Water Works -- Available Supply Capacity -- As of January 1, 2020

Assumptions

1. Demand is based on active applications and existing agreements

NOTE: The following calculations are basedon MOE Procedure D-5-1 "Calculating and Reporting on Uncommitted Reserve Capacity at Sewage and Water Treatment Plants".

Secton 1 - Supply Capacity

Total Available Supply Capacity

Well No.		Permitted Capacity	Safe Pumping Capacity m3/day 1999	2000	2001	2002	2003	2004
2	See Note 1	-	691	691	691	691	691	691
3	See Note 2		0	0	0	0	0	0
4	See Note 3	PE	1,973	1,973	0	0	0	0
5/5a	See Note 4	6,000	4,925	4,925	4,925	4,925	4,925	6,000
6	See Note 5	3,600	3,456	3,456	3,456	3,456	3,456	3,456
7		1,309	1,309	1,309	1,309	1,309	1,309	1,309
8b/8c	See Note 6	657	2,314	2,314	2,314	2,314	2,314	1,519
9a/9b	See Note 7	878	1,376	1,309	1,309	1,309	1,309	1,309
10		1,452	1,452	1,452	1,452	1,452	1,452	1,452
11		1,309	1,309	1,309	1,309	1,309	1,309	1,309
12	See Note 8	1,309						
	TOTAL	16,514	18,805	18,738	16,765	16,765	16,765	17,045
	without Well 5 and 5A		13,880	13,813	11,840	11,840	11,840	11,045
	without Well 5 or 5A		18,494	18,427	16,454	16,454	16,454	15,659

Total Available Supply Capacity (Cont'd)

Well No.		Permitted Capacity	Safe Pumping Capacity m3/day 2005	2006	2007	2008	2009	2010
2	See Note 1	-	691	691	691	821	878	878
3	See Note 2					-		
4	See Note 3	PE				-		
5/5a	See Note 4	6,000	6,000	6,000	6,000	6,000	6,000	6,000
6	See Note 5	3,600	3,456	3,456	3,456	3,456	1,500	2,950
7	See Note 6	1,309	1,309	1,309	1,309	1,309	1,309	1,310
8b/8c	See Note 7	657	655	655	655	654	656	656
9a/9b	See Note 8	878	880	880	880	878	878	878
10		1,452	1,452	1,452	1,452	1,453	1,452	1,452
11		1,309	1,309	1,309	1,309	1,309	1,309	1,309
12	See Note 9	1,309			1,309	1,309	1,309	1,309
	TOTAL	16,514	15,752	15,752	17,061	17,189	15,291	16,742
	without Well 5 and 5A		9,752	9,752	11,061	11,189	9,291	10,742
	without Well 5 or 5A		14,366	14,366	15,675	15,803	13,905	15,356

Total Available Supply Capacity (Cont'd)

Water Works -- Available Supply Capacity -- As of January 1, 2020

Well No.		Permitted Capacity	Safe Pumping Capacity m3/day 2011	2012	2013	2014	2015	2016
2	See Note 1	[878]	691	691	700	700	778	820
3	See Note 2							
4	See Note 3	PE						
5/5a	See Note 4	6,000	6,000	6,000	6,000	6,000	6,000	6,000
6	See Note 5	3,600	1,000	1,900	2,500	2,289	2,246	2,419
7	See Note 6	1,310	1,309	1,309	1,310	1,310	1,310	1,310
8b/8c	See Note 7	656	655	655	656	656	432	518
9a/9b	See Note 8	878	880	880	878	878	878	878
10	See Note 9	1,452	1,452	1,452	1,452	1,452	1,452	1,296
11	See Note 10	1,309	1,309	1,309	1,309	1,309	1,210	1,037
12	See Note 11	1,309	1,309	1,309	1,309	1,309	1,309	1,309
		16,514	14,605	15,505	16,114	15,903	15,615	15,587
	without Well 5 and 5A		8,605	9,505	10,114	9,903	9,615	9,587
	without Well 5 or 5A		13,219	14,119	14,728	14,517	14,229	14,201

