

**Special Meeting
Lincoln Water Commission
June 8, 2023**

Commissioners Present:

Kenneth Booth, Chair
Julie LaBreche, Secretary
Abigail Altabef
Edward Fox
Louis Long – Absent

Lincoln Water Commission Staff

Robert A Anderson Jr., P.E. Chief Eng. /Superintendent
Lewis A Prescott III, Assistant Superintendent
Anna Nascimento, Administrative Assistant
Stephen Antonucci, Representing Town Solicitor

Call to order: Kenneth Booth called the meeting to order at 5:11 p.m.

New Business:

a. Water Availability – Presentation & Discussion

Chairman Ken Booth thanked everyone for attending and he expressed that they call this meeting to see where they stand. Also approximately a year ago they had done a hydraulic module of the water system which a computer simulation that identify all of their assets. It will allow them to do some what if with changes in the water system and demands in certain areas systems. The computer module will react and gives them accurate result to its calibrate actual flows when they completed the module. Therefore what they actually learned there is time in the air that their connection with Providence and they purchase all their water from Providence wholesale connection which have a capacity of approximately of 5 million gallon a day, Also they are times at 4.8 million gallon a da pulling from that during our high rank demand period season, typically during in the summer.

Chairman Ken Booth relayed that one thing they have to look at is an alternative of a source of supply of water in the Town to be handling future development. While they do that they can't risk which the big risk are fire protection. So if they had a high demand period and if they had a major fire event at the same time the system would be under at a consumable at a high stress. Therefore what could happen they would be they use normally water that they have replenished from the night time and those tank might not be able to fill for the next day. In addition, it relates to the pressure issues in some districts so they have Pare Engineering doing their hydraulic module for them. Also Tim Thies is here and he is the Senior Vice President with Pare Engineering as a result they requested him to do their hydraulic analysis of their demands they took their data from the last few years plug in it to the module and run some analysis on its data and it give them some firmly accurate conclusion of what they are currently face here. He is going to let Tim put his presentation so they can understand it and have a handle on it then they can talk about it afterward.

Tim Thies introduce himself and stated he is an Engineer with Pare Corporation they do many things with the water supply. He explain that they are a lot of numbers of the intensive study guide they did and he will try to keep it at a minimum. Here are some basic statistic.

LINCOLN WATER COMMISSION DEMAND STATISTICS

- Nominal Supply Capacity = 5 MGD (Million gallon a day)
- Current Maximum Day Demand = 4.44 MGD (89% of Capacity)
- Current MDD + Future MDD = 4.72 MGD (94% of Capacity)

When they talked about the hydraulic module in the system, they are days they pump more than they produce so those are the days they put water in the storage tanks. Some of them has been consume by customers and most of them by customers and some goes back to the storage tank. As of right now, they are speaking only about customer right now.

Over-Demand/ Under-Supply risks

As they know they are future development coming to the town and also they have been a lot of request of new water service. He has receive a lot of request at his desk and review those hydraulic module to see if they have enough water for all those developments.

- Per AWWA – Systems must be able to supply maximum day demand from system supply, not system storage. Systems storage is reserved for peak demands and fire/emergency events.
- Excessive pump run time
- Unsafe depletion of storage
- Increase risk that fire flow will be inadequate
- Potential pressure issues
- If Lincoln Water Commission were to suffer a significant fire event or near a MDD:
 - a. Could lose between 250,000 and 500,000 gallons of storage (not catastrophic by itself).
 - b. Under current conditions could take 1-1.5 days to refill storage tanks.
 - c. In the future, when demand is higher, could take 2-3 days to refill storage tanks.
 - d. If demand approaches supply capacity could take many days or even weeks to refill the tanks.
 - e. Any time your tanks are in a depleted state, fire flow and pressure are reduced.

First graph

Tim Thies stated they are looking at water usage for 6 years from 2017-2022.

- Blue bars represent average flow at 1.8 (MGD)

- Orange bars represent daily peak flow average 1.9 (MGD)
- The ticker line represent 5 MGD the very next day is at 2 MGD maybe during a water main break.

Second graph

- Blue bars represent the average flow
- Orange dots represent maximum 3-4 days

Third graph

- Red lines Lincoln Water Commission has exceeded once at 4.25.
- Yellow lines is at 3.95 – It has reach at 300,000 gallons.

Also location does matter which zones it does matter where 2 pressures zone and 4 tanks. The first tank get depleted so the next day get empty and except for the fifth tank by the airport does not get affected.

Fourth graph

- Yellow line is at 10-15 days at 3.95
- Green line from 4.4 to 3.65 is from residential customers with 3 bedroom and use 900,000 thousand gallon.

Summary of Water Demand target

- Keep demand below 85% capacity (425 MGD)
- 4.25 MGD for existing demand, no added growth
- 3.95 MGD for existing demand, to accommodate new and upcoming developments already in the model.
- 3.65 MGD for existing demand to accommodate upcoming developments, and to provide capacity for future developments.

Summertime usage can be defined as all water consumption during the months of May – October for the year 2017 to 2022.

Base demand was calculated to be 1.68 million gallons

There are 184 days between May 1st and October 31st which is we see the highest consumption during the year.

$$184 \times 1.68 \text{ M Gal} = 308.37 \text{ M Gal}$$

Will Water Use Restrictions Ease Supply Issue?

Current MDD is 4.44 MGD, of which 1.68 MGD is base demand.

- 2.76 MGD is outdoor water use
- Irrigation accounts for 50-75% of outdoor usage (1.38 MGD)

- If ODD/EVEN watering reduces outdoor water use by 30-50%. Reduction would be MDD of 4.03 MGD to 3.4 MGD

ODD/EVEN Watering could potentially water use below targets of 4.25 MGD, 3.85 MGD.

How Would Water Use Restrictions Total Water Sales?

- Total summertime water use over base demand is 308 MG
- Utilizing assumptions about irrigation demand, summertime water use could be reduce total consumptions by 6% to 14%.

Tim Thies relayed that this is an overview of Water Demand and he is open for any questions they may have.

Chairman Ken Booth stated we got higher tiers also education is number one for water sprinkler installation and ODD/EVEN program. In addition, since 2014 Lincoln Water Commission has not raised their water rates.

Chairman Ken Booth explain that the consultant is done with the water rate study and they will have a public hearing. He is going to get the software package.

Mayor Phil Gould question if the pool need to be filled by lender? Chairman Ken Booth replied that the pool don't use too much usually it is between 3,000 to 5,000 gallons.

Commissioner Abigail Altabef asked if they can borrow more water. Tim Thies stated it is a contract issue and it is them they cannot supply more water.

A Motion was made by Chairman Ken Booth and was seconded by Commissioner Abigail Altabef to adjourn the meeting. The meeting was adjourned at 6:39 p.m.