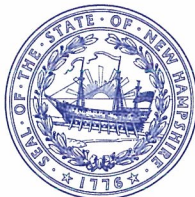


THE STATE OF NEW HAMPSHIRE

CHAIRMAN
Amy L. Ignatius

COMMISSIONERS
Robert R. Scott
Martin P. Honigberg

EXECUTIVE DIRECTOR
Debra A. Howland



PUBLIC UTILITIES COMMISSION

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NH PUC 14 MAR 14 PM 3:57

March 14, 2014

Debra A. Howland
Executive Director
New Hampshire Public Utilities Commission
21 S. Fruit St., Suite 10
Concord, New Hampshire 03301

Re: DW 13-358, Pennichuck Water Works, Inc.
Water Infrastructure and Conservation Adjustment (WICA)
2014 Surcharge and 2014-16 Capital Projects
Recommendation for Approval

Dear Ms. Howland:

On December 23, 2013, Pennichuck Water Works, Inc. (PWW) filed a petition for certain approvals under its current WICA tariff provision. PWW's WICA is a pilot program originally authorized in Order 25,230 in Docket No. DW 10-091. PWW's petition seeks: 1) approval of a WICA surcharge of 0.59% based on completed 2013 projects; 2) approval of its 2014 WICA projects; and 3) preliminary approval of PWW's 2015 WICA projects. A WICA project list for construction in 2016 was also provided for informational purposes. Accompanying the petition was the prefiled testimony of Donald L. Ware, Chief Operating Officer of PWW. After review of the petition, discovery, and a technical session, Staff recommends approval of a 2014 surcharge of 0.67%, and a modified project list for 2014.

Following the company's filing, Staff, the Office of the Consumer Advocate (OCA) and PWW agreed to an informal procedural schedule for review of the filing. Staff and the OCA conducted two rounds of discovery and held a technical session on March 6, 2014. Staff also engaged the services of Douglas W. Brogan, former water and sewer engineer for the Commission, to review the technical aspects of the WICA filing. In addition, the Commission Audit Staff was requested to audit the costs of the completed 2013 projects that form the basis of the 2014 surcharge. Attached to this recommendation are the company's responses to Staff's discovery; a memo from Mr. Brogan detailing his review and analysis; and a report from the Audit Staff on its review of the costs.

As indicated, PWW's filing sought approval for a surcharge of 0.59% on customer bills, to be effective April 1, 2014, in order to begin recovery of the company's 2013 WICA projects. After review and discovery, Staff recommends a surcharge of 0.67% be approved. This updated surcharge is calculated and detailed in Attachment C to data request Staff 1-12. That data response illustrates the adjustments incorporated in the revised surcharge, including adjustments to the calculation of property tax expense and depreciation¹. PWW's has also submitted its list of proposed 2014 projects for approval. The majority of the proposed 2014 WICA spending is dedicated to the replacement of water main. Mr. Brogan's review indicates that the 2014 project list is entirely different from that preliminarily approved by the Commission in DW 12-359. The primary reason for these differences are the continued attempt to coordinate with the City of Nashua and the Town of Amherst when those municipalities are opening streets for sewer or storm drain work. Because of the differences in timing as to when PWW must file its project lists with the Commission, and when the decisions are made by the City and the Town for their upcoming work, the project lists can change. In response to this, PWW filed a motion to amend its WICA tariff provisions to reflect that it would make its annual WICA filing by January 31 instead of December 31. Staff believes this additional month would be somewhat helpful in aligning the schedules of the company and the municipalities. As a result of this tariff change, PWW's WICA surcharge would be proposed for effect each year on May 1 instead of April 1. Both Staff and the OCA indicated support for the motion when it was filed, and recommend the Commission approve it.

Through discovery and subsequent discussions with PWW and the OCA, Staff now recommends an amended 2014 WICA capital budget of \$3,268,138 as detailed in Attachment C, page 2 of 2, to Staff data request 1-12. The vast majority of this WICA spending is for water main replacement. At this level of investment, the associated WICA surcharge would be 1.12%, or a two year cumulative surcharge of 1.79%, effective in the spring of 2015.

One additional issue has arisen in Staff's review of this filing. As discussed in Mr. Brogan's memo on page 1, PWW substituted projects from its previously approved project list when opportunities arose in coordination with municipal street openings for sewer or storm drain work. Staff, PWW, and OCA have discussed this issue and are in agreement that PWW should provide notice to the Commission as soon as it becomes aware that a project substitution may be prudent. To this end, Staff recommends that the company add language to its WICA tariff pages to provide for notice in the event of

¹ The revised surcharge calculation also incorporates the remainder of the company's final 2013 project costs. Certain vendor invoices were outstanding at the time of the December 23 WICA filing, as detailed in Mr. Ware's testimony on pages 12 and 13. Documentation of all final project costs proposed for recovery through the surcharge was provided to the Audit Staff during their review.

substitution². Such notice to the Commission does not imply approval of the project itself for purposes of WICA recovery. PWW will still need to demonstrate prudence at the time it seeks recovery of the project cost in the next WICA filing.

Based on Staff's review of the filing, the discovery materials generated, and Mr. Brogan's recommendations, Staff recommends that the Commission approve the 2014 WICA project list, and provide its preliminary approval of the 2015 projects. Staff also recommends the Commission approve the proposed amendments to PWW's WICA tariff provisions as to the timing of the filings, the effective date of future surcharges, and the addition of language as to notice of project substitution, as discussed.

The OCA has asked that Staff represent its position as follows:

The OCA takes no position on the technical aspects of the Company's filing but otherwise agrees with Staff's recommendations. The OCA appreciates the Company's agreement to notify the Commission and parties when WICA pre-approved (Year 1) projects are eliminated or substituted with other projects. See Audit Report, Audit Issue 1. The OCA also appreciates the Company's efforts to realize cost savings for customers by coordinating its WICA projects to the greatest extent possible with the related municipalities.

PWW has reviewed Staff's recommendation and agrees with Staff's recommendation and suggested tariff changes. If there is anything further I can provide, please let me know.

Sincerely,



Mark A. Naylor
Director, Gas & Water Division

Attachments:

Aquarion Responses to Staff Discovery, Sets 1 & 2
March 13, 2014 Memo from D. Brogan
March 7, 2014 Audit Report
cc: Docket-Related Service List

² Staff recommends that a new provision, titled "Notice of Project Substitution", be added to Part III on page 50 of PWW's current tariff. PWW should provide recommended language for this new provision at the time it makes its compliance filing in this proceeding.

February 12, 2014

THOMAS B. GETZ
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VIA ELECTRONIC MAIL

Marcia A. Brown
Staff Attorney
New Hampshire Public Utilities Commission
21 S. Fruit Street, Suite 10
Concord, NH 03301

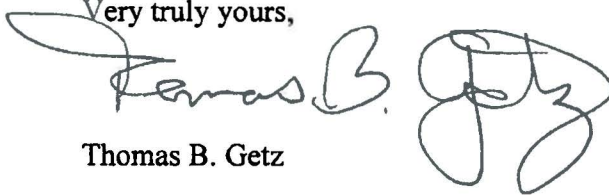
Re: DW 13-358; Pennichuck Water Works, Inc. - Petition for Approval of Water
Infrastructure and Conservation Adjustment (WICA) Proposed Projects

Dear Attorney Brown:

Attached are responses by Pennichuck Water Works, Inc. to the first set of data
requests by the Commission Staff dated January 29, 2014.

Please let me know if you have any questions.

Very truly yours,



Thomas B. Getz

TBG:aec

Attachments

cc: Discovery Electronic Service List

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-1

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Ware testimony page 3, lines 13-15: Please correlate the indicated lengths of the various mains in the core system with the numbers in Schedule S-10 of the company's annual report (for example, Cast Iron, Transite, Cement Lined and Galv. Steel).

RESPONSE: Schedule 10 of the Company's 2012 Annual Report lists 791,209 LF of cast iron water main, both lined and unlined. The 265,000 LF referred to on p. 3 of the WICA testimony refers only to unlined cast iron water main; the remainder of the cast iron water main (791,209 – 265,000) is lined.

The 26,900 LF of steel water main referred to on p. 3 of the WICA testimony corresponds to the sum of the 19,339 LF of cement lined (steel) and 72,61 LF of galvanized steel water main (26,600) listed on Schedule S-10.

The 220,300 LF of asbestos-cement water main referred to on p. 3 of the WICA testimony corresponds to the 219,668 LF of transite water main listed on Schedule S-10.

The slight differences in the LF totals reflect the use of the Company's Main Pipe Inventory that is being developed as part of the Asset Management Program. The numbers on Schedule S-10 will be revised once the Company has completed the implementation of the Asset Management Program (about 2 to 3 years from now).

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-2

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Ware testimony page 4, lines 1-3: To what extent are core system mains and/or road and sewer projects a consideration in Merrimack or Hollis?

RESPONSE: At present, core system water main replacements are not coordinated with sewer and road projects in Merrimack and Hollis because the water mains in these communities are of a relatively more recent vintage. The oldest water main in Merrimack is 45 years. The oldest water main in Hollis is 25 years old. The Company does not expect to be replacing water mains in these communities for another 55 to 65 years.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-3

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Ware testimony page 4, lines 10-13:

- a) Please describe the extent of the current rating system (for example, every core system pipe has been rated; every pipe of the three pipe types described has been rated; etc.).
- b) Please indicate whether any mains have a rating of 8 or higher apart from sewer/storm drain replacement or geographical proximity considerations.
- c) Please indicate why several streets with a zero rating are included in the 2015 project list.

RESPONSE:

- a) The current rating system focuses on unlined cast iron and steel water main identified based on Company experience regarding water quality and fire flow limitations. The Company plans to complete a rating of all of its water mains as part of the Asset Management Plan it is developing.
- b) None of the water mains that the Company has rated to date have a rating of 8 or higher apart from sewer/storm drain replacements or geographical proximity considerations.
- c) The three streets with zero ratings were recommended for the 2015 list by the Engineering staff based on their knowledge of insufficient fire flows, water quality problems (low water pressure) and project proximities, but had not yet been formally rated.

Please see attached revised Attachment B, pages 2-4, which rates the three streets, and, in addition, adds several projects recently identified by the City of Nashua and the Town of Amherst, and updates certain ratings.

Pennichuck Water Works, Inc.
Proposed 2014 WICA Water Main Projects
Revised 2/5/2014

Staff 1-3
Attachment B
Page 2 of 4

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	EXISTING PIPE DIAMETER (INCHES)	PROPOSED NEW PIPE DIAMETER (INCHES)	ESTIMATED COST	AGE OF PPE	PIPE AGE USEFUL LIFE	FULLY DEPREC	BREAK HISTORY	KEY CUSTOMERS	WATER QUALITY	FIRE PROTECTION FLOWS ¹	Work coordination with Sewer or Storm Drain Replacement	Subtotal prior to Geographical Area Points	GEOGRAPHICAL PROXIMITY	TOTAL
Baldwin St - Bridge/RR Crossing	NASHUA	CAST IRON UNLINED	100	8	12	\$ 84,000.00	1938	70	YES	1				5	6	2	8
Baldwin St	NASHUA	CAST IRON UNLINED	1,198	8	12	\$ 280,000.00	1938	70	YES	1				5	6	2	8
Park St	NASHUA	CAST IRON UNLINED	312	6	8	\$ 68,950.00	1890	70	YES					5	5		5
Court St	NASHUA	CAST IRON UNLINED	435	8	8	\$ 47,000.00	1931	70	YES					5	5	2	7
Foundry Street	AMHERST	TRANSITE	1,465	6	8	\$ 234,400.00	1950	70	No					5	5	2	7
Main Street (Bridge Crossing)	AMHERST	TRANSITE	150	6	12	\$ 70,500.00	1950	70	No					5	5	2	7
Boston Post Road	AMHERST	TRANSITE	2,052	6	12	\$ 471,960.00	1950	70	No	1				5	6	2	8
Cross St	AMHERST	TRANSITE	410	4	6	\$ 65,600.00	1950	40	YES					5	5	2	7
Burke St	NASHUA	CAST IRON UNLINED	3,160	6	12	\$ 537,200.00	1892-1906	70	YES	1			2	5	8		8
Eldridge St	NASHUA	CAST IRON UNLINED	410	6	6	\$ 143,500.00	1888	70	YES					5	5		5
Grove Street	NASHUA	CAST IRON UNLINED	260	4	4	\$ 49,400.00	1888	70	YES					5	5		5
Oak Street	NASHUA	CAST IRON UNLINED	520	4	6	\$ 106,600.00	1887-1924	40	YES	1			3	5	9	2	11
Robinson Court	NASHUA	CAST IRON UNLINED	260	2	4	\$ 98,800.00	1888	40	YES					5	5	2	7
Ridge Street	NASHUA	CAST IRON UNLINED	325	4	4	\$ 71,500.00	1092-1959	40	YES					5	5	2	7
Cross Street	NASHUA	CAST IRON UNLINED	350	6	6	\$ 77,000.00	1888	70	YES					5	5	2	7
Broad Street	NASHUA	CAST IRON UNLINED	260	6	8	\$ 81,900.00	1903	70	YES			1		5	6	0	6
Temple Street	NASHUA	CAST IRON UNLINED	1,030	10	12	\$ 278,100.00	1908	85	YES					5	5	0	5
Franklin Street	NASHUA	CAST IRON UNLINED	264	24	24	\$ 138,735.00	1887	100	YES					5	5	2	7
Total LF -			12,961	Total -		\$ 2,905,145.00											
Paving from 2013 projects						\$ 110,000.00											
Valve Replacements			15	@	\$ 2,000	=	\$ 30,000.00										
Service Replacements ³ -			28	@	\$ 1,962	=	\$ 54,936.00										
Hydrant Replacements			4	@	\$ 5,700	=	\$ 22,800.00										
Planning Contingency ⁴ -						\$ 145,257.25											
Total Estimated WICA \$\$ in 2013 -						\$ 3,268,138.25											

1. Material Integrity - Rating of 1 point for each break in the last 20 years.

2. ISO Fire Ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.

3. Number of Service replacements is the average of the past 5 years. The average cost of a service replacement is the average cost over the past 4 years.

4. The City has added to its FY14 projects with projected FY15 projects

PWW must complete replacement of its mains when the City replaces its sewer mains.

A contingency of

5%

is carried to account for this.

The City operates on a Fiscal year basis between July1 and June 30 of the following Calendar year.

Pennichuck Water Works, Inc.
Proposed 2015 WICA Water Main Projects

Staff 1-3
Attachment B
Page 3 of 4

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	PIPE DIAMETER (INCHES)	PROPOSED NEW PIPE DIAMETER (INCHES)	ESTIMATED COST	AGE OF PPE	PIPE AGE USEFUL LIFE	FULLY DEPREC	BREAK HISTORY	KEY CUSTOMERS	WATER QUALITY	FIRE PROTECTION FLOWS ²	Work coordination with Sewer or Storm Drain Replacement	Subtotal prior to Geographical Area Points	GEOGRAPHICAL PROXIMITY	TOTAL
Chestnut St	NASHUA	CAST IRON UNLINED	1132	6	12	\$ 300,000.00	1891-1924	70	YES			1	5	5	11	2	13
Hamilton St	NASHUA	CAST IRON UNLINED	573	6	6	\$ 122,000.00	1909-1941	70	YES			1			1	2	3
Brook St	NASHUA	CAST IRON UNLINED	1141	6	8	\$ 250,000.00	1887-1924	70	YES			1	3		4	3	7
Marquis Ave	NASHUA	STEEL	124	2	4	\$ 40,000.00	1945	40	YES	1		1			2	5	5
Rochette Ave	NASHUA	CAST IRON UNLINED	276	2	4	\$ 50,000.00	1952-1956	40	YES	1		1			2	3	5
Verona St	NASHUA	CAST IRON UNLINED	975	6	8	\$ 220,000.00	1913-1915	70	YES			1	2		3	2	5
Sarasota Ave	NASHUA	CAST IRON UNLINED	240	6	8	\$ 82,000.00	1913-1922	70	YES			1			1	2	3
Manatee St	NASHUA	CAST IRON UNLINED	240	6	6	\$ 60,000.00	1926-1949	70	YES			1			1	2	3
Burnitt St	NASHUA	CAST IRON UNLINED	523	4 & 6	8	\$ 110,000.00	1887-1921	40 & 70	YES			1	3		4	2	6
Thomas St	NASHUA	CAST IRON UNLINED	421	6	6	\$ 96,000.00	1908-1926	70	YES	1					1	3	4
Dudley	NASHUA	STEEL	522	2	8	\$ 80,000.00	1927-1936	40	YES	2		2			4	0	4
Proctor St	NASHUA	CAST IRON UNLINED	206	8	8	\$ 75,000.00	1930-1940	70	YES	1			1		2	3	5
Proctor St	NASHUA	STEEL	136	2	4	\$ 60,000.00	1940	40	YES	1		1			2	3	5
Mulvanity St	NASHUA	STEEL	285	2	4	\$ 40,000.00	1940-1954	40	YES			1			1	3	4
Fernwood St	NASHUA	CAST IRON UNLINED	267	6	8	\$ 70,000.00	1923-1924	70	YES				1		1	3	4
Field St	NASHUA	CAST IRON UNLINED	377	6	8	\$ 82,000.00	1922	70	YES				1		1	3	4
Fossa Ave	NASHUA	CAST IRON UNLINED	294	6	8	\$ 80,000.00	1928	70	YES				4	2	6	3	9
Pratt St	NASHUA	CAST IRON UNLINED	484	6	8	\$ 130,000.00	1908-1945	70	YES				1		1	2	3
Evergreen St	NASHUA	STEEL	315	2	4	\$ 52,000.00	1947-1952	40	YES	1					1	3	4
Total LF -			8,531	Total -		\$ 1,999,000.00											
Valve Replacements			15	@	\$ 2,000	=	\$ 32,000.00										
Service Replacements ¹			28	@	\$ 1,962	=	\$ 50,000.00										
Hydrant Replacements			4	@	\$ 5,700	=	\$ 22,800.00										
Planning Contingency ⁴							\$ 399,800.00										
Total Estimated WICA \$\$ in 2014 -							\$ 2,503,600.00										

1. Material Integrity - Rating of 1 point for each break in the last 20 years.

2. ISO Fire Ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.

3. Number of Service replacements is the average of the past 5 years. The average cost of a service replacement is the average cost over the past 4 years.