Total Available Supply Capacity (Cont'd)

Well No.		Permitted Capacity	Safe Pumping Capacity m3/day 2017	2018	2019	2020	2021	2022
2	See Note 1	[878]	778	820	775			
3	See Note 2							
4	See Note 3							
5/5a	See Note 4	6,000	6,000	6,000	6,000			
6	See Note 5	3,600	2,592	1,728	1,728			
7	See Note 6	1,310	1,310	1,310	1,310			
8b/8c	See Note 7	656	654	654	654			
9a/9b	See Note 8	878	878	878	878			
10	See Note 9	1,452	1,296	1,296	1,296			
11	See Note 10	1,309	1,037	1,037	900			
12	See Note 11	1,309	1,309	1,309	1,309			
		16,514	15,854	15,032	14,850	-	-	-

Note: A Consolidated PTTW which sets the rates for all the wells was issued by the MOE in December 2012. The total taking from all the wells is set at 17,392 m3/d. However, operational experience and ongoing hydraulic analyses show some wells may not be able to sustain that rate, so the available supply capacity is based on what Staff considers to be the current safe pumping rate for some of the wells.

Note 1: The Consolidated PTTW sets the maximum taking from Well 2 at 878 m3/d. 775 m3/d is considered the current safe pumping rate due to declining pumping water levels in
Note 2: Well 3 was decomissioned June 25, 1997. The well is not included in the consolidated PTTW.
Note 3: Council directed Well 4 be discontinued as a source of drinking water September 10, 2001. The well is not included in the consolidated PTTW.
Note 4: The consolidated PTTW sets the maximum taking from Well 5 and 5A combined at 6,000 m3/d. This is considered the safe pumping rate.
Note 5: The consolidated PTTW sets the maximum taking at 3,600 m3/d. Decrease pumping rate from 2,592 to 1,728 m3/d due to lost capacity in the well (Aug. 2018). Pumping levels are steady, but total 2018 water taking was down approximately 19% and flow rates were reduced from 30-32 L/s to 20 L/s. Continue monitoring to confirm if trends continue.
Note 6: The consolidated PTTW sets themaximum taking at 1,310 m3/d. This is considered a safe pumping rate.
Note 7: The consolidated PTTW sets the maximum taking from Well 8B and 8C combined at 656 m3/d, and is considered a safe pumping rate. Rated capacity of the treatment system is 654 m3/d and is the rate used in the above table.
Note 8: The consolidated PTTW sets the maximum taking from Well 9A and 9B combined at 878 m3/d, and is considered a safe pumping rate.

Water Works -- Available Supply Capacity -- As of January 1, 2020

Note 9: The consolidated PTTW sets the maximum taking from Well 10 at 1,452 m3/d through out the year, except in October and November when the when the rate is reduced to 902 m3/d. Safe pumping remains at 1,296 m3/d; continue monitoring in 2019.

Note 10: The consolidated PTTW sets the maximum taking from Well 11 at 1,309 m3/d. Safe pumping capacity reduced to 900 m3/day due to declining pumping water levels. Dec. 2018 rehabilitation work did not appreciably improve pumping water levels (based on limited data to date).

Note 11: The consolidated PTTW sets the maximum taking from Well 12 at 1,309 m3/d, and this is considered a safe pumping rate.

Total Available Supply Capacity **14,850 m3/day**

Note: Previous available supply calculations included a reduction in supply capacity due to filter backwashing. Operational experience shows that is not necessary as filter backwash volumes are not as high as originally expected.

