TESTIMONY AND DATA
IN SUPPORT OF THE
KENT COUNTY WATER AUTHORITY'S

ABBREVIATED RATE FILING
January 31, 2020

DOCKET NO. ------

1072 MAIN STREET
P.O. BOX 192
WEST WARWICK, RHODE ISLAND 02893-0192

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Please note the Clean Water Infrastructure Plan Update was submitted to RIPUC December 2019 and the KCWA 2016 5 Year Capital Improvement Program was submitted to RIPUC and is still in effect until 2021.

TAB 1

Letter of Transmittal

KCWA

Kent County Water Authority

January 31, 2020

The Honorable Margaret Curran
Chairperson Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Kent County Water Authority Abbreviated Rate Filing

Dear Chairperson Curran:

On behalf of the Kent County Water Authority ("KCWA"), please find an original and nine (9) copies of the above-referenced filing. KCWA is requesting a revenue reduction in the amount of $2,050,751 which is an overall decrease of 8.56%. The revised tariff is to be effective March 2, 2020.

The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meters with a bypass. The impact for this class will be a net reduction due to the effect of its bypass meter. KCWA further proposes creating a new tariff class for single register large and medium meter customers. This new tariff class will increase the rates for 19 single register medium and large metered customers in the KCWA system which is approximately between 15.4% to 17.4%. This increase for these 19 customers will not result in any increase of our revenues, but instead be reallocated to fund an ongoing meter replacement program. Also, KCWA proposes revised rates for all public and private fire services. The rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA is seeking creation of new wholesale rate for Quonset Development Corporation. Included in this filing is pre-filed testimony from two witnesses to be presented by KCWA along with copies all related supporting documents.

KCWA has complied with the requirements of this Commissions Rules of Practice and Procedure ("Rules") and RI General Laws §39-3-12.1 for this filing. In accordance with the Rules and RI Law, we are providing copies to the following communities and organizations:

- Attorney General's Office
- Town Clerk for the Town of East Greenwich
- City Clerk for the City of Warwick

PO Box 192
West Warwick, RI 02893·0192
401·821·9300
www.kentcountywater.org

- City Clerk for the City of Cranston
- Town Clerk for the Town of West Greenwich
- Town Clerk for the Town of Coventry
- Town Clerk for the Town West Warwick
- Town Clerk for the Town of Scituate
- Town Clerk for the Town of North Kingstown

Also, in accordance with RI General Laws §39-3-11C, all fire districts will be notified via certified mail of this rate reduction.

We have also included a copy of our proposed notice to be published in the Providence Journal. We respectfully request that the Commission immediately review and approve the enclosed notice so that it might be published within the 10 day period prescribed by law. Once approved, we will forward copies via mail to our customers.

The following individuals should be added to the Service List:

Mr. David L. Simmons, P.E.
Executive Director/Chief Engineer
Kent County Water Authority
1072 Main Street; PO Box 192
West Warwick, RI 02893
dsimmons@kentcountywater.org

Ms. Mary B. Shekarchi, Esq.
33 College Hill Rd., #15E
Warwick, RI 02886
marybali@aol.com

Mr. David Bebyn, CPA
B&E Consulting, LLC
21 Dryden Lane
Providence, RI 02904
dbebyn@gmail.com

We look forward to presenting our case to the Commission for the continued benefit our customers.

Very truly yours,

David L. Simmons, P.E.
Executive Director/Chief Engineer

TAB 2

Notice of Proposed Changes in Rate Tariffs

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: KENT COUNTY WATER AUTHORITY
Docket Number_____

NOTICE OF PROPOSED CHANGE IN RATE SCHEDULES

Pursuant to Rhode Island General Laws ("RIGL"), § 39-3-11 and in accordance with Section 5.4 of the Rules of Practice and Procedure of the Rhode Island Public Utilities Commission, and the Kent County Water Authority hereby gives notice of a proposed change in rates filed and published in compliance with RIGL, §39-3-10.

The proposed changes are contained in accompanying exhibits. The new rates, as proposed are to become effective March 2, 2020. The new rates are designed to reduce revenues in a twelve (12) month period equal to 2,050,751. The average customer will see a yearly billing of $601.33 of the proposed rates, a $76.41 decrease over the current rates for the same amount of water consumed.

The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for Medium and Large compound meters with a bypass. The impact for this class will be a net reduction due to the effect of its bypass meter. KCWA further proposes creating a new tariff class for single register large and medium meter customers. This new tariff class will increase the rates for 19 single register medium and large metered customers in the KCWA system which is approximately between 15.4% to 17.4%. This increase for these 19 customers will not result in any increase of our revenues, but instead be reallocated to fund an ongoing meter replacement program. Also, KCWA proposes revised rates for all public and private fire services. The rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA is seeking creation of new wholesale rate for Quonset Development Corporation. Included in this filing is pre-filed testimony from two witnesses to be presented by KCWA along with copies all related supporting documents.

A copy of this filing is on file at our office at 1072 Main Street, West Warwick, RI and on our website www.kentcountywater.org and at the RI Public Utilities Commission, 89 Jefferson Boulevard, Warwick, 02889 and may be examined by the public during business hours. Also copies are available at the public libraries and the cities and towns we service. The Commission will publish a notice of the hearing dates when they are scheduled.

Robert B. Boyer
Chairman
Kent County Water Authority

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: KENT COUNTY WATER AUTHORITY
Docket Number_____

NOTICE OF CHANGE IN RATE

Pursuant to Rhode Island General Laws ("RIGL"), § 39-3-11 and in accordance with Section 5.4 of the Rules of Practice and Procedure of the Rhode Island Public Utilities Commission, and the Kent County Water Authority hereby gives notice of a proposed change in rates filed and published in compliance with RIGL, §39-3-10.

The proposed changes are contained in accompanying exhibits. The new rates, as proposed are to become effective March 2, 2020. The new rates are designed to reduce revenues in a twelve (12) month period equal to 2,050,751. The average customer will see a yearly billing of $601.33 of the proposed rates, a $76.41 decrease over the current rates for the same amount of water consumed.

The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meters with a bypass. The impact for this class will be a net reduction due to the effect of its bypass meter. KCWA further proposes creating a new tariff class for single register large and medium meter customers. This new tariff class will increase the rates for 19 single register medium and large metered customers in the KCWA system which is approximately between 15.4% to 17.4%. This increase for these 19 customers will not result in any increase of our revenues, but instead be reallocated to fund an ongoing meter replacement program. Also, KCWA proposes revised rates for all public and private fire services. The rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA is seeking creation of new wholesale rate for Quonset Development Corporation. Included in this filing is pre-filed testimony from two witnesses to be presented by KCWA along with copies all related supporting documents.

While the new rates requested are proposed to become effective March 2, 2020, the Commission can suspend the rates up to eight months from the proposed effective date. No rate change will take effect until the Commission has conducted a full investigation and hearing on the proposal. The Commission will publish a notice of the hearing dates when they are scheduled. Ratepayers may comment on the proposed rate increases at that time.

A copy of this filing is on file at our office 1072 Main Street, West Warwick RI or on our website www.kentcountywater.org and at the Public Utilities Commission, 89 Jefferson Boulevard, Warwick RI 02889 and its website http://www.ripuc.ri.gov and may be examined by the public during business hours. Also, copies are available at the public libraries and cities and towns we service.

Kent County Water Authority

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: KENT COUNTY WATER AUTHORITY
Docket Number_____

NOTICE TO CUSTOMERS OF KENT COUNTY WATER AUTHORITY
CHANGE IN RATE SCHEDULES

Pursuant to Rhode Island General Laws ("RIGL"), § 39-3-11 and in accordance with Section 5.4 of the Rules of Practice and Procedure of the Rhode Island Public Utilities Commission, and the Kent County Water Authority hereby gives notice of a proposed change in rates filed and published in compliance with RIGL, §39-3-10.

The proposed changes are contained in accompanying exhibits. The new rates, as proposed are to become effective March 2, 2020. The new rates are designed to reduce revenues in a twelve (12) month period equal to 2,050,751. The average customer will see a yearly billing of $601.33 of the proposed rates, a $76.41 decrease over the current rates for the same amount of water consumed.

The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meters with a bypass. The impact for this class will be a net reduction due to the effect of its bypass meter. KCWA further proposes creating a new tariff class for single register large and medium meter customers. This new tariff class will increase the rates for 19 single register medium and large metered customers in the KCWA system which is approximately between 15.4% to 17.4%. This increase for these 19 customers will not result in any increase of our revenues, but instead be reallocated to fund an ongoing meter replacement program. Also, KCWA proposes revised rates for all public and private fire services. The rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA is seeking creation of new wholesale rate for Quonset Development Corporation. Included in this filing is pre-filed testimony from two witnesses to be presented by KCWA along with copies all related supporting documents.

While the new rates requested are proposed to become effective March 2, 2020, the Commission can suspend the rates up to eight months from the proposed effective date. No rate change will take effect until the Commission has conducted a full investigation and hearing on the proposal. The Commission will publish a notice of the hearing dates when they are scheduled. Ratepayers may comment on the proposed rate increases at that time.

A copy of this filing is on file at our office 1072 Main Street, West Warwick RI or on our website www.kentcountywater.org and at the Public Utilities Commission, 89 Jefferson Boulevard, Warwick RI 02889 and its website http://www.ripuc.ri.gov and may be examined by the public during business hours. Also, copies are available at the public libraries and cities and towns we service.

TAB 3

Tariff Schedules

KENT COUNTY WATER AUTHORITY
RATE SCHEDULE

KCWA PUC DOCKET# 4641
EFFECTIVE: 1/1/2018

METER SALES VOLUME:

Applicable to all metered water in the Kent County system for residential, commercial and industrial consumption.

Rates:	Rate Per 100 cu. ft.
Small (5/8" to 2" meters)	$6.161
Medium (3" to 4" meters)	$4.913
Large (6" meters and up)	$4.475

Terms of payment:

All metered sales bills are rendered quarterly or monthly and are due and payable in full when rendered.

METERED SALES SERVICE CHARGE:

Applicable to all metered sales of customers of Kent County Water Authority exclusive of fire service connections.

Rates:	Meter Size (in)	Quarterly Accounts	Monthly Accounts
	5/8 & 3/4	$ 15.41	$11.22
	1	$ 20.42	$12.89
	1 ½	$ 29.48	$16.03
	2	$ 37.99	$18.75
	3	$ 48.67	$22.31
	4	$ 69.37	$29.21
	6	$ 115.19	$44.48
	8 &up	$ 194.89	$71.05

Terms of Payment:

All customer service charges are billed quarterly or monthly in advance, and are due and payable in full when rendered.

PUBLIC FIRE SERVICE:

Applicable for service to public fire hydrants in the Kent County service area.

Rates:	Quarterly
Hydrant	$189.69 hydrant
Plus	$ 9.13/billing

Terms of Payment:

All bills for public fire service are rendered quarterly in advance and are due payable in full when rendered.

PRIVATE FIRE SERVICE:

Applicable for service to private fire protection systems and private hydrants in the Kent County service area.

Rates:	Service Size (in.)	Quarterly Accounts
	4	$ 76.35
	6	$204.38
	8	$425.23
	10	$757.42
	12	$1271.84
	hydrant	$204.38

Terms of Payment:

All bills for private fire services are rendered quarterly in advance and are due and payable in full when rendered.

OTHER CHARGES

WHOLESALE RATE WARWICK WATER DEPARTMENT: Same rate as charged by Providence Water Supply Board. Rate will change upon changes to Providence Water Supply Board wholesale rate charge.

INTEREST ON DELINQUENT ACCOUNTS: Applicable to all water account balances over 30 days from billing date. Interest charges are payable as incurred.

CHARGE: 1.5% per month on unpaid balances.

TURN OFF CHARGE: Applicable to all services turned off due to a specific violation which resulted in the requirement to terminate service and requests prior to 8:00 a.m. and after 3:00 p.m., Monday thru Friday and all day Saturday, Sunday, and any Holiday. Charges payable in full prior to subsequent turn-on.

CHARGE: $55.00 per occurrence

TURN ON CHARGE: Applicable to all services turned on after the interruption of a service due to a specific violation which resulted in the service shut off and requests prior to 8:00 a.m. and after 3:00 p.m., Monday thru Friday and all day Saturday, Sunday, and any Holiday. Charges payable in full prior to turn-on.

CHARGE: $45.00 per occurrence

INSTALLATION AND REPAIR WORK: Applicable to all installation and repair work.

CHARGE: Cost of all material, labor and equipment plus applicable overhead, as determined by the Kent County Water Authority on a yearly basis, usually on July 1.

CHLORINATION CHARGE: Applicable to all main extensions to existing systems.

CHARGE: Cost of laboratory and labor to collect, transport to lab, flush and test sample, as determined by the Kent County Water Authority on a yearly basis, usually on July 1.

MATERIAL PURCHASE: Applicable to all material sales.

CHARGE: Cost of material plus handling and applicable overhead, as determined by the Kent County Water Authority on a yearly basis, usually on July 1.

INSUFFICIENT FUND RETURNED CHECKS: Applicable to all payment checks returned to Kent County Water Authority by our bank due to insufficient funds available or account problems will bear a charge for our handling and bank charges.

CHARGE: $20.00 Per occurrence.

METER TESTING: Applicable to all meter testing services.

CHARGE: $100.00 Per occurrence.

INSPECTION FEE'S: Applicable to all developer installation work, public or private, in regards to all main or service extensions.

CHARGE: $5.00/ft of installed main or for service pipe from main to curb stop.

LEGAL FEE's: Applicable to all services requiring legal assistance by the Kent County Water Authority's legal counsel including but not limited to easement description preparation or review, deed restriction preparation or review, involvement with actions necessary for review or approvals of any water service request to the Authority.

CHARGE: Cost as billed to Kent County Water Authority by legal counsel on a monthly basis.

Terms Of Payment For All Other Charges: All bills rendered quarterly or monthly are due and payable in full when

rendered.

KENT COUNTY WATER AUTHORITY
PROPOSED RATE SCHEDULE

KCWA PUC DOCKET# XXXX
EFFECTIVE: 3/1/2020

METER SALES VOLUME:

Applicable to all metered water in the Kent County system for residential, commercial and industrial consumption.

Rates:

	Rate Per 100 cu. ft.
Small (5/8" to 2" meters)	~~$6.161~~ $5.405
Medium (3" to 4" meters)	~~$4.913~~ $5.726
Large (6" meters and up)	~~$4.475~~ $5.261
Medium Compound with bypass(3" to 4" meters)	$5.726
Large Compound with bypass(6" meters and up)	$5.261

Terms of payment:

All metered sales bills are rendered quarterly or monthly and are due and payable in full when rendered.

METERED SALES SERVICE CHARGE:

Applicable to all metered sales of customers of Kent County Water Authority exclusive of fire service connections.

Rates:

Meter Size (in)	Quarterly Accounts	Monthly Accounts
5/8 & 3/4	~~$ 15.41~~ $15.22	~~$11.22~~ $10.98
1	~~$ 20.42~~ $20.31	~~$12.89~~ $12.68
1 ½	~~$ 29.48~~ $29.84	~~$16.03~~ $15.86
2	~~$ 37.99~~ $38.10	~~$18.75~~ $18.61
3	~~$ 48.67~~ $48.91	~~$22.31~~ $22.21
4	~~$ 69.37~~ $69.89	~~$29.21~~ $29.20
6	~~$ 115.19~~ $116.29	~~$44.48~~ $44.67
8 &up	~~$ 194.89~~ $197.01	~~$71.05~~ $71.58

Terms of Payment:

All customer service charges are billed quarterly or monthly in advance, and are due and payable in full when rendered.

PUBLIC FIRE SERVICE:

Applicable for service to public fire hydrants in the Kent County service area.

Rates:

	Quarterly
Hydrant	~~$189.69~~ $146.45 hydrant
Plus	~~$ 9.13~~ $8.86/billing

Terms of Payment:

All bills for public fire service are rendered quarterly in advance and are due payable in full when rendered.

PRIVATE FIRE SERVICE:

Applicable for service to private fire protection systems and private hydrants in the Kent County service area.

Rates:

Service Size (in.)	Quarterly Accounts
4	~~$ 76.35~~ $55.43
6	~~$204.38~~ $144.13
8	~~$425.23~~ $297.12
10	~~$757.42~~ $527.24
12	~~$1271.84~~ $846.18
hydrant	~~$204.38~~ $144.13

Terms of Payment:

All bills for private fire services are rendered quarterly in advance and are due and payable in full when rendered.

OTHER CHARGES

WHOLESALE RATE WARWICK WATER DEPARTMENT: Same rate as charged by Providence Water Supply Board. Rate will change upon changes to Providence Water Supply Board wholesale rate charge.

WHOLESALE RATE QUONSET DEVELOPMENT CORPORATION : Metered water sales at $3.86 per HC. Rate will change upon changes to Providence Water Supply Board wholesale rate charge.

INTEREST ON DELINQUENT ACCOUNTS: Applicable to all water account balances over 30 days from billing date. Interest charges are payable as incurred.

CHARGE: 1.5% per month on unpaid balances.

TURN OFF CHARGE: Applicable to all services turned off due to a specific violation which resulted in the requirement to terminate service and requests prior to 8:00 a.m. and after 3:00 p.m., Monday thru Friday and all day Saturday, Sunday, and any Holiday. Charges payable in full prior to subsequent turn-on.

CHARGE: $55.00 per occurrence

TURN ON CHARGE: Applicable to all services turned on after the interruption of a service due to a specific violation which resulted in the service shut off and requests prior to 8:00 a.m. and after 3:00 p.m., Monday thru Friday and all day Saturday, Sunday, and any Holiday. Charges payable in full prior to turn-on.

CHARGE: $45.00 per occurrence

~~INSTALLATION AND REPAIR WORK:~~ SYSTEM SERVICES: Applicable to all installation, repair, and hydraulic model work.

CHARGE: Cost of all material, labor and equipment plus applicable overhead, as determined by the Kent County Water Authority on a yearly basis, usually on July 1.

CHLORINATION CHARGE: Applicable to all main extensions to existing systems.

CHARGE: Cost of laboratory and labor to collect, transport to lab, flush and test sample, as determined by the Kent County Water Authority on a yearly basis, usually on July 1.

MATERIAL PURCHASE: Applicable to all material sales.

CHARGE: Cost of material plus handling and applicable overhead, as determined by the Kent County Water Authority on a yearly basis, usually on July 1.

INSUFFICIENT FUND RETURNED CHECKS: Applicable to all payment checks returned to Kent County Water Authority by our bank due to insufficient funds available or account problems will bear a charge for our handling and bank charges.

CHARGE: ~~$20.00 Per occurrence~~. $35.00 Per occurrence.

METER TESTING: Applicable to all meter testing services.

CHARGE: $100.00 Per occurrence for all meters sized 2-inches and less. All meters greater than 2 - inches will charged on an actual time and materials basis.

INSPECTION FEE'S: Applicable to all developer installation work, public or private, in regards to all main or service extensions.

CHARGE: $5.00/ft of installed main or for service pipe from main to curb stop.

LEGAL FEE's: Applicable to all services requiring legal assistance by the Kent County Water Authority's legal counsel including but not limited to easement description preparation or review, deed restriction preparation or review, involvement with actions necessary for review or approvals of any water service request to the Authority.

CHARGE: Cost as billed to Kent County Water Authority by legal counsel on a monthly basis.

Terms Of Payment For All Other Charges: All bills rendered quarterly or monthly are due and payable in full when rendered.

TAB 4

Letters of Notice to Attorney General Municipalities and Agencies

KCWA

Kent County Water Authority

January 31, 2020

Attorney General Peter F. Neronha
Attorney General's Office
150 South Main Street
Providence, RI 02903

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Attorney General Neronha:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Jeannette Alyward, Town Clerk
Town of North Kingstown
100 Fairway Drive
North Kingstown, RI 02852-5762

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. Alyward:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Margaret M. Long, Town Clerk
Town of Scituate
195 Danielson Pike
No. Scituate, RI 02857

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. Long:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Marianne Kelly, Town Clerk
Town of West Warwick
1170 Main St.
West Warwick, Rhode Island 02893

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. Kelly:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

PO Box 192
West Warwick, RI 02893·0192
401·821·9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Joanne Amitrano, Town Clerk
for the Town of Coventry
1670 Flat River Road
Coventry, RI 02816-8911

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. Amitrano:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Kelly Laiho, Town Clerk
Town of West Greenwich
280 Victory Highway
West Greenwich, RI 02817

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. Laiho:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Maria Wall, City Clerk
for the City of Cranston
Cranston City Hall
869 Park Ave
Cranston, RI 02910

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. Wall:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Lynn D'Abrosca, Deputy Clerk
Warwick City Hall, 2nd Floor
3275 Post Road
Warwick, RI 02886

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. D'Abrosca:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

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www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Leigh Carney, Town Clerk
Town Of East Greenwich
P.O. Box 111
East Greenwich, RI 02818

RE: Kent County Water Authority
Application for Abbreviated Rate Filing

Dear Ms. Carney:

Pursuant to RI General Laws ("RIGL"), § 39-3-11, Kent County Water Authority has filed the enclosed document with the RI Public Utilities Commission in support of its overall rate reduction. The revised rates are designed to reduce rates for small meters sized 2-inches or less. The revised rates are also designed to create a blended rate for medium and large compound meter customers. KCWA also proposes reduced rates for all public and private fire services. This fire service rate reduction ranges between 22.8% to 30.52%. Lastly, KCWA proposes an establishment of a new wholesale rate for Quonset Development Corporation. Pursuant to RIGL § 39-3-11C a notice of our application for rate filing will be provided to the fire districts within our service area. Should you have any questions or concerns on this filing, you may contact me or our attorney, Mary B. Shekarchi.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/ Chief Engineer

Enclosure

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West Warwick, RI 02893·0192
401·821·9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

Ms. Gail Corrigan, District Manager
Central Coventry Fire District
240 Arnold Road
Coventry, RI 02816

via Certified Mail

RE: Kent County Water Authority – Abbreviated Rate Filing

Dear Ms. Corrigan:

Under RI General Laws, § 39-3-11 (C), Kent County Water Authority must provide, by certified mail, a notice of our proposed rate you. The subject filing proposes to decrease the quarterly public hydrant rate by $43.24. Attached herewith is a copy of the original notice filed with our proposal for a rate change to the RI Public Utilities Commission ("PUC") on January 31, 2020. A complete copy of this filing has been provided to each City and Town serviced by KCWA. You may review that copy or visit our office and/or website www.kentcountywater.org. We are also providing copies to the libraries within your area, the Coventry Public Library, the West Warwick Public Library, East Greenwich Public Library, Warwick Public Library, and the West Greenwich public Library, where you may review and/or obtain a copy.

Should you have any questions or concerns in this filing, you may contact me or our attorney, Mary B. Shekarchi, Esq. Also, the hearing process will be fully noticed by the PUC in accordance with RI Law.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/Chief Engineer

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

via Certified Mail

Lake Mishnock Fire Department
Attn: Chief Bud Tyler
166 Mishnock Road
West Greenwich, RI 02817

RE: Kent County Water Authority – Abbreviated Rate Filing

Dear Chief Robinson:

Under RI General Laws, § 39-3-11 (C), Kent County Water Authority must provide, by certified mail, a notice of our proposed rate you. The subject filing proposes to decrease the quarterly public hydrant rate by $43.24. Attached herewith is a copy of the original notice filed with our proposal for a rate change to the RI Public Utilities Commission ("PUC") on January 31, 2020. A complete copy of this filing has been provided to each City and Town serviced by KCWA. You may review that copy or visit our office and/or website www.kentcountywater.org. We are also providing copies to the libraries within your area, the Coventry Public Library, the West Warwick Public Library, East Greenwich Public Library, Warwick Public Library, and the West Greenwich public Library, where you may review and/or obtain a copy.

Should you have any questions or concerns in this filing, you may contact me or our attorney, Mary B. Shekarchi, Esq. Also, the hearing process will be fully noticed by the PUC in accordance with RI Law.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/Chief Engineer

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

via Certified Mail

Hope Jackson Fire Department
Attn: Chief John Robinson
117 Main Street
PO BOX 201
Hope, RI 02831

RE: Kent County Water Authority – Abbreviated Rate Filing

Dear Chief Robinson:

Under RI General Laws, § 39-3-11 (C), Kent County Water Authority must provide, by certified mail, a notice of our proposed rate you. The subject filing proposes to decrease the quarterly public hydrant rate by $43.24. Attached herewith is a copy of the original notice filed with our proposal for a rate change to the RI Public Utilities Commission ("PUC") on January 31, 2020. A complete copy of this filing has been provided to each City and Town serviced by KCWA. You may review that copy or visit our office and/or website www.kentcountywater.org. We are also providing copies to the libraries within your area, the Coventry Public Library, the West Warwick Public Library, East Greenwich Public Library, Warwick Public Library, and the West Greenwich public Library, where you may review and/or obtain a copy.

Should you have any questions or concerns in this filing, you may contact me or our attorney, Mary B. Shekarchi, Esq. Also, the hearing process will be fully noticed by the PUC in accordance with RI Law.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/Chief Engineer

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

via Certified Mail

Coventry Fire District
Chief Robert Warren
571 Washington Street
Coventry, RI 02816

RE: Kent County Water Authority – Abbreviated Rate Filing

Dear Chief Warren:

Under RI General Laws, § 39-3-11 (C), Kent County Water Authority must provide, by certified mail, a notice of our proposed rate you. The subject filing proposes to decrease the quarterly public hydrant rate by $43.24. Attached herewith is a copy of the original notice filed with our proposal for a rate change to the RI Public Utilities Commission ("PUC") on January 31, 2020. A complete copy of this filing has been provided to each City and Town serviced by KCWA. You may review that copy or visit our office and/or website www.kentcountywater.org. We are also providing copies to the libraries within your area, the Coventry Public Library, the West Warwick Public Library, East Greenwich Public Library, Warwick Public Library, and the West Greenwich public Library, where you may review and/or obtain a copy.

Should you have any questions or concerns in this filing, you may contact me or our attorney, Mary B. Shekarchi, Esq. Also, the hearing process will be fully noticed by the PUC in accordance with RI Law.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/Chief Engineer

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

via Certified Mail

Hopkins Hill Fire District
Attn: Chief Frank M. Brown
1 Bestwick Trail
Coventry, RI 02816

RE: Kent County Water Authority – Abbreviated Rate Filing

Dear Chief Brown:

Under RI General Laws, § 39-3-11 (C), Kent County Water Authority must provide, by certified mail, a notice of our proposed rate you. The subject filing proposes to decrease the quarterly public hydrant rate by $43.24. Attached herewith is a copy of the original notice filed with our proposal for a rate change to the RI Public Utilities Commission ("PUC") on January 31, 2020. A complete copy of this filing has been provided to each City and Town serviced by KCWA. You may review that copy or visit our office and/or website www.kentcountywater.org. We are also providing copies to the libraries within your area, the Coventry Public Library, the West Warwick Public Library, East Greenwich Public Library, Warwick Public Library, and the West Greenwich public Library, where you may review and/or obtain a copy.

