



December 3, 2021

The Hon. Jorge O. Elorza
Mayor
Ricky Caruolo
General Manager

Mrs. Luly Massaro
Commission Clerk
RI Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Dk 4994: New Cost of Service Study

Dear Mrs. Massaro:

Enclosed please find an original and nine copies of Providence Water's rebuttal testimony in the above matter.

If you have any questions I can be reached extension 7217.

Sincerely,

Mary L. Deignan-White
Division Manager - Finance
cc: service list(via email)

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Rebuttal Testimony
of
GREGG M. GIASSON, PE
before the
PUBLIC UTILITIES COMMISSION

for

PROVIDENCE WATER

DOCKET# 4994

December 3, 2021

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

2 A. My name is Gregg M. Giasson and I am the Deputy General Manager of
3 Operations/Executive Engineer for the Providence Water Supply Board. I have general
4 oversight of the Engineering, Water Supply and Transmission & Distribution Departments.

5
6 **Q. Please describe your educational background and work experience.**

7 A. I obtained a Masters of Science in Environmental Engineering from Worcester Polytechnic
8 Institute in 2001 and a Bachelor of Science in Civil Engineering from Tufts University in
9 1992. I have worked for the Providence Water Supply Board for nine years, the first two
10 years as the Senior Director of Operations and the last seven years as the Deputy General
11 Manager of Operations/Executive Engineer. From 2008 to 2012, I worked for the Pawtucket
12 Water Supply Board as the Assistant Chief Engineer/Chief of Operations. Prior to
13 Pawtucket, I worked at the consulting firm Camp, Dresser & McKee for 12 years where I
14 worked on a variety of drinking water projects as both a project engineer and project
15 manager. I am a Registered Professional Engineer in the State of Rhode Island. I am also a
16 licensed Grade 4 Distribution and Grade 4 Treatment Operator in Rhode Island.

17
18 **Q. Does the hydraulic model accurately reflect how the Providence Water distribution
19 system is operated?**

20 A. Yes, the hydraulic model is utilized frequently to verify system operations. In addition, the
21 hydraulic model is often field verified to ensure accuracy. Field verification includes hydrant
22 flow tests or “C Factor” testing that provides feedback on the accuracy of the hydraulic
23 model. This iterative process ensures the accuracy of the hydraulic model.

24
25 **Q. How Does Providence Water typically utilize its hydraulic modeling software?**

26 A. Providence Water has utilized hydraulic modeling software since 1987 for a variety of
27 operational and planning needs, such as, but not limited to the following:

28

- 1 (1) Determine pipe flow volume, direction, velocity, and pressure throughout the
- 2 transmission and distribution system.
- 3 (2) Determine the adequacy of the existing distribution system to handle new demands.
- 4 (3) Determine valve configuration to isolate main breaks.
- 5 (4) Determine criticality of water mains for capital planning and preventative maintenance
- 6 prioritization.
- 7 (5) Determine if the distribution system is meeting fire flow demands,
- 8 (6) Prioritize transmission and distribution mains for main rehabilitation or replacement.
- 9 (7) Water quality evaluations such as simulated distribution system (SDS) testing for
- 10 disinfection byproducts (DBP) and system water age analysis.

11

12 **Q. Have you used Extended Period Simulation (EPS) modeling in the past?**

13 A. Yes, our consultant (Pare) has utilized extended period simulations many times in the past.

14 Most of the modeling Pare has done using EPS was to model water age or constituent

15 concentrations in water systems.

16

17 **Q. Do you feel that EPS is necessary for the inch-mile analysis that was conducted?**

18 A. No, Providence Water does not feel that EPS is necessary for the inch-mile analysis

19 conducted as part of the revised cost of service study (COSS). Providence Water believes the

20 three steady state scenarios that were utilized (average day demand, maximum day demand,

21 and peak hour demand) capture a sufficiently wide range of system demand and accurately

22 reflects how water moves through the Providence Water system. If EPS were used for the

23 inch-mile analysis, it would generate much more data but not necessarily provide a better

24 representation of how water moves through the system. It is important to note that an EPS is

25 just a series of steady-state scenarios run consecutively for a particular demand scenario, in

26 this case either an average day or maximum day demand. As the user of the model, you can

27 set how many time steps (i.e., how many steady state analyses) you want to run and at what

28 time interval. If it were assumed that the time interval is one hour and 24 time steps were

1 run, which is essentially one steady-state analysis every hour for a day, 24 sets of data would
2 be generated that would need to be reviewed for one demand scenario for one wholesale
3 customer. If this were done for average and maximum day demand, 48 sets of data would be
4 generated that would need to be analyzed for one wholesale customer. If EPS were utilized,
5 peak hour demand wouldn't need to be run because the peak hour demand is the highest
6 hourly demand on a maximum day and therefore it would be captured in the maximum day
7 demand scenario. As performed, Pare reviewed three data sets (average day, maximum day,
8 and peak hour) for the seven wholesale customers, which resulted in 21 individual inch-mile
9 analyses. If EPS were utilized, we would need to perform 336 individual inch-mile analyses
10 (48 data sets x 7 wholesale customers) would need to be performed. EPS would therefore
11 result in significantly more effort and expense, but probably would not provide a much better
12 understanding of the amount of infrastructure each wholesale customer utilizes. In essence,
13 an EPS would add significant effort and expense without adding much value to the COSS.

14
15 **Q. Can you estimate how much utilizing EPS would cost and how long it would take to**
16 **analyze all that data?**

17 A. Our best estimate is that the EPS method of analysis would add between \$700,000 to
18 \$800,000 to the cost of the COSS and would require an additional 6,000 to 6,400 engineering
19 hours to complete. Assuming multiple engineers are working on the analysis simultaneously,
20 the EPS method could add 12 to 18 months of time to the hydraulic modeling component of
21 the COSS.

22
23 **Q. What costs have Providence Water incurred to date on the Revised Cost of Service**
24 **Study?**

25 A. To date Providence Water has incurred \$164,209 related to the revised cost of service study.
26 \$65,520 of that is directly related to the hydraulic modeling.

27
28

1 **Q. Was the use of hydraulic modeling to evaluate usage of Providence Water assets**
2 **considered by any other party?**

3 A. Yes, as stated by Mr. Smith in his testimony, in a letter dated September 23, 2020, Bristol
4 County Water Authority (BCWA) had requested that Providence Water run a hydraulic
5 model as part of the COSS.

6

7 **Q. Does that conclude your testimony?**

8 A. Yes, it does

1 REBUTTAL TESTIMONY OF
2 HAROLD J. SMITH, VICE PRESIDENT
3 RAFTELIS FINANCIAL CONSULTANTS, INC.
4
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11 for
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13 PROVIDENCE WATER SUPPLY BOARD
14 DOCKET # 4994
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23 December 3, 2021
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1 **INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Harold J. Smith and my business address is, 5916 DTC Parkway, Suite 850,
4 Greenwood Village, Colorado.

5
6 **Q. Are you the same Harold Smith who submitted pre-filed direct testimony in these
7 proceedings?**

8 A. Yes, I am.

9
10 **Q. Have you reviewed the direct testimony of the intervenors and the Division of Public
11 Utilities and Carriers (Division) in this case?**

12 A. Yes, I have reviewed the testimony of Michael Maker, witness for the Bristol County Water
13 Authority (BCWA); the testimony of Jason Mumm, witness for the Greenville Water District
14 (GWD) and the Lincoln Water Commission (LWC); the testimony of John Guastella, witness for
15 the Smithfield Water Supply Board (SWSB); the testimony of David Bebyn, witness for the Kent
16 County Water Authority (KCWA) and the testimony of Jerome Mierzwa, witness for the Division.

17
18 **OVERVIEW OF COMPLIANCE FILING**

19 **Q. What did Providence Water's April 1, 2021 compliance filing address?**

20 A. The filing addressed the development of a new cost of service study (New COSS), reflective of
21 the Commission's order 23928 (the Order) issued on October 20, 2020. This order requires
22 Providence Water to "perform a new allocated cost of service study, taking into account the
23 Commission's directives...".

24
25 **Q. What directives did the Commission establish in the Order?**

26 A. The Commission's order identified the following five issues that should be addressed by the
27 New COSS:

- 28 1. Transmission and Distribution Labor Cost Allocation
- 29 2. Central Operations Facility Allocation
- 30 3. Non-Revenue Water Allocation

1 4. Pumping Cost Allocation

2 5. Unidirectional Flushing Cost Allocation

3
4 **Q. Are these the only issues that can be addressed by the New COSS?**

5 A. No. The Order states that the new COSS should, at a minimum, address these specific issues.
6 However, the Order also indicates the Commission's objective to approve individual wholesale
7 rates which "have taken into account all relevant factors, in a manner that is fair to all the affected
8 parties" (p. 33 of the Order).

9
10 **Q. Does "all relevant factors" mean that the New COSS should be determined without any
11 regard for the approach used in the ASA COSS?**

12 A. No. The Order is clear that the New COSS is intended to be refinement of the Amended
13 Settlement Agreement COSS (ASA COSS), not a complete departure from it. The ASA COSS
14 calculated individual wholesale rates by using individual peaking factors for each wholesale
15 customer, but did not reflect all of the differences in how each wholesale customer is served by
16 Providence Water. In particular, it did not address the differences in the infrastructure used to
17 deliver water to each wholesale customer.

18
19 **Q. Could you please provide a brief overview of how the New COSS addressed each issue?**

20 A. Yes. The 5 primary issues were addressed as follows:

21
22 1. **Transmission and Distribution Labor Cost Allocation.** The New COSS allocates all
23 T&D costs (including Labor) based on the proportion of Providence Water's pipe network
24 that each customer uses based on a hydraulic model analysis conducted by PARE
25 Engineering (PARE)

26
27 2. **Central Operations Facility (COF) Allocation.** The New COSS adjusts the allocation
28 such that 6.67% of commercial services square footage is attributed to wholesale
29 customers. This is then used (along with the square footage of other areas of the COF) to

1 develop an allocator for the net book value of the COF, which ultimately feeds the
2 development of capital cost allocators.

3
4 **3. Non-Revenue Water (NRW) Allocation.** The New COSS allocates a portion of NRW
5 (Ridge Road Tank Draining) directly to retail customers and refines the allocation of NRW
6 using the results of PARE's hydraulic model analysis.

7
8 **4. Pumping Cost Allocation.** The New COSS differentiates between the gravity fed low
9 service system, which is used by all customers, and the pumped high service system, which
10 is used by retail customers, Greenville, Lincoln and Smithfield only.

11
12 **5. Unidirectional Flushing Cost Allocation.** The New COSS allocates the cost of the
13 unidirectional flushing (UDF) program in proportion of the inch-miles of mains used by
14 each customer, as determined by PARE's hydraulic model analysis. Only inch-miles for
15 mains 12 inches and smaller were considered because this is the largest size main flushed
16 by Providence Water as part of this program.

17
18 These issues were covered in great detail in my April 1, 2021 compliance testimony and in a
19 technical session held on May 4, 2021.

20
21 **PROPOSED REBUTTAL MODIFICATIONS**

22 **Q. Based on your review of testimony, and any other relevant factors, are there any revisions**
23 **you would propose for the New COSS to improve alignment with the Commission's**
24 **directives?**

25 A. Yes. I would propose one modification.

26
27 **Q. Please explain the proposed modification.**

28 A. The direct testimony of Division witness Jerry Mierzwa suggests that the COSS should reflect
29 the proportion of Providence Water's retail customers which use the high service distribution
30 system, highlighting the fact that Providence Water identified which wholesale customers use the
31 high service system, but did not make the same distinction for retail (Page 4, Line 7 to Page 6). As

1 a result, the New COSS, as filed, attributes the cost of pumping to retail based on the demands of
2 *all* retail customers, even though some customers are served by the low service system exclusively.
3 Providence Water believes Mr. Mierzwa's suggested modification is reasonable. Therefore,
4 Providence Water has estimated the demands of these customers and revised its COSS to reflect
5 this distinction. This revision is reflected in the COSS schedules attached to my rebuttal testimony.
6

7 **Q. Could you identify which schedules you modified to make this distinction?**

8 A. Yes. Schedules HJS 16 through 19 were modified to split the demand between the high and low
9 service groupings. I assumed the retail demands, in total, would remain the same. I used the
10 estimated demands for high service retail and the total for both to solve for the remaining low
11 service demands. The allocations for "high service and retail" on HJS-17 and 18 were modified to
12 allocate these costs to high service retail and the high service wholesale customers (Greenville,
13 Lincoln and Smithfield) only. This was also reflected in the calculation of the volumetric rates on
14 HJS-19. Note that Providence Water is not proposing additional rate classes. This modification
15 reflects that the fact that only a portion of the retail class uses the pump stations.
16

17 **TWO COST ALLOCATION APPROACHES**

18 **Q. Mr. Smith, what were the two major cost allocation approaches you used in the New**
19 **COSS?**

20 A. Transmission and distribution (T&D) costs were allocated using data from a hydraulic analysis
21 performed by PARE. The remaining costs were allocated using the base-extra capacity method.
22

23 **Q. Mr. Smith, how did you use the base-extra capacity method to allocate the non-T&D costs**
24 **in the New COSS?**

25 A. I determined the base, maximum day and maximum hour demands of each customer class using
26 monthly billing information, daily and hourly demands (for wholesale) and daily production data.
27 This approach is described in detail in my original direct testimony filed with Providence Water's
28 initial rate application. These demands are representative of each customer class's *use* of
29 Providence Water's source of supply, treatment and pumping infrastructure based on relative
30 volumetric demands. In the case of pumping costs, only those customers who use the pump stations

1 were included in those allocations. As noted above, at the Division's suggestion, Providence Water
2 has extended this distinction to retail customers as well. In general, the presumption is that each
3 class's use of source of supply, treatment and pumping infrastructure can be approximated using
4 these estimated demands.

5
6 **Q. Mr. Smith, how did you use the hydraulic model to allocate the T&D costs in the New**
7 **COSS?**

8 A. T&D costs are allocated based on data generated by the hydraulic model using essentially two
9 steps. First the mains which are used by a customer are determined. Second, the proportion of
10 those mains (based on relative draw rates) is determined. In other words, the hydraulic model
11 approach identifies the universe of mains that each customer uses and determines each customer's
12 proportionate share of those mains only. The result is a breakdown of mains by length and diameter
13 for each individual wholesale customer and retail (in total). T&D costs were allocated based on
14 each class's proportionate share of the water mains.

15
16 **Q. Why did Providence Water decide to utilize data derived from a hydraulic analysis for**
17 **the purposes of allocating costs in its revised COSS?**

18 A. The Commission ordered Providence Water to prepare a revised COSS that resulted in
19 individual wholesale rates that took "into account all relevant factors, in a manner that is fair to all
20 affected parties,". Given that all of Providence Water's customers, both wholesale and retail, are
21 served using the same raw water source and same treatment plant, we knew that the primary
22 differentiator between the wholesale customers was the way in which Providence Water's system
23 of pumps and pipes is used to deliver water to each of the wholesale customers. As for the pumps,
24 it was obvious that pumping was required to deliver water to some wholesale customers and not
25 for others. The solution with regard to pumping costs was simply to identify the costs associated
26 with pumping and allocate them to customers who required the use of pumps to deliver water.
27 What we did not know is how Providence Water's system of pipes was used to deliver water to
28 each wholesale customer. In an effort to gain that information, Providence Water engaged PARE
29 to perform a hydraulic modeling analysis on the transmission and distribution system. As described
30 in materials submitted by PARE, they were able to model the way in which water was delivered

1 to each wholesale customer under various demand scenarios such that it was possible to determine
2 which pipes were used to deliver water to each customer. This data allowed for the allocation of
3 the costs associated with constructing, operating, and maintaining the T&D system in a way that
4 better reflects how these assets are used to meet both the average and peak demands of each
5 wholesale customer than if these costs had been allocated based on peaking factors.

6
7 **Q. Did any of the other parties in this docket suggest that Providence Water should use a**
8 **hydraulic model to inform the cost allocation process?**

9 A. Yes, BCWA advocated for the use of a hydraulic model. In a September 23, 2020 letter from
10 BCWA's attorney, Joseph Keough, to Providence Water's attorney, Michael McElroy, Mr.
11 Keough says:

12 "In addition, during the litigation of this Docket, Providence took the position that it
13 needed to study a number of issues to properly calculate individual wholesale rates. One of the
14 issues Providence sought to study was the way each wholesale customer uses individual assets
15 such as reservoirs, pump stations and transmission mains. To that end, if Providence plans to
16 assign usage of transmission facilities to each wholesale customer, the BCWA requests that
17 Providence run a hydraulic model. **This hydraulic model could be run for average day and**
18 **peak day and should be able to determine the percentage capacity of each storage tank,**
19 **pump station, and section of transmission main attributable to each wholesale customer."**
20 *(September 23, 2020 letter from Joseph Keough to Michael McElroy, Emphasis added.)*

21
22 **Q. Why do you believe that using the data from the hydraulic model results in a more**
23 **accurate allocation of costs than would result from the use of peaking factors?**

24 A. Initially my confidence in the hydraulic model data was based on my knowledge that utilities
25 across the country rely on information provided by hydraulic models to make critical capital
26 planning and operational decisions. My confidence in the data from the hydraulic model increased
27 when I noted that the results of the analysis contradicted key assumptions that were used in
28 previous COSSs prepared for Providence Water. Specifically, in previous COSSs Providence
29 Water's system of pipes were divided into two categories, Transmission and Distribution, based
30 on the diameter of the pipe, with pipe having a diameter of greater than 12-inches being designated

1 as Transmission and pipe 12-inches and smaller being designated as Distribution. Since wholesale
2 customers do not benefit from distribution pipes, none of the costs associated with pipes in the
3 Distribution category were allocated to wholesale customers. However, as shown on Table 2 of
4 the March 4, 2021 PARE memorandum (PARE Memorandum), data from the hydraulic model
5 indicates that pipe with a diameter less than 12-inches is used to deliver water to several of the
6 wholesale customers. Similarly, in previous COSSs, costs associated with pipes in the
7 Transmission category are allocated to wholesale customers based on their average and peak
8 demands. This results in wholesale customers being allocated a share of the costs associated with
9 all pipes in the Transmission category regardless of whether pipes of a given diameter are actually
10 used to serve them. In the case of KCWA, this resulted in KCWA being allocated a portion of the
11 costs for all pipes ranging in size from 16-inches to 120-inches in diameter despite the fact that the
12 only pipes used to serve KCWA are 78-inches in diameter or larger.

13
14 **Q. Isn't it inconsistent to use two different approaches (one for T&D and another for**
15 **everything else) within the same cost of service study?**

16 A. Two different approaches were used, but each represents the best and most accurate approach
17 for that component of the system. The most equitable method of cost allocation isn't necessarily
18 the most consistent across all functional components of a water system because they all function
19 differently. The question should be: what is the most just and reasonable method for each major
20 functional component of the water system? One unrelated example is the costs associated with
21 customer service. Customer service costs are (without dispute) allocated based on the number of
22 bills. A more *consistent* approach might be to allocate everything (including customer service
23 costs) based on customer volumes, but this would obviously not be just and reasonable because
24 each customer gets one bill per month regardless of how much water they use.

25
26 The reason two approaches were used is because Providence Water now has a more precise method
27 for determining how each customer class uses its T&D system. The old approach split the T&D
28 system into two components. This breakdown was essentially agreed upon by the parties without
29 any analysis to determine its validity. Stated differently, no party has ever questioned the logic that

1 some mains are not used at all by some customers. Historically, this has meant that 12 inch and
2 smaller mains were assumed to not be used by wholesale customers.

