

From: Kevin Bartlett
Sent: Wednesday, August 08, 2018 2:08 PM
To: Noreen Piazza
Subject: FW: Water Use Projection
Attachments: Population Change by Street.pdf; Average Daily Withdrawal Trend.pdf; Water Use Projection.pdf

From: Scott Miller [mailto:scott.miller@townoflanaster.com]
Sent: Monday, August 06, 2018 2:18 PM
To: Kevin Bartlett
Cc: Bethany Ordnung
Subject: Water Use Projection

Kevin

I have some preliminary results from our review of the water use projections for the pending residential projects in Town. The following are our key findings

- Based upon the Town Census (Street Listing) from 2018 and 2005, there has been a net reduction of 600 people served by the Lancaster Municipal Water System. Please reference the Population Change by Street file attached. This list provides the count of persons expected to be on the water system.
 - There is a trend for population reduction in the developed areas of town. This is likely due to family size reduction and empty nesters purchasing homes.
 - Recent development at Blue Heron and a the buildout of Eagle Ridge have added to the population, also with expected small family size.
 - Now vacant residences and dorms in the Atlantic Union College campus have reduced the population served.
- The population reduction and efforts toward lead detection and conservation have led to a slight downward trend in the average daily withdrawal from Wells 1 and 2.
 - The system is currently operating under its Water Management Act (WMA) permitted volume of 0.53 MGD. This is the registered volume of the Town.
 - At 16 average operating hours per day, the system has the pumping and well yield capacity to provide and average daily volume of 0.91 MGD
 - An increase in the Water Management permitted withdrawal volume is contingent on the Town reducing its unaccounted for water percentage and possibly the average daily per capita volume
 - Future WMA permits will be tied to offsetting mitigation projects such as sewer infiltration reduction, groundwater recharge and similar offsets.
- The water use projection provides a summary of the major residential projects currently under construction or study within municipal service area.
 - The projected build out is based upon the expected number of bedrooms and an average population of 1.2 persons per bedroom
 - The full build out is spread the next 3 to 8 years based upon the project type
 - We have allowed 100 gallons per person per day based upon the average of the past 5 years of residential metered water sales
 - A 0.09 MGD demand is added to the residential demand for unaccounted for water and commercial demands

- The water system has the capacity to serve the proposed developments with the following considerations
 - The system is permitted to exceed the WMA by 0.10 MGD to a total of 0.63 MGD. While the projected withdrawals are below this value, low precipitation/high demand summer seasons may cause the Town to exceed this value.
 - Conservation and similar water use reduction plans should be incorporated in to new residential and commercial developments
 - Water use offsets (sewer infiltration reduction, groundwater recharge credits and other mitigation steps) should be sought from new developments to be applied to future WMA applications
 - The Town's efforts to reduce its unaccounted for water volume should be continued.

Scott A. Miller, PE
President
Haley and Ward, Inc.

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	Population Served		Growth (Shrink)
	2018	2005	
BARNES CT	10	14	(4)
BEACH AVE	0	0	0
BEACH POINT RD	0	0	0
BENNETT LN	0	0	0
BIGELOW GDNS	80	77	3
BIGELOW RD	29	25	4
BLANCHFLOWER LN	0	0	0
BLUE HERON DR	40	0	40
BOGAN AVE	0	0	0
BOLTON RD	98	117	(19)
BOLTON STATION RD	53	68	(15)
BRADBURY RD	17	17	0
BRAZAO LN	20	13	7
BRIAN RD	0	0	0
BROCKELMAN RD	38	48	(10)
BULL HILL RD	24	34	(10)
BURBANK LN	50	59	(9)
BUTTONWOOD LN	3	4	(1)
BUTTRICK LN	5	6	(1)
CARLETON PL	13	6	7
CARTER ST	39	56	(17)
CENTER BRIDGE RD	58	68	(10)
CHACE HILL RD	73	77	(4)
CHARLOTTE ST	18	22	(4)
CHISHOLM TRL	0	0	0
CLEVERLY COVE RD	0	0	0
COLE FARM RD	11	9	2
COLONY LN	23	27	(4)
CONNOR LN	24	28	(4)
CREAMERY RD	7	3	4
CRESCENT ST	8	8	0
DAIRY RD	5	26	(21)
DEERSHORN RD	43	59	(16)
DEVONSHIRE WAY	32	0	32
DEWEY ST	6	5	1
DONELLE WAY	0	0	0
EVELYN PL	0	0	0
FAIRVIEW HL	7	7	0
FARM LAND LN	33	39	(6)
FARNSWORTH WAY	20	23	(3)
FIRE RD 1	0	0	0
FIRE RD 3	0	0	0
FIRE RD 3A	0	0	0
FIRE RD 6	0	0	0
FIRE RD 7	0	0	0