Should you have any questions or concerns in this filing, you may contact me or our attorney, Mary B. Shekarchi, Esq. Also, the hearing process will be fully noticed by the PUC in accordance with RI Law.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/Chief Engineer

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

KCWA

Kent County Water Authority

January 31, 2020

via Certified Mail

West Greenwich Fire Department #1
Attn: Chief David Andrews, Jr.
830 Nooseneck Hill Road
West Greenwich, RI 02817

RE: Kent County Water Authority – Abbreviated Rate Filing

Dear Chief Andrews:

Under RI General Laws, § 39-3-11 (C), Kent County Water Authority must provide, by certified mail, a notice of our proposed rate you. The subject filing proposes to decrease the quarterly public hydrant rate by $43.24. Attached herewith is a copy of the original notice filed with our proposal for a rate change to the RI Public Utilities Commission ("PUC") on January 31, 2020. A complete copy of this filing has been provided to each City and Town serviced by KCWA. You may review that copy or visit our office and/or website www.kentcountywater.org. We are also providing copies to the libraries within your area, the Coventry Public Library, the West Warwick Public Library, East Greenwich Public Library, Warwick Public Library, and the West Greenwich public Library, where you may review and/or obtain a copy.

Should you have any questions or concerns in this filing, you may contact me or our attorney, Mary B. Shekarchi, Esq. Also, the hearing process will be fully noticed by the PUC in accordance with RI Law.

Very truly yours,
Kent County Water Authority

David L. Simmons, P.E.
Executive Director/Chief Engineer

PO Box 192
West Warwick, RI 02893-0192
401-821-9300
www.kentcountywater.org

TAB 5

Attestations

KCWA

Kent County Water Authority

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

RE: KENT COUNTY WATER AUTHORITY – Abbreviated Filing Dated January 31, 2020

Attestation Under Rule 5.7 of the
Rules of Practice and Procedure of the Public Utilities Commission

I, Michael Lanfredi, Director of Finance & Human Resources at the Kent County Water Authority, in conformance with Rule 5.7 of the Rules of Practice and Procedure with the Public Utilities Commission, hereby attest that the facts contained in the documents are true and accurate and correct to the best of my knowledge, information and belief.

NICOLE JACQUES NOTARY PUBLIC STATE OF RHODE ISLAND

Michael Lanfredi
Director of Finance & Human Resources

STATE OF RHODE ISLAND
KENT COUNTY

Subscribed and sworn before me on this 28th day of January, 2020.

Nicole Jacques
Notary Public

PO Box 192
West Warwick, RI 02893·0192
401·821·9300
www.kentcountywater.org

TAB 6

Testimony

PRE-FILED TESTIMONY

DAVID L.SIMMONS, P.E.

Q. Please state your name and business address.

A. My name is David L. Simmons, P.E. My current business address is 1072 Main Street, West Warwick, Rhode Island 02893.

Q. By whom are you employed and in what capacity?

A. I am the Executive Director/Chief Engineer for the Kent County Water Authority (KCWA or the Authority).

Q. Please describe your qualifications and experience.

A. I'm a Registered Professional Engineer in the State of Rhode Island. I have a Bachelor of Science degree in Environmental Toxicology and Chemistry from the University of Massachusetts at Amherst and a Master of Science Degree in Environmental Engineering from Worcester Polytechnic Institute. I have been certified by the R. I. Department of Health as a Class 4 Drinking Water Distribution Operator and a Class 4 Water Treatment Operator, and a Level 2 Assessor. I am the main licensed operator for Kent County Water Authority (KCWA or the Authority). I am also a certified Grade 2 Wastewater Operator with the Rhode Island Department of Environmental Management and a licensed membrane operator. I have 23 years of multidisciplinary experience working in the water and wastewater fields including extensive field operations, design, and management.

Q. How long have you been employed at Kent County Water Authority?

A. I have been employed at the Authority for the last seven years where I have been interfacing with all aspects of the Authority's business, regulatory, and daily operations. I became the Executive Director/Chief Engineer for the Authority in May of 2019. Prior to coming to the Authority, I was the Water Superintendent for the Town of New Shoreham.

Q Do you belong to any professional organizations or committees?

A. I am member of American Water Works Association, New England Water Works Association, RI Water Works Association, RI Backflow Preventors Association, and I am a member of the American Society of Civil Engineers. I am a committee member of the NEWWA Operator Certification Committee.

Q. What are your duties and responsibilities?

A. I am responsible for the administrative, financial, and supervisory oversite for the organization including treatment plant operations, transmission, distribution, pumping, and storage facilities within the KCWA service area servicing approximately 100,000 people within eight cities and towns. I am the overall RIDOH certified licensed Distribution and Treatment drinking water operator for the Authority.

Q. Have you previously testified before State Regulatory Commissions concerning the operations matters of Kent County Water Authority?

A. No. However, I attended all meeting and hearings regarding Docket 4611 and was directly involved in the acquisition of information for many of data requests under that docket.

Q. What is your role in these proceedings?

A. Pursuant to this Commissions Order dated November 27, 2018 and its attached Settlement Agreement in paragraph 24, KCWA was required to submit a compliance filing to address either the terminating funding of the meter program effective January 1, 2020, or whatever date the program funding would be complete. The Commission approved KCWA's request to extend the compliance date to February 1, 2020. After exploring the meter program in the best interest of its rate payers, KCWA submits the within abbreviated rate filing. The abbreviated rate filing includes some elements that are in addition to the compliance filing required to terminate funding of the meter replacement program under Docket 4611. I will be providing supporting testimony and exhibits for the abbreviated filing.

Q. How was the filing prepared ?

A. In addition to my testimony and exhibits we will be providing supporting data for various

cost allocations presented within the filing using the Authority's cost of service (COS) model. These COS data and findings will be in the form of testimony and exhibits by our rate consultant, David Bebyn CPA, of B&E Consulting LLC.

Q. Please describe the Kent County Water Authority's system?

A. Please see the attached system description as Exhibit 5 of this filing. It provides an in-depth review of our system and its complexity. Kent County Water Authority system is not stagnant and continually is changing. The description is based on the moment in time that it was prepared.

Q. Please summarize the request in front of this Commission.

A. The request encompasses an overall rate reduction to small meters and bypass meters, the creation of an ongoing meter replacement and testing program for all meter sizes and types, tariff adjustment to medium and large meters, and the establishment of a wholesale rate for Quonset Development Corporation. The testimony is broken into the following sections:

I. **RATE REDUCTION**: Rate reduction to all small meters and bypass meters connected to a compound meter sized 2-inches or less.

II. **PROJECT SCOPE ADJUSTMENT**: Use of savings and bypass meter revenues generated under the ongoing small meter change out program to fund the survey and replacement of large and medium unitized measuring elements (UME) coupled with integrated radio read devices.

III. **NEW RATE TARIFF CLASS**: Establishment of a single rate for single register and compound register large and medium meter customers.

IV. **NEW RESTRICTED METER ACCOUNT**: Creation of a new restricted meter account for all sized meters and meter types.

V. **PRIVATE FIRE SERVICES**: Review study findings requested under D4611, recommendations, and rate reduction.

VI. **WHOLESALE RATE**: Creation of a wholesale rate for Quonset Development Corporation (QDC).

VII. OTHER CHARGES: language changes/updates in the current rate schedule.

I. RATE REDUCTION

Q. Mr. Simmons, are you proposing any tariff changes?

A. Yes, a rate reduction to small and bypass meters sized 2-inches and less to be in conformance of the compliance filing requested by the PUC under docket 4611.

Q. Please review what is being proposed?

A. Reduction of rates via cessation of meter program funding applied to the small meter class approved under Docket 4611.

Q. What is the reason for this proposal?

A. To reallocate funding back to the rate payers to the degree to which the programming is no longer needed for the current project. We are looking to maintain a small portion of the funding to a restricted meter replacement account that will accrue over time to self-fund an ongoing meter replacement program for all meters in the future.

Q How did you arrive at the tariff decrease being proposed?

A. The Authority's rate consultant set the updated allocations to the customer classes using our cost of service model. Due to its complexity, we offer Mr. Bebyn from B&E consulting to testify on its makeup, cost and development.

II. PROJECT SCOPE ADJUSTMENT

Q. Please provide the basic overview of what is being proposed.

A. The original meter program funding did not include the replacement of large and medium meters sized 3-inches and above. KCWA would like to include large and medium meters in the scope of the current program using metered revenues that encompassed restricted collections generated through bypass meters size 2-inches and less. Bypass meters are small meters that capture low flows are attached to the large compound meters.

Q. Why are you looking to include large and medium meters in the scope of the current approved project?

A. KCWA would like all meters to be using the same latest generation automatic meter reading (AMR) technology and metrology to line up with what is currently being installed on all meters sized 2-inches or less. Our goal is to outfit all customers with a uniform metering technology to deliver improved service and billing that is line with current utility standards. Monthly billing is one component that needs to be advanced as soon as possible. We will be going onto monthly billing for all customers once the full AMR installation program is finished to provide our customers with the most current usage information and bill paying options via a customer portal. The large and medium meters would be the first to go onto monthly billing. More frequent readings also allow our staff to locate problems earlier such as water leaks and proactively alert customers. Having the most current metrology in place to accurately monitor the use from these customers is critical to the base revenue requirement and cash flow for the Authority. The large meters in the system contributed 20% of the total metered revenues in FY19 and 12.3% of those overall meter revenues came from small (2-inches and less) bypass meters. The small bypass meters attached to large and medium meters contributed to the meter program, but those customers are currently not receiving any benefit of the meter replacement program.

Q. When will the current small meter replacement program be completed ?

The meter installation contractor has proposed that they will be completed the meter program June of 2021.

Q. Do you think that the meter installers will meet their proposed deadline?

A. Yes. They are currently behind schedule but have hired more personnel to catch up and meet the deadline.

Q. Will adding the large and medium sized meters to the scope change the deadline?

A. No. There would be a separate install team devoted to just those meters.

Q. How much do you estimate that small bypass meters contributed to the current meter program?

A. It is estimated at $875K. I used fiscal year ending 2019 (FY19) to derive the estimate. The overall meter revenues for FY19 were $20.83M. The small meters alone (not bypass) accrued $16.82M, the medium and large meters contributed to $1.44M and the small bypass meters attached to large and medium compound meters contributed $2.57M. Therefore, the small bypass meters provided 64% of the revenues for the large and medium meter class. The bypass meters contributed to 13.3% of $19.39M in total small meter revenues collected FY19. The funding level approved under the D4611 order was $2.2 M/year to be collected from only the small meter class over three years. The bypass meters portion of this $2.2M contribution is 13.3% or $292K/year. Therefore, the estimated contribution from the bypass meters would be approximately $292K per year multiplied times three years equaling $875K. This amount plus the interest accrued on the restricted funds can fully fund the expansion of the program to include the large and medium sized meters.

Q. How many large and medium meters are in the KCWA system ?

A. There are currently 297 large meters sized 3-inches and above.

Q. Is there a service charge on large meter accounts?

A. Yes, there is a fixed service charge tariff based on the large meter size only. Bypass meters do not receive a separate service charge.

Q. Are all of the large meters the same style/type and by the same manufacture?

A. No. However, most of the large meters (278) are Neptune Protectus III (PROIII) or Tru/Flo compound meters. remaining 19 large meters are a mix of single register Sensus, Rockwell, and older style Neptune meters all greater than 20 years old. Two of the single register large meters are being upgraded to Neptune Protectus III compound meters over the next several months.

Q. What is the difference between the Neptune Protectus III meter and the Tru/Flo Compound meters?

A. The Protectus III meters are certified to handle both domestic and fire flows. The Tru/Flo meters are designed for domestic use only, use a smaller footprint, and are significantly less expensive.

Q. Is KCWA proposing full replacements of all large meters?

A. No. We are only recommending the replacement of the unitized measuring elements (UMEs) and bypass meters on compound meters in the system. UMEs can be installed quickly and efficiently at a fraction of the cost of full replacement. The UMEs are fitted within the existing meter bodies without the need of additional pipefitting. These units come factory certified for accuracy so once installed they will serve as the required meter test for two years after installed. The customers would essentially receive a factory new metrology system coupled with the latest generation register and remote radio reading device. The bypass meter changeout is identical to changing out a small meter. We would decide on the replacement of single register non-compound large meters on a case-by-case basis based on a survey to ensure that the meter type is properly matched with the use.

Q. Does KCWA have enough funds in the current restricted meter account to cover the cost of this program?

A. Yes. The total restricted meter account accrual that was as of 12-31-2019 is $6,591,990. The cost of the small meter replacement program is $5,338,625. The projected cost of the large meter program is $953,484. Fully funding both projects leaves a balance of $299,881 which would be applied as a starting balance for the new restricted meter account on a going forward basis. The funds collected to the restricted meter account were only generated under small meter sales volume rate tariff. However, large compound meters have small bypass meters that generated revenue in that same size class and also contributed to the program. Looking at FY2019, the bypass meters contributed to 13.3% of all small metered revenues for the Authority.

Q. Why are the restricted collections under the current meter program approved under Docket 4611 so much higher than the actual cost of the program?

A. Actually, it is not much higher. The total proposed project cost as bid and approved for the program was $6.2M compared to the original approval of $6.6M. The observed differential comes from savings generated by maintaining the new meter change out program using the same meter manufacturer the Authority currently employs. The bid proposal that provided the best benefit to the rate payers in terms of cost and technology was Neptune Technology Group (Neptune). KCWA already has approximately $500,000 worth of meters installed in the system that are the latest technological generation. The decision to continue with Neptune as our meter provider also saved an additional $250,000 of installation and labor cost. Additional accruals to the account are being realized from earned interest of $158,656 and anticipated meter salvage values of $104,696. KCWA is also continuously installing meters in tandem with the installation company throughout the system which translates to additional ongoing savings to the program. The combined savings of utilizing Neptune, interest earned, and salvage value is what we are proposing to be utilized to fund the expanded program. The use of these monies is keeping with the spirit and intent of completing the entire metering infrastructure to benefit of all rate payers.

Q. What are the specific financial elements of the large meter program that you are proposing?

A. We are proposing a right-sizing/application program for every large and medium sized meter site. We would have the contractor perform a survey and produce a report for each location to determine the size and style/type of meter is in alignment with the needs of the facility in conformance with code and anticipated flow regimes.

i. The site survey cost is projected to cost $51,800 at $175 per survey.

ii. There are 222 UMEs that being proposed to be replaced at a material cost of $396,911.

iii. There are 212 bypass meters being proposed to be replaced at a material cost $69,624.

iv. The like-for-like replacement cost of single register large meters $131,640.

v. The meter and UME replacement costs are $303,510.

vi. The total for all of these elements is $953,484.

Q. How is KCWA determining which meters need UME and bypass meter replacement?

A. We will be replacing all UMEs and bypass meters that do not have the current meter reading technology for our Automatic Meter Reading (AMR) system. This is the same metric that was used in determining the small meter replacements. The Authority will not be replacing meters already installed that are the latest generation metrology and technology. The new AMR registers and radios will match what is being installed on all small meters under the current program.

Q. How many UMEs and bypass meters proposing be changed under the expanded meter program?

A. There are 222 UMEs that being proposed to be replaced at a material cost of $396,911. There are 212 bypass meters being proposed to be replaced at a material cost $69,624

Q. Why are there single register large and medium meters in the system, and do they test accurately?

A. These meters are artifacts left from the prior metering systems before standards were implemented. We have been having owners change out these meters to current standards as they fail or in concert with the installation of required backflow prevention. There are 19 single register meters left in the KCWA system that have historically tested accurate for the type of meter and flow regime for which they are designed which does not necessarily match up with the use. For example, fifteen out of the nineteen are non-compound turbine meters. These older turbine meters were designed to provide accurate measurements at only medium to high flows at a constant rate. Typical installation examples where this would be applicable are dedicated fire lines supporting hydrants and/or sprinkler systems, irrigation systems, or constant flow industrial applications. The non-compound turbine meters installed in the KCWA system are servicing both fire protection and domestic use within condominium or similar residential complexes with highly variable flow rates. The low flows are not accurately being measured because these meters are of the wrong application for the properties they are servicing and contribute to unaccounted for water and losses in revenue. Furthermore, these meters are greater than 20 years old and should be replaced to match the current technology being employed at the Authority.

Q. How does KCWA propose to solve this problem?

A. We propose having the owners change these meters out to Underwriters Laboratory (UL)/Factory Mutual (FM) listed meters that can accurately measure the full range of flows. KCWA would provide only the monetary equivalent of an in-kind replacement of the meter that is currently in place and the owners would be responsible for the pipe fitting and infrastructure to accommodate the appropriate meter. Some locations need to install required backflow prevention and the meter can be installed at the same time. We have two locations where that is occurring over the next several months.

Q. This sounds expensive for the owners to replace these meters if they are supporting fire flows. Are there alternatives?

A. Neptune has developed a new single register ultrasonic meter that is UL listed and is currently awaiting FM approval that is anticipated to occur by this summer. FM approval is mandatory in all metering applications supporting fire protection for conformance with NFPA requirements. The Neptune Protectus III meter that is currently used in these applications is UL/FM approved, but is three times the cost when compared to the ultrasonic alternative and also requires extensive pipefitting. Ultrasonic meter technology can measure the full range of flow more accurately within a smaller footprint using a single register. Once FM approved, these meters can be easily retrofitted in all large and medium metering applications at a much lower cost. Ultrasonic metering technology is quickly becoming the industry standard as battery technology has improved and the price has become manageable.

Q. If ultrasonic meters are the best available technology why weren't they being used for the small meter replacement at KCWA?

A. We researched and entertained alternatives during the bidding process and the price point was not competitive on the smaller meters. The cost would have been a couple of million more dollars in material and installation cost. However, as costs decrease, they will be a viable competitive alternative to replace the positive displacement (PD) meters currently being employed. There are no moving parts in ultrasonic meters and the accuracy is

maintained throughout the life of the component when compared to the PD meters that loose accuracy over time from wear of their mechanical components.

Q. How would the KCWA handle large meter testing moving forward under this program ?

The Division (DPUC) Rules section V, D, 1 requires large and medium meters to be tested every two years to ensure accuracy. The required biennial meter testing would be contracted through the Authority providing more control to manage the program. The testing costs would be passed on to the customer at a lower rate than they are most likely receiving because they would be receiving a discounting factor on bulk bid pricing. This is the same approach that Providence Water Supply Board is currently using with success to its rate payers. The current KCWA rate schedule only includes a meter testing charge for small meters. We propose to expand the language for medium and large meters in the current tariff description to codify the change. We eventually would like to train and certify our own staff to test and replace medium and large meters.

Q. Who owns the meter?

A. The property owner. The owner purchases the first meter when an account is setup in the system. If the meter is 2-inches or less, it is installed by KCWA. All large and medium sized meters are installed by a contractor and inspected by KCWA. Any new small meter installed under the program that is damaged because of neglect, the owner must pay for a replacement. It is our policy if the small meter has not been changed under the program and it is found that the meter was damaged due to neglect, we will not charge the owner for the first new meter that is installed in its place. This policy will sunset once the program is complete.

Q. If the property owner owns the meter how will they take possession of the new meter?

A. As before in a previous rate filing and approved replacement program, we are requiring property owner confirm the final reading of the old meter with the installation of the new meter by signature, transfer the old meter to us and provide them the new meter in exchange.

Q. The proposed expansion of the meter replacement program includes the medium and large meters. How will KCWA handle meters issues outside the scope of just replacing the UME and/or bypass?

A. It will be the owner's responsibility to repair or replace any connecting infrastructure if is leaking or in disrepair. Any meter that is damaged from neglect is also the owner's responsibility.

III. NEW RATE TARIFF CLASS

Q. Mr. Simmons, you stated that large and medium single register meters are only charged at the size class tariff on which they are assigned. How do you apply a rate that is fair and equitable to all medium and large meters moving forward?

A. We are providing a new volume rate tariff that would only apply to only single register large and medium sized meters. This will allow for new single register metering technology that is capable of accurately registering the full range of flow regimes to be integrated into the charge allocation system in a way that is fair and just. This rate could then eventually be applied to dual registered systems currently billed at two different rates based on their size class. Our current billing software applies the tariff based on meter size. All of our large and medium compound meter customers have two meter sizes, two account numbers, and the billing system applies the associated rate tariffs, respectively. We are in the process of updating our billing software so the future of metering will eventually be all single register systems and/or system that aggregate the totalized figures of compound meters with two registers. A single rate for each customer class will be clean and clear moving forward.

Q. If a single register rate tariff is created can it be implemented immediately?

A. Yes. There are only 19 customers that fall into this category and we would code the software to apply the tariff to only those customers. Also, the same developed blended rate can be applied to all large and medium compound meters moving forward.

Q. How did you calculate the needed rate tariff to these customer classes?

A. We applied a single rate for large and medium customer classes to match the revenue requirements using our cost of service model after removing the dual revenue streams coming from those same customers. Due to its complexity, we offer our rate consultant Mr. Bebyn from B&E consulting to testify on its makeup, cost and development.

Q. Mr. Simmons, will large and medium meter customers see a rate increase?

A. No. Ninety-five percent of our large and medium meter customers are compound meters that have two meters, a large meter that captures high flow and small bypass meter to capture low flow, respectively. These meters are individually charged at the tariff assigned to each size class. On average two-thirds of the flow on all compound meters in the KCWA system flows through the smaller bypass meter. Therefore, a rate reduction in the small meter class, if approved, will reduce the overall blended effective rate for the compound meter customers.

Q. Will the single register meters see a rate increase?

A. The rates would increase for these 19 customers. However, because these meters are not compound meters, they are not capturing the low flows. The flow measurement is the multiplier on which the tariff is applied for the size customer class. The rate tariff on large and mediums meters currently less than the small.

Q. What are the current metered sales volume rate tariffs for the different size classes?

A. Small (5/8" to 2" meters) are $6.161 per hundred cubic feet, medium (3" to 4"meters) are $4.913 per hundred cubic feet, and large (6" meters and up) are $4.475 per hundred cubic feet.

IV. NEW RESTRICTED METER ACCOUNT

Q. Mr. Simmons, you are proposing that the restricted meter account be maintained going forward, please explain.

A. The Authority does not want to go back to the rate payers in 15 to 20 years from now for $8 M to start the process over again. Instead, the Authority would slowly accrue the funds in a restricted account that will be utilized to fund ongoing replacements, maintenance, meter reading infrastructure, and testing of large meters.

Q. How did you arrive at the 8-million-dollar figure?

A. I determined the present value future worth of all small, medium, and large meters as bid and/or presented by the Authority's meter vendor. The future worth was calculated by taking the present value of $5,185,164 and compounding for 20 years at 2.25% annually $7,914,359.

Q. Why did you use 2.25% as your compounding factor?

A. This was the inflationary factor applied to the step increase on the multiyear rate filing approved under Docket 4611 and applied the same.

Q. What are you proposing for the restricted meter account funding level ?

A. We are proposing an annual funding of $396,000, or $33,000 monthly. This is arrived by taking $7,914,359 over 20 years.

Q **How are you proposing the timing future meter replacements?**

A. It is the goal to start changing out meters at a rate of 5%, or 1375 meters sized 2-inches and less per year continuously using KCWA staff starting in 2025. This equates to 26 installs per week. A meter installer can install ten (10) meters/day on average which can be managed with existing staff. The amount of replacements that can be performed is a function of size, location, and geographic proximity between appointments. We would adjust and calibrate to maximize efficiency. In addition to the small meters, we will train and certify the meter personnel in UME replacement and large/medium meter testing. There will be 56 large and medium UMEs 68 bypass meters that will need to eventually be replaced that are not being done under the current expanded proposal.

Q. Why are you choosing 2025 as the start ?

The metric that will be employed to determine replacement will be age, volume, and warrantied/non-warrantied failures. We are choosing 2025 because several of the meters that are being left in the system will be ten years old as installed. The most common failure on meters is within the electronics and/or battery. The industry standard warranty on the meter manufacturers on these components is twenty-year warranty referred to as a ten-ten warranty This type of warranty meaning that there is only 100% replacement on the register, radio device, and battery if it fails within ten years of the shipment date. The following ten years are prorated each year up to twenty years. There will be several failures that occur within the electronics over the next five years and beyond. There will be additional problems and issues that arise over the next five to ten years that will require replacement prior to twenty years. The decrease in meter accuracy on small meters, or slippage, is also a function of totalized flow volume. We will be also looking at changing 5/8" through 3/4" meters, over 20,000 in the KCWA system, that show volumes greater or equal to 180K cubic feet. It has been demonstrated by the meter manufacturer that after a certain amount flow in the smaller meters, that there is wear to the internal measuring components on the positive displacement meters that contributes to diminished accuracy over time. Lastly, we will train our meter staff on UME replacement and testing of large and medium compound meters. There are 56 large and medium UMEs, 68 bypass meters that will need to be replaced that were not included in the initial program.

Q. Do you feel you are adequately staffed to meet the future meter programming needs?

A. Yes. Currently we have four meter readers reading a third of the system, or approximately 9000 meters, every month. We provide our customers with quarterly readings that are manually collected and uploaded into our utility billing software. As the current meter program progresses our meter reading staff will be transitioning to other meter related customer service roles including meter reading analyst, leak detection, and repair/replacement. When the AMR system is fully deployed, we will read the entire system in a couple of days using one person with a connected laptop in a truck or van.

Q. What roles besides meter replacements do you envision for the staff?

It will be primarily customer service driven responsibilities. We will be shifting to monthly reading and billing for all customers and will also be deploying cloud-based utility billing and customer information system to allow automatic bill payment and a customer portal to view and pay their bill online. This will give the customers the information more frequently to better manage budgeting and potentially proactively locate higher-than-normal water consumption with comparative graphs. Today, there are 90 or more days where a leak can present itself without the customer knowing and it creates an enormous bill. Customers will call on KCWA to investigate issues that the software may not pick up. The new AMR meter technology will allow our meter staff to perform temporal consumptive use analysis. Follow up by the staff using data analytics and reporting provided by the software will drive more efficient and effective post processing prior to uploading to the utility billing/customer information system. This post processing will involve our staff to quickly analyze flagged accounts generated by the meter reading software on a map displaying various outliers such as high or zero consumption amounts, tamper, or misreads to determine outliers via flags presented by the meter reading software. Many times, these meters will have to be investigated further by the staff to gather additional consumption data or determine the root cause of a flag. The meters can store/log up to 90 days of usage data that can be acquired via software on a laptop, tablet, or smartphone via remote communication. These data can be presented to the customer in person, emailed, or presented via a customer portal. In addition to the duties described above, all meter readers are crossed trained and certified by RIDOH as both distribution and treatment operators to provide value added functionality across the entire organization. They would continue to perform additional duties and assigned tasks as they are currently doing today.

Q. Will the creation of the new single register large and medium meter rate include the costs associated with the expanded program?

A. Yes. Because 95% of the large meters are compound meters with small bypass meters. There will be an overall decrease in rates to all customer classes when that takes effect. The single register large and medium rates will be calculated after the rate decrease is implemented. The new single register rates will include that small portion of funding.

V. PRIVATE FIRE SERVICES:

Q. The Commission required the Authority to submit a compliance filing by April 1st 2017 to investigate fire services being provided by large and medium compound meters? The report purported that there are 130 unmetered fire lines. These water lines have the potential of being used but the Authority would never know the amount of water being consumed. How is the Authority managing this issue?

A. All water lines are required to have backflow protection for the protection of public water systems outlined in the provisions of RIGL 46-13-22 and RIDOH Cross Connection Control regulatory requirements. Many customers have converted to single line and metering and backflow protection to come into compliance to the law. However, there are 118 unmetered fire lines with backflow prevention. We are only charging these customers a fire line charge based on the line size of those services. We would like to possibly employ the new UL/FM approved ultrasonic metrology for these lines or have them retrofit existing backflow assemblies with integrated meters called detector checks. These detector assemblies are typically used on fire sprinkler systems as a means of backflow prevention and to record unauthorized usage of water.