Section 2 Maximum Day, Average Day and Max Day Factor

Historical Records, Max Day, Ave Day and Max Day Factors

Year	Max Day Flow m3/d	Avg Day Flow m3/d	Max Day Factor	5 - Year Avg Max Day Factor	Max Day, 5 Yr Avg	Max Day, 5 Yr Max	Number of Households	Population
1994	15,701	9,740	1.61					
1995	15,500	10,469	1.48	1.55			7,210	21,342
1996	14,330	9,896	1.45	1.51			7,364	21,797
1997	14,805	9,986	1.48	1.51			7,496	22,188
1998	16,183	9,982	1.62	1.53	15,304		7,782	23,035
1999	16,408	10,297	1.59	1.54	15,445		8,069	23,964
2000	13,458	9,577	1.41	1.52	15,037		8,388	24,828
2001	16,092	10,195	1.58	1.53	15,389		8,877	26,276
2002	17,980	10,466	1.72	1.55	16,024		9,066	26,835
2003	14,714	10,189	1.44	1.54	15,730		9,303	26,886
2004	11,118	8,900	1.25	1.51	14,672		9,542	27,576
2005	13,188	9,433	1.40	1.50	14,618		9,642	27,865
2006	12,368	8,765	1.41	1.50	13,874		9,682	27,981
2007	13,135	8,922	1.47	1.49	12,905		9,750	28,178
2008	12,413	8,636	1.44	1.49	12,444		9,761	28,209
2009	11,118	8,400	1.32	1.41	12,444		9,851	27,582
2010	11,062	8,359	1.32	1.39	12,019		10,109	28,305
2011	12,383	8,688	1.43	1.40	12,022		10,186	28,520
2012	12,016	8,623	1.39	1.38	11,798		10,303	27,818
2013	11,181	8,099	1.38	1.37	11,552	12,383	10,475	28,492
2014	11,865	8,710	1.36	1.38	11,701	12,383	10,596	28,821
2015	12,399	9,277	1.34	1.38	11,969	12,399	10,678	29,045
2016	13,248	9,509	1.39	1.37	12,142	13,248	10,696	28,900
2017	12,437	9,422	1.32	1.36	12,226	13,248	10,887	29,500
2018	14,037	9,845	1.43	1.37	12,797	14,037	11,065	29,876
2019	11,580	9,003	1.29	1.35	12,740	14,037	11,153	30,113

Section 3 Hydraulic Reserve Capacity (See Note below).

Hydraulic Reserve Capacity = Available Supply Capacity - Maximum Day Demand.

Year	Avail Supply Cap[1] Section 1, m3/d	Highest Max Day Section 2, m3/d	Hydraulic Res Cap Supply-High Max Day m3/d	Max Day[2] m3/d	Hydraulic Res Cap Supply - 5 Yr Max Day m3/d

Water Works -- Available Supply Capacity -- As of January 1, 2020

1997	21,280	15,701	5579.00		
1998	21,280	16,183	5097.00	15,304	
1999	18,805	16,408	2397.00	15,445	3,501
2000	18,738	16,408	2330.00	15,037	3,293
2001	16,765	16,408	357.00	15,389	1,728
2002	16,765	17,980	-1215.00	16,024	1,376
2003	16,765	17,980	-1215.00	15,730	741
2004	17,045	17,980	-935.00	14,672	1,315
2005	15,752	17,980	-2228.00	14,618	1,080
2006	16,874	17,980	-1106.00	13,874	2,256
2007	16,881	17,980	-1099.00	12,905	3,007
2008	16,947	17,980	-1033.00	12,444	4,042
2009	15,291	17,980	-2689.00	12,444	2,847
2010	16,742	17,980	-1238.00	12,019	4,298
2011	14,605	17,980	-3375.00	12,022	4,092
2012	16,114	17,980	-1866.00	11,798	4,316
2013	15,903	17,980	-2077.00	11,552	4,351
2014	15,615	17,980	-2365.00	11,701	3,914
2015	15,615	17,980	-2365.00	11,969	3,646
2016	15,587	17,980	-2393.00	12,142	3,445
2017	15,854	17,980	-2126.00	12,226	3,628
2018	15,032	17,980	-2948.00	12,797	2,235
2019	14,850	17,980	-3130.00	12,740	2,110

Note 1: The Available Supply Capacity calculations use the hydraulic reserve capacity that is calculated with the 5 year average maximum day demand to reflect the reduced max day demand as a result of conservation and metering.