3
4 The hydraulic model simply brings a more precise and accurate method to bear on the same
5 question: how do we recognize the fact that not all mains are used by all customers? The old
6 approach simply used “12 inches”. The new approach uses the same hydraulic model that
7 Providence Water uses day in and day out for critical operational decisions and evaluates every
8 single pipe segment in Providence Water’s system. Segments which are not used by a customer
9 are excluded from their allocation. Segments which are used are split based on relative flow rates.
10 This represents a dramatic increase in precision over the old approach in terms of recognizing the
11 infrastructure used by each customer.

12
13 The base-extra capacity approach was maintained for source of supply, treatment and pumping
14 because it remains the most accurate method. Excluding the pumping distinction, there is no partial
15 use of these assets. Each customer uses every component of the water treatment plant, for example.
16 Accordingly, it remains appropriate to use the base-extra capacity method for these components.

17
18 **Q. What would be the implications of using the base-extra capacity approach for all**
19 **components, rather than two different approaches?**

20 A. This would be more consistent, but it would be less accurate for the reasons stated above. This
21 is highlighted by the fact that Providence Water’s largest wholesale customers use the least amount
22 of pipe infrastructure to receive their water. The old approach allocated T&D costs to them based
23 on their volumetric demand, which overstated the amount of infrastructure they actually use.

24
25 **Q. Mr. Smith, by using these two approaches did Providence Water use two sets of peaking**
26 **factors, one for T&D, and another for everything else?**

27 A. No. No peaking factors were used for the T&D allocation. PARE ran the hydraulic model under
28 base, maximum day and maximum hour scenarios for Providence Water’s system as a whole.
29 Draw rates, not peaking factors, were used to allocate each pipe segment. PARE evaluated the
30 relative flow (draw rate) through each pipe segment to determine each customer’s share and did

1 not use peaking factors. As noted above this is more accurate than the alternative of assuming a
2 customer's use of Providence Water's pipe network is exactly proportional to customer demand.

3
4 **Q. Mr. Smith, if the hydraulic model analysis is more precise and accurate, why not use the**
5 **draw rates to calculate peaking factors as Greenville-Lincoln witness Jason Mumm has**
6 **suggested?**

7 A. This is a reference to Table 1 of the PARE Memorandum. The data in this table are not
8 appropriate to use for calculating peaking factors. They represent the relative flow under system-
9 wide base, maximum day and maximum hour scenarios. While there is a relationship between the
10 two (draw rate vs. peaking factor) they are not identical. The draw rate is a rate of flow in gallons
11 per minute. Peaking factors are determined on a daily and hourly basis. If the rate of flow changes
12 at all over those periods, then the draw rate and demand (peaking factor) will not be the same. A
13 simple example is a wholesale customer fed by pumps. A draw rate of 3,000 gallons per minute
14 (gpm), expressed as a daily number would be 4.32 million gallons per day (mgd) (3,000 gpm X
15 1,440 min./day). A pumped customer might have just one draw rate. If the pump is on, its 3,000
16 gpm. If it's off, it's 0 gpm. Using the draw rates alone would lead you to conclude that this
17 customer has no extra capacity demand because average draw rate is equal to the maximum day
18 and hour draw rates. This conclusion ignores the fact that, at times, the draw rate is 0 gpm, but
19 Providence Water must still maintain a water system with sufficient capacity to deliver 3,000 gpm
20 when it is needed.

21
22 **TESTIMONY OF OTHER PARTIES**

23 **Q. Are there elements of the testimony presented by other parties that you would like to**
24 **address?**

25 A. Yes, I would like to address certain components of testimony submitted by Mr. Jason Mumm
26 on behalf of the GWD and the LWC; testimony submitted by Mr. Michael Maker on behalf of the
27 BCWA; and testimony submitted by Mr. John Guastella on behalf the SWSB.

1 **Q. Please address the testimony of Mr. Mumm.**

2 A. I would like to point out that Mr. Mumm mischaracterizes the allocation of T&D costs to
3 wholesale customers when he says, “Providence used two different peaking factors in the same
4 cost-of-service study: one to allocate the T&D costs and another to allocate all other costs.”

5

6 **Q. How is this a mischaracterization?**

7 A. As described previously, T&D costs were not allocated using peaking factors. They were
8 allocated based on an estimate of the inch-miles of pipe used to serve each of the wholesale
9 customers and the retail customer classes. The estimate of the inch-miles of pipe used to serve
10 each wholesale customer was developed based on the hydraulic analysis performed by PARE.
11 While the hydraulic analysis took in to account the peaking characteristics of the system, no costs
12 were allocated based on the peak demands utilized in the hydraulic analysis.

13

14 **Q. Please address the testimony of Mr. Maker.**

15 A. In his testimony, Mr. Maker references testimony I have provided in previous Providence Water
16 rate filings and makes reference to cost of service studies I have prepared for the City of Newport,
17 pointing out that the Newport model allocates costs to Newport’s wholesale customers based on
18 their peaking factors. I believe he has misinterpreted the meaning of the testimony he references
19 and does not fully understand the way in which wholesale rates are calculated for Newport Water.

20

21 With regard to my testimony that Mr. Maker references from Docket 3832, Mr. Maker seems to
22 be implying that Providence Water’s wholesale rates have historically not been calculated using
23 cost of service principles, when in fact the purpose of my testimony in that docket was to explain
24 that the proposed increases to wholesale rates were greater than the proposed increases to retail
25 rates because wholesale rates in the previous docket (Docket 3684) had been set to recover less
26 than the full cost of providing wholesale service while retail rates had been set to recover more
27 than the cost of providing retail service. As a result, the required increase to get wholesale rates to
28 full cost of service was greater than the increase to get retail rates to full cost of service.

29

1 With regard to the wholesale rates calculated for Newport Water, it is true that those rates are
2 determined in part by using peaking factors for the individual wholesale customers, but Mr. Maker
3 fails to recognize that peaking factors play no part in the allocation of T&D costs to Portsmouth
4 Water and Fire District and have only a small impact on the allocation of T&D costs to the US
5 Navy.

6
7 **Q. Please address the testimony of Mr. Gaustella.**

8 I would like to draw attention to a section of Mr. Gaustella's testimony beginning on page 3.
9

10 **Q. What is the objective of a COSS study?**

11 A. The objective of a COSS is to estimate the cost of serving each class of customer and
12 to design rates that reasonably recover those costs.

13 **Q. Why does a COSS produce an estimated instead of actual costs to serve each**
14 **customer class?**

15 A. Of the total cost of providing water service to all customers, there are few costs that
16 are directly identifiable with specific customer classes. Accordingly, most costs must be
17 allocated to customer classes on the basis of considerable judgment as to allocation
18 methods and factors that, while reasonably determined, nonetheless produce only good
19 estimates of costs applicable to each class. During the nearly 5 decades when I worked
20 first at the New York Public Service Commission and then as a utility consultant and
21 utility manager, it is abundantly clear to me that each water system I have examined has
22 unique characteristics and demands placed upon it, while generally having some things
23 in common.

24
25 Generally, sound water systems are designed and operated to meet both that system's
26 average and maximum demands which reflect the diversity of the demands of all
27 customers and not all customers or customer classes impose their maximum demands at
28 the same time. Customer demands also vary in terms of total quantity for any period.

29 The allocation factors for any particular system, therefore, require judgment that is
30 applied to a complex array of design criteria, operational and water supply characteristics,

1 demand data, and voluminous accounting and billing data. The data must be organized
2 to reflect the functions for which the water system is designed and operated, recognizing
3 that various facilities serve multiple functions. Customer class allocations are then made
4 by applying the varying consumption patterns of the different customer classes, some of
5 which must be estimated. Moreover, it is not uncommon that the direct results of cost
6 allocations must be adjusted in implementing a tariff design in order to reflect various
7 policies of the utility and its regulator. That is often one reason why tariff design typically
8 differs from pure cost of service results.

9 *(Direct Testimony of John Guastella Page 3, Line 3 through Page 4, Line 8)*
10

11 **Q. Why is this section of Mr. Gaustella's testimony important?**

12 A. This section of Mr. Guastella's testimony clearly articulates one of the shortcomings of water
13 utility ratemaking which is that due to the complexity of water systems and the difficulties
14 associated with gathering data specific to the way in which each customer utilizes the system to
15 meet its demand, in many cases it is necessary to allocate costs based on assumptions about how
16 the system is used to meet customer demands. The use of peaking factors to allocate costs is one
17 example of the use of assumptions in the allocation process. Since most utilities do not have a
18 detailed understanding of how their system is used to meet peak demands, many of the costs
19 presumed to be associated with meeting peak demands are allocated based on each customer's or
20 customer class's peaking factors. However, if information, such as data from a hydraulic model
21 (which is not available to most utilities due to cost), provides more insight into how the system is
22 used to meet peak demands is available, then use of that information to inform the cost allocation
23 process will yield a more accurate allocation of costs and more equitable rates.
24

25 **SUPPORTING SCHEDULES AND GRADUALISM OPTIONS**

26 **Q. Please overview any supporting schedules to your testimony.**

27 A. I have attached Schedule HJS-1 and HJS-13a through HJS-25. Schedule HJS-1 summarizes the
28 revenues which would be recovered under cost of service rates as compared to the revenue
29 requirement for the second rate year ending June 30, 2022. The remaining schedules are the same
30 as those included with my April 1, 2021 compliance testimony supporting Providence Water's

1 new cost of service (as modified to accommodate the Division's suggestion regarding pumping
2 costs).

3

4 **Q. Does Providence Water have a position on whether gradualism should be implemented?**

5 A. Given the significant increases for some of the wholesale customers and SWSB in particular,
6 Providence Water believes that some application of gradualism is appropriate.

7

8 **Q. Does Providence Water have an opinion on how gradualism should be implemented?**

9 A. Providence Water believes that the approach to gradualism proposed by the Division's witness,
10 Mr. Mierzwa, is a reasonable approach. Mr. Mierzwa's proposal involves adjusting wholesale
11 volume rates by one-third of the amount suggested by the COSS, but limiting the increase to any
12 one customer's rate to 12%. The rates resulting from this application of gradualism are shown on
13 Schedule HJS-22a.

14

15 **Q. Mr. Smith does this conclude your testimony.**

16 A. Yes, it does.

Schedule HJS-1: Cost of Service Summary

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Description	Existing Rates FY 2022	COS Rate Year FY 22 Adj.	COS Rate Year FY 2022
Revenue			
Service Charge	\$ 10,609,165	\$ -	\$ 10,609,165
East Smithfield Debt Surcharge	\$ 82,451	\$ -	\$ 82,451
Retail Sales	\$ 49,610,436	\$ 480,195	\$ 50,090,631
Wholesale Sales	\$ 19,198,131	\$ (490,492)	\$ 18,707,639
Private Fire Protection	\$ 4,191,361	\$ -	\$ 4,191,361
Retail FPSC	\$ 1,989,631	\$ -	\$ 1,989,631
Public Fire Protection	\$ 2,085,114	\$ -	\$ 2,085,114
Miscellaneous Revenue [D]	\$ 1,543,163	\$ -	\$ 1,543,163
TOTAL REVENUE	\$ 89,309,453	\$ (10,297)	\$ 89,299,155
Total Rate Revenues	\$ 87,766,290	\$ (10,297)	\$ 87,755,993
Expenses			
Operations			
Operations and Maintenance	\$ 37,045,658	\$ -	\$ 37,045,658
Insurance	\$ 2,051,057	\$ -	\$ 2,051,057
Chemical & Sludge	\$ 3,600,000	\$ -	\$ 3,600,000
City Service	\$ 839,167	\$ -	\$ 839,167
Property Taxes	\$ 7,934,311	\$ -	\$ 7,934,311
Capital Reimbursement	\$ (1,945,605)	\$ -	\$ (1,945,605)
Net Operations [B]	\$ 49,524,587	\$ -	\$ 49,524,587
Capital			
Capital Fund	\$ 2,127,000	\$ -	\$ 2,127,000
Western Cranston Fund	\$ 40,000	\$ -	\$ 40,000
IFR Fund	\$ 31,300,000	\$ -	\$ 31,300,000
Meter Replacement Fund	\$ 1,000,000	\$ -	\$ 1,000,000
Vehicle/Equipment Fund	\$ 1,500,000	\$ -	\$ 1,500,000
Lead Service Replacement Fund	\$ 2,000,000	\$ -	\$ 2,000,000
E. Smithfield Debt Service	\$ 82,451	\$ -	\$ 82,451
Revenue Reserve Fund ⁽¹⁾ [C]	\$ 429,742	\$ -	\$ 429,742
Capital [A]	\$ 38,479,194	\$ -	\$ 38,479,194
TOTAL EXPENSES	\$ 88,003,781	\$ -	\$ 88,003,781
Operating Reserve (Unrestricted) ⁽²⁾	\$ 1,289,226	\$ -	\$ 1,289,226
Total Incl. Reserves	\$ 89,293,007	\$ -	\$ 89,293,007
Net Revenue Requirement	\$ 87,749,844		\$ 87,749,844
Revenues Over (Under) Expenses⁽³⁾	\$ 16,446		\$ 6,148
Total Increase to Break-Even ⁽⁴⁾			0.00%
Rate Revenue Increase to Break-Even⁽⁵⁾			0.00%

Notes:

- (1) Revenue Reserve is $((A+B)-C)-(D)) \times .005$
- (2) Operating Reserve is $((A+B)-C)-(D)) \times .015$
- (3) Slight revenue surplus due to rounding
- (4) Based on Total Revenues
- (5) Rate Revenues Only, Excludes East Smithfield

Schedule HJS-13a: Allocation Factors

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Factor	Description	CTA - Transmission & Distribution			CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only							
		Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire		
		All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.	
1	99.5% CTA Base 0.5% Direct Fire	99.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	100.00%
2	CTA Base, Max Day	56.57%	43.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
3	CTA Base, Max Day, Max Hour	33.02%	25.35%	41.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
4	99.5% CTASTL Base 0.5% Direct Fire	0.00%	0.00%	0.00%	0.00%	99.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	100.00%
5	CTASTL Base, Max Day	0.00%	0.00%	0.00%	0.00%	56.57%	43.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
6	CTASTL Base, Max Day, Max Hour	0.00%	0.00%	0.00%	0.00%	33.02%	25.35%	41.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
7	HSR Base	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	100.00%
8	HSR Base, Max Day	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	56.57%	43.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
9	HSR Base, Max Day, Max Hour	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.02%	25.35%	41.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
10	99.5% Retail Base, 0.5% Direct Fire	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.50%	0.00%	0.00%	0.00%	0.50%	100.00%
11	Retail Base, Max Day	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	56.57%	43.43%	0.00%	0.00%	0.00%	100.00%
12	Retail Base, Max Day, Max Hour	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	33.02%	25.35%	41.63%	0.00%	0.00%	100.00%
13	100% CTA Base Inch-Miles (<=12")	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
14	100% M&S	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%
15	100% Billing	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%
16	50% M&S, 50% Billing	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	100.00%
17	100% Public Fire	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
18	As Pump Station Capacity	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.51%	15.75%	25.86%	12.50%	9.60%	15.76%	0.00%	0.00%	0.00%	100.00%
19	As Pump Station Electric Costs	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.70%	15.89%	26.09%	12.32%	9.46%	15.54%	0.00%	0.00%	0.00%	100.00%
20	As Storage Capacity	0.00%	0.00%	0.00%	0.00%	23.56%	18.09%	29.70%	6.84%	5.25%	8.63%	2.62%	2.01%	3.30%	0.00%	0.00%	0.00%	100.00%
21	As T&D Work/Service Orders	10.71%	8.22%	13.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	49.69%	0.01%	17.86%	100.00%
22	As T&D Contract Services	30.31%	23.27%	38.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.20%	0.00%	0.00%	100.00%
23	As T&D Plant Excl. M&S, Land, Structures	0.00%	0.00%	0.00%	0.00%	11.65%	8.94%	14.69%	3.38%	2.60%	4.26%	1.30%	0.99%	1.63%	0.00%	0.00%	50.55%	100.00%
24	As Total Plant Excl. Gen. Plant	17.12%	13.14%	21.58%	0.00%	23.93%	2.73%	0.61%	0.16%	0.12%	0.21%	0.07%	0.05%	0.08%	17.97%	0.00%	2.21%	100.00%
25	As Total Plant Excl. Land, COF	19.34%	14.85%	24.38%	0.00%	14.31%	3.06%	0.66%	0.18%	0.14%	0.22%	0.07%	0.06%	0.09%	20.30%	0.00%	2.33%	100.00%
26	As Total Plant Excl. Land	19.78%	14.56%	23.90%	0.00%	13.60%	2.88%	0.62%	0.17%	0.13%	0.21%	0.33%	0.05%	0.09%	20.67%	0.39%	2.61%	100.00%
27	As Central Operations Facility Square Footage	24.42%	11.44%	18.78%	0.00%	6.06%	0.96%	0.21%	0.06%	0.04%	0.07%	3.06%	0.02%	0.03%	24.62%	4.59%	5.66%	100.00%
28	As Labor O&M Excl. A&G	3.15%	2.42%	3.97%	7.02%	41.12%	0.00%	0.00%	0.00%	0.00%	0.00%	14.62%	0.00%	0.00%	0.00%	22.23%	5.46%	100.00%
29	As Non-Labor O&M Excl. A&G	8.74%	6.71%	11.02%	1.98%	16.62%	11.79%	0.00%	2.43%	1.86%	3.06%	1.48%	1.14%	1.87%	10.66%	17.92%	2.73%	100.00%
30	As Total O&M Excl. A&G	4.21%	3.24%	5.31%	6.06%	36.47%	2.24%	0.00%	0.46%	0.35%	0.58%	0.28%	0.22%	0.35%	13.87%	21.41%	4.94%	100.00%
31	As Total Insurance Before Adjustment	6.37%	4.89%	8.03%	4.12%	27.00%	6.79%	0.00%	1.40%	1.07%	1.76%	0.85%	0.65%	1.07%	12.34%	19.75%	3.89%	100.00%
32	As Total Chemicals Before Adjustment	0.00%	0.00%	0.00%	0.00%	82.07%	17.64%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.30%	100.00%
33	As Total Revenue Requirement Before Reserves	9.53%	7.30%	11.99%	2.68%	29.92%	6.86%	0.34%	0.47%	0.36%	0.59%	0.21%	0.16%	0.26%	14.59%	11.67%	3.07%	100.00%
34	As Retail Req. Excl. Bad Debt	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.70%	0.52%	0.86%	48.94%	38.93%	10.05%	100.00%

Factor	Description	Base	MDEC	MHEC	Total
1	100% CTA Base	100.00%			100.00%
2	CTA Base, Max Day				
	System Demand (Ccf/Day)	65,720	50,462	-	116,182
	Allocation Factor (%)	56.57%	43.43%	0.00%	100.00%
3	CTA Base, Max Day, Max Hour				
	System Demand (Ccf/Day)	65,720	50,462	82,860	199,042
	Allocation Factor (%)	33.02%	25.35%	41.63%	100.00%
4	100% Retail Base	100.00%			100.00%
5	Retail Base, Max Day	56.57%	43.43%	0.00%	100.00%
6	Retail Base, Max Day, Max Hour	33.02%	25.35%	41.63%	100.00%

Schedule HJS-13b: Pumping and Storage Allocation (Factors 18, 19 and 20)