Q. Are the same fire line charges that are being applied to these unmetered also being applied to their metered counterparts supporting the same service?

A. No, they are not. However, they should be getting the fire line charge because the infrastructure that is built around supporting those services is being funded, in part, from all fire charges. The metered customers that support both domestic and fire use (master metered) are currently only being charged a metered sales service charge. We will be changing the coding in our billing system to charge fire service line charges wherever there are combined fire and domestic metered services being rendered.

Q. How many large and medium meter services fall into this category?

A. There are 270 services. There are (81) four-inch,(105) six-inch, (68) eight-inch, and (16) ten-inch services.

Q. Are there private hydrants installed behind large and medium master meters ? How are these hydrants being charged currently?

A. Yes. These hydrants are not being charged individually in all cases where the serviced are being metered for fire and domestic use.

Q. How many accounts that are master metered have private hydrants?

A. There are 136 accounts with hydrants located downstream of a master meter.

Q. How many private hydrants are downstream of master meters?

A. Our most current records show 513 private hydrants are located after master meters.

Q. Will there be a rate reduction to all fire service charges if the changes are applied?

A. Yes. The cost will be spread out over a larger number of services thereby reducing the overall rate across all public and private fire related services and charges.

Q. What are the specific financial impacts to these customers?

A. Due to its complexity, we offer our rate consultant Mr. Bebyn from B&E consulting to testify on its makeup, cost and development.

VI. WHOLESALE RATE

Q. What are the total water sales for the Kent County Water Authority during each of the last five fiscal years (excluding Warwick)?

A. Last five fiscal year water sales in cubic feet are as follows:

FY 15 – 322.8 million cubic feet
FY 16 – 334.2 million cubic feet
FY 17 – 320 million cubic feet
FY 18 – 306.9 million cubic feet
FY 19 – 315.1 million cubic feet

Q. Does this show a clear downward trend in sales?

A. It does relative to the average of 319.8 million cubic feet over the last five years and when you look over a longer period of time. The long-term trending is essential to determining an established downward trend and estimating future demand. We do believe our sales are now stabilized to our new "normal" operating range.

Q. What is your understanding of this trend?

A. I believe it relates to primarily the loss of our large industrial/commercial base, wetter than normal years, generally less water use by our customers to control cost, and the use of low flow plumbing devices. Wetter than normal years should be further explained as the timing of rainfall during the spring, summer, and fall outdoor demand that negates the need for irrigation. The Authority's service area has evolved to primarily a residential system with the conversion of many of its mills being converted to housing coupled with suburban sprawl.

Q. Mr. Simmons, you are proposing a permanent interconnection with Quonset Development Corporation (QDC). Please review why this is being proposed.

A. The Authority was approached by QDC to install a metering and pressure reducing station to provide the business park additional water to augment their existing supply for future growth. The purpose of the interconnect is to supplement their primary source of water.

Q. Why is this good for KCWA rate payers?

A. A permanent interconnection with QDC to sell more water in in the best interest of all rate payers of the KCWA system. There has been an extreme reduction of industrial and commercial water use over the last 20 years. KCWA has gone from a peak day demand of 20 to 25 MGD to 10 to 15 MGD. The system infrastructure was built around those peaking factors but the capacity is no longer being utilized. Providing water to QDC would fill the gaps left behind by the large commercial/industrial customers that have departed the KCWA service area.

Q. How much water is QDC requesting?

A. They are looking for 200 gallons per minute (GPM) with a base of 50 GPM constant base flow to the park. The current average day demand for QDC is 0.60 million gallons per day (MGD) with a buildout capacity of 1.7 MGD.

Q. Can KCWA provide the water they need?

A. Yes. KCWA can easily provide up to the full buildout capacity of 1.7 MGD when and if needed.

Q. Why are they not asking for the full amount of water?

A. The cost is higher for them to purchase water from KCWA than it is for them to produce using their own wells. They are not objecting to the idea, but they do not want to present their existing customers with a cost increase all at once. They want to gradually bring up the baseflow from our system over time.

Q. Did the QDC propose a wholesale rate to KCWA?

A. QDC sent a letter to KCWA to the Board of Directors to review a proposed rate structure that QDC developed. It was explained to the QDC representatives and to our board the following regarding the setting of rates:

KCWA is a regulated utility and does not have the authority to set rates outside of the approved cost of service guidelines. KCWA is a non-profit public benefit corporation on which all rates are rigorously scrutinized across all customer classes. Currently, QDC is subject to the retail water rate as required under our rate structure approved by the Public Utility Commission (PUC) and defined in the current emergency interconnection agreement. All rates are arrived at using an approved cost of service study and vetted through a standard public rate filing where all stake holders could intervene. Rate setting questions/adjustments outside of the existing cost of service projections would require a cost of service evaluation and then would have to be directed to the PUC for review where new cost of service would be established. This is the process that will need to occur if a specific wholesale rate is to be introduced into our tariff schedule

Q. There is an agreement already in place between QDC and KCWA?

A. Yes, there is an emergency interconnection agreement with the necessary infrastructure in place if they needed water from KCWA. This agreement states that the water would be conveyed at the retail rate in the event of an emergency. QDC is looking for a permanent connection which will require a new agreement.

Q. Has KCWA performed analysis and developed the cost of service model to create a wholesale rate?

A. Yes. Due to its complexity, we offer our rate consultant Mr. Bebyn from B&E consulting to testify on its makeup, cost and development.

Q. Why should QDC be afforded a wholesale rate?

A. The QDC is a quasi-state agency, established as a special purpose subsidiary of the Rhode Island Commerce Corporation (formerly the RI Economic Development Corporation) which is responsible for the development and management of the Quonset Business Park. QDC's position is because they are a quasi-state agency with a medium sized fully operating certified public water system with significant capital, infrastructure, and administrative cost that will need to be maintained regardless of the source of water feeding the park. KCWA would not be responsible for anything after the master meter. A vetted wholesale rate using the cost of service model in this case is fair and reasonable and will positively benefit all KCWA rate payers.

Q. Does QDC have its own water sources to satisfy the growth needs within the park?

A. Yes, However, QDC and KCWA both use ground water wells located within the Hunt River Aquifer. The issue is primarily environmental in nature. KCWA has two wholesale interconnections connections from Providence Water Supply Board (PWSB) that can be conveyed to the South to backstop the existing supply in that region. Analysis performed by the RI Department of Environmental Management suggests that the intermittent surface flow conditions may be influenced by high water withdrawals from the aquifer. The water supply being conveyed through the KCWA to QDC will purportedly relieve the stress on the aquifer and provide an alternative water source thus enhancing the reliability of the

available water to allow them to maximize growth with the business park. QDC wants to present to all new businesses that are interested in coming to RI and produce new jobs that there are zero utility constraints in regard to available water. It is our understanding that businesses are being turned away from locating in Rhode Island within the QDC complex because they are being told there is not enough water supply.

Q. Was legislation required in order to allow water sourced from Providence Water Supply Board to be sold outside the basin of the south branch of the Pawtuxet?

A. Yes, due to older riparian restrictions, legislation was required to allow public water suppliers receiving water from PWSB to sell water outside of the basin of the south branch of the Pawtuxet River. To resolve this issue legislation was introduced Senate bill S-2804 from session year 2016 entitled, AN ACT RELATING TO STATE AFFAIRS AND GOVERNEMENT – QUONSET DEVELOPMENT CORPORATION and House companion bill H 7048 ultimately which passed and became law recorded in 2017: *Title 42 -State Affairs and Government Chapter 42-64.10 Quonset Development Corporation Section 42-64.10-6 Additional general powers and duties.* The law does not make any specific reference to KCWA but did set the legal precedence necessary to allow any city, town, county, water district, or other water supply authority that receives water from PWSB to enter into agreements to receive water from such entities regardless of the origin of the supply.

VII. OTHER CHARGES

Q. Are you proposing other change the rate schedule?

A. Yes, only language changes. We are proposing a change "Installation and Repair Work" to "System Services" with a description that states "applicable to all installation, repair, and hydraulic model work.

Q. Why are you making this change?

A. We will be performing hydraulic model services for new developments. Historically this was performed independent of the Authority by a private engineering firm only. We will be able to provide the same services at a lower cost to our customers if they desire.

1 **Q. Are there any other changes to the rate schedule ?**

2 **A.** Yes. We are increasing the returned check fee from $20.00 to $35.00. This fee is a pass-
3 through charge as dictated by the bank and does not apply to KCWA revenues.

4

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

6 **A.** Yes

Pre-Filed Direct Testimony

of

David G. Bebyn CPA

On Behalf of

Kent County Water Authority

Docket No. ____

January 31, 2020

INTRODUCTION

Q. Please state your name and business address for the record.

A. My name is David G. Bebyn CPA and my business address is 21 Dryden Lane, Providence, Rhode Island 02904.

Q. By whom are you employed and in what capacity?

A. I am the President of B&E Consulting LLC (B&E). B&E is a CPA firm that specializes in utility regulation, expert rate and accounting testimony, tax and accounting services.

Q. Mr. Bebyn, have you testified as an expert accounting witness prior to this docket?

A. Yes. I have provided testimony on several rate related matters before utility commissions in Rhode Island and Connecticut. Regarding the Rhode Island Public Utilities Commission (Commission), I have prepared testimony and testified in A&R Marine's general rate filing Docket #4586 and on behalf of the Pascoag Utility District in Docket #4341 in support of the adjusted test year, rate year and rate design. I have also prepared testimony and testified in Dockets #4800 and #4435 regarding revenue requirement and rate design on behalf of the Towns of Narragansett and South Kingstown in their intervention of SUEZ Water-RI and United Water (predecessor of SUEZ) rate cases. In addition, I also prepared testimony and testified in the Woonsocket Water Division's (WWD) last rate filing in Docket #4879 in support for the adjusted test year, rate year and rate design. Docket #4879 was a multi-year filing which covered a 5-year period.

Q. What is your educational background?

A. I received my Bachelor of Science Degree in Accounting (BSA) from Rhode Island College. I became a Certified Public Accountant in 2000 after passing the CPA exam.

Q. What is the purpose of your testimony?

A. B&E was engaged by Kent County Water Authority (KCWA) to provide testimony in support of its rate request. I will be providing supporting testimony and schedules for this abbreviated filing. This abbreviated filing is primarily concerned with addressing Commissions Order dated November 27, 2018 and its attached Settlement Agreement in paragraph 24, in which KCWA was required to submit a compliance filing to address either the terminating funding of the meter program effective January 1, 2020, or whatever date the program funding would be complete.

Q. Mr. Bebyn why is this filing not just a compliance filing rather than this abbreviated filing?

A. Kent County Water Authority (KCWA) had discussions with the Commission and Division prior to the compliance filing of October 1, 2019 which would have terminated the funding related to the meter replacement program. KCWA had discussed maintaining a portion of the meter replacement program funding to expand the program to cover medium and large meters as well as cover the possibility of additional capital needs. The recommendation of these discussions was for KCWA to seek an extension and file an abbreviated filing rather than the compliance filing. The Commission approved KCWA's request to extend the compliance date to February 1, 2020. After exploring the meter program in the best interest of its rate payers, KCWA submits this abbreviated rate filing.

Q. What is included in your testimony?

My testimony includes a presentation of the normalized test year (December 31, 2018), the rate year expenses that I have developed and the proposed rate year revenues. The supporting schedules also include an updated cost of service study that allocates the functional costs to various cost components, and then distributes those costs to customer classes and types of service. I have presented the development of proposed new water rates and charges for the KCWA.

In general, I have prepared the analysis attached as supporting schedules along the same lines as those that have been approved by the Commission in KCWA's prior rate filings. KCWA's last full rate filing (Docket #4611) was submitted in April of 2016.

PRIOR COMMISSION DOCKETS

Q. Before starting with the normalization of the test year, would you please give the Division of Public Utilities and Carriers (Division) and Commission an update as to the status of the last docket proceedings on rate issues?

A. Certainly. KCWA filed its last general rate application with the Commission on April 7, 2016, in Docket #4611. After Commission suspension and subsequent review and hearings, the rates went into effect for the rate year as of January 1, 2017. KCWA had requested a rate increase of 12.7% for the collection of $3,296,334 in additional operating revenues for the total service of $23,023,351. In the second step of the rate plan, KCWA proposes to implement rates effective July 1, 2017 to collect additional operating revenues of $874,192. The impact of the second step will be an across-the-board rate increase of 3.85% on all rate classes. In the third step of the rate plan, KCWA proposes to implement rates effective July 1, 2018 designed to collect additional operating revenues of $1,480,302. The impact of the third step will be an across the-board rate increase of 6.28% on all rate classes. The major part of the first step increase was the implementation of a meter replacement program. The funding for this program was $2,000,000 of funding starting with step one and an additional $300,000 in step two of the rate plan.

KCWA also proposes the following: 1) a demand surcharge that would be fixed charge based on meter size to fund $500,000 of KCWA's debt service, 2) an alternative seasonal rate to promote conservation pursuant to R.I.G.L. § 39-15.1-3(d), and 3) an optional Public Fire Service Charge based on size of meter. Approval of the optional Public Fire Service Charge would eliminate the Public Fire Service Charge to municipalities and fire districts and re-allocate this cost directly to the retail customer through the customer charge.

KCWA then entered into a settlement agreement with the Division, which resulted in KCWA being authorized to adjust rates as of January 1, 2017 to obtain an additional $2,780,976 of revenues or 14.34% of normalized Test Year revenues a in the first step of KCWA's multi-year rate plan, In Addition, the parties agreed to consolidate the second and third steps of the multi-year rate plan into a single second step to be effective January 1, 2018. As part of this second step increase, the parties agree to an increase of revenues by an amount not to exceed $1,057,660 or 4.77%.

In addition to the step increases, the parties agreed to have KCWA agrees to file a request with the Commission, no later than October 1, 2019, to terminate the funding related to the meter replacement program effective January 1, 2020 or on whatever date the program funding is completed. In addition, KCWA withdrew its proposed demand surcharge and seasonal rate, as well as, KCWA withdrew its proposal to recover costs associate with public fire service directly from individual retail customers alternatives. Lastly, KCWA agrees to complete an investigation on whether compound meters are supporting private protection service. After review and hearing, the Commission approved the settlement.

Q. Aside from the general rate filing of Docket 4611, was there any other proceedings?

A. Yes. The KCWA also file a Motion to Pass Through Wholesale Rate Increase on August 25, 2016 in Docket 4641. The wholesale rate increase from Providence Water added $185,690 to KCWA's purchase water expense. The pass-through of this higher expense resulted in a 1.01% increase in KCWA's metered rates.

Q. What revenue requirement increase is KCWA requesting in this docket?

A. The KCWA is actually requesting an overall rate reduction. This reduction is primarily the result of eliminating part of the funding of the meter replacement program. In addition, there is additional revenue from a new wholesale customer which has also contributed to the overall rate reduction. KCWA is requesting a revenue reduction in the

amount of $2,050,751 that will decrease total rate year revenue to $21,894,055. This represents a revenue requirement decrease of 8.56%.

Q. Does that conclude your introduction?

A. Yes.

TEST YEAR (DECEMBER 31, 2018)

Q. What test year did you use?

A. I used the test year January 1, 2018 to December 31, 2018.

Q. Why was this period used for the test year?

A. This was part of the discussions that KCWA had with the Commission and Division on preparing an abbreviated filing rather than a compliance filing. In order to keep the issues to a minimum in this abbreviated filing, the test year was set using the rate year from the second step in Docket 4611. This rate year is also adjusted for Docket#4641 pass-through expenses from Providence Water's rate increase.

Q. Please provide the Commission with the detailed steps you took to develop the test year.

A. I obtained the detailed rate year from the settlement step one in Docket 4611 and added the second step activity along with the Docket#4641 pass-through expenses (DGB-TY-3). The resulting balances present the approved December 2018 balances which include the Docket#4641 pass-through expenses.

Q. Mr. Bebyn, in your professional opinion, does your adjusted test year present a proper normalized test year?

A. Yes. I believe that the adjusted test year that I have prepared for this filing (DGB-TY-1) fairly presents the operations of KCWA in a normal year on a ratemaking basis with currently approved rates.

Q. Did you prepare any other schedules in support of the test year?

A. Yes, I did. I prepared Schedules DGB-TY-2 to detail the test year revenues by source, tariff and rate class. The calculations to detail the adjusted test year revenues by

source use the rates approved in Docket #4641 for the metered rates and Docket#4611 for all other rates.

Q. Did you prepare any other schedules?

A. Yes, I did. I prepared Schedule DGB-TY-3, DGB-TY-3a and DGB-TY-3b to reconcile the expense for the step two (Docket#4611) and Docket#4641 pass-through expenses with the detailed individual expenses line items on the settlement numbers from the detailed step one expenses.

Q. Does that conclude your testimony of the test year?

A. Yes.

Q. What would you like to discuss next?

A. I would like to review my schedules for the rate year.

RATE YEAR REVENUES (FYE DECEMBER 31, 2020)

Q. Mr. Bebyn did you make any changes to total rate year usage and counts?

A. As detailed in Mr. Simmons's testimony, KCWA was approached by Quonset Development Corporation (QDC) to purchase water in order to supplement their primary source of water. QDC is requesting an annual amount of 35,135 HCF currently. QDC is asking for this reduced amount to minimize the rate impact to its own ratepayers since the KCWA wholesale costs will be higher than the costs for QDC to produce its own water. Aside from this adjustment, all other counts were left at test year levels.

Q. What rate did you use for the QDC wholesale?

A. QDC is a new wholesale customer for KCWA. KCWA does not currently have any wholesale customers and as a result does not have a wholesale rate. Initially I used the large meter size rate to prepare schedule DGB-RY-2. This is the amount for rate year revenues at current rates. For the purpose of proposed rates for the rate year the wholesale rate was calculated on schedule DGB-COS-3. The proposed wholesale rate for this filing is $3.86 per HCF.

Q. Mr. Bebyn, was there any other revenue modification made to the rate year?

A. Yes, in addition to the new wholesale account there are some additional reclassifications to reflect the difference between Medium and Large accounts broken down by those with single registers and compound meter with a dual register one for the large and small by-pass respectively. In addition, there was also there the addition of combined fire and domestic metered services identified as part of the Commission required investigation of fire services being provided by large and medium compound meters. Please see the rate design section of my testimony for a more detailed explanation of these new classifications.

Q. Have you prepared any schedules which support your rate year calculation?

A. Yes. I have prepared schedules DGB-RY-2.

Q. What is your projected Rate Year Revenue at current rates?

A. I have projected $23,594,349 as shown on Schedule DGB-RY-2

Q. Does that include your revenue analysis?

A. Yes, it does. Next, I would like to discuss my expense adjustments (Schedule DGB-RY-1).

RATE YEAR EXPENSES (FYE DECEMBER 31, 2020)

Overview

Q. How would you like to proceed with your review of expenses?

A. I would like to first address the accounts would be impacted by the additional water sold due to the impact from adding wholesale sales to the rate year. These expense accounts have been adjusted prorated based on the pre-adjusted costs with the pre-adjusted water sales.

Q. What accounts are adjusted from this change in water sales?

A. The account that are adjusted for the change in water sales was, purchased water, fuel for pumping, power for pumping and chemicals.

Q. What rate year changes did you make to the funding of the meter replacement program?

A. The current meter replacement program which covered the replacement for small meter class ($2,300,000 funding between the step one and step two rate plan from Docket #4611) was replaced with a meter replacement program for all meters as requested in this filing. Mr. Simmons goes into detail into how much annual funding will be needed for this new program and how the program will operate in the NEW RESTRICTED METER ACCOUNT section of his testimony. Mr. Simmons calculated that the new program needs annual funding of $396,000 for the rate year. The test year value of $2,300,000 was reduced by $1,904,000 to provide the adjusted rate year funding of $396,000.

Q. Mr. Simmons testimony also address project scope adjustment for the current meter replacement program, how is the funding for this addressed in the rate year?

A. The project scope adjustment Mr. Simmons addresses in his testimony does not involve any additional funding for the rate year. The expense for the Medium/Large meter replacement program is covered by funds already accumulated in the current meter replacement restricted account. Since the program can be covered by existing funds no adjusted was required for the rate year.

Q. Does this project scope adjustment have any impact for the rate year?

A. Yes, it does. The current meter replacement was funded exclusively through the small class metered water rates. Since the medium/large accounts did not directly contribute to the funding of the current meter replacement, the small account metered water rates would be inequitably subsidizing the medium account metered rates and the large account metered rates. To address the inequity the small account metered rates are provided a funding credit which the medium account metered rates and the large account metered rates fund contribute with an increase to their rates respectively.

Q. Where is this credit to the small account metered rates addressed in your schedules and how was the amount determined?

A. This issue is addressed on my Schedule DGB-COS-3a. I have continued with the metered replacement program funding with a final allocation to each meter rate size class after the base/max day/max hour allocations just like the way it was handled in the settlement schedules for Docket #4611. Schedule DGB-COS-3a presents the allocation of the credit funding prorated to the medium account metered rates and the large account metered rates fund. The amount of the annual funding was determined by taking calculated $953,484 as calculated in Mr. Simmons testimony, need for the medium/large meter program and amortizing to be recovered over 4 years. This 4-year amortization provides a $238,371 credit to the small account metered rate class. While the current small meter program was accumulated over a 3-year period, this filing uses a 4-year amortization to lessen any rate shock to the medium account metered rates and the large account metered rates.

Q. Mr. Simmons mentions that medium and large account have contributed thru their small bypass meter, if so, why is this necessary?

A. This adjustment is necessary because not all medium and large accounts have a bypass meter. Likewise, not all small meter accounts are bypass meters. Mr. Simmons is however correct that of the medium or large accounts that have a bypass meter will benefit from the effect of this credit. Those account will have a net reduction in their rates as opposed to the accounts that are a strict single register medium and large account. Those medium and large account single register counts who will have an increase in their rates.

Q. Mr. Bebyn, was there any other expense modification made to the rate year?

A. Yes, as a result of the other rate year adjustment, the operating reserve allowance was adjusted accordingly.

Q. Does that conclude your rate year analysis?

A. Yes.

Q. What would you like to discuss next?

A. I would like to review my schedules for rate design.

RATE DESIGN

Q. Mr. Bebyn are you proposing a change in rate design for this case?

A. No. While I am not proposing any major change to the general structure of the rates, the changes to individual rates and charges vary by different percentages. The cost allocations are in conformance with those approved in Docket #4611. The proposed rates are based on the cost allocation study included in Schedules DGB-COS-1.

Q. Please describe your rate design schedules.

A. There are seven main schedules, several of which include supporting schedules. These schedules are:

1. **Schedule DGB-COS-1** This schedule presents the allocation of the rate year expenses (Schedule DGB-RY-1 & DGB-RY-2) to the various cost functions. As indicated earlier, this generally follows the allocations approved in the prior dockets.
   - **Schedule DGB-COS-1A** This schedule presents the allocation of the labor expenses to cost functions. The overall labor allocation is used to allocate certain labor related costs.
   - **Schedule DGB-COS-1B** This schedule presents the derivation of various allocation symbols or allocators that were used in the prior schedules. For the most part, these are the same or derived in the same manner as the allocators used in the prior dockets.

2. **Schedule DGB-COS-2** This schedule presents the allocation of the functional costs to the metered rate schedule elements.
   - **Schedule DGB-COS-2A** **This** schedule presents the derivation of the allocators used on Schedule DGB-COS-2. Again, they are the same or derived in the same manner as the prior dockets

3. **Schedule DGB-COS-3** This schedule presents the calculation of the metered retail and wholesale rates.
    a. **Schedule DGB-COS-3A** **This** schedule presents the allocation of the new meter replacement program funding used on Schedule DGB-COS-3.

4. **Schedule DGB-COS-4** This schedule presents the allocation of the functional costs to the customer service rate schedule elements.
    a. **Schedule DGB-COS-4A** **This** schedule presents the derivation of the allocators used on Schedule DGB-COS-4. Again, they are the same or derived in the same manner as the prior dockets

5. **Schedule DGB-COS-5** This schedule presents the calculation of the service charges on a quarterly and monthly basis.

6. **Schedule DGB-COS-6** This schedule presents the allocation of the functional costs between public and private fire.
    a. **Schedule DGB-COS-6A** **This** schedule presents the calculation of the fire protection service charges on a quarterly and monthly basis.
    b. **Schedule DGB-COS-6B** **This** schedule presents the rate year counts for public and private fire.

Q. Have you prepared any other schedules?

A. Yes. I prepared a schedule summarizing current rates and proposed rates (See Schedule DGB-COS-7). I also included a schedule calculating the impact on each ratepayer class (See Schedule DGB-COS-8).

Q. What is the overall impact of the proposed rates on a typical residential customer?

A. Schedule DGB-COS-8 presents the impacts on various customers and types of services. A typical residential customer who uses 2000 CF per year will see their water bill decrease by 8.6% from $185 to $169 per year. This would represent a $16 decrease per year. These savings are increased as the volume of consumption increases.

REVENUE PROOF (FYE DECEMBER 31, 2020)

Q. What schedules have you prepared as part of your revenue proof?

A. I have prepared schedules DGB-COS-9.

Q. Was there any modification for the rate year usage of counts as presented on DGB-RY-2?

A. Yes. As mentioned in my rate design section, there was a modification for reclassification of new rate classes for Medium and Large accounts broken down by those with single registers and compound meter with a dual register one for the large and small by-pass respectively. This reclassification is presented on DGB-COS-3. In addition, there was also the addition combined fire and domestic metered services identified as part of the Commission required (Docket#6411) investigation of fire services being provided by large and medium compound meters. These additional counts are presented on DGB-COS-6B.

Q. Why were addition of combined fire and domestic metered services are not presented on DGB-RY-2?

A. The addition of these new accounts in the end had a revenue neutral impact for the cost recovery of fire related costs. The inclusion of these counts on DGB-RY-2 would have given the incorrect impression that there were additional total fire related revenues for the rate year.

Q. Based upon your calculation as part of your revenue proof, do the proposed rates proof out to the total revenue requirement?

