

LINCOLN WATER COMMISSION WATER SUPPLY SYSTEM MANAGEMENT PLAN FIVE YEAR PROGRESS REPORT

(EXECUTIVE SUMMARY)

This progress report and supplemental update of necessary Water Supply System Management Plan (WSSMP) components is meant to document that there have been no significant changes to the Lincoln Water System and by extension to the existing WSSMP approved on September 29, 2009.

1. Goals

The Commission is organized and operates to serve the water supply needs of the owners of the system; i.e. the citizens and businesses of the service area that generally consists of the geographical boundaries of the Town of Lincoln. As such the Commission complies with all laws, rules, regulations, and directives of appropriate legal authorities and operates the system in accordance with generally accepted standards for water systems. The Lincoln Water Commission's primary goal is to operate a water system for the benefit of and to meet the legitimate needs of the customers in the service area. In accordance with that overall goal the Commission's additional goals are to:

1. Comply with all applicable laws and regulations
2. Protect the integrity of existing supply connections
3. Protect the quality of existing groundwater sources
4. Protect the integrity of current emergency supplies
5. Promote the efficient use of water through:
 - a. Efficient operation of the system in accordance with industry and state standards
 - b. Efficient use of water by the customers through effective metering and public information programs regarding the wise use of water
6. Cooperate with the overall goals of the Town of Lincoln as outlined in the Town Comprehensive Plan
7. Provide for service to all locations within the service area.
8. Conform to the overall goals for water suppliers established in the State Guide Plan element No 721.

The goal of this Water Supply System Management Plan progress report is to amend and update, where necessary, the plan approved on September 29, 2009.

2. System Description

Legal

The Lincoln Water Commission is an independent water Commission providing water within the political boundaries of the Town of Lincoln. The Commission is established under State

law with full authority to manage its business, as approved by qualified voters of the Town of Lincoln. Creation of the Lincoln Water Commission is included as part of "An Act for a Public Water Works System in the Town of Lincoln", which was passed on April 27, 1955 and confirmed by the qualified electors of the Town of Lincoln on October 11, 1955. A copy of the Act was included in the 2001 submittal and referenced in the 2009 submittal. This information remains the same.

Organization

The owners of the Lincoln Water Commission are the qualified electors of the Town of Lincoln. The qualified electors are eligible to vote for the members of the Commission; which consists of five members, one from each voting district in Lincoln. The Commission has the authority to employ and fix the compensation of various classes of employees including the authority to hire a Superintendent and contract for his services for a period not to exceed five years. The Commission is vested with the power and authority to construct and maintain a water works system for the Town of Lincoln and is empowered with contract authority for that purpose. The Lincoln Water Commission operates as a true "enterprise fund" within the Town government. The Commission has the authority to set rates and expend funds to complete its purpose. The Town maintains a water fund solely for the operations, maintenance and capital needs of the water system. The Board of Commissioners regularly reviews and updates the Rules and Regulations, with the latest revision dated April 11, 2012.

System overview

The Lincoln Water Commission has evolved from the combining of several water systems in sections of Lincoln adjacent to other communities; i.e. Pawtucket, Cumberland and Woonsocket: and by the development of a system to serve all areas of Lincoln. The systems were purchased from Pawtucket, Cumberland and Woonsocket and along with the construction of major water mains and storage tanks were converted into one integrated water system. An additional well was purchased from Pawtucket and storage facilities were constructed in the southern portion of the Town. The development of this system provided for the water supply and fire protection needs of the residents of Lincoln in the 1950's. The water system has evolved from that beginning in the 1950's to a system providing water and fire protection throughout the Town. In 1985 the Lincoln Water Commission completed a connection to the Providence Water Supply to replace the previous groundwater supplies that were identified as contaminated.