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Station	Capacity (mgd)	Factor	Percent of Capacity	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only						
				Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire	
				<i>All Inch-Miles</i>	<i>All Inch-Miles</i>	<i>All Inch-Miles</i>	<i>Inch-Miles <=12"</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>5/8" Eq.</i>
Neutaconkanut	38.6	9	35.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.72%	9.00%	14.78%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bath Street	28.9	9	26.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.79%	6.75%	11.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aqueduct	11.5	12	10.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.50%	2.69%	4.41%	0.00%	0.00%	0.00%	
Fruit Hill	4.3	12	3.97%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.31%	1.01%	1.65%	0.00%	0.00%	0.00%	
Alpine Estates	1.7	12	1.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.53%	0.41%	0.67%	0.00%	0.00%	0.00%	
Cranston	3.8	12	3.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.16%	0.89%	1.47%	0.00%	0.00%	0.00%	
Dean Estates	5.1	12	4.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.55%	1.19%	1.96%	0.00%	0.00%	0.00%	
Greenville	2.5	12	2.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.77%	0.59%	0.97%	0.00%	0.00%	0.00%	
Ashby Street	1.4	12	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.44%	0.34%	0.55%	0.00%	0.00%	0.00%	
Structure "D" PS	8.0	12	7.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.43%	1.87%	3.06%	0.00%	0.00%	0.00%	
Waltham	2.7	12	2.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%	0.62%	1.02%	0.00%	0.00%	0.00%	
Totals	108.7		100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.51%	15.75%	25.86%	12.50%	9.60%	15.76%	0.00%	0.00%	0.00%	
Factor 18 - As Pump Station Capacity			100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.51%	15.75%	25.86%	12.50%	9.60%	15.76%	0.00%	0.00%	0.00%	

Station	Power Cost	Factor	Percent of Power	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only					
				Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire
				<i>All Inch-Miles</i>	<i>All Inch-Miles</i>	<i>All Inch-Miles</i>	<i>Inch-Miles <=12"</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>
Neutaconkanut	\$ 321,096	9	37.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.46%	9.57%	15.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bath Street	\$ 212,118	9	24.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.23%	6.32%	10.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aqueduct	\$ 182,312	12	21.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.08%	5.43%	8.92%	0.00%	0.00%	0.00%
Fruit Hill	\$ 39,175	12	4.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.52%	1.17%	1.92%	0.00%	0.00%	0.00%
Alpine Estates	\$ 3,637	12	0.43%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.14%	0.11%	0.18%	0.00%	0.00%	0.00%
Cranston	\$ 17,420	12	2.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.68%	0.52%	0.85%	0.00%	0.00%	0.00%
Dean Estates	\$ 31,886	12	3.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.24%	0.95%	1.56%	0.00%	0.00%	0.00%
Greenville	\$ 23,469	12	2.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.91%	0.70%	1.15%	0.00%	0.00%	0.00%
Ashby Street	\$ -	12	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Structure "D" PS	\$ 7,048	12	0.83%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.27%	0.21%	0.34%	0.00%	0.00%	0.00%
Waltham	\$ 12,502	12	1.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.49%	0.37%	0.61%	0.00%	0.00%	0.00%
Totals	\$ 850,664		100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.70%	15.89%	26.09%	12.32%	9.46%	15.54%	0.00%	0.00%	0.00%
Factor 19 - As Pump Station Electric Costs			100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.70%	15.89%	26.09%	12.32%	9.46%	15.54%	0.00%	0.00%	0.00%

Reservoir/Tank	Capacity (mg)	Factor	Percent of Capacity	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only					
				Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire
				<i>All Inch-Miles</i>	<i>All Inch-Miles</i>	<i>All Inch-Miles</i>	<i>Inch-Miles <=12"</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>
Aqueduct Res	43.3	6	36.17%	0.00%	0.00%	0.00%	0.00%	11.94%	9.17%	15.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Neutaconkanut Res	42.1	6	35.17%	0.00%	0.00%	0.00%	0.00%	11.61%	8.92%	14.64%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Longview Res	24.8	9	20.72%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.84%	5.25%	8.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Lawton Hill Res.	5.0	12	4.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.38%	1.06%	1.74%	0.00%	0.00%	0.00%
Ridge Rd. Tank	3.5	12	2.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.97%	0.74%	1.22%	0.00%	0.00%	0.00%
Greenville Tank	1.0	12	0.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.28%	0.21%	0.35%	0.00%	0.00%	0.00%
Totals	119.7		100.00%	0.00%	0.00%	0.00%	0.00%	23.56%	18.09%	29.70%	6.84%	5.25%	8.63%	2.62%	2.01%	3.30%	0.00%	0.00%	0.00%
Factor 20 - As Storage Capacity			100.00%	0.00%	0.00%	0.00%	0.00%	23.56%	18.09%	29.70%	6.84%	5.25%	8.63%	2.62%	2.01%	3.30%	0.00%	0.00%	0.00%

Schedule HJS-13c: Inch-Miles (Base Demand)

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Pipe Size	Total	Retail	Bristol County	East Providence	Greenville	Kent County	Lincoln	Smithfield	Warwick
<6"	1.59	1.59	-	-	-	-	-	-	-
6	2,703.15	2,692.21	1.38	-	0.12	-	9.43	0.01	-
8	2,785.82	2,740.70	4.70	-	11.25	-	28.17	1.00	-
10	12.29	12.29	-	-	-	-	-	-	-
12	1,162.12	1,104.37	2.54	0.04	3.44	-	42.11	9.62	-
16	714.00	657.55	1.23	-	0.52	-	46.16	8.54	-
20	163.60	158.27	0.53	-	0.14	-	4.66	0.00	-
24	647.30	498.88	13.98	0.09	79.60	-	32.19	22.42	0.14
30	507.80	302.31	170.45	-	0.13	-	16.86	11.33	6.72
36	68.70	51.75	12.52	0.02	0.05	-	1.84	2.10	0.42
42	205.60	124.92	1.64	-	0.01	-	20.73	13.46	44.84
48	154.80	91.63	2.93	0.04	1.01	-	35.70	23.37	0.12
60	264.00	222.19	0.91	1.57	8.62	-	18.30	11.07	1.34
66	106.00	70.85	7.99	4.17	0.00	-	5.42	3.55	14.02
78	345.00	100.44	15.61	109.13	-	28.85	8.64	5.63	76.70
90	406.00	323.09	14.01	7.69	9.65	0.25	16.05	10.48	24.78
102	525.70	210.63	33.60	234.99	-	-	18.61	12.06	15.81
Totals	10,773.47	9,363.67	284.02	357.74	114.54	29.10	304.87	134.64	184.89
	100.00%	86.91%	2.64%	3.32%	1.06%	0.27%	2.83%	1.25%	1.72%
<=12"	6,664.97	6,551.16	8.62	0.04	14.81	-	79.71	10.63	-
	100.00%	98.29%	0.13%	0.00%	0.22%	0.00%	1.20%	0.16%	0.00%

Schedule HJS-13c: Inch-Miles (Maximum Day Demand)

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Pipe Size	Total	Retail	Bristol County	East Providence	Greenville	Kent County	Lincoln	Smithfield	Warwick
<6"	1.60	1.60	-	-	-	-	-	-	-
6	2,703.10	2,696.58	0.25	-	0.54	-	5.71	0.02	-
8	2,785.80	2,748.84	0.48	-	9.20	-	26.13	1.15	-
10	12.30	12.30	-	-	-	-	-	-	-
12	1,162.10	1,108.48	3.22	-	3.81	-	35.54	11.05	-
16	714.00	660.85	1.34	-	0.64	-	41.37	9.80	-
20	163.60	158.29	0.56	-	0.11	-	4.63	0.01	-
24	647.30	489.49	11.96	-	66.97	-	28.86	50.02	-
30	507.80	285.60	186.04	-	0.07	-	14.95	14.62	6.52
36	68.70	46.26	17.55	-	0.10	-	1.74	2.69	0.36
42	205.60	137.74	8.77	-	0.02	-	0.03	15.50	43.54
48	154.80	93.75	3.43	-	2.88	-	26.07	28.67	-
60	264.00	203.61	0.35	0.90	12.58	-	31.03	15.47	0.06
66	106.00	67.13	12.85	-	0.16	-	0.19	4.11	21.56
78	345.00	127.76	23.40	78.83	-	24.49	-	6.48	84.04
90	406.00	298.21	20.43	0.20	14.57	0.18	23.11	14.44	34.86
102	525.70	272.33	50.90	171.50	-	-	-	13.88	17.09
Totals	10,773.40	9,408.82	341.53	251.43	111.65	24.67	239.36	187.91	208.03
	100.00%	87.33%	3.17%	2.33%	1.04%	0.23%	2.22%	1.74%	1.93%

Schedule HJS-13c: Inch-Miles (Maximum Hour Demand)

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Pipe Size	Total	Retail	Bristol County	East Providence	Greenville	Kent County	Lincoln	Smithfield	Warwick
<6"	1.60	1.60	-	-	-	-	-	-	-
6	2,703.10	2,695.72	0.19	-	0.30	-	6.87	0.02	-
8	2,785.80	2,760.47	0.47	-	6.67	-	16.69	1.50	-
10	12.30	12.30	-	-	-	-	-	-	-
12	1,162.10	1,122.78	3.13	0.03	0.53	-	21.27	14.36	-
16	714.00	675.47	1.12	-	0.12	-	24.53	12.76	-
20	163.60	158.55	0.42	-	0.07	-	4.55	0.01	-
24	647.30	547.51	8.82	0.06	42.98	-	14.91	32.83	0.19
30	507.80	297.92	171.63	-	0.04	-	15.42	15.86	6.93
36	68.70	48.97	15.66	0.01	0.01	-	0.80	2.74	0.51
42	205.60	122.29	12.62	-	0.00	-	4.15	20.19	46.35
48	154.80	107.69	2.77	0.01	0.84	-	8.25	35.04	0.20
60	264.00	232.17	1.35	1.05	1.71	-	8.25	16.60	2.87
66	106.00	65.04	9.29	1.44	0.12	-	1.00	5.32	23.79
78	345.00	109.27	23.64	69.10	-	30.13	1.24	8.44	103.18
90	406.00	311.88	18.46	3.31	1.70	0.25	7.13	15.72	47.55
102	525.70	258.73	57.75	166.71	-	-	3.03	18.08	21.40
Totals	10,773.40	9,528.36	327.32	241.72	55.09	30.38	138.09	199.47	252.97
	100.00%	88.44%	3.04%	2.24%	0.51%	0.28%	1.28%	1.85%	2.35%

Schedule HJS-13d: T&D Labor Allocation (Factor 21)

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Description	Year	Factor	Total	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only						
				Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire	
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.	
Valve - Install	2019	3	\$ 17,734	\$ 5,855	\$ 4,496	\$ 7,383	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve - Install - TD	2019	3	\$ 13,701	\$ 4,524	\$ 3,473	\$ 5,703	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve - Locate	2019	3	\$ 741	\$ 245	\$ 188	\$ 309	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve - Raise Gate Box To Grade	2019	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve - Remove	2019	3	\$ 6,774	\$ 2,236	\$ 1,717	\$ 2,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve - Remove - TD	2019	3	\$ 755	\$ 249	\$ 191	\$ 314	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve - Repair / Repack	2019	3	\$ 28,008	\$ 9,248	\$ 7,101	\$ 11,660	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve - Replace Box Cover	2019	3	\$ 2,329	\$ 769	\$ 590	\$ 969	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Main - Install	2019	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Main - Remove	2019	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Main - Repair Leak	2019	3	\$ 115,527	\$ 38,145	\$ 29,289	\$ 48,093	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DigSafe - Pre-Mark	2019	3	\$ 398	\$ 131	\$ 101	\$ 165	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Leak Detection	2019	3	\$ 477	\$ 157	\$ 121	\$ 199	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Miscellaneous Work	2019	Indirect	\$ 2,630	\$ 282	\$ 216	\$ 355	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,307	\$ 0	\$ 470	
Report Leak	2019	3	\$ 9,774	\$ 3,227	\$ 2,478	\$ 4,069	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Shut Down Not	2019	15	\$ 22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22	\$ -
TD Collect Sample	2019	3	\$ 142	\$ 47	\$ 36	\$ 59	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trench - Check	2019	3	\$ 5,914	\$ 1,953	\$ 1,499	\$ 2,462	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Pressure	2019	3	\$ 279	\$ 92	\$ 71	\$ 116	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Quality Issue	2019	3	\$ 47	\$ 16	\$ 12	\$ 20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DigSafe - Blasting	2019	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DigSafe - Emergency	2019	3	\$ 5,209	\$ 1,720	\$ 1,321	\$ 2,168	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DigSafe - Freeform	2019	3	\$ 107	\$ 35	\$ 27	\$ 45	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DigSafe - Regular	2019	3	\$ 1,128	\$ 372	\$ 286	\$ 469	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DigSafe - Violation	2019	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3-Year Total (Direct Allocations)			\$6,223,596	\$666,570	\$511,813	\$840,418	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,092,737	\$321	\$1,111,735	
Indirect Allocation %			100.00%	10.71%	8.22%	13.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	49.69%	0.01%	17.86%	
3-Year Total (All Allocations)			\$6,255,138	\$ 669,949	\$ 514,407	\$ 844,678	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,108,412	\$ 323	\$ 1,117,370	
Factor 21 - As T&D Work/Service Orders			100.00%	10.71%	8.22%	13.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	49.69%	0.01%	17.86%	

Schedule HJS-13e: T&D Contract Services Allocation (Factor 22)

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Description	Year	Factor	Total	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only						
				Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire	
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.	
Uniforms	2017	Indirect	\$ 25,500	\$ 7,729	\$ 5,935	\$ 9,745	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,091	\$ -	\$ -
Markouts/Dig Safe	2017	3	\$ 31,727	\$ 10,476	\$ 8,044	\$ 13,208	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Switchboard Monitoring	2017	Indirect	\$ 2,929	\$ 888	\$ 682	\$ 1,119	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 240	\$ -	\$ -
Service Repair	2017	14	\$ 93,580	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 93,580	\$ -	\$ -
Police Details	2017	3	\$ 174,132	\$ 57,495	\$ 44,147	\$ 72,490	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
T&D Contractor	2017	3	\$ 47,871	\$ 15,806	\$ 12,136	\$ 19,928	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repair Leak on Service	2017	14	\$ 47,130	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 47,130	\$ -	\$ -
Road Restoration - Contractor	2017	3	\$ 590,536	\$ 194,984	\$ 149,715	\$ 245,838	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Telephone	2017	Indirect	\$ 8,719	\$ 2,643	\$ 2,029	\$ 3,332	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 715	\$ -	\$ -
Uniforms	2018	Indirect	\$ 7,100	\$ 2,152	\$ 1,652	\$ 2,713	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 582	\$ -	\$ -
Markouts/Dig Safe	2018	3	\$ 32,903	\$ 10,864	\$ 8,342	\$ 13,697	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Switchboard Monitoring	2018	Indirect	\$ 3,373	\$ 1,023	\$ 785	\$ 1,289	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 277	\$ -	\$ -
Police Details	2018	3	\$ 124,242	\$ 41,022	\$ 31,498	\$ 51,721	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
T&D Contractor	2018	3	\$ 143,850	\$ 47,497	\$ 36,469	\$ 59,884	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repair Leak on Service	2018	14	\$ 44,813	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 44,813	\$ -	\$ -
Road Restoration - Contractor	2018	3	\$ 538,228	\$ 177,713	\$ 136,453	\$ 224,062	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Telephone	2018	Indirect	\$ 10,860	\$ 3,292	\$ 2,528	\$ 4,150	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 890	\$ -	\$ -
Markouts/Dig Safe	2019	3	\$ 31,113	\$ 10,273	\$ 7,888	\$ 12,952	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Switchboard Monitoring	2019	Indirect	\$ 3,000	\$ 909	\$ 698	\$ 1,147	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 246	\$ -	\$ -
Police Details	2019	3	\$ 150,299	\$ 49,626	\$ 38,104	\$ 62,569	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
T&D Contractor	2019	3	\$ 120,574	\$ 39,811	\$ 30,568	\$ 50,194	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repair Leak on Service	2019	14	\$ 47,278	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 47,278	\$ -	\$ -
Road Restoration - Contractor	2019	3	\$ 620,956	\$ 205,028	\$ 157,427	\$ 258,501	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Misc. Expenses	2019	Indirect	\$ 9,767	\$ 2,960	\$ 2,273	\$ 3,732	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 801	\$ -	\$ -
3-Year Total (Direct Allocations)			\$ 2,839,230	\$ 860,594	\$ 660,790	\$ 1,085,045	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 232,800	\$ 0	\$ 0
Indirect Allocation %			100.00%	30.31%	23.27%	38.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.20%	0.00%	0.00%
3-Year Total			\$ 2,910,479	\$ 882,190	\$ 677,372	\$ 1,112,274	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 238,642	\$ -	\$ -
Factor 22 - As T&D Contract Services			100.00%	30.31%	23.27%	38.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.20%	0.00%	0.00%

Schedule HJS-13g: Central Operations Facility Square Footage for Allocation of COF Net Plant In Service (Factor 27)

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Description	Total (ft ²)	Factor	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only					
			Base	Max Day	Max Hour	Inch-Miles <=12"	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire
			All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.
1ST FLOOR / COMMON SPACE / Area 516 SF	516	Indirect	126	59	97	-	31	5	1	0	0	0	16	0	0	127	24	29
1ST FLOOR / COMMON SPACE / Area 731 SF	731	Indirect	178	84	137	-	44	7	2	0	0	1	22	0	0	180	34	41
1ST FLOOR / COMMON SPACE / Area 1637 SF	1,637	Indirect	400	187	307	-	99	16	3	1	1	50	0	0	403	75	93	
1ST FLOOR / COMMON SPACE / Area 10280 SF	10,280	Indirect	2,510	1,176	1,930	-	623	99	21	6	4	7	315	2	3	2,531	471	582
1ST FLOOR / MUSEUM / Area 1632 SF	1,632	10	-	-	-	-	-	-	-	-	-	-	1,624	-	-	-	-	8
1ST FLOOR / AUTOMOTIVE / Area 7680 SF	7,680	Indirect	1,875	878	1,442	-	465	74	16	4	3	5	235	1	2	1,891	352	435
1ST FLOOR / BOARD ROOM / Area 1041 SF	1,041	Indirect	254	119	195	-	63	10	2	1	0	1	32	0	0	256	48	59
1ST FLOOR / COMMERCIAL SERVICES / Area 9989 SF	9,989	N/A(1)	5,089	-	-	-	-	-	-	-	-	-	-	-	-	2,450	2,450	-
1ST FLOOR / ENGINEERING / Area 16804 SF	16,804	25	3,250	2,495	4,098	-	2,404	515	111	30	23	38	12	9	16	3,412	-	391
1ST FLOOR / FINANCE / Area 7232 SF	7,232	Indirect	1,766	827	1,358	-	438	70	15	4	3	5	221	1	2	1,780	332	409
1ST FLOOR / IT/ Area 6771 SF	6,771	Indirect	1,653	774	1,271	-	410	65	14	4	3	5	207	1	2	1,667	310	383
1ST FLOOR / SECURITY / Area 5731 SF	5,731	Indirect	1,399	655	1,076	-	347	55	12	3	2	4	175	1	2	1,411	263	325
1ST FLOOR / T&D / Area 14683 SF	14,683	21	1,573	1,207	1,983	-	-	-	-	-	-	-	-	-	-	7,297	1	2,623
1ST FLOOR / CENTRAL RECORDS / Area 5731 SF	5,731	Indirect	1,399	655	1,076	-	347	55	12	3	2	4	175	1	2	1,411	263	325
1ST FLOOR / PARKING GARAGE / Area 43924 SF	43,924	Indirect	10,724	5,023	8,248	-	2,660	423	91	24	19	31	1,345	8	13	10,813	2,014	2,487
1ST FLOOR / WAREHOUSE & STORAGE/ Area 1177 SF	1,177	3	389	298	490	-	-	-	-	-	-	-	-	-	-	-	-	-
1ST FLOOR / WAREHOUSE & STORAGE / Area 2777 SF	2,777	3	917	704	1,156	-	-	-	-	-	-	-	-	-	-	-	-	-
1ST FLOOR / WAREHOUSE & STORAGE / Area 5550 SF	5,550	3	1,833	1,407	2,310	-	-	-	-	-	-	-	-	-	-	-	-	-
2ND FLOOR - AREA 'H' COMMON SPACE / Area 772 SF	772	Indirect	188	88	145	-	47	7	2	0	0	1	24	0	0	190	35	44
2ND FLOOR - AREA 'H' COMMON SPACE / Area 3019 SF	3,019	Indirect	737	345	567	-	183	29	6	2	1	2	92	1	1	743	138	171
2ND FLOOR - AREA 'H' COMMON SPACE / Area 3946 SF	3,946	Indirect	963	451	741	-	239	38	8	2	2	3	121	1	1	971	181	223
2ND FLOOR - AREA 'H' DINING/CAFETERIA / Area 4575 SF	4,575	Indirect	1,117	523	859	-	277	44	10	3	2	3	140	1	1	1,126	210	259
2ND FLOOR - AREA 'H' FUTURE SPACE / Area 237 SF	237	Indirect	58	27	45	-	14	2	0	0	0	0	7	0	0	58	11	13
2ND FLOOR - AREA 'H' FUTURE SPACE / Area 540 SF	540	Indirect	132	62	101	-	33	5	1	0	0	0	17	0	0	133	25	31
2ND FLOOR - AREA 'H' FUTURE SPACE / Area 981 SF	981	Indirect	240	112	184	-	59	9	2	1	0	1	30	0	0	242	45	56
2ND FLOOR - GM/EXECUTIVE MANAGEMENT / Area 2491 SF	2,491	Indirect	608	285	468	-	151	24	5	1	1	2	76	0	1	613	114	141
2ND FLOOR - HUMAN RESOURCES (1)/ Area 1169 SF	1,169	Indirect	285	134	220	-	71	11	2	1	0	1	36	0	0	288	54	66
2ND FLOOR - HUMAN RESOURCES (2) / Area 2632 SF	2,632	Indirect	643	301	494	-	159	25	5	1	1	2	81	0	1	648	121	149
2ND FLOOR - LABORATORY /Area 837 SF	837	4	-	-	-	-	833	-	-	-	-	-	-	-	-	-	-	4
Total (Direct Allocations)	53,449		13,050	6,112	10,037	-	3,237	515	111	30	23	38	1,636	9	16	13,158	2,451	3,026
Indirect Allocation %	100.00%		24.42%	11.44%	18.78%	0.00%	6.06%	0.96%	0.21%	0.06%	0.04%	0.07%	3.06%	0.02%	0.03%	24.62%	4.59%	5.66%
Total (Direct Allocations)	165,085		40,306	18,879	31,000	-	9,998	1,591	343	92	71	116	5,054	29	48	40,642	7,570	9,348
Factor 27 - As Central Operations Facility Square Footage	100.00%		24.42%	11.44%	18.78%	0.00%	6.06%	0.96%	0.21%	0.06%	0.04%	0.07%	3.06%	0.02%	0.03%	24.62%	4.59%	5.66%

