

**TESTIMONY**  
**of**  
**PAUL J. GADOURY**  
**before the**  
**PUBLIC UTILITIES COMMISSION**

**DOCKET 4406**

**FOR**  
**GENERAL RATE RELIEF**

**for**  
**PROVIDENCE WATER**

**September 2013**

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 **Q. Please state your name and your position?**

2 A. Paul Gadoury, former and recently retired Director of  
3 Engineering for the Providence Water Supply Board  
4 (Providence Water), now serving in a consulting capacity  
5 for the agency.

6

7 **Q. Are you the same Paul Gadoury who submitted pre-filed**  
8 **direct testimony in these proceedings?**

9 A. Yes I am.

10

11 **Q. What is the purpose of your testimony?**

12 A. The purpose is to respond to some of the matters  
13 raised in the pre-filed testimony of wholesale interveners,  
14 and of the Division in this docket.

15

16 **Q. What issues will you address in this rebuttal**  
17 **testimony?**

18 A. My testimony will primarily focus on the arguments  
19 being raised by the wholesale interveners relative to  
20 distribution mains and transmission mains. I will also  
21 respond to positions expressed relative to the capital  
22 funding of the new proposed Central Operations Facility,  
23 and to the Division's recommendation to reduce chemical  
24 funding.

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1                                   TRANSMISSION AND DISTRIBUTION MAINS

2    Q.   Have you reviewed the testimony submitted by the  
3    wholesale interveners relative to their argument concerning  
4    transmission and distribution mains?

5    A.   Yes I have.  They are essentially advocating that all  
6    water mains ranging in size from 6" up to and including 12"  
7    in diameter be strictly considered distribution mains that  
8    are for the sole benefit of retail customers, for which  
9    wholesale customers should share no responsibility in the  
10   infrastructure replacement or water main flushing costs.  A  
11   significant focus of data requests that we have received  
12   from the same interveners has also been related to this  
13   topic.

14

15   Q.   Has the Division presented any similar arguments in  
16   testimony or data requests?

17   A.   No.  The Division has not.

18

19   Q.   Do you agree with this contention by the wholesale  
20   intervenors?

21   A.   No.  I strongly disagree, and have explained this in  
22   various responses to data requests that the wholesale  
23   intervenors have submitted to date relative to this.  The  
24   wholesale intervenors' argument seems to focus to some  
25   extent on semantics, i.e. how mains are labeled or  
26   categorized.  The real issue, however, is the actual  
27   operational function of these mains, not how they are

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1    labeled.

2

3    **Q.   Please explain.**

4    A.   Providence Water's water delivery system is a looped  
5    and networked system of water pipes, where virtually all  
6    its water mains function together, in concert, to transport  
7    water widely throughout the entire system, to both  
8    wholesale and retail customers. It is not a simple system  
9    of dead-ended or skeletonized pipe branches that can be  
10   considered to exclusively serve specific customers. The  
11   attempt by the wholesale interveners to categorize certain  
12   main sizes as exclusively benefitting retail customers (or  
13   wholesale customers) represents an overly-simplified and  
14   unrealistic view of how a networked system of water pipes  
15   actually functions. For wholesalers to simply state that a  
16   connection off a particular size main is conclusive  
17   evidence that all smaller mains play no part in serving  
18   wholesale customers ignores the vast network of  
19   interconnected mains that all function together to move  
20   water throughout the entire system to serve both wholesale  
21   and retail customers. All mains, with the exception of a  
22   small number of dead-ended branches or isolated pockets,  
23   are part of an intertwined network of interconnected water  
24   pipe loops which all synergistically function together to  
25   constitute a complete water delivery system to all  
26   categories of customers.

27

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 Although the smaller 6" and 8" mains are generally labeled  
2 for convenience purposes as distribution mains, this is not  
3 a clear cut or exclusive function of even these smaller  
4 mains. In a system configured as the Providence Water  
5 system is, these mains provide a significant water  
6 transmission function and transport water to wide areas of  
7 the entire system, both wholesale and retail.

