

| Malmesbury Distribution System - Input Variables for Water Requirement Model | | | | | | | | |
|---|-----------|-----------------------|---------------|------------|------------|----------------------------|--------------------------------|---------|
| Parameter / Variable | Year | Income Categorization | | | | Com. & Ind. ^(D) | Other and Farms ^(E) | Total |
| | | High Income | Middle Income | Low Income | Sub- Total | | | |
| Units are presented in brackets with the "Parameter Description" - First Column | | | | | | | | |
| Population ^(A) | 2020 | 21768 | 31846 | 15228 | 68841 | | | |
| | 2025 | 23450 | 36031 | 26624 | 86104 | | | |
| | 2030 | 25262 | 40765 | 41767 | 107794 | | | |
| | 2035 | 27214 | 46122 | 61733 | 135070 | | | |
| | 2040 | 29318 | 52183 | 87900 | 169401 | | | |
| | 2045 | 31583 | 59040 | 122030 | 212653 | | | |
| Growth (%/year) | | Growth in Population | | | | Growth in Demand | | |
| | 2020-2025 | 1.50% | 2.50% | 11.82% | 4.58% | 4% | 2% | |
| | 2025-2030 | 1.50% | 2.50% | 9.42% | 4.60% | 4% | 2% | |
| | 2030-2035 | 1.50% | 2.50% | 8.13% | 4.61% | 4% | 2% | |
| | 2035-2040 | 1.50% | 2.50% | 7.32% | 4.63% | 4% | 2% | |
| | 2040-2045 | 1.50% | 2.50% | 6.78% | 4.65% | 4% | 2% | |
| Unit Demand (l/c/d) ^(B) | 2020 | 80.0 | 60.0 | 40.0 | - | - | - | - |
| Average Annual Daily Water Requirement (KI/d) - NRW Excluded) | 2020 | 1741 | 1911 | 609 | | 1091 | 1108 | 6460 |
| | 2025 | 1876 | 2162 | 1065 | | 1327 | 1223 | 7653 |
| | 2030 | 2021 | 2446 | 1671 | | 1615 | 1351 | 9103 |
| | 2035 | 2177 | 2767 | 2469 | | 1965 | 1491 | 10870 |
| | 2040 | 2345 | 3131 | 3516 | | 2391 | 1646 | 13029 |
| | 2045 | 2527 | 3542 | 4881 | | 2908 | 1818 | 15676 |
| NRW (%) ^(C) | 2020 | 20.3 | 20.3 | 20.3 | | 20.3 | 20.3 | |
| | 2025 | 15.0 | 15.0 | 15.0 | | 15.0 | 15.0 | |
| | 2030 | 13.8 | 13.8 | 13.8 | | 13.8 | 13.8 | |
| | 2035 | 12.5 | 12.5 | 12.5 | | 12.5 | 12.5 | |
| | 2040 | 11.3 | 11.3 | 11.3 | | 11.3 | 11.3 | |
| | 2045 | 10.0 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Average Annual Daily Water Requirement (KI/d) | 2020 | 2185 | 2397 | 764 | | 1369 | 1390 | 8106 |
| | 2025 | 2207 | 2543 | 1253 | | 1562 | 1439 | 9004 |
| | 2030 | 2343 | 2836 | 1937 | | 1872 | 1566 | 10554 |
| | 2035 | 2488 | 3163 | 2822 | | 2246 | 1704 | 12423 |
| | 2040 | 2643 | 3528 | 3962 | | 2694 | 1855 | 14681 |
| | 2045 | 2807 | 3936 | 5424 | | 3232 | 2020 | 17418 |
| Average Peak Month Daily Water Requirement (KI/d) | 2020 | 2928 | 3213 | 1024 | | 1834 | 1863 | 10862 |
| | 2025 | 2957 | 3408 | 1679 | | 2093 | 1929 | 12065 |
| | 2030 | 3140 | 3800 | 2596 | | 2509 | 2098 | 14143 |
| | 2035 | 3334 | 4238 | 3782 | | 3009 | 2284 | 16646 |
| | 2040 | 3541 | 4727 | 5309 | | 3609 | 2486 | 19672 |
| | 2045 | 3762 | 5274 | 7268 | | 4330 | 2706 | 23341 |
| Peak Day Water Requirement (KI/d) | 2020 | 3660 | 4016 | 1280 | | 2293 | 2329 | 13577 |
| | 2025 | 3697 | 4260 | 2099 | | 2616 | 2411 | 15082 |
| | 2030 | 3925 | 4750 | 3244 | | 3136 | 2623 | 17679 |
| | 2035 | 4168 | 5297 | 4727 | | 3761 | 2855 | 20808 |
| | 2040 | 4427 | 5909 | 6636 | | 4512 | 3107 | 24591 |
| | 2045 | 4702 | 6593 | 9084 | | 5413 | 3383 | 29176 |
| Total Annual Water Requirement (KI/year) | 2020 | 797505 | 875061 | 278950 | | 499642 | 507428 | 2958586 |
| | 2025 | 805569 | 928318 | 457307 | | 569988 | 525309 | 3286490 |
| | 2030 | 855249 | 1035085 | 707008 | | 683427 | 571578 | 3852347 |
| | 2035 | 908184 | 1154374 | 1030059 | | 819615 | 622053 | 4534284 |
| | 2040 | 964593 | 1287673 | 1446019 | | 983142 | 677123 | 5358549 |
| | 2045 | 1024708 | 1436649 | 1979591 | | 1179529 | 737215 | 6357692 |
| Peak Month Factor ^(F) | 1.34 | | | | | | | |
| 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 2020/2021 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 2020 to June 2021. Estimated 5.3 % reduction of NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2020 to June 2021. Average 1 091 kl/d.