A. Yes. While there is a minor variance due to rounding, the proposed rates proof out to the total revenue requirement.

Q. Does that conclude your testimony?

A. Yes.

Detailed of Test Year Revenue & Expenses
Kent County Water Authority

		Test Year 1/1/18-12/31/18	
Revenues			
Service Charges	$	1,907,853	A
Metered Rates		19,523,270	A
Public Fire		1,788,689	A
Private Fire		217,404	A
Rate Revenues	$	23,437,217	
Miscellaneous Income		244,795	B
Interest Income		21,464	B
Merchand & Jobbing		18,811	B
6.9% of Water Prot Fee		45,581	B
Miscellaneous	$	330,651	
Total Revenue	$	23,767,867	
Expenses			
SOURCE OF SUPPLY			
maint of wells/supply study	$	19,149	B
purchased water		4,629,127	B
Subtotal	$	4,648,276	
PUMPING OPERATIONS			
fuel for pumping	$	24,497	B
power		795,804	B
labor-pumping		88,457	B
pumping expense		-	B
maint. - structures & improv		89,053	B
diesel oil		-	B
maint. - equip		60,420	B
Subtotal	$	1,058,232	B
WATER TREATMENT			
chemicals	$	168,441	B
labor		199,893	B
operating / Mishnock		70,718	B
maint. - water treat equip		18,978	B
maint. - structure		704	B
Subtotal	$	458,734	B

(A) See Schedule DGB-TY-2
(B) See Schedule DGB-TY-3

Detailed of Test Year Revenue & Expenses
Kent County Water Authority

TRANS & DISTR. EXPENSE			
storage facilities exp.		$ -	B
labor		25,794	B
supplies		115,531	B
labor-meter		56,374	B
meter - supp & exp		13	B
cust. install.		-	B
misc.		14,332	B
maint - struct. & improv.		61,616	B
maint.- res & stdp		21,960	B
maint. - mains		649,344	B
maint. - service		155,029	B
maint. - meters		150,716	B
maint. - hydrants		85,649	B
construction labor		(70)	B
	Subtotal	$ 1,336,287	B
CUSTOMER ACCOUNT			
labor- meter read		$ 118,526	B
cust record labor		218,968	B
cust records sup		103,571	B
meter read supplies		2,708	B
uncollectible		62,046	B
	Subtotal	$ 505,818	
ADMIN. & GENERAL			
salaries		$ 479,217	B
office supplies & expenses		278,498	B
insurance (property/liability/wc)		278,482	B
OPEB Trust Contrib.		82,715	B
employee benefits		1,091,013	B
maint. - plant		157,568	B
maint. - vehicles		65,155	B
miscellaneous		17,123	B
vacation, holiday, sick		321,965	B
regul. exp.		157,881	B
outside service		97,156	B
	Subtotal	$ 3,026,772	
TOTAL O&M		$ 11,034,118	

(A) See Schedule DGB-TY-2
(B) See Schedule DGB-TY-3

Detailed of Test Year Revenue & Expenses

Kent County Water Authority

FIXED CHARGES			
Debt Service			
	Existing	$2,183,250	B
	New	-	B
Reserves and Coverage		-	
	O&M Reserve	14,185	B
	R&R Reserve	132,336	B
Renewal & Replacement - Equip		100,000	B
Infrastructure Replacement		6,000,000	B
Meter Replacement		2,300,000	B
CIP		1,453,819	B
Payroll Taxes		175,621	B
PILOT		23,123	B
SUBTOTAL FIXED		$12,382,334	
OPERATING REVENUE		$ 348,494	B
TOTAL EXPENSES		$ 23,764,946	
NET INCOME		$ 2,921	

(A) See Schedule DGB-TY-2
(B) See Schedule DGB-TY-3

Detail of Revenues by Source,
Tariff & Rate Class
Kent County Water Authority

Schedule DGB-TY-2

		<------- Current ------->		
Service Charge:	(A)	(B)		
Quarterly	Number	Rate		Revenue
5/8 & 3/4	88,320	$15.41	$	1,361,011.20
1	14,600	$20.42	$	298,132.00
1 1/2	1,296	$29.84	$	38,672.64
2	2,008	$37.99	$	76,283.92
3	44	$48.67	$	2,141.48
4	356	$69.37	$	24,695.72
6	356	$115.19	$	41,007.64
8 & up	268	$194.89	$	52,230.52
Monthly				
5/8 & 3/4	60	$11.22	$	673.20
1	12	$12.89	$	154.68
1 1/2	108	$16.03	$	1,731.24
2	96	$18.75	$	1,800.00
3	12	$22.31	$	267.72
4	36	$29.21	$	1,051.56
6	84	$44.48	$	3,736.32
8 & up	60	$71.05	$	4,263.00
			$	1,907,852.84
	Number			
Consumption Charge:	100/cu.ft.			
Proposed				
Small (5/8-2" meters)	2,939,584	$6.16	$	18,110,776.81
Medium (3&4" meters)	66,721	$4.91	$	327,801.49
Large (6" & up meters)	242,389	$4.48	$	1,084,692.00
			$	19,523,270.30
Fire Protection:	Number			
Public Hydrants	2,357.00	$758.76	$	1,788,397.32
# bills	32.00	$9.13	$	292.16
			$	1,788,689.48
Private Fire Protection				
4 in	16.00	$305.40	$	4,886.40
6 in	95.00	$817.52	$	77,664.40
8 in	16.00	$1,700.92	$	27,214.72
10 in	1.00	$3,029.68	$	3,029.68
12 in	1.00	$4,871.36	$	4,871.36
hydrant	122.00	$817.52	$	99,737.44
			$	217,404.00
Total			$	23,437,216.62

(A) Counts approved by Commssion order # 23343 in Docket # 4611 (effective 1/1/17) Not changed in pass through or Step 2 filing

(B) Rates approved by Commssion order #23436 in Docket # 4611 (effective 1/1/18)

Detailed of Test Year Expenses
Kent County Water Authority

Expense Item	Rate Year (A) 7/1/16-6/30/17	Pass thru Increase (B) Pass Thru Costs	Step Increases for 2018 (C): New Debt (see Joint Settl. Sch. 1D)	Salaries (full yr) (See Joint Settl. Sch. 1D)	Inflation (non-labor O&M)	Additional Benefits	Additional Meter Program Costs	Additional CIP Costs	IFR Increase	Rev. Stabiliz @ 1.5%	Rate Year (C) 1/1/18-12/30/18
SOURCE OF SUPPLY											
maint of wells/supply study	$18,520				$629						$19,149
purchased water	$4,297,581	$185,690			$145,856						$4,629,127
Subtotal	$4,316,101	$185,690	$0	$0	$146,485	$0	$0	$0	$0	$0	$4,648,276
PUMPING OPERATIONS											
fuel for pumping	$23,693				$804						$24,497
power	$769,682				$26,122						$795,804
labor-pumping	$85,848			$2,457	$152						$88,457
pumping expense	$0				$0						$0
maint. - structures & improv	$86,410			$2,337	$306						$89,053
diesel oil	$0				$0						$0
maint. - equip	$58,577			$1,170	$673						$60,420
Subtotal	$1,024,210	$0	$0	$5,965	$28,058	$0	$0	$0	$0	$0	$1,058,232
WATER TREATMENT											
chemicals	$162,912				$5,529						$168,441
labor	$194,001			$5,591	$301						$199,893
operating / Mishnock	$68,397				$2,321						$70,718
maint. - water treat equip	$18,355				$623						$18,978
maint. - structure	$681				$23						$704
Subtotal	$444,345	$0	$0	$5,591	$8,798	$0	$0	$0	$0	$0	$458,734
TRANS & DISTR. EXPENSE											
storage facilities exp.	$0				$0						$0
labor	$24,826			$126	$843						$25,794
supplies	$111,738				$3,792						$115,531
labor-meter	$54,709			$1,546	$119						$56,374
meter - supp & exp	$13				$0						$13
cust. install.	$0				$0						$0
misc.	$13,861				$470						$14,332
maint - struct. & improv.	$59,594				$2,023						$61,616
maint.- res & stdp	$21,306			$558	$96						$21,960
maint. - mains	$629,552			$12,719	$7,073						$649,344
maint. - service	$150,350			$3,426	$1,252						$155,029
maint. - meters	$145,946			$1,479	$3,292						$150,716
maint. - hydrants	$82,970			$1,109	$1,570						$85,649
construction labor	-$68				-$2						-$70
Subtotal	$1,294,796	$0	$0	$20,962	$20,528	$0	$0	$0	$0	$0	$1,336,287
CUSTOMER ACCOUNT											
labor- meter read	$115,029			$3,287	$210						$118,526
cust record labor	$212,511			$6,103	$353						$218,968
cust records sup	$100,171				$3,400						$103,571
meter read supplies	$2,619				$89						$2,708
uncollectible	$60,009				$2,037						$62,046
Subtotal	$490,339	$0	$0	$9,390	$6,089	$0	$0	$0	$0	$0	$505,818

(A) Expenses approved by Commssion order # 23343 in Docket # 4611 (effective 1/1/17)
(B) Expenses approved by Commssion order in Docket # 4641 (effective 3/17/17)
(C) Expenses approved by Commssion order #23436 in Docket # 4611 (effective 1/1/18)

Detailed of Test Year Expenses
Kent County Water Authority

Expense Item	Rate Year (A) 7/1/16-6/30/17	Pass thru Increase (B) Pass Thru Costs	Step Increases for 2018 (C): New Debt (see Joint Settl. Sch. 1D)	Salaries (full yr) (See Joint Settl. Sch. 1D)	Inflation (non-labor O&M)	Additional Benefits	Additional Meter Program Costs	Additional CIP Costs	IFR Increase	Rev. Stabiliz @ 1.5%	Rate Year (C) 1/1/18-12/30/18
ADMIN. & GENERAL											
salaries	$465,124			$13,676	$416						$479,217
office supplies & expenses	$269,356				$9,142						$278,498
insurance (property/liability/wc)	$269,341				$9,141						$278,482
OPEB Trust Contrib.	$80,000				$2,715						$82,715
employee benefits	$965,857				$32,780	$92,377					$1,091,013
maint. - plant	$152,834			$3,658	$1,077						$157,568
maint. - vehicles	$63,029			$110	$2,015						$65,155
miscellaneous	$16,561				$562						$17,123
vacation, holiday, sick	$312,591			$9,978	-$604						$321,965
regul. exp.	$152,698				$5,182						$157,881
outside service	$93,967				$3,189						$97,156
Subtotal	$2,841,358	$0	$0	$27,422	$65,616	$92,377	$0	$0	$0	$0	$3,026,772
TOTAL O&M	$10,411,149	$185,690	$0	$69,330	$275,573	$92,377	$0	$0	$0	$0	$11,034,118
FIXED CHARGES											
Debt Service											
Existing	$2,178,500		$4,750								$2,183,250
New	$0										$0
Reserves and Coverage											
O&M Reserve	$14,185										$14,185
R&R Reserve	$132,336										$132,336
Renewal & Replacement - Equip	$100,000										$100,000
Infrastructure Replacement	$5,400,000								$600,000		$6,000,000
Meter Replacement	$2,000,000						$300,000				$2,300,000
CIP	$1,753,819							($300,000)			$1,453,819
Payroll Taxes	$175,621										$175,621
PILOT	$23,123										$23,123
SUBTOTAL FIXED	$11,777,584	$0	$4,750	$0	$0	$0	$300,000	($300,000)	$600,000	$0	$12,382,334
OPERATING REVENUE	$332,864									$15,630	$348,494
TOTAL EXPENSES	$22,521,597	$185,690	$4,750	$69,330	$275,573	$92,377	$300,000	($300,000)	$600,000	$15,630	$23,764,946
Less:											
Miscellaneous Income	($244,795)										-$244,795
Interest Income	($21,464)										-$21,464
Merchand & Jobbing	($18,811)										-$18,811
6.9% of Water Prot Fee	($45,581)										-$45,581
NET REQUIRED FROM RATES	$22,190,946	$185,690	$4,750	$69,330	$275,573	$92,377	$300,000	($300,000)	$600,000	$15,630	$23,434,295

CY 2018 revenue requirement approved with step 1 in Docket 4611	23,248,606
Additional Expense approved in pass through filing in Docket 4641	185,690
	23,434,296
	($0.69)

(A) Expenses approved by Commssion order # 23343 in Docket # 4611 (effective 1/1/17)
(B) Expenses approved by Commssion order in Docket # 4641 (effective 3/17/17)
(C) Expenses approved by Commssion order #23436 in Docket # 4611 (effective 1/1/18)

Schedule DGB-TY-3a

Detailed of Test Year Expenses - Calculation of Step 2 Salary Increase

Kent County Water Authority

	Test Yr (FY15)	FY 2016	Rate Yr (FY 17)	FY 2018	Increase	CY 2018
Pumping Expense						
Pumping Labor	$78,206	$79,770	$81,365	$82,993	$ 2,457	$85,450
Maint. Structure	$55,160	$56,263	$77,388	$78,936	$ 2,337	$81,273
Maint. Equip.	$18,027	$18,387	$38,755	$39,530	$ 1,170	$40,701
Water Treatment Expense					$ -	$0
Operator Labor	$177,937	$181,496	$185,126	$188,829	$ 5,591	$194,419
Transmission & Distribution					$ -	$0
Meter Labor	$49,219	$50,203	$51,207	$52,231	$ 1,546	$53,778
Maint. Reser. & Standp	$17,751	$18,106	$18,468	$18,837	$ 558	$19,395
Maint. Mains	$366,344	$373,671	$421,144	$429,567	$ 12,719	$442,286
Maint. Services	$70,596	$72,007	$113,448	$115,717	$ 3,426	$119,143
Maint. Meters	$47,062	$48,003	$48,963	$49,942	$ 1,479	$51,421
Maint. Hydrants	$35,288	$35,993	$36,713	$37,448	$ 1,109	$38,556
Customer Accounts					$ -	$0
Meter Reading	$104,614	$106,706	$108,840	$111,017	$ 3,287	$114,304
Customer Records	$194,254	$198,139	$202,101	$206,143	$ 6,103	$212,247
Admin. & General					$ -	$0
Salaries (Admin & Boa	$435,569	$443,980	$452,860	$461,917	$ 13,676	$475,594
Genrl Plant Maint.	$116,408	$118,737	$121,111	$123,533	$ 3,658	$127,191
Vehicle Maint.	$3,516	$3,586	$3,658	$3,731	$ 110	$3,842
Vac., Holiday, Sick	$317,555	$323,906	$330,384	$336,992	$ 9,978	$346,970
Capitalized Labor	$4,000	$4,080	$4,162	$4,245	$ 126	$4,371
Totals	$2,091,505	$2,133,035	$2,295,695	$2,341,609	$ 69,330	$2,410,939

Schedule DGB-TY-3b

Detailed of Test Year Expenses - Calculation of Step 2 Inflation Increase

Kent County Water Authority

Expense Item	7/1/16-6/30/17	Salary	O&M Less Labor	Inflation
SOURCE OF SUPPLY				
maint of wells/supply study	$18,520		$18,520.00	$628.55
purchased water	$4,297,581		$4,297,580.86	$145,856.19
Subtotal	$4,316,101	$0	$4,316,101	$146,485
PUMPING OPERATIONS				
fuel for pumping	$23,693		$23,693.26	$804.13
power	$769,682		$769,682.11	$26,122.35
labor-pumping	$85,848	81,365.47	$4,482.14	$152.12
pumping expense	$0		$0.00	$0.00
maint. - structures & improv	$86,410	77,388.39	$9,021.75	$306.19
diesel oil	$0		$0.00	$0.00
maint. - equip	$58,577	38,755.01	$19,822.04	$672.74
Subtotal	$1,024,210	$197,509	$826,701	$28,058
WATER TREATMENT				
chemicals	$162,912		$162,911.82	$5,529.09
labor	$194,001	185,126.02	$8,874.94	$301.21
operating / Mishnock	$68,397		$68,397.02	$2,321.34
maint. - water treat equip	$18,355		$18,354.91	$622.95
maint. - structure	$681		$680.62	$23.10
Subtotal	$444,345	$185,126	$259,219	$8,798
TRANS & DISTR. EXPENSE				
storage facilities exp.	$0		$0.00	$0.00
labor	$24,826		$24,825.55	$842.56
supplies	$111,738		$111,738.48	$3,792.31
labor-meter	$54,709	51,207.23	$3,501.62	$118.84
meter - supp & exp	$13		$12.55	$0.43
cust. install.	$0		$0.00	$0.00
misc.	$13,861		$13,861.32	$470.44
maint - struct. & improv.	$59,594		$59,593.86	$2,022.56
maint.- res & stdp	$21,306	18,467.95	$2,837.69	$96.31
maint. - mains	$629,552	421,144.19	$208,408.18	$7,073.19
maint. - service	$150,350	113,447.63	$36,902.64	$1,252.44
maint. - meters	$145,946	48,962.86	$96,982.65	$3,291.51
maint. - hydrants	$82,970	36,713.32	$46,256.65	$1,569.91
construction labor	-$68	-	-$68.00	-$2.31
Subtotal	$1,294,796	$689,943	$604,853	$20,528
CUSTOMER ACCOUNT				
labor- meter read	$115,029	108,840.28	$6,188.48	$210.03
cust record labor	$212,511	202,101.46	$10,409.47	$353.29
cust records sup	$100,171		$100,171.00	$3,399.72
meter read supplies	$2,619		$2,618.99	$88.89
uncollectible	$60,009		$60,008.92	$2,036.65
Subtotal	$490,339	$310,942	$179,397	$6,089
ADMIN. & GENERAL				
salaries	$465,124	452,860.08	$12,264.10	$416.23
office supplies & expenses	$269,356		$269,355.87	$9,141.71
insurance (property/liability/wc	$269,341		$269,340.98	$9,141.20
OPEB Trust Contrib.	$80,000		$80,000.00	$2,715.13
employee benefits	$965,857		$965,856.54	$32,780.34
maint. - plant	$152,834	121,111.27	$31,722.36	$1,076.63
maint. - vehicles	$63,029	3,657.93	$59,371.28	$2,015.01
miscellaneous	$16,561		$16,560.82	$562.06
vacation, holiday, sick	$312,591	330,384.31	-$17,793.08	-$603.88
regul. exp.	$152,698		$152,698.20	$5,182.45
outside service	$93,967		$93,966.97	$3,189.16
Subtotal	$2,841,358	$908,014	$1,933,344	$65,616
TOTAL O&M	$ 10,411,149	$ 2,291,533	$ 8,119,616	$ 275,573

Detailed of Rate Year Revenue & Expenses

Kent County Water Authority

	Test Year 1/1/18-12/31/18	Rate Year Adjustments	Rate Year 1/1/20-12/31/20
Revenues - at current rates			
Service Charges	$ 1,907,853	$ -	$ 1,907,853
Metered Rates	19,523,270	157,229	19,680,499
Public Fire	1,788,689	0	1,788,689
Private Fire	217,404	0	217,404
Rate Revenues	$ 23,437,217	$ 157,229	$ 23,594,446
Miscellaneous Income	244,795	-	244,795
Interest Income	21,464	-	21,464
Merchand & Jobbing	18,811	-	18,811
6.9% of Water Prot Fee	45,581	-	45,581
Miscellaneous	$ 330,651	$ -	$ 330,651
Total Revenue	$ 23,767,867	$ 157,229	$ 23,925,096
Expenses			
SOURCE OF SUPPLY			
maint of wells/supply study	$ 19,149	$ -	$ 19,149
purchased water	4,629,127	50,065	4,679,192
Subtotal	$ 4,648,276	$ 50,065	$ 4,698,340
PUMPING OPERATIONS			
fuel for pumping	$ 24,497	$ 265	$ 24,762
power	795,804	8,607	804,411
labor-pumping	88,457	-	88,457
pumping expense	-	-	-
maint. - structures & improv	89,053	-	89,053
diesel oil	-	-	-
maint. - equip	60,420	-	60,420
Subtotal	$ 1,058,232	$ 8,872	$ 1,067,104
WATER TREATMENT			
chemicals	$ 168,441	$ 1,822	$ 170,263
labor	199,893	-	199,893
operating / Mishnock	70,718	-	70,718
maint. - water treat equip	18,978	-	18,978
maint. - structure	704	-	704
Subtotal	$ 458,734	$ 1,822	$ 460,556

Detailed of Rate Year Revenue & Expenses
Kent County Water Authority

	Test Year 1/1/18-12/31/18	Rate Year Adjustments	Rate Year 1/1/20-12/31/20
TRANS & DISTR. EXPENSE			
storage facilities exp.	$ -	$ -	$ -
labor	25,794	-	25,794
supplies	115,531	-	115,531
labor-meter	56,374	-	56,374
meter - supp & exp	13	-	13
cust. install.	-	-	-
misc.	14,332	-	14,332
maint - struct. & improv.	61,616	-	61,616
maint.- res & stdp	21,960	-	21,960
maint. - mains	649,344	-	649,344
maint. - service	155,029	-	155,029
maint. - meters	150,716	-	150,716
maint. - hydrants	85,649	-	85,649
construction labor	(70)	-	(70)
Subtotal	$ 1,336,287	$ -	$ 1,336,287
CUSTOMER ACCOUNT			
labor- meter read	$ 118,526	$ -	$ 118,526
cust record labor	218,968	-	218,968
cust records sup	103,571	-	103,571
meter read supplies	2,708	-	2,708
uncollectible	62,046	-	62,046
Subtotal	$ 505,818	$ -	$ 505,818
ADMIN. & GENERAL			
salaries	$ 479,217	$ -	$ 479,217
office supplies & expenses	278,498	-	278,498
insurance (property/liability/wc)	278,482	-	278,482
OPEB Trust Contrib.	82,715	-	82,715
employee benefits	1,091,013	-	1,091,013
maint. - plant	157,568	-	157,568
maint. - vehicles	65,155	-	65,155
miscellaneous	17,123	-	17,123
vacation, holiday, sick	321,965	-	321,965
regul. exp.	157,881	-	157,881
outside service	97,156	-	97,156
Subtotal	$ 3,026,772	$ -	$ 3,026,772
TOTAL O&M	$ 11,034,118	$ 60,758	$ 11,094,876

Detailed of Rate Year Revenue & Expenses

Kent County Water Authority

	Test Year 1/1/18-12/31/18	Rate Year Adjustments	Rate Year 1/1/20-12/31/20
FIXED CHARGES			
Debt Service			
Existing	$2,183,250	$0	$ 2,183,250
New	-	-	-
Reserves and Coverage	-	-	-
O&M Reserve	14,185	-	14,185
R&R Reserve	132,336	-	132,336
Renewal & Replacement - Equip	100,000	-	100,000
Infrastructure Replacement	6,000,000	-	6,000,000
Meter Replacement	2,300,000	(1,904,000)	396,000
CIP	1,453,819	-	1,453,819
Payroll Taxes	175,621	-	175,621
PILOT	23,123	-	23,123
SUBTOTAL FIXED	$12,382,334	($1,904,000)	$10,478,334
OPERATING REVENUE	$ 348,494	$ (27,649)	$ 320,845
TOTAL EXPENSES	$ 23,764,946	$ (1,870,891)	$ 21,894,055

Detail of Revenues by Source,
Tariff & Rate Class
Kent County Water Authority

Schedule DGB-RY-2

				<------- Current ------->		
Service Charge:	Test Year	Rate Year Adjustments	Rate Year	(B)		
Quarterly			Number	Rate		Revenue
5/8 & 3/4	88,320		88,320	$15.41	$	1,361,011.20
1	14,600		14,600	$20.42	$	298,132.00
1 1/2	1,296		1,296	$29.84	$	38,672.64
2	2,008		2,008	$37.99	$	76,283.92
3	44		44	$48.67	$	2,141.48
4	356		356	$69.37	$	24,695.72
6	356		356	$115.19	$	41,007.64
8 & up	268		268	$194.89	$	52,230.52
Monthly			-			
5/8 & 3/4	60		60	$11.22	$	673.20
1	12		12	$12.89	$	154.68
1 1/2	108		108	$16.03	$	1,731.24
2	96		96	$18.75	$	1,800.00
3	12		12	$22.31	$	267.72
4	36		36	$29.21	$	1,051.56
6	84		84	$44.48	$	3,736.32
8 & up	60		60	$71.05	$	4,263.00
					$	1,907,852.84
	Number		Number			
Consumption Charge:	100/cu.ft.		100/cu.ft.			
Proposed						
Small (5/8-2" meters)	2,939,584	-	2,939,584	$6.16	$	18,110,776.81
Medium (3&4" meters)	66,721	-	66,721	$4.91	$	327,801.49
Large (6" & up meters)	242,389	-	242,389	$4.48	$	1,084,692.00
Wholesale		35,135	35,135	$4.48	$	157,229.13
					$	19,680,499.43
Fire Protection:	Number		Number			
Public Hydrants	2,357.00		2,357.00	$758.76	$	1,788,397.32
# bills	32.00		32.00	$9.13	$	292.16
					$	1,788,689.48
Private Fire Protection						
4 in	16.00		16.00	$305.40	$	4,886.40
6 in	95.00		95.00	$817.52	$	77,664.40
8 in	16.00		16.00	$1,700.92	$	27,214.72
10 in	1.00		1.00	$3,029.68	$	3,029.68
12 in	1.00		1.00	$4,871.36	$	4,871.36
hydrant	122.00		122.00	$817.52	$	99,737.44
					$	217,404.00
Total					$	23,594,445.75

ALLOCATION OF RATE YEAR EXPENSES TO GENERAL WATER, FIRE, AND CUSTOMER SERVICE

Kent County Water Authority

Expense Item	Rate Year 1/1/20-12/31/20	ALLOC. SYMBOL (1)	GENERAL WATER %	GENERAL WATER AMOUNT	FIRE SERVICE %	FIRE SERVICE AMOUNT	CUST. SERVICE %	CUST. SERVICE AMOUNT
SOURCE OF SUPPLY								
maint of wells/supply study	$19,149	A	99.50%	$19,052.81	0.50%	$95.74	0.00%	$0.00
purchased water	$4,679,192	A	99.50%	$4,655,795.63	0.50%	$23,395.96	0.00%	$0.00
PUMPING OPERATIONS				$0.00		$0.00		$0.00
fuel for pumping	$24,762	A	99.50%	$24,638.52	0.50%	$123.81	0.00%	$0.00
power	$804,411	A	99.50%	$800,389.12	0.50%	$4,022.06	0.00%	$0.00
labor-pumping	$88,457	P	79.74%	$70,533.99	20.26%	$17,922.98	0.00%	$0.00
pumping expense	$0	P	79.74%	$0.00	20.26%	$0.00	0.00%	$0.00
maint. - structures & improv	$89,053	P	79.74%	$71,009.62	20.26%	$18,043.84	0.00%	$0.00
diesel oil	$0	P	79.74%	$0.00	20.26%	$0.00	0.00%	$0.00
maint. - equip	$60,420	P	79.74%	$48,177.97	20.26%	$12,242.22	0.00%	$0.00
WATER TREATMENT				$0.00		$0.00		$0.00
chemicals	$170,263	A	99.50%	$169,411.30	0.50%	$851.31	0.00%	$0.00
labor	$199,893	A	99.50%	$198,893.50	0.50%	$999.46	0.00%	$0.00
operating / Mishnock	$70,718	A	99.50%	$70,364.76	0.50%	$353.59	0.00%	$0.00
maint. - water treat equip	$18,978	A	99.50%	$18,882.97	0.50%	$94.89	0.00%	$0.00
maint. - structure	$704	A	99.50%	$700.21	0.50%	$3.52	0.00%	$0.00
TRANS & DISTR. EXPENSE				$0.00		$0.00		$0.00
storage facilities exp.	$0	D	75.00%	$0.00	25.00%	$0.00	0.00%	$0.00
labor	$25,794	B	74.80%	$19,293.18	25.20%	$6,500.62	0.00%	$0.00
supplies	$115,531	B	74.80%	$86,414.42	25.20%	$29,116.37	0.00%	$0.00
labor-meter	$56,374	C	0.00%	$0.00	0.00%	$0.00	100.00%	$56,374.15
meter - supp & exp	$13	C	0.00%	$0.00	0.00%	$0.00	100.00%	$12.97
cust. install.	$0	C	0.00%	$0.00	0.00%	$0.00	100.00%	$0.00
misc.	$14,332	F	48.26%	$6,916.82	23.01%	$3,297.25	28.73%	$4,117.70
maint - struct. & improv.	$61,616	F	48.26%	$29,737.41	23.01%	$14,175.82	28.73%	$17,703.19
maint.- res & stdp	$21,960	D	75.00%	$16,469.76	25.00%	$5,489.92	0.00%	$0.00
maint. - mains	$649,344	B	74.80%	$485,694.75	25.20%	$163,649.37	0.00%	$0.00
maint. - service	$155,029	C	0.00%	$0.00	0.00%	$0.00	100.00%	$155,028.83
maint. - meters	$150,716	C	0.00%	$0.00	0.00%	$0.00	100.00%	$150,715.70
maint. - hydrants	$85,649	E	0.50%	$428.24	99.50%	$85,220.38	0.00%	$0.00
construction labor	-$70	F	48.26%	-$33.93	23.01%	-$16.18	28.73%	-$20.20
CUSTOMER ACCOUNT				$0.00		$0.00		$0.00
labor- meter read	$118,526	C	0.00%	$0.00	0.00%	$0.00	100.00%	$118,525.77
cust record labor	$218,968	C	0.00%	$0.00	0.00%	$0.00	100.00%	$218,967.68
cust records sup	$103,571	C	0.00%	$0.00	0.00%	$0.00	100.00%	$103,570.72
meter read supplies	$2,708	C	0.00%	$0.00	0.00%	$0.00	100.00%	$2,707.88
uncollectible	$62,046	C	0.00%	$0.00	0.00%	$0.00	100.00%	$62,045.57
ADMIN. & GENERAL				$0.00		$0.00		$0.00
salaries	$479,217	G	73.22%	$350,905.42	7.67%	$36,732.51	19.11%	$91,578.85
office supplies & expenses	$278,498	G	73.22%	$203,929.22	7.67%	$21,347.16	19.11%	$53,221.19
insurance (property/liability/wc)	$278,482	G	73.22%	$203,917.95	7.67%	$21,345.98	19.11%	$53,218.25
OPEB Trust Contrib.	$82,715	H	55.77%	$46,128.80	11.86%	$9,806.33	32.38%	$26,779.99
employee benefits	$1,091,013	H	55.77%	$608,439.39	11.86%	$129,345.65	32.38%	$353,228.42
maint. - plant	$157,568	G	73.22%	$115,378.69	7.67%	$12,077.75	19.11%	$30,111.38
maint. - vehicles	$65,155	G	73.22%	$47,709.38	7.67%	$4,994.18	19.11%	$12,451.13
miscellaneous	$17,123	G	73.22%	$12,538.19	7.67%	$1,312.49	19.11%	$3,272.20
vacation, holiday, sick	$321,965	H	55.77%	$179,554.30	11.86%	$38,170.72	32.38%	$104,239.93
regul. exp.	$157,881	G	73.22%	$115,607.75	7.67%	$12,101.73	19.11%	$30,171.16
outside service	$97,156	G	73.22%	$71,142.35	7.67%	$7,447.13	19.11%	$18,566.64
TOTAL O&M	$11,094,876			$8,748,023		$680,265		$1,666,589