8  
9 Mains 6" and 8" in diameter are significantly oversized  
10 relative to what is needed to provide water to customers on  
11 a daily basis. In typical residential areas, 2" and 4"  
12 water mains in the street would generally be perfectly  
13 adequate for delivering water to retail customers. The  
14 reason for oversizing these mains to 6" or 8" in diameter  
15 is so that they would be able to accommodate the much  
16 higher flow rates that might be required in any one  
17 particular street in the event of a fire. Oversizing the  
18 mains to 6" and 8" size for this purpose is essentially  
19 universally accepted engineering practice within the water  
20 industry. The consequence of this is that, under normal  
21 operations, these 6" and 8" mains are larger than what is  
22 needed for supplying water to local customers. The mains  
23 have significant excess flow capacity beyond what is  
24 required for normal customer consumption, and there can be  
25 a significant throughput of water through these mains, in  
26 excess of that utilized by local areas, which is conveyed  
27 to other wider parts of the system. Certainly 12" mains,

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 to an even greater extent, are even more substantially  
2 oversized relative to normal customer needs and perform a  
3 significant water transmission function throughout the  
4 entire piping network.

5  
6 Multiple 6" and 8" mains, configured in parallel in a  
7 network, which is a very common occurrence in the  
8 Providence Water system grid, can provide greater  
9 transmission capacity than individual larger mains. As  
10 commonly recognized in engineering practice, individual  
11 water mains configured in parallel in a pipe network are  
12 considered "hydraulically equivalent pipes" of larger  
13 diameters. For example, three (3) 8" pipes in parallel are  
14 perfectly equivalent in flow and water transmission  
15 capacity to a 12" pipe, six (6) 8" pipes are equivalent in  
16 flow and transmission capacity to a 16" pipe, two (2) 12"  
17 pipes are equivalent in flow and transmission capacity to a  
18 16" pipe etc. With the excess flow capacity inherently  
19 present in these so-called distribution pipes (as explained  
20 above), and their commonly occurring parallel pipe  
21 configurations in the Providence Water system, it is simply  
22 unrealistic to claim that they only provide a distribution  
23 function of delivering water to local individual retail  
24 customers. Mostly all of the mains in the Providence Water  
25 system, irrespective of size, with the exception of dead-  
26 ended pipes or those exclusively serving isolated pockets,  
27 are able, as a network piped system, to transmit water

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 widely throughout system.

2

3 **Q. In prefiled testimony, the wholesale interveners point**  
4 **out that in its formal Infrastructure Replacement (IFR)**  
5 **Plan, Providence Water has placed its 6", 8", and 12" mains**  
6 **and valves in the distribution category, and 16" and larger**  
7 **mains and valves in the transmission category. What is**  
8 **your response to this?**

9 A. Mr. Woodcock, representing the Kent County Water  
10 Authority, particularly stated that where there was no  
11 interest or benefit to Providence Water rate payers,  
12 Providence Water utilized these particular labels in its  
13 IFR plan. This is correct. This was done within the IFR  
14 Plan because, precisely as stated by Mr. Woodcock, it  
15 really didn't matter for the purposes of that plan which  
16 label 12" mains were placed under. Whether 12" pipes and  
17 appurtenances were under a distribution or transmission  
18 label within the IFR plan had no impact on the plan, its  
19 operation, or its funding needs. That very reason allowed  
20 Providence Water to lump 12" mains in with 6" and 8" mains,  
21 strictly for the purposes of record-keeping and accounting  
22 convenience.

23

24 Providence Water's in-house crews typically limit their  
25 work to water mains and valves that are 6" through 12" in  
26 size. Work on mains and appurtenances that are 16" and  
27 greater in size are typically performed by outside

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 contractors, who have the more robust equipment needed to  
2 work on these larger and heavier sizes. For the very  
3 reason of simplifying the record keeping and reporting  
4 related to in-house work, it was more convenient for  
5 Providence Water to consolidate the 6" through 12" main  
6 sizes in its IFR plan under this labeling convention. This  
7 labeling has no other significance, and has nothing at all  
8 to do with the hydraulic or water supply function of these  
9 mains. There is simply no need for such a fine distinction  
10 within the context of the IFR plan. It is done within the  
11 plan strictly for internal record-keeping and reporting  
12 convenience.

13

14 **Q. Mr. Woodcock has stated in his testimony that it is**  
15 **only for the purpose of this rate filing that Providence**  
16 **Water seems to have changed its definition, now saying that**  
17 **12" pipes are transmission mains. How do you respond to**  
18 **this?**

19 **A. This is false. Mains 12" and larger in size have**  
20 **always been categorized as transmission mains in Providence**  
21 **Water's previous rate filings before the Commission, and**  
22 **there is nothing new or different in the categorization of**  
23 **12" pipes as transmission mains in this filing. The**  
24 **categorization of transmission and distribution mains in**  
25 **this filing is consistent with that in previous Providence**  
26 **Water rate filings, and rate orders issued by the**  
27 **Commission. To the contrary, it appears that it is the**

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 interveners who are attempting to change the definition of  
2 12" mains for the purpose of this filing.

