**ANNEXURE D: STATUS OF SERVICES INFRASTRUCTURE**

1. **Bulk Services Capacities**

**Table D1: Existing Capacity and storage shortfall of reservoirs in Bloemfontein (February 2014)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **RESERVOIR / TOWER** | **CAPACITY (Mℓ)** | **Supply Zone/s** | **AADD Mℓ/d** | **Storage  Required (Mℓ/d)** | **Storage Shortfall (Mℓ/d)** | **Owner** |
| **BLOEMFONTEIN - AVAILABLE CAPACITY (AADD) PER RESERVOIR** | | | | | | |
| HAMILTONPARK | 56.83 | 17, 27 | 4.51 | 9.03 | 0.00 | MMM |
| ARBORETUM 2 | 46.41 | 11 | 1.35 | 2.69 | 0.00 | MMM |
| ARBORETUM 1 | 44.06 | 23 | 11.47 | 22.94 | 0.00 | MMM |
| LONGRIDGE 1 | 23.72 | 10, 4, 6 | 47.02 | 94.04 | -2.59 | MMM |
| LONGRIDGE 2 | 22.73 | MMM |
| LONGRIDGE 3 | 45.00 | MMM |
| BRANDKOP | 22.73 | 14, 18, 2 | 22.92 | 45.83 | -23.10 | MMM |
| BLOEMDUSTRIA | 16.00 | 7 | 0.00 | 0.01 | 0.00 | MMM |
| RODENBECK RESERVOIR | 11.00 | 9 | 9.42 | 18.85 | -7.85 | Bloemwater |
| PENTAGONPARK | 10.50 | 25, 22, 21 | 1.28 | 2.56 | 0.00 | MMM |
| SIGNAL HILL | 4.74 | 12 | 0.55 | 1.09 | 0.00 | MMM |
| DAN PIENAAR | 4.55 | 16 | 0.40 | 0.80 | 0.00 | MMM |
| SLYPSTEENBERG | 3.00 | 1 | 0.12 | 0.24 | 0.00 | MMM |
| RODERICKPARK | 2.50 | 29 | 0.06 | 0.11 | 0.00 | MMM |
| EDNAU | 2.00 | 30 | 0.13 | 0.25 | 0.00 | MMM |
| HILLSIDE VIEW | 2.00 | / |  | 0.00 | 0.00 | MMM |
| TEMPE TANKS | 1.58 | / |  | 0.00 | 0.00 | MMM |
| DE WET | 1.09 | 3 | 1.40 | 0.23 | 0.00 | MMM |
| UITSIG | 1.00 | 30 | 0.06 | 0.13 | 0.00 | MMM |
| HEUWELSIG | 0.75 | 24, 26, 20, 19 | 1.09 | 2.18 | -1.43 | MMM |
| NAVAL HILL | 0.65 | 15 | 0.23 | 0.47 | 0.00 | MMM |
| RAYTON | 0.50 | 28, 18, 13 | 7.05 | 14.11 | -13.61 | MMM |
| HILLSIDE VIEW TOWER | 0.50 | / |  | 0.00 | 0.00 | MMM |
| PELLISIER | 0.33 | 5 | 0.05 | 0.10 | 0.00 | MMM |
| RAYTON TOWER SUMP | 0.02 | / |  | 0.00 | 0.00 | MMM |
| PENTAGONPARK PNEUMATIC TANK | 0.01 | / |  | 0.00 | 0.00 | MMM |
| \* Storage required (Guidelines for Human Setelment Planning and design) | | | |  |  |  |