4. The City has added to its initial sewer replacement in previous years. PWV must complete replacement of its mains when the City replaces its sewer mains.

The City operates on a Fiscal year basis between July 1 and June 30 of the following Calendar year.

A contingency of 20% is carried to account for this.

Pennichuck Water Works, Inc.
Proposed 2016 WICA Water Main Projects

Staff 1-3
Attachment B
Page 2 of 4

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	PIPE	PROPOSED	ESTIMATED COST	AGE OF PPE	PIPE AGE	FULLY	BREAK	KEY	WATER	FIRE	Work coordination with Sewer or Storm Drain Replacement	Subtotal prior to	GEOGRAPHICAL	TOTAL
				DIAMETER (INCHES)	NEW PIPE DIAMETER (INCHES)			USEFUL LIFE					PROTECTION FLOWS ¹		Geographical Area Points		
Alda St	NASHUA	CAST IRON UNLINED	1084	8	12	\$ 283,400.00	1895-1993	70	YES	1	1				2	2	4
Newbury St	NASHUA	CAST IRON UNLINED	1896	8	8	\$ 380,000.00	1888-1940	70	YES	1	1				2	5	5
Giles St	NASHUA	CAST IRON UNLINED	1090	4	8	\$ 241,000.00	1888	40	YES	1	1		3		5	3	8
Zellwood St	NASHUA	CAST IRON UNLINED	367	6	4	\$ 83,000.00	1933	70	YES		1				1	3	4
Revere St	NASHUA	CAST IRON UNLINED	714	6	8	\$ 180,000.00	1971-1999	70	YES	1	1		1		3	3	6
Morton St	NASHUA	CAST IRON UNLINED	456	2	4	\$ 75,000.00	1945-1956	40	YES		1				1	2	3
Temple St	NASHUA	CAST IRON UNLINED	1296	8	12	\$ 360,000.00	1888	70	YES		1				1	2	3
Levert Street	NASHUA	CAST IRON UNLINED	1450	6, 4, 2	8	\$ 250,000.00	1892-1946	70	YES	1			1 4		6	0	6
Worcester St	NASHUA	CAST IRON UNLINED	600	6 & 8	8	\$ 160,000.00	1888-1931	70	YES		1		2		3	2	5
Sheds Ave	NASHUA	STEEL	209	2	4	\$ 40,000.00	1948	40	YES	2	1				3	2	5
		Total LF =	5,122	Total =		\$ 2,032,400.00											
Valve Replacements			15	@	\$ 2,000	=	\$ 32,000.00										
Service Replacements ²			28	@	\$ 1,962	=	\$ 56,250.00										
Hydrant Replacements			4	@	\$ 5,700	=	\$ 24,000.00										
						Planning Contingency ³	\$ 406,480.00										
						Total Estimated WICA \$\$ in 2015 =	\$ 2,551,130.00										

1. Material Integrity - Rating of 1 point for each break in the last 20 years.

2. ISO Fire Ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.

3. Number of Service replacements is the average of the past 5 years. The average cost of a service replacement is the average cost over the past 4 years.

4. The City has added to its initial sewer replacement in previous years. PW&W must complete replacement of its mains when the City replaces its sewer mains.
The City operates on a fiscal year basis between July 1 and June 30 of the following calendar year.

A contingency of 20% is carried to account for this.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-4

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Ware testimony page 7, lines 1-9:

- a) Please indicate whether the year in line 4 should be 2013 or 2014.
- b) In DW 12-359 the road listings for the municipal fiscal year beginning in July were received from at least the City of Nashua in January (Ware supplemental testimony page 1, line 17), but are not expected until mid-July this year (current testimony page 7, line 6). Please comment on the range of time frames in which the listings might typically be expected from the City and the Town of Amherst.
- c) Based on any changes to the priorities for public works in the communities served, is the company considering any additional changes to the 2014 and 2015 project lists at this time?

RESPONSE:

- a) The correct year is 2014.
- b) In DW 12-359, the revised schedule submitted with Mr. Ware's supplemental testimony included sewer main replacements that the City anticipated to be included in its fiscal year 2013-2014 budget. The City Staff begins its capital planning process in mid-January for the fiscal year beginning on July 1st of that year. The streets provided to the Company by the City in January/February of 2013 for its fiscal year beginning in July of 2013 (FY14) represented an initial estimate of the streets it anticipated working on. As discussed in data request Staff 1-6, not every project that the City Staff believed was going to occur in January/February of 2013 actually took place as the initial cut at the FY14 budget changed between January/February of 2013 and the final approved budget. The City's Final Capital Improvements plan is typically approved in June of each year and, therefore, the mid-July reference in testimony should have been mid-June.

The Town of Amherst follows a similar process to the City of Nashua, with initial work beginning on its capital improvement program in January/February of each year and with the final capital improvements plan being approved at its May Town meeting.

- c) Yes. The Company received information from the City and from the Town of Amherst over the past several weeks regarding projects that the City Engineering Staff and the Town of Amherst Public Works Department will be recommending regarding sewer and storm water projects for their FY15 budgets. Please see the attachment to Staff 1-3, which reflect this current information. As stated above, the information used to form the revised WICA project is preliminary and subject to changes over the next three to four months.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-5

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Ware testimony page 9, line 1: Please comment on the nature and scope of the Harris Dam reconstruction.

RESPONSE: The Harris Pond Dam Spillway Reconstruction project will consist of multiple phases:

1. An evaluation of the existing spillway, abutment walls, related structures, and the adjacent small wood framed building, along with the valve mechanism contained within, will be performed to determine their current condition, capacity, utility, and long-term viability. Some of this work has already been done in previous studies; particularly related to surveys performed to determine any movement of the existing spillway and abutment walls. This evaluation will build on the previous studies.
2. From this evaluation, a scope of work will be created to:
 - Bring the spillway into current capacity design standards.
 - Restore the low level control gate to operating condition (this will further increase protection in the event of a failure of the 72" Penstock, which supplies water to the water treatment facility).
 - Replace the dilapidated structure that houses the gate mechanism.
 - Armor or completely replace the face of the spillway to halt water seepage and to ensure structural integrity for many years to come.
 - Complete any other structural improvements that may be required.
3. From this scope, a complete set of construction documents will be created. Bids will be procured, contracts to perform the work will be executed, and the work will be completed. Construction oversight will also be included.

It is anticipated that this project will be completed in either the 2015 or 2016 calendar year dependent upon a number of factors.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-6

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Ware testimony page 11, lines 12-23: Although Att. F provides the correct list, the comments in the testimony appear to be working off the original 2013 project list in DW 12-359, as opposed to the approved list provided in supplemental testimony in that docket. In this regard please explain:

- a) The nature of the easement associated with Fairmount Street.
- b) Why Hillcrest Avenue was added.
- c) The status of the following replacements from the approved list:
 - 1) Elm Street;
 - 2) Park Street;
 - 3) Court Street;
 - 4) Broad Street.

RESPONSE:

- a) The original plan for the Fairmount Street water main replacement associated with the Broad Street Parkway was to keep the water main in the street and hang the pipe from the new bridge being constructed by the City that would pass over the railroad and the Broad Street Parkway. After meeting with the City in the spring of 2013, it became apparent that the Company needed to replace the main on Fairmount ahead of the City's work on Baldwin Street.

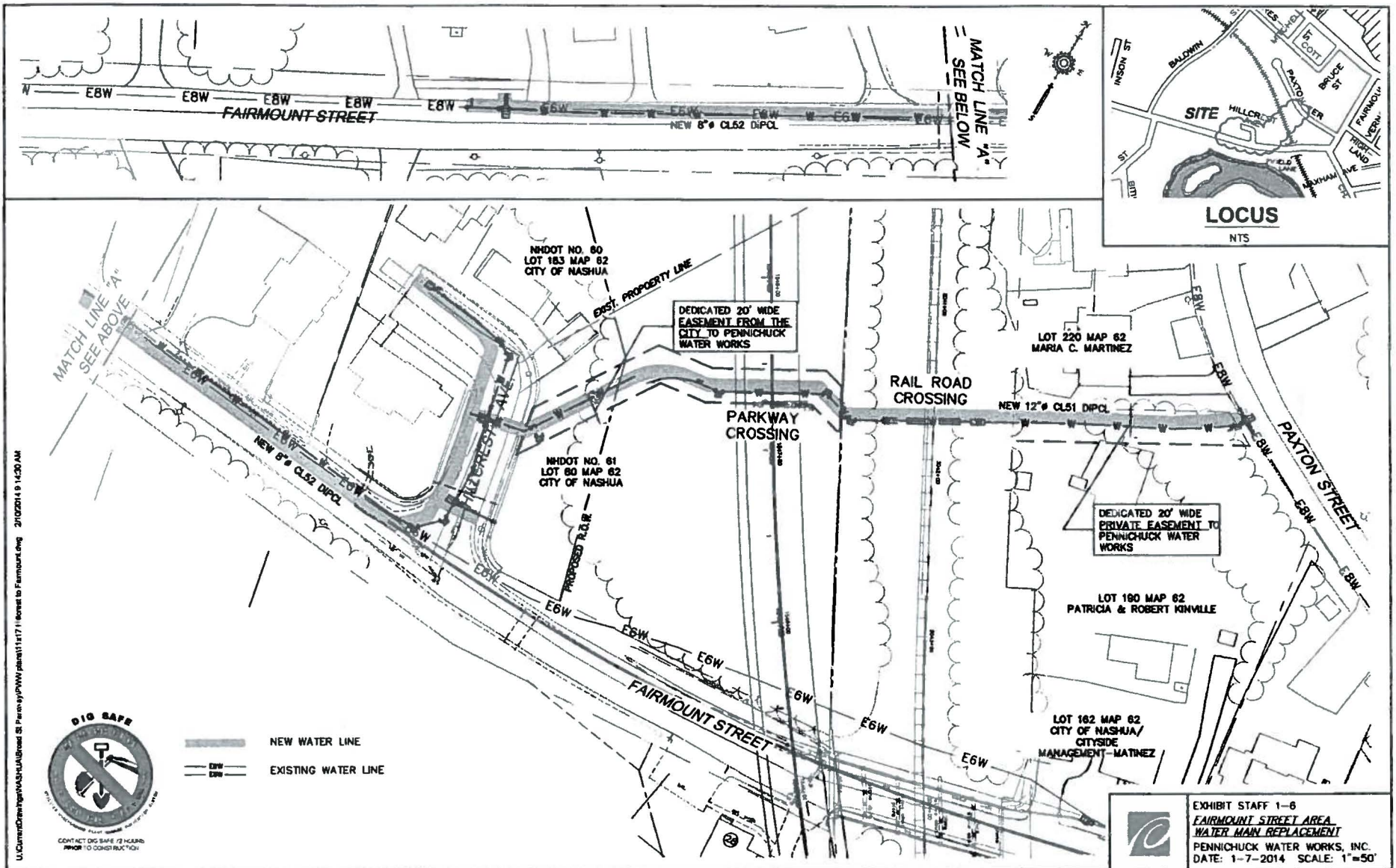
When the City initiates construction of the Baldwin Street Bridge abutments, the Baldwin Street water main feeding "little Florida" would be lost and the Fairmount Street main would be the only water main feeding that area. The Fairmount Street water main did not have sufficient capacity to achieve adequate fire flows to the "little Florida" area. This required that Fairmount Street be replaced before the work could begin on Baldwin Street.

Since the Baldwin Street Bridge was being constructed in advance of the Fairmount Street Bridge, there would be no bridge on which to hang the new

Fairmount water main and, thereby, direct it over the railroad and the Parkway. An alternate crossing concept for the Fairmount Street water main was developed that included a private easement from Paxton Terrace down to the railroad. A permit to cross under the railroad was obtained and the City granted an easement for the main to cross the Parkway and land it owns between the Parkway and Hillcrest. The easements and pipe locations are shown on the attached Exhibit.

By performing this work, there would be no interruption in fire flow to the Company's customers in the "little Florida" area and no impact to the City's schedule. This approach also eliminates the need to maintain the water main for winter operations which would have been the case if the pipe was hung on the bridge.

- b) Hillcrest was added because it provided the best return route back onto Fairmount Street after the pipe avoided the bridge. In addition, Hillcrest had a 2-inch and a 1-inch main that was in need of replacement. This route allowed for the main on Hillcrest to be replaced.
- c) Park, Court and Broad Street will be completed in conjunction with the City of Nashua's FY14 Capital Budget work during the first half of 2014. Elm Street was dropped from Nashua's FY14 budget so correspondingly it was dropped from the Company's current capital expenditure plans.



PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-7

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Ware testimony page 12, lines 20-23, and footnote 3 on original Att. B, page 1 (2013 projects): The timing of Pennichuck's WICA filings make comparison of estimated to actual final costs of individual projects somewhat difficult due to paving costs occurring in a subsequent WICA year. Although the estimated additional \$100,000 total paving cost is only 5 percent of the total water main costs to date (\$1,885,871), please provide, at a minimum, an indication of how total paving (and any other remaining) costs might be apportioned among the various projects.

RESPONSE: Please see attached revised Attachment F, which reflects the costs of paving for each project, as well as actual 2013 costs, including January bills issued for work in December. Attachment F sets forth whether the paving costs were completed and billed for in 2013 or whether the paving work was not completed in 2013 but will be completed in 2014. The total paving costs for the 2013 WICA projects are estimated to be \$243,000, of which \$134,000 was paid for in 2013, leaving a residual of approximately \$110,000 to be completed in 2014.

Pennituck Water Works, Inc.
2013 WCA Water Main Projects
Revised 2/5/2014

Staff 1-7
Attachment F

Work Order No.	WPS SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	Actual Footings Installed	EXISTING PIPE DIAMETER (INCHES)	NEW PIPE DIAMETER (INCHES)	Projected Cost as of 12/31/13	Actual Cost As of 12/31/2013	Total Projected Paving Costs ²	Paving Cost Included in Paving Costs to be accomplished in 2014	As of 12/31/13	Date Used and Useful	As of PPE	ORIGINAL PPE AGE	FULLY DEPREC	BREAK HISTORY	KEY CURTS	WATER QUALITY	FIRE PROTECT FLOWS	Work Coordination's with Sewer or Storm Drain Replacement	Substantial prior to Geographical Proximity	GEOGRAPHICAL PROBABILITY	TOTAL	
1300348	Fairmount St	NASHUA	UNLINED CAST IRON	470	6	6	\$ 264,805	\$ 173,913	\$ 38,212	\$ 34,322	\$	11/15/2013	1901	70	YES	2	2	2	2	2	5	9	2	11
1300348	Fairmount St/Esplanade	NASHUA	UNLINED CAST IRON	120	6	10	\$ 19,190	\$				1901	70	YES		2				2	5	2	9	
1300201	Hillcrest Ave	NASHUA	UNLINED STEEL	453	2'	6	\$ 15,373	\$ 750,155	\$ 23,794	\$ 16,794	\$ 4,000	11/15/2013	1915	40	YES		1	1	1	5	6	2	8	
1300205	Hillcrest Ave	NASHUA	UNLINED STEEL	79	2'-1"	4	\$ 15,272	\$				1915	40	YES		2			2	5	6	2	8	
1300215	Franklin Street	NASHUA	UNLINED CAST IRON	1,138	10	12	\$ 378,914	\$ 431,976	\$ 67,375	\$ 34,775	\$ 32,600	10/31/2013	1908	70	YES					5	5	2	7	
1300221	Franklin Street	NASHUA	UNLINED CAST IRON	445	4	6	\$ 108,185	\$ 121,426	\$ 12,441	\$ 2,341	\$ 10,100	5/19/2013	1911	40	YES					5	5	2	7	
1300253	Payson St	NASHUA	UNLINED CAST IRON	688	8	8	\$ 150,380	\$ 167,880	\$ 22,476	\$ 3,076	\$ 18,000	6/21/2013	1911	70	YES					5	5	2	7	
1300253	Ash St	NASHUA	UNLINED CAST IRON	675	4	6	\$ 97,991	\$ 186,445	\$ 32,340	\$ 11,978	\$ 20,362	10/31/2013	1918	40	YES	1				5	6	1	8	
1300218	Walnut St	NASHUA	UNLINED CAST IRON	385	4	8.4	\$ 82,871	\$ 84,758	\$ 20,116	\$ 11,116	\$ 9,000	10/18/2013	1897	70	YES					5	5	2	7	
1300219	Benson Court	NASHUA	UNLINED CAST IRON	201	4	6.8.4	\$ 15,000	\$ 21,150	\$ 8,180	\$ 3,640	\$ 4,500	10/25/2013	1907	70	YES					5	5	2	7	
1300220	Middle St	NASHUA	UNLINED CAST IRON	542	4	6	\$ 86,760	\$ 96,012	\$ 18,260	\$ 8,160	\$ 10,100	10/31/2013	1888	70	YES					5	5	2	7	
1300215	Middle St	NASHUA	UNLINED CAST IRON	1,946	6	8.8.12	\$ 296,022	\$ 323,914	\$	\$	\$	6/14/2013	1900	40	YES	1				5	5	2	8	
1300214	Cross St	NASHUA	UNLINED CAST IRON	1,971	6	8	\$ 32,703	\$ 44,545	\$	\$	\$	6/14/2013	1910	40	YES					5	5	2	7	
Total 17							\$ 1,492,875.00	\$ 1,485,870.68	\$ 340,218.00	\$ 184,953.00	\$ 109,282.00													
Services Replacements ³							17	at a total cost of	\$ 64,281.24	\$ 64,281.24														
Hydrant Replacements ⁴							6	at a total cost of	\$ 30,716.04	\$ 30,716.04														
Total WCA Eligible \$5 expended in 2013									\$ 1,567,307.28	\$ 1,560,377.96														

