

Darling Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. <sup>(D)</sup>	Other <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	3538	6716	1251	11505			
	2021	3718	7415	1568	12702			
	2026	3908	8187	1929	14024			
	2031	4107	9039	2337	15484			
	2036	4317	9980	2798	17095			
	2041	4537	11019	3319	18874			
Growth (%/year)		Growth in Population				Growth in Demand		
	2016-2021	1.00%	2.00%	4.63%	2.00%	4%	2%	
	2021-2026	1.00%	2.00%	4.23%	2.00%	4%	2%	
	2026-2031	1.00%	2.00%	3.91%	2.00%	4%	2%	
	2031-2036	1.00%	2.00%	3.67%	2.00%	4%	2%	
2036-2041	1.00%	2.00%	3.47%	2.00%	4%	2%		
Unit Demand (l/c/d) <sup>(B)</sup>	2016	105.0	80.0	50.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2016	371	537	63		370	80	1421
	2021	390	593	78		450	88	1600
	2026	410	655	96		547	98	1806
	2031	431	723	117		665	108	2044
	2036	453	798	140		810	119	2320
	2041	476	882	166		985	131	2640
NRW (%) <sup>(C)</sup>	2016	14.0	14.0	14.0		14.0	14.0	
	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	432	625	73		430	93	1652
	2021	434	659	87		500	98	1778
	2026	456	728	107		608	108	2007
	2031	479	803	130		739	120	2272
	2036	504	887	155		900	132	2578
	2041	529	979	184		1094	146	2933
Average Peak Month Daily Water Requirement (Kl/d)	2016	587	850	99		584	127	2247
	2021	590	896	119		679	133	2418
	2026	620	990	146		827	147	2729
	2031	652	1093	177		1006	163	3089
	2036	685	1206	211		1223	180	3506
	2041	720	1332	251		1488	198	3989
Peak Day Water Requirement (Kl/d)	2016	734	1062	124		730	158	2809
	2021	737	1121	148		849	167	3022
	2026	775	1237	182		1033	184	3412
	2031	815	1366	221		1257	203	3862
	2036	856	1508	264		1529	225	4382
	2041	900	1665	313		1861	248	4987
Total Annual Water Requirement (Kl/year)	2016	157651	228043	26538		156823	33953	603008
	2021	158329	240588	31805		182319	35821	648862
	2026	166405	265629	39116		221819	39550	732518
	2031	174894	293275	47393		269876	43666	829104
	2036	183815	323800	56745		328346	48211	940916
	2041	193191	357501	67297		399483	53229	1070701
Peak Month Factor <sup>(F)</sup>	1.36							
Peak Day Factor <sup>(G)</sup>	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 2016 to June 2017. Estimated 4.0% 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 369.5 kl/d.

(E) - Others: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 80.0 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2012 to June 2017 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 (February 2017)				
					Low	Medium	High		
2001	407,210								
2002	468,990								
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	681,330					699,000	699,000	307,584	46.51%
2016	603,442	603,008	603,442	603,442				339,337	56.23%
2021		648,862	666,249	734,179	764,800	788,000	811,800		
2026		732,518	735,592	893,242	824,400	869,800	918,600		
2031		829,104	812,153	1,086,765	888,100	961,600	1,041,400		
2036		940,916	896,683	1,322,216	958,600	1,064,600	1,183,400		
2041		1,070,701	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 2016 is therefore from July 2016 up to June 2017.