Schedule HJS-14a: Allocation of Rate Year FY 2022 Revenue Requirement

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Acct.	Description	Factor	Pro-Forma Rate Year	CTA - Transmission & Distribution			CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only							
				Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire		
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.	
Operation and Maintenance																				
Source of Supply																				
60110	Salary + Wages -SOSO	4	\$ 875,276	\$ -	\$ -	\$ -	\$ -	\$ 870,899	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	4,376
60120	Salary + Wages -SOSM	4	\$ 586,738	\$ -	\$ -	\$ -	\$ -	\$ 583,804	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	2,934
60210	Payroll Clearing -SOSO	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
60220	Payroll Clearing -SOSM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
60410	Employee Pension +Ben -SOSO	4	\$ 563,727	\$ -	\$ -	\$ -	\$ -	\$ 560,909	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	2,819
60420	Employee Pension + Ben -SOSM	4	\$ 351,839	\$ -	\$ -	\$ -	\$ -	\$ 350,080	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,759
60560	Overhead Rate Applied -SOSM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
61010	Purchased Power	4	\$ 790	\$ -	\$ -	\$ -	\$ -	\$ 786	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	4
62010	Material and Supplies -SOSO	4	\$ 5,866	\$ -	\$ -	\$ -	\$ -	\$ 5,837	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	29
62020	Material and Supplies - SOSM	4	\$ 18,893	\$ -	\$ -	\$ -	\$ -	\$ 18,798	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	94
63110	Contractual Service -Eng-SOSO	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
63120	Contractual Service-Eng-SOSM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
63610	Contractual Service Other-SOSO	4	\$ 13,827	\$ -	\$ -	\$ -	\$ -	\$ 13,758	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	69
63620	Contractual Service Other-SOSM	4	\$ 12,278	\$ -	\$ -	\$ -	\$ -	\$ 12,217	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	61
64210	Rental of Equipment-SOSO	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
64220	Rental of Equipment-SOSM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
65010	Transportation Expense-SOSO	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
65020	Transportation Expense-SOSM	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
Total Source of Supply Expense			\$ 2,429,234	\$ -	\$ -	\$ -	\$ -	\$ 2,417,088	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	12,146
Total Source of Supply Expense			Check \$ -																	
Pumping Expenses																				
61523	Fuel or Power Purchase -PPO	19	\$ 462,861	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 95,796	\$ 73,555	\$ 120,780	\$ 57,032	\$ 43,791	\$ 71,907	\$ -	\$ -	\$ -	\$ -	-
63523	Contractual Service Other-PPO	19	\$ 13,816	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,859	\$ 2,195	\$ 3,605	\$ 1,702	\$ 1,307	\$ 2,146	\$ -	\$ -	\$ -	\$ -	-
Total Pumping Expenses			\$ 476,677	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 98,655	\$ 75,750	\$ 124,385	\$ 58,734	\$ 45,098	\$ 74,053	\$ -	\$ -	\$ -	\$ -	-

Schedule HJS-14a: Allocation of Rate Year FY 2022 Revenue Requirement

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Acct.	Description	Factor	Pro-Forma Rate Year	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only						
				Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire	
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.	
Water Treatment Expenses																				
60130	Salary + Wages -WTO	4	\$ 2,642,302	\$ -	\$ -	\$ -	\$ -	\$ 2,629,090	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	13,212
60140	Salary + Wages - WTM	4	\$ 302,915	\$ -	\$ -	\$ -	\$ -	\$ 301,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,515
60430	Employee Pension+Benefit-WTO	4	\$ 1,576,798	\$ -	\$ -	\$ -	\$ -	\$ 1,568,914	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	7,884
60440	Employee Pension+Benefit-WTM	4	\$ 261,356	\$ -	\$ -	\$ -	\$ -	\$ 260,049	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,307
61530	Purchased Power-WTO	5	\$ 134,946	\$ -	\$ -	\$ -	\$ -	\$ 76,334	\$ 58,612	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
61540	Power Purchased -WTM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
61630	Fuel for Purchased Power-WTO	5	\$ 200,347	\$ -	\$ -	\$ -	\$ -	\$ 113,330	\$ 87,018	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
62030	Material and Supplies -WTO	5	\$ 217,299	\$ -	\$ -	\$ -	\$ -	\$ 122,919	\$ 94,381	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
62040	Material and Supplies -WTM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
63130	Contractual Service Eng-WTO	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
63140	Contractual Service Eng-WTM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
63630	Contractual Service Other-WTO	5	\$ 341,400	\$ -	\$ -	\$ -	\$ -	\$ 193,118	\$ 148,282	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
63640	Contractual Service Other-WTM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
64230	Rental of Equipment -WTO	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
64240	Rental of Equipment -WTM	5	\$ 3,799	\$ -	\$ -	\$ -	\$ -	\$ 2,149	\$ 1,650	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
65030	Transportation Expense-WTO	5	\$ 1,333	\$ -	\$ -	\$ -	\$ -	\$ 754	\$ 579	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
67530	Miscellaneous Expenses-WTO	5	\$ 204,372	\$ -	\$ -	\$ -	\$ -	\$ 115,606	\$ 88,766	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
67540	Miscellaneous Expenses - WTM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
Total Treatment Expense			\$ 5,886,867	\$ -	\$ -	\$ -	\$ -	\$ 5,383,663	\$ 479,287	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23,917
Check			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transmission + Dist. Expense																				
60150	Salary + Wages -T&DO	21	\$ 586,892	\$ 62,858	\$ 48,265	\$ 79,252	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 291,649	\$ 30	\$ 104,838
60160	Salary + Wages -T&DM	21	\$ 3,166,448	\$ 339,138	\$ 260,401	\$ 427,589	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,573,526	\$ 163	\$ 565,630
60250	Payroll Clearing-T&DO	21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
60260	Payroll Clearing -T&DM	21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
60450	Employee Pension+Benefit-T&DO	21	\$ 424,537	\$ 45,469	\$ 34,913	\$ 57,328	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 210,968	\$ 22	\$ 75,836
60460	Employee Pension+Benefit-T&DM	21	\$ 2,136,309	\$ 228,807	\$ 175,685	\$ 288,482	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,061,612	\$ 110	\$ 381,614
60550	Overhead Rate Applied-T&DO	21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
60560	Overhead Rate Applied -T&DM	21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Less: UDF Re-Allocation			\$ (1,216,668)	\$ (130,310)	\$ (100,056)	\$ (164,296)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (604,608)	\$ (63)	\$ (217,336)
Plus: UDF Re-Allocation			\$ 1,216,668	\$ -	\$ -	\$ 1,216,668	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
61550	Power Purchased-T&DO	21	\$ 10,474	\$ 1,122	\$ 861	\$ 1,414	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,205	\$ 1	\$ 1,871
62050	Material and Supplies -T&DO	21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
62060	Material and Supplies-T&DM	21	\$ 449,613	\$ 48,155	\$ 36,975	\$ 60,715	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 223,429	\$ 23	\$ 80,315
63150	Contractual Services Eng-T&DO	22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
63160	Contractual Services Eng-T&DM	22	\$ 47,278	\$ 14,330	\$ 11,003	\$ 18,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,876	\$ -	\$ -
63650	Contractual Service Other-T&DO	22	\$ 24,568	\$ 7,447	\$ 5,718	\$ 9,389	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,014	\$ -	\$ -
63660	Contractual Service Other-T&DM	22	\$ 1,002,834	\$ 303,967	\$ 233,395	\$ 383,245	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 82,227	\$ -	\$ -
65060	Transportation Expense -T&DM	21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
67550	Miscellaneous Exp -T&DO	21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
67560	Miscellaneous Exp-T&DM	21	\$ 44,079	\$ 4,721	\$ 3,625	\$ 5,952	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,904	\$ 2	\$ 7,874
Less: UDF Re-Allocation			\$ (80,512)	\$ (24,404)	\$ (18,738)	\$ (30,769)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (6,602)	\$ -	\$ -
Plus: UDF Re-Allocation			\$ 80,512	\$ -	\$ -	\$ 80,512	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Transmission & Distribution			\$ 7,893,031	\$ 901,302	\$ 692,047	\$ 1,136,370	\$ 1,297,180	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,865,202	\$ 289	\$ 1,000,642

Schedule HJS-14a: Allocation of Rate Year FY 2022 Revenue Requirement

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Acct.	Description	Factor	Pro-Forma Rate Year	CTA - Transmission & Distribution			CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only							
				Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire		
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.	
Customer Accounts Expense																				
60170	Salary+Wages-CAO	15	\$ 2,204,554	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
60270	Payroll Clearing -CAO	15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
60470	Employee Pension+Benefit-CAO	15	\$ 1,646,904	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
60570	Overhead Rate Applied-CAO	15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
62070	Material and Supplies-CAO	15	\$ 4,043	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
63670	Conratual Services Other -CAO	15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
65070	Transportation Expenses -CAO	15	\$ 3,002	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
67070	Bad Debt Expense	34	\$ 207,146	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,452	\$ 1,081	\$ 1,775	\$ 101,383	\$ 80,642	\$ 20,812	
67570	Miscellaneous Expenses-CAO	15	\$ 640,886	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Customer Accounts			\$ 4,706,534	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,452	\$ 1,081	\$ 1,775	\$ 101,383	\$ 4,580,031	\$ 20,812	
Check			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Administrative and General																				
60180	Salary+Wages -A&GO	28	\$ 6,467,811	\$ 203,802	\$ 156,485	\$ 256,955	\$ 454,168	\$ 2,659,732	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 945,594	\$ 1,437,802	\$ 353,275
60280	Payroll Clearing -A&GO	28	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
60480	Employee Pension+Ben-A&GO	28	\$ 4,768,330	\$ 150,251	\$ 115,367	\$ 189,437	\$ 334,831	\$ 1,960,861	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 697,130	\$ 1,060,005	\$ 260,448
60580	Overhead Rate Applied-A&GO	28	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
61580	Purchased Power-A&GO	29	\$ 196,840	\$ 17,203	\$ 13,209	\$ 21,690	\$ 3,898	\$ 32,709	\$ 23,204	\$ -	\$ 4,776	\$ 3,667	\$ 6,022	\$ 2,914	\$ 2,236	\$ 3,671	\$ 20,984	\$ 35,274	\$ 5,380	
61680	Fuel Or Power Purchased-A&GO	29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
62080	Material and Supplies -A&GO	29	\$ 716,310	\$ 62,604	\$ 48,069	\$ 78,932	\$ 14,185	\$ 119,029	\$ 84,442	\$ -	\$ 17,381	\$ 13,346	\$ 21,914	\$ 10,604	\$ 8,136	\$ 13,360	\$ 76,364	\$ 128,366	\$ 19,579	
63180	Contractual Service Eng-A&GO	29	\$ 135,951	\$ 11,882	\$ 9,123	\$ 14,981	\$ 2,692	\$ 22,591	\$ 16,026	\$ -	\$ 3,299	\$ 2,533	\$ 4,159	\$ 2,013	\$ 1,544	\$ 2,536	\$ 14,493	\$ 24,363	\$ 3,716	
63280	Contractual Service Acctg-A&GO	29	\$ 51,615	\$ 4,511	\$ 3,464	\$ 5,688	\$ 1,022	\$ 8,577	\$ 6,085	\$ -	\$ 1,252	\$ 962	\$ 1,579	\$ 764	\$ 586	\$ 963	\$ 5,502	\$ 9,250	\$ 1,411	
63380	Contractual Service Legal-A&GO	29	\$ 73,963	\$ 6,464	\$ 4,963	\$ 8,150	\$ 1,465	\$ 12,290	\$ 8,719	\$ -	\$ 1,795	\$ 1,378	\$ 2,263	\$ 1,095	\$ 840	\$ 1,379	\$ 7,885	\$ 13,255	\$ 2,022	
63480	Contractual Service Mgmt fees-A&GO	29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
63680	Contractual Service Other-A&GO	29	\$ 2,191,638	\$ 191,545	\$ 147,074	\$ 241,502	\$ 43,400	\$ 364,184	\$ 258,359	\$ -	\$ 53,180	\$ 40,833	\$ 67,050	\$ 32,443	\$ 24,893	\$ 40,875	\$ 233,644	\$ 392,751	\$ 59,905	
64280	Rental of Equipment-A&GO	29	\$ 2,686	\$ 235	\$ 180	\$ 296	\$ 53	\$ 446	\$ 317	\$ -	\$ 65	\$ 50	\$ 82	\$ 40	\$ 31	\$ 50	\$ 286	\$ 481	\$ 73	
65080	Transportation Expenses-A&GO	29	\$ 10,944	\$ 956	\$ 734	\$ 1,206	\$ 217	\$ 1,819	\$ 1,290	\$ -	\$ 266	\$ 204	\$ 335	\$ 162	\$ 124	\$ 204	\$ 1,167	\$ 1,961	\$ 299	
66780	Regulatory Commission Expense	29	\$ 579,065	\$ 50,609	\$ 38,859	\$ 63,808	\$ 11,467	\$ 96,223	\$ 68,263	\$ -	\$ 14,051	\$ 10,789	\$ 17,716	\$ 8,572	\$ 6,577	\$ 10,800	\$ 61,732	\$ 103,771	\$ 15,828	
67580	Miscellaneous Expenses- A&GO	29	\$ 458,162	\$ 40,042	\$ 30,746	\$ 50,486	\$ 9,073	\$ 76,133	\$ 54,010	\$ -	\$ 11,117	\$ 8,536	\$ 14,017	\$ 6,782	\$ 5,204	\$ 8,545	\$ 48,843	\$ 82,105	\$ 12,523	
Total Administration + General			\$ 15,653,314	\$ 740,105	\$ 568,275	\$ 933,131	\$ 876,470	\$ 5,354,594	\$ 520,714	\$ -	\$ 107,183	\$ 82,298	\$ 135,137	\$ 65,388	\$ 50,171	\$ 82,383	\$ 2,113,625	\$ 3,289,382	\$ 734,460	

Schedule HJS-14a: Allocation of Rate Year FY 2022 Revenue Requirement

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 Rate Year Ending June 30, 2022

Acct.	Description	Factor	Pro-Forma Rate Year	CTA - Transmission & Distribution			CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only						
				Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire	
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.
Insurance Fund (857)																			
62080	Material and Supplies -A&GO	29	\$ 16,500	\$ 1,442	\$ 1,107	\$ 1,818	\$ 327	\$ 2,742	\$ 1,945	\$ -	\$ 400	\$ 307	\$ 505	\$ 244	\$ 187	\$ 308	\$ 1,759	\$ 2,957	\$ 451
62080	Injuries and Damages	28	\$ 85,000	\$ 2,678	\$ 2,057	\$ 3,377	\$ 5,969	\$ 34,954	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,427	\$ 18,896	\$ 4,643
63680	Contract Services - Other A&GO	29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
65780	Ins. Gen. Liability	29	\$ 1,174,839	\$ 102,679	\$ 78,840	\$ 129,458	\$ 23,265	\$ 195,223	\$ 138,495	\$ -	\$ 28,507	\$ 21,889	\$ 35,942	\$ 17,391	\$ 13,344	\$ 21,911	\$ 125,246	\$ 210,536	\$ 32,112
65880	Insurance - W/C	28	\$ 794,279	\$ 25,028	\$ 19,217	\$ 31,555	\$ 55,774	\$ 326,628	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 116,124	\$ 176,569	\$ 43,384
67580	Misc. Expense	29	\$ 5,000	\$ 437	\$ 336	\$ 551	\$ 99	\$ 831	\$ 589	\$ -	\$ 121	\$ 93	\$ 153	\$ 74	\$ 57	\$ 93	\$ 533	\$ 896	\$ 137
	Funding Adjustment	31	\$ (24,561)	\$ (1,565)	\$ (1,202)	\$ (1,973)	\$ (1,011)	\$ (6,631)	\$ (1,669)	\$ -	\$ (344)	\$ (264)	\$ (433)	\$ (210)	\$ (161)	\$ (264)	\$ (3,030)	\$ (4,850)	\$ (955)
	Total Insurance Fund		\$ 2,051,057	\$ 130,699	\$ 100,354	\$ 164,786	\$ 84,422	\$ 553,747	\$ 139,360	\$ -	\$ 28,686	\$ 22,026	\$ 36,167	\$ 17,500	\$ 13,427	\$ 22,048	\$ 253,058	\$ 405,004	\$ 79,771
	Check		\$ -																
Chemical and Sludge Maintenance Fund (878)																			
61830	Chemicals - WTO	4	\$ 2,353,312	\$ -	\$ -	\$ -	\$ -	\$ 2,341,546	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
63130	Contract Services - Eng WTM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
63640	Contract Services - Other WTM	5	\$ 1,608,918	\$ -	\$ -	\$ -	\$ -	\$ 910,109	\$ 698,809	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
67540	Miscellaneous Expenses - WTM	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Funding Adjustment	32	\$ (362,230)	\$ -	\$ -	\$ -	\$ -	\$ (297,269)	\$ (63,886)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (1,076)
	Total Chemical and Sludge Maintenance Fund		\$ 3,600,000	\$ -	\$ -	\$ -	\$ -	\$ 2,954,386	\$ 634,923	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Check		\$ -																
TOTAL O&M			\$ 42,696,714	\$ 1,772,105	\$ 1,360,676	\$ 2,234,287	\$ 2,258,072	\$ 16,663,477	\$ 1,774,285	\$ -	\$ 234,523	\$ 180,074	\$ 295,689	\$ 143,075	\$ 109,777	\$ 180,259	\$ 5,333,269	\$ 8,274,707	\$ 1,882,439