- Material Integrity - Rating of 1 point for each break in the last 10 years.
- ISO Fire Rating - A rating of 1 for each 500 gpm that the flow in the wellmain is less than the ISO required rating.
- Actual service replacements completed in 2013 in the PMW Core that were exclusive of the WCA water main replacement projects
- Actual hydrant replacements completed in 2013 in the PMW Core that were exclusive of the WCA water main replacement projects
- Feeling cost is usually a 1/3rd split with the City however Benson St and Beacon Ct may be split 50/50 since the Gas Co. did not work in these streets in the Spring of 2014, the Company will have the 100% & split percent cost

Pennichuck Water Works Inc

Asset Acquisition

Staff 1-7

GAAP

By Project

For the Period January 1, 2013 to December 31, 2013

Asset GL Acct #	Acquisition Cost	Account					
		303	331 Mains	331-002 Paving	331-250 Valves	333 Services	335 Hydrants
Project ID: 1201820-01							
2331-200-001	2,688.26		2,688.26				
Subtotal: 1201820-01 (1)	2,688.26						
Project ID: 1201821-01							
2331-200-001	2,335.28		2,335.28				
Subtotal: 1201821-01 (1)	2,335.28						
Project ID: 1300218-01							
2331-002-001	8,210.00			8,210.00			
2331-200-001	348,408.38		348,408.38				
2331-250-001	24,524.06				24,524.06		
2333-200-001	25,869.16					25,869.16	
2335-000-001	4,984.54					4,984.54	
Subtotal: 1300218-01 (5)	411,976.14						
Project ID: 1300218-01							
2331-200-001	71,777.86		71,777.86				
2333-200-001	9,050.00					9,050.00	
2335-000-001	3,928.00						3,928.00
Subtotal: 1300218-01 (3)	84,755.86						
Project ID: 1300219-01							
2331-200-001	20,496.67		20,496.67				
2331-250-001	1,008.77				1,008.77		
2333-200-001	6,646.46					6,646.46	
Subtotal: 1300219-01 (3)	28,149.90						
Project ID: 1300220-01							
2331-200-001	80,577.63		80,577.63				
2331-250-001	2,118.99				2,118.99		
2333-200-001	10,954.37					10,954.37	
2335-000-001	2,360.57					2,360.57	
Subtotal: 1300220-01 (4)	96,011.56						
Project ID: 1300348-01							
2303-300-001	4,574.74	4,574.74					
2331-200-001	153,715.37		153,715.37				
2331-250-001	1,319.92				1,319.92		
2333-200-001	11,399.35					11,399.35	
2335-000-001	7,477.97						7,477.97
Subtotal: 1300348-01 (5)	178,487.35						
Project ID: 1300814-01							
2331-200-001	34,915.07		34,915.07				
2331-250-001	1,530.00				1,530.00		
Subtotal: 1300814-01 (2)	36,445.07						
Project ID: 1300815-01							
2331-200-001	276,881.70		276,881.70				
2331-250-001	17,165.00				17,165.00		
2333-200-001	29,562.00					29,562.00	
2335-000-001	5,305.00						5,305.00
Subtotal: 1300815-01 (4)	328,913.70						
Project ID: 1301853-01							
2331-200-001	92,485.72		92,485.72				
2331-250-001	4,663.78				4,663.78		
2333-200-001	20,880.99					20,880.99	
2335-000-001	59.95						59.95
2335-200-001	1,000.00						1,000.00
Subtotal: 1301853-01 (5)	119,080.44						

Pennichuck Water Works Inc

Asset Acquisition

Staff 1-7

GAAP

By Project

For the Period January 1, 2013 to December 31, 2013

Asset GL Acct #	Acquisition Cost	Account					
		303	331 Mains	331-002 Paving	331-250 Valves	333 Services	335 Hydrants
Project ID: 1302502-01							
2331-200-001	121,780.31		121,780.31				
2331-250-001	4,400.00				4,400.00		
2333-200-001	39,600.00					39,600.00	
2335-000-001	2,000.00						2,000.00
Subtotal: 1302502-01 (4)	167,680.31						
Project ID: 1302503-01							
2331-200-001	143,747.00		143,747.00				
2331-250-001	9,500.00				9,500.00		
2333-200-001	29,500.00					29,500.00	
2335-000-001	1,000.00						1,000.00
Subtotal: 1302503-01 (4)	183,747.00						
Project ID: 1302505-01							
2303-300-001	3,278.45	3,278.45					
2331-002-001	20,184.65			20,184.65			
2331-200-001	213,217.70		213,217.70				
2331-250-001	2,855.26				2,855.26		
2338-200-001	6,220.39					6,220.39	
2335-000-001	7,676.57						7,676.57
Subtotal: 1302505-01 (8)	253,433.02						
Subtotal	1,893,723.69	7,853.19	1,683,036.75	28,394.65	69,083.78	186,907.83	28,447.49
Distribution							
Renewed Services (2333)	44,291.24					44,291.24	
Renewed Hydrants (2335)	30,716.04						30,716.04
Grand Total	1,968,730.97	7,853.19	1,683,036.75	28,394.65	69,083.78	241,199.07	59,183.53

* Excludes Acct 303

• 1,960,877.78

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-8

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Revised Att. B, page 1 (2013 projects) received 1/22/14: Please explain the following:

- a) The significant project length changes in the first Fairmount Street project and first Hillcrest Avenue project (but yielding the same total project footage of 7,524).
- b) The substantial cost increase in the "Fairmount St/Easement" project (resulting in a cost of over \$2,000 per foot).
- c) The absence of cost data for the two Hillcrest Avenue projects.
- d) The relatively high cost of the first Fairmount Street project (\$370/foot) and the Franklin Street (\$368/foot) project.
- e) The elimination of original footnote 3 regarding paving costs.
- f) The addition, then elimination of hydrant costs (none appeared in the 'approved' list); the reduction, then restoration to 'approved' values of service replacements (to what appears to be a budget rather than actual number); all in relation to the new footnote 5.
- g) Whether service replacement costs include paving (if applicable).
- h) The changes in the numerical ratings of the various water mains.
- i) The decrease in overall project cost from the roughly \$2.7 million on the approved list to \$1.9 million spent to date.

RESPONSE:

- a) The Fairmount Street, Hillcrest Avenue, and Fairmount Street Easement work should be viewed as one complete project. The total footage is 1,122 and the total cost of this work was \$314,540. The potential confusion comes from the internal process by which projects are set up and how costs are assigned.
- b) When viewed as one complete project, the total costs for the entire Fairmount Street area results in a per foot cost of approximately \$280.
- c) See explanation in a) and b) above and the attached map in Staff 1-6.
- d) The Fairmount Street project costs have a higher than usual cost per foot because of the specialty construction required to install the water main under the railroad.

Pipe-jacking a sleeve was required to cross under the railroad. A pipe sleeve was placed under the proposed Parkway as well. Directional drilling was necessary to install the pipeline from Hillcrest down a steep embankment to the Parkway. Franklin Street required excavation and restoration in a major intersection (Main Street) in Nashua requiring night-time work. This higher than average cost, when applied to the overall pipe length, results in a higher per foot cost for the overall project.

- e) See Staff 1-7 revised Attachment F, detailing which of the street costs have paving included in 2013 and which do not.
- f) Hydrant replacements were inadvertently not included on Attachment F of the DW12-359 filing. The revised Attachment F reflects the correct footnotes as well as the correct information regarding hydrant and service replacements. Additionally, the costs shown reflect the actual work order costs.
- g) The service replacement costs include surface restoration costs.
- h) Unfortunately, the 1-22-2014 cost update was based on a draft worksheet. Please see Staff 1-7 revised Attachment F.
- i) The decrease in the overall 2013 WICA project costs reflects the fact that the Baldwin Street, Baldwin Street Bridge/RR crossing, Park Street, Elm Street, Court Street and Broad Street projects did not occur in 2013. The total estimated cost of these projects was \$958,347. When the total of these projects is added to the \$1.9 million spent to date, it comes to a total of about \$2.9 million. Please note that all these projects, with the exception of the Elm Street project, are part of the proposed 2014 WICA water main projects.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-9

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Att. B, page 2 (2014 projects)

- a) Please indicate proposed main sizes for each of the 2014 projects (Att. B, page 2).
- b) Please comment on the high cost (\$396/foot) of the 2014 Eldridge Street project.

RESPONSE:

- a) Please see Staff 1-3 for revised Attachment B, which details the proposed main sizes for each for the proposed 2014 projects as well as the estimated numbers of valve, service and hydrant replacements. The estimated numbers of valve, service and hydrant replacements are for replacements not associated with one of the main replacement projects detailed on this list.
- b) There will be major intersection work (Main Street) associated with this project including night work to accomplish it. This resulted in a higher than usual per foot cost when applied to the relatively small length of the project.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-10

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Att. B, pages 2-4 (2014-2016 projects):

- a) No valve or hydrant replacements were included in any of the DW 12-359 projections, but are now included in each future year projection (at slightly varying levels). Please comment.
- b) Annual total proposed WICA spending levels in the current docket have generally increased from those proposed in DW 12-359. Please comment on the company's general strategy in this regard.

RESPONSE:

- a) It was an oversight on the Company's part not to include hydrant and valve replacements as part of the initial WICA filing. There are always a certain number of valves and hydrants replaced each year that are not part of a street replacement project. The valves and hydrants in need of replacement are located as part of the Company's annual valve exercise and hydrant inspection program. Properly functioning valves and hydrants are key to the Company's distribution maintenance program and are part of the aging infrastructure replacement program that the Company believes is supported by the WICA concept.
- b) The Company's WICA-eligible infrastructure consists of about 443 miles of water main, 2,500 hydrants, 26,600 services and 8,400 valves. The replacement goals will ultimately be shaped by the Company's Asset Management Program. At present, the quantity of water main replacement of less than 10,000 LF is driven by the City's and Town's sewer and storm drain replacement programs. When the Company's Asset Management Plan is completed, the Company expects to recommend the replacement of its mains every 100 to 200 years (dependent upon size, materials and soil conditions), or between 12,000 and 23,000 LF of water main per year. The Company plans to recommend that a portion of the required footage year be in coordination with City projects and the remainder be replaced

as recommended by the Asset Management Program, with the intent of achieving the recommended replacement targets. Please note that the Asset Management Plan will require rating all of the Company's water mains.

Ongoing service replacements are focused on over 1,200 steel and substandard HDPE water services. At present, service replacements happen in one of three fashions:

- a. In conjunction with a water main replacement project;
- b. In conjunction with a City paving project; or
- c. As a result of a service failure.

Valves are replaced as part of a water main replacement project or when they are found to have failed as part of the Company's valve inspection program.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-11

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Attachment C; Page 2 of 2 (Revised):

- a) Please confirm that there are no retirements associated with the 2013 WICA projects.
- b) If retirements should be recorded, please provide the relevant amounts associated with these retired assets including original cost, accumulated depreciation as well as any depreciation expense that was recorded on these assets during 2013.

RESPONSE:

- a) The revised Attachment C in Staff 1-12 reflects 2013 retirements associated with main, services, and hydrants.
- b) Please see attached schedule.

Pennichuck Water Works Inc
Net Book Value [Depreciation]
For the Period January 1, 2013 to December 31, 2013
By Project
GAAP

Staff 1-11 (b)

Asset GL Type	ASSET BALANCES	Accumulated DEPRECIATION	Net Book Value	Depreciation Rate	Depreciation Expense
Distribution Mains	\$ 14,422	\$ 13,563	\$ 859	1.60%	\$ 231
Hydrants	\$ 2,293	\$ 1,699	\$ 594	2.24%	\$ 51
Services	\$ 6,924	\$ 4,193	\$ 2,731	2.34%	\$ 162
Valves	\$ 2,174	\$ 571	\$ 1,603	1.60%	\$ 35
<i>Grand Total</i>	<u>\$ 25,813</u>	<u>\$ 20,026</u>	<u>\$ 5,787</u>		<u>\$ 444</u>

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 1
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: January 29, 2014
Request No. Staff 1-12

Date of Response: February 12, 2014
Witness: Donald L. Ware

REQUEST: Re: Attachment C; Page 2 of 2 (Revised):

- a) Should not the property tax expense on the 2013 WICA projects be determined net of accumulated depreciation? Please explain.
- b) Should not the 2013 property tax rate for Nashua of \$20.95 per mill be utilized in the property tax calculation? Please explain.
- c) Should not the 2013 property tax rate for Amherst of \$23.95 per mill be applied to the Amherst projects? Please explain.
- d) Please provide an analysis showing the respective plant investments and accumulated depreciation associated with the Nashua projects and the Amherst projects. If there are retirements associated with any of the projects, please provide a similar analysis for these.

RESPONSE:

- a) Yes. Revised Attachment C is attached to reflect the property tax expense net of depreciation.
- b) Yes. Revised Attachment C is attached to reflect the property tax for Nashua.
- c) In order to simplify Attachment C, the Company is reflecting the lower Nashua property tax rate for all projects, including the Amherst projects.
- d) Please see attached schedule for plant investments. Please see attached schedule to Staff 1-11 for retirements. The revised Attachment C attached reflects the 2013 retirements.

PENNICHUCK WATER WORKS, INC.
WICA Surcharge Calculation
DW 13-358

Staff 1-12
Attachment C
Page 1 of 2

	Actuals		Projections	
	2013	2014	2015	2016
Plant Additions	\$ 1,741,040	\$ 2,941,324	\$ 2,253,240	\$ 2,296,017
Less Accumulated Depreciation For:				
2013 Additions	\$ (14,872)	\$ (29,744)	\$ (29,744)	\$ (29,744)
2014 Additions		\$ (23,764)	\$ (47,529)	\$ (47,529)
2015 Additions			\$ (18,258)	\$ (36,516)
2016 Additions				\$ (18,625)
Net Plant Additions	\$ 1,726,168	\$ 2,887,816	\$ 2,157,709	\$ 2,182,228
Pre Tax Rate of Return	6.04%	6.04%	6.04%	6.04%
Revenue Requirement	\$ 104,261	\$ 174,424	\$ 130,326	\$ 131,807
Depreciation	\$ 29,744	\$ 47,529	\$ 36,516	\$ 37,249
Property Taxes	\$ 47,146	\$ 79,725	\$ 61,071	\$ 62,229
Overall Revenue Requirement	\$ 181,151	\$ 301,678	\$ 227,913	\$ 231,285
Cumulative Revenue Requirement	\$ 181,151	\$ 482,828	\$ 710,741	\$ 942,026
Water Revenues per DW 10-091	\$ 26,997,163			
Overall Revenue Surcharge Amount	0.67%	1.12%	0.84%	0.86%
Cumulative Revenue Surcharge Amount	0.67%	1.79%	2.63%	3.49%

Calculation of Pre Tax Rate of Return (Based on DW 11-026)

	Weighted Cost	Tax Multiplier	Pre Tax Cost
Debt	6.04%	1.000	6.04%
Equity	0.00%	1.681	0.00%
	6.04%		6.04%

Customer Impact

5/8 inch Meter Charge	\$ 20.34	\$ 20.34	\$ 20.34	\$ 20.34
Volumetric Charge	\$ 3.30	\$ 3.30	\$ 3.30	\$ 3.30
Average Single Family Residential Usage (CCF)	7.88	7.88	7.88	7.88
Monthly Usage	\$ 26.00	\$ 26.00	\$ 26.00	\$ 26.00
Total Month Charge	\$ 46.34	\$ 46.34	\$ 46.34	\$ 46.34
Monthly Impact of Surcharge	\$ 0.31	\$ 0.52	\$ 0.39	\$ 0.40
Cumulative Monthly Impact of Surcharge	\$ 0.31	\$ 0.83	\$ 1.22	\$ 1.62

