

RECEIVED

Date: 01/26/19

Re: Lancaster Public Water Supply Concerns

FEB 04 2019

Dear Chairman Rich,

COMMUNITY DEVELOPMENT  
AND PLANNING

Thank you for the opportunity to address the Zoning Board of Appeals at Thursday night's meeting with resident's concerns about the impact of the proposed Goodridge Brook Estates project on Lancaster's public water supply. A copy of my comments is appended below for the Board's reference.

Throughout the special permit hearing process, you have heard from many different residents that they are worried about the potential lasting effects that this development will have on the town's water infrastructure, whether it be through degraded service, or quality, or higher bills.

As residents have made clear at earlier hearings, the water reports received from Haley and Ward were incomplete and inadequate. In previous comments to the ZBA, we have provided examples to support these conclusions. Please refer to residents' comments from 12/2/18 on this subject.

We have repeatedly asked the Board to seek a comprehensive engineering analysis to determine the impact of GBE on the town's water system. As I stated Thursday night, this is necessary because the scope of the H & W reports is limited to water capacity and provides no guidance with respect to infrastructure, service, or quality.

If existing problems are not identified and resolved up front, the Applicant will be blamed for them, whether they are their fault or not. So, it is in the best interest of the developer to complete a thorough analysis of the water system and establish its current condition. It would benefit the town to resolve existing problems in advance of any more construction.

We have also requested that conditions be placed on the project's permit to hold the Applicant responsible for addressing its likely impact. Given the size of this project, it's reasonable to expect the developer would be accountable for any issues they may have on the administration, operation, or maintenance of the water system.

Residents have recently consulted another engineering firm regarding the water situation in Lancaster. Based upon our preliminary discussions, the impact study and permit conditions we are asking the ZBA to pursue are necessary, appropriate, and reasonable for a project of this scope and scale.

The impact upon our public water supply is as critical as any aspect of this project. Goodridge Brook Estates could increase demand by as much as 29,500 Ga/Day. For 8 of the past 10 years, the town has operated with withdrawal levels above its 530,000 Ga/Day average permit level. However, it would likely continue to operate within its 630,000 Ga/Day buffer limit for the next decade without the addition of this development.

I would appreciate it if you would review the attached comments and share them with the Board. Since you were not able to provide answers to my questions Thursday night, I would appreciate your written reply on the issues of conducting an appropriate project impact study and setting reasonable permit conditions with regard to the water system. Please let me know if you have any questions or concerns.

Sincerely,



Greg Jackson  
40 Farnsworth Way

## **1/24/19 Lancaster Residents' Water Supply Concerns**

- I. Lancaster residents have many concerns about the methodology, accuracy, and completeness of the 11/3/18 water use report from Haley & Ward.
  - The report provides best-case scenario projections based upon optimistic assumptions. It describes a population trend that is not fully supported by its own data.
  - It does not account for greater use of existing buildings, businesses, and homes that are already connected to the water system.
  - It does not adequately allow for growth over the next decade.
  - The report does not provide a complete and comprehensive review of the water system's infrastructure.
  - It focuses primarily on capacity and does not address the impact of the proposed development on service (eg: water pressure), and quality for existing customers.
  - The report does not provide all of the information needed to properly evaluate the consequences of additional future demands and make informed decisions.

Who paid for the H&W Water Use report?

- II. The ZBA should request a project impact study from an independent consultant to identify the water system's existing problems as well as any that the proposed development would cause.
  - Request flow modeling and hydrant testing to identify and resolve any water pressure issues currently experienced by nearby residences and businesses.
  - Review water sampling history to document and address any unresolved quality concerns.
  - Identify water system upgrades or modifications required to accommodate the added demand from Goodridge Brook Estates without degrading service or quality for existing customers.
  - If no such actions are required, the report should explicitly state that is the case.

What action does the ZBA plan to take?

- III. As a condition for permitting the proposed project:
    - The Applicant should be required to pay for all related water system evaluation and analysis.
    - The Applicant should be responsible for completing any system modifications or mitigation necessary to support connection of their development to the public water supply.
    - The Applicant should be accountable for any future WMA adjustments related to their project.
- Residents do not want to be financially burdened, through higher taxes or water rates, by any potential infrastructure modifications, WMA compliance activities, or engineering studies required to support this development.