Water Supply Sources

The Lincoln Water Commission obtains the majority of its water supply by direct wholesale purchase from the Providence Water Supply Board. The Commission has one supply connection with Providence Water. In addition the Lincoln Water Commission has emergency connections with the City of Woonsocket Pawtucket Water supply Board and the Town of Cumberland Water Department. The Lincoln Water Commission had maintained Well #4 in the Lonsdale wellfield as a "supplemental supply". At one time the Commission used Well #4 as a production well to supplement the primary supply from the Providence Water Supply Board. Use of this well allowed the Commission to meet peak needs during the summer

without placing undue stress on the Providence Connection and Pump Station. This practice was discontinued in October of 2004. The well is not currently operated.

Treatment

The Commission receives treated water from the Providence Water Supply and does not provide any additional treatment in its system now that well #4 is not operated. This information remains the same as that reported in the March 2009 approved plan.

Transmission, Storage and Pumping Facilities

The transmission system includes piping and three pressure boosting pumping stations that comprise the basic supply and two pressure zones. There are five distribution storage facilities in the Lincoln Water Commission system providing a total of 6.15 million gallons of finished water storage. With the exception of new variable frequency drives installed in the Providence Connector pumping station, these facilities remain the same as that reported in the March 2009 approved plan.

Interconnections

The Lincoln Water Commission has one interconnection with the Providence Water Supply Board for primary supply of water on a wholesale purchase basis and three emergency interconnections with the City of Woonsocket, the Town of Cumberland and the Pawtucket Water Supply Board. The capacity of the interconnections remains unchanged from that reported in the approved March 2009 plan. The only change relates to Cumberland emergency interconnection at Martin Street. This connection has been inoperable since early 2010 due to water line support failure; however, the Commission expects to effect repairs and place the connection into an operable status by mid-2016.

Service Area

The service area of the Lincoln Water Commission continues to be coincident with the political boundaries of the Town of Lincoln. The boundaries of the service area include approximately twenty (20) square miles. The Lincoln Water Commission provides water service to 98 % of the Town of Lincoln. The remaining 2% within the service area boundaries are supplied from private wells. In addition the Providence Water Supply Board supplies water on a retail basis to approximately twenty-five (25) homes in Heritage View, a residential development in the southwestern portion of the Town adjacent to the North Providence border. The Lincoln Water Commission serves two (2) customers at the North Central Airport Industrial Park that are actually located in the Town of Smithfield on the eastern border with Lincoln. In both of these cases the connections are made because of the proximity of the distribution lines to the users. The Commission's service area information remains the same as that reported in the March 2009 approved plan.

Population Served

The US Census Bureau and the 2010 Census continues to be the basis for population estimates for the area served by the Lincoln Water Commission. In 2010 the population was reported as 21,105. The Town's current population was reported as 21,137 in the Commission's FY 15 reporting to the Water Resources Board. Rhode Island Statewide Planning program

Technical Paper 162 projects the Town of Lincoln’s 2015, 2020 and 2035 populations to be 21,438, 21,857 and 23,470 respectively.

Master Meters

Master meters are maintained at the Providence connection and the Woonsocket emergency connection. The meter at the Providence connection is calibrated at regular intervals while the meter at Woonsocket emergency connection is calibrated prior to use. No meters are installed at the emergency connections with the Town of Cumberland (new) and the Pawtucket Water Supply. Meters would be provided were these connections to be activated during an emergency.

Distribution Meters

The Lincoln Water Commission meters 100% of the water distributed to its customers, billing residential accounts on a quarterly basis and commercial accounts on a monthly basis. The Commission began installing radio read meters in 2012 in order to meet State Water Use and Efficiency Act goals. As of its most recent reporting to the Board of Water Commissioners, the Commission’s system stood at 67% radio read. It is anticipated that all accounts will be converted to radio read prior to submission of the Commission’s next WSSMP update.

System Production Data

The Lincoln Water Commission continues to receive water through one connection with the Providence Water Supply Board. In FY 2015 one hundred per cent of the water was provided through this connection, a total of 841,374,000 gallons. The amount supplied by month in gallons, is as follows:

July.....101,829,000	November.....52,094,334	March.....56,549,000
August.....94,733,750	December.....50,800,000	April.....57,002,000
September.....84,286,250	January53,554,000	May.....89,185,000
October.....61,446,666	February.....51,490,000	June.....88,404,000

This information was provided to the Water Resources Board with the Commission’s FY 2015 water supplier reporting.