PENNICHUCK WATER WORKS, INC.
WICA Surcharge Calculation
DW 13-358

Staff 1-12
Attachment C
Page 2 of 2

2013	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mill Rate ³	Property Tax Expense
Mains	\$ 1,563,037	\$ (156,234)	\$ 1,406,803	\$ (14,422)	\$ 1,392,381	1.60%	\$ 22,278	27.55	\$ 37,746
Contingency	\$ -	\$ -	\$ -	\$ -	\$ -	1.60%	\$ -	27.55	\$ -
Paving	\$ 28,395	\$ (2,839)	\$ 25,555	\$ -	\$ 25,555	1.57%	\$ 401	27.55	\$ 693
Hydrants	\$ 59,184	\$ (5,063)	\$ 54,100	\$ (2,293)	\$ 51,807	2.24%	\$ 1,160	27.55	\$ 1,395
Services	\$ 241,199	\$ (22,980)	\$ 218,219	\$ (6,924)	\$ 211,295	2.34%	\$ 4,944	27.55	\$ 5,685
Valves	\$ 69,084	\$ (6,908)	\$ 62,175	\$ (2,174)	\$ 60,001	1.60%	\$ 960	27.55	\$ 1,827
Total	\$ 1,960,878	\$ (194,025)	\$ 1,766,853	\$ (26,813)	\$ 1,741,040		\$ 29,744		\$ 47,146

2014	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mill Rate ³	Property Tax Expense
Mains	\$ 2,905,145	\$ (290,515)	\$ 2,614,631	\$ -	\$ 2,614,631	1.60%	\$ 41,834	27.55	\$ 70,881
Contingency	\$ 145,257	\$ (14,526)	\$ 130,732	\$ -	\$ 130,732	1.60%	\$ 2,092	27.55	\$ 3,544
Paving	\$ 110,000	\$ (11,000)	\$ 99,000	\$ -	\$ 99,000	1.57%	\$ 1,554	27.55	\$ 2,685
Hydrants	\$ 22,800	\$ (2,280)	\$ 20,520	\$ -	\$ 20,520	2.24%	\$ 460	27.55	\$ 553
Services	\$ 54,938	\$ (5,494)	\$ 49,442	\$ -	\$ 49,442	2.34%	\$ 1,157	27.55	\$ 1,330
Valves	\$ 30,000	\$ (3,000)	\$ 27,000	\$ -	\$ 27,000	1.60%	\$ 432	27.55	\$ 732
Total	\$ 3,268,138	\$ (328,814)	\$ 2,941,324	\$ -	\$ 2,941,324		\$ 47,529		\$ 79,725

2015	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mill Rate ³	Property Tax Expense
Mains	\$ 1,999,000	\$ (199,900)	\$ 1,799,100	\$ -	\$ 1,799,100	1.60%	\$ 28,786	27.55	\$ 48,772
Contingency	\$ 399,800	\$ (39,980)	\$ 359,820	\$ -	\$ 359,820	1.60%	\$ 5,757	27.55	\$ 9,754
Hydrants	\$ 22,800	\$ (2,280)	\$ 20,520	\$ -	\$ 20,520	2.24%	\$ 460	27.55	\$ 553
Services	\$ 50,000	\$ (5,000)	\$ 45,000	\$ -	\$ 45,000	2.34%	\$ 1,053	27.55	\$ 1,211
Valves	\$ 32,000	\$ (3,200)	\$ 28,800	\$ -	\$ 28,800	1.60%	\$ 461	27.55	\$ 781
Total	\$ 2,503,600	\$ (250,360)	\$ 2,253,240	\$ -	\$ 2,253,240		\$ 36,518		\$ 61,071

2016	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mill Rate ³	Property Tax Expense
Mains	\$ 2,032,400	\$ (203,240)	\$ 1,829,160	\$ -	\$ 1,829,160	1.60%	\$ 29,267	27.55	\$ 49,587
Contingency	\$ 406,480	\$ (40,648)	\$ 365,832	\$ -	\$ 365,832	1.60%	\$ 5,853	27.55	\$ 9,917
Hydrants	\$ 24,000	\$ (2,400)	\$ 21,600	\$ -	\$ 21,600	2.24%	\$ 484	27.55	\$ 582
Services	\$ 56,250	\$ (5,625)	\$ 50,625	\$ -	\$ 50,625	2.34%	\$ 1,185	27.55	\$ 1,382
Valves	\$ 32,000	\$ (3,200)	\$ 28,800	\$ -	\$ 28,800	1.60%	\$ 461	27.55	\$ 781
Total	\$ 2,551,130	\$ (255,113)	\$ 2,296,017	\$ -	\$ 2,296,017		\$ 37,249		\$ 62,229

Notes:

- 1 For 2013, Reflects actual retirement for mains, services and hydrants.
- 2 As per last depreciation study in DW 06-073 utilizing composite rate.
- 3 Based on Nashua 2012 property rate of \$20.95 and state rate of \$6.60. Property Tax is calculated on Net investment less depreciation expense.
- 4 Book cost equals gross investment less cost of removal. Net investment equals book cost less retirements.

Pennichuck Water Works Inc
Net Book Value (Depreciation)
For the Period January 1, 2013 to December 31, 2013
By Project
GAAP

Staff 1-12 (d)

Asset GL Acct #	ASSET BALANCES				DEPRECIATION						
	Beginning	Additions	Deletions	Ending	Reg. Balance	Depr Exp & AFYD	Sec 179D/78A	Ord. Additions	Deletions	End Balance	Net Book Value
Nashua											
Project ID: 1300348-01 - Fairmount Street											
2331-200-001	0.00	138,343.81	0.00	138,343.81	0.00	1,106.73	0.00	0.00	0.00	1,106.73	137,237.08
2331-250-001	0.00	1,187.93	0.00	1,187.93	0.00	9.50	0.00	0.00	0.00	9.50	1,178.43
2333-200-001	0.00	10,259.41	0.00	10,259.41	0.00	119.99	0.00	0.00	0.00	119.99	10,139.42
2335-000-001	0.00	6,730.17	0.00	6,730.17	0.00	75.34	0.00	0.00	0.00	75.34	6,654.83
Subtotal: 1300348-01	0.00	156,521.32	0.00	156,521.32	0.00	1,311.56	0.00	0.00	0.00	1,311.56	155,209.76
Project ID: 1302505-01 - Hillcrest Ave											
2331-002-001	0.00	18,188.18	0.00	18,188.18	0.00	142.87	0.00	0.00	0.00	142.87	18,023.51
2331-200-001	0.00	191,895.93	0.00	191,895.93	0.00	1,535.18	0.00	0.00	0.00	1,535.18	190,360.75
2331-250-001	0.00	2,589.72	0.00	2,589.72	0.00	20.58	0.00	0.00	0.00	20.58	2,549.18
2333-200-001	0.00	5,598.35	0.00	5,598.35	0.00	65.48	0.00	0.00	0.00	65.48	5,532.87
2335-000-001	0.00	7,861.71	0.00	7,861.71	0.00	85.77	0.00	0.00	0.00	85.77	7,775.94
Subtotal: 1302505-01	0.00	225,891.89	0.00	225,891.89	0.00	1,849.86	0.00	0.00	0.00	1,849.86	224,042.23
Project ID: 1300215-01 - Franklin Street											
2331-002-001	0.00	7,389.00	0.00	7,389.00	0.00	58.03	0.00	0.00	0.00	58.03	7,330.97
2331-200-001	0.00	313,567.54	0.00	313,567.54	0.00	2,609.08	0.00	0.00	0.00	2,609.08	311,058.98
2331-250-001	0.00	22,071.65	0.00	22,071.65	0.00	176.57	0.00	0.00	0.00	176.57	21,895.08
2333-200-001	0.00	23,687.24	0.00	23,687.24	0.00	276.82	0.00	0.00	0.00	276.82	23,380.42
2335-000-001	0.00	4,488.09	0.00	4,488.09	0.00	50.02	0.00	0.00	0.00	50.02	4,418.07
Subtotal: 1300215-01 (5)	0.00	371,163.52	0.00	371,163.52	0.00	3,070.00	0.00	0.00	0.00	3,070.00	368,093.52
Project ID: 1201821-01 - Pleasant Street											
2331-200-001	0.00	2,101.78	0.00	2,101.78	0.00	16.81	0.00	0.00	0.00	16.81	2,084.95
Subtotal: 1201821-01 (1)	0.00	2,101.78	0.00	2,101.78	0.00	16.81	0.00	0.00	0.00	16.81	2,084.95
Project ID: 1301953-01 - Pleasant Street											
2331-200-001	0.00	63,237.17	0.00	63,237.17	0.00	670.04	0.00	0.00	0.00	670.04	62,567.13
2331-250-001	0.00	4,197.40	0.00	4,197.40	0.00	33.58	0.00	0.00	0.00	33.58	4,163.82
2333-200-001	0.00	18,792.89	0.00	18,792.89	0.00	219.80	0.00	0.00	0.00	219.80	18,573.09
2335-000-001	0.00	53.95	0.00	53.95	0.00	0.60	0.00	0.00	0.00	0.60	53.35
2335-200-001	0.00	900.00	0.00	900.00	0.00	10.07	0.00	0.00	0.00	10.07	889.93
Subtotal: 1301953-01 (5)	0.00	107,181.41	0.00	107,181.41	0.00	934.09	0.00	0.00	0.00	934.09	106,247.32
Total Pleasant Street		107,181.41	0.00	107,181.41	0.00	934.09	0.00	0.00	0.00	934.09	106,247.32
Project ID: 1302502-01 - Ash Street											
2331-200-001	0.00	108,881.39	0.00	108,881.39	0.00	877.28	0.00	0.00	0.00	877.28	108,004.11
2331-250-001	0.00	3,860.00	0.00	3,860.00	0.00	31.68	0.00	0.00	0.00	31.68	3,828.32
2333-200-001	0.00	35,550.00	0.00	35,550.00	0.00	415.79	0.00	0.00	0.00	415.79	35,134.21
2335-000-001	0.00	1,600.00	0.00	1,600.00	0.00	20.15	0.00	0.00	0.00	20.15	1,579.85
Subtotal: 1302502-01 (4)	0.00	150,971.39	0.00	150,971.39	0.00	1,344.90	0.00	0.00	0.00	1,344.90	149,626.49
Project ID: 1201820-01 - Walnut Street											
2331-200-001	0.00	2,428.42	0.00	2,428.42	0.00	19.42	0.00	0.00	0.00	19.42	2,409.00
Subtotal: 1201820-01 (1)	0.00	2,428.42	0.00	2,428.42	0.00	19.42	0.00	0.00	0.00	19.42	2,409.00
Project ID: 1302503-01 - Walnut Street											
2331-200-001	0.00	129,372.31	0.00	129,372.31	0.00	1,034.58	0.00	0.00	0.00	1,034.58	128,337.73
2331-250-001	0.00	8,550.00	0.00	8,550.00	0.00	68.40	0.00	0.00	0.00	68.40	8,481.60
2333-200-001	0.00	26,850.00	0.00	26,850.00	0.00	314.04	0.00	0.00	0.00	314.04	26,535.96
2335-000-001	0.00	1,000.00	0.00	1,000.00	0.00	11.19	0.00	0.00	0.00	11.19	988.81
Subtotal: 1302503-01 (4)	0.00	165,772.31	0.00	165,772.31	0.00	1,428.61	0.00	0.00	0.00	1,428.61	164,343.70
Total Walnut Street		165,772.31	0.00	165,772.31	0.00	1,428.61	0.00	0.00	0.00	1,428.61	164,343.70
Project ID: 1300218-01 - Beacon Street											
2331-200-001	0.00	64,589.88	0.00	64,589.88	0.00	518.80	0.00	0.00	0.00	518.80	64,071.08
2333-200-001	0.00	8,145.00	0.00	8,145.00	0.00	95.28	0.00	0.00	0.00	95.28	8,049.72
2335-000-001	0.00	3,535.20	0.00	3,535.20	0.00	39.67	0.00	0.00	0.00	39.67	3,495.53
Subtotal: 1300218-01 (3)	0.00	76,280.08	0.00	76,280.08	0.00	653.75	0.00	0.00	0.00	653.75	75,626.33
Project ID: 1300219-01 - Beacon Court											
2331-200-001	0.00	18,448.89	0.00	18,448.89	0.00	147.57	0.00	0.00	0.00	147.57	18,299.42
2331-250-001	0.00	908.08	0.00	908.08	0.00	7.25	0.00	0.00	0.00	7.25	899.84
2333-200-001	0.00	8,098.81	0.00	8,098.81	0.00	71.19	0.00	0.00	0.00	71.19	8,015.62
Subtotal: 1300219-01 (3)	0.00	25,436.88	0.00	25,436.88	0.00	226.01	0.00	0.00	0.00	226.01	25,210.87
Project ID: 1300220-01 - Middle Street											
2331-200-001	0.00	72,519.87	0.00	72,519.87	0.00	580.15	0.00	0.00	0.00	580.15	71,939.72
2331-250-001	0.00	1,807.10	0.00	1,807.10	0.00	15.25	0.00	0.00	0.00	15.25	1,791.85
2333-200-001	0.00	10,208.95	0.00	10,208.95	0.00	118.40	0.00	0.00	0.00	118.40	10,090.55
2335-000-001	0.00	2,124.51	0.00	2,124.51	0.00	23.78	0.00	0.00	0.00	23.78	2,100.73
Subtotal: 1300220-01	0.00	86,660.43	0.00	86,660.43	0.00	738.58	0.00	0.00	0.00	738.58	85,921.85

Pennichuck Water Works Inc
Net Book Value (Depreciation)
For the Period January 1, 2013 to December 31, 2013
By Project
GAAP

Staff 1-12 (d)

Asset GL Acct #	ASSET BALANCES				DEPRECIATION						
	Beginning	Additions	Deletions	Ending	Reg. Balance	Depr Exp & APYD	Sec 179/179A	Ord. Additions	Deletions	End. Balance	Net Book Value
<u>Amherst</u>											
Project ID: 1300915-01 - Middle Street											
2331-200-001	0.00	242,193.67	0.00	242,193.67	0.00	1,893.57	0.00	0.00	0.00	1,893.57	247,188.95
2331-250-001	0.00	15,448.50	0.00	15,448.50	0.00	173.58	0.00	0.00	0.00	173.58	15,324.72
2333-200-001	0.00	26,005.00	0.00	26,005.00	0.00	311.18	0.00	0.00	0.00	311.17	26,294.81
2335-000-001	0.00	1,774.50	0.00	1,774.50	0.00	53.45	0.00	0.00	0.00	53.45	4,721.05
Subtotal: 1300915-01 (4)	0.00	285,422.32	0.00	285,422.32	0.00	2,431.69	0.00	0.00	0.00	2,431.69	293,540.55
Project ID: 1300914-01 - Cross Street											
2351-200-001	0.00	31,434.43	0.00	31,434.43	0.00	251.48	0.00	0.00	0.00	251.48	31,183.00
2351-250-001	0.00	1,377.00	0.00	1,377.00	0.00	11.02	0.00	0.00	0.00	11.02	1,365.98
Subtotal: 1300914-01 (2)	0.00	32,811.43	0.00	32,811.43	0.00	262.51	0.00	0.00	0.00	262.51	32,548.98
Sub Total	0.00	1,899,346.71	0.00	1,899,346.71	0.00	14,335.67	0.00	0.00	0.00	14,335.67	1,885,011.04
Distribution											
Renewed Services (2333)	0.00	30,862.12	0.00	30,862.12	0.00	488.30	0.00	0.00	0.00	488.30	30,255.72
Renewed Hydrants (2335)	0.00	27,844.44	0.00	27,844.44	0.00	209.67	0.00	0.00	0.00	209.62	27,339.82
Grand Total	0.00	1,768,852.77	0.00	1,768,852.77	0.00	15,111.67	0.00	0.00	0.00	15,111.57	1,731,741.20

Pennichuck Water Works Inc
Asset Acquisition
GAAP
By Project

Staff 1-12 (d)