What action does the ZBA plan to take?

Thank you for your time and attention.

# Town of Lancaster – 2018 Water Use Concerns

## 11/28/18 Resident's Concerns for Haley & Ward Water Use Projections:

- The 11/3/18 water use report from Haley & Ward provides **best-case scenario projections based upon optimistic assumptions**. It provides little margin for error and does not adequately allow for growth over the next decade (1).
  - It assumes that demand from the base population as well as use from all other sources in town remains flat.
  - It assumes unaccounted for water (UAW) does not increase and residential use remains at 62 Ga/Person per day.
- The report **does not account for greater utilization of existing buildings, businesses, and homes** that are already connected to the water system, for example: Atlantic Union College, the Maharishi Estate, and Monroe Cable.
  - Resumptions of activities at AUC could add  $28,800 \text{ Ga/Day}$  ( $450 \times 64$ ) with enrollment of 450 students.
  - The Maharishi's properties include 47 Bedrooms that could add  $3,610 \text{ Ga/Day}$  to demand ( $47 \times 1.2 \times 64$ ).
  - Monroe Cable is expanding, adding 25 employees on 3 shifts of water-consuming manufacturing operations.
- The report **assumes the status quo in housing occupancy** and does not account for "Empty-Nesters" downsizing as younger families move into larger homes with more bedrooms (eg: Farnsworth Way, Settler's Path, Squire Shaler).
- The residential per capita use reported as well as the demand from all other sources are derived from a 3-year averages from 2015 to 2017 that are skewed by unusually low use and UAW in 2017. An average over 5-years, for example, would provide more conservative results.
- The report does not provide a complete and comprehensive review of the water system's infrastructure to identify any upgrades or mitigation required to accept the added demand from GBE without compromising water service or quality for existing customers. **It does not explicitly state that GBE can be accommodated without any consequences.**
- Haley & Ward's water use projections **do not provide all of the information needed to properly assess the impact of additional demands** and make informed decisions on future projects.
- The Zoning Board of Appeals should request a **comprehensive water use study** from an independent consultant to perform the appropriate capacity evaluation as well as a system impact assessment.
- The developer should be asked to **pay all associated costs** as a condition for approval of a comprehensive permit.