Water Use

The discussions as presented in the approved October 2001 and March 2009 WSSMP submissions remain the same. No wholesale water sales have occurred over this reporting period.

Major Users

Large Water user is defined in “Title 46 Waters and Navigation, Chapter 46-15.1, Water Supply Facilities, Section 46-15.1-1.1 Definitions”

c) “Large water user” means a water user that withdraws more than three million (3,000,000) gallons per year, which is equivalent to eight thousand two hundred (8,200) gallons per day.

This has been interpreted to include multiple connections and multiple locations under the same owner. In the October 2001 and March 2009 WSSMP submissions, the Lincoln Water

Commission reported 22 and 17 major users respectively. In 2014 the Commission lists 20 large water users as shown in the following updated *Figure 14 – Major Water Users*:

1	28,250,000	Com/Ind/Gov
2	10,670,000	Com/Ind/Gov
3	7,198,000	Com/Ind/Gov
4	6,532,764	Com/Ind/Gov
5	6,210,000	Com/Ind/Gov
6	5,932,800	Com/Ind/Gov
7	5,733,000	Com/Ind/Gov
8	5,579,349	Com/Ind/Gov
9	5,190,000	Com/Ind/Gov
10	4,830,000	Com/Ind/Gov
11	4,799,700	Com/Ind/Gov
12	4,664,628	Com/Ind/Gov
13	4,364,611	Com/Ind/Gov
14	4,142,262	Com/Ind/Gov
15	3,742,520	Com/Ind/Gov
16	3,337,000	Com/Ind/Gov
17	3,296,017	Com/Ind/Gov
18	3,092,198	Com/Ind/Gov
19	3,037,000	Com/Ind/Gov
20	3,024,984	Com/Ind/Gov

Water Conservation

The Lincoln Water Commission continues to be actively involved in promoting water conservation programs. Additional information is provided throughout the original WSSMP as well as subsequent various updates.

System Needed Improvements

The information presented in the March 2009 WSSMP submission remains valid. The Lincoln Water Commission maintains both a Capital Improvement Program and an Infrastructure Rehabilitation Plan that are frequently revised and updated according to the needs of the system. As a matter of fact, the Commission updated its clean water infrastructure replacement plan in August of 2015 and submitted same to the Department of Health for review and approval. The Commission's focus of effort continues to be on maintenance of the existing water system, since the system service area as geographically defined and has little room for expansion.

3. Water Quality Protection Component

General

The information provided for this section remains the same as reported in the March 2009 approved plan.

Well #4

The Lincoln Water Commission has not used this well as a supplemental source since October 2004 due to various financial, operational, and regulatory issues. The well is no longer maintained in a ‘standby status’ although it could be used in an emergency. A Wellhead Protection Plan update was submitted as part of the WSSMP Thirty Month Interim Report dated December 2005 in response to review comments from the RI Department of Environmental Management. The information presented in this update remains the same as that reported in the March 2009 approved plan.

4. Mapping

A system map is included in the appendices of the summary document.

5. Supply Management

General

The majority of information presented for this section remains the same as that reported in the March 2009 approved plan. Lonsdale Well #4 is no longer maintained in “Standby status” as discussed earlier.

Anticipated Future Demands

The October 2001 and March 2009 WSSMP submissions discussed in detail the anticipated population growth and the anticipated available water for the 5 and 20 year planning horizons. The assumptions and calculations used in those discussions remain valid. *Figure 16 – Summary of Anticipated Demands* is expanded and updated as follows:

YEAR	Actual/Estimate	MGD	MGY
1995	Actual	2.26	823.6
2000	Actual	2.25	824.1
2005	Actual (Estimate)	2.42 (2.40)	884.8 (876.0)
2008	Actual	2.19	799.5
2013	Actual (Estimate)	2.12 (2.3)	772.17 (850.0)
2028	Estimate	2.5	912.0
2043	Estimate	2.7	940

The above estimates assume continuing existing trends over the next 20 year period and include allowances for moderate residential construction. Theoretical ‘build out’ of all available lots in Lincoln is not anticipated in the period covered by this report.