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				Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire	
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.	
Other Expenditures																				
Property Taxes- Other Local Govern.																				
40820	Town of North Providence	9	\$ 315,712	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 104,242	\$ 80,040	\$ 131,429	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
40821	Town of Glocester	4	\$ 82,463	\$ -	\$ -	\$ -	\$ -	\$ 82,051	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 412	
40822	Town of West. Glocester	4	\$ 4,769	\$ -	\$ -	\$ -	\$ -	\$ 4,745	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 24	
40823	Town Harmony	4	\$ 217	\$ -	\$ -	\$ -	\$ -	\$ 216	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	
40824	Town Chepachet	4	\$ 139	\$ -	\$ -	\$ -	\$ -	\$ 138	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1	
40825	Town Scituate	5	\$ 7,031,103	\$ -	\$ -	\$ -	\$ -	\$ 3,977,250	\$ 3,053,853	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
40827	Town of Johnston	6	\$ 104,269	\$ -	\$ -	\$ -	\$ -	\$ 34,428	\$ 26,434	\$ 43,407	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
40828	Town of Foster	4	\$ 324,855	\$ -	\$ -	\$ -	\$ -	\$ 323,231	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,624	
40829	City of Cranston	6	\$ 63,507	\$ -	\$ -	\$ -	\$ -	\$ 20,969	\$ 16,101	\$ 26,438	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
40830	City of West. Warwick	6	\$ 7,278	\$ -	\$ -	\$ -	\$ -	\$ 2,403	\$ 1,845	\$ 3,030	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Property Taxes			\$ 7,934,311	\$ -	\$ -	\$ -	\$ -	\$ 4,445,430	\$ 3,098,233	\$ 72,874	\$ 104,242	\$ 80,040	\$ 131,429	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,062
Check			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Restricted Funds																				
Capital Fund	26	\$ 2,127,000	\$ 420,643	\$ 309,626	\$ 508,418	\$ -	\$ 289,265	\$ 61,350	\$ 13,238	\$ 3,545	\$ 2,722	\$ 4,469	\$ 7,017	\$ 1,129	\$ 1,853	\$ 439,741	\$ 8,372	\$ 55,612		
Western Cranston Fund	12	\$ 40,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,207	\$ 10,141	\$ 16,652	\$ -	\$ -	\$ -		
IFR Fund	25	\$ 31,300,000	\$ 6,053,651	\$ 4,648,052	\$ 7,632,295	\$ -	\$ 4,478,406	\$ 959,265	\$ 206,994	\$ 55,423	\$ 42,556	\$ 69,878	\$ 22,985	\$ 17,648	\$ 28,980	\$ 6,355,093	\$ -	\$ 728,775		
Meter Replacement Fund	14	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,000,000	\$ -	\$ -		
Vehicle/Equipment Fund	25	\$ 1,500,000	\$ 290,111	\$ 222,750	\$ 365,765	\$ -	\$ 214,620	\$ 45,971	\$ 9,920	\$ 2,656	\$ 2,039	\$ 3,349	\$ 1,102	\$ 846	\$ 1,389	\$ 304,557	\$ -	\$ 34,925		
Lead Service Replacement Fund	15	\$ 2,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,000,000		
Revenue Reserve Fund	33	\$ 429,742	\$ 40,968	\$ 31,389	\$ 51,542	\$ 11,531	\$ 128,559	\$ 29,486	\$ 1,451	\$ 2,003	\$ 1,538	\$ 2,525	\$ 921	\$ 686	\$ 1,126	\$ 62,690	\$ 50,137	\$ 13,190		
Total Restricted Expenditures			\$ 38,396,742	\$ 6,805,373	\$ 5,211,817	\$ 8,558,021	\$ 11,531	\$ 5,110,850	\$ 1,096,073	\$ 231,603	\$ 63,627	\$ 48,855	\$ 80,221	\$ 45,232	\$ 30,450	\$ 50,000	\$ 8,162,081	\$ 2,058,509	\$ 832,501	
Check			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
City Services Expense																				
Capital Reimbursement	25	\$ (1,945,605)	\$ (376,294)	\$ (288,922)	\$ (474,423)	\$ -	\$ (278,377)	\$ (59,628)	\$ (12,867)	\$ (3,445)	\$ (2,645)	\$ (4,344)	\$ (1,429)	\$ (1,097)	\$ (1,801)	\$ (395,032)	\$ -	\$ (45,301)		
TOTAL OTHER EXPENDITURES			\$ 45,224,615	\$ 6,464,434	\$ 4,950,042	\$ 8,128,175	\$ 62,416	\$ 9,583,906	\$ 4,153,479	\$ 291,610	\$ 168,294	\$ 129,221	\$ 212,187	\$ 46,164	\$ 31,164	\$ 51,173	\$ 7,883,420	\$ 2,238,183	\$ 830,747	
Gross Revenue Requirements			\$ 87,921,329	\$ 8,236,539	\$ 6,310,718	\$ 10,362,462	\$ 2,320,488	\$ 26,247,384	\$ 5,927,764	\$ 291,610	\$ 402,817	\$ 309,295	\$ 507,876	\$ 189,238	\$ 140,942	\$ 231,432	\$ 13,216,689	\$ 10,512,890	\$ 2,713,186	

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				Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire																		
				All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.																	
Non-Rate Revenues																																				
34	Interest on Delinquent Accounts	\$	403,127	\$	-	\$	-	\$	-	\$	-	\$	-	\$	2,825	\$	2,104	\$	3,455	\$	197,301	\$	156,938	\$	40,503											
30	Interest Earned	\$	25,636	\$	1,080	\$	829	\$	1,362	\$	1,554	\$	9,348	\$	574	\$	-	\$	72	\$	55	\$	91	\$	3,555	\$	5,489	\$	1,267							
16	Miscellaneous State revenue	\$	180,288	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	90,144	\$	90,144	\$	-									
30	Rents from Water Properties	\$	20,969	\$	883	\$	678	\$	1,114	\$	1,272	\$	7,646	\$	470	\$	-	\$	97	\$	74	\$	122	\$	59	\$	45	\$	74	\$	2,908	\$	4,490	\$	1,037	
34	Flow Tests	\$	7,184	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	50	\$	37	\$	62	\$	3,516	\$	2,797	\$	722			
14	New Meters	\$	108,527	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	108,527	\$	-	\$	-			
14	Lost/Stolen Meters	\$	17,862	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	17,862	\$	-	\$	-			
16	Admin Fee NBC	\$	25,000	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	12,500	\$	-	\$	-			
16	Shut Off/On Service Charge	\$	197,810	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	98,905	\$	98,905	\$	-			
34	Other Miscellaneous	\$	164,852	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	1,155	\$	860	\$	1,413	\$	80,683	\$	64,177	\$	16,563			
4	Bad Checks	\$	21,183	\$	-	\$	-	\$	-	\$	-	\$	21,077	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	-	\$	-	106			
4	Forest Product Sales	\$	98,642	\$	-	\$	-	\$	-	\$	-	\$	98,149	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	-	\$	-	493			
4	Water Liens	\$	47,083	\$	-	\$	-	\$	-	\$	-	\$	46,848	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	-	\$	-	235			
4	Foster Property Tax Refund	\$	225,000	\$	-	\$	-	\$	-	\$	-	\$	223,875	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	-	\$	-	1,125			
TOTAL NON-RATE REVENUES			\$	1,543,163	\$	1,964	\$	1,508	\$	2,476	\$	2,826	\$	406,944	\$	1,044	\$	-	\$	215	\$	165	\$	271	\$	4,162	\$	3,102	\$	5,094	\$	615,902	\$	435,440	\$	62,051
TOTAL NET REVENUE REQUIREMENT			\$	86,378,166	\$	8,234,575	\$	6,309,210	\$	10,359,986	\$	2,317,662	\$	25,840,440	\$	5,926,720	\$	291,610	\$	402,602	\$	309,130	\$	507,605	\$	185,077	\$	137,839	\$	226,337	\$	12,600,787	\$	10,077,450	\$	2,651,135
Labor Related O&M Excl. A&G			\$	17,326,594	\$	545,963	\$	419,207	\$	688,356	\$	1,216,668	\$	7,125,145	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	2,533,147	\$	3,851,722	\$	946,386		
Factor 28 - As Labor O&M Excl. A&G			100.00%	3.15%	2.42%	3.97%	7.02%	41.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.62%	22.23%	5.46%						
Non-Labor Related O&M Excl. A&G			\$	4,065,749	\$	355,338	\$	272,840	\$	448,014	\$	80,512	\$	675,605	\$	479,287	\$	-	\$	98,655	\$	75,750	\$	124,385	\$	60,186	\$	46,179	\$	75,828	\$	433,437	\$	728,599	\$	111,131
Factor 29 - As Non-Labor O&M Excl. A&G			100.00%	8.74%	6.71%	11.02%	1.98%	16.62%	11.79%	0.00%	2.43%	1.86%	3.06%	1.48%	1.14%	1.87%	10.66%	17.92%	2.73%																	
Total O&M Excl. A&G			\$	21,392,343	\$	901,302	\$	692,047	\$	1,136,370	\$	1,297,180	\$	7,800,751	\$	479,287	\$	-	\$	98,655	\$	75,750	\$	124,385	\$	60,186	\$	46,179	\$	75,828	\$	2,966,585	\$	4,580,320	\$	1,057,517
Factor 30 - As Total O&M Excl. A&G			100.00%	4.21%	3.24%	5.31%	6.06%	36.47%	2.24%	0.00%	0.46%	0.35%	0.58%	0.28%	0.22%	0.35%	13.87%	21.41%	4.94%																	
Total Insurance Excluding Funding Adjustment			\$	2,075,617	\$	132,264	\$	101,556	\$	166,759	\$	85,433	\$	560,378	\$	141,029	\$	-	\$	29,029	\$	22,289	\$	36,600	\$	17,710	\$	13,588	\$	22,312	\$	256,089	\$	409,853	\$	80,727
Factor 31 - As Total Ins. Excl Adj.			100.00%	6.37%	4.89%	8.03%	4.12%	27.00%	6.79%	0.00%	1.40%	1.07%	1.76%	0.85%	0.65%	1.07%	12.34%	19.75%	3.89%																	
Total Chemicals Excluding Funding Adjustment			\$	3,962,230	\$	-	\$	-	\$	-	\$	-	\$	3,251,654	\$	698,809	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	-	\$	-	11,767		
Factor 32 - As Total Chemicals Excl Adj.			100.00%	0.00%	0.00%	0.00%	0.00%	82.07%	17.64%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
Total Net Revenue Requirement (Excl. Reserves)			\$	85,948,424	\$	8,193,607	\$	6,277,821	\$	10,308,444	\$	2,306,132	\$	25,711,881	\$	5,897,234	\$	290,159	\$	400,599	\$	307,592	\$	505,080	\$	184,156	\$	137,153	\$	225,211	\$	12,538,097	\$	10,027,313	\$	2,637,945
Factor 33 - As Net Revenue Requirement			100.00%	9.53%	7.30%	11.99%	2.68%	29.92%	6.86%	0.34%	0.47%	0.36%	0.59%	0.21%	0.16%	0.26%	14.59%	11.67%	3.07%																	
Retail Revenue Requirement (Excl. Bad Debt)			\$	26,797,230																				\$	187,787	\$	139,860	\$	229,657	\$	13,115,306	\$	10,432,247	\$	2,692,373	
Factor 34 - As Retail Req. Excl. Bad Debt			100.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.70%	0.52%	0.86%	48.94%	38.93%	10.05%														

Schedule HJS-14b: Allocation of Rate Year Revenue Requirement (Summary)

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Description	Pro-Forma Rate Year	CTA - Transmission & Distribution			CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only						
		Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire
		All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.
Net Operations and Maintenance Expense	\$ 40,751,109	\$ 1,395,811	\$ 1,071,753	\$ 1,759,864	\$ 2,258,072	\$ 16,385,100	\$ 1,714,657	\$ (12,867)	\$ 231,078	\$ 177,429	\$ 291,346	\$ 141,646	\$ 108,680	\$ 178,458	\$ 4,938,237	\$ 8,274,707	\$ 1,837,138
Restricted Funds (Excluding Revenue Reserve)	\$ 37,967,000	\$ 6,764,405	\$ 5,180,428	\$ 8,506,479	\$ -	\$ 4,982,291	\$ 1,066,587	\$ 230,152	\$ 61,624	\$ 47,317	\$ 77,696	\$ 44,311	\$ 29,764	\$ 48,874	\$ 8,099,390	\$ 2,008,372	\$ 819,312
City Services Expense	\$ 839,167	\$ 35,356	\$ 27,147	\$ 44,577	\$ 50,885	\$ 306,003	\$ 18,801	\$ -	\$ 3,870	\$ 2,971	\$ 4,879	\$ 2,361	\$ 1,811	\$ 2,975	\$ 116,372	\$ 179,674	\$ 41,484
Property Taxes Expense	\$ 7,934,311	\$ -	\$ -	\$ -	\$ -	\$ 4,445,430	\$ 3,098,233	\$ 72,874	\$ 104,242	\$ 80,040	\$ 131,429	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,062
Total Expenses Allocated	\$ 87,491,587	\$ 8,195,571	\$ 6,279,328	\$ 10,310,920	\$ 2,308,958	\$ 26,118,824	\$ 5,898,278	\$ 290,159	\$ 400,814	\$ 307,757	\$ 505,350	\$ 188,318	\$ 140,256	\$ 230,306	\$ 13,153,998	\$ 10,462,753	\$ 2,699,996
Less: Miscellaneous Revenues	\$ (1,543,163)	\$ (1,964)	\$ (1,508)	\$ (2,476)	\$ (2,826)	\$ (406,944)	\$ (1,044)	\$ -	\$ (215)	\$ (165)	\$ (271)	\$ (4,162)	\$ (3,102)	\$ (5,094)	\$ (615,902)	\$ (435,440)	\$ (62,051)
Plus: Net Operating Revenue Allowance	\$ 1,718,968	\$ 163,872	\$ 125,556	\$ 206,169	\$ 46,123	\$ 514,238	\$ 117,945	\$ 5,803	\$ 8,012	\$ 6,152	\$ 10,102	\$ 3,683	\$ 2,743	\$ 4,504	\$ 250,762	\$ 200,546	\$ 52,759
Net Revenue Requirement	\$ 87,667,393	\$ 8,357,480	\$ 6,403,377	\$ 10,514,613	\$ 2,352,254	\$ 26,226,118	\$ 6,015,179	\$ 295,963	\$ 408,611	\$ 313,744	\$ 515,181	\$ 187,839	\$ 139,896	\$ 229,716	\$ 12,788,859	\$ 10,227,859	\$ 2,690,704

Schedule HJS-15a: Pro-Forma Water Sales

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Customer Class	FY 2014	FY 2015	FY 2016	FY 2017 (1)	FY 2018	FY 2019	Adjustment (2)	Pro Forma Rate Year
Retail								
Residential	8,627,628	8,347,957	8,269,834	8,269,270	8,030,974	8,103,732	292,444	8,396,176
Commercial	3,903,139	4,230,647	4,251,054	3,927,540	4,043,827	4,031,169	10,496	4,041,665
Industrial	185,888	171,644	164,367	182,199	189,997	164,973	22,213	187,186
Sub-total Retail	12,716,655 49.17%	12,750,248 48.22%	12,685,256 49.25%	12,379,009 49.12%	12,264,797 50.62%	12,299,874 51.15%	325,153	12,625,027 52.63%
Wholesale								
Bristol County	1,608,984	1,663,045	1,579,991	1,637,658	1,602,670	1,494,845	-	1,494,845
East Providence	2,201,598	2,010,940	1,869,775	1,904,517	1,776,786	1,822,773	-	1,822,773
East Smithfield	278,534	318,959	280,994	-	-	-	-	-
Greenville	431,647	443,841	477,556	443,680	417,847	421,521	-	421,521
Johnston	337,577	433,844	421,362	392,953	386,849	385,925	(385,925)	-
Kent County	2,561,361	2,561,821	2,381,066	2,500,971	2,470,436	2,727,147	-	2,727,147
Lincoln	1,025,337	1,119,193	1,082,008	1,155,628	1,057,830	1,038,229	-	1,038,229
Smithfield	497,433	477,254	427,370	435,321	435,955	391,600	-	391,600
Warwick	4,202,875	4,665,329	4,553,730	4,349,674	3,817,571	3,466,644	-	3,466,644
Sub-total Wholesale	13,145,345 50.83%	13,694,224 51.78%	13,073,851 50.75%	12,820,403 50.88%	11,965,943 49.38%	11,748,684 48.85%	(385,925)	11,362,760 47.37%
Grand Total	25,862,000	26,444,473	25,759,107	25,199,412	24,230,740	24,048,558	(60,772)	23,987,787
(1) East Smithfield Retail								
Residential	228,489	219,570	210,360	79,063	214,949	183,987	-	214,949
Commercial	3,409	5,763	11,446	3,562	7,362	5,418	-	7,362
Industrial	8,049	12,469	26,012	6,503	13,265	7,592	-	13,265
Total East Smithfield Retail	239,948	237,802	247,818	89,128	235,576	196,997	-	235,576
(2) Johnston Retail								
Residential	276,924	298,656	315,444	310,607	293,145	292,444	-	292,444
Commercial	4,132	7,839	17,163	13,993	10,521	10,496	-	10,496
Industrial	9,756	16,961	39,006	25,548	22,266	22,213	-	22,213
Total Johnston Retail	290,811	323,456	371,613	350,148	325,932	325,153	-	325,153

Schedule HJS-15b: Assignment of Non-Revenue Water (NRW)

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Line	Description	Units	Total	Retail	Bristol County	East Providence	Greenville	Kent County	Lincoln	Smithfield	Warwick
1	Annual Sales	HCF	23,987,787	12,625,027	1,494,845	1,822,773	421,521	2,727,147	1,038,229	391,600	3,466,644
			100.00%	52.63%	6.23%	7.60%	1.76%	11.37%	4.33%	1.63%	14.45%
2	Pipe Length ⁽¹⁾	Miles	1,249,331	1,208,131	8,670	3,890	5,350	0,370	15,770	4,190	2,960
			100.00%	96.70%	0.69%	0.31%	0.43%	0.03%	1.26%	0.34%	0.24%
3	Pipe Length <=12"	Miles	897,495	885,220	1,028	0,004	1,713	-	8,602	0,929	-
			100.00%	98.63%	0.11%	0.00%	0.19%	0.00%	0.96%	0.10%	0.00%
4	Start: Annual Water Production	HCF	28,042,451								
5	Less: Annual Sales	HCF	23,987,787								
6	Equals: Non-Revenue Water	HCF	4,054,664								
7	Less: Non-Billed Water Use										
8	Unauthorized Consumption ⁽²⁾	HCF	70,106	70,106	-	-	-	-	-	-	-
9	Customer Metering Inaccuracy ⁽³⁾	HCF	741,890	741,890	-	-	-	-	-	-	-
10	Firefighting Allowance ⁽⁴⁾	HCF	133,690	133,690	-	-	-	-	-	-	-
11	Water Quality - Aqueduct Reservoir ⁽⁴⁾⁽⁵⁾	HCF	1,075,338	565,962	67,012	81,712	18,896	122,254	46,542	17,555	155,405
12	Water Quality - Ridge Road Tank Repair ⁽⁴⁾	HCF	102,823	102,823							
13	Main Flushing/System Maintenance ⁽⁴⁾⁽⁷⁾	HCF	66,845	65,931	77	0	128	-	641	69	-
14	Other Authorized Unbilled ⁽⁴⁾	HCF	13,501	13,501	-	-	-	-	-	-	-
15	Total Non-Billed Use	HCF	2,204,193	1,693,902	67,088	81,713	19,024	122,254	47,183	17,624	155,405
16	Equals: Real Losses (Leakage)⁽⁶⁾	HCF	1,850,471	1,789,447	12,842	5,762	7,924	548	23,358	6,206	4,384
17	Total Non-Revenue Water	HCF	4,054,664	3,483,349	79,930	87,474	26,948	122,802	70,541	23,830	159,789

