

**DATA AND GENERAL INFORMATION OF THE
HANOVER MUNICIPAL WATER WORKS AS OF DECEMBER 31, 2019**

1. Source of Supply – Sheppard & Myers Dam

Supply originates in West Manheim Township, York County, Pennsylvania and Carroll County, Maryland from springs and their tributaries, which is the start of the extreme South Branch of the Little Conewago Creek, and is impounded into Sheppard & Myers Dam located ½ mile from the Mason & Dixon Line. Total capacity of impounding dam is 190,400,000 gallons, which covers an area of 46½ acres.

Source of Supply – Lawrence Baker Sheppard Dam

Supply originates in Carroll County, Maryland, from springs and their tributaries, which is the start of Long Arm Creek, and is impounded into Lawrence Baker Sheppard Dam located ¾ mile from the Mason & Dixon Line. Total capacity of impounding dam is 1,659,404,000 gallons, which covers an area of 225 acres.

Source of Supply – Slagles Run Intake

Natural drainage originates north and east of the site in Penn Township, York County and Berwick Township, Adams County from springs and their tributaries to form Slagle's Run. Stream flow, from which the intake to this raw water pumping station will be taken, is essentially derived from the discharge of ground water that is pumped from the Vulcan Materials Company operations immediately upstream from the intake, and the drainage from the Slagle's Run drainage area.

2. Watershed

Sheppard & Myers covers a radius of 5½ square miles and Lawrence Baker Sheppard Dam covers a radius of 5.92 square miles. Total acreage in watershed owned by The Borough of Hanover is 2,525 acres and 124.622 perches, of which 391 acres and 115 perches are located in Manchester District, Carroll County, Maryland. Of this coverage, 2,334 acres and 20.252 perches are reforested with pine transplants to prevent soil erosion, etc. in our impounding dam. The watershed area above the intake on what is referred to as Slagle's Run is a combination of farmland, residential and heavy commercial development and covers an area of 10.2 square miles.

3. Storage Reserves

Present day raw water storage capacity is 1,904,804,000 gallons including Clear Lake. The raw water collected in the Sheppard & Myers Impounding Dam and Lawrence Baker Sheppard Impounding Dam is controlled by sluice gates located close to the spillway. These gates are used only when there is insufficient water going over the spillway to operate our filtration plant, and this raw water from impounding dams is all gravity fed to a small dam known as Kitzmiller's Dam. From there it is controlled with electrically operated valves through a 36-inch pipe to Clear Lake. Clear Lake is located ¼ mile away from our Filtration Plant. It holds 52,000,000 gallons and acts as a settling out basin to reduce the turbidity in the raw water before entering our Filtration Plant. Another purpose of this Clear Lake is to bypass all water at the time of heavy storms or flood conditions and let it run down stream. The water carries a lot of turbidity for a two or three-day period following one of these flood conditions, and during this period we operate from the Clear Lake.

The two reservoirs located at Parr's Hill have a total storage capacity of 13,020,000 gallons of treated water (one containing 5,295,000 gallons and the other 7,725,000 gallons). The reservoirs are connected to our gravity fed system. A Booster Station was built adjacent to Parr's Hill Reservoirs in 1965 to increase water pressure in the Southeast Section of our distribution system. In 1990 floating covers were added to the reservoirs to maintain water quality. New floating covers and liners were installed in 2014 along with the construction of a new Booster Pump Station.

The McSherrystown storage tank holds 250,000 gallons and the tank on Terrace Avenue holds 500,000 gallons of treated water.

4. Storage Safe Yield

The total safe yield of our present day storage capacity considering seepage and evaporation is 7½ months.

5. Pumping Facilities

Three electrically driven pumps, capacity of 3,400 gallons per minute each, connected directly to the 18-inch and 20-inch mains. Also, one electrically operated pump, capacity of 1,250 gallons per minute, connected directly to the 12-inch force main.

6. Filters

There are five dual media filters having a total capacity of 3,600,000 gallons per day (upgrade done in 2016). There are also two double filters, which were installed in 1964 as rapid sand filters and (upgrade done in 2017) still as dual media filters capable of filtering a total of 8,000,000 gallons per day.

LIQUID ALUM for coagulation and sodium permanganate for iron and manganese removal and gravity sedimentation are used as pretreatment of water before entering the filters. Post filtration treatment consists of fluoridation as a dentifrice, chlorination for disinfection and the addition of caustic soda for Ph adjustment of the finished product. Liquid polymer is added during colder water periods when needed giving better settling ability to the floc formed by the addition of alum.

7. Water Analysis

During the year, we had at least 50 samples of water analyzed for potential bacteria problems per month by a certified lab. We also test those 50 samples for chlorine content. This is an average of 13 samples per week taken from locations all around our distribution system. Many other various tests are run throughout the year to insure water quality in our system.

8. Consumption

During the year 2019, the consumption was 1,714,283,000 gallons or an average of 116 gallons per capita per day, at an estimated population served of 42,513.

Water delivered to Distribution System (Gallons) 2019.....	1,741,283,000
Water delivered to Distribution System (Gallons) 2018.....	<u>1,613,160,000</u>
Difference in Consumption (Gallons) for the year.....	128,123,000

Average Daily Consumption (Gallons) in the Year 2019.....	4,770,638
Average Daily Consumption (Gallons) in the Year 2018.....	<u>4,419,616</u>
Difference in Daily Consumption (Gallons) for the Year.....	351,022

9. Mains

There are approximately 210 miles of cast iron and ductile iron water main in our entire system, sizes ranging from 4" to 20".

10. Service Connections

There are now 17,813 service connections taken off the Distributions Mains.

Total number of Consumers, December 31, 2019.....	17,813
Total number of Consumers, December 31, 1932.....	<u>4,494</u>
Or an increase since 1932 of.....	13,319

New service applications during the Year 2019.....	86
Service renewals during the Year 2019.....	205
Fire Hydrant connections off the Distribution Mains.....	1,042