Available Water

Water continues to be available from the Providence Water Supply Board and is provided according to the terms of a 1988 agreement in place between the PWSB and the Commission. The Commission has begun negotiations on a new agreement as the thirty year term of the current agreement will expire in 2018. Water is also available from the City of Woonsocket, the Town of Cumberland and the Pawtucket Water Supply Board. As previously noted, well No 4 is no longer on standby status, but could be used in an emergency situation. Available

water totaling 6.6 MGD remains the same as that reported in the Commission's March 2009 approved plan.

Alternative Supplies

The information presented in the Commission's approved October 2001 and March 2009 WSSMP submissions remains the same. The Lincoln Water Commission continues to evaluate existing sources of supply and anticipated demand on a regular basis. Efforts are concentrated on improving and strengthening the existing interconnections with the neighboring water systems.

Supply Augmentation Studies

As discussed above, and as reported in the approved October 2001 and March 2009 WSSMP submissions, the Lincoln Water Commission is not presently studying supply augmentation beyond the activities described. The LWC continues to cooperate fully with State and Federal authorities in regional water supply studies.

6. Demand Management

General

The Commission's Demand Management Strategy completed in August of 2012 was approved by the Water Resources Board on September 20, 2013. As documented in same, the LWC implements an active outreach program to encourage water conservation and the efficient use of this limited resource. Some of the programs currently operated by the LWC are:

- in-house leak detection program
- large meter testing program
- residential/commercial meter replacement program
- maintaining 100% metering of all consumers
- meter downsizing program
- use of the local media to inform consumers on current issues
- mailings to large users informing them of water saving programs
- seasonal messages included on the bills
- door-to-door handouts during emergencies
- maintaining a website with water conservation information
- identification and monitoring of large residential users
- identification and monitoring of large commercial users
- free home and business inspections for high consumption complaints
- investigation of automatic billing reports of high or unusual consumption patterns
- free toilet tank retrofit kits
- free water conservation 'Activity Books' to all second grade Lincoln students
- tours and talks to all Lincoln second grade classes, 350 students per year
- weather-based irrigation control rebate incentive
- increasing stepped rate structure

The program is adjusted with different elements added or deleted on a regular basis. Overall the effect has been seen as positive. The Lincoln Water Commission actively supports all conservation programs, including those initiated by the various State agencies, the U.S. Environmental Protection Agency, the American Water Works Association, the New England Water Works Association, and the Atlantic States Rural Water and Wastewater Association.

The Commission's approved Demand Management Strategy as well as additional information on some of the current programs is presented in the appendices of the summary document.

7. System Management

Statement of Objectives

The discussions presented in the approved October 2001 and March 2009 WSSMP submissions remain the same.

General

A sanitary survey was conducted by the RI Department of Health Office of Drinking Water Quality on April 5, 2011 and again on June 10, 2014. No critical deficiencies were noted in either report. Minor deficiencies, if any, were addressed at the time.

Current Status

The Lincoln Water Commission regularly reviews its *Rates, Rules and Regulations* as discussed above in section 2. *Water Supply System Description*. The last revisions to the *Rules and Regulations* and *Rates* were April 11, 2012 and January 1, 2014 respectively.

Non-Billed Water

One of the Commission's goals is to comply with all Federal and State regulations, policies and guidelines. As such the Commission endeavors to maintain non-billed water including leakage below 10%. In FY 2015 the Lincoln Water Commission supplied 841,374,000 gallons to the distribution system, all purchased from the Providence Water Supply Board and measured by a master meter. For the same period of time, the Lincoln Water Commission collected revenues on the sale of 756,466,301 gallons. The resulting *non-billed water* (non-revenue) of 84,907,699 gallons is 10.09%. Water main breaks, fire-fighting, theft, and meter error account for approximately half of the non-metered total effectively reducing the 10.09% to approximately 5%. As has been discussed in great detail in correspondence with the Water Resources Board, in the yearly reports to that agency, and in the prior WSSMP submission updates, this number can only be viewed as an indicator.

