533,710								
2009	621,480								
2010	699,043						417,091	59.67%	
2011	722,191						448,715	62.13%	
2012	675,214						378,518	56.06%	
2013	639,744						390,035	60.97%	
2014	699,379						352,744	50.44%	
2015	661,330				699,000	699,000	699,000	307,584	46.51%
2016	603,442							339,337	56.23%
2017	465,322							357,313	76.79%
2018	491,479	600,204	603,442	603,442				383,607	78.05%
2023		626,680	666,249	734,179	788,400	820,000	853,400		
2028		701,066	735,592	893,242	849,200	905,400	965,800		
2033		784,260	812,153	1,086,765	916,300	1,002,800	1,098,200		
2038		880,130	896,683	1,322,216	986,800	1,105,800	1,240,200		
2043		990,900	990,011	1,608,678					

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.