**Table D2: Existing Capacity and storage shortfall of reservoirs in Botshabelo & Thaba Nchu (February 2014)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **RESERVOIR / TOWER** | **CAPACITY (Mℓ)** | **Supply Zone/s** | **AADD Mℓ/d** | **Storage  Required (Mℓ/d)** | **Storage Shortfall (Mℓ/d)** | **Owner** |
| **BOTSHABELO - AVAILABLE CAPACITY (AADD) PER RESERVOIR** | | | | | | |
| 1A | 2 | C | 1.7 | 3.4 | **1** | MMM |
| 1B | 6 | A, B ,E | 3.1 | 6.2 | 0 | MMM |
| 1C | 6 | D, L, M | 4.2 | 8.4 | 2 | MMM |
| 2 | 9 | G, BA, J & K | 4.9 | 9.8 | **1** | MMM |
| 3 | 4 | H | 1.6 | 3.2 | 0 | MMM |
| 4 | 6 | IA | 3.4 | 6.8 | **1** | MMM |
| 5 | 2 | F | 0.8 | 1.6 | 0 | MMM |
| 6 | 2 | T | 1.2 | 2.4 | 0 | MMM |
| 6A | 3 | U, W & S | 5.4 | 10.8 | **8** | MMM |
| 7 | 2 | N | 1.9 | 3.8 | **2** | MMM |
| **THABA NCHU - RESERVOIRS** | | | | | | |
| Blydskap | 9.0 | Ratau, Ramakgari, Moroka, Thaba Nchu (66%) Motlatla Reservoir | 8.002 | 16.004 | 7.0 | MMM |
| Lesaka | 13.0 |  |  |  | -13.0 | MMM |
| Tabale \* | 10.0 | OK reservoirs, Thaba Nchu 33% | 5.11 | 10.22 | 0.2 | MMM |
| OK | 3.5 | Ratlou, Flenter, Stationview, Selosesha, Seroalo | 4.832 | 9.664 | 6.2 | Bloemwater |
| Motlatla | 5.6 | Motlatla, Rooifontein, Mokwena, Bultfontein 1-5, Selosesha Industrial, NBSL (Rural) | 6.691 | 13.382 | 7.8 | MMM |
| Epol | 0.0 | N/A | N/A | N/A | N/A | MMM |
| Bultfontein | 0.6 | N/A | N/A | N/A | N/A | MMM |
| \* Excluding Tabele village supply |  |  |  |  |  |  |

**Table D3: Existing Capacity and demand for Mangaung waste water treatment works (February 2014)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **WWTW** | **Community Served** | **Sludge @/** | **Type of Treatment \*** | **Design Hydraulic Capacity** | **Required Hydraulic Demand** | **Spare Hydraulic Capacity** | **Required Organic Capacity (kg/day)** |
| **Disposal #** | **(Ml/Day)** | **(Ml/day)** | **(Ml/day)** |
| Welvaart | Bloemfontein | A/D&I | AS | 5 | 4.7 | 0.3 | 3065 |
| Langenhoven Park | Bloemfontein | A/L | AS | 5.5 | 4.5 | 1 | 3372 |
| Northern Works | Bloemfontein | A/D | BF&AS | 4 | 1.3 | 2.7 | 2452 |
| Bloemspruit AFB | Bloemspruit AFB | D/D | BF | 0.5 | 0.3 | 0.2 | 307 |
| Bloemdustria | Bloemdustria | O/N | OP | 0.9 | 0.3 | 0.6 | 552 |
| Bloemspruit | Bloemfontein | D/D | BF | 42.3 | 62.4 | -20.1 | 25930 |
|  | Mangaung | D/D | BF | 13.7 | 21.7 | -8.0 | 8398 |
| Sterkwater | Mangaung | A/L | Petro/AS | 20 | 24.7 | -4.7 | 12 260.0 |
| Botshabelo | Botshabelo | A/L | NRAS | 20 | 33.2 | -13.2 | 12260 |
| Selosesha | Thaba Nchu | A/L | AS | 6.5 | 11.1 | -4.6 | 3594.5 |
| **Total:** |  |  |  | **118.4** | **164.126** | **-45.726** | **72189** |
| @ Sludge Type: A = Activated Sludge, D = Digested Sludge, O = Oxidation Pond, N = No Disposal (Oxidation Pond) | | | | | | | |
| # Disposal Method: D = Drying Bed to Landfill, I = Irrigation, L = Lagoon | | | | | | | |
| \* Type of Treatment: BF = Bio Filter; AS = Activated Sludge; OP = Oxidation Pond: NRAS = Nutrient Removing AS | | | | | | | |

1. **Current Level of Civil Services in Mangaung**

**Table D4: Level of civil services in Mangaung (February 2014)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Services and Level of Service** | **Bloemfontein** | | **Botshabelo** | | **Thaba Nchu** | |
| **Quantity** |  | **Quantity** |  | **Quantity** |  |
| Sanitation |  |  |  |  |  |  |
| None Included Parks | 550 | Stands | 3084 | Stands | 47 | Stands |
| Buckets | 344 | Stands | 1071 | Stands | 4 | Stands |
| Pits | 2913 | Stands | 14651 | Stands | 290 | Stands |
| VIPs | 2103 | Stands | 16139 | Stands | 13027 | Stands |
| Waterborne | 87437 | Stands | 16587 | Stands | 7301 | Stands |
| Water |  |  |  |  |  |  |
| Communal Taps | 2 789 | Stands | 3 | Stands | 881 | Stands |
| Stand Connections | 88964 | Stands | 47351 | Stands | 19476 | Stands |
| Streets and stormwater |  |  |  |  |  |  |
| Paved | 1172 | km | 166 | km | 100 | km |
| Gravel | 295 | km | 318 | km | 208 | km |
| Dirt | 13 | km | 87 | km | 128 | km |
| Stormwater | 1700 | km | 36 | km | 29 | km |