For the Period January 1, 2013 to December 31, 2013

		Account					
Asset GL Acct #	Book Cost	303	331 Mains	331-002 Paving	331-250 Valves	333 Services	335 Hydrants
Project ID: 1201820-01							
2331-200-001	2,428.42		2,428.42				
Subtotal: 1201820-01 (1)	2,428.42						
Project ID: 1201821-01							
2331-200-001	2,101.78		2,101.78				
Subtotal: 1201821-01 (1)	2,101.78						
Project ID: 1300215-01							
2331-002-001	7,389.00			7,389.00			
2331-200-001	313,587.54		313,587.54				
2331-250-001	22,071.85				22,071.85		
2333-200-001	23,887.24					23,887.24	
2335-000-001	4,488.09					4,488.09	
Subtotal: 1300215-01 (5)	371,163.82						
Project ID: 1300218-01							
2331-200-001	64,599.88		64,599.88				
2333-200-001	8,145.00					8,145.00	
2335-000-001	3,535.20						3,535.20
Subtotal: 1300218-01 (3)	76,280.08						
Project ID: 1300219-01							
2331-200-001	18,446.99		18,446.99				
2331-250-001	908.09				908.09		
2333-200-001	6,088.81					6,088.81	
Subtotal: 1300219-01 (3)	25,439.89						
Project ID: 1300220-01							
2331-200-001	72,519.87		72,519.87				
2331-250-001	1,907.10				1,907.10		
2333-200-001	10,208.95					10,208.95	
2335-000-001	2,124.51					2,124.51	
Subtotal: 1300220-01 (4)	86,760.43						
Project ID: 1300348-01							
2303-300-001	4,574.74	4,574.74					
2331-200-001	138,343.81		138,343.81				
2331-250-001	1,187.93				1,187.93		
2333-200-001	10,259.41					10,259.41	
2335-000-001	6,730.17						6,730.17
Subtotal: 1300348-01 (5)	161,098.06						
Project ID: 1300814-01							
2331-200-001	31,434.49		31,434.49				
2331-250-001	1,377.00				1,377.00		
Subtotal: 1300814-01 (2)	32,811.49						
Project ID: 1300815-01							
2331-200-001	249,183.52		249,183.52				
2331-250-001	15,448.50				15,448.50		
2333-200-001	26,805.80					26,805.80	
2335-000-001	4,774.50						4,774.50
Subtotal: 1300815-01 (4)	296,022.32						
Project ID: 1301883-01							
2331-200-001	83,237.17		83,237.17				
2331-250-001	4,187.40				4,187.40		
2333-200-001	18,792.89					18,792.89	
2335-000-001	53.95						53.95
2335-200-001	900.00						900.00
Subtotal: 1301883-01 (5)	107,181.41						
Project ID: 1302502-01							
2331-200-001	109,881.39		109,881.39				
2331-250-001	3,980.00				3,980.00		
2333-200-001	35,550.00					35,550.00	
2335-000-001	1,800.00						1,800.00
Subtotal: 1302502-01 (4)	160,871.39						

Pennichuck Water Works Inc
Asset Acquisition
GAAP

Staff 1-12 (d)

By Project

For the Period January 1, 2013 to December 31, 2013

		Account					
Asset GL Acct #	Book Cost	303	331 Mains	331-002 Paving	331-250 Valves	333 Services	335 Hydrants
Project ID: 1302503-01							
2331-200-001	129,372.31		129,372.31				
2331-250-001	8,550.00				8,550.00		
2333-200-001	26,850.00					26,850.00	
2335-000-001	1,000.00						1,000.00
Subtotal: 1302503-01 (4)	185,772.31						
Project ID: 1302505-01							
2303-300-001	3,278.45	3,278.45					
2331-002-001	18,186.18			18,186.18			
2331-200-001	191,895.93		191,895.93				
2331-250-001	2,589.72				2,589.72		
2333-200-001	5,598.35					5,598.35	
2335-000-001	7,881.71						7,881.71
Subtotal: 1302505-01 (6)	229,170.34						
Yearly Subtotal	1,707,199.40	7,853.19	1,406,803.06	25,555.18	62,175.39	178,357.05	28,455.53
Distribution							
Renewed Services (2333)	39,862.12					39,862.12	
Renewed Hydrants (2335)	27,644.44						27,644.44
Grand Total	1,774,705.95	7,853.19	1,406,803.06	25,555.18	62,175.39	218,219.17	54,099.97

* Excludes Acct 303

* 1,766,852.78

March 4, 2014

THOMAS B. GETZ
603.695.8542
TGETZ@DEVINEMILLIMET.COM

VIA ELECTRONIC MAIL

Marcia A. Brown
Staff Attorney
New Hampshire Public Utilities Commission
21 S. Fruit Street, Suite 10
Concord, NH 03301

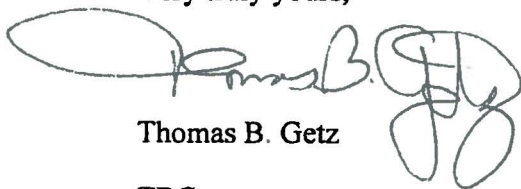
Re: DW 13-358; Pennichuck Water Works, Inc. - Petition for Approval of Water
Infrastructure and Conservation Adjustment (WICA) Proposed Projects

Dear Attorney Brown:

Attached are responses by Pennichuck Water Works, Inc. to the second set of data
requests by the Commission Staff dated February 24, 2014.

Please let me know if you have any questions.

Very truly yours,



Thomas B. Getz

TBG:aec

Attachments

cc: Discovery Electronic Service List

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 2
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: 2/24/14
Request No. Staff 2-1

Date of Response: 3/4/14
Witness: Donald L. Ware

REQUEST: Re: Response to Staff 1-3, 1-4, 1-10 b) and Ware testimony p. 6, lines 1-12:

- a) Is the current rating procedure (until the Asset Management Plan is completed and all pipes are rated two or three years from now, see response to Staff 1-1) more a matter of pooling pipes recommended by staff based on known problem areas or deficiencies and then rating those pipes for purposes of prioritization? Please explain.
- b) Is it fair to say pipe ratings may not play a major role in the WICA project decision-making process as long as City/Town replacements remain the predominant factor in the project lists?
- c) Are all streets on the updated 2014 list (Staff 1-3) based on City/Town replacements?
- d) Please identify any streets on the updated 2015 and 2016 lists (Staff 1-3) that are based on City/Town replacements.
- e) How many years out do the City and Town typically identify possible sewer/storm replacement streets?
- f) Do the City and/or Town have master plans that give a sense of where future sewer/storm replacements may be required beyond the time frame of the question above?
- g) Does the company have any sense of how many years into the future City/Town sewer/storm replacements may continue to govern WICA project lists, either totally or in significant part?
- h) The 'next year' lists in particular (2014 in this docket) are somewhat fluid due the City/Town decision-making processes. Under the current filing timelines these moving targets result in less than fully meaningful 'approved' lists and extra review and updating work for all parties. Beyond possibly delaying the filing by one month as discussed informally to aid in review of the 'past year' list (2013 in this docket), does the company have any suggestion about how possibly to further delay, bifurcate (two approvals per year based on City/Town fiscal year decision-making time lines) or otherwise simplify or better focus the approval and review process, or at least allow notification of changes to approved lists?

RESPONSE:

- a) The staff knowledge regarding water quality and lack of fire protection in the older areas of the City is pooled and used to establish target streets for water main replacement. Water mains identified as being replacement targets by the staff are then run through the rating system with the data the Company has regarding water quality complaints and fire protection requirements.
- b) Yes. The rating system will likely come into play upon the completion of the Asset Management Plan if, as the Company anticipates, the recommended annual replacement footage of water main significantly exceeds the annual City/Town replacement projects.
- c) Yes.
- d) None of the Streets identified on the 2015 or 2016 lists are based on City or Town projects.
- e) Possible sewer/storm drain replacements are identified by the City/Town as part of each budget planning cycle.
- f) Neither the City nor Town's master plans provide any specific direction regarding the time frame when future sewer/storm replacements will occur.
- g) Based on recent replacement history, the City been replacing about 2 miles of sewer main per year, and the Company has about 265,000 lineal feet of unlined cast iron water main where the sewer would be the same age (between about 75 and 150 years in age). As a result, the Company would surmise that the City replacement plan will continue to affect WICA project lists for another 25 years.
- h) The Company's pending motion that the WICA filing be submitted by January 31st of each year seeks to make the prudence review and rate surcharge approval aspect of the WICA mechanism more efficient. The Company is similarly interested in considering alternatives that would make the process to approve Year 1 projects more efficient, as well as make the information for Year 2 and Year 3 projects more meaningful for Commission purposes to the greatest extent possible. As noted in the response to Staff 1-4, the City of Nashua and the Town of Amherst begin work on their capital improvement programs in January for a July 1 fiscal year. There may be some advantage, as Staff appears to suggest, in terms of having more definitive information available from the City and Town to bifurcating the WICA filing by delaying for several months the submission of Year 1 projects for approval, as well as the Year 2 projects for preliminary approval and the Year 3 projects for advisory purposes.

While this approach may add some administrative effort insofar as the Commission would be issuing two separate orders, one approving a rate surcharge and the other approving/preliminarily approving Year 1 and Year 2 projects respectively, such an approach could avoid the need to file updated information

and perform multiple reviews. The details of such an approach may be a suitable topic for further exploration at the technical session scheduled in this proceeding.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 2
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: 2/24/14
Request No. Staff 2-2

Date of Response: 3/4/14
Witness: Donald L. Ware

REQUEST: Re: Response to Staff 1-3, Att. B, p. 2 (2014 list): Please indicate the reason for the high cost per foot of the following projects:

- a) Robinson Court (\$380/foot);
- b) Franklin Street (\$526/foot).

RESPONSE:

- a) Robinson Court is a very short run of main that will require night work in Bridge Street (Route 101A). This street is also very narrow which will require the use of smaller, less productive equipment.
- b) The work on Franklin Street is for a short section of 24" water main that will be extremely complicated to execute for the following reasons:
 - 1. It will require setting up a large temporary service to maintain fire protection to existing buildings while the water main rehabilitation is occurring.
 - 2. It involves cutting in three fire services into the existing 24" water main. The materials for each tee, valve and couplings exceed \$8000 each.
 - 3. The existing water main is in excess of 8 feet deep.
 - 4. The work area is located in the downtown commercial/industrial area requiring that numerous night shutdowns.
 - 5. The cost of cleaning and lining is more per foot than usual due to the small portion of pipe being cleaned and lined. Even though the cost of cleaning and lining is greater than usual it is still less than replacing the existing 24" water main.
 - 6. All these extra costs are only spread over 264 lineal feet of water main.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 2
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: 2/24/14
Request No. Staff 2-3

Date of Response: 3/4/14
Witness: Donald L. Ware

REQUEST: Re: Response to Staff 1-3, Att. B, pp. 3-4 (2015-16 lists): The valve, service and hydrant totals do not accurately reflect the number and cost of each item. Please provide corrected spreadsheets.

RESPONSE: Corrected spreadsheets are attached.

PENNICHUCK WATER WORKS, INC.
WICA Surcharge Calculation
DW 13-358

Staff 2-3
Attachment C
Page 2 of 2

2013	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mil Rate ³	Property Tax Expense
Mains	\$ 1,563,037	\$ (156,234)	\$ 1,406,803	\$ (14,422)	\$ 1,392,381	1.60%	\$ 22,278	27.55	\$ 37,746
Contingency	\$ -	\$ -	\$ -	\$ -	\$ -	1.60%	\$ -	27.55	\$ -
Paving	\$ 28,395	\$ (2,839)	\$ 25,555	\$ -	\$ 25,555	1.57%	\$ 401	27.55	\$ 693
Hydrants	\$ 59,184	\$ (5,083)	\$ 54,100	\$ (2,293)	\$ 51,807	2.24%	\$ 1,160	27.55	\$ 1,395
Services	\$ 241,199	\$ (22,980)	\$ 218,219	\$ (8,924)	\$ 211,295	2.34%	\$ 4,944	27.55	\$ 5,685
Valves	\$ 69,084	\$ (6,908)	\$ 62,175	\$ (2,174)	\$ 60,001	1.60%	\$ 960	27.55	\$ 1,627
Total	\$ 1,960,878	\$ (194,025)	\$ 1,766,853	\$ (25,813)	\$ 1,741,040		\$ 29,744		\$ 47,146

2014	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mil Rate ³	Property Tax Expense
Mains	\$ 2,905,145	\$ (290,515)	\$ 2,614,631	\$ -	\$ 2,614,631	1.60%	\$ 41,834	27.55	\$ 70,881
Contingency	\$ 145,257	\$ (14,526)	\$ 130,732	\$ -	\$ 130,732	1.60%	\$ 2,092	27.55	\$ 3,544
Paving	\$ 110,000	\$ (11,000)	\$ 99,000	\$ -	\$ 99,000	1.57%	\$ 1,554	27.55	\$ 2,665
Hydrants	\$ 22,800	\$ (2,280)	\$ 20,520	\$ -	\$ 20,520	2.24%	\$ 460	27.55	\$ 553
Services	\$ 54,936	\$ (5,494)	\$ 49,442	\$ -	\$ 49,442	2.34%	\$ 1,157	27.55	\$ 1,330
Valves	\$ 30,000	\$ (3,000)	\$ 27,000	\$ -	\$ 27,000	1.60%	\$ 432	27.55	\$ 732
Total	\$ 3,268,138	\$ (326,814)	\$ 2,941,324	\$ -	\$ 2,941,324		\$ 47,529		\$ 79,725

2015	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mil Rate ³	Property Tax Expense
Mains	\$ 1,999,000	\$ (199,900)	\$ 1,799,100	\$ -	\$ 1,799,100	1.60%	\$ 28,786	27.55	\$ 48,772
Contingency	\$ 399,800	\$ (39,980)	\$ 359,820	\$ -	\$ 359,820	1.60%	\$ 5,757	27.55	\$ 9,754
Hydrants	\$ 22,800	\$ (2,280)	\$ 20,520	\$ -	\$ 20,520	2.24%	\$ 460	27.55	\$ 553
Services	\$ 54,936	\$ (5,494)	\$ 49,442	\$ -	\$ 49,442	2.34%	\$ 1,157	27.55	\$ 1,330
Valves	\$ 30,000	\$ (3,000)	\$ 27,000	\$ -	\$ 27,000	1.60%	\$ 432	27.55	\$ 732
Total	\$ 2,506,536	\$ (250,654)	\$ 2,255,882	\$ -	\$ 2,255,882		\$ 36,591		\$ 61,141

2016	Investment					Depreciation Expense		Property Tax Expense	
	Gross Investment	Cost of Removal	Book Cost ⁴	Retirement ¹	Net Investment ⁴	Depreciation Rate ²	Depreciation Expense	Mil Rate ³	Property Tax Expense
Mains	\$ 2,032,400	\$ (203,240)	\$ 1,829,160	\$ -	\$ 1,829,160	1.60%	\$ 29,267	27.55	\$ 48,567
Contingency	\$ 406,480	\$ (40,648)	\$ 365,832	\$ -	\$ 365,832	1.60%	\$ 5,853	27.55	\$ 9,917
Hydrants	\$ 22,800	\$ (2,280)	\$ 20,520	\$ -	\$ 20,520	2.24%	\$ 460	27.55	\$ 553
Services	\$ 54,936	\$ (5,494)	\$ 49,442	\$ -	\$ 49,442	2.34%	\$ 1,157	27.55	\$ 1,330
Valves	\$ 30,000	\$ (3,000)	\$ 27,000	\$ -	\$ 27,000	1.60%	\$ 432	27.55	\$ 732
Total	\$ 2,546,616	\$ (254,662)	\$ 2,291,954	\$ -	\$ 2,291,954		\$ 37,168		\$ 62,119

Notes:

1. For 2013, Reflects actual retirement for mains, services and hydrants.

2. As per last depreciation study in DW 06-073 utilizing composite rate.

3. Based on Nashua 2012 property rate of \$20.95 and state rate of \$8.60. Property Tax is calculated on Net Investment less depreciation expense.

4. Book cost equals gross investment less cost of removal. Net investment equals book cost less retirements.

PENNICHUCK WATER WORKS, INC.
WICA Surcharge Calculation
DW 13-358

Staff 2-3
Attachment C
Page 1 of 2

	Actuals		Projections	
	2013	2014	2015	2016
Plant Additions	\$ 1,741,040	\$ 2,941,324	\$ 2,255,882	\$ 2,291,954
<u>Less Accumulated Depreciation For:</u>				
2013 Additions	\$ (14,872)	\$ (29,744)	\$ (29,744)	\$ (29,744)
2014 Additions		\$ (23,764)	\$ (47,529)	\$ (47,529)
2015 Additions			\$ (18,296)	\$ (36,591)
2016 Additions				\$ (18,584)
Net Plant Additions	\$ 1,726,168	\$ 2,887,816	\$ 2,160,314	\$ 2,178,090
Pre Tax Rate of Return	6.04%	6.04%	6.04%	6.04%
Revenue Requirement	\$ 104,261	\$ 174,424	\$ 130,483	\$ 131,557
Depreciation	\$ 29,744	\$ 47,529	\$ 36,591	\$ 37,168
Property Taxes	\$ 47,146	\$ 79,725	\$ 61,141	\$ 62,119
Overall Revenue Requirement	\$ 181,151	\$ 301,678	\$ 228,215	\$ 230,844
Cumulative Revenue Requirement	\$ 181,151	\$ 482,828	\$ 711,044	\$ 941,888
Water Revenues per DW 10-091	\$ 26,997,163			
Overall Revenue Surcharge Amount	0.67%	1.12%	0.85%	0.86%
Cumulative Revenue Surcharge Amount	0.67%	1.79%	2.63%	3.49%

Calculation of Pre Tax Rate of Return (Based on DW 11-026)

	Weighted Cost	Tax Multiplier	Pre Tax Cost
Debt	6.04%	1.000	6.04%
Equity	0.00%	1.681	0.00%
	6.04%		6.04%

Customer Impact

5/8 inch Meter Charge	\$ 20.34	\$ 20.34	\$ 20.34	\$ 20.34
Volumetric Charge	\$ 3.30	\$ 3.30	\$ 3.30	\$ 3.30
Average Single Family Residential Usage (CCF)	7.88	7.88	7.88	7.88
Monthly Usage	\$ 26.00	\$ 26.00	\$ 26.00	\$ 26.00
Total Month Charge	\$ 46.34	\$ 46.34	\$ 46.34	\$ 46.34
Monthly Impact of Surcharge	\$ 0.31	\$ 0.52	\$ 0.39	\$ 0.40
Cumulative Monthly Impact of Surcharge	\$ 0.31	\$ 0.83	\$ 1.22	\$ 1.62