(1) Per Hydraulic Modeling Analysis (Avg. Day) + Estimated Service Lines for Retail (225 mi)

(2) Estimated at 0.25% of Production

(3) Estimated at 3%. Calculated as: (Sales / 0.97) - Sales

(4) Per Providence Water FY 2019

(5) Allocated based on Pro-Forma Sales

(6) Allocated based on Pipe Length

(7) Allocated based on Pipe Length <=12"

Schedule HJS-16a: Customer Class Units of Service

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Customer Class	Base Demand			Maximum Day Extra Capacity				Maximum Hour Extra Capacity			
	Rate Year Sales	Plus NRW	Base	Average Day	Peaking Factor	Maximum Day	Maximum Day Extra	Average Day	Peaking Factor	Maximum Hour	Maximum Hour Extra
	HCF	HCF	HCF	HCF/d		HCF/d	HCF/d	HCF/d		HCF/d	HCF/d
Retail											
Residential - Low	4,394,853	1,212,576	5,607,430	12,041	1.47	17,751	5,711	12,041	2.95	35,503	17,751
Commercial - Low	2,115,549	583,698	2,699,247	5,796	1.59	9,204	3,408	5,796	3.18	18,408	9,204
Industrial - Low	97,980	27,033	125,013	268	1.36	366	97	268	2.72	731	366
Residential - High	4,001,323	1,103,998	5,105,321	10,963	1.66	18,206	7,244	10,963	3.32	36,412	18,206
Commercial - High	1,926,116	531,431	2,457,547	5,277	1.79	9,440	4,163	5,277	3.58	18,880	9,440
Industrial - High	89,206	24,613	113,819	244	1.53	375	131	244	3.07	750	375
Sub-total Retail	12,625,027	3,483,349	16,108,376	34,589	1.60	55,343	20,753	34,589	3.20	110,685	55,343
Fire Protection											
Private						690	690			2,759	2,070
Public (Providence)			69,188			1,085	1,085			4,338	3,254
Public (All Other)			71,029			1,113	1,113			4,453	3,340
Subtotal Fire Protection			140,217			2,888	2,888			11,551	8,663
Wholesale											
Bristol County	1,494,845	79,930	1,574,775	4,095	1.51	6,191	2,096	4,095	1.81	7,429	1,238
East Providence	1,822,773	87,474	1,910,247	4,994	1.67	8,317	3,323	4,994	2.76	13,797	5,480
Greenville	421,521	26,948	448,469	1,155	2.01	2,323	1,168	1,155	3.05	3,525	1,202
Kent County	2,727,147	122,802	2,849,950	7,472	1.42	10,638	3,166	7,472	2.18	16,260	5,622
Lincoln	1,038,229	70,541	1,108,770	2,844	1.90	5,402	2,557	2,844	2.23	6,354	952
Smithfield	391,600	23,830	415,430	1,073	2.17	2,328	1,255	1,073	2.56	2,747	419
Warwick	3,466,644	159,789	3,626,433	9,498	2.40	22,752	13,254	9,498	2.81	26,693	3,941
Wholesale	11,362,760	571,315	11,934,074	31,131	1.86	57,951	26,821	31,131	2.47	76,806	18,855
Grand Total	23,987,787	4,054,664	28,182,668	65,720	1.77	116,182	50,462	65,720	3.03	199,042	82,860

Intraclass Distribution of Retail Max Day Based on Monthly Analysis

	Max Day	%
Residential	36,616	64.97%
Commercial	18,986	33.69%
Industrial	754	1.34%
	56,357	100.00%

Schedule HJS-16b: Customer Class Units of Service

Providence Water Supply Board

Docket # 4994

Individual Wholesale Cost of Service Study

Per RIPUC Report and Order No. 23928

Test Year Ending June 30, 2019

Rate Year Ending June 30, 2022

Customer Class	Base Demand <i>Inch-Miles</i>	Maximum Day <i>Inch-Miles</i>	Maximum Hour <i>Inch-Miles</i>	Base Demand <i>Inch-Miles <=12"</i>
Retail				
Residential	6,173.49	5,810.00	5,605.82	4,319.20
Commercial	2,971.73	3,012.55	2,906.68	2,079.13
Industrial	137.63	119.67	115.47	96.29
Sub-total Retail	9,282.86	8,942.23	8,627.97	6,494.63
Fire Protection				
Private	-	111.46	215.09	-
Public (Providence)	39.87	175.23	338.15	27.90
Public (All Other)	40.93	179.90	347.15	28.64
Subtotal Fire Protection	80.80	466.59	900.39	56.53
Wholesale				
Bristol County	284.02	341.53	327.32	8.62
East Providence	357.74	251.43	241.72	0.04
Greenville	114.54	111.65	55.09	14.81
Kent County	29.10	24.67	30.38	-
Lincoln	304.87	239.36	138.09	79.71
Smithfield	134.64	187.91	199.47	10.63
Warwick	184.89	208.03	252.97	-
Wholesale	1,409.81	1,364.58	1,245.04	113.81
Grand Total	10,773.47	10,773.40	10,773.40	6,664.97

Intraclass Distribution of Retail Inch-Miles Based on Demand from HJS-16a

	Base	%	Max Day	%	Max Hour	%
Retail						
Residential	10,712,750	65.93%	35,958	61.75%	71,915	58.83%
Commercial	5,156,794	31.74%	18,644	32.02%	37,289	30.51%
Industrial	238,832	1.47%	741	1.27%	1,481	1.21%
Subtotal Retail	16,108,376	99.14%	55,343	95.04%	110,685	90.55%
Fire Protection						
Private	-	0.00%	690	1.18%	2,759	2.26%
Public (Providence)	69,188	0.43%	1,085	1.86%	4,338	3.55%
Public (All Other)	71,029	0.44%	1,113	1.91%	4,453	3.64%
Subtotal Fire Protection	140,217	0.86%	2,888	4.96%	11,551	9.45%

Schedule HJS-16c: Customer Class Units of Service

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

6" Equivalent Connections

Fire Connection Size	Accounts	Demand Factor	6" Eq. Factor	6" Eq. Conn.
5/8"	-	0.0	0.000	0.00
3/4"	2	0.5	0.004	0.01
1"	9	1.0	0.009	0.08
1-1/2"	2	2.9	0.026	0.05
2"	68	6.2	0.056	3.78
3"	-	18.0	0.162	0.00
4"	391	38.3	0.344	134.60
6"	1,245	111.3	1.000	1,245.00
8"	256	237.2	2.131	545.54
10"	4	426.6	3.832	15.33
12"	18	689.0	6.190	111.42
16"	-	1,468.4	13.192	0.00
Subtotal Private	1,995			2,056

Public Fire Hydrants (Providence Only) 3232

Public Fire Hydrants (All Other) 3318

Total Hydrants 6550

Equivalent 6" Connections	#	%
Private Firelines	2,056	23.89%
Providence Hydrants	3,232	37.56%
All Other Hydrants	3,318	38.56%
	<u>8,606</u>	<u>100.00%</u>

5/8" Equivalent Connections

Meter Size	Providence Accounts	All Accounts	Fire Accounts	5/8" Eq. M&S Factor	5/8" Eq. Prov FP
5/8"	25,954	57,812	-	1	1
3/4"	4,580	11,326	2	1.1	1.5
1"	2,091	5,335	9	1.4	3.75
1-1/2"	902	1,547	2	1.8	10
2"	792	1,357	68	2.9	24
3"	55	73	-	11	65
4"	20	35	391	14	110
6"	28	57	1,245	21	225
8"	15	42	256	29	340
10"	2	4	4	36.25	520
12"	-	-	18	43.5	860
16"	-	-	-	58	
	34,439	77,588	1,995		

	5/8" M&S	5/8" FP	Bills
Providence	39,820	86,908	413,268
All	88,313	n/a	931,056
Fire	40,187	n/a	23,940

Schedule HJS-16d: Summary of Customer Class Units of Service

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Customer Class	Inch-Miles				Demand			Billing		Direct Fire
	Base	Maximum Day	Maximum Hour	Base	Base	Maximum Day Extra	Maximum Hour Extra	Meters & Services	Monthly Bills	
	<i>Inch-Miles</i>	<i>Inch-Miles</i>	<i>Inch-Miles</i>	<i>Inch-Miles <=12"</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>5/8" Eq.</i>	<i>Bills</i>	<i>6" Eq.</i>
Retail										
Residential - Low	6,173.49	5,810.00	5,605.82	4,319.20	5,607,430	5,711	17,751			
Commercial - Low	2,971.73	3,012.55	2,906.68	2,079.13	2,699,247	3,408	9,204			
Industrial - Low	137.63	119.67	115.47	96.29	125,013	97	366			
Residential - High					5,105,321	7,244	18,206			
Commercial - High					2,457,547	4,163	9,440			
Industrial - High					113,819	131	375			
Sub-total Retail	9,282.86	8,942.23	8,627.97	6,494.63	16,108,376	20,753	55,343	88,313	931,056	
Fire Protection										
Private	-	111.46	215.09	-		690	2,070	40,187	23,940	
Public (Providence)	39.87	175.23	338.15	27.90	69,188	1,085	3,254			3,232
Public (All Other)	40.93	179.90	347.15	28.64	71,029	1,113	3,340			3,318
Subtotal Fire Protection	80.80	466.59	900.39	56.53	140,217	2,888	8,663	40,187	23,940	6,550
Wholesale										
Bristol County	284.02	341.53	327.32	8.62	1,574,775	2,096	1,238			
East Providence	357.74	251.43	241.72	0.04	1,910,247	3,323	5,480			
Greenville	114.54	111.65	55.09	14.81	448,469	1,168	1,202			
Kent County	29.10	24.67	30.38	-	2,849,950	3,166	5,622			
Lincoln	304.87	239.36	138.09	79.71	1,108,770	2,557	952			
Smithfield	134.64	187.91	199.47	10.63	415,430	1,255	419			
Warwick	184.89	208.03	252.97	-	3,626,433	13,254	3,941			
Wholesale	1,409.81	1,364.58	1,245.04	113.81	11,934,074	26,821	18,855	-	-	-
Grand Total	10,773.47	10,773.40	10,773.40	6,664.97	28,182,668	50,462	82,860	128,499	954,996	6,550

Schedule HJS-17: Unit Cost of Service

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Description	Total	CTA - Transmission & Distribution				CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only					
		Base	Max Day	Max Hour	Base	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire
		<i>Inch-Miles</i>	<i>Inch-Miles</i>	<i>Inch-Miles</i>	<i>Inch-Miles <=12"</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>HCF</i>	<i>HCF/d</i>	<i>HCF/d</i>	<i>5/8" Eq.</i>	<i>Bills</i>	<i>6" Eq.</i>
Total Units of Service																	
Retail		9,283	8,942	8,628	6,495	16,108,376	20,753	55,343	7,676,686	11,537	28,021	16,108,376	20,753	55,343	88,313	931,056	-
Fire Protection		81	467	900	57	140,217	2,888	8,663	140,217	2,888	8,663	140,217	2,888	8,663	40,187	23,940	6,550
Bristol County		284	342	327	9	1,574,775	2,096	1,238									
East Providence		358	251	242	0	1,910,247	3,323	5,480									
Greenville		115	112	55	15	448,469	1,168	1,202	448,469	1,168	1,202						
Kent County		29	25	30	-	2,849,950	3,166	5,622									
Lincoln		305	239	138	80	1,108,770	2,557	952	1,108,770	2,557	952						
Smithfield		135	188	199	11	415,430	1,255	419	415,430	1,255	419						
Warwick		185	208	253	-	3,626,433	13,254	3,941									
Total		10,773	10,773	10,773	6,665	28,182,668	50,462	82,860	9,789,573	19,406	39,258	16,248,593	23,641	64,006	128,499	954,996	6,550
Unit Cost of Service																	
O&M Expense	\$ 39,207,946	\$ 1,393,847	\$ 1,070,246	\$ 1,757,388	\$ 2,255,246	\$ 15,978,157	\$ 1,713,613	\$ (12,867)	\$ 230,863	\$ 177,264	\$ 291,075	\$ 137,484	\$ 105,578	\$ 173,363	\$ 4,322,335	\$ 7,839,267	\$ 1,775,087
Unit Cost (\$/Unit)		\$ 129.38	\$ 99.34	\$ 163.12	\$ 338.37	\$ 0.57	\$ 33.96	\$ (0.16)	\$ 0.02	\$ 9.13	\$ 7.41	\$ 0.01	\$ 4.47	\$ 2.71	\$ 33.64	\$ 8.21	\$ 271.01
Capital Expense	\$ 37,967,000	\$ 6,764,405	\$ 5,180,428	\$ 8,506,479	\$ -	\$ 4,982,291	\$ 1,066,587	\$ 230,152	\$ 61,624	\$ 47,317	\$ 77,696	\$ 44,311	\$ 29,764	\$ 48,874	\$ 8,099,390	\$ 2,008,372	\$ 819,312
Unit Cost (\$/Unit)		\$ 627.88	\$ 480.85	\$ 789.58	\$ -	\$ 0.18	\$ 21.14	\$ 2.78	\$ 0.01	\$ 2.44	\$ 1.98	\$ 0.00	\$ 1.26	\$ 0.76	\$ 63.03	\$ 2.10	\$ 125.09
City Services Expense	\$ 839,167	\$ 35,356	\$ 27,147	\$ 44,577	\$ 50,885	\$ 306,003	\$ 18,801	\$ -	\$ 3,870	\$ 2,971	\$ 4,879	\$ 2,361	\$ 1,811	\$ 2,975	\$ 116,372	\$ 179,674	\$ 41,484
Unit Cost (\$/Unit)		\$ 3.28	\$ 2.52	\$ 4.14	\$ 7.63	\$ 0.01	\$ 0.37	\$ -	\$ 0.00	\$ 0.15	\$ 0.12	\$ 0.00	\$ 0.08	\$ 0.05	\$ 0.91	\$ 0.19	\$ 6.33
Property Tax Expense	\$ 7,934,311	\$ -	\$ -	\$ -	\$ -	\$ 4,445,430	\$ 3,098,233	\$ 72,874	\$ 104,242	\$ 80,040	\$ 131,429	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,062
Unit Cost (\$/Unit)		\$ -	\$ -	\$ -	\$ -	\$ 0.16	\$ 61.40	\$ 0.88	\$ 0.01	\$ 4.12	\$ 3.35	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.31
Net Op Rev Allowance	\$ 1,718,968	\$ 163,872	\$ 125,556	\$ 206,169	\$ 46,123	\$ 514,238	\$ 117,945	\$ 5,803	\$ 8,012	\$ 6,152	\$ 10,102	\$ 3,683	\$ 2,743	\$ 4,504	\$ 250,762	\$ 200,546	\$ 52,759
Unit Cost (\$/Unit)		\$ 15.21	\$ 11.65	\$ 19.14	\$ 6.92	\$ 0.02	\$ 2.34	\$ 0.07	\$ 0.00	\$ 0.32	\$ 0.26	\$ 0.00	\$ 0.12	\$ 0.07	\$ 1.95	\$ 0.21	\$ 8.05
Total Cost of Service	\$ 87,667,393	\$ 8,357,480	\$ 6,403,377	\$ 10,514,613	\$ 2,352,254	\$ 26,226,118	\$ 6,015,179	\$ 295,963	\$ 408,611	\$ 313,744	\$ 515,181	\$ 187,839	\$ 139,896	\$ 229,716	\$ 12,788,859	\$ 10,227,859	\$ 2,690,704
Unit Cost (\$/Unit)		\$ 775.75	\$ 594.37	\$ 975.98	\$ 352.93	\$ 0.93	\$ 119.20	\$ 3.57	\$ 0.04	\$ 16.17	\$ 13.12	\$ 0.01	\$ 5.92	\$ 3.59	\$ 99.52	\$ 10.71	\$ 410.79

Schedule HJS-18: Customer Class Cost of Service

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Description	Total	CTA - Transmission & Distribution			CTA - Supply, Treatment & Low Service			High Service & Retail			Retail Only						
		Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Base	Max Day	Max Hour	Meters & Services	Billing & Collection	Direct Fire	
		All Inch-Miles	All Inch-Miles	All Inch-Miles	Inch-Miles <=12"	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	HCF	HCF/d	HCF/d	5/8" Eq.	Bills	6" Eq.
Unit Cost of Service (\$/Unit)		\$ 775.75	\$ 594.37	\$ 975.98	\$ 352.93	\$ 0.93	\$ 119.20	\$ 3.57	\$ 0.04	\$ 16.17	\$ 13.12	\$ 0.01	\$ 5.92	\$ 3.59	\$ 99.52	\$ 10.71	\$ 410.79
Retail Service:																	
Residential Volume																	
Units of Service		6,173	5,810	5,606	4,319	10,712,750	12,954	35,958	5,105,321	7,244	18,206	10,712,750	12,954	35,958	-	-	-
Cost of Service	\$ 27,778,220	\$ 4,789,066	\$ 3,453,288	\$ 5,471,166	\$ 1,524,367	\$ 9,969,030	\$ 1,544,192	\$ 128,434	\$ 213,093	\$ 117,113	\$ 238,920	\$ 123,843	\$ 76,657	\$ 129,051	\$ -	\$ -	\$ -
Commercial Volume																	
Units of Service		2,972	3,013	2,907	2,079	5,156,794	7,571	18,644	2,457,547	4,163	9,440	5,156,794	7,571	18,644	-	-	-
Cost of Service	\$ 13,899,520	\$ 2,305,311	\$ 1,790,566	\$ 2,836,856	\$ 733,784	\$ 4,798,789	\$ 902,521	\$ 66,594	\$ 102,577	\$ 67,307	\$ 123,882	\$ 59,614	\$ 44,803	\$ 66,914	\$ -	\$ -	\$ -
Industrial Volume Charge																	
Units of Service		138	120	115	96	238,832	228	741	113,819	131	375	238,832	228	741	-	-	-
Cost of Service	\$ 595,183	\$ 106,768	\$ 71,131	\$ 112,695	\$ 33,985	\$ 222,252	\$ 27,156	\$ 2,645	\$ 4,751	\$ 2,112	\$ 4,921	\$ 2,761	\$ 1,348	\$ 2,658	\$ -	\$ -	\$ -
Meter Service Charge																	
Units of Service		-	-	-	-	-	-	-	-	-	-	-	-	-	88,313	931,056	-
Cost of Service	\$ 18,760,757	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,789,292	\$ 9,971,466	\$ -
Fire Protection:																	
Private Fire Lines																	
Units of Service		-	111	215	-	-	690	2,070	-	690	2,070	-	690	2,070	40,187	23,940	-
Cost of Service	\$ 4,671,579	\$ -	\$ 66,250	\$ 209,926	\$ -	\$ -	\$ 82,230	\$ 7,392	\$ -	\$ 11,153	\$ 27,158	\$ -	\$ 4,082	\$ 7,427	\$ 3,999,567	\$ 256,394	\$ -
Public Fire (Providence)																	
Units of Service		40	175	338	28	69,188	1,085	3,254	69,188	1,085	3,254	69,188	1,085	3,254	-	-	3,232
Cost of Service	\$ 2,089,937	\$ 30,930	\$ 104,153	\$ 330,028	\$ 9,845	\$ 64,385	\$ 129,276	\$ 11,621	\$ 2,888	\$ 17,534	\$ 42,696	\$ 800	\$ 6,418	\$ 11,677	\$ -	\$ -	\$ 1,327,688
Public Fire (All Other)																	
Units of Service		41	180	347	29	71,029	1,113	3,340	71,029	1,113	3,340	71,029	1,113	3,340	-	-	3,318
Cost of Service	\$ 2,145,548	\$ 31,753	\$ 106,925	\$ 338,810	\$ 10,107	\$ 66,098	\$ 132,716	\$ 11,930	\$ 2,965	\$ 18,000	\$ 43,832	\$ 821	\$ 6,588	\$ 11,988	\$ -	\$ -	\$ 1,363,016
Wholesale Service:																	
Units of Service																	
Bristol County		284	342	327	9	1,574,775	2,096	1,238									
East Providence		358	251	242	0	1,910,247	3,323	5,480									
Greenville		115	112	55	15	448,469	1,168	1,202	448,469	1,168	1,202						
Kent County		29	25	30	-	2,849,950	3,166	5,622									
Lincoln		305	239	138	80	1,108,770	2,557	952	1,108,770	2,557	952						
Smithfield		135	188	199	11	415,430	1,255	419	415,430	1,255	419						
Warwick		185	208	253	-	3,626,433	13,254	3,941									
		1,410	1,365	1,245	114	11,934,074	26,821	18,855	1,972,669	4,981	2,574						
Cost of Service																	
Bristol County	\$ 2,465,525	\$ 220,327	\$ 202,995	\$ 319,457	\$ 3,042	\$ 1,465,448	\$ 249,834	\$ 4,421	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
East Providence	\$ 2,856,241	\$ 277,515	\$ 149,442	\$ 235,914	\$ 14	\$ 1,777,630	\$ 396,153	\$ 19,572	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Greenville	\$ 828,471	\$ 88,855	\$ 66,361	\$ 53,770	\$ 5,227	\$ 417,335	\$ 139,248	\$ 4,294	\$ 18,719	\$ 18,886	\$ 15,777	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Kent County	\$ 3,116,495	\$ 22,574	\$ 14,663	\$ 29,650	\$ -	\$ 2,652,095	\$ 377,431	\$ 20,082	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Lincoln	\$ 1,981,843	\$ 236,502	\$ 142,268	\$ 134,773	\$ 28,132	\$ 1,031,795	\$ 304,850	\$ 3,401	\$ 46,279	\$ 41,347	\$ 12,496	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Smithfield	\$ 995,400	\$ 104,450	\$ 111,688	\$ 194,675	\$ 3,752	\$ 386,590	\$ 149,618	\$ 1,497	\$ 17,340	\$ 20,293	\$ 5,499	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Warwick	\$ 5,482,673	\$ 143,428	\$ 123,647	\$ 246,893	\$ -	\$ 3,374,672	\$ 1,579,954	\$ 14,078	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ 17,726,649	\$ 1,093,651	\$ 811,064	\$ 1,215,132	\$ 40,167	\$ 11,105,565	\$ 3,197,088	\$ 67,346	\$ 82,338	\$ 80,526	\$ 33,773	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost of Service	\$ 87,667,393	\$ 8,357,480	\$ 6,403,377	\$ 10,514,613	\$ 2,352,254	\$ 26,226,118	\$ 6,015,179	\$ 295,963	\$ 408,611	\$ 313,744	\$ 515,181	\$ 187,839	\$ 139,896	\$ 229,716	\$ 12,788,859	\$ 10,227,859	\$ 2,690,704