## References:

1. Scott Miller, Haley & Ward, Summary of Water Use Projections on 11/03/2018.

11/28/2018

2018 Lancaster Water Use

# Town of Lancaster – 2018 Water Use Concerns

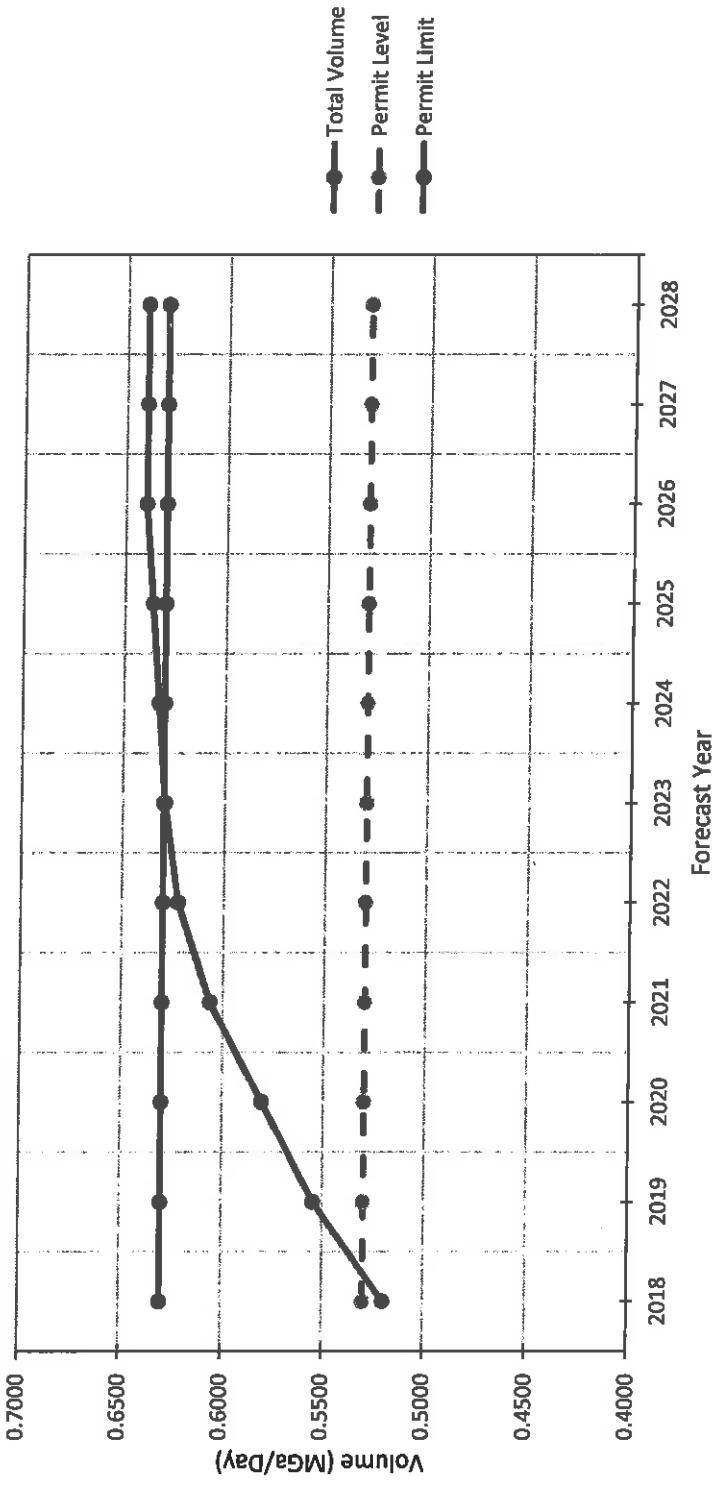
## 11/28/18 Resident's Concerns for Goodridge Brook Estates Proposal:

- Lancaster has operated above its Water Management Act (WMA) permit volume of 0.53 MGa/day for 9 of the past 10 years (based upon average daily withdrawals reported to Mass DEP).
- The water use projection for 2018 is 0.53 MGa/Day according to Scott Miller's report to the DPW on 11/3/18. Mass DEP allows a 0.10 MGa/Day buffer for a maximum average level of 0.63 MGa/Day (1.).
- Projections indicate Lancaster would operate below the buffer for the next decade without the addition of any major new demands (eg: resumption of activities at Atlantic Union College, construction of Goodridge Brook Estates).
- The proposed Goodridge Brook Estates (GBE) project would increase daily water demand by at least  $36,403 \text{ Ga/Day} (474 \times 1.2 \times 64)$ , which would exceed the permit limit.
- Please refer to the graph on slide 3, which shows water uses moving up above the permit limit within 4 to 5 years with the addition of GBE. It use Haley & Ward's methodology, but also adds the resumption of activities at AUC and the Maharishi Estate.
- An estimate of source demand derived from the current service population's bedroom count, 5752, produces a total of 0.660 MGa/Day, which is **30,000 Ga/Day above the permit limit of 0.630 MGa/Day (1.)**.
- Please refer to the next graph on slide 4, which shows water use moving up above the permit limit within 2 to 3 years with the addition of GBE. In this case, the projection was made using bedroom count for the base population.
- When you fully account for potential use from existing buildings, businesses, and homes, taking a more conservative approach, projections show the town does not have the capacity to add the massive demand from GBE.
- **MA DEP uses 110 Ga/Bedroom for water use analysis**, which produces an even higher estimate, 52,120 Ga/Day, for GBE and would likewise increase expected demand from other new developments.

## References:

1. Scott Miller, Haley & Ward, Summary of Water Use Projections on 11/03/2018.
2. Table 3-3: New Permit Application Timeline, Mass DEP WMA Permit Guide, 11/7/2014.
3. MA DEP PWS 2147000 Annual Report, Filed by the Town of Lancaster Water Department for 2017.

## Average Daily Withdrawal Forecast --Lancaster PWS 21470000 with Atlantic Union College and Maharishi Estate



### Projected Service Population Assumptions:

Demand from established service population does not grow.

Demand from new developments begins in 2019.

Atlantic Union College re-opens in 2019.