(1) See Schedule DGB-COS-1B

ALLOCATION OF RATE YEAR EXPENSES TO GENERAL WATER, FIRE, AND CUSTOMER SERVICE

Kent County Water Authority

Expense Item	Rate Year 1/1/20-12/31/20	ALLOC. SYMBOL (1)	GENERAL WATER %	GENERAL WATER AMOUNT	FIRE SERVICE %	FIRE SERVICE AMOUNT	CUST. SERVICE %	CUST. SERVICE AMOUNT
FIXED CHARGES								
Debt Service								
Existing	$2,183,250	J	78.18%	$1,706,912.32	19.76%	$431,403.08	2.06%	$44,934.60
O&M Reserve	$14,185	G	73.22%	$10,387.27	7.67%	$1,087.33	19.11%	$2,710.86
R&R Reserve	$132,336	J	78.18%	$103,462.94	19.76%	$26,149.10	2.06%	$2,723.67
Renewal & Replacement - Equip	$100,000	J	78.18%	$78,182.14	19.76%	$19,759.67	2.06%	$2,058.15
Infrastructure Replacement	$6,000,000	I	78.18%	$4,690,930.46	19.76%	$1,185,580.43	2.06%	$123,489.11
Meter Replacement	$396,000	M	100.00%	$396,000.00	0.00%	$0.00	0.00%	$0.00
CIP	$1,453,819	I	78.18%	$1,136,627.12	19.76%	$287,269.84	2.06%	$29,921.80
Payroll Taxes	$175,621	H	55.77%	$97,940.63	11.86%	$20,820.80	32.38%	$56,859.26
PILOT	$23,123	L	77.88%	$18,008.69	21.03%	$4,863.87	1.08%	$250.61
SUBTOTAL FIXED	$10,478,334			$8,238,452		$1,976,934		$262,948
OPERATING REVENUE	$320,845	K	80.15%	$257,154.93	11.55%	$37,068.23	8.30%	$26,622.20
TOTAL EXPENSES	$21,894,055			$17,243,629		$2,694,267		$1,956,159
Less:								
Miscellaneous Income	($244,795)	K	80.15%	-$196,201.45	11.55%	-$28,281.94	8.30%	-$20,311.94
Interest Income	($21,464)	K	80.15%	-$17,203.22	11.55%	-$2,479.80	8.30%	-$1,780.98
Merchand & Jobbing	($18,811)	K	80.15%	-$15,076.68	11.55%	-$2,173.26	8.30%	-$1,560.83
6.9% of Water Prot Fee	($45,581)	K	80.15%	-$36,532.49	11.55%	-$5,266.07	8.30%	-$3,782.06
NET REQUIRED FROM RATES	$21,563,405		78.74%	$16,978,615	0.1231747	$2,656,066	0.08944	$1,928,724

(1) See Schedule DGB-COS-1B

Schedule DGB-COS-1a

ALLOCATION OF RATE YEAR LABOR EXPENSES TO GENERAL WATER, FIRE, AND CUSTOMER SERVICE

Kent County Water Authority

Expense Item	Rate Year 1/1/20-12/31/20	ALLOC. SYMBOL (1)	GENERAL WATER %	GENERAL WATER AMOUNT	FIRE SERVICE %	FIRE SERVICE AMOUNT	CUST. SERVICE %	CUST. SERVICE AMOUNT
SOURCE OF SUPPLY								
maint of wells/supply study	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
purchased water	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
PUMPING OPERATIONS				$0.00		$0.00		$0.00
fuel for pumping	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
power	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
labor-pumping	$85,450	P	79.74%	$68,136.30	20.26%	$17,313.72	0.00%	$0.00
pumping expense	$0	P	79.74%	$0.00	20.26%	$0.00	0.00%	$0.00
maint. - structures & improv	$81,273	P	79.74%	$64,805.85	20.26%	$16,467.44	0.00%	$0.00
diesel oil	$0	P	79.74%	$0.00	20.26%	$0.00	0.00%	$0.00
maint. - equip	$40,701	P	79.74%	$32,453.85	20.26%	$8,246.66	0.00%	$0.00
WATER TREATMENT				$0.00		$0.00		$0.00
chemicals	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
labor	$194,419	A	99.50%	$193,447.25	0.50%	$972.10	0.00%	$0.00
operating / Mishnock	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
maint. - water treat equip	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
maint. - structure	$0	A	99.50%	$0.00	0.50%	$0.00	0.00%	$0.00
TRANS & DISTR. EXPENSE				$0.00		$0.00		$0.00
storage facilities exp.	$0	D	75.00%	$0.00	25.00%	$0.00	0.00%	$0.00
labor	$0	B	74.80%	$0.00	25.20%	$0.00	0.00%	$0.00
supplies	$0	B	74.80%	$0.00	25.20%	$0.00	0.00%	$0.00
labor-meter	$53,778	C	0.00%	$0.00	0.00%	$0.00	100.00%	$53,777.83
meter - supp & exp	$0	C	0.00%	$0.00	0.00%	$0.00	100.00%	$0.00
cust. install.	$0	C	0.00%	$0.00	0.00%	$0.00	100.00%	$0.00
misc.	$0	F	48.26%	$0.00	23.01%	$0.00	28.73%	$0.00
maint - struct. & improv.	$0	F	48.26%	$0.00	23.01%	$0.00	28.73%	$0.00
maint.- res & stdp	$19,395	D	75.00%	$14,546.28	25.00%	$4,848.76	0.00%	$0.00
maint. - mains	$442,286	B	74.80%	$330,819.67	25.20%	$111,465.96	0.00%	$0.00
maint. - service	$119,143	C	0.00%	$0.00	0.00%	$0.00	100.00%	$119,142.70
maint. - meters	$51,421	C	0.00%	$0.00	0.00%	$0.00	100.00%	$51,420.79
maint. - hydrants	$38,556	E	0.50%	$192.78	99.50%	$38,363.55	0.00%	$0.00
construction labor	$0	F	48.26%	$0.00	23.01%	$0.00	28.73%	$0.00
CUSTOMER ACCOUNT				$0.00		$0.00		$0.00
labor- meter read	$114,304	C	0.00%	$0.00	0.00%	$0.00	100.00%	$114,304.06
cust record labor	$212,247	C	0.00%	$0.00	0.00%	$0.00	100.00%	$212,246.95
cust records sup	$0	C	0.00%	$0.00	0.00%	$0.00	100.00%	$0.00
meter read supplies	$0	C	0.00%	$0.00	0.00%	$0.00	100.00%	$0.00
uncollectible	$0	C	0.00%	$0.00	0.00%	$0.00	100.00%	$0.00
ADMIN. & GENERAL				$0.00		$0.00		$0.00
salaries	$475,594	G	73.22%	$348,252.39	7.67%	$36,454.80	19.11%	$90,886.47
office supplies & expenses	$0	G	73.22%	$0.00	7.67%	$0.00	19.11%	$0.00
insurance (property/liability/wc)	$0	G	73.22%	$0.00	7.67%	$0.00	19.11%	$0.00
OPEB Trust Contrib.	$0	H	55.77%	$0.00	11.86%	$0.00	32.38%	$0.00
employee benefits	$0	H	55.77%	$0.00	11.86%	$0.00	32.38%	$0.00
maint. - plant	$127,191	G	73.22%	$93,135.36	7.67%	$9,749.34	19.11%	$24,306.35
maint. - vehicles	$3,842	G	73.22%	$2,812.97	7.67%	$294.46	19.11%	$734.13
miscellaneous	$0	G	73.22%	$0.00	7.67%	$0.00	19.11%	$0.00
vacation, holiday, sick	$346,970	H	55.77%	$193,498.96	11.86%	$41,135.16	32.38%	$112,335.48
regul. exp.	$0	G	73.22%	$0.00	7.67%	$0.00	19.11%	$0.00
outside service	$0	G	73.22%	$0.00	7.67%	$0.00	19.11%	$0.00
TOTAL O&M	$2,406,568		55.77%	$1,342,102	11.86%	$285,312	32.38%	$779,155

(1) See Schedule DGB-COS-1B

ALLOCATION SYMBOLS

ALLOCATION SYMBOL	GEN'L WATER	FIRE SERVICE	CUST SERVICE	
A	99.50%	0.50%	0.00%	Supply & Treatment
B	**74.80%**	**25.20%**	**0.00%**	T&D Mains
C	0.00%	0.00%	100.00%	Meters
D	75.00%	25.00%	0.00%	Storage
E	0.50%	99.50%	0.00%	Hydrants
F	**48.26%**	**23.01%**	**28.73%**	Misc T&D
G	**73.22%**	**7.67%**	**19.11%**	Direct O&M (50% of Purch Water) Benefits & Vacation
H	**55.77%**	**11.86%**	**32.38%**	Labor
I	**78.18%**	**19.76%**	**2.06%**	IFR Costs (same as Debt/Capital)
J	**78.18%**	**19.76%**	**2.06%**	Debt/Capital
K	80.15%	11.55%	8.30%	Total Expense
L	**77.88%**	**21.03%**	**1.08%**	PILOT
M	100.00%	0.00%	0.00%	Meter Replacement Program - all costs to small meter rate
P	**79.74%**	**20.26%**	**0.00%**	Pumping Facilities

Symbol B	Gal/Min	%
Model Max. Day	10,409.72	74.80%
Fire Demand	3,500.00	25.20%
Max. Day Plus Fire	13,909.72	100.00%

Symbol J - Debt Service/C Plant Value 6/30/2015	Plant In Service	Symbol	Gen Water	Fire	Cust A	Cust B
Source of Supply	$ 1,841,541	A	$ 1,832,333	$ 9,208	$ -	
Pumping Plant	$ 8,413,011	A	$ 8,370,946	$ 42,065	$ -	
Water Treat. Plant	$ 22,057,416	A	$ 21,947,129	$ 110,287	$ -	
T&D Storage	$ 9,696,568	D	$ 7,272,426	$ 2,424,142	$ -	
T&D Mains	$ 95,652,793	B	$ 71,546,130	$ 24,106,662	$ -	
T&D Hydrants	$ 1,362,339	E	$ 6,812	$ 1,355,527	$ -	
T&D Services	$ 2,919,253	C	$ -	$ -	$ 2,919,253	
T&D Meters	$ 2,193	C	$ -	$ -	$ 2,193	
General Plant	$ 3,103,245	J	$ 2,426,184	$ 613,191	$ 63,869	
General Structures	$ 727,760	J	$ 568,979	$ 143,803	$ 14,978	
Total	$ 145,776,119		$ 113,970,939	$ 28,804,886	$ 3,000,294	
Percent			78%	20%	2%	

Symbol L - PILOT

	Total	Symbol	Gen Water	Fire	Cust A	Cust B
Storage	$ 7,257.84	D	$ 5,443	$ 1,814	$ -	$ -
Office	$ 1,311.39	G	$ 960	$ 101	$ 125	$ 125
PS/Wells/Treatment	$ 14,553.93	P	$ 11,605	$ 2,949	$ -	$ -
Total	$ 23,123.17		$ 18,008.69	$ 4,863.87	$ 125.30	$ 125.30
Percent			77.88%	21.03%	0.54%	0.54%

Symbol M - Meter Replacement Program

The Authority is proposing to replace all residential meters that are 2" and less. Accordingly, we propose to assign all the meter replacement costs to the small meter rate (for meters 2" and less).

Symbol P - Pumping Facilities (per Decision in Dockets 2098, 2555, 3660, 4067)

	Percent	Symbol	Gen Water	Fire	Cust A	Cust B
Supply Well Pumps	20%	A	19.90%	0.10%	0.00%	0%
Distribution Pumps	80%	B	59.84%	20.16%	0.00%	0%
Total	100%	P	79.74%	20.26%	0.00%	0%

Symbol F						
TRANS & DISTR. EXPENSE	0		0	0	0	0
storage facilities exp.	0	D		0	0	0
labor	25,794	B		19,293	6,501	0
supplies	115,531	B		86,414	29,116	0
labor-meter	56,374	C		0	0	56,374
meter - supp & exp	13	C		0	0	13
cust. install.	0	C		0	0	0
misc.		F				
maint - struct. & improv.		F				
maint.- res & stdp	21,960	D		16,470	5,490	0

maint. - mains	649,344	B		485,695	163,649	0
maint. - service	155,029	C		0	0	155,029
maint. - meters	150,716	C		0	0	150,716
maint. - hydrants	85,649	E		428	85,220	0
construction labor		F				
	1,260,409			608,300	289,977	362,132
				48.26%	23.01%	28.73%

Symbol g

SOURCE OF SUPPLY	0		0	0	0	0
maint of wells/supply study	19,149	A		19,053	96	0
purchased water	2,339,596	A		2,327,898	11,698	0
PUMPING OPERATIONS	0		0	0	0	0
fuel for pumping	24,762	A		24,639	124	0
power	804,411	A		800,389	4,022	0
labor-pumping	88,457	P		70,534	17,923	0
pumping expense	0	P		0	0	0
maint. - structures & improv	89,053	P		71,010	18,044	0
diesel oil	0	P		0	0	0
maint. - equip	60,420	P		48,178	12,242	0
WATER TREATMENT	0		0	0	0	0
chemicals	170,263	A		169,411	851	0
labor	199,893	A		198,894	999	0
operating / Mishnock	70,718	A		70,365	354	0
maint. - water treat equip	18,978	A		18,883	95	0
maint. - structure	704	A		700	4	0
TRANS & DISTR. EXPENSE	0		0	0	0	0
storage facilities exp.	0	D		0	0	0
labor	25,794	B		19,293	6,501	0
supplies	115,531	B		86,414	29,116	0
labor-meter	56,374	C		0	0	56,374
meter - supp & exp	13	C		0	0	13
cust. install.	0	C		0	0	0
misc.	14,332	F		6,917	3,297	4,118
maint - struct. & improv.	61,616	F		29,737	14,176	17,703
maint.- res & stdp	21,960	D		16,470	5,490	0
maint. - mains	649,344	B		485,695	163,649	0
maint. - service	155,029	C		0	0	155,029
maint. - meters	150,716	C		0	0	150,716
maint. - hydrants	85,649	E		428	85,220	0
construction labor	-70	F		-34	-16	-20
CUSTOMER ACCOUNT	0		0	0	0	0
labor- meter read	118,526	C		0	0	118,526
cust record labor	218,968	C		0	0	218,968
cust records sup	103,571	C		0	0	103,571
meter read supplies	2,708	C		0	0	2,708
uncollectible	62,046	C		0	0	62,046
ADMIN. & GENERAL	0		0	0	0	0
salaries		G				
office supplies & expenses		G				
insurance (property/liability/wc)		G				
OPEB Trust Contrib.	82,715	H		46,129	9,806	26,780
employee benefits	1,091,013	H		608,439	129,346	353,228
maint. - plant		G				
maint. - vehicles		G				
miscellaneous		G				
vacation, holiday, sick	321,965	H		179,554	38,171	104,240
regul. exp.		G				
outside service		G				
TOTAL O&M	7,224,202			5,298,996	551,208	1,373,998
				73.35%	7.63%	19.02%

ALLOCATION OF GENERAL WATER EXPENSES TO BASE AND EXTRA CAPACITY

Kent County Water Authority

Expense Item	TOTAL GENERAL WATER	ALLOC. SYMBOL (1)	BASE %	BASE AMOUNT	EXTRA CAP.-MAX DAY %	EXTRA CAP.-MAX DAY AMOUNT	EXTRA CAP.-PEAK HR %	EXTRA CAP.-PEAK HR AMOUNT
SOURCE OF SUPPLY								
maint of wells/supply study	$19,053	aa	100.00%	$19,052.81	0.00%	$0.00	0.00%	$0.00
purchased water	$4,655,796	aa	100.00%	$4,655,795.63	0.00%	$0.00	0.00%	$0.00
PUMPING OPERATIONS	$0			$0.00		$0.00		$0.00
fuel for pumping	$24,639	aa	100.00%	$24,638.52	0.00%	$0.00	0.00%	$0.00
power	$800,389	aa	100.00%	$800,389.12	0.00%	$0.00	0.00%	$0.00
labor-pumping	$70,534	pp	62.64%	$44,182.49	37.36%	$26,351.50	0.00%	$0.00
pumping expense	$0	pp	62.64%	$0.00	37.36%	$0.00	0.00%	$0.00
maint. - structures & improv	$71,010	pp	62.64%	$44,480.43	37.36%	$26,529.19	0.00%	$0.00
diesel oil	$0	pp	62.64%	$0.00	37.36%	$0.00	0.00%	$0.00
maint. - equip	$48,178	pp	62.64%	$30,178.68	37.36%	$17,999.29	0.00%	$0.00
WATER TREATMENT	$0			$0.00		$0.00		$0.00
chemicals	$169,411	aa	100.00%	$169,411.30	0.00%	$0.00	0.00%	$0.00
labor	$198,894	aa	100.00%	$198,893.50	0.00%	$0.00	0.00%	$0.00
operating / Mishnock	$70,365	aa	100.00%	$70,364.76	0.00%	$0.00	0.00%	$0.00
maint. - water treat equip	$18,883	aa	100.00%	$18,882.97	0.00%	$0.00	0.00%	$0.00
maint. - structure	$700	aa	100.00%	$700.21	0.00%	$0.00	0.00%	$0.00
TRANS & DISTR. EXPENSE	$0			$0.00		$0.00		$0.00
storage facilities exp.	$0	dd	0.00%	$0.00	0.00%	$0.00	100.00%	$0.00
labor	$19,293	bb	53.30%	$10,283.26	46.70%	$9,009.91	0.00%	$0.00
supplies	$86,414	bb	53.30%	$46,058.89	46.70%	$40,355.54	0.00%	$0.00
labor-meter	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
meter - supp & exp	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
cust. install.	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
misc.	$6,917	ff	51.89%	$3,589.00	45.40%	$3,140.31	2.71%	$187.51
maint - struct. & improv.	$29,737	ff	51.89%	$15,430.14	45.40%	$13,501.13	2.71%	$806.14
maint.- res & stdp	$16,470	dd	0.00%	$0.00	0.00%	$0.00	100.00%	$16,469.76
maint. - mains	$485,695	mod	44.00%	$213,705.69	36.00%	$174,850.11	20.00%	$97,138.95
maint. - service	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
maint. - meters	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
maint. - hydrants	$428	aa	100.00%	$428.24	0.00%	$0.00	0.00%	$0.00
construction labor	-$34	ff	51.89%	-$17.61	45.40%	-$15.41	2.71%	-$0.92
CUSTOMER ACCOUNT	$0			$0.00		$0.00		$0.00
labor- meter read	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
cust record labor	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
cust records sup	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
meter read supplies	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
uncollectible	$0	cc	0.00%	$0.00	0.00%	$0.00	0.00%	$0.00
ADMIN. & GENERAL	$0			$0.00		$0.00		$0.00
salaries	$350,905	gg	88.84%	$311,728.95	10.60%	$37,192.12	0.57%	$1,984.35
office supplies & expenses	$203,929	gg	88.84%	$181,161.76	10.60%	$21,614.26	0.57%	$1,153.21
insurance (property/liability/wc)	$203,918	gg	88.84%	$181,151.74	10.60%	$21,613.06	0.57%	$1,153.15
OPEB Trust Contrib.	$46,129	hh	75.59%	$34,868.84	22.93%	$10,575.05	1.48%	$684.91
employee benefits	$608,439	hh	75.59%	$459,920.40	22.93%	$139,484.99	1.48%	$9,034.00
maint. - plant	$115,379	gg	88.84%	$102,497.35	10.60%	$12,228.87	0.57%	$652.46
maint. - vehicles	$47,709	gg	88.84%	$42,382.91	10.60%	$5,056.67	0.57%	$269.79
miscellaneous	$12,538	gg	88.84%	$11,138.38	10.60%	$1,328.91	0.57%	$70.90
vacation, holiday, sick	$179,554	hh	75.59%	$135,725.41	22.93%	$41,162.90	1.48%	$2,665.99
regul. exp.	$115,608	gg	88.84%	$102,700.84	10.60%	$12,253.15	0.57%	$653.76
outside service	$71,142	gg	88.84%	$63,199.74	10.60%	$7,540.31	0.57%	$402.31
TOTAL O&M	$8,748,023			$7,992,924		$621,772		$133,326

(1) See Schedule DGB-COS-2B

ALLOCATION OF GENERAL WATER EXPENSES TO BASE AND EXTRA CAPACITY

Kent County Water Authority

Expense Item	TOTAL GENERAL WATER	ALLOC. SYMBOL (1)	BASE %	BASE AMOUNT	EXTRA CAP.-MAX DAY %	EXTRA CAP.-MAX DAY AMOUNT	EXTRA CAP.-PEAK HR %	EXTRA CAP.-PEAK HR AMOUNT
FIXED CHARGES								
Debt Service								
Existing	$1,706,912	jj	53.00%	$904,663.53	33.00%	$563,281.07	14.00%	$238,967.73
O&M Reserve	$10,387	gg	88.84%	$9,227.59	10.60%	$1,100.94	0.57%	$58.74
R&R Reserve	$103,463	jj	53.00%	$54,835.36	33.00%	$34,142.77	14.00%	$14,484.81
Renewal & Replacement - Equip	$78,182	jj	53.00%	$41,436.54	33.00%	$25,800.11	14.00%	$10,945.50
Infrastructure Replacement	$4,690,930	ii	53.00%	$2,486,193.14	33.00%	$1,548,007.05	14.00%	$656,730.26
Meter Replacement	$396,000	mm	100.00%	$396,000.00	0.00%	$0.00	0.00%	$0.00
CIP	$1,136,627	ii	53.00%	$602,412.37	33.00%	$375,086.95	14.00%	$159,127.80
Payroll Taxes	$97,941	hh	75.59%	$74,033.50	22.93%	$22,452.93	1.48%	$1,454.21
PILOT	$18,009	ll	44.60%	$8,032.23	25.01%	$4,504.71	30.38%	$5,471.75
SUBTOTAL FIXED	$8,238,452			$4,576,834		$2,574,377		$1,087,241
OPERATING REVENUE	$257,155	kk	79.40%	$204,188.24	17.61%	$45,283.32	2.99%	$7,683.37
TOTAL EXPENSES	$17,243,629			$12,773,947		$3,241,432		$1,228,250
Less:								
Miscellaneous Income	($196,201)	kk	79.40%	-$155,789.46	17.61%	-$34,549.81	2.99%	-$5,862.18
Interest Income	($17,203)	kk	79.40%	-$13,659.84	17.61%	-$3,029.38	2.99%	-$514.00
Merchand & Jobbing	($15,077)	kk	79.40%	-$11,971.31	17.61%	-$2,654.91	2.99%	-$450.47
6.9% of Water Prot Fee	($36,532)	kk	79.40%	-$29,007.82	17.61%	-$6,433.13	2.99%	-$1,091.53
NET REQUIRED FROM RATES	$16,978,615		74.00%	$12,563,518	0.188164	$3,194,764	0.07187	$1,220,332
Less: Meter replace. costs	($396,000)	mm	100.00%	-$396,000.00	0.00%	$0.00	0.00%	$0.00
Plus Fire Subsidy	670,017	mm	100.00%	$670,016.94	0.00%	$0.00	0.00%	$0.00
Net After Meter Replacement	$17,252,632			$12,837,535		$3,194,764		$1,220,332
Meter replace. costs	$396,000							
Total EXPENSES from General Water	$17,648,632							

(1) See Schedule DGB-COS-2B

ALLOCATION SYMBOLS

ALLOCATION SYMBOL	BASE	EXTRA CAPACITY MAX DAY	EXTRA CAPACITY PEAK HOUR	
aa	100.00%	0.00%	0.00%	Supply & Treatment
bb	**53.30%**	**46.70%**	**0.00%**	T&D Mains
cc	0.00%	0.00%	0.00%	Meters
dd	0.00%	0.00%	100.00%	Storage
ee	0.00%	0.00%	0.00%	Not Used
ff	**51.89%**	**45.40%**	**2.71%**	Misc. T&D
gg	**88.84%**	**10.60%**	**0.57%**	Direct O&M plus 50% Purch Water
hh	**75.59%**	**22.93%**	**1.48%**	Labor
ii	**53.00%**	**33.00%**	**14.00%**	IFR - same as capital
jj	**53.00%**	**33.00%**	**14.00%**	Debt/Capital
kk	79.40%	17.61%	2.99%	All Expenses
ll	**44.60%**	**25.01%**	**30.38%**	PILOT
pp	62.64%	37.36%	0.00%	Pumping Facilities
mm	**100.00%**	**0.00%**	**0.00%**	Meter costs just to small meter class base