Schedule HJS-19: Development of Volumetric Rates

Providence Water Supply Board

Docket # 4994

Individual Wholesale Cost of Service Study

Per RIPUC Report and Order No. 23928

Test Year Ending June 30, 2019

Rate Year Ending June 30, 2022

Description	Units	Residential	Commercial	Industrial	Bristol County	East Providence	Greenville	Kent County	Lincoln	Smithfield	Warwick
Unit Cost											
CTA Base - T&D	\$/Inch-Mile	\$ 775.75	\$ 775.75	\$ 775.75	\$ 775.75	\$ 775.75	\$ 775.75	\$ 775.75	\$ 775.75	\$ 775.75	\$ 775.75
CTA Max Day - T&D	\$/Inch-Mile	\$ 594.37	\$ 594.37	\$ 594.37	\$ 594.37	\$ 594.37	\$ 594.37	\$ 594.37	\$ 594.37	\$ 594.37	\$ 594.37
CTA Max Hour - T&D	\$/Inch-Mile	\$ 975.98	\$ 975.98	\$ 975.98	\$ 975.98	\$ 975.98	\$ 975.98	\$ 975.98	\$ 975.98	\$ 975.98	\$ 975.98
CTA Base - T&D <=12"	\$/Inch-Mile	\$ 352.93	\$ 352.93	\$ 352.93	\$ 352.93	\$ 352.93	\$ 352.93	\$ 352.93	\$ 352.93	\$ 352.93	\$ 352.93
CTA Base - SOS, WTP, LS	\$/HCF	\$ 0.93	\$ 0.93	\$ 0.93	\$ 0.93	\$ 0.93	\$ 0.93	\$ 0.93	\$ 0.93	\$ 0.93	\$ 0.93
CTA Max Day - SOS, WTP, LS	\$/HCF/d	\$ 119.20	\$ 119.20	\$ 119.20	\$ 119.20	\$ 119.20	\$ 119.20	\$ 119.20	\$ 119.20	\$ 119.20	\$ 119.20
CTA Max Hour - SOS, WTP, LS	\$/HCF/d	\$ 3.57	\$ 3.57	\$ 3.57	\$ 3.57	\$ 3.57	\$ 3.57	\$ 3.57	\$ 3.57	\$ 3.57	\$ 3.57
HSR Base	\$/HCF	\$ 0.04	\$ 0.04	\$ 0.04			\$ 0.04		\$ 0.04	\$ 0.04	
HSR Max Day	\$/HCF/d	\$ 16.17	\$ 16.17	\$ 16.17			\$ 16.17		\$ 16.17	\$ 16.17	
HSR Max Hour	\$/HCF/d	\$ 13.12	\$ 13.12	\$ 13.12			\$ 13.12		\$ 13.12	\$ 13.12	
Retail Only Base	\$/HCF	\$ 0.01	\$ 0.01	\$ 0.01							
Retail Only Max Day	\$/HCF/d	\$ 5.92	\$ 5.92	\$ 5.92							
Retail Only Max Hour	\$/HCF/d	\$ 3.59	\$ 3.59	\$ 3.59							
Units											
Base	Inch-Miles	6,173	2,972	138	284	358	115	29	305	135	185
Maximum Day	Inch-Miles	5,810	3,013	120	342	251	112	25	239	188	208
Maximum Hour	Inch-Miles	5,606	2,907	115	327	242	55	30	138	199	253
Base	Inch-Miles <=12"	4,319	2,079	96	9	0	15	0	80	11	0
Base	HCF	10,712,750	5,156,794	238,832	1,574,775	1,910,247	448,469	2,849,950	1,108,770	415,430	3,626,433
Maximum Day	HCF/d	12,954	7,571	228	2,096	3,323	1,168	3,166	2,557	1,255	13,254
Maximum Hour	HCF/d	35,958	18,644	741	1,238	5,480	1,202	5,622	952	419	3,941

Schedule HJS-19: Development of Volumetric Rates

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Description	Units	Residential	Commercial	Industrial	Bristol County	East Providence	Greenville	Kent County	Lincoln	Smithfield	Warwick
Total Cost											
CTA Base - T&D		\$ 4,789,066	\$ 2,305,311	\$ 106,768	\$ 220,327	\$ 277,515	\$ 88,855	\$ 22,574	\$ 236,502	\$ 104,450	\$ 143,428
CTA Max Day - T&D		\$ 3,453,288	\$ 1,790,566	\$ 71,131	\$ 202,995	\$ 149,442	\$ 66,361	\$ 14,663	\$ 142,268	\$ 111,688	\$ 123,647
CTA Max Hour - T&D		\$ 5,471,166	\$ 2,836,856	\$ 112,695	\$ 319,457	\$ 235,914	\$ 53,770	\$ 29,650	\$ 134,773	\$ 194,675	\$ 246,893
CTA Base - T&D <=12"		\$ 1,524,367	\$ 733,784	\$ 33,985	\$ 3,042	\$ 14	\$ 5,227	\$ -	\$ 28,132	\$ 3,752	\$ -
CTA Base - SOS, WTP, LS		\$ 9,969,030	\$ 4,798,789	\$ 222,252	\$ 1,465,448	\$ 1,777,630	\$ 417,335	\$ 2,652,095	\$ 1,031,795	\$ 386,590	\$ 3,374,672
CTA Max Day - SOS, WTP, LS		\$ 1,544,192	\$ 902,521	\$ 27,156	\$ 249,834	\$ 396,153	\$ 139,248	\$ 377,431	\$ 304,850	\$ 149,618	\$ 1,579,954
CTA Max Hour - SOS, WTP, LS		\$ 128,434	\$ 66,594	\$ 2,645	\$ 4,421	\$ 19,572	\$ 4,294	\$ 20,082	\$ 3,401	\$ 1,497	\$ 14,078
HSR Base		\$ 213,093	\$ 102,577	\$ 4,751	\$ -	\$ -	\$ 18,719	\$ -	\$ 46,279	\$ 17,340	\$ -
HSR Maximum Day		\$ 117,113	\$ 67,307	\$ 2,112	\$ -	\$ -	\$ 18,886	\$ -	\$ 41,347	\$ 20,293	\$ -
HSR Maximum Hour		\$ 238,920	\$ 123,882	\$ 4,921	\$ -	\$ -	\$ 15,777	\$ -	\$ 12,496	\$ 5,499	\$ -
Retail Only Base		\$ 123,843	\$ 59,614	\$ 2,761	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Retail Only Max Day		\$ 76,657	\$ 44,803	\$ 1,348	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Retail Only Max Hour		\$ 129,051	\$ 66,914	\$ 2,658	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PLUS:											
Retail Service Charge Costs		\$ 5,356,543	\$ 2,680,279	\$ 114,771	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Retail Fire Protection Costs		\$ 65,913	\$ 32,981	\$ 1,412	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Private Fire Line Costs		\$ 315,559	\$ 157,898	\$ 6,761	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Public Fire Costs		\$ 39,712	\$ 19,871	\$ 851	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Rate Year Revenue Requirement		\$ 33,555,947	\$ 16,790,548	\$ 718,977	\$ 2,465,525	\$ 2,856,241	\$ 828,471	\$ 3,116,495	\$ 1,981,843	\$ 995,400	\$ 5,482,673
Rate Year Sales	HCF	8,396,176	4,041,665	187,186	1,494,845	1,822,773	421,521	2,727,147	1,038,229	391,600	3,466,644
Volumetric Rate Build-Up											
Base	\$/HCF	\$ 1.979401	\$ 1.979401	\$ 1.979401	\$ 1.129761	\$ 1.127491	\$ 1.257672	\$ 0.980757	\$ 1.293268	\$ 1.307790	\$ 1.014843
Maximum Day	\$/HCF	\$ 0.618287	\$ 0.694070	\$ 0.543558	\$ 0.302927	\$ 0.299322	\$ 0.532583	\$ 0.143774	\$ 0.470479	\$ 0.719098	\$ 0.491427
Maximum Hour	\$/HCF	\$ 0.710749	\$ 0.765587	\$ 0.656672	\$ 0.216664	\$ 0.140163	\$ 0.175177	\$ 0.018236	\$ 0.145123	\$ 0.514991	\$ 0.075281
Service Charge	\$/HCF	\$ 0.637974	\$ 0.663162	\$ 0.613136	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Retail Fire	\$/HCF	\$ 0.007850	\$ 0.008160	\$ 0.007545	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Private Fire	\$/HCF	\$ 0.037584	\$ 0.039067	\$ 0.036120	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Public Fire	\$/HCF	\$ 0.004730	\$ 0.004917	\$ 0.004546	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$/HCF	\$ 3.996575	\$ 4.154364	\$ 3.840978	\$ 1.649352	\$ 1.566976	\$ 1.965431	\$ 1.142767	\$ 1.908870	\$ 2.541879	\$ 1.581550
Rounded	\$/HCF	\$ 3.997000	\$ 4.155000	\$ 3.841000	\$ 1.649352	\$ 1.566977	\$ 1.965432	\$ 1.142768	\$ 1.908870	\$ 2.541879	\$ 1.581551
Revenues		\$ 33,559,516	\$ 16,793,118	\$ 718,981	\$ 2,465,525	\$ 2,856,243	\$ 828,471	\$ 3,116,497	\$ 1,981,843	\$ 995,401	\$ 5,482,675
COS		\$ 33,555,947	\$ 16,790,548	\$ 718,977	\$ 2,465,525	\$ 2,856,241	\$ 828,471	\$ 3,116,495	\$ 1,981,843	\$ 995,400	\$ 5,482,673
Variance due to Rounding		\$ 3,569	\$ 2,570	\$ 4	\$ 0	\$ 2	\$ 0	\$ 1	\$ 0	\$ 0	\$ 2

Schedule HJS-20a: Development of Meter Service Charge

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Meter Size	Meter Equivalency	M&S Cost Per Month	Billing Cost Per Bill	Total Cost Per Month	Existing Charge	Proposed Charge	Rounded Charge	Accounts	Revenues
5/8"	1	\$ 8.29	\$ 10.71	\$ 19.00	\$ 10.47	\$ 10.47	\$ 10.47	57,812	\$ 7,260,244
3/4"	1.1	\$ 9.12	\$ 10.71	\$ 19.83	\$ 11.15	\$ 11.15	\$ 11.15	11,326	\$ 1,515,560
1"	1.4	\$ 11.61	\$ 10.71	\$ 22.32	\$ 13.16	\$ 13.16	\$ 13.16	5,335	\$ 842,214
1.5"	1.8	\$ 14.93	\$ 10.71	\$ 25.64	\$ 15.82	\$ 15.82	\$ 15.82	1,547	\$ 293,767
2"	2.9	\$ 24.05	\$ 10.71	\$ 34.76	\$ 23.20	\$ 23.20	\$ 23.20	1,357	\$ 377,769
3"	11	\$ 91.23	\$ 10.71	\$ 101.94	\$ 77.53	\$ 77.53	\$ 77.53	73	\$ 67,916
4"	14	\$ 116.11	\$ 10.71	\$ 126.82	\$ 97.66	\$ 97.66	\$ 97.66	35	\$ 41,017
6"	21	\$ 174.17	\$ 10.71	\$ 184.88	\$ 144.60	\$ 144.60	\$ 144.60	57	\$ 98,910
8"	29	\$ 240.52	\$ 10.71	\$ 251.23	\$ 198.25	\$ 198.25	\$ 198.25	42	\$ 99,918
10"	36.25	\$ 300.65	\$ 10.71	\$ 311.36	\$ 246.87	\$ 246.87	\$ 246.87	4	\$ 11,850
12"	43.5	\$ 360.78	\$ 10.71	\$ 371.49	\$ 295.50	\$ 295.50	\$ 295.50	0	\$ -

Total Revenue Generated	77,588	\$ 10,609,165
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Costs Allocated to Customer Service

Meters & Services	\$ 8,789,292
Billing & Collection	\$ 9,971,466
LESS Shift to Retail Volume Charge	\$ (8,151,592)
Total Customer Service Costs	\$ 10,609,165

Variance Due to Rounding \$ -

Schedule HJS-20b: Development of Providence Retail Fire Protection Service Charge

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Meter Size	Meter Equivalency	Accounts	5/8" Equivalents	Fire Cost Per Month	Existing Charge	Proposed Charge	Rounded Charge	Revenues
5/8"	1	25,954	25,954	\$ 2.00	\$ 1.92	\$ 1.92	\$ 1.92	\$ 597,995
3/4"	1.5	4,580	6,870	\$ 3.01	\$ 2.87	\$ 2.87	\$ 2.87	\$ 157,709
1"	3.75	2,091	7,841	\$ 7.51	\$ 7.13	\$ 7.13	\$ 7.13	\$ 178,946
1.5"	10	902	9,020	\$ 20.04	\$ 19.02	\$ 19.02	\$ 19.02	\$ 205,885
2"	24	792	19,008	\$ 48.10	\$ 45.63	\$ 45.63	\$ 45.63	\$ 433,644
3"	65	55	3,575	\$ 130.26	\$ 123.55	\$ 123.55	\$ 123.55	\$ 81,541
4"	110	20	2,200	\$ 220.44	\$ 209.07	\$ 209.07	\$ 209.07	\$ 50,178
6"	225	28	6,300	\$ 450.89	\$ 427.65	\$ 427.65	\$ 427.65	\$ 143,692
8"	340	15	5,100	\$ 681.35	\$ 646.23	\$ 646.23	\$ 646.23	\$ 116,322
10"	520	2	1,040	\$ 1,042.06	\$ 988.36	\$ 988.36	\$ 988.36	\$ 23,721
12"	860	-	-	\$ 1,723.41	\$ 1,634.58	\$ 1,634.58	\$ 1,634.58	\$ -

Total Revenue Generated	\$1,989,631
Total FPSC Costs	\$ 2,089,937
LESS Shift to Retail Volume Charge	\$ (100,306)
Adjusted FPSC Costs	\$ 1,989,631

Variance Due to Rounding \$0

Schedule HJS-21a: Development of Private Fireline Charges

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Fire Connection Size	Accounts	Demand Factor	6" Eq. Factor	6" Eq. Conn.	5/8" Eq. Factor	M&S Cost Per Month	Cost Per Bill	Demand Cost Per Month	Total Cost Per Month	Existing Charge	Proposed Charge	Rounded Charge	Revenues
3/4"	2	0.5	0.004	0.01	1.10	\$9.12	\$10.71	\$ 0.07	\$ 19.90	\$ 11.96	\$ 11.96	\$ 11.96	\$ 287
1"	9	1.0	0.009	0.08	1.40	\$11.61	\$10.71	\$ 0.15	\$ 22.47	\$ 14.14	\$ 14.14	\$ 14.14	\$ 1,527
1-1/2"	2	2.9	0.026	0.05	1.80	\$14.93	\$10.71	\$ 0.44	\$ 26.08	\$ 17.41	\$ 17.41	\$ 17.41	\$ 418
2"	68	6.2	0.056	3.78	2.90	\$24.05	\$10.71	\$ 0.94	\$ 35.70	\$ 25.80	\$ 25.80	\$ 25.80	\$ 21,057
4"	391	38.3	0.344	134.60	14.00	\$116.11	\$10.71	\$ 5.80	\$ 132.62	\$110.28	\$ 110.28	\$ 110.28	\$ 517,415
6"	1,245	111.3	1.000	1,245.00	21.00	\$174.17	\$10.71	\$ 16.85	\$ 201.73	\$179.79	\$ 179.79	\$ 179.79	\$ 2,686,034
8"	256	237.2	2.131	545.54	29.00	\$240.52	\$10.71	\$ 35.90	\$ 287.13	\$272.30	\$ 272.30	\$ 272.30	\$ 836,501
10"	4	426.6	3.832	15.33	36.25	\$300.65	\$10.71	\$ 64.56	\$ 375.92	\$379.34	\$ 379.34	\$ 379.34	\$ 18,208
12"	18	689.0	6.190	111.42	43.50	\$360.78	\$10.71	\$ 104.29	\$ 475.78	\$508.87	\$ 508.87	\$ 508.87	\$ 109,915
16"	-	1,468.4	13.192	0.00	58.00	\$481.04	\$10.71	\$ 222.24	\$ 713.99	\$794.62	\$ 794.62	\$ 794.62	\$ -
	1,995			2,055.82									\$ 4,191,361

Costs Allocated to Private Fire Service

Meters & Services	\$ 3,999,567
Billing & Collection	\$ 256,394
Demand Costs	\$ 415,618
Less Costs Recovered from Retail Volume Charge	\$ (480,218)
Total Private Fire Protection Costs	\$ 4,191,361