3

4 **Q. Relative to the proposed unidirectional water main**  
5 **flushing program, what size mains are expected to be**  
6 **impacted?**

7 A. Unidirectional flushing (UDF) consists of generating  
8 high flow rates in water mains by strategically flowing  
9 certain hydrants, and opening or closing certain valves, in  
10 order to generate high enough internal flow velocities that  
11 may clean out sediments within the pipe and loose films  
12 along pipe walls. The desired benefits of such an effort  
13 are improved pipe flow capacity and improved water quality.

14

15 Because of the hydrant flows that are generally  
16 encountered, high enough internal pipe velocities are  
17 reasonably achievable primarily in mains that are 12" or  
18 less in diameter, although minimum recommended flushing  
19 velocities can sometimes also be achieved in 16" mains  
20 utilizing hydrant flows. Even larger mains could also be  
21 flushed, but other flow accommodations beyond normal  
22 single-hydrant flushing would be required. As such, under  
23 Providence Water's currently proposed initial-stage UDF  
24 effort utilizing essentially single-hydrant flows, mains up  
25 to and including 12" in size are expected to be those that  
26 will be primarily affected. Further future efforts could  
27 target larger mains. The decision whether to expand the UDF

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 effort to these larger mains will be made after Providence  
2 Water evaluates its initial UDF effort for effectiveness.

3

4 Q. Do you expect that Providence Water's water main  
5 replacement program and unidirectional flushing program  
6 will provide benefits to wholesale customers?

7 A. Absolutely. For all the reasons cited above, the  
8 better flow capacity and water quality which will result  
9 from these efforts is a benefit to all customers, both  
10 retail and wholesale.

11

12

**CHEMICAL AND SLUDGE MAINTENANCE FUND**

13 Q. Relative to the amount that Providence Water had  
14 requested, Mr. Catlin, representing the Division, has  
15 recommended a reduction of \$1,008,942 in annual funding for  
16 the Chemical and Sludge Maintenance restricted fund, based  
17 largely on projected reductions in chemical usage. Is the  
18 funding level that is being recommended for chemical  
19 purchases acceptable to Providence Water?

20 A. Yes. Providence Water's estimate of future chemical  
21 costs were based on water quality treatment concerns that  
22 had led our treatment plant personnel to anticipate  
23 potential increases in chemical usages, as explained in my  
24 pre-filed testimony. Water quality conditions did not  
25 require us to use those greater projected amounts, and as  
26 pointed out by Mr. Catlin, the actual chemical usage for  
27 2013 fell below Providence Water's projections. Based on

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 this, and with the knowledge that additional funding needs  
2 can be addressed in future filings if necessary, Providence  
3 Water does not object to the recommendations being made by  
4 Mr. Catlin with regard to chemical expenses.

5

6

**CAPITAL FUND/NEW OPERATIONS FACILITY**

7 Q. Objections have been raised by the wholesale  
8 interveners over the need for continuing the current  
9 funding stream into the Capital Fund, with Providence  
10 Water's intent of utilizing accumulated capital funds  
11 towards a planned new Central Operations Facility. What is  
12 Providence Water's position on this?

13 A. Providence Water's position is identical to that which  
14 was expressed by Mr. Catlin in his response to Kent  
15 County's data request to the Division (KCWA:DIV1-2).  
16 Rather than reiterate the exact same position in just  
17 slightly altered wording, it may be more appropriate here  
18 to simply reproduce Mr. Catlin's response to Kent County's  
19 data request KCWA:DIV 1-2 :

20

21 "The Division anticipates that rates in this case will be  
22 in effect for approximately two years based on Providence  
23 Water's response to KCWA 2-8. Amounts collected during  
24 that time could be used for site assessment and acquisition  
25 and possible site preparation.

26

27 Depending on the total cost, the amounts being collected in

**PROVIDENCE WATER SUPPLY BOARD  
REBUTTAL TESTIMONY OF  
PAUL GADOURY**

1 rates could also reduce the amount that must be financed  
2 and/or ultimately used to pay for debt service used to  
3 finance the total cost of a new Central Operations  
4 Facility. Since the funds are set aside in a restricted  
5 account, to the extent that they are not needed, they can  
6 be used in Providence Water's next case to offset other  
7 capital needs."

8

9 The above is Providence Water's exact position on this  
10 issue.

11

12 **Q. Does this conclude your testimony?**

13 **A. Yes.**