Maharishi Estate resumes use in 2019

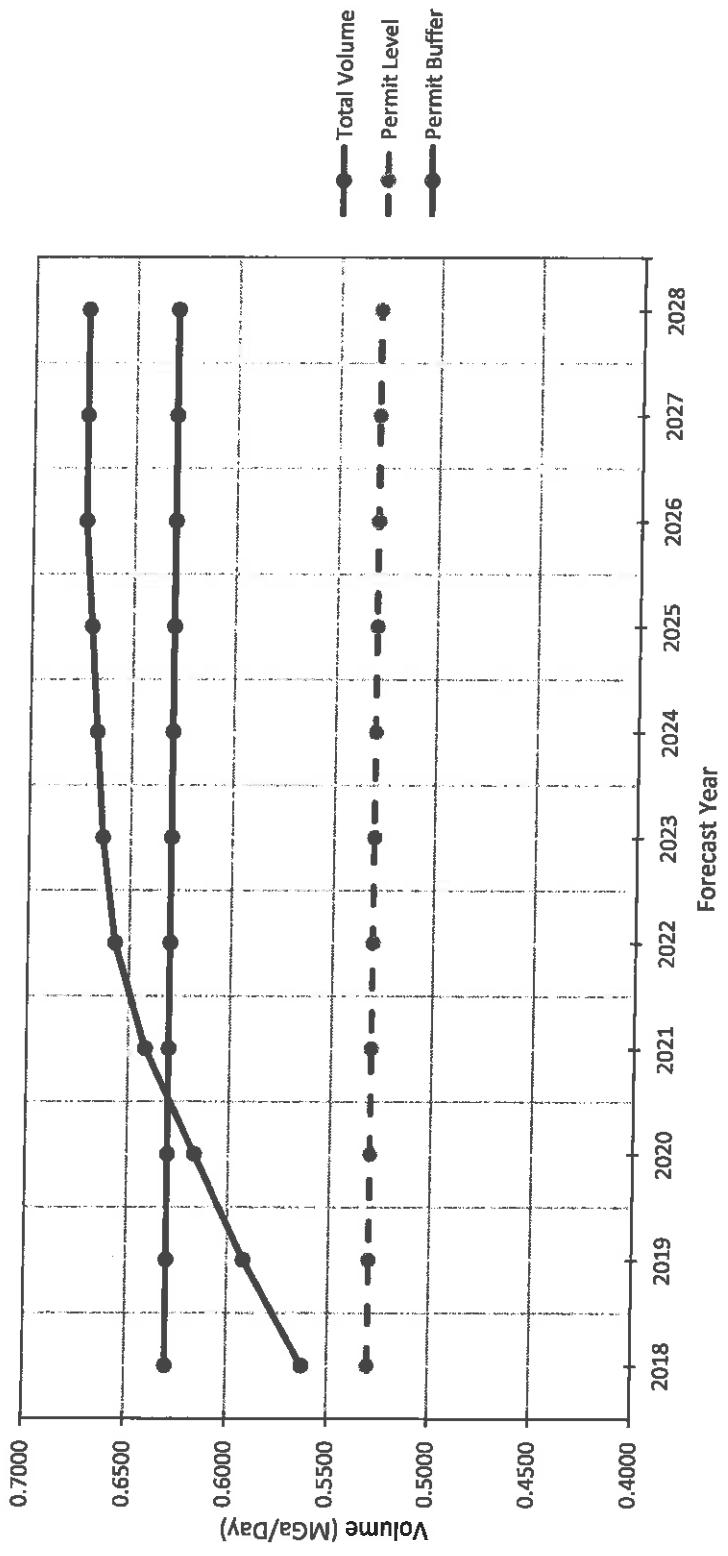
Demand from all other sources grows with new population.

Per Capita water consumptions remains at 64 Ga/Person per day.

11/28/2018

2018 Lancaster Water Use

### Average Daily Withdrawal Forecast --Lancaster PWS 21470000 Using Bedroom Count for Base Population



#### Projected Service Population Assumptions:

Established service population from bedroom count (5752) -- does not grow.

Demand from new developments begins in 2019.

Atlantic Union College re-opens in 2019.

Demand from all other sources grows with new population.

Per Capita water consumptions remains at 64 Ga/Person per day.