Schedule HJS-21b: Development of Hydrant Charges

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Demand Costs (Hydrants Excluding Providence)	\$	782,532	
Hydrants (Excluding Providence)		3,318	
Annual Demand Costs per Hydrant	\$	235.84	
Annual Direct Fire Cost per Hydrant	\$	410.79	
Existing Annual Cost per Hydrant		\$628.42	
Total Annual Cost per Hydrant	\$	646.64	2.8984%
Proposed Annual Charge per Hydrant		\$628.42	
Rounded Annual Charge per Hydrant		\$628.42	
Hydrant Revenues	\$	2,085,114	
Costs Allocated to Hydrant Charge			
Demand	\$	782,532	
Direct Fire	\$	1,363,016	
LESS Shift to Retail Volume Charge	\$	(60,434)	
Total Public Fire Costs (Excluding Providence)	\$	2,085,114	

Schedule HJS-22a: Proposed Rates - 1/3rd Phase-In, 12% Cap

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

Description	Units	FY 2022 - Existing		FY 2022 - Cost of Service			FY 2022 - 1/3rd Phase-In, 12% Cap		
		Rates	Revenue	% Change	Rates	Revenue	% Change	Rates	Revenue
Service Charges									
5/8"	57,812	\$ 10.47	\$ 7,260,244	0.00%	\$ 10.47	\$ 7,260,244	0.00%	\$ 10.47	\$ 7,260,244
3/4"	11,326	\$ 11.15	\$ 1,515,560	0.00%	\$ 11.15	\$ 1,515,560	0.00%	\$ 11.15	\$ 1,515,560
1"	5,335	\$ 13.16	\$ 842,214	0.00%	\$ 13.16	\$ 842,214	0.00%	\$ 13.16	\$ 842,214
1.5"	1,547	\$ 15.82	\$ 293,767	0.00%	\$ 15.82	\$ 293,767	0.00%	\$ 15.82	\$ 293,767
2"	1,357	\$ 23.20	\$ 377,769	0.00%	\$ 23.20	\$ 377,769	0.00%	\$ 23.20	\$ 377,769
3"	73	\$ 77.53	\$ 67,916	0.00%	\$ 77.53	\$ 67,916	0.00%	\$ 77.53	\$ 67,916
4"	35	\$ 97.66	\$ 41,017	0.00%	\$ 97.66	\$ 41,017	0.00%	\$ 97.66	\$ 41,017
6"	57	\$ 144.60	\$ 98,910	0.00%	\$ 144.60	\$ 98,910	0.00%	\$ 144.60	\$ 98,910
8"	42	\$ 198.25	\$ 99,918	0.00%	\$ 198.25	\$ 99,918	0.00%	\$ 198.25	\$ 99,918
10"	4	\$ 246.87	\$ 11,850	0.00%	\$ 246.87	\$ 11,850	0.00%	\$ 246.87	\$ 11,850
12"	-	\$ 295.50	\$ -	0.00%	\$ 295.50	\$ -	0.00%	\$ 295.50	\$ -
Total Service Charge	77,588		\$ 10,609,165	0.00%		\$ 10,609,165	0.00%		\$ 10,609,165
Retail Fire Protection Service Charges (Providence Only)									
5/8"	25,954	\$ 1.92	\$ 597,995	0.00%	\$ 1.92	\$ 597,995	0.00%	\$ 1.92	\$ 597,995
3/4"	4,580	\$ 2.87	\$ 157,709	0.00%	\$ 2.87	\$ 157,709	0.00%	\$ 2.87	\$ 157,709
1"	2,091	\$ 7.13	\$ 178,946	0.00%	\$ 7.13	\$ 178,946	0.00%	\$ 7.13	\$ 178,946
1.5"	902	\$ 19.02	\$ 205,885	0.00%	\$ 19.02	\$ 205,885	0.00%	\$ 19.02	\$ 205,885
2"	792	\$ 45.63	\$ 433,644	0.00%	\$ 45.63	\$ 433,644	0.00%	\$ 45.63	\$ 433,644
3"	55	\$ 123.55	\$ 81,541	0.00%	\$ 123.55	\$ 81,541	0.00%	\$ 123.55	\$ 81,541
4"	20	\$ 209.07	\$ 50,178	0.00%	\$ 209.07	\$ 50,178	0.00%	\$ 209.07	\$ 50,178
6"	28	\$ 427.65	\$ 143,692	0.00%	\$ 427.65	\$ 143,692	0.00%	\$ 427.65	\$ 143,692
8"	15	\$ 646.23	\$ 116,322	0.00%	\$ 646.23	\$ 116,322	0.00%	\$ 646.23	\$ 116,322
10"	2	\$ 988.36	\$ 23,721	0.00%	\$ 988.36	\$ 23,721	0.00%	\$ 988.36	\$ 23,721
12"	-	\$ 1,634.58	\$ -	0.00%	\$ 1,634.58	\$ -	0.00%	\$ 1,634.58	\$ -
Total Retail FPSC (Providence Only)	34,439		\$ 1,989,631	0.00%		\$ 1,989,631	0.00%		\$ 1,989,631
Total Retail Service Charge Revenue			\$ 12,598,796	0.00%		\$ 12,598,796	0.00%		\$ 12,598,796
Retail Consumption Charges									
Residential	8,396,176	\$ 3.873	\$ 32,516,684	3.21%	\$ 3.997	\$ 33,559,516	1.22%	\$ 3.920	\$ 32,914,904
Commercial	4,041,665	\$ 4.058	\$ 16,402,983	2.38%	\$ 4.155	\$ 16,793,118	0.41%	\$ 4.075	\$ 16,470,556
Industrial	187,186	\$ 3.690	\$ 690,770	4.08%	\$ 3.841	\$ 718,981	2.08%	\$ 3.767	\$ 705,171
Total Retail Consumption Charge	12,625,027		\$ 49,610,436	2.95%		\$ 51,071,615	0.97%		\$ 50,090,631
East Smithfield Debt Surcharge	235,576	\$ 0.350	\$ 82,451	0.00%	\$ 0.350	\$ 82,451	0.00%	\$ 0.350	\$ 82,451
Total Retail Volume Charge Revenue			\$ 49,692,888	2.94%		\$ 51,154,066			\$ 50,173,083
Total Retail Revenue			\$ 62,291,684	2.35%		\$ 63,752,862	0.77%		\$ 62,771,878

Schedule HJS-22a: Proposed Rates - 1/3rd Phase-In, 12% Cap

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

Description	Units	FY 2022 - Existing		FY 2022 - Cost of Service			FY 2022 - 1/3rd Phase-In, 12% Cap		
		Rates	Revenue	% Change	Rates	Revenue	% Change	Rates	Revenue
Wholesale Charges									
Bristol County	1,494,845	\$ 1.637161	\$ 2,447,301	0.74%	\$ 1.649352	\$ 2,465,525	0.40%	\$ 1.643729	\$ 2,457,120
East Providence	1,822,773	\$ 1.673692	\$ 3,050,760	-6.38%	\$ 1.566977	\$ 2,856,243	-1.98%	\$ 1.640500	\$ 2,990,258
Greenville	421,521	\$ 1.718264	\$ 724,285	14.38%	\$ 1.965432	\$ 828,471	4.97%	\$ 1.803638	\$ 760,272
Kent County	2,727,147	\$ 1.634723	\$ 4,458,129	-30.09%	\$ 1.142768	\$ 3,116,497	-9.93%	\$ 1.472473	\$ 4,015,651
Lincoln	1,038,229	\$ 1.688999	\$ 1,753,567	13.02%	\$ 1.908870	\$ 1,981,843	4.51%	\$ 1.765188	\$ 1,832,669
Smithfield	391,600	\$ 1.725918	\$ 675,870	47.28%	\$ 2.541879	\$ 995,401	12.00%	\$ 1.933029	\$ 756,975
Warwick	3,466,644	\$ 1.756228	\$ 6,088,219	-9.95%	\$ 1.581551	\$ 5,482,675	-3.18%	\$ 1.700404	\$ 5,894,696
Total Wholesale Revenue	11,362,760		\$ 19,198,131	-7.66%		\$ 17,726,655	-2.55%		\$ 18,707,639

Wholesale Charges									
Bristol County	1,118	\$ 2,188.72	\$ 2,447,301	0.74%	\$ 2,205.02	\$ 2,465,525	0.40%	\$ 2,197.50	\$ 2,457,120
East Providence	1,363	\$ 2,237.56	\$ 3,050,760	-6.38%	\$ 2,094.89	\$ 2,856,243	-1.98%	\$ 2,193.18	\$ 2,990,258
Greenville	315	\$ 2,297.14	\$ 724,285	14.38%	\$ 2,627.58	\$ 828,471	4.97%	\$ 2,411.28	\$ 760,272
Kent County	2,040	\$ 2,185.46	\$ 4,458,129	-30.09%	\$ 1,527.76	\$ 3,116,497	-9.93%	\$ 1,968.55	\$ 4,015,651
Lincoln	777	\$ 2,258.02	\$ 1,753,567	13.02%	\$ 2,551.97	\$ 1,981,843	4.51%	\$ 2,359.88	\$ 1,832,669
Smithfield	293	\$ 2,307.38	\$ 675,870	47.28%	\$ 3,398.23	\$ 995,401	12.00%	\$ 2,584.26	\$ 756,975
Warwick	2,593	\$ 2,347.90	\$ 6,088,219	-9.95%	\$ 2,114.37	\$ 5,482,675	-3.18%	\$ 2,273.27	\$ 5,894,696
Wholesale (per million gallons)	8,499		\$ 19,198,131	-7.66%		\$ 17,726,655	-2.55%		\$ 18,707,639

Description	Units	FY 2022 - Existing		FY 2022 - Cost of Service			FY 2022 - 1/3rd Phase-In, 12% Cap		
		Rates	Revenue	% Change	Rates	Revenue	% Change	Rates	Revenue
Private Fire Service Charges									
3/4"	2	\$ 11.96	\$ 287	0.00%	\$ 11.96	\$ 287	0.00%	\$ 11.96	\$ 287
1"	9	\$ 14.14	\$ 1,527	0.00%	\$ 14.14	\$ 1,527	0.00%	\$ 14.14	\$ 1,527
1-1/2"	2	\$ 17.41	\$ 418	0.00%	\$ 17.41	\$ 418	0.00%	\$ 17.41	\$ 418
2"	68	\$ 25.80	\$ 21,057	0.00%	\$ 25.80	\$ 21,057	0.00%	\$ 25.80	\$ 21,057
4"	391	\$ 110.28	\$ 517,415	0.00%	\$ 110.28	\$ 517,415	0.00%	\$ 110.28	\$ 517,415
6"	1,245	\$ 179.79	\$ 2,686,034	0.00%	\$ 179.79	\$ 2,686,034	0.00%	\$ 179.79	\$ 2,686,034
8"	256	\$ 272.30	\$ 836,501	0.00%	\$ 272.30	\$ 836,501	0.00%	\$ 272.30	\$ 836,501
10"	4	\$ 379.34	\$ 18,208	0.00%	\$ 379.34	\$ 18,208	0.00%	\$ 379.34	\$ 18,208
12"	18	\$ 508.87	\$ 109,915	0.00%	\$ 508.87	\$ 109,915	0.00%	\$ 508.87	\$ 109,915
16"	-	\$ 794.62	\$ -	0.00%	\$ 794.62	\$ -	0.00%	\$ 794.62	\$ -
Total			\$ 4,191,361	0.00%		\$ 4,191,361	0.00%		\$ 4,191,361
Hydrants (Excluding Providence)	3,318	\$628.42	\$ 2,085,114	0.00%	\$628.4248437	\$ 2,085,114	0.00%	\$628.4248437	\$ 2,085,114
Total Fire Protection Charge Revenue			\$ 6,276,475			\$ 6,276,475			\$ 6,276,475
Total Rate Revenues			\$ 87,766,290			\$ 87,755,993			\$ 87,755,993
Miscellaneous Revenues			1,543,163			1,543,163			1,543,163
Total Revenues			\$ 89,309,453	-0.01%		\$ 89,299,155	-0.01%		\$ 89,299,155

Schedule HJS-23: Comparison of Revenues by Customer Class

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

	FY 2022 - Cost of Service			FY 2022 - 1/3rd to COS, 12% Cap		
	Existing Rates	Proposed Rates	% Change	Existing Rates	Proposed Rates	% Change
Retail						
Monthly Service Charge	\$ 10,609,165	\$ 10,609,165	0.0%	\$ 10,609,165	\$ 10,609,165	0.0%
East Smithfield Debt Surcharge	\$ 82,451	\$ 82,451	0.0%	\$ 82,451	\$ 82,451	0.0%
Periodic FPSC	\$ 1,989,631	\$ 1,989,631	0.0%	\$ 1,989,631	\$ 1,989,631	0.0%
Volume Charge						
Residential	\$ 32,516,684	\$ 33,559,516	3.2%	\$ 32,516,684	\$ 32,914,904	1.2%
Commercial	\$ 16,402,983	\$ 16,793,118	2.4%	\$ 16,402,983	\$ 16,470,556	0.4%
Industrial	\$ 690,770	\$ 718,981	4.1%	\$ 690,770	\$ 705,171	2.1%
Total Retail	\$ 62,291,684	\$ 63,752,862	2.3%	\$ 62,291,684	\$ 62,771,878	0.8%
Wholesale						
Bristol County	\$ 2,447,301	\$ 2,465,525	0.7%	\$ 2,447,301	\$ 2,457,120	0.4%
East Providence	\$ 3,050,760	\$ 2,856,243	-6.4%	\$ 3,050,760	\$ 2,990,258	-2.0%
Greenville	\$ 724,285	\$ 828,471	14.4%	\$ 724,285	\$ 760,272	5.0%
Kent County	\$ 4,458,129	\$ 3,116,497	-30.1%	\$ 4,458,129	\$ 4,015,651	-9.9%
Lincoln	\$ 1,753,567	\$ 1,981,843	13.0%	\$ 1,753,567	\$ 1,832,669	4.5%
Smithfield	\$ 675,870	\$ 995,401	47.3%	\$ 675,870	\$ 756,975	12.0%
Warwick	\$ 6,088,219	\$ 5,482,675	-9.9%	\$ 6,088,219	\$ 5,894,696	-3.2%
Total Wholesale	\$ 19,198,131	\$ 17,726,655	-7.7%	\$ 19,198,131	\$ 18,707,639	-2.6%
Fire Protection						
Private Fire Protection	\$ 4,191,361	\$ 4,191,361	0.0%	\$ 4,191,361	\$ 4,191,361	0.0%
Public Fire Protection	\$ 2,085,114	\$ 2,085,114	0.0%	\$ 2,085,114	\$ 2,085,114	0.0%
Total Fire Protection	\$ 6,276,475	\$ 6,276,475	0.0%	\$ 6,276,475	\$ 6,276,475	0.0%
Total Rate Revenues	\$ 87,766,290	\$ 87,755,993	0.0%	\$ 87,766,290	\$ 87,755,993	0.0%
Miscellaneous Revenues	\$ 1,543,163	\$ 1,543,163		\$ 1,543,163	\$ 1,543,163	
Total Revenues	\$ 89,309,453	\$ 89,299,155	0.0%	\$ 89,309,453	\$ 89,299,155	0.0%

Schedule HJS-24: Revenue Proof

Providence Water Supply Board
Docket # 4994
Individual Wholesale Cost of Service Study
Per RIPUC Report and Order No. 23928
Test Year Ending June 30, 2019
Rate Year Ending June 30, 2022

	FY 2022	FY 2022 - COS	FY 2022 - 1/3rd, 12% Cap
Net Operations & Maintenance Expense	\$ 40,751,109	\$ 40,751,109	\$ 40,751,109
Capital Expense	\$ 37,967,000	\$ 37,967,000	\$ 37,967,000
City Services Expense	\$ 839,167	\$ 839,167	\$ 839,167
Property Taxes Expense	\$ 7,934,311	\$ 7,934,311	\$ 7,934,311
Total Expenses Allocated	\$ 87,491,587	\$ 87,491,587	\$ 87,491,587
plus: Net Operating Revenue	\$ 1,718,968	\$ 1,718,968	\$ 1,718,968
Net Revenue Requirement	\$ 89,210,556	\$ 89,210,556	\$ 89,210,556
Retail			
Monthly Service Charge	\$ 10,609,165	\$ 10,609,165	\$ 10,609,165
East Smithfield Debt Surcharge	\$ 82,451	\$ 82,451	\$ 82,451
Retail FPSC	\$ 1,989,631	\$ 1,989,631	\$ 1,989,631
Volume Charge			
Residential	\$ 32,516,684	\$ 32,914,904	\$ 32,914,904
Commercial	\$ 16,402,983	\$ 16,470,556	\$ 16,470,556
Industrial	\$ 690,770	\$ 705,171	\$ 705,171
Total Retail	\$ 62,291,684	\$ 62,771,878	\$ 62,771,878
Wholesale			
Bristol County	\$ 2,447,301	\$ 2,457,120	\$ 2,457,120
East Providence	\$ 3,050,760	\$ 2,990,258	\$ 2,990,258
Greenville	\$ 724,285	\$ 760,272	\$ 760,272
Kent County	\$ 4,458,129	\$ 4,015,651	\$ 4,015,651
Lincoln	\$ 1,753,567	\$ 1,832,669	\$ 1,832,669
Smithfield	\$ 675,870	\$ 756,975	\$ 756,975
Warwick	\$ 6,088,219	\$ 5,894,696	\$ 5,894,696
Total Wholesale	\$ 19,198,131	\$ 18,707,639	\$ 18,707,639
Fire Protection			
Private Fire Protection	\$ 4,191,361	\$ 4,191,361	\$ 4,191,361
Public Fire Protection	\$ 2,085,114	\$ 2,085,114	\$ 2,085,114
Total Fire Protection	\$ 6,276,475	\$ 6,276,475	\$ 6,276,475
Total Rate Revenues	\$ 87,766,290	\$ 87,755,993	\$ 87,755,993
Miscellaneous Revenues	\$ 1,543,163	\$ 1,543,163	\$ 1,543,163
Total Revenues	\$ 89,309,453	\$ 89,299,155	\$ 89,299,155
Variance Due to Rounding	\$ 16,446	\$ 6,148	\$ 6,148

Schedule HJS-25: Comparison of Typical Bill Impacts

Providence Water Supply Board
 Docket # 4994
 Individual Wholesale Cost of Service Study
 Per RIPUC Report and Order No. 23928
 Test Year Ending June 30, 2019
 Rate Year Ending June 30, 2022

	FY 2022 - COS			FY 2022 - 1/3rd, 12% Cap		
	Existing	Proposed	% Change	Existing	Proposed	% Change
Residential - (5/8" Meter, 100 HCF)						
Service Charge	\$ 125.58	\$ 125.58	0.00%	\$ 125.58	\$ 125.58	0.00%
Volume Charge	\$ 387.28	\$ 399.70	3.21%	\$ 387.28	\$ 392.02	1.22%
Total	\$ 512.86	\$ 525.28	2.42%	\$ 512.86	\$ 517.61	0.92%
Commercial - (2" Meter, 2,000 HCF)						
Service Charge	\$ 278.39	\$ 278.39	0.00%	\$ 278.39	\$ 278.39	0.00%
Volume Charge	\$ 8,116.94	8,310.00	2.38%	8,116.94	8,150.38	0.41%
Total	\$ 8,395.33	\$ 8,588.39	2.30%	\$ 8,395.33	\$ 8,428.77	0.40%
Industrial - (6" Meter, 10,000 HCF)						
Service Charge	\$ 1,735.26	\$ 1,735.26	0.00%	\$ 1,735.26	\$ 1,735.26	0.00%
Volume Charge	\$ 36,902.87	\$ 38,410.00	4.08%	\$ 36,902.87	\$ 37,672.22	2.08%
Total	\$ 38,638.13	\$ 40,145.26	3.90%	\$ 38,638.13	\$ 39,407.48	1.99%