Pennichuck Water Works, Inc.
Proposed 2015 WICA Water Main Projects
Revised 2/26/2014

Staff 2-3
Attachment B
Page 3 of 4

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	PIPE DIAMETER (INCHES)	PROPOSED NEW PIPE DIAMETER (INCHES)	ESTIMATED COST	AGE OF PPE	PIPE AGE USEFUL LIFE	FULLY DEPREC	BREAK HISTORY	KEY CUSTOMERS	WATER QUALITY	FIRE PROTECTION FLOWS ¹	Work coordination with Sewer or Storm Drain Replacement	Subtotal prior to Geographical Area Points	GEOGRAPHICAL PROXIMITY	TOTAL
Chestnut St	NASHUA	CAST IRON UNLINED	1132	6	12	\$ 300,000.00	1891-1924	70	YES		1		5	5	11	2	13
Hamilton St	NASHUA	CAST IRON UNLINED	573	6	6	\$ 122,000.00	1909-1941	70	YES		1				1	2	3
Brook St	NASHUA	CAST IRON UNLINED	1141	6	8	\$ 250,000.00	1887-1924	70	YES		1		3		4	3	7
Marquis Ave	NASHUA	STEEL	124	2	4	\$ 40,000.00	1945	40	YES	1	1				2	3	5
Rochette Ave	NASHUA	CAST IRON UNLINED	276	2	4	\$ 50,000.00	1952-1956	40	YES	1	1				2	3	5
Verona St	NASHUA	CAST IRON UNLINED	975	6	8	\$ 220,000.00	1913-1915	70	YES		1		2		3	2	5
Sarasota Ave	NASHUA	CAST IRON UNLINED	240	6	8	\$ 82,000.00	1913-1922	70	YES		1				1	2	3
Manatee St	NASHUA	CAST IRON UNLINED	240	6	6	\$ 60,000.00	1926-1949	70	YES		1				1	2	3
Burnitt St	NASHUA	CAST IRON UNLINED	523	4 & 6	8	\$ 110,000.00	1887-1921	40 & 70	YES		1		3		4	2	6
Thomas St	NASHUA	CAST IRON UNLINED	421	6	6	\$ 96,000.00	1908-1926	70	YES	1					1	3	4
Dudley	NASHUA	STEEL	522	2	8	\$ 80,000.00	1927-1936	40	YES	2		2			4	0	4
Proctor St	NASHUA	CAST IRON UNLINED	206	8	8	\$ 75,000.00	1930-1940	70	YES	1			1		2	3	5
Proctor St	NASHUA	STEEL	136	2	4	\$ 60,000.00	1940	40	YES	1		1			2	3	5
Mulvanity St	NASHUA	STEEL	285	2	4	\$ 40,000.00	1940-1954	40	YES			1			1	3	4
Fernwood St	NASHUA	CAST IRON UNLINED	267	6	8	\$ 70,000.00	1925-1924	70	YES				1		1	3	4
Field St	NASHUA	CAST IRON UNLINED	377	6	8	\$ 82,000.00	1922	70	YES				1		1	3	4
Fossa Ave	NASHUA	CAST IRON UNLINED	294	6	8	\$ 80,000.00	1928	70	YES				4	2	6	3	9
Pratt St	NASHUA	CAST IRON UNLINED	484	6	8	\$ 130,000.00	1908-1945	70	YES				1		1	2	3
Evergreen St	NASHUA	STEEL	315	2	4	\$ 52,000.00	1947-1952	40	YES	1					1	3	4
Total LF -			8,531	Total -		\$ 1,999,000.00											
Valve Replacements			15	@	\$ 2,000	=	\$ 30,000.00										
Service Replacements ³ -			28	@	\$ 1,962	=	\$ 54,936.00										
Hydrant Replacements			4	@	\$ 5,700	=	\$ 22,800.00										
			Planning Contingency ⁴ -				\$ 399,800.00										
			Total Estimated WICA \$\$\$ in 2014 -				\$ 2,506,536.00										

1. Material Integrity - Rating of 1 point for each break in the last 20 years.

2. ISO Fire Ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.

3. Number of Service replacements is the average of the past 5 years. The average cost of a service replacement is the average cost over the past 4 years.

4. The City has added to its initial sewer replacement in previous years. PWW must complete replacement of its mains when the City replaces its sewer mains.
The City operates on a Fiscal year basis between July 1 and June 30 of the following Calendar year.

A contingency of 20% is carried to account for this.

Pennichuck Water Works, Inc.
Proposed 2016 WICA Water Main Projects
Revised 2/16/2014

Staff 2-3
Attachment B
Page 4 of 4

PIPE SEGMENT OR PROJECT NAME	CITY/TOWN	MATERIAL	LENGTH (FEET)	PIPE DIAMETER (INCHES)	PROPOSED	ESTIMATED COST	AGE OF PIPE	PIPE AGE	FULLY DEPREC	BREAK HISTORY	KEY CUSTOMERS	WATER QUALITY	FIRE	Work coordination	Subtotal prior to	GEOGRAPHICAL	TOTAL
					NEW PIPE DIAMETER (INCHES)			USEFUL LIFE					PROTECTION FLOWS ²	with Sewer or Storm Drain Replacement	Geographical Area Points	PROXIMITY	
Abbs St	NASHUA	CAST IRON UNLINED	1084	8	12	\$ 283,400.00	1895-193	70	YES	1	1				2	2	4
Newbury St	NASHUA	CAST IRON UNLINED	1896	8	8	\$ 300,000.00	1888-1940	70	YES	1	1				2	3	5
Gile St	NASHUA	CAST IRON UNLINED	1090	4	8	\$ 241,000.00	1888	40	YES	1	1		3		5	3	8
Zellwood St	NASHUA	CAST IRON UNLINED	367	6	4	\$ 83,000.00	1933	70	YES		1				1	3	4
Revere St	NASHUA	CAST IRON UNLINED	714	6	8	\$ 160,000.00	1921-1939	70	YES	1	1		1		3	3	6
Morton St	NASHUA	CAST IRON UNLINED	456	2	4	\$ 75,000.00	1945-1956	40	YES		1				1	2	3
Temple St	NASHUA	CAST IRON UNLINED	1256	8	12	\$ 360,000.00	1888	70	YES		1				1	2	3
Lovel Street	NASHUA	CAST IRON UNLINED	1450	6 & 2	8	\$ 250,000.00	1892-1946	70	YES	1		1	4		6	0	6
Worcester St	NASHUA	CAST IRON UNLINED	600	6 & 8	8	\$ 160,000.00	1888-1931	70	YES		1		2		3	2	5
Sheds Ave	NASHUA	STEEL	209	2	4	\$ 40,000.00	1948	40	YES	2	1				3	2	5
		Total LF -	9,122	Total -		\$ 2,032,400.00											
Valve Replacements		15	@	\$ 2,000	=	\$ 30,000.00											
Service Replacements ¹ -		28	@	\$ 1,962	=	\$ 54,936.00											
Hydrant Replacements		4	@	\$ 5,700	=	\$ 22,800.00											
		Planning Contingency ³ -				\$ 406,480.00											
		Total Estimated WICA \$\$ in 2015 -				\$ 2,546,616.00											

1. Material Integrity - Rating of 1 point for each break in the last 20 years.

2. ISO Fire Ratings - A rating of 1 for each 500 gpm that the flow in the watermain is less than the ISO required rating.

3. Number of Service replacements is the average of the past 5 years. The average cost of a service replacement is the average cost over the past 4 years.

4. The City has added to its initial sewer replacement in previous years. PWW must complete replacement of its mains when the City replaces its sewer mains.
The City operates on a Fiscal year basis between July 1 and June 30 of the following Calendar year.

A contingency of

20%

Is carried to account for this.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 2
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: 2/24/14
Request No. Staff 2-4

Date of Response: 3/4/14
Witness: Donald L. Ware

REQUEST: Re: Response to Staff 1-7, Att. F (2013 list): Why are no paving costs associated with Middle Street and Cross Street in Amherst? Please explain.

RESPONSE:

The Town of Amherst does not require the Company to share in road reconstruction (paving) when Company work is concurrent with a complete road reconstruction or drainage improvements. When the Company replaces main outside of a Town project or when temporary pavement is required, pavement costs are paid by the Company.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 2
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: 2/24/14
Request No. Staff 2-5

Date of Response: 3/4/14
Witness: Donald L. Ware

REQUEST: Re: Response to Staff 1-8 a) and b): Although the explanation of the higher costs of the overall Fairmount Street project is provided elsewhere, does the company agree the final costs are now \$424,068 (plus \$4,000 remaining paving), for a per foot cost of \$382?

RESPONSE: Yes.

PENNICHUCK WATER WORKS, INC.
DW 13-358

Pennichuck Water Works' Responses to
Staff's Data Requests – Set 2
WATER INFRASTRUCTURE AND CONSERVATION ADJUSTMENT

Date Request Received: 2/24/14
Request No. Staff 2-6

Date of Response: 3/4/14
Witness: Donald L. Ware

REQUEST: Re: Response to Staff 1-8 d): The Franklin Street cost went from \$316,480 (DW 12-359 estimate) to \$411,976 (plus \$32,600 remaining paving) for essentially the same number of feet. Were the major intersection work and/or night work unanticipated or other factors involved? Please explain the cost difference.

RESPONSE:

The Company uses average per foot price costs from previous years' projects for the estimated project costs. These estimated costs are completed prior to any actual design being completed. Since the prices are averages of prior projects the estimates can end up being either high or low dependent upon the final design which is based on the specifics of the site. In the case of Franklin Street the initial budget started at \$316,480. The following items, which were necessary to complete the replacement, pushed the price of this work well above the average per foot cost used in the initial estimate:

- A new 24 inch valve had to be added on the south side of the Nashua River to minimize the area of shutdown reducing the impact to businesses. The size of the valve, the pipe type that the valve was being cut into and the need to complete this work at night resulted in substantial additional costs. The cost of installing this one valve exceeded \$25,500.
- A 10 inch diameter private fire service was encountered that was damaged. It required a temporary repair followed by a permanent repair. Street and sidewalk restoration were required.
- The tie in of Franklin Street to the existing 24 inch pipe encountered conflicts with other utilities and the 24 inch main was found to be nearly 11 feet deep as additional fill have been placed over it many years ago.
- Temporary water was required where it had not been included in the initial estimate.
- The tie in to the 24 inch water main required night work and added police detail in this area for safety and security.

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: March 13, 2014

AT (OFFICE): NHPUC

FROM: Douglas W. Brogan

SUBJECT: DW 13-358, Pennichuck Water Works, Inc.
2014 WICA Adjustment Filing

TO: Mark A. Naylor
Director, Gas & Water Division

This memo is being submitted at your request to provide observations and recommendations in relation to docket DW 13-358, the 2014 WICA adjustment filing of Pennichuck Water Works, Inc. (Pennichuck or company). As the former Division water/sewer engineer, I am acquainted with Pennichuck's water system and its WICA pilot program. The program was introduced in 2011 in docket DW 10-091 (see Order 25,230). Initial WICA project lists were first submitted and approved in DW 12-359. The instant docket is the first in which a WICA surcharge is proposed, to recover costs of the company's completed 2013 projects. The company's WICA program is similar to that of Aquarion Water Company of New Hampshire, approved in 2009. Both programs allow recovery of costs of certain types of infrastructure improvement in order to foster replacement of aging infrastructure, increase system reliability, limit rate shock and for other related reasons. The programs allow annual filings in between full rate cases and result in a surcharge on customer bills. A WICA surcharge is typically approved for improvements done in the year just completed, and projects for the ensuing three years are submitted for varying levels of approval or information according to pilot program guidelines. Pennichuck is currently seeking final approval of proposed 2014 projects and preliminary approval of 2015 projects, with 2016 projects provided for informational purposes. Pennichuck's program runs on a calendar year basis, applies only to its core water system, and covers replacement of mains, valves, services and hydrants. Sources of information for this memo include the company's filing, two sets of discovery, and a technical session held on March 6, 2014.

2013 Projects

A number of changes occurred in 2013 in relation to the 2013 project list approved in DW 12-359. Updated 2013 lists were provided in the company's filing in the instant docket and subsequently, with a final list provided in response to Staff 1-7. These changes occurred without any further approval by the Commission or notification of parties. However, Pennichuck's program is somewhat unique in that it is coordinated closely with the sewer and storm drain replacement programs of the City of Nashua (City) and Town of Amherst (Town). This is done to reduce paving and other costs, as well as to prevent likely damage to the company's older cast iron, steel and asbestos-cement mains as a result of City and Town construction. The timing

issues involved in this coordination nearly guarantee that changes to the list will occur. This is discussed further below.

Changes to the 2013 project listing included the following (see responses to Staff 1-6 and 1-8):

- 1) Park, Court, Broad, and Baldwin Streets were carried over to the first half of 2014 to coordinate with the City's work on those streets.
- 2) Elm Street was dropped from the City's list.
- 3) Hillcrest Avenue was added as part of a rerouting of the Fairmount Street project to accommodate the City's Broad Street Parkway construction efforts. This was a complex project involving securing of easements, pipe jacking and directional drilling, and is noteworthy for Pennichuck's ability to address changing project requirements in a limited time frame.

Costs of some projects increased from estimates on the approved list, while others decreased. The company has indicated that WICA cost estimates are generally based on past average per foot costs for similar projects, and not on actual design criteria (Staff 2-6), so that variances up and down can be expected. However, two projects with significant cost increases were:

- 1) Middle Street, Amherst (\$150,000 estimated, \$328,914 final). This increase was largely attributable to a 75 percent increase in project footage.
- 2) Franklin Street (\$316,480 estimated, \$411,976 final plus \$32,600 estimated paving in 2014). This project involved night work in a major intersection, installation of a large valve, deep construction, conflicts with other utilities and other factors (Staff 1-8 d, 2-6).

The company has affirmed that all projects on its final list were in service and used and useful by the end of 2013. Hydrant and service replacements are also included in the updated list for 2013. The company has stated the omission of hydrants from the approved list was an oversight (Staff 1-8 f), and has now included hydrants in future year lists as well.

2014 - 2016 Projects

Future year lists were provided in testimony and updated during discovery, with final versions provided as attachments to Staff 1-3 (2014) and Staff 2-3 (2015-2016). Year 1 lists (2014 in this docket) are currently based solely on City/Town replacement projects. Pennichuck has developed a rating system to evaluate water mains in need of replacement apart from City/Town work, and uses that system to develop its year 2 and year 3 lists. However, as year 2 becomes year 1, City/Town projects essentially bump all of Pennichuck's own projects to a subsequent year. For this reason, the proposed 2014 list is entirely different from that preliminarily approved by the Commission in DW 12-359. Several other related issues are at play in these regards as well:

- 1) The City and Town both operate on a fiscal year beginning July 1. At the time of the company's WICA filing (currently due by December 31, although the company has filed

a motion to push the date to January 31), the City and Town may still be revisiting their own project lists for work through the end of June, including holdover projects from the previous year; and are just beginning their evaluation of July-forward projects. The latter lists are typically not complete until May (Town) and June (City) (Staff 1-4). While Pennichuck has included contingency factors to account for streets that may be added, changes to its year 1 project listing invariably occur over the ensuing months as a result of these decisional time frames. Pennichuck estimates that such municipal replacement work may continue for another two decades or more (Staff 2-1 g).

- 2) Pennichuck's water main rating system is in a developmental stage, and will not be fully functional until the company's larger Asset Management Program, also in development, is itself complete two or three years from now.
- 3) Pennichuck anticipates a substantial increase in its WICA program, potentially to the point of nearly doubling the current annual footage of water main replaced, once the Asset Management Program is complete (Staff 1-10 b). This would occur by adding the company's own projects, chosen through its rating system, to those involving City/Town replacements. When that occurs, the City/Town lists, though still significant, may have a less dominant impact on the company's WICA program.

The parties have explored possible changes to the pilot program to accommodate some of the timing and other realities involved (Staff 2-1 h). However, I believe the program is, at its core, intended as a relatively straightforward means of facilitating infrastructure renewal; and, as long as the Commission is aware of some of these underlying issues, no structural change to the WICA program may be necessary at this time. The company's motion to delay its filing by a month, if approved, would alleviate some of the timing problems associated with review of completed-year projects, and provide slightly updated year 1 lists. The one issue that may still require attention is that of notification of project list changes. Currently parties are unaware of changes to approved lists until the company's annual filing. Both the form and level or frequency of notification would need to be decided.

Regarding specific future year projects, several on the proposed 2014 list have relatively high estimated costs per foot. These projects are identified below, along with the cost per foot (from the final list) and the company's explanation for the higher cost:

- 1) Eldridge Street (\$350/foot). Night and major intersection work. (Staff 1-9 b)
- 2) Robinson Court (\$380/foot). Short, narrow street with night work. (Staff 2-2 a)
- 3) Franklin Street (\$526/foot). This is the remainder of the street's water main not replaced in 2013 and involves a much larger (24 inch) main, maintenance of fire service during construction, night work and other factors, all over a relatively short segment of pipe (Staff 2-2 b). It is noteworthy that Pennichuck intends to rehabilitate (clean and line), instead of replace, this portion of the main. While rehabilitation is generally not feasible in areas subject to nearby sewer and storm drain replacement, this project evidences the company's willingness to pursue lesser cost alternatives when circumstances allow. In this instance the pipe's size, condition and significant wall thickness should allow it to remain in service during and after the City's construction in the area.