CALCULATION OF METERED RATES
Kent County Water Authority

Class Demands

CUSTOMER CLASS	AVERAGE DEMANDS (GALS/DAY)	PERCENT	MAX DAY EXTRA CAPACITY FACTOR [1]	TOTAL GAL/DAY	EXTRA GAL/DAY	PERCENT
Small	6,024,134	90%	2.7	16,265,161.03	10,241,027.32	96.83%
Medium	136,733	2%	2	273,465.72	136,732.86	1.29%
Large	496,732	7%	1.4	695,424.79	198,692.80	1.88%
Wholesale	71,103	1%	1	71,102.68	-	0.00%
Total	6,728,701	100%		17,305,154.22	10,576,452.97	100%

CUSTOMER CLASS	AVERAGE DEMANDS (GALS/DAY)	PERCENT	PEAK HOUR EXTRA CAPACITY FACTOR	TOTAL GAL/DAY	EXTRA GAL/DAY	PERCENT
Small	6,024,134	90%	3.4	20,482,054.63	14,457,920.92	96.73%
Medium	136,733	2%	2.4	328,158.86	191,426.00	1.28%
Large	496,732	7%	1.6	794,771.18	298,039.19	1.99%
Wholesale	71,103	1%	1	71,102.68	-	0.00%
Total	6,728,701	100%		21,676,087.36	14,947,386.11	100%

[1] - Described in the April, 1992 Cost of Service Study and as used in the Dockets # 2098 through 4067

Allocation of Costs to Classes

CUSTOMER CLASS	BASE COSTS PERCENT	BASE COSTS AMOUNT	MAX. DAY EXTRA CAPACITY PERCENT	MAX. DAY EXTRA CAPACITY AMOUNT	PEAK HR. EXTRA CAPACITY PERCENT	PEAK HR. EXTRA CAPACITY AMOUNT	(COS-3A) Meter Replacement	TOTAL AMOUNT
Small *	89.53%	$ 11,493,307.06	96.83%	$ 3,093,444.51	96.73%	$ 1,180,371.42	$ 119,949.94	$ 15,887,072.93
Medium	2.03%	$ 260,869.50	1.29%	$ 41,302.06	1.28%	$ 15,628.37	$ 59,585.18	$ 377,385.11
Large	7.38%	$ 947,703.61	1.88%	$ 60,017.92	1.99%	$ 24,332.47	$ 216,464.89	$ 1,248,518.89
Wholesale	1.06%	$ 135,655.19	0.00%	$ -	0.00%	$ -		$ 135,655.19
Total	100%	$12,837,535	100%	$3,194,764	100%	$1,220,332	$ 396,000.00	$ 17,648,632.11

Calculation of Rates before new rate classes

	Total Expense	Metered Sales	Rate	current rate	$ increase	% increase
Small *	$ 15,887,072.93	2,939,584	$ 5.40	$6.16	$ (0.76)	-12%
Medium	$ 377,385.11	66,721	$ 5.66	$4.91	$ 0.74	15%
Large	$ 1,248,518.89	242,389	$ 5.15	$4.48	$ 0.68	15%
Wholesale	$ 135,655.19	35,135	$ 3.86			
Total	$ 17,648,632.11	3,283,829				

(1) See Schedule DGB-COS-2B

CALCULATION OF METERED RATES
Kent County Water Authority

Calculation of Rates after new rate classes

	Metered Sales	Allocation to Medium with Bypass	Allocation to Large with Bypass	Reallocated Metered Sales	Rate		
Small *	2,939,584	(62,484)	(353,744)	2,523,356	$ 5.40	$ 13,637,555	-12% (A)
Medium*	66,721	(32,454)		34,267	$ 5.73	$ 196,219	17% (B)
Large*	242,389		(173,136)	69,253	$ 5.26	$ 364,333	18% (C)
Medium with Bypass		94,938		94,938	$ 5.73	$ 543,629	-0.1% (D)
Large with Bypass			526,880	526,880	$ 5.26	$ 2,771,854	-6.2% (E)
Wholesale	35,135			35,135	$ 3.86	$ 135,655	
Total	3,283,829			3,283,829		$ 17,649,246	

Impact of Single register

	Rate	current rate	$ increase	% increase
Small *	$ 5.40	$6.16	$ (0.76)	-12% (A)
Medium	$ 5.73	$4.91	$ 0.81	17% (B)
Large	$ 5.26	$4.48	$ 0.79	18% (C)

Impact of Bypass rate

Medium with Bypass	62,484	$6.16	$ 384,964	
	32,454	$4.91	$ 159,447	
	94,938		$ 544,411	Current Blended Revenue
			543,629	Proposed Revenue
			$ (782.04)	
			-0.1%	(D)
Large with Bypass	353,744	$6.16	$ 2,179,417	
	173,136	$4.48	$ 774,784	
	526,880		$ 2,954,200	Current Blended Revenue
			2,771,854	Proposed Revenue
			$ (182,346.12)	
			-6.2%	(E)

(1) See Schedule DGB-COS-2B

CALCULATION OF METERED RATES
Kent County Water Authority

Class Demands

CUSTOMER CLASS	AVERAGE DEMANDS (GALS/DAY)	PERCENT	AVERAGE DEMANDS Allocation for new restricted meter account (GALS/DAY)	PERCENT
Small	6,024,134	90%	6,024,134	90%
Medium	136,733	2%	136,733	2%
Large	496,732	7%	496,732	7%
Wholesale	72,003	1%	-	0%
Total	6,729,601	100%	6,657,599	100%

CUSTOMER CLASS	AVERAGE DEMANDS Allocation to Med/Lrg Classes for amount paid by Small Class (GALS/DAY)	PERCENT
Small	-	0%
Medium	136,733	22%
Large	496,732	78%
Wholesale	-	0%
Total	633,465	100%

Allocation of Meter Replacement Costs to Classes

CUSTOMER CLASS	New Restricted Acct (1) PERCENT	AMOUNT	Med/Lrg meter program (2) PERCENT	AMOUNT	TOTAL AMOUNT
Small *	90.49%	$ 358,321	-100.00%	$ (238,371.00)	$ 119,950
Medium	2.05%	$ 8,133	21.58%	$ 51,452.18	$ 59,585
Large	7.46%	$ 29,546	78.42%	$ 186,918.82	$ 216,465
Wholesale	0.00%	$ -	0.00%	$ -	$ -
Total	100%	$396,000	0%	$ 238,371	$ 396,000

(1) For detail of new meter program see Mr. Simmons testimony on Page 14

(2) The new Medium/Large program will be funded from accumulted funds in the current restircted meter program. The current meter program funding however was contributed exclusively by the Small customer class. This adjustment provideds a credit to the small customer class while allocating the payment of that credit to the Medium and Large classes.

Total Cost of Med/Lrg meters (page 7 of Mr. Simmon's testimony)	$	953,484
Amortization period		4
	$	238,371

(1) See Schedule DGB-COS-2B

ALLOCATION OF CUSTOMER SERVICE EXPENSE

Kent County Water Authority

Expense Item	TOTAL GENERAL WATER	ALLOC. SYMBOL (1)	CUSTOM METER %	CUSTOM METER AMOUNT	CUSTOM BILL %	CUSTOM BILL AMOUNT
SOURCE OF SUPPLY						
TRANS & DISTR. EXPENSE						
storage facilities exp.	$0	AA	100.00%	$0.00	0.00%	$0.00
labor	$0	AA	100.00%	$0.00	0.00%	$0.00
supplies	$0	AA	100.00%	$0.00	0.00%	$0.00
labor-meter	$56,374	AA	100.00%	$56,374.15	0.00%	$0.00
meter - supp & exp	$13	AA	100.00%	$12.97	0.00%	$0.00
cust. install.	$0	AA	100.00%	$0.00	0.00%	$0.00
misc.	$4,118	AA	100.00%	$4,117.70	0.00%	$0.00
maint - struct. & improv.	$17,703	AA	100.00%	$17,703.19	0.00%	$0.00
maint.- res & stdp	$0	AA	100.00%	$0.00	0.00%	$0.00
maint. - mains	$0	AA	100.00%	$0.00	0.00%	$0.00
maint. - service	$155,029	AA	100.00%	$155,028.83	0.00%	$0.00
maint. - meters	$150,716	AA	100.00%	$150,715.70	0.00%	$0.00
maint. - hydrants	$0	AA	100.00%	$0.00	0.00%	$0.00
construction labor	-$20	AA	100.00%	-$20.20	0.00%	$0.00
CUSTOMER ACCOUNT						
labor- meter read	$118,526	BB	0.00%	$0.00	100.00%	$118,525.77
cust record labor	$218,968	BB	0.00%	$0.00	100.00%	$218,967.68
cust records sup	$103,571	BB	0.00%	$0.00	100.00%	$103,570.72
meter read supplies	$2,708	BB	0.00%	$0.00	100.00%	$2,707.88
uncollectible	$62,046	BB	0.00%	$0.00	100.00%	$62,045.57
ADMIN. & GENERAL						
salaries	$91,579	CC	42.46%	$38,884.38	57.54%	$52,694.47
office supplies & expenses	$53,221	CC	42.46%	$22,597.72	57.54%	$30,623.47
insurance (property/liability/wc)	$53,218	CC	42.46%	$22,596.47	57.54%	$30,621.78
OPEB Trust Contrib.	$26,780	CC	42.46%	$11,370.79	57.54%	$15,409.21
employee benefits	$353,228	DD	41.02%	$144,894.30	58.96%	$208,263.47
maint. - plant	$30,111	CC	42.46%	$12,785.29	57.54%	$17,326.09
maint. - vehicles	$12,451	CC	42.46%	$5,286.75	57.54%	$7,164.38
miscellaneous	$3,272	CC	42.46%	$1,389.38	57.54%	$1,882.82
vacation, holiday, sick	$104,240	CC	42.46%	$44,260.28	57.54%	$59,979.66
regul. exp.	$30,171	CC	42.46%	$12,810.68	57.54%	$17,360.49
outside service	$18,567	CC	42.46%	$7,883.40	57.54%	$10,683.25
TOTAL O&M	$1,666,589		42.46%	$708,692	57.54%	$957,827
FIXED CHARGES						
Debt Service						
Existing	$44,935	JJ	100.00%	$44,934.60	0.00%	$0.00
O&M Reserve	$2,711	CC	42.46%	$1,151.03	57.54%	$1,559.83
R&R Reserve	$2,724	JJ	100.00%	$2,723.67	0.00%	$0.00
Renewal & Replacement - Equip	$2,058	JJ	100.00%	$2,058.15	0.00%	$0.00
Infrastructure Replacement	$123,489	JJ	100.00%	$123,489.11	0.00%	$0.00
Meter Replacement	$0	JJ	100.00%	$0.00	0.00%	$0.00
CIP	$29,922	JJ	100.00%	$29,921.80	0.00%	$0.00
Payroll Taxes	$56,859	DD	41.02%	$23,323.67	58.96%	$33,524.22
PILOT	$251	EE	48.57%	$121.72	51.43%	$128.89
SUBTOTAL FIXED	$262,948			$227,724		$35,213
OPERATING REVENUE	$26,622	EE	48.57%	$12,930.40	51.43%	$13,691.80
TOTAL EXPENSES	$1,956,159			$949,346		$1,006,731

(1) See Schedule DGB-COS-2B

ALLOCATION OF CUSTOMER SERVICE EXPENSE

Kent County Water Authority

Expense Item	TOTAL GENERAL WATER	ALLOC. SYMBOL (1)	CUSTOM METER %	CUSTOM METER AMOUNT	CUSTOM BILL %	CUSTOM BILL AMOUNT
Less:						
Miscellaneous Income	($20,312)	EE	48.57%	-$9,865.51	51.43%	-$10,446.43
Interest Income	($1,781)	EE	48.57%	-$865.02	51.43%	-$915.96
Merchand & Jobbing	($1,561)	EE	48.57%	-$758.09	51.43%	-$802.73
6.9% of Water Prot Fee	($3,782)	EE	48.57%	-$1,836.95	51.43%	-$1,945.11
NET REQUIRED FROM RATES	$1,928,724		48.53%	$936,020	51.47%	$992,621

(1) See Schedule DGB-COS-2B

ALLOCATION SYMBOLS

ALLOCATION SYMBOL	CUSTOM METER	CUSTOM BILL	
AA	100.00%	0.00%	Meters
BB	**0.00%**	**100.00%**	Billing
CC	42.46%	57.54%	O&M
DD	41.02%	58.96%	Labor
EE	48.57%	51.43%	All Expenses
JJ	**100.00%**	**0.00%**	Capital

DETERMINATION OF PROPOSED SERVICE CHARGES

Kent County Water Authority

Billing Charges

Billing Charges	$ 992,621
No. of Bills	111,980
Rate per Bill	$ 8.86

Meter/Service Charges

Meter/Service Charges	$ 936,020
No. of EQ. Meters	36,814
Rate per Eq. Meter/Yr	$ 25.43

Size	Rate per Equivalent	Meter Charge
5/8 & 3/4	1.00	$ 25.43
1	1.80	$ 45.77
1 1/2	3.30	$ 83.90
2	4.60	$ 116.96
3	6.30	$ 160.18
4	9.60	$ 244.09
6	16.90	$ 429.69
8 & up	29.60	$ 752.60

Total Service Charges per Quarter

Size	Meter/Service Charge	Billing Charge	Total Meter/Service Charge
5/8 & 3/4	$ 6.36	$ 8.86	$ 15.22
1	$ 11.44	$ 8.86	$ 20.31
1 1/2	$ 20.98	$ 8.86	$ 29.84
2	$ 29.24	$ 8.86	$ 38.10
3	$ 40.05	$ 8.86	$ 48.91
4	$ 61.02	$ 8.86	$ 69.89
6	$ 107.42	$ 8.86	$ 116.29
8 & up	$ 188.15	$ 8.86	$ 197.01

Total Service Charges per Month

Size	Meter/Service Charge	Billing Charge	Total Meter/Service Charge
5/8 & 3/4	$ 2.12	$ 8.86	$ 10.98
1	$ 3.81	$ 8.86	$ 12.68
1 1/2	$ 6.99	$ 8.86	$ 15.86
2	$ 9.75	$ 8.86	$ 18.61
3	$ 13.35	$ 8.86	$ 22.21
4	$ 20.34	$ 8.86	$ 29.20
6	$ 35.81	$ 8.86	$ 44.67
8 & up	$ 62.72	$ 8.86	$ 71.58

ALLOCATION OF CUSTOMER SERVICE UNITS

Schedule DGB-COS-5A

Kent County Water Authority

Quarterly	Number of Meters	Number of Bills
5/8 & 3/4	22,080	88,320
1	3,650	14,600
1 1/2	324	1,296
2	502	2,008
3	11	44
4	89	356
6	89	356
8 & up	67	268
Monthly		-
5/8 & 3/4	5	60
1	1	12
1 1/2	9	108
2	8	96
3	1	12
4	3	36
6	7	84
8 & up	5	60
TOTAL		
5/8 & 3/4	22,085	88,380
1	3,651	14,612
1 1/2	333	1,404
2	510	2,104
3	12	56
4	92	392
6	96	440
8 & up	72	328
Private fire		128
Public fire		4,136
	26,851	111,980

Schedule DGB-COS-5B

DETERMINATION OF EQUIVALENT METERS

Kent County Water Authority

Meter size	Number	Equivalance Factor	Equivalent Meters (5/8)
5/8 & 3/4	22,085	1.00	22,085
1	3,651	1.80	6,572
1 1/2	333	3.30	1,099
2	510	4.60	2,346
3	12	6.30	76
4	92	9.60	883
6	96	16.90	1,622
8 & up	72	29.60	2,131
	26,851		36,814

Schedule DGB-COS-6

ALLOCATION OF FIRE SERVICE EXPENSES
TO PUBLIC AND PRIVATE FIRE SERVICE
Kent County Water Authority

	NUMBER	DEMAND FACTOR (1)	NO. OF EQUIVS.	PERCENT OF DEMAND	NON-HYDR. REQUIRED	DIRECT HYDRANT	TOTAL
PUBLIC FIRE SERVICE							
Hydrants	2,357.00	111.31	262,359.85	67.81%	$ 1,275,270.50	$105,477	$ 1,380,747.88
	-						
	-						
PRIVATE FIRE SERVICE	-						
	-						
SIZE (IN)	-						
4	97.00	38.32	3,716.97				
6	200.00	111.31	22,262.18				
8	84.00	237.21	19,925.35				
10	17.00	426.58	7,251.85				
12	1.00	689.04	689.04				
HYDRANTS	635.00	111.31	70,682.44				
TOTAL-PRIV.	1034		124,527.84	32.19%	$ 605,301.01	$ -	$ 605,301.01
	==========		==========	==========	==========	==========	==========
GRAND TOTALS	3,391.00		386,887.69	100%	$ 1,880,571.52	$ 105,477.38	$ 1,986,048.90

Total Fire Allocation	$2,656,066
Less Subsidy from Base Water	($670,017)
Less Direct Hydrant Related	
O&M	($85,220)
Debt	($20,257)
Net Non-Hydrant	$ 1,880,571.52

(1) Based on size to the 2.63 power.

DETERMINATION OF FIRE SERVICE CHARGES

Schedule DGB-COS-6A

Kent County Water Authority

PUBLIC FIRE PROTECTION			CALCULATED CHARGE
PUBLIC FIRE ALLOCATION (1)		$ 1,380,747.88	
----------	------- =	---------- =	$585.81
NUMBER OF PUBLIC HYDRANTS		2,357.00	
	TOTAL QUARTERLY		$146.45
	+ BILLING		$ 8.86

PRIVATE FIRE PROTECTION			
PRIVATE FIRE ALLOCATION (1,2)		$ 605,301.01	
----------	---------- =	--------- =	$4.86 /EQUIV.
NO. OF EQUIV. UNITS		124,527.84	

SIZE (IN)	DEMAND FACTOR	ANNUAL CHARGE	QUARTERLY CHARGE	BILLING CHARGE	CALCULATED CHARGE
4	38.32	$186.26	$46.57	$ 8.86	$55.43
6	111.31	$541.06	$135.26	$ 8.86	$144.13
8	237.21	$1,153.01	$288.25	$ 8.86	$297.12
10	426.58	$2,073.50	$518.38	$ 8.86	$527.24
12	689.04	$3,349.28	$837.32	$ 8.86	$846.18
HYDRANTS	111.31	$541.06	$135.26	$ 8.86	$144.13

PUBLIC AND PRIVATE FIRE SERVICE COUNTS

Schedule DGB-COS-6B

Kent County Water Authority

	Existing NUMBER	Fire Lines (1)	Total
PUBLIC FIRE SERVICE			
Hydrants	2,357.00	0	2,357.00
PRIVATE FIRE SERVICE			
SIZE (IN)			
4	16	81	97
6	95	105	200
8	16	68	84
10	1	16	17
12	1	0	1
HYDRANTS	122	513	635
TOTAL-PRIV.	251	783	1034
	==========	==========	==========
GRAND TOTALS	2,608.00	783.00	3,391.00

(1) see Mr. Simmons testimony on Page 17

COMPARISON TO CURRENT RATES

Kent County Water Authority

Schedule DGB-COS-7

		Current	Proposed	$ Change	% Change
METERED RATES					
Small (5/8-2" meters)	Single Register	$6.161	$5.405	($0.756)	-12.28%
Medium (3&4" meters)	Single Register	$4.913	$5.726	$0.813	16.55%
Large (6" & up meters)	Single Register	$4.475	$5.261	$0.786	17.56%
Medium Compound	Meters with Bypass		$5.726	New Rate	-0.14%
Medium Compound	Meters with Bypass		$5.261	New Rate	-6.17%
Wholesale			$3.861	New Rate	
SERVICE CHARGES					
Quarterly	5/8 & 3/4	$15.41	$ 15.22	($0.190)	-1.23%
	1	$20.42	$ 20.31	($0.110)	-0.54%
	1 1/2	$29.84	$ 29.84	$0.000	0.00%
	2	$37.99	$ 38.10	$0.110	0.29%
	3	$48.67	$ 48.91	$0.240	0.49%
	4	$69.37	$ 69.89	$0.520	0.75%
	6	$115.19	$ 116.29	$1.100	0.95%
	8 & up	$194.89	$ 197.01	$2.120	1.09%
			$ -		
Monthly	5/8 & 3/4	$11.22	$ 10.98	($0.240)	-2.14%
	1	$12.89	$ 12.68	($0.210)	-1.63%
	1 1/2	$16.03	$ 15.86	($0.170)	-1.06%
	2	$18.75	$ 18.61	($0.140)	-0.75%
	3	$22.31	$ 22.21	($0.100)	-0.45%
	4	$29.21	$ 29.20	($0.010)	-0.03%
	6	$44.48	$ 44.67	$0.190	0.43%
	8 & up	$71.05	$ 71.58	$0.530	0.75%

FIRE CHARGES		Current	Proposed	$ Change	% Change
Fire Service (per quarter)					
Public	/hydrant	$189.69	$146.45	($43.240)	-22.80%
	/bill	$9.13	$8.86	($0.270)	-2.96%
Private (per quarter)					
	4 in	$76.35	$55.43	($20.920)	-27.40%
	6 in	$204.38	$144.13	($60.250)	-29.48%
	8 in	$425.23	$297.12	($128.110)	-30.13%
	10 in	$757.42	$527.24	($230.180)	-30.39%
	12 in	$1,217.84	$846.18	($371.660)	-30.52%
	hydrant	$204.38	$144.13	($60.250)	-29.48%

IMPACT OF PROPOSED RATES

Kent County Water Authority

Schedule DGB-COS-8

SIZE	USE - CU FT	RATES	NEW BILL	$ INCREASE	% INCREASE
Small-Single Register					
5/8	1,500.00	$154.06	$141.95	($12.11)	-7.9%
5/8	***2,000.00***	***$184.86***	***$168.97***	***($15.89)***	***-8.6%***
5/8	5,000.00	$369.69	$331.11	($38.58)	-10.4%
5/8	10,000.00	$677.74	$601.33	($76.41)	-11.3%
1	30,000.00	$1,929.98	$1,702.60	($227.38)	-11.8%
1	75,000.00	$4,702.43	$4,134.64	($567.79)	-12.1%
2	100,000.00	$6,280.36	$5,523.89	($756.47)	-12.0%
2	200,000.00	$12,441.36	$10,928.42	($1,512.94)	-12.2%
Medium-Single Register					
3	50,000.00	$2,651.18	$3,058.71	$407.53	15.4%
3	125,000.00	$6,335.93	$7,353.32	$1,017.39	16.1%
4	250,000.00	$12,559.98	$14,594.92	$2,034.94	16.2%
4	1,000,000.00	$49,407.48	$57,541.02	$8,133.54	16.5%
Large-Single Register					
6	250,000.00	$11,648.26	$13,617.37	$1,969.11	16.9%
6	575,000.00	$26,192.01	$30,715.24	$4,523.23	17.3%
6	775,000.00	$35,142.01	$41,237.01	$6,095.00	17.3%
8	2,000,000.00	$90,279.56	$106,005.71	$15,726.15	17.4%
Medium-with Bypass	Sm meter/Med meter usage -- 68%/32%				
3	40,000/18,823 - 58,823 Total	$3,583.85	$3,563.93	($19.92)	-0.6%
4	90,000/42,352 - 132,352 Total	$7,903.13	$7,858.23	($44.91)	-0.6%
Large-with Bypass	Sm meter/Lrg meter usage-- 68%/32%				
6	250,000/117,647- 367,470 total	$21,127.96	$19,806.64	($1,321.32)	-6.3%
8	750,000/352,941-1,102,941 total	$62,781.17	$58,812.48	($3,968.69)	-6.3%
Municipal Fire Service	400 hydrants	$75,885.13	$58,588.86	($17,296.27)	-22.8%
Private Fire Service	6 Inch Service	$204.38	$144.13	($60.25)	-29.5%
	hydrant	$204.38	$144.13	($60.250)	-29.48%

REVENUE RECONCILLIATION

Kent County Water Authority

Schedule DGB-COS-9

Service Charge:		<------- Current ------->			<-------- Proposed -------->		
Quarterly	Number	Rate		Revenue		Rate		Revenue
5/8 & 3/4	88,320	$15.41	$	1,361,011	$	15.22	$	1,344,230
1	14,600	$20.42	$	298,132	$	20.31	$	296,526
1 1/2	1,296	$29.84	$	38,673	$	29.84	$	38,673
2	2,008	$37.99	$	76,284	$	38.10	$	76,505
3	44	$48.67	$	2,141	$	48.91	$	2,152
4	356	$69.37	$	24,696	$	69.89	$	24,881
6	356	$115.19	$	41,008	$	116.29	$	41,399
8 & up	268	$194.89	$	52,231	$	197.01	$	52,799
Monthly								
5/8 & 3/4	60	$11.22	$	673	$	10.98	$	659
1	12	$12.89	$	155	$	12.68	$	152
1 1/2	108	$16.03	$	1,731	$	15.86	$	1,713
2	96	$18.75	$	1,800	$	18.61	$	1,787
3	12	$22.31	$	268	$	22.21	$	267
4	36	$29.21	$	1,052	$	29.20	$	1,051
6	84	$44.48	$	3,736	$	44.67	$	3,752
8 & up	60	$71.05	$	4,263	$	71.58	$	4,295

		<------- Current ------->			<-------- Proposed -------->		
	Number	Rate		Revenue		Rate		Revenue
Consumption Charge:	100/cu.ft.							
Proposed								
Small-Single Register	2,523,356	$6.16	$	15,546,396		$5.40	$	13,637,555
Medium-Single Register	34,267	$4.91	$	168,355		$5.73	$	196,219
Large-Single Register	69,253	$4.48	$	309,908		$5.26	$	364,333
Medium-with Bypass	94,938	$4.91	$	466,430		$5.73	$	543,629
Large-with Bypass	526,880	$4.48	$	2,357,788		$5.26	$	2,771,854
Wholesale	35,135	$4.48	$	157,229		$3.86	$	135,655
Fire Protection:								
Public Hydrants	2,357.00	$189.69	$	1,788,397		$146.45	$	1,380,731
# bills	32.00	$9.13	$	292		$8.86	$	284
Private Fire Protection								
4 in	97.00	$76.35	$	29,624		$55.43	$	21,507
6 in	200.00	$204.38	$	163,504		$144.13	$	115,304
8 in	84.00	$425.23	$	142,877		$297.12	$	99,832
10 in	17.00	$757.42	$	51,505		$527.24	$	35,852
12 in	1.00	$1,217.84	$	4,871		$846.18	$	3,385
hydrant	635.00	$204.38	$	519,125		$144.13	$	366,090
				==========				==========
Total			$	23,614,155			$	21,563,071
Plus: Misc Revenues			$	330,651			$	330,651
				==========				==========
Pro Forma Revenue			$	23,944,806			$	21,893,721
Required Revenue			$	21,894,055			$	21,894,055
Difference			$	(2,050,751)			$	(334)
							$	(0)
Decrease in Rate Revenues							$	(2,050,751)
Percent Increase in Total Revenues								-8.56%

TAB 7

Index of Exhibits

EXHIBIT 1

Index and Responses to Compliance with Part 5

Item 5.5 (A)(1):	Current & Proposed Rate Schedules; Terms and Conditions
Response:	*Included in filing.*
Item 5.5 (A)(2):	Complete Direct Case with Testimony and Exhibits
Response:	*Included in filing. Original and 9 copies field*
Item 5.5 (A)(3) a)-(g)	Additional Documents
Response:	*Not Applicable*
Item 5.5 (B):	If such documents have been provided to the Commission in a prior Proceeding with twelve (12) months of the filing, additional copies need not be filed unless requested by the Commission or any party.
Response:	*KCWA is in compliance with all filings to date.*
Item 5.5(C)	Service of Documents. A complete set of the documents filed pursuant to these rules shall be served upon the Attorney General at the time of filing with the Commission.
Response:	*Filed*
Items 5.5 (D)	Index. Applicant shall present an index outlining and identifying the response to the information filed pursuant to §§ 5.5 through 5.10 of this Part, as they apply to the applicant. The applicant shall indicate whether any specific item is no applicable.
Response:	*Index completed in Exhibit 1*
Item 5.6 (A)	Test Year. The filing shall present cost of service and rate base schedules for a test year period. The test year constitutes a historic year of actual data for a period ending within nine (9) months of the filing date. The test year may be for such other period as the Commission may allow.
Response:	*Included in D. Bebyn Testimony*
Item 5.6 (B)	Rate Year. The rate year is the twelve-month period for which new rates are designed to recover the proposed cost of service. The rate year period shall be the filed test year or such other yearly period which commences no later than eight (8) months after the proposed effective date of the new tariffs.
Response:	*Included in D. Bebyn Testimony*

Item 5.6 (C)(1)-(4) Adjustments to the Test Year. Where a rate year is filed for a period different from the test year, supporting schedules or workpapers shall be filed to disclose the manner in which the rate year amounts were calculated. The adjustments to the test year shall be fully explained in written testimony, and the source of the data in support of the adjustments shall be presented, or disclosed, as appropriate.