Note 2: Max Day is shown as the 5-year average MDD

Section 4 Committed Supply Capacity - Active Applications. See Note below.

Residential

Plan	SF Res @1.0m3/d Average Day	SF Res @ .75m3/d Average Day	Twnhses @ .6m3/d Average Day	Apts @ .5m3/d Average Day	Condos & Twnhses @ 0.50 m3/d, Avg Day	Total
Infilling		15				15
15 Brenda			14			14
Westview Condos-Block 3			42			42
15-19 Centre Street			24			24
30/32 Townline			1			1
31 Townline			9			9
60/62 First Street (condo TH)			0			0
Cachet Block 92 Common element			0			0
310 Broadway			44			44
Chartwell Seniors Ph 2 (Riddell Road)				122		122

Total Number of Units (Note 1)	0	15	134	122	0	271
Total Ave Day m3/d	0	11	80	61	0	153
Total Max Day m3/d = Ave Day *(5-Yr Avg Max Day Fctr)	0	15	109	82	0	**206**

Notes: Purchase agreement for the Tansmetro well requires Town to provide capacity for 945 residental units from the Transmetro well, over and above supply for Humber, on lands west of Blind Line that are owned by Transmetro Properties and Edgewood Valley, and on O'ville Highlands Phase 1.

Section 4 Committed Supply Capacity , Cont'd

Commercial

Development	Descripton	Max Day Demand m3/d
33-37 Broadway	1 vacant units	1.2
75 Alder	1 units vacant	1
1 Elizabeth St	1 unit vacant	1
96-98 First St	2 units vacant	2
Total Commercial Max Day Demand		**5**

Industrial

Development	Description	Max Day Demand m3/d	
Florentina Foods (175/185 Centennial)		167	Estimated max usage of 5,000 m3/month
Total Industrial Max Day Demand		**167**	

Institutional

Development	Description	Max Day Demand m3/d
Humber College	Cty Rd 16	174
Total Institutional Max Day Demand		**174**

Non-Res Total Max Day Demand	**346**

Section 5 Total Committed Supply Capacity Maximum Day Demand m3/d

Residential	206
Commercial	5
Industrial	167
Institutional	174
Other	0

Water Works -- Available Supply Capacity -- As of January 1, 2020

Total Committed Supply Capacity	**552**

Section 6 Total Uncommitted Reserve Capacity -- Before Transmetro Commitment (See Note Below).

Uncommitted Reserve Capacity = Calculated Hydraulic Reserve Capacity - Committed Supply Capacity

Calculated Hydraulic Reserve Capacity	2,110	m3/d
Commmitted Supply Capacity, Section 5	552	m3/d
Uncommitted Reserve Capacity -- Before Transmetro	**1,558**	**m3/d**

Note: Purchase agreement for the Tansmetro well requires Town to provide capacity for 945 residental units from the Transmetro well, over and above supply for Humber, on lands west of Blind Line that are owned by Transmetro Properties and Edgewood Valley, and on O'ville Highlands Phase 1.

Section 7 Total Uncommitted Reserve Capacity -- With Transmetro Commitment

Uncommitted Reserve Capacity -- Before Trans	1,558	m3/d
Total Demand for 945 SF Residential Units of which 326 units are approved: OH Ph 1 - 103; EV 2A - 58, EV 1B 34; Cachet 7M-70 (120 houses, 11 Townhouses) - (945-326) x 0.75 x 1.52.	706	m3/d
Uncommitted Reserve Capacity with Transmetro agreement.	**852**	**m3/d**