1. **Services Backlogs**
2. **Water**

**Table D5: Water service levels and backlogs (Updated Feb 2014)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Existing Service level (Water)** | **Bloemfontein** | **Botshabelo** | **Thaba Nchu** | **Total** |
| Water Connection (stands) | 88 964 | 47 351 | 19 476 | 155 791 |
| \*\*Connection (No meter) (stands) |  | 479 |  | 479 |
| \*\*No Services (stands) | 89 | 2 458 |  | 2 547 |
| \*\*Water Network Only (stands) | 0 | 0 | 0 | 0 |
| \*\*Communal Standpipes (stands) | 2 996 | 3 | 881 | 3 880 |
| \*\*Not developed | 6 955 |  | 1 970 | 8 925 |
| \*\*Other Stands | 4 | 4 | 885 | 893 |
| \*\*Parks (stands) | 461 | 323 | 47 | 831 |
| **Total service level for Water** | **99 469** | **50 618** | **23 259** | **173 346** |
| **\*\*Metered water backlog** | **10 505** | **3 267** | **3 783** | **17 555** |
| Estimated installation unit cost ( R) | 8 000 | 8 000 | 8 000 | 8 000 |
| Estimated upgrade cost ( R) | R84 040 000 | R26 136 000 | R30 264 000 | R140 440 000 |

1. **Sanitation**

**Table D6: Sanitation service levels and backlogs (Updated Feb 2014)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sanitation** | **Bloemfontein** | **Botshabelo** | **Thaba Nchu** | **Total** |
| Waterborne (stands) | 87 877 | 21 749 | 8 923 | 118 549 |
| \*\*VIPs (stands) | 1 663 | 12 396 | 11 405 | 25 464 |
| \*\*Pit Latrines (stands) | 2 913 | 13 232 | 290 | 16 435 |
| \*\*Buckets (stands) | 344 | 1 071 | 4 | 1 419 |
| \*\*No Services (stands) | 5 559 | 2 761 | 790 | 9 110 |
| \*\*Parks (stands) | 461 | 323 | 47 | 831 |
| **Total sanitation** | **98 817** | **51 532** | **21 459** | **171 808** |
| **\*\*Waterborne Backlog** | **10 940** | **29 783** | **12 536** | **53 259** |
| Estimated installation unit cost ( R) | 25 000 | 25 000 | 25 000 | 25 000 |
| Estimated upgrade cost ( R) | 273 500 000 | 744 575 000 | 313 400 000 | 1 331 475 000 |
| Other stands | 4 | 4 | 877 | 885 |
| **Total Stands** | **98 821** | **51 536** | **22 336** | **172 693** |

1. **Roads and Stormwater**

**Table D7: Roads and Stormwater backlogs (February 2014)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Existing Developments** | **No House Units** | **Length (Km)** | **Unit cost** | **Total estimated Cost** |
| Mangaung Road backlog | 167,779 | 1 049 | R 6,500 | R 6,818,500,000 |
| Mangaung Stormwater Backlog |  | 800 | R 3,500 | R 2,800,000,000 |
|  | | | | |
| **Informal settlements** | **No House Units** | **Length (Km)** | **Unit cost** | **Total estimated Cost** |
| Bloemfontein | 31627 |  |  |  |
| Roads |  | 791 | R 6,500 | R 5,139,387,500 |
| Stormwater |  | 553 | R 3,500 | R 1,937,152,000 |
| Botshabelo | 6928 |  |  |  |
| Roads |  | 139 | R 6,500 | R 900,640,000 |
| Stormwater |  | 111 | R 3,500 | R 387,968,000 |
| Thaba Nchu | 3284 |  |  |  |
| Roads |  | 66 | R 6,500 | R 426,920,000 |
| Stormwater |  | 53 | R 3,500 | R 183,904,000 |
|  | | | | |
| **Future Developments** | **No House Units** | **Length (km)** | **Unit cost** | **Total estimated Cost** |
| 7 Land Parcels | 13671 |  |  |  |
| Roads |  | 273 | R 6,500 | R 1,777,230,000 |
| Stormwater |  | 219 | R 3,500 | R 765,576,000 |