1. Normalization Adjustments. These adjustments shall be made to the test year to present a reasonable/normal amount for one full year of operations. The test year must be normalized to reflect expected results for a typical future year. All items of unusual magnitude which occurred during the test year, but which are not expected to recur to a significant degree beyond the test year, should be adjusted to reflect what is reasonably to be expected in the future. Correspondingly, adjustments should be made to reflect items that are fixed, determinable, and likely to occur in the future, but did not occur to a significant degree during the test year.

2. Proforma Adjustments. These adjustments serve to walk-up the normalized test year amounts to the balances presented for the rate year.

3. Accounting Change Adjustments. Any change in the manner of recording accounting data on the company's books shall be explained and the financial impact shown.

4. Inflationary adjustments. These adjustments are based upon projected cost increases.

Response: *Included in D. Bebyn Testimony*

Item 5.7 Attestation of Financial Data

Response: *Included*

Item 5.8 Supporting Information and Work papers to be filed by Investor Owned Utilities

Response: *Not Applicable*

Item 5.9 Supporting Information and Work papers to be filed by Non-Investor Owned Utilities

Response: *Included D. Bebyn Testimony*

Item 5.10 (A) A. Availability. A non-investor-owned utility may receive a limited revenue increase through an abbreviated filing process requiring submission of less data than would otherwise be required under §§ 5.5,

5.6, and 5.9 of this Part. Information required of water utilities pursuant to R.I. Gen. Laws § 39-3-12.1 must be filed.

Response: *Included in Exhibit 2*

Item 5.10 (B) Limitation on Revenue Increase. The allowable revenue increase will be limited to twenty-five (25%) percent over a normalized test year period. Increases to test year amounts will be allowed for known and measurable changes to:

1. debt service requirements;
2. salaries, wages, and employee benefits;
3. property taxes;
4. chemicals;
5. insurance;
6. infrastructure replacement program funding; and
7. purchased water.

Response: *Not Applicable*

Item 5.10 (C) For other accounts, increases from test year amounts for known and measurable changes will be allowed only when the proforma amount is at least ten (10%) percent greater than the test year. Account increases utilizing a general attrition or inflation factor will not be permitted.

Response: *Not Applicable*

Item 5.10 (D) Restrictions on Abbreviated Filing. The abbreviated filing procedure is not available to a utility in the following instances:

1. if a net utility operating loss has occurred for the prior two fiscal years;
2. if a general rate order has not been issued during the preceding five years;
3. if the utility proposes a significant change in revenue recovery among rate classes;
4. if the utility has not filed all annual reports to the Commission;
5. if the utility has not complied with directives of prior Commission orders.

Response: *(1- 5) Not Applicable*

Item 5.10 (E)(1) Filing Requirements. §§ 5.5(A)(3) and 5.9 of this Part are superseded by the following requirements:

1. Cost of service schedules for the test year and the proposed rate year; a balance sheet for the test year.

Response: *Included in D. Bebyn Testimony*

Item 5.10 (E)(2) Supporting calculations and data for known and measurable changes allowed per § 5.10(B) of this Part.

Response: *Included in D. Bebyn Testimony*

Item 5.10(E) (3) A comparative statement of revenues and expenditures for the past three (3) fiscal years.

Response: *Included in D. Bebyn Testimony*

Item 5.10 (E)(4) Work papers detailing the test year revenues by source, tariff, rate class, etc. The sales volumes/quantities and customer counts by rate class shall be presented.

Response: *Included in D. Bebyn Testimony*

Item 5.10 (E)(5) A schedule presenting the principal and interest amounts paid on long term and short-term debt service for the test year and the amounts projected for the rate year. Schedule amounts by bond issue, note/mortgage loan, etc. as appropriate. Provide a description of each issue to include: source of funding, amount of original issue, date, interest rate, repayment terms, and security pledged on borrowing, and other pertinent information.

Response: *Included in Exhibit 4*

Item 5.10 (E)(6) For rate filings requesting an increase in debt service requirements:
a. a capital program in support of the debt service requested;
b. evidence of voter/board approval for the debt issuance; and
c. a summary of debt issuance costs.

Response: *Not Applicable*

Item 5.10 (E)(7) A summary of expenses incurred and projected to be incurred related to the instant rate case filing, and a schedule showing any unamortized amounts from prior rate filings. This schedule shall reconcile the total amount of expense allowed in the last order, the recovery or amortization of expense through the test year, and the projected balance of any unrecovered or unamortized amount at the beginning of the rate year.

Response: *Included in D. Bebyn Testimony*

Item 5.10 (E)(8) A summary on the status of compliance and reporting required by prior Commission orders.

Response: *KCWA is compliant with all prior Commission orders and reporting.*

Items 5.10 (E)(9) An accounting summary of restricted accounts to provide the funding, interest accrual, and expenditures of each restricted account since the date of the last rate order.

Response: *Included in Exhibit 3*

EXHIBIT 2

39-3-12.1
Information Required of Water Utility

TABLE A

Status of Physical Plant

TABLE B

Maintenance Policy

TABLE C

Water Treatment Methods

TABLE D

Policy Related to Expansion and Renovations

EXHIBIT 2

Compliance with R.I.G.L 39-3-12.1

Table A

Status of Physical Plant

The physical plant of the Kent County Water Authority consists of the following items as of June 30, 2019.

REAL ESTATE

IN THE CITY OF WARWICK:

A. On the Easterly side of Rhode Island Highway Route 1 and Post Road, 8.2 acres with one gravel-packed well rehabilitated in 2017 and upgraded chemical injection and source metering facility in 2018.

B. On the West side of Route 2, 8.0 million gallon per day low service booster station with generator.

IN THE TOWN OF COVENTRY:

A. On the East side of Route 3 abutting the Coventry-West Greenwich town line, ninety acres of land, three gravel-packed wells with 2.6 million gallon per day membrane ultrafiltration treatment plant. Plus approximately 300 acres of land purchased for wellhead protection and proposed well sites.

B. On Route 3, at the top of Tiogue Hill, land with an out of service obsolete three-quarter million-gallon storage tank. This tank is being demolished in the Spring of 2020.

C. On Read Schoolhouse Road, one out of service obsolete one and one half million-gallon steel storage tank. To the north of the out of service tank a new one and one half million-gallon concrete storage tank. The obsolete tank is being demolished in the Spring of 2020.

D. On the East side of Route 3, in Coventry, 17 acres of land, one out of service gravel-packed well (Spring Lake Well) and obsolete lime facility

E. On Knotty Oak Road, Rhode Island Highway Route 116, abandoned pumping station.

F. Site on 7,500 sq. ft. leased land for 99 years. Location of 4.0 million gallons per day Johnsons Blvd. High Service Booster Station.

G. North side Mishnock Road 9 acres of land for future use.

IN THE TOWN OF WEST WARWICK:

EXHIBIT 2

Compliance with R.I.G.L 39-3-12.1

A. At the intersection of Gough Avenue and West Street, land and out of service obsolete steel storage tank one million gallons.

B. On the North side of East Greenwich Avenue, Setian Lane, land and a three-million-gallon steel storage tank plus 1.0 million gallon per day high service booster station.

C. At 1072 Main Street, two buildings consisting of office building, storage facilities, workshop, garage, operation headquarters.

D. On the North side of Wakefield Street, a 2.0 million gallon out of service concrete storage tank.

E. North side of Crompton Road (Nottingham Estates) 10,000 sq. ft. land for proposed tank site.

F. West Warwick Industrial Park high service booster station capacity of 1.2 million gallons per day.

G. West Warwick Industrial Park abandoned obsolete concrete storage tank.

IN THE TOWN OF SCITUATE:

A. On Clinton Avenue, a 25 million gallon per day pumping station, high and low service.

IN THE CITY OF CRANSTON:

A. Out of service and obsolete one and one half million-gallon combined capacity underground concrete storage tanks; Seven Mile Road.

B. Oaklawn Avenue leased site metering station for source supply.

IN THE TOWN OF WEST GREENWICH:

A. 1.5-million-gallon steel elevated storage tank on easement land Technology Park.

B. On the north side of Mishnock Road, approximately 100 acres of wellhead protection land proposed new well sites.

C. On west side of Carrs Pond Road leased site and 3.0-million-gallon concrete storage tank. Currently offline due to mitigate water age issues within the high service gradient.

IN THE TOWN OF EAST GREENWICH:

A. 1.5-million-gallon concrete storage tank on land off of Frenchtown Road.

EXHIBIT 2

Compliance with R.I.G.L 39-3-12.1

Throughout the distribution system at the reduced gradient systems, 9 pressure reducing stations exist for pressure reduction on a system basis.

The above listed items constitute the physical plant of the Kent County Water Authority and cite the source of supply owned by the Kent County Water Authority. All property unless otherwise noted, is held in fee simple and not subject to any mortgage, liens, attachments or other encumbrances.

In addition to wells cited, the Kent County Water Authority has as a source of supply the Scituate Reservoir owned by the City of Providence and has two connections into the source of supply; one, on Oaklawn Avenue in the City of Cranston and one, at the cited-pumping station in the Town of Scituate. A connection is also available at Bald Hill Road in Warwick from the Warwick Water Department system obtained from Providence Water supply Board.

The volume of the wells cited has not been determined for safe yield. We also periodically modify the impeller setting or the variable frequency drives to adjust flow based on ground water levels and gradient backpressure.

Our estimates are as follows:

Mishnock Well #3	600 gpm
Mishnock Well #4	800 gpm
Mishnock Well #5	600 gpm
Spring Lake Well	300 gpm (out of service)
Warwick Well (AKA – East Greenwich Well)	2000 gpm to 1400 gpm

The volume of water from Scituate Reservoir Providence Water Supply Board is variable depending on our demand. By state law, Kent County Water Authority has a daily draw from Providence of a maximum of 150 gpcd for all individuals of Kent County proper except Potowomut in Warwick and areas not subject to the north/south branch drainage basin of the Pawtuxet River.

EXHIBIT 2

Compliance with R.I.G.L 39-3-12.1

Table B

Maintenance Policy

It is and has been the policy of the Kent County Water Authority to maintain its system in proper operating condition in accordance with accepted water works standards. All damaged items, valves, hydrants, pipe, etc. of our distribution system are repaired as expeditiously as possible. Replacement of deteriorated lines via the Infrastructure Program is replaced during the construction period each year. Any emergency items are repaired immediately. All physical plant is maintained and performed by staff of the Kent County Water Authority. With the addition of the IFR Program, a continual replacement program has been established for this system. This is outside and separate for our Capital Improvement Program. Distribution pipes were last installed this construction season by the Authority and its contractors. Total installed over the last 10 years is 39.53 miles.

YEAR	FEET	MILES
2010	23,505	4.45
2011	55,155	10.45
2012	20,405	3.86
2013	18,706	3.54
2014	16,615	3.15
2015	1,492	0.28
2017	41,713	7.90
2018	14,335	2.72
2019	16,795	3.18
TOTAL	208,723	39.53

EXHIBIT 2

Compliance with R.I.G.L 39-3-12.1

Table C

Water Treatment Methods Chemicals Used

For Last Twelve Months

Compliance with R.I.G.L. §39-3-12.1

Water Treatment Methods and Chemicals used during the last fiscal reporting period FY 2019 , (July 2018 through the end of June 2019), Kent County Water Authority utilized the following eight (8) chemicals during the treatment process, as follows:

1. Poly-aluminum chloride (PACl) - Used to coagulate particles that cause color and turbidity.
2. Potassium Permanganate - Used to oxidize iron and manganese.
3. Sodium Hypochlorite (Cl2) - Used as a disinfectant.
4. Sulfuric Acid- Used to clean membranes.
5. Citric Acid – Used to clean membranes.
6. Sodium Bisulfite - Used to dechlorinate membrane cleaning water.
7. Polyphosphate - Used to sequester iron and manganese.
8. Potassium Hydroxide - Used to adjust pH.

The quantities of chemicals purchased and used for dosing of specified water are as follows:

	Quantity Used	Units	Unit Cost	Total Cost
Poly-aluminum chloride	3,804.00	pounds	2.1600	8,216.64
Potassium Permanganate	2,750.00	pounds	4.3200	11,880.00
Sodium Hypochlorite	5,775.00	pounds	2.0707	11,958.10
Sulfuric Acid	690.00	pounds	0.4400	303.60
Citric Acid	4,095.00	pounds	1.1900	4,873.05
Sodium Bisulfite	7,200.00	pounds	0.4510	3,247.20
Polyphosphate	3,600.00	pounds	1.1100	3,996.00
Potassium Hydroxide	238,543.52	pounds	0.5500	131,198.93
			TOTAL	**$ 175,673.52**

EXHIBIT 2

Compliance with R.I.G.L 39-3-12.1

Table D

Policy Relating to Expansion and Renovation

It is and has been the policy of the Kent County Water Authority (KCWA or Authority) to assure that the system will continue to provide service to all customers. It is the requirement and the established legislation of the Authority to service all customers within the borders of Kent County and has been our policy to extend our service to areas contiguous to ours where the Providence Water Supply Board or North Kingstown Water cannot be serviced by that public water system. Capital Improvement Programs have been developed and are in existence to provide existing customers and limited proposed future customers the same level of service throughout. All Capital Improvement Programs, Infrastructure Programs and restricted accounts are reported to the Commission semiannually and are up to date. These reports list funds expended, and projects completed or under construction. A revised current Capital Improvement Program exists and is submitted with this filing for approval by the Commission. Our Infrastructure Program was updated December of 2019 and submitted with the Rhode Island Department of Health, Division of Planning, Department of Environmental Management, and Public Utility Commission as required. We will continue our funding proposed under the currently approved IFR plan and PUC approved allocation.

The Authority is currently working on two major capital planning projects for future growth renovation and expansion.

New Office and Maintenance Facility Study

The first project is an evaluation and analysis for a new office and maintenance headquarters. The Authority currently operates out of its office and maintenance facilities located at 1072 Main Street, West Warwick, Rhode Island. These facilities were originally built at the turn of the century with modifications and new garages in the 1970's. Several additional renovations have been accomplished to support increased operations, and accommodate capital equipment

acquisitions, spare parts warehousing and workforce needs. These existing facilities have no usable area for additional expansion and the Authority believes they can no longer support the Authority's daily operations. In 1999 a new office and maintenance facility study was conducted. This document is outdated, and a current study was necessary to support and supplement future Capital Plan implementation and potential future Commission rate filing. The Authority requested proposals from qualified professional Architects and Engineers to conduct the facilities analysis and evaluation study. A professional architectural/engineering firm was publicly engaged and will be providing the KCWA Board with a detailed cost benefit report, contain a detailed cost benefit report, including spatial analysis, LEED renewable energy, summary report of each location and preliminary cost estimate for each option, design & construction as necessary to relocate the Authority's offices.

East Greenwich /Warwick Well Treatment Facility Design

The second project is the design and cost estimate for the construction of a new treatment plant at the existing East Greenwich/Warwick Well site. The East Greenwich/Warwick Well has a full production yield capability of approximately 2000 gallons per minute. The East Greenwich/Warwick Well is located at 5870 Post Road, in the general vicinity of the intersection of Post Road and Franklin Street, along the East Greenwich and Warwick city line within the Hunt River Aquifer. The existing facilities consist of one submersible pump well, emergency power, SCADA control and monitoring disinfection and pH adjustment.

The design will include an addition to the updated well facilities constructed in 2018 under the KCWA Infrastructure Replacement initiative. The Authority requested proposals from qualified Professional Engineering firms to conduct an inspection, evaluation and review of the newly constructed well facilities and prepare final design and contract documents for construction of a new three million gallon per day water treatment facilities at the existing site under its Capital Improvement initiatives. The treatment facilities shall remove iron and manganese and include disinfection, pH adjustment, aeration radon removal and source water compliance with current and proposed Safe Drinking Water Act and Department of Health regulations. The design will

also be reviewing Per-and-polyfluoroalkyl substances which is an emerging unregulated contaminant of concern. Per-and-polyfluoroalkyl substances (PFAS) are a group of unregulated compounds that have been found in drinking water to varying degrees in Rhode Island. PFAS can be found in Class B firefighting foam and everyday consumer products that are non-stick, stain-resistant, or waterproof. RIDOH recently partnered with RI DEM and Brown University on a PFAS sampling study of water systems that are potentially vulnerable to PFAS contamination. There are current legislative initiatives to set maximum contaminant levels and health advisories prior to them being adopted and incorporated into the SDWA by the EPA. KCWA wanted to be prepared to handle this contaminant if it is found in our source water at levels above safe and/or regulated levels by RIDOH or EPA.

EXHIBIT 3

Kent County Water Authority
The Bank of New York Mellon Account Reconciliation
12/31/19

Account Name	Account No.	Beginning Balance	Interest Earned	Bond Payment	Reimburse Rev Acct	Transfer from Dep Acct	Transfer to Checking Acct	Dec Monthly Waterfall Xfer	North/South 295	2018 296	Ending Balance
Revenue	112600	$3,189,939.77	$4,724.18		$435,567.74	$1,875,000.00	($1,400,000.00)	($1,003,089.08)			$3,102,142.61
Operating Revenue Allowance	112601	$1,399,165.98	1,797.90								$1,400,963.88
Operation & Maintenance Fund	112602	$0.00									$0.00
Renewal & Replacement Reserve	112603	$1,516,493.95	1,948.65								$1,518,442.60
Renewal & Replacement Fund	112604	$146,126.22	178.85					8,333.33			$154,638.40
Infrastructure Fund	112605	$2,727,672.33	3,374.05		(32,802.34)			346,079.58		($73,284.24)	$2,971,039.38
Operation & Maintenance Reserve	112606	$2,760,195.65	3,546.75								$2,763,742.40
KCWA Meter Replace D 4611	667674	$5,860,535.45	7,324.25		(402,765.40)			191,666.67			$5,656,760.97
KCWA Cash Cap Acct CIP D 4611	667675	$8,985,269.18	12,100.44					121,151.58	($592,885.63)		$8,525,635.57
2012 Debt Service Reserve	853023	$2,367,578.63	3,042.40								$2,370,621.03
2012 Debt Service Fund	853024	$953,643.10	1,029.62					181,937.50			$1,136,610.22
2017 Series A Debt Service Acct	941365	$1,641,300.94	1,943.48					153,920.42			$1,797,164.84
Totals		$31,547,921.20	$41,010.57	$0.00	$0.00	$1,875,000.00	($1,400,000.00)	$0.00	($592,885.63)	($73,284.24)	$31,397,761.90

	Reimburseable amount for contractor pmts from Infrastructure Account:		Completed	Reimburseable amount for contractor pmts from Cash Cap CIP account:		Completed	AR Aging	
Acct #667675-used for CIP projects (North/South)							0-30 days	2,632,484.49
Acct #112605-used for IFR projects (2018)	Q1 2019	36,528.00	4/19/19	Q1 2019	-		30-60 days	476,452.54
Acct #853024-used for 2012 Principle & Interest payments	Q2 2019	153,615.23	7/16/19	Q2 2019	14,857.50	7/16/19	60-90 days	238,723.56
Acct #941365-used for 2017 Principle & Interest payments	Q3 2019	170,578.52	10/8/19	Q3 2019	49,892.67	10/8/19	Over 90 days	74,300.43
	Q4 2019			Q4 2019				3,421,961.02

FirstSouthwest
A Division of Hilltop Securities

BOND DEBT SERVICE

Kent County Water Authority
General Revenue Bonds, 2017 Series A
FINAL NUMBERS

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
01/15/2018✓	1,665,000	2.035%	185,185.00	1,850,185.00	
06/30/2018					1,850,185.00
07/15/2018✓			105,158.63	105,158.63	
01/15/2019✓	1,635,000	2.035%	105,158.63	1,740,158.63	
06/30/2019					1,845,317.26
07/15/2019✓			88,522.50	88,522.50	
01/15/2020✓	1,670,000	2.035%	88,522.50	1,758,522.50	
06/30/2020					1,847,045.00
07/15/2020			71,530.25	71,530.25	
01/15/2021	1,705,000	2.035%	71,530.25	1,776,530.25	
06/30/2021					1,848,060.50
07/15/2021			54,181.88	54,181.88	
01/15/2022	1,740,000	2.035%	54,181.88	1,794,181.88	
06/30/2022					1,848,363.76
07/15/2022			36,477.38	36,477.38	
01/15/2023	1,775,000	2.035%	36,477.38	1,811,477.38	
06/30/2023					1,847,954.76
07/15/2023			18,416.75	18,416.75	
01/15/2024	1,810,000	2.035%	18,416.75	1,828,416.75	
06/30/2024					1,846,833.50
	12,000,000		933,759.78	12,933,759.78	12,933,759.78

FirstSouthwest

6/30/16

BOND DEBT SERVICE

Kent County Water Authority
General Revenue Refunding Bonds, 2012 Series A
**** Final Numbers ****

Period Ending	Principal	Coupon	Interest	Debt Service	Annual Debt Service
01/15/2013			396,430.83	396,430.83	
06/30/2013					396,430.83
07/15/2013	1,370,000	4.000%	403,150.00	1,773,150.00	
01/15/2014			375,750.00	375,750.00	
06/30/2014					2,148,900.00
07/15/2014	1,425,000	4.000%	375,750.0	1,800,750.00	
01/15/2015			347,250.00	347,250.00	
06/30/2015					2,148,000.00
07/15/2015	1,485,000	4.000%	347,250.00	1,832,250.00	
01/15/2016			317,550.00	317,550.00	
06/30/2016					2,149,800.00
07/15/2016	1,540,000	4.000%	317,550.00	1,857,550.00	
01/15/2017			286,750.00	286,750.00	
06/30/2017					2,144,300.00
07/15/2017	1,605,000	5.000%	286,750.00	1,891,750.00	
01/15/2018			246,625.00	246,625.00	
06/30/2018					2,138,375.00
07/15/2018	1,690,000	5.000%	246,625.00	1,936,625.00	
01/15/2019			204,375.00	204,375.00	
06/30/2019					2,141,000.00
07/15/2019	1,775,000	5.000%	204,375.00	1,979,375.00	
01/15/2020			160,000.00	160,000.00	
06/30/2020					2,139,375.00
07/15/2020	1,870,000	5.000%	160,000.00	2,030,000.00	
01/15/2021			113,250.00	113,250.00	
06/30/2021					2,143,250.00
07/15/2021	1,955,000	5.000%	113,250.00	2,068,250.00	
01/15/2022			64,375.00	64,375.00	
06/30/2022					2,132,625.00
07/15/2022	1,255,000	5.000%	64,375.00	1,319,375.00	
01/15/2023			33,000.00	33,000.00	
06/30/2023					1,352,375.00
07/15/2023	1,320,000	5.000%	33,000.00	1,353,000.00	
06/30/2024					1,353,000.00
	17,290,000		5,097,430.83	22,387,430.83	22,387,430.83

This represents the amortization schedule and bond document for 2012 Series A Bond. H&S use this to obtain information regarding bond in order to test LTD on M-lead.

Name of Respondent	This Report is:	Date of Report (Mo, Da, Yr)	Year of Report
Kent County Water Authority	(1) _x_ An Original (2) __ A Resubmission	09/12/19	06/30/19

LONG-TERM BONDS IN RATES (Acct. 221.1)

Report data called for and show total for each long-term debt account open at year end and any closed in the current year.
Include only long-term debt that are covered under tariff revenues.

Description of Debt 221.1 - Bonds Include Issue & Maturity Dates and Rate of Interest Explain use of Funds (a)	Original Balance of Long - Term Debt (b)	Beginning Balance (c)	Paid by Utility: Principle (p4, Ln.21) (Column (c)) (d)	Paid by Utility: Interest (p5, Ln.38) (Column (d)) (e)	Year Ending Balance (p4, Line 14) (Column (c)) (c) - (d) (f)	Principle Payment Due Next Yr. (p4, line 21) (Column (d)) (g)	Net Long Term Portion (p4, line 14) (Column (d)) (h)
Unamortized Discount		($31,630)	($7,746)		($23,884)	$7,746	($31,630)
2017 Series "A" dated 4/2017 and sold at an overall rate of 2.03% and maturing in 2024	$12,000,000	$10,335,000	$1,635,000	$171,588	$8,700,000	$1,670,000	$7,030,000
2012 Series "A" dated 7/2012 and sold at an overall rate of 4% to 5% and maturing in 2023	$17,290,000	$9,865,000	$1,690,000	$435,750	$8,175,000	$1,775,000	$6,400,000
Totals		$20,168,370	$3,317,254	$607,338	$16,851,116	$3,452,746	$13,398,370

KENT COUNTY WATER AUTHORITY
SYSTEM DESCRIPTION

KENT COUNTY WATER AUTHORITY
P.O. BOX 192
WEST WARWICK, RHODE ISLAND 02893

April 2019

INTRODUCTION

The Authority is a public benefit corporation created pursuant to and existing under Chapter 1740 of the Public Laws of 1946 of the State, codified at Chapter 16 of Title 39 of the Rhode Island General Laws (1956), as amended (the "Act"). Pursuant to the Act, the Authority is the governing body of the Kent County Water District (the "District"), a political subdivision of the State, the boundaries of which are coterminous with the boundaries of Kent County. The State legislature established the Authority as an independent Authority supported by a financial base of user charges subject to the provisions of Chapter 1 through 5 of the Title 239 of the Rhode Island General Laws (1956), as amended, relating to the Public Utilities Commission of the State (the "PUC") and its supervisory and regulatory powers. The principal office of the Authority is located at 1072 Main Street in the Town of West Warwick.

