

7. September 2021

Facts and Figures: Municipal Wastewater and Sewerage Department Hanover

| organizational form                           | Municipal Wastewater and Sewerage Department |  |  |
|---|--|--|--|
| number of employees                           | Hanover<br>ca. 500                           |  |  |
| number of employees population of the city of |  |  |  |
| Hanover                                       | 539,641 (09/2020)                            |  |  |
|   | 10.94 in                                     |  |  |
| annual precipitation                          | 19.84 in                                     |  |  |
| waste water charge                            | 0.01059 €/ imp gal                           |  |  |
| precipation water charge                      | 1,054 €/ in <sup>2</sup>                     |  |  |
| length of the urban drainage network          | 1,589 mls                                    |  |  |
| mixed water drains                            | 169 mls (i.e. 10.8%)                         |  |  |
| waste water drains                            | 699 mls (i.e. 44.0%)                         |  |  |
| rainwater drains                              | 720 mls (i.e. 45.3%)                         |  |  |
| number of rainwater                           | total of 66                                  |  |  |
| reservoirs                                    | with a retention volume of 277,577 $m^3$     |  |  |
| number of waste water                         | total of 123                                 |  |  |
| pumping stations                              |  |  |  |
|   | of which 3 mixed water pumping stations      |  |  |
|   | of which 63 waste water pumping stations     |  |  |
|   | of which 57 rainwater pumping stations       |  |  |
| no. of road drains                            | 59,959                                       |  |  |
| length of outflows for                        | 93.8 mls                                     |  |  |
| rainwater removal                             |  |  |  |
| connections to the drainage                   | 119,000 (estimate)                           |  |  |
| network                                       |  |  |  |
| properties connected to the                   | 66,133                                       |  |  |
| public drainage network                       |  |  |  |
| internal equipment                            |  |  |  |
| maintenance and cleaning                      |  |  |  |
| sewer network:                                | 651.8 mls/p.a.                               |  |  |
| ditches:                                      | 66.5 mls/p.a.                                |  |  |
| street drains:                                | 47,387 units/p.a.                            |  |  |
| cleaning and disposal of light                |  |  |  |
| liquid / heavy oil separators                 |  |  |  |
| and sludge traps                              |  |  |  |
| total number:                                 | 520 units                                    |  |  |
| cleaning performance:                         | 246 units/p.a.                               |  |  |
| cleaning volume:                              | 504,389.5 imp gal/p.a.                       |  |  |
| cleaning and disposal of                      |  |  |  |
| grease separators and sludge                  |  |  |  |
| traps   |  |  |  |
| total number:                                 | 1,060  |  |  |
| cleaning performance:                         | 4,720 units/p.a.                             |  |  |
| cleaning volume:                              | 1865779 imp gal/p.a.                         |  |  |

| wastewater treatment plants    | plant "Herrenhausen"       | plant "Gümmerwald"  |
|--------------------------------|----------------------------|---------------------|
| capacity                       | 500,000 PE                 | 750,000 PE          |
| constructions / extensions     | 1907/1935/1955/1974/2001   | 1982/2000           |
| nominal intake (dry weather)   | 4,749,412,792 imp gal/p.a. | 6,689,099,424 imp   |
|                                |                            | gal/p.a.            |
| waste water volume (imp gal)   |                            |                     |
| year:                          | 5,089,096,124              | 7,233,352,397       |
| day:                           | 13,942,530                 | 19,817,250          |
| hour:                          | 580,939                    | 825,545             |
| minute:                        | 9,679                      | 13,748              |
| second:                        | 162                        | 229.5               |
| purity degree of treated water |                            |                     |
| carbon (CD)                    |                            |                     |
| nitrogen (N)                   | 96%                        | 96%                 |
| phosphorus (P)                 | 86%                        | 91%                 |
|                                | 97%                        | 96%                 |
| gas volume production          | 753,555,693 imp gal/p.a.   | 1,130,836,389 imp   |
|                                |                            | gal/p.a.            |
| energy consumption             | 11.831.739 kWh/p.a.        | 13.406.807 kWh/p.a. |
| electricity self-supply        | 7,745,011 kWh/p.a.         | 10,994,255 kWh/p.a. |
| self-supply rate               | 65.5%                      | 82.0%               |
| screening volume               | 697 t/p.a.                 | 449 t/p.a.          |
| sand trap volume               | 136 t/p.a.                 | 114 t/p.a.          |
| sludge production volume of    | 54,541 t/p.a.              |                     |
| both treatment plants          |                            |                     |