The company's future year lists include valve, service and hydrant replacements, as allowed under the pilot program. The omission of valves and hydrants from the corresponding DW 12-359 lists was again an oversight (Staff 1-10 a).

Recommendations

Pennichuck's WICA program is relatively young and still evolving. The company and other parties are making efforts to work out some of the kinks, particularly in relation to coordination with City and Town projects. Notification of project list changes appears to be the one issue still needing resolution. However, the program appears to be working relatively smoothly given the constraints it operates within. The company's 2013 projects appear to have been completed prudently, and its proposed 2014 - 2016 projects appear reasonable.

I also note that the approved settlement agreement in DW 10-091 anticipated the WICA pilot would be evaluated in the company's next rate case and terminate at the conclusion of that case unless specifically extended by the Commission. That case is now DW 13-130, the company's current rate case. However, in reality it is probably too soon to perform such an evaluation according to the various criteria established in Order 25,230 (page 17), as there would be little data available at this early stage of the program.

I trust these comments are responsive to your request. Please let me know if you need anything further in this regard.

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: March 7, 2014
AT (OFFICE): NHPUC

FROM: Karen Moran, Chief Auditor
Anthony Leone, Examiner

SUBJECT: Pennichuck Water Works, Inc.
DW 13-358 Water Infrastructure and Conservation Adjustment Mechanism
FINAL Audit Report

TO: Mark Naylor, Director Gas-Water Division, NHPUC
Jayson Laflamme, Utility Analyst III
Robyn Descoteau, Utility Analyst I

Introduction

A Water Infrastructure and Conservation Adjustment Mechanism (WICA) was approved by Commission Order 25,230 issued on June 9, 2011. The Company petitioned for approval of the 2013 projects, for which recovery through the WICA in the current docket, was documented by Commission Order 25,510 in docket DW12-359. Projects proposed for 2013 were approved by the Commission:

1-Replace 100 feet cast iron 8" unlined main on Baldwin St Nashua	\$ 84,000
2-Replace 1,198 feet cast iron 8" unlined main on Baldwin St Nashua	\$ 280,000
3-Replace 415 feet cast iron 8" unlined main on Elm Street Nashua	\$ 75,222
4-Replace 312 feet cast iron 6" unlined main on Park Street Nashua	\$ 68,950
5-Replace 435 feet cast iron 8" unlined main on Court Street Nashua	\$ 90,175
6-Replace 1,045 feet cast iron 8" and 6" unlined main on Broad Street Nashua	\$ 360,000
7-Replace 1,118 feet cast iron 10" unlined main on Franklin Street Nashua	\$ 316,480
8-Replace 433 feet cast iron 4" unlined main on Pleasant Street Nashua	\$ 116,000
9-Replace 691 feet cast iron 8" unlined main on Ash Street Nashua	\$ 240,000
10-Replace 625 feet cast iron 4" unlined main on Walnut Street Nashua	\$ 210,000
11-Replace 400 feet cast iron 4" unlined main on Beacon Street Nashua	\$ 87,280
12-Replace 174 feet cast iron 4" unlined main on Beacon Court Nashua	\$ 24,895
13-Replace 430 feet cast iron 4" unlined main on Middle Street Nashua	\$ 82,100
14- Replace 1,110 feet asbestos cement 6"main on Middle St Amherst	\$ 150,000
15- Replace 370 feet asbestos cement 4"main on Cross St Amherst	\$ 50,000
16- Replace 100 feet cast iron 6" unlined main Fairmount Street Nashua	\$ 84,000
17-Replace 1,044feet cast iron 6" unlined main on Fairmount Street Nashua	\$ 305,000
18-Replace average 31 services @ average \$1,858 per service	\$ 57,598
Total 2013 projects	\$2,681,700

The following six approved projects were not undertaken during 2013:

1-Replace 100 feet cast iron 8" unlined main on Baldwin St Nashua – estimated	\$ 84,000
2-Replace 1,198 feet cast iron 8" unlined main on Baldwin St Nashua –estimated	\$ 280,000
3-Replace 415 feet cast iron 8" unlined main on Elm Street Nashua	\$ 75,222
4-Replace 312 feet cast iron 6" unlined main on Park Street Nashua	\$ 68,950
5-Replace 435 feet cast iron 8" unlined main on Court Street Nashua	\$ 90,175
6-Replace 1,045 feet cast iron 8" and 6" unlined main on Broad Street Nashua	\$ 360,000

Staff Data Request 1-6 requested clarification of specific projects, and was provided with the following regarding (a) the nature of the easement associated with Fairmount Street; (b) the reason Hillcrest Avenue was added, and the status of replacements approved for Elm Street, Park Street, Court Street, and Broad Street:

(a) The original plan for Fairmount Street water main replacement associated with the Broad Street Parkway was to keep the water main in the street and hang the new main from the new bridge being constructed by the City that would pass over the railroad and the Broad Street Parkway. After meeting with the City in the spring of 2013 it became apparent that the Company needed to replace the main on Fairmount ahead of the City's work on Baldwin Street.

When the City initiates construction of the Baldwin Street Bridge abutments, the Baldwin Street water main feeding "little Florida" would be lost and the Fairmount Street main would be the only water main feeding that area. The Fairmount Street water main did not have sufficient capacity to achieve adequate fire flows to the "little Florida" area. This required that Fairmount Street be replaced before the work could begin on Baldwin Street.

Since the Baldwin Street Bridge was being constructed in advance of the Fairmount Street Bridge, there would be no bridge on which to hang the new Fairmount water main and, thereby, direct it over the railroad and the Parkway. An alternate crossing concept for the Fairmount Street water main was developed that included a private easement from Paxton Terrace down to the railroad. A permit to cross under the railroad was obtained and the City granted an easement for the main to cross the Parkway and land it owns between the Parkway and Hillcrest... By performing this work, there would be no interruption in fire flow to the Company's customers in "little Florida" area and no impact to the City's schedule. This approach also eliminates the need to maintain the water main for winter operations which would have been the case if the main was hung on the bridge.

(b) Hillcrest was added because it provided the best return back onto Fairmount Street after the main avoided the bridge. In addition, Hillcrest had a 2-inch and 1-inch main that was in need of replacement. This route allowed for the main on Hillcrest to be replaced.

(c) Park, Court and Broad Street will be completed in conjunction with the City of Nashua's FY14 Capital Budget work during the first half of 2014. Elm Street was dropped from Nashua's FY14 budget so correspondingly it was dropped from the Company's current capital expenditure plans.

Bid Summary

Audit requested and was provided with the record of bid proposals for the period 2011 – 2013. Specific reference to 2012 Water Main Improvement projects on Lake Street, Walnut Street, Pleasant Street, Mitchell Street, and Ash Street was noted. There were two bids, with the lowest bidder, Albanese D&S Inc. selected. The original contract bid was \$653,550. There were eighteen change orders which sum to \$81,554. Albanese D&S Inc. was used on projects on Walnut Street (see work order #1302503), Ash Street (see work order #1302502) and Lake Street (work order #1302191 not included in the WICA request for projects completed).

Three companies provided bid proposals for the 2013 Water Main Improvements. The referenced streets and work orders were Franklin, Park, Court, Beacon St and Beacon Ct, Middle all in Nashua, and Middle and Cross Streets in Amherst. Of the three bid proposals, Park Construction was selected. One bid was higher, one bid was lower. Due to prior history with the Company, the mid-point bidder was selected. The initial bid proposal was \$1,645,984. The actual contract of \$682,457 was supplemented with eleven individual change orders, representing an additional \$122,161. Park Construction was used for projects #1300215, #1300216, #1300217, #1300218, #1300219, and #1300220, each of which is included in the completed projects request for recovery.

Actual Projects Completed during 2013

The budget approved by the Commission was \$2,681,700. Actual expenses reported to the Commission are \$1,960,878. The Company anticipates an additional \$109,262 in paving costs related to the 2013 projects to be incurred and paid in 2014.

Total gross project costs per the filing	\$1,960,878 excluding \$7,853 easements
Cost of removal (Dr. Accum Dep, Cr. Plant)	<u>\$ (194,025)</u>
Net book value of 2013 Projects	\$1,766,853
Retirements related to replacements	<u>\$ (25,813)</u>
Net Plant	\$1,741,040

Audit was provided with a revised Attachment B, on January 22, 2014, which notes the actual costs through the end of December 2013. A second revision, provided in response to Data Requests, includes paving costs paid through 2013 and estimated to be paid in 2014.

Of the fifteen replacement projects (specifically identified line items) completed during 2013, twelve were on the original proposed projects list and approved by Commission Order 25,510. Three projects were not authorized by the Order. **Audit Issue #1**

Budget approved per order 25,510:

#7-Replace 1,118 feet cast iron 10" unlined main on Franklin Street Nashua \$ 316,480

Work order #1300215 listed on the Staff DR1-12 reflects **1,118** feet of 10" cast iron unlined main on Franklin Street in Nashua being replaced with 12" ductile iron main at a total cost as of 12/31/2013 of \$411,976, with an estimated additional \$32,600 of paving costs to be completed in 2014. An E-22 was noted within the file.

Park Construction progress payment requests 1-4 were reviewed and verified to the work order without exception. The total of the progress payments made to Park relating to the Franklin Street main replacement was \$370,110, or 90% of the total work order.

One invoice from New England Backflow, Inc. in the amount of \$350 was posted to 2105. The invoice was for a repair kit for a Febco 825Y 1" device which was damaged during construction. The device was billed to the Lafayette Club on High Street in Nashua. The repair for damage to a device within the utility closet of the basement kitchen should have been expensed and not included as part of the WICA plant.

Audit verified the \$411,976 noted in the filing to the two work orders and to the following general ledger accounts:

2331-002-001 Paving	\$ 8,210
2331-200-001 Distribution Mains-New	\$348,408
2331-250-001 Distribution Mains-Gate Valves	\$ 24,524
2333-200-001 Renewed Services	\$ 25,869 - \$350
2335-000-001 Fire Protection Equipment Hydrants	<u>\$ 4,965</u>
	\$411,976 = \$411,626

The adjusted balance reflects the deduction of the \$350 related to the repair discussed above.

Budget approved per order 25,510:

#8-Replace 433 feet cast iron 4" unlined main on Pleasant Street Nashua \$ 116,000

The filing indicates actual replacement of **445** feet of 4" cast iron unlined main with 6" of ductile iron water main, at a total cost of \$121,426. Additional paving costs of \$10,100 were estimated to be incurred in 2014. See work order #1201821 & work order #1301953.

Audit reviewed the E-22 included with the filing which indicated 450' of 4" CIP replaced with 6" ductile iron water main at an estimated cost of \$86,670 to be completed by 12/12/12. The work was anticipated to be accomplished in conjunction with the City of Nashua's sewer replacement project, and the coordinated effort would reduce pavement restoration costs.

The first work order #1201821 consists of only Engineering and associated overhead costs of \$2,293 incurred in 2012, but capitalized into this project. The second work order

#1301953 was reviewed without exception. The contracting work was performed by Albanese D&S, Inc. and the charges by Albanese came to \$111,265 or 92% of the combined work orders.

Audit verified the \$121,426 noted in the filing to the two work orders and to the following general ledger accounts without exception:

2331-200-001 Distribution Mains-New	\$ 94,821
2331-250-001 Distribution Mains-Gate Valves	\$ 4,664
2333-200-001 Renewed Services	\$ 20,881
2335-000-001 Fire Protection Equipment Hydrants	<u>\$ 1,060</u>
	\$121,426

Budget approved per order 25,510:

#9-Replace 691 feet cast iron 8" unlined main on Ash Street Nashua **\$ 240,000**

The filing indicates actual replacement of 698 feet of 8" cast iron unlined main with 8" of ductile iron water main, at a total cost of \$167,680. Additional paving costs of \$18,600 were estimated to be incurred in 2014. See work order #1302502.

Audit reviewed the E-22 included with the filing which indicated 709 of 8" CIP replaced with 8" ductile iron water main at an estimated cost of \$138,820 to be completed by December 2012. The work was anticipated to be accomplished in conjunction with the City of Nashua's sewer replacement project, and the coordinated effort would reduce pavement restoration costs.

Work order #1302502 reflected a total of \$167,680 as of 12/31/2013. The contract for work on the Ash Street water main replacement was completed by Albanese D&S, Inc. Three progress payment requests were provided which support the total noted on the work order. Of the total cost of the project, the payments to Albanese D&S, Inc. sum to \$158,539 or 95%.

Audit verified the \$167,680 noted in the filing to the work order. The following table is from the General Ledger and contains an additional \$1,653 included in the "2331-200-001 Mains Account" associated with Engineering and Overhead costs incurred in 2012. This was verified to work order #1201823.

2331-200-001 Distribution Mains-New	\$123,434
2331-250-001 Distribution Mains-Gate Valves	\$ 4,400
2333-200-001 Renewed Services	\$ 39,500
2335-000-001 Fire Protection Equipment Hydrants	<u>\$ 2,000</u>
	\$169,334

Budget approved per order 25,510:

#10-Replace 625 feet cast iron 4" unlined main on Walnut Street Nashua \$ 210,000

The filing indicates actual replacement of 675 feet of 4" cast iron unlined main with 6" ductile iron, at a cost of \$186,445 as of 12/31/2013. Additional estimated paving costs of \$20,362 are expected to be incurred in 2014. See work orders #1201820 and #1302503.

Audit reviewed an E22 dated March 2012 which indicated a replacement of 4" cast iron pipe with new 8" and 6" ductile iron water main. The work was anticipated to be accomplished in conjunction with the City of Nashua's sewer replacement project, and the coordinated effort would reduce pavement restoration costs. The original anticipated cost on the E22 was \$134,920 with construction to be completed by December 2012. The work order 1201820 reflects \$2,698 in total, all related to Engineering labor and overhead costs incurred in 2012.

Work order 1302503 reflected a total as of 12/31/2013 of \$183,747. Combined, the two work orders sum to \$186,445 without exception. Audit reviewed all supporting documentation. The contract for work on the Walnut Street water main replacement was completed by Albanese D&S, Inc. Three progress payment requests were provided which support the total noted on the work order. Of the total cost of the project, the payments to Albanese D&S, Inc. sum to \$173,064 or 93%.

Audit verified the \$186,445 noted in the filing to the two work orders and to the following general ledger accounts:

2331-200-001 Distribution Mains-New	\$146,445
2331-250-001 Distribution Mains-Gate Valves	\$ 9,500
2333-200-001 Renewed Services	\$ 29,500
2335-000-001 Fire Protection Equipment Hydrants	<u>\$ 1,000</u>
	\$186,445

Budget approved per order 25,510:

#11-Replace 400 feet cast iron 4" unlined main on Beacon Street Nashua \$ 87,280

The filing indicates actual replacement of 386 feet of 4" cast iron unlined main with 8" of ductile iron water main and 4" PVC, at a total cost of \$84,756. Additional paving costs of \$9,000 were estimated to be incurred in 2014. See work order #1300218.

Audit reviewed an E22 dated January 8, 2013 which indicated a replacement of 400' of 4" cast iron water main with new 6" ductile iron water main. The work was anticipated to be accomplished in conjunction with the City of Nashua's sewer replacement project, and the coordinated effort would reduce pavement restoration costs. The original anticipated cost on the E22 was \$87,280 with construction to be completed by December 2013.

Work order 1300218 reflected a total of \$84,756 as of 12/31/2013. The contract for work on the Beacon Street water main replacement was completed by Park Construction Corp. Three progress payment requests were provided which support the total noted on the work order. Of the total cost of the project, the payments to Park Construction sum to \$75,553 or 88%. At some point before the project began, PW, Inc. in conjunction with the Fire Marshall for the City of Nashua decided to increase the new main to the actual 8" because it was better suited to maximize flows for firefighting purposes.

Audit reviewed the general ledger with respect to the expenses for Beacon Street. The total expenses did match, however there were no expenses listed under 2331-250-001 "...Gate valves" even though there were three different line items identified and billed as being "Gate valves" as part of the project. The total of these items came to \$4,750. The Company should review the entries and ensure each is posted to the appropriate general ledger account.

Audit verified the \$84,756 noted in the filing to the work order and to the general ledger. The adjusted GL amounts are reflected in the below table:

2331-200-001 Distribution Mains-New	\$ 67,028 recommended
2331-250-001 Distribution Mains-Gate Valves	\$ 4,750 recommended
2333-200-001 Renewed Services	\$ 9,050
2335-000-001 Fire Protection Equipment Hydrants	<u>\$ 3,928</u>
	\$ 84,756

Budget approved per order 25,510:

#12-Replace 174 feet cast iron 4" unlined main on Beacon Court Nashua \$ 24,895

The filing indicates actual replacement of 201 feet of 4" cast iron unlined main with 8" of ductile iron water main and 4" PVC, at a total cost of \$28,150. Additional paving costs of \$4,500 were estimated to be incurred in 2014. See work order #1300219.

Audit reviewed an E22 dated January 8, 2013 which indicated a replacement of 4" cast iron pipe with new 4" PVC. The work was anticipated to be accomplished in conjunction with the City of Nashua's sewer replacement project, and the coordinated effort would reduce pavement restoration costs. The original anticipated cost on the E22 was \$24,895 with construction to be completed by December 2013.