(E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2020 to June 2021. Average 1 108 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2016 to June 2021 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 2020/2021 Water Requirement | 4% Annual growth on 2020/2021 Water Requirement | DWS's Reconciliation Strategy (March 2016) | | | Metered Annual WWTW Flow | Percentage (WWTW Flow / System Input) | Projected WWTW Flow |
| | | | | | Low | Medium | High | | | |
| 1995 | 1 512 880 | | | | | | | | | |
| 1996 | 1 512 899 | | | | | | | | | |
| 1997 | 1 981 019 | | | | | | | | | |
| 1998 | 2 727 369 | | | | | | | | | |
| 1999 | 2 782 993 | | | | | | | | | |
| 2000 | 2 437 000 | | | | | | | | | |
| 2001 | 2 376 190 | | | | | | | | | |
| 2002 | 2 508 473 | | | | | | | | | |
| 2003 | 2 575 832 | | | | | | 1 230 105 | 47.76% | | |
| 2004 | 2 521 004 | | | | | | 1 208 985 | 47.96% | | |
| 2005 | 2 631 087 | | | | | | 1 323 050 | 50.29% | | |
| 2006 | 2 756 470 | | | | | | 1 428 997 | 51.84% | | |
| 2007 | 2 996 580 | | | | | | 1 566 877 | 52.29% | | |
| 2008 | 3 107 700 | | | | | | 1 665 596 | 53.60% | | |
| 2009 | 2 892 103 | | | | | | 1 575 871 | 54.49% | | |
| 2010 | 3 146 105 | | | | | | 1 613 910 | 51.30% | | |
| 2011 | 3 113 432 | | | | | | 1 570 887 | 50.46% | | |
| 2012 | 3 149 412 | | | | | | 1 642 281 | 52.15% | | |
| 2013 | 3 140 999 | | | | | | 1 785 223 | 56.84% | | |
| 2014 | 3 349 489 | | | | | | 1 755 627 | 52.41% | | |
| 2015 | 3 141 356 | | | | | | 1 708 420 | 54.32% | | |
| 2016 | 2 708 884 | | | | | 3 363 000 | 1 590 479 | 58.71% | | |
| 2017 | 1 973 521 | | | | | | 1 423 288 | 72.12% | | |
| 2018 | 2 186 436 | | | | | | 1 494 426 | 68.35% | | |
| 2019 | 2 520 750 | | | | | | 1 764 088 | 69.98% | | |
| 2020 | 2 936 354 | 2 958 586 | 2 936 354 | 2 936 354 | | | 1 932 526 | 65.81% | | |
| 2025 | | 3 286 490 | 3 241 972 | 3 572 524 | 4 978 000 | 5 223 000 | 5 478 000 | 75.00% | | 2 464 868 |
| 2030 | | 3 852 347 | 3 579 399 | 4 346 521 | 6 057 000 | 6 509 000 | 6 992 000 | 80.00% | | 3 081 878 |
| 2035 | | 4 534 284 | 3 951 946 | 5 288 208 | 7 511 500 | 8 308 500 | 9 190 500 | 80.00% | | 3 627 427 |
| 2040 | | 5 358 549 | 4 363 268 | 6 433 913 | 8 966 000 | 10 108 000 | 11 389 000 | 80.00% | | 4 286 839 |
| 2045 | | 6 357 692 | 4 817 400 | 7 827 839 | | | | 80.00% | | 5 086 153 |

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 2020 is therefore from July 2020 up to June 2021.