It is important to realize that these numbers only represent non-revenue water, which typically includes the following consumption:

1. Fire Dept training and fire-fighting.
2. DOT/DPW.
3. Theft.
4. Meter age.

5. Leakage.
6. System maintenance.
7. New construction.
8. Breaks.
9. Discrepancy between meter in/meter out readings.

Copies of pertinent documents with additional information are included in the appendices of the summary document

Operation and Repair Policies

The discussions presented in the approved October 2001 and March 2009 WSSMP submissions remain the same. The Lincoln Water Commission regularly reviews its *General Specifications for Installation of Water Mains* (revised January 2004) and expects to produce a new revision in early 2016. Current specifications are available on the Commission's website www.lincolnwatercommission.com.

Source of Supply Operations

As previously discussed, Well No 4 has not been operated since October 2004 and is no longer on "standby status". The station remains intact and could be used in the event of an emergency.

Treatment Operations

At the present time no treatment is performed by the Lincoln Water Commission.

Distribution and Storage Systems

Cleaning and lining in the Commission's system was put on hold after the 2013 construction season but is expected to be reinitiated for the 2018 construction season. In the interim, the Commission is working on rehabilitating both the interior and exterior of its Albion Road storage tank and replacing small diameter water main in its distribution system. With regard to storage, the Commission has not changed any aspects of its system since adding a 1.0 MG storage tank in 2008. The change was reported in the Commission's March 2009 WSSMP update.

Meter Installation, Maintenance, and Repair Program

The discussion presented in the approved October 2001 and March 2009 WSSMP submissions remains largely the same. The Lincoln Water Commission continues to administer meter downsizing and large meter testing programs as well as a meter replacement program. The Commission is making progress toward achieving full radio read capability.

Leak Detection and Repair

The Lincoln Water Commission has an ongoing in-house leak detection program using advanced digital equipment purchased from Flow Metrix, Inc., in 2005. Results are reported to the Board of Water Commissioners on a monthly basis. To date 53 miles of pipeline have been tested. Any leaks detected are immediately repaired.

Preventative Maintenance

The discussion presented in the approved October 2001 and March 2009 WSSMP submissions remains the same.

Planning for the Future

The discussion presented in the approved October 2001 WSSMP and March 2009 WSSMP submissions remains the same.

8. Emergency Management

The bulk of the discussion presented in the October 2001 WSSMP submission as well as the supplementary information presented in the March 2009 update remains the same. Updated information is required for the personnel and/or offices that must be alerted to an emergency situation. Lincoln Water Commission emergency contacts as well as Town Contacts have been updated within the Emergency Management component of the existing approved plan.

9. Drought Management

The Commission imposes voluntary odd-even lawn watering each summer to facilitate a reduction in peak demand. As a wholesale customer of the Providence Water Supply Board, the Commission will comply with any demand restrictions imposed by them.

10. Implementation Schedule, Responsible Entities, and Projected Costs

As discussed in the approved October 2001 and March 2009 WSSMP submissions, all the elements of the Plan are in progress in the normal course of business of the Commission. Daily operations, maintenance and administration are ongoing. Capital Improvement and Infrastructure Rehabilitation Plans are ongoing and are regularly reviewed and revised by the Board of Water Commissioners. As reported in the various WSSMP submittals to date, an independent implementation schedule is not considered necessary.

There is no change to the legal structure of the Lincoln Water Commission. The Board of Water Commissioners continues to play an active role in setting policy and direction for staff.