Work order 1300219 reflected a total of \$28,150 as of 12/31/2013. Audit reviewed all supporting documentation. The contract for work on the Beacon Court water main replacement was completed by Park Construction Corp. Three progress payment requests were provided which support the total noted on the work order. Of the total cost of the project, the payments to Park Construction Corp. sum to \$25,882 or 92%.

Audit verified the \$28,150 noted in the filing to the work order and to the following general ledger accounts without exception:

2331-200-001 Distribution Mains	\$ 20,497
2331-250-001 Distribution Mains-Gate Valves	\$ 1,007
2333-200-001 Renewed Services	\$ 6,646
2335-000-001 Fire Protection Equipment-Hydrants	\$ -0-
	\$ 28,150

Budget approved per order 25,510:

#13-Replace 430 feet cast iron 4" unlined main on Middle Street Nashua \$ 82,100

The filing indicates actual replacement of **542** feet of 4" cast iron unlined main with 6" of ductile iron water main, at a total cost of \$96,012. Additional paving costs of \$10,100 were estimated to be incurred in 2014. See work order #1300220.

Audit reviewed an E22 dated January 7, 2013 which indicated replacement of 430' of 4" cast iron pipe with new 6" ductile iron water main. The work was anticipated to be accomplished in conjunction with the City of Nashua's sewer replacement project, and the coordinated effort would reduce pavement restoration costs. The original anticipated cost on the E22 was \$82,100 with construction to be completed by December 2013.

Work order #1300220 references two different invoices for the Middle Street project. One invoice totaling 439' of pipe and the other 66' of pipe. In total, the invoices reflect 505' of 4" cast iron unlined main on Middle Street in Nashua was replaced with 6" ductile iron pipe at a total cost of \$96,012. PWW, Inc. was not able to explain why the filing was different from the total drawn from the invoices. Audit verified the total costs to the following general ledger accounts without exception:

2331-200-001 Distribution Mains	\$80,578
2331-250-001 Distribution Mains-Gate Valves	\$ 2,119
2333-200-001 Renewed Services	\$10,954
2335-000-001 Fire Protection Equipment-Hydrants	\$ 2,361
	\$96,012

Audit reviewed the progress billing requests on file from Park Construction. The review of the Park progress billings and the related PWW Engineering allocation of the billings reflect three separate references to work order #1300220:

Middle Street #1300220	\$36,010
Middle Street #1300220	\$29,872
Oak Street #1300220	\$11,908
Park Construction	\$77,790 which represents 81% of the reported costs.

Audit requested clarification of inclusion of Oak Street and the Company explained that at the intersection of Middle and Oak, a length of pipe on Oak had to be relocated in order to complete the Middle Street project. For clarity, the Engineer identified the street individually.

Budget approved per order 25,510:

#14- Replace 1,110 feet asbestos cement 6" main on Middle Street Amherst \$ 150,000

Actual replacement was of 1,946 feet of 6" asbestos cement main with 8" and 10" ductile iron pipe, for a total cost through the end of 2013 of \$328,914. There are no anticipated additional charges to be incurred in 2014. See work order #1300915 which reflected \$328,237. The \$677 variance was caused by an overhead which posted to the general ledger. The work order provided to Audit had not been updated.

Audit verified the total \$328,914 to the following general ledger accounts without exception:

2331-200-001 Distribution Mains	\$273,882
2331-250-001 Distribution Mains-Gate Valves	\$ 17,165
2333-200-001 Renewed Services	\$ 29,562
2335-000-001 Fire Protection Equipment-Hydrants	<u>\$ 5,305</u>
	\$328,914

Budget approved per order 25,510:

#15- Replace 370 feet asbestos cement 4" main on Cross Street Amherst \$ 50,000

The filing reflects actual replacement of 391 feet of 4" asbestos cement main with 6" ductile iron pipe at a total cost of \$36,445. There were no anticipated additional charges in 2014 noted on the filing. Work order #1300914 supports the filed balance without exception, and the general ledger reflects:

2331-200-001 Distribution Mains	\$34,915
2331-250-001 Distribution Mains-Gate Valves	<u>\$ 1,530</u>
	\$36,445

Budget approved per order 25,510:

#16- Replace 100 feet cast iron 6" unlined main Fairmount Street Nashua \$ 84,000
#17- Replace 1,044 feet cast iron 6" unlined main on Fairmount Street Nashua \$ 305,000
\$ 389,000

The two Fairmount Street projects, originally budgeted for a combined \$389,000 appear to have been rolled into two projects on Hillcrest Avenue with a combined budget of \$30,545. Work Order #1300348 was provided to support the overall Fairmount/Hillcrest project. The general ledger and BNA (Plant Accounting System) for work order #1300348 reflect the following:

	<u>GL</u>	<u>BNA</u>	<u>Variance</u>
2303-300-001 Easements	\$ 4,575	\$ 4,575	\$-0-
2331-200-001 Distribution Mains New	\$ 2,200	\$ -0-	\$ 2,200
2331-200-001 Distribution Mains New	\$182,315	\$153,715	\$28,600
2331-250-001 Distribtn Mains-Gate Valves	\$ 1,320	\$ 1,320	\$-0-
2333-200-001 Renewed Services	\$ 11,399	\$ 11,399	\$-0-
2335-000-001 Hydrants	\$ 7,478	\$ 7,478	\$-0-
Total General Ledger and BNA	\$209,287	\$178,487	\$30,800 See below
Total WICA filing for WO 1300348		\$173,913	

Easements of \$4,575 are not included in the WICA total filed with the Commission Staff.

The \$30,800 variance was reconciled to an unauthorized project on Hillcrest Avenue which was completed in conjunction with the Fairmount Street Project. See **Audit Issue #1**. The Hillcrest Avenue replacement of 1" and 2" unlined steel mains, with 4" and 8" ductile iron pipe for a total cost of \$222,633 was verified to the general ledger as well as to the work order supporting detail of the BNA system, work order #1302505:

	<u>GL</u>	<u>BNA</u>	<u>Variance</u>
2303-300-001 Easements	\$ 3,279	\$ 3,279	\$-0-
2331-002-001 Pavements	\$ 20,185	\$ 20,185	\$-0-
2331-200-001 Distribution Mains Ne	\$ 22,100	\$ -0-	\$ 22,100
2331-200-001 Distribution Mains Ne	\$160,318	\$213,218	\$(52,900)
2331-250-001 Distribtn Mains-Gate Valves	\$ 2,855	\$ 2,855	\$-0-
2333-200-001 Renewed Services	\$ 6,220	\$ 6,220	\$-0-
2335-000-001 Hydrants	\$ 7,677	\$ 7,677	\$-0-
Total General Ledger and BNA	\$222,634	\$253,433	\$(30,800) See above
Total WICA filing for WO 1302505		\$250,155	

The combined GL and BNA Work orders for the Fairmount Street/Hillcrest Avenue projects reflect:

	<u>GL</u>	<u>BNA</u>
1300348	\$209,287	\$178,487
1302505	\$222,633	\$253,433
TOTAL	\$431,920	\$431,920
Less Easements	\$ (7,853)	\$ (7,853)
FILED WICA	\$424,067	\$424,067

Budget approved per order 25,510:

18-Replace average 31 services @ average \$1,858 per service

\$ 57,598

Actual referenced as 17 services for a total cost of \$44,291 which calculates to \$2,605 per service not the \$1,858 used in the average. A footnote on the response to Staff Data Request 1-12 states that the service replacements completed in 2013 in the PWW Core were exclusive of the WICA Water Main Replacement Projects. Audit clarified that these replacements were in fact separate, distinct from and in addition to the water main projects. Audit requested and was provided with the work order summary supporting the total. Reference M to S indicates Main to curb stop:

<u>Work Order</u>	<u>Location</u>	<u>Renew</u>	<u>Dollar</u>
1305841	77 Concord St Nashua	1" renewed services M to S	\$ 2,707
1305696	171 Kinsley St Nashua	1" renewed services M to S	\$ 1,639
1305530	15 Chester St Nashua	1" renewed services M to S	\$ 2,461
1305511	72 Chestnut St Nashua	1" renewed services M to S	\$ 2,339
1305030	14 Thorndike St Nashua	1.5" renewed services M to S	\$ 3,064
1304550	86-98 Main St Nashua	2" renewed services M to S	\$ 3,419
1304369	122 Coburn Woods Nashua	1" renewed services M to S	\$ 3,292
1304314	10 Eastman Dr Derry	1" renewed services M to S	\$ 6,742*
1304041	Everett St Nashua	1.25" renewed services M to S	\$ 1,285
1304025	1 Balcolm St Nashua	1" renewed services M to S	\$ 389*
1303304	62 McKean St Nashua	1" renewed services M to S	\$ 1,237
1302780	23 Gilman St Nashua	1" renewed services M to S	\$ 1,156
1301614	21 Port Chester Dr Nashua	3/4" renewed services M to S	\$ 2,085
1301609	38 Deer Haven St Nashua	3/4" renewed services M to S	\$ 2,698
1301418	Northern Blvd Amherst	3/4" renewed services M to S	\$ 1,491
1301146	7 Monza Dr Nashua	3/4" renewed services M to S	\$ 3,972
1300551	7 Prospect St Nashua	2" renewed services M to S	\$ 4,313
Total Renewed Services not associated with specific WICA main projects:			\$44,291

*Audit selected the two work orders which were outside of the average costs, to review in detail. Overhead calculations are automatically calculated and posted to the general ledger when the work orders are interfaced with the general ledger each month-end. Audit reviewed the work orders and related calculations for overhead at 87% of labor.

The large variance in dollars spent was the result of the Eastman Street project taking 61 hours to complete, while the Balcolm Street project took just four hours. The work order summaries include labor hours, costs related to dump truck, backhoe, and foreman truck hours, and parts for the repair necessary.

Hydrants Replaced Unrelated to the Approved Main Projects**\$30,716**

A footnote on the response to Staff Data Request 1-12 states that the hydrant replacements completed in 2013 in the PWW Core were exclusive of the WICA Water Main Replacement Projects. Audit clarified that these replacements were in fact separate, distinct from and in addition to the water main projects. The specific hydrant total which was verified to the Company's general ledger was \$30,716. Refer to **Audit Issue #1** as the original budget did not pre-approve hydrants outside of the WICA main projects.

Audit requested and was provided with the work order listing supporting the \$30,716 hydrant total:

1305595 replaced hydrant gate valve at 110 Main St Nashua	\$ 6,672*
1305103 replaced hydrant at Klondike Nashua	\$ 3,098
1304923 replaced hydrant on Main St (Liberty Hill) Nashua	\$ 6,725*
1304479 replaced hydrant Church at Middle St Nashua	\$ 3,866
1304396 replaced hydrant at 239 Harris Rd Nashua	\$ 5,658*
1302206 relocated hydrant 97 Main St Nashua	<u>\$ 4,695</u>
Total Hydrants not associated with specific WICA main projects:	\$30,716

*Audit selected these three specific work orders to review in detail. Each work order summary included the location of the repaired hydrant, the total labor hours and amounts, overhead, truck costs, backhoe services, and related overheads, and materials used for the repairs. Each was closed to plant in 2013 and the total was verified to general ledger account 2335-000-001, Fire Protection Equipment: Hydrants. The general ledger includes \$34,773 of new hydrants placed in service in connection with the WICA water main projects described earlier in this report. Overall credits to the general ledger account, \$(6,026) include one retirement entry of \$2,293 and the remaining identified as cost or removal. The cost of removal entries credited to the Hydrant account were debited to Accumulated Depreciation without exception.

SUMMARY

Audit reviewed the following accounts which include asset activity associated with the WICA, as well as asset activity not included in the WICA filing. The table is included for reference only.

	1/1/2013	Debits	Credits	12/31/2013
2331-000-001 Pavements-General	\$ 83,613	\$ -	\$ -	\$ 83,613
2331-001-001 Pavements-Tran Mains	\$ 360,605	\$ 2,537	\$ -	\$ 363,141
2331-002-001 Pavements-Dist Mains	\$ 1,362,218	\$ 28,837	\$ (2,839)	\$ 1,388,216
2331-003-001 Pavements-Gate Valves	\$ 214,991	\$ 5,399	\$ (1,685)	\$ 218,705
2331-100-001 Transmission Mains	\$ 13,083,631	\$ -	\$ -	\$ 13,083,631
2331-101-001 Tran & Dist Mains-Bon Terrain	\$ 1,440,590	\$ -	\$ -	\$ 1,440,590
2331-102-001 T&D Mains Dev Ins Bon Terrain	\$ 531,932	\$ -	\$ -	\$ 531,932
2331-150-001 Trans Mains Developer Install	\$ 235,507	\$ -	\$ -	\$ 235,507
2331-200-001 Distribution Mains-new	\$ 25,432,370	\$ 1,611,562	\$ (174,532)	\$ 26,869,401
2331-201-001 Distribution System Equipment	\$ 122,253	\$ -	\$ -	\$ 122,253
2331-250-001 Dist Mains: Gate Valves	\$ 1,130,430	\$ 69,084	\$ (23,917)	\$ 1,175,597
2331-251-001 Gates 4" & Under	\$ 4,784	\$ 17,513	\$ -	\$ 22,297
2331-252-001 Gates 4" & Under Comm Sys	\$ -	\$ 10,077	\$ -	\$ 10,077
2331-253-001 Gates 6" & Larger Core	\$ 8,457	\$ 19,442	\$ -	\$ 27,899
2331-300-001 Dist Mains Developer Install	\$ 18,281,059	\$ 792,552	\$ -	\$ 19,073,611
Total accounts 2331 Mains	\$ 62,292,442	\$ 2,557,002	\$ (202,973)	\$ 64,646,471
2333-200-001 Renewed Services	\$ 1,383,542	\$ 254,230	\$ (23,368)	\$ 1,614,404
2335-000-001 Fire Prot Equip: Hydrants	\$ 2,217,195	\$ 65,489	\$ (6,626)	\$ 2,276,058
2335-005-001 Pavements: Hydrants	\$ 90,034	\$ 377	\$ -	\$ 90,412
2335-100-001 Hydrants CIAC	\$ 1,205,823	\$ 9,977	\$ -	\$ 1,215,800
2335-200-001 New Hydrants: Powder Hill	\$ -	\$ 1,000	\$ (100)	\$ 900
Total 2335 Hydrants	\$ 3,513,052	\$ 76,843	\$ (6,726)	\$ 3,583,170

Because assets added to the above accounts may not have been included in the WICA, the related costs of retirement and/or retired asset are also included in the account totals. Audit reviewed the overall reported WICA projects for 2013 which total \$1,960,879 excluding 2014 anticipated paving costs. Support for all of the costs below, including easements, was provided in the form of detailed general ledger accounts, work orders, contracts and invoices. The table below summarizes all of the costs noted:

Total gross project costs per the filing	\$1,960,878
Easements noted for the Franklin Street project	\$ 7,853
Overstatement of the Franklin Street project	\$ (350)
Understatement of the Ash Street project	\$ 1,653
TOTAL Funds Expended	\$1,970,034 Including Cost of Removal

Audit Issue #1
Completion of Projects not Approved by the Commission

Background

PWW provided the Commission with a listing of specific projects proposed for replacement in 2013. The Commission reviewed the proposals, and by Order #25,510 in docket DW12-359, approved the proposal. Six of the proposed projects were not completed as contemplated. Fifteen projects were completed during 2013.

Issue

Of the fifteen replacement projects (specifically identified line items) completed during 2013, twelve were on the original proposed projects list and approved by Commission Order 25,510. Three projects were not authorized by the Order.

Audit Recommendation

The Company proposed specific projects to the Commission for WICA consideration. Discovery was conducted by the Commission Staff in DW 12-359 and the proposed projects were pre-approved, subject to a compliance filing in the current docket DW13-358.

The Company should provide the Commission with documentation regarding the elimination of six of the pre-approved projects and the substitution of three projects which were not approved.

Company Comment

The Company agrees that the Commission should be notified when WICA pre-approved projects are eliminated and substituted with other similar projects. Please note that these changes normally occur due to city/town changes in their related sewer projects. The Company will mirror these changes for their main replacement projects as there is significant cost savings in the areas of pavement repair and traffic control associated with completing joint projects with the city/town.

Audit Response

Audit appreciates the cost savings associated with coordination of projects with the respective city or town. Audit is also aware that for 2014, the Company has included a contingency line in the WICA budget, to offset costs which may be incurred due to changes in the city or town plans with which the Company has budgeted for coordinated replacement work. Notification of any changes to the approved WICA plan should be communicated to the Commission as soon as the Company is aware.

SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED

Pursuant to N.H. Admin Rule Puc 203.11 (a) (1): Serve an electronic copy on each person identified on the service list.

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Docket #: 13-358-1 Printed: March 14, 2014

FILING INSTRUCTIONS:

- a) Pursuant to N.H. Admin Rule Puc 203.02 (a), with the exception of Discovery, file 7 copies, as well as an electronic copy, of all documents including cover letter with:

DEBRA A HOWLAND
EXECUTIVE DIRECTOR
NHPUC
21 S. FRUIT ST, SUITE 10
CONCORD NH 03301-2429

- b) Serve an electronic copy with each person identified on the Commission's service list and with the Office of Consumer Advocate.
- c) Serve a written copy on each person on the service list not able to receive electronic mail.