	Population Served		Growth (Shrink)
	2018	2005	
FIRE RD 10	0	0	
FIRE RD 11	0	0	
FIRE RD 12	0	0	-
FIRE RD 53	0	0	
FITCH RD	37	35	2
FORT POND INN RD	0	0	
FORT POND LN	0	0	
FORT POND RD	0	0	-
FULLER AVE	11	12	(1)
GARRISON GRV	9	17	(8)
GEORGE HILL RD	147	149	(2)
GORHAM AVE	2	2	
GOSS LN	73	55	18
GRANT WAY	0	0	
HARKINS ST	2	1	1
HARVARD RD	115	121	(6)
HEMLOCK LN	32	39	(7)
HERITAGE LN	12	16	(4)
HIGH ST EXT	125	131	(6)
HIGHFIELD DR	45	57	(12)
HIGHLAND ST	9	14	(5)
HILL TOP RD	0	0	
HOLIDAY LN	0	0	
HUNTER LN	0	0	-
IVY CT	11	13	(2)
IVY DR	38	37	1
KALEVA RD	0	0	
KELLY DR	22	23	(1)
KILBOURN RD	42	45	(3)
KINNEAR AVE	0	0	
LANGEN RD	103	115	(12)
LAWSON AVE	0	0	-
LEE ST	70	100	(30)
LINDSEY WAY	2	0	2
LUNENBURG RD	9	7	2
MAGNOLIA AVE	44	37	7
MAIN ST	472	759	(287)
MAPLE ST	6	6	
MARY CATHERINE DR	66	58	8
MAYFLOWER DR	3	3	
MAYNARD ST	5	7	(2)
MEDITATION LN	0	0	
MILL ST (p)	137	163	(26)
MILL ST CT	13	14	(1)
MILL ST EXT	182	198	(16)

	Population Served		Growth (Shrink)
	2018	2005	
MOFFETT ST	64	67	(3)
MT LAUREL LN	0	0	-
MYLES STANDISH RD	7	9	(2)
NARROW LN	45	79	(34)
NECK RD	122	147	(25)
NICHOLAS DR	144	23	121
NORTH MAIN ST	0	0	-
OETMAN WAY	25	0	25
OLD COMMON RD	74	94	(20)
OLD COUNTY RD	40	44	(4)
OLD HICKORY RD	31	39	(8)
OLD LUNENBURG RD	0	0	-
OLD UNION TPKE	0	0	-
ORCHARD ST	6	2	4
OTIS ST	29	35	(6)
PACKARD ST	53	81	(28)
PAINE ST	7	6	1
PARKER RD	113	133	(20)
PERRY RD	0	0	-
PILGRIM RD	8	7	1
PINE HILL RD	1	3	(2)
PLYMOUTH DR	16	12	4
PONAKIN RD	73	107	(34)
POULIN DR	28	35	(7)
PRESCOTT ST	61	82	(21)
PUBLIC RD	8	15	(7)
RED TAIL WAY	47	0	47
REDSTONE HILL RD	0	0	-
RIGBY RD	33	34	(1)
RIVER TER	0	0	-
ROSS LN	24	25	(1)
RUNAWAY BROOK RD	0	0	-
RUSSELL LN	8	6	2
SANDY RIDGE RD	0	0	-
SAWYER ST	17	17	-
SCHUMACHER RD	16	21	(5)
SETTLER'S PATH	75	90	(15)
SEVEN BRIDGE RD	38	55	(17)
SHANNON WAY	23	24	(1)
SHASTA DR	15	26	(11)
SHIRLEY RD	52	67	(15)
SILVER ST	18	20	(2)
SOUTH MEADOW RD	161	187	(26)
SPEC POND AVE	0	0	-
SQUIRE SHALER LN	33	45	(12)

	Population Served		Growth (Shrink)
	2018	2005	
STAGECOACH RD	0	0	-
STERLING RD	150	157	(7)
STERLING ST	50	55	(5)
STILL RIVER RD	0	0	-
SYLVAN RD	63	62	1
TURNER LN	0	0	-
VINCENT AVE	0	0	-
WHITCOMB DR	38	52	(14)
WHITE POND RD	0	0	-
WHITE TAIL LN	29	41	(12)
WILLOW ST	2	0	2
WINSLOW ST	31	33	(2)
WINSOR RD	20	24	(4)
WOODLAND MEADOW DR	22	28	(6)
WOODRUFF RD	2	4	(2)
WOODS LN	0	0	-
YELLOW BIRCH LN	11	0	11
Water System Population	4664	5272	(608)
Town Population	5952	6601	(1,216)
% of Population served	78%	80%	



Projected Service Population

[illegible]