All costs of operating the system are collected from sales of water. No tax revenues from the Town are available to the Commission. Rates are set by the Board of Water Commissioners at a level to sustain general operating expenses and to fund Capital Improvement and Infrastructure Rehabilitation programs. As discussed previously, the rates are reviewed and adjusted regularly and are available on the website www.lincolnwatercommission.com. The rates are reported to the RI Water Resources Board at the end of each fiscal year.

11. Financial Management

General Policies

The discussions presented in the approved October 2001 and March 2009 WSSMP submissions regarding ***General Policies*** remain the same.

Water Rate Structure

As discussed previously, the Board of Water Commissioners reviews and adjusts the rates regularly. The latest revision was January 1, 2014. The rate structure is reported to the RI Water Resources Board at the end of each fiscal year and is also available on the website. The rate structure includes a separate Infrastructure Rehabilitation Fee and a Capital Improvement Fee to provide for dedicated revenue streams for these accounts. A copy of the current rate structure is provided within the appendices of the summary document.

Sources of Funds for Implementation of the Plan

The discussions presented in the October 2001 and March 2009 WSSMP approved submissions regarding *Sources of Funds for Implementation of the Plan* remain the same.

Current Financial Management Practices

The 2015-2016 operating budget for the Lincoln Water Commission is \$3,432,100. Capital Improvement and Infrastructure Rehabilitation projects are funded separately from the operating budget. The Lincoln Water Commission maintains an adequate contingency fund which is invested in a conservative portfolio managed by a professional money management firm.

Monthly detailed reports on operating expenditures and revenues are submitted to the Board of Water Commissioners and a summary is sent to the Town of Lincoln Finance Director. Accounts are audited annually by independent auditing firms in conjunction with the Town of Lincoln audit.

The status of Capital Improvement and Infrastructure Rehabilitation projects are reported monthly to the Board of Water Commissioners as Non-Operating Commitments. The current list of encumbrances includes ongoing capital projects, annual debt service, ongoing infrastructure rehabilitation projects, future planned projects, and sick leave/pension credits. The list of projects and level of funding is reviewed frequently and adjusted as needed.

The discussions presented in the October 2001 and March 2009 WSSMP submissions regarding *Frequency of Billing and Collections* have changed slightly. At one time the Lincoln Water Commission was separated into four residential billing districts administered on a staggered basis for cash flow purposes; however, the staggering is no longer required as a new billing system has allowed for all residential and commercial customers to be billed at once either quarterly or monthly.

Future Revenue Sources

The discussions presented in the October 2001 and March 2009 WSSMP approved submissions remain the same.

The Lincoln Water Commission has received funding from the RI Clean Water Revolving Loan Fund, the RI Water Resources Board and U.S. Environmental Protection Agency in the form of STAG Grants for several projects in the not too recent past.

The Commission continues to seek out and utilize feasible and cost effective sources of funding wherever possible.

Assessment of Rates

As discussed in detail previously, the Lincoln Water Commission reviews its finances on a regular basis and the Board of Commissioners makes adjustments as necessary to continue to operate in a cost effective manner.

12. Coordination

Comprehensive Town Plan

The Lincoln Water Commission plays a role in residential and commercial planning of new projects within the Town of Lincoln. The Town of Lincoln Zoning Ordinance and the Land Development and Subdivision Regulations describe the steps involved in the planning and approval process. Members of the Lincoln Water Commission regularly participate in applications at the early stages of review, and coordinate closely with the various Town departments including Planning, Sewer, Public Works, Engineering and Building.

The Lincoln Water Commission also works closely with the Town in all aspects of water supply for future development.

Town of Lincoln – Sewer

The discussions presented in the October 2001 and March 2009 WSSMP approved submissions regarding the *Town of Lincoln – Sewer* remain the same.

Other Water Systems

As discussed in detail previously the Lincoln Water Commission maintains regular contact with all the surrounding water systems, at multiple levels throughout those organizations. Staff members participate in various local and regional programs and training seminars presented by professional associations and regulatory agencies. Contact with industry leaders and suppliers on the private side is maintained through attendance at trade shows and sales presentations. Membership in professional organizations is encouraged by the Board of Water Commissioners.