

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)	2019	3754	7127	1327	12209	-	-	-
	2024	3946	7869	1664	13479			
	2029	4147	8688	2047	14882			
	2034	4358	9593	2480	16431			
	2039	4581	10591	2970	18141			
	2044	4814	11693	3522	20030			
Growth (%/year)	Growth in Population					Growth in Demand		
	2019-2024	1.00%	2.00%	4.63%	2.00%	4%	2%	-
	2024-2029	1.00%	2.00%	4.23%	2.00%	4%	2%	
	2029-2034	1.00%	2.00%	3.91%	2.00%	4%	2%	
	2034-2039	1.00%	2.00%	3.67%	2.00%	4%	2%	
	2039-2044	1.00%	2.00%	3.47%	2.00%	4%	2%	
Unit Demand (l/c/d) ^(B)	2019	85.0	55.0	35.0	-	-	-	
Average Annual Daily Water Requirement (KI/d - NRW Excluded)	2019	319	392	46	-	369	80	1207
	2024	335	433	58		449	88	1364
	2029	352	478	72		546	98	1546
	2034	370	528	87		665	108	1757
	2039	389	583	104		809	119	2003
	2044	409	643	123		984	131	2291
NRW (%) ^(C)	2019	26.7	26.7	26.7	-	26.7	26.7	-
	2024	20.0	20.0	20.0		20.0	20.0	
	2029	18.8	18.8	18.8		18.8	18.8	
	2034	17.5	17.5	17.5		17.5	17.5	
	2039	16.3	16.3	16.3		16.3	16.3	
	2044	15.0	15.0	15.0		15.0	15.0	
Average Annual Daily Water Requirement (KI/d)	2019	435	535	63	-	503	109	1646
	2024	419	541	73		561	110	1705
	2029	434	588	88		672	120	1902
	2034	449	640	105		806	131	2130
	2039	465	696	124		965	142	2392
	2044	481	757	145		1157	154	2695
Average Peak Month Daily Water Requirement (KI/d)	2019	592	727	86	-	685	148	2239
	2024	570	736	99		763	150	2318
	2029	590	800	120		914	163	2587
	2034	611	870	143		1095	177	2897
	2039	632	946	169		1313	193	3253
	2044	655	1029	197		1574	210	3665
Peak Day Water Requirement (KI/d)	2019	740	909	108	-	856	186	2798
	2024	713	920	124		954	188	2898
	2029	738	1000	150		1143	204	3234
	2034	763	1087	179		1369	222	3621
	2039	790	1182	211		1641	241	4066
	2044	818	1286	247		1967	262	4581
Total Annual Water Requirement (KI/year)	2019	158899	195202	23129	-	183745	39836	600812
	2024	153018	197469	26579		204831	40299	622197
	2029	158349	214668	32186		245374	43809	694387
	2034	163905	233420	38406		294012	47636	777379
	2039	169695	253868	45299		352372	51809	873042
	2044	175728	276168	52932		422410	56360	983598
Peak Month Factor ^(F)	1.36							
Peak Day Factor ^(G)	1.25							

Notes : →

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References:

- (A) - Projected population for 2019/2020 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.
- (B) - Residential unit demands estimated.
- (C) - Non Revenue Water (NRW): Calculated NRW from July 2019 to June 2020. Estimated 6.7% 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 2015 to June 2020 data.
- (G) - Peak Day Factor : Estimated

Year *	Measured Potable Water Requirement (System Input)	Projected Water Requirement from model	Other Projections				WWTW Flow and Projections (KI/a)				
			2% Annual growth on 2016/2017 Water Requirement	4% Annual growth on 2016/2017 Water Requirement	DWS's Reconciliation Strategy (March 2016)			Metered Annual WWTW Flow	Percentage (WWTW Flow / System Input)	Projected WWTW Flow	
					Low	Medium	High				
1995	309 933										
1996	314 332										
1997	402 861										
1998	378 270										
1999	373 762										
2000	413 420										
2001	407 210										
2002	468 980										
2003	427 210										
2004	329 030										
2005	437 922										
2006	442 554										
2007	421 210										
2008	533 710										
2009	621 480										
2010	699 043										
2011	722 191							417 091	59.67%		
2012	675 214							448 715	62.13%		
2013	639 744							378 518	56.06%		
2014	699 379							390 035	60.97%		
2015	651 330							352 744	50.44%		
2016	603 442					699 000	699 000	307 594	46.51%		
2017	465 322							339 337	56.23%		
2018	491 479							357 313	76.79%		
2019	518 097	600 812	603 442	603 442				383 607	78.05%		
2024	622 197	666 249	734 179	800 200	836 000	874 200	401 561		77.51%		497 757
2029	694 387	735 592	893 242	861 600	923 200	989 400			80.00%		555 510
2034	777 379	812 153	1 086 765	930 400	1 023 400	1 126 600			80.00%		621 903
2039	873 042	896 683	1 322 216	1 000 900	1 126 400	1 268 600			80.00%		698 433
2044	983 598	990 011	1 608 678						80.00%		786 878

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 2019 is therefore from July 2019 up to June 2020.