The Kent County Water District was formed in 1946 during the January session of the General Assembly of the State of Rhode Island and Providence Plantations, Chapter 1740. The KCWA, which operates the water district, was approved for formation on April 24, 1946, and officially organized shortly thereafter, on July 8, 1946. The Authority began functioning as a water distribution system when it acquired the assets of three privately owned water companies serving communities within Kent County, namely the Pawtuxet Valley Water Company, the Warwick and Coventry Water Company, and the East Greenwich Water Supply Company along with Good Earth, Inc., a real estate holding company and owner of Carr Pond in East Greenwich. The three water companies, each incorporated in the 1880's had been subsidiaries of New England Water, Light and Power Associates, a Massachusetts voluntary association, since 1928. The three water companies had been operated as a unit by a common staff with executive offices in Providence and operating headquarters in West Warwick. Over the years, as the towns they served grew, these small water companies expanded to service additional customers buying smaller water companies and mill lines on their way. At that time these three companies combined supplied approximately seven thousand customers on average at three million gallons a day from several surface reservoirs and well fields with a few storage tanks. Funding for these initial acquisitions was generated by the Authority's Water Revenue Bonds, issue of 1950, in the aggregate principal around of $2,050,000, all of which have been retired.

The 1956 General Laws empowered the KCWA to own, operate and maintain a water supply system (including all water supply sources, pumping stations, transmission facilities and distribution piping) within Kent County and to make Rules & Regulations to serve the communities that comprise Kent County (i.e. Coventry, East Greenwich, West Greenwich, Warwick and West Warwick). Moreover, the Kent County Water Authority supplies water to outlying regions of Cranston, North Kingstown and Scituate that were either part of the original water system acquisitions or areas in need of public water that were within the serviceable limits of the system gradient. The KCWA currently supplies water regionally to central Rhode Island serving the majority of the commercial/industrial constituency and approximately 88,780 citizens through 27,377 service connections of which 26,750 are currently active (including residential, commercial/industrial, and governmental users).

The legislature recently enacted into law in July 2017 a change in the Board membership governing the Authority. An appointed seven-member Board will provide the leadership that establishes operating policy for the organization. The new legislation established Board members serve for seven year terms. Board meeting are held monthly unless issues arise requiring

a special meeting to resolve. The General Manager/Chief Engineer is responsible for daily management, operations, planning, budgeting, public relations, contracts and policy enforcement. A management team made up of Director of Technical Services, Director of Administration and Finance, Director of Operations, and Treatment Manager/Water Project Engineer assists the General Manager/Chief Engineer in the overall operation of the Authority. In total, thirty-seven (37) positions comprise the KCWA organizational structure to contend with administrative, infrastructure and customer related operations for the entire service area.

General Service Area Overview

The Kent County Water Authority currently operates out of its meager offices located at 1072 Main Street West Warwick. These facilities were originally built at the turn of the last century and at the time constructed as a roller-skating rink. The rink facilities underwent several occupancy changes and were eventually converted to office and water facility maintenance use sometime in the early 1900's. Since then multiple modifications have occurred over the span of 70 years in an attempt to keep these facilities viable as the administration and operations headquarters for the 150 square mile service district, 50 of which contains infrastructure servicing customers. In 1997, a detailed evaluation of these facilities was conducted as part of work performed by a multidiscipline team in conjunction with development of the first Infrastructure Replacement Plan. The conclusion at that time was what would be expected of an over 100 year old building that has experienced several different uses and remodeling. These deficiencies included code violations, energy efficiency concerns, cracked masonry, floor and structural member subsidence and severely constrained property footprint to carry out everyday construction maintenance and also accommodate vehicle and customer parking. In 1999, a comprehensive facilities needs assessment was completed. The recommendations concluded that the existing property could not be modified to accommodate the future administrative and operational needs of the Authority. Capital funding is necessary to acquire property and construct new administrative and maintenance facilities ideally near the main highway and more centralized in the makeup of the service district. Additional funding has been provided under the most recent rate filing approved by the Public Utilities Commission (PUC) in 2016 to reassess our facilities.

Kent County service area comprises various regions within five communities in central Rhode Island (Coventry, East Greenwich, West Greenwich, Warwick, and West Warwick). The general laws of Rhode Island permit the KCWA to own, operate and maintain a water supply coterminous with the county's political boundaries. In addition to serving all or parts of those communities, KCWA service has been extended outside of its legislative boundaries to contiguous bordering communities in need of public water supply. Currently, the service area also incorporates parts of the Oaklawn section in Cranston, part of Western Cranston, southeastern Scituate, and the extreme northeast corner of North Kingstown. There are 26,750 active service accounts (including residential, commercial/industrial, and governmental users) within these locales. Based on census tract data, the KCWA serves a residential population of approximately 88,780 citizens.

The three primary sources of water supply for the KCWA water system are the:

1. Providence Water Supply Board (PWSB).
2. City of Warwick Water Department through wholesale interconnections with PWSB.
3. Groundwater from well fields owned and operated by the KCWA.

Treated water from the Scituate Reservoir complex supplies the entire PWSB system, which in turn supplies wholesale water to the KCWA and several other water utilities throughout state by way of individual wholesale interconnections. The KCWA maintains two direct interconnections to the PWSB, and one to the City of Warwick Water Department. The City of Warwick Water Department is a transmission host that receives the vast majority of its source of supply from the PWSB. Under an existing wholesale agreement KCWA also provides the City of Warwick with a wholesale supply connection to service the isolated Potowomut section of Warwick. Most of this supply can be attributed to withdrawals from the East Greenwich ground water well source.

Groundwater resources of the KCWA include three independent well fields within Kent County. The Mishnock, Spring Lake (offline) and East Greenwich well fields are essential riparian resources that remain intrinsic to economic development and residential customer base expansion in the service area.

The transmission and distribution system consists of approximately 457 miles of water main, with sizes ranging from 2-inch diameter in older areas that serve domestic supply only, to 30-inch diameter transmission mains, which transport water from the supply sources and storage tanks to the distribution system. Transmission mains, which are defined as water mains 12 inches or greater in diameter, total approximately 134 miles, or 30 percent of the total system piping.

Elevations throughout the KCWA water system range from 15 feet Mean Sea Level (MSL) along coastal areas to over 450 feet MSL in West Greenwich and Coventry in the north and southwestern portions of the system. The service area is operated as eight (8) distinct service area pressure gradients, each operating at varying hydraulic grades and at various locations. This is mainly to contend with maintaining service pressure within RI Division of Public Utilities and Carriers standards throughout the range of elevation changes within each zone. An elevation service limit has been established for each pressure gradient. The cut off elevations correspond to the 20 pounds per square inch normal pressure regulatory requirement for domestic water service referenced in the RI Division of Public Utilities and Carriers Rules & Regulations prescribing standards for water utilities. There are a total of eleven (11) water storage sites within the distribution system including one (1) pair of underground reservoirs, one (1) ground level reservoir, eight individual (8) standpipes, and one (1) elevated spheroid. Completion of both Capital Improvement (CIP) and Infrastructure Replacement (IFR) projects over the years has eliminated the operational viability of five (5) water storage facilities and their future demolishment is contingent upon infrastructure replacement funding being made available. There are currently (4) four active water storage and two (2) water tanks that have been taken temporarily offline in response to water age and associated quality concerns due to the massive decline in water demand within the overall service area over the last decade.

The KCWA owns and operates three (3) booster pumping stations (Setian Lane, West Warwick Industrial Park, and Johnson Boulevard) and two (2) transmission pumping stations (Clinton Avenue and Quaker Lane Pump Stations), in addition to production facilities at the well fields. Only the Mishnock and East Greenwich Well fields are active in the production of drinking

water at this time. The recently constructed Mishnock Treatment Facility has corrected aesthetic issues from this source. Full utilization of the Mishnock well field capacity will now be realized because the remainder of the Mishnock Road 500 foot gradient transmission main was completed in the summer of 2017. Aesthetic water quality issues at the East Greenwich well field have been a source of customer complaint for a number of years. Polyphosphate sequestering was successfully employed to mitigate the aesthetic concerns with this vital source. However, sequestration is only a temporary mitigation strategy and capital funding is required to fully upgrade this facility to a full scale treatment plant. A treatment plant will help ease compliance concerns for both current and future regulatory requirements and contend with the long term aesthetic concerns at this critically vital source. This source suffered a major casualty in 2014 that required the rescreening of the well and replacement of the well facilities. Design work was completed to rebuild and rehabilitate the existing well head and construct the appurtenant facilities necessary to bring this source back to a production capable asset. In 2016, work commenced on rehabilitation of the existing well facilities. The wellfield rehabilitation project incorporated design considerations and appurtenances necessary to make the facilities constructed under the rehabilitation project ready to coalesce with the proposed future treatment facilities planned under the CIP funded portion of this facility plan. The rehabilitated well and new well facilities construction under the IFR project were placed online in October 2017. Aesthetic water quality issues at the Spring Lake well field continue to inhibit everyday use of this source due to the potential for customer complaints. This source is currently operated only for RIDOH source water compliance and as an emergency standby source of supply. Capital project initiatives are proposed to facilitate treatment as necessary to improve aesthetic quality conditions and full scale operation of the Spring Lake source.

The KCWA maintains four wholesale interconnections to neighboring water purveyors, two each with Providence Water and the City of Warwick Water Department. Three of the four interconnections supply the KCWA with finished water on a daily basis, while one of the interconnections to the City of Warwick (Potowomut) conveys finished water to the City of Warwick Water Department distribution system. The KCWA also has four emergency interconnections:

1. A one-way supply to the Quonset Development Corporation
2. A one-way supply to the Town of North Kingstown
3. A one way supply to the City of Warwick Water department that can only be activated when the wholesale connection from Warwick to the Quaker Lane transmission station is offline.
4. A two way connection with the Providence Water Supply Board.

All of these connections are governed by written agreement between the water suppliers. Emergency interconnections are restricted to emergency use due to the limits of hydraulic capability within the existing KCWA transmission and distribution system.

Distribution Pipelines

As previously indicated, the KCWA transmission and distribution system consists of approximately 457 miles of piping. Pipe sizes range in diameter from 2-inches to 30-inches. Generally, the pipelines were installed between the 1880's to the present. A large portion of the pipes installed between 1880 and 1949 are unlined cast iron (CI). Asbestos cement (AC) or transite pipes were predominately installed between the late 1930's and 1970's. Cement lined cast iron pipes were installed in 1960's and the 1970's. Polyvinyl chloride (PVC) pipes were

generally installed from the late 1970's to the mid 1980's. Lastly, ductile iron (DI) pipe was installed few locations in the 70s and 80s but it wasn't until the late 90s where KCWA standardized on this material for all transmission and distribution water mains. Ductile iron pipe was chosen as the standard for all new and replacement main installation because of its extensive durability and longevity with respect to the geological and environmental concerns in the New England area. There is only one small section of large diameter High Density Poly Ethylene (HDPE) in the system sleeved inside the insulated pipe crossing on South County Trail over Route 4.

Although a majority of the piping system consists of CI, AC, PVC, or DI, there are some pipelines of small diameter (less than 4-inches) made of materials such as copper, polyethylene and galvanized iron. As of the summer of 2017, 46% (212 miles) of the KCWA distribution system mains have been added or replaced as part of IFR projects, CIP projects, RIDOT partnership projects, and developer additions.

Pressure Zones

The KCWA water distribution system is divided into eight (8) distinct pressure zones operating at varying hydraulic pressure gradients and various locations. Pressure grades within these zones are set by storage tank overflow elevations and tank variations in tank level corresponding to system demands. Pressure zones are intrinsically necessary to facilitate provisioning of public water service within RI Division of Public Utilities and Carriers prescribed normal ranges of coincident to the varying elevations within the hill and valley terrain prevalent throughout the KCWA service area.

Generally the water storage facilities (tanks) fill and drain within prescribed levels to operate and maintain system pressure within the non-reduced 500 foot north/south and 334 pressure gradients in response to system demands and corresponding levels within the tanks. Variable frequency drive (VFD) controlled pumps help stabilize pressure variation during diurnal demand periods. The East Greenwich reduced pressure zone is serviced from the 334 pressure gradient and employs six (6) pressure reducing valve (PRV) stations to control the stabilization of pressure and flow in this zone. The Tiogue reduced pressure zone is serviced from the 500 foot elevation south gradient and controlled by a single PRV station with redundant pressure reducing valves. The Mishnock reduced pressure zone is serviced from the 500 foot south pressure gradient and employs two PRV stations to control pressure and flow throughout the zone. The Cranston 231 foot elevation pressure gradient is a direct wholesale connection to the Providence Water Supply Board and controlled by the elevation in the PWSB supply reservoir. The remainder of the pressure gradients represent the available pressure within transmission facilities and wholesale supply mains. Following, is a brief description of each pressure zone, its primary method of operation and critical infrastructure components. Table 1 presents a summary of the service zones and major facilities in each zone.

Table 1. KCWA Service Zones & Major Facilities

Service Zone	Gradient	Supplied From	Service Area	Tanks/Reservoirs in Zone	Comment
Low	334'	Clinton Ave. P. S. via PWSB Connection East Greenwich Well Spring Lake Well Mishnock Treatment Facility Quaker Lane, P. S. via City of Warwick Bald Hill Road Tanks	Scituate, Coventry, West Warwick, East Greenwich, Warwick, North Kingstown	Frenchtown Road, 1.5 mg, Crompton (Setian Lane) Tank 3 mg	Continue IFR Program of Replacement of Aged Infrastructure.
High North	500'	Clinton Avenue	Coventry – West of Black Rock Road to Read School House Road	Read School House Road, 1.5 mg tank	Capital project funded with construction commencing 2018 transmission main to link north and south gradients
High South	500'	Johnson Blvd P. S. from Low Service, Mishnock Treatment Plant, Setian Lane P. S. from Low Service, West Warwick Industrial Park P. S. from Low Service	Portions of West Warwick, East Greenwich, West Greenwich	Technology Park 1.5 mg Tank & Carr Pond Road 3 MG Tank	Transmission main completed in summer 2017 for use of high service pumps at Mishnock plant. Quaker Lane Pump – need Capital funds to install high service pumps and construct approximately 2 miles of 16" transmission main. Carr Pond Tank is off line due to reduced system demand and tank turnover issues
Low Service Reduced	25 psi reduction	Low via 6 PRVs (Centerville Road, Division Road, Middle Road, Cowesett Road, Love Lane and Post Road)	Low lying coastal East Greenwich and Warwick	Off Low Service tanks via PRV's	In excellent operating condition. Continue IFR Program planning of future rehabilitation at end of lifecycle.
Reduced High	30-40 psi reduction	500 ft South, Johnson Blvd. P. S., Setian Lane P. S., WW Industrial Park PS, Mishnock Treatment Facility	Wood Estates area in Coventry, Mishnock, West Greenwich	Off High Service South Tanks via PRV's	Mishnock PRV – 30 psi reduction. Helen PRV – 40 psi reduction. Both PRV underground pits need to be replaced with modern climate controlled ventilated vaults and telemetry. Future IFR funded project.
Oaklawn	231'	PWSB Connection (Oaklawn)	Oaklawn area of Cranston and Northeastern portion of West Warwick	PWSB finished water reservoir (Oaklawn)	Program Capital funding for construction of PRV from 334 gradient near Wakefield Street for redundant supply from KCWA low service.
Bald Hill Road Pressure Gradient	231'	Bald Hill Tanks (Warwick System)	Several customer services between Bald Hill Tanks and Quaker Lane P. S.	Bald Hill Tanks (Warwick System)	Supply to Quaker P.S. This station was completely rehabilitated and online in late 2015 for low service only. Program CIP to install high service pumps and transmission main.
Tiogue Pressure Gradient	410'	500 foot South PRV Station on Route 3 near Rawlinson Drive	Area around the Tiogue Hill	Off High Service south tanks via PRV	Small isolated pressure zone redundant connection needed

The Three Main Pressure Zones

Low Service (334') Pressure Gradient – This zone is the primary pressure gradient of the KCWA water distribution system. It extends to the northern, southern and western limits of the KCWA service area. The low service area is maintained at an approximate hydraulic grade of 334 feet MSL. There are two (2) water storage facilities within this pressure zone, which are in operation and supplied with water via groundwater sources and wholesale interconnections to Providence Water and the City of Warwick (also wholesaled through Providence Water). The major infrastructure facilities are as follows:

- Setian Lane (Crompton) Tank
- Frenchtown Road Tank
- Mishnock Wells and Treatment Facility
- East Greenwich Well
- Spring Lake (Coventry) Well
- Clinton Avenue Pump Station (Providence Water wholesale interconnection)
- Quaker Lane Pump Station (City of Warwick wholesale interconnection).

This is the principal pressure gradient of the KCWA and serves to supply the majority of all source water to the system. This zone represents the water system formation infrastructure and extends geographically into the majority of the service territory of the KCWA. Water from this gradient supplies all of the low service reduced pressure zones and is boosted from this zone to supply the southern 500 foot elevation pressure gradient and high service reduced pressure zones.

Under average day conditions the majority of the water supplied to this zone is from the Clinton Avenue Transmission Pump Station facility, Quaker Lane transmission pump station and the Mishnock Treatment Facility. Even during low flow periods at night one of these facilities must remain in operation due to the hydraulic influences associated with the transmission of water to the far reaches of the system. Currently, operation of the variable frequency pumping into this gradient is mainly controlled either from the water level in the Frenchtown Road water storage tank, which is set at an overflow elevation of 334 feet or based on pressure sensor input on the discharge transmission header at Clinton Avenue. The Setian Lane tank can also be utilized as an alternate control tank during long term maintenance periods or should a casualty occur. The Quaker Lane Pump Station and East Greenwich Well contribute the remainder of the gradient supply. The East Greenwich Well is priority due to hydraulic concerns in the southern reaches of the system in this gradient. The Quaker Lane booster station is mainly put into operation in response to seasonal water system demands. Ideally the supply strategy is to keep the Mishnock Treatment Facility in operation as the primary source all times with supplemental supply from the other sources as needed to keep up with consumer demands. The Mishnock facility employs two (2) VFD controlled 8" 1000 GPM vertical turbine low service pumps operating at 140 feet of TDH into this gradient.

Spring Lake (Coventry) well is not fitted with any remote control or monitoring instrumentation and must be manually operated from within the well structure. System operators must drive to this remote location and manually turn this facility on and off. Operation of this facility is currently reserved for only emergency supply operations and RIDOH compliance testing because of aesthetic iron and manganese problems which lead to customer complaints. Capital funding is required to provide treatment technology, instrumentation, replacement well and structure rehabilitation as necessary to facilitate compliance with EPA regulatory requirements and full

time operation with remote monitoring and control of this source water supply. Current disinfection equipment will fall short of meeting 4-log inactivation of viruses outlined in the Federal Groundwater Rule regulatory requirements.

The East Greenwich Well source is a critical component to supply in the southern reaches of the system and must be kept operational capable due to system hydraulic capacity. This source had undergone extensive rehabilitation and reconstruction of the facility and placed online in 2018. The operation of the new East Greenwich Well now automated with SCADA control and monitoring. The well cycles based on the control level within the Frenchtown Road or Setian Lane storage tanks. Rehabilitated building, well pump, instrumentation, and telemetry improvements provide consistency with control and monitoring upgrades at other supply and pumping facilities completed under other infrastructure and capital improvement project work.

500 Foot North High Pressure Gradient – The high service north area extends eastward from Read School House Road to Blackrock Road to the north of Route 117 in Coventry. This pressure gradient is maintained to afford a hydraulic grade of 500 feet MSL. The Read Schoolhouse Road Tank is the only water storage facility operating within this pressure zone. Water is supplied to this area by hydraulically boosting the water from the 231 foot PWSB aqueduct via the Clinton Avenue transmission pumping station. The Clinton Avenue station is equipped with two (2) – 3 million gallon per day (MGD) constant speed pumps. Typically, one pump operates with the other sequenced to operate if demand drops the tank level below a preset height. Primary operation of the pumps is rotated to promote even wear and reliability. Capital project for transmission infrastructure to connect the north and south 500 foot gradients was awarded with construction commencing in 2019. This transmission main link will correct a substantive vulnerability by providing a vital redundant supply capability that currently does not exist for both gradient zones.

500 Foot South High Service Pressure Gradient – This pressure zone is maintained to afford a hydraulic grade of approximately 500 feet MSL in areas of the service district that are above the maximum service elevation of the 334 gradient. The 500 foot high service gradient provides service to the southern portion of West Warwick, areas south and east of Tiogue Lake in Coventry, the northwest portions of West Greenwich, and the western half of East Greenwich.

Water from the 334 elevation gradient and the Mishnock Treatment facility is boosted to supply this area gradient. The Technology Park and Carr Pond Tank operate within this pressure zone. Carr Pond Tank was taken offline in this sector due to excessive water age from the reduction in overall demand to this area of the system. The Tech Park Tank serves as the sole control tank and only storage for the three booster stations and the Mishnock Treatment Facility.

- Johnson Boulevard Pump Station-located along Johnson Boulevard Coventry. This station contains one (1) - 1.7 MGD pump and two (2) - 3.3 MGD pumps.
- West Warwick Industrial Park Pump Station-is located at the intersection of Route 2 and James P. Murphy Highway West Warwick. This station contains two 1 MGD pump and was installed to help meet the increasing water demands from the Amgen industrial facility in this portion of the system.
- Setian Lane Pump Station-located at the Setian Lane Tank Site. This station contains three 2 MGD pumps. Only two pumps may be operated at one time due to supply and infrastructure constraints.
- High Service Transmission Pumps at the Mishnock Treatment Facility. This facility has three (3) VFD controlled 10" 1000 GPM vertical turbine high service pumps operating

at 304 feet of TDH

The Capital project to install a new transmission main to link this gradient with the 500 foot north gradient has been awarded with construction commencing in 2019. This proposed transmission main link will correct a substantive vulnerability by providing a vital redundant supply capability that currently does not exist for both zones. This project will also serve to reduce overall operating costs associated with the current process of boost pumping water from the 334 gradient to feed this pressure zone.

Other Pressure Zones

Low Service Reduced (334') Pressure Gradient – The low service reduced pressure gradient is intrinsically required to control pressures within Rhode Island Division of Public Utilities and Carriers Rules and Regulations operating ranges in the low lying coastal areas of East Greenwich, Apponaug in Warwick, then extending south to the North Kingstown Town line, from Narragansett Bay to Love Lane in Warwick and to South County Trail in East Greenwich.

There are six (6) Pressure Reducing Valve stations that operate in concert to maintain this pressure zone by reducing water pressure from the 334 low service area gradient. These pressure reducing stations are strategically positioned at the following locations:

- Centerville Road between Post Road and Meadow Street, Warwick.
- Division Road at Cindy Ann Drive, East Greenwich
- Middle Road at Cindy Ann Drive, East Greenwich
- Cowesett Road at Love Lane, Warwick
- Love Lane at Bayview Avenue, Warwick
- Post Road at Franklin Road, Warwick

Generally, these facilities are controlled by the pressure set point on the downstream side of the Pressure Reducing Valve. The facilities are intended to operate in unison at a hydraulic grade in the range of 270 feet MSL. Each PRV station is equipped with a by-pass check valve design feature whereby if the pressure and flow on the inlet side drops below the preset downstream pressure, as in the case of a fire demand, the by-pass check valve will permit unrestricted flow from the reduced zone. This is installed primarily as a safety design emergency feature.

High Service South (500') Reduced Pressure Gradient – The high service reduced pressure gradient services the extreme southwestern portion of West Greenwich as well as Wood Estates and Monroe Drive in Coventry. There are two (2) Pressure Reducing Valve stations that control this pressure gradient, one located on Mishnock Road at Hopkins Hill Road in West Greenwich and one on Helen Avenue at Hopkins Hill Road in Coventry. These pressure reducing stations reduce water from the south high service area. Operation of these facilities is controlled by the pressure setting on the downstream pilot of the valve, which permits flow to be transferred to this location. The Mishnock Road PRV is set at an approximate hydraulic grade of 430 feet. The Helen Ave PRV is set at an approximate hydraulic grade of 435 feet. These pressure reducing stations are not fitted with any instrumentation and consequently cannot be remotely monitored for daily operational flow characteristics and continuous casualty assessment for latent signs of impending failure. Both PRV underground pits need to be replaced with modern climate controlled ventilated vaults and telemetry. This project will subject to the availability of future IFR funding.

Tiogue (410') Reduced Pressure Gradient – This high service reduced pressure zone is located in the vicinity at the abandon Tiogue Tank in Coventry and is roughly defined as the area located to the north of Tiogue Avenue between Pembroke Lane and Wesleyan Avenue and to the south of Tiogue Avenue between Ferris Drive and North Road. The pressure reducing station is located on Route 3 in the vicinity of Pembroke Drive. This station reduces water pressure from the south 500 foot high service area. Operation of this facility is controlled by the pressure setting on the downstream pilot of the valve, which permits flow to be transferred to this location. This station is fitted with instrumentation for 24 hour remote monitoring of functioning operations and redundant pressure reducing valves.

Oaklawn (231') Pressure Gradient – The Oaklawn pressure gradient services the Oaklawn section of Cranston and the extreme northeastern portion of West Warwick. This isolated pressure zone receives water from Providence Water via the 12 inch Oaklawn Avenue wholesale interconnection. An 8-inch master meter records the flow through the interconnection supplying this isolated portion of the KCWA system. Water is then received at a hydraulic grade of approximately 231 feet MSL. There are no water storage facilities operating within the Oaklawn pressure gradient. The gradient is based on PWSB storage reservoir levels. The meter station is fitted with instrumentation for 24 hour remote monitoring of functioning operations. A second source of supply is necessary to have redundant supply capabilities should a casualty occur at the Providence metered connection. Capital funding is necessary to construct a pressure reducing connection from the KCWA 334 gradient at the opposite end of this pressure zone.

Warwick Tanks (231') Pressure Gradient – The Warwick Tanks pressure gradient is a localized pressure zone that comprises the 36-inch transmission main (owned by the City of Warwick) between the connection point at the Warwick Tank feed to the KCWA Quaker Lane Pump Station, which is located in the vicinity of the Kent County Courthouse. This pressure zone is maintained at a hydraulic grade of approximately 231 feet MSL. The Warwick Tanks total 12.0 million gallons in storage capacity that supplies the City of Warwick and the water main supply to the KCWA Quaker Lane Transmission Pump Station. This pressure gradient also provides service to a small number of KCWA customers along Quaker Lane in Warwick.

Groundwater Wells – Treatment - Pumping

The KCWA maintains three (3) well fields within its water supply system. A description of each groundwater supply source is provided below.

East Greenwich Well

The East Greenwich Well Facilities were rehabilitated during 2017 and placed online in October 2018. The original 18" well drilled in 1964 by R.E. Chapman Co was found to have had a catastrophic failure of the bronze intake screen during the redevelopment process. The extensive failure of the casing screen allowed the intrusion of boulders into the bottom of the well. A well drilling contractor was able to successfully removed the old well screen and installed 30 feet of new 12" stainless steel screen, k packer, and 12" iron casing inside the existing well casing allowing this well to continue to be viable source. Following the success of the well screening, the well was fitted with a submersible pump as part of the overall rehabilitation project at this site. The new well facility incorporated major design upgrades including the construction of a new chemical feed and control building. The project relocated the building and raised the well casing above the 200 year flood plain elevation. The new well pump consists of a 9.49" 3-stage Hydroflo SS submersible vertical turbine pump with 150 HP 8" 3-phase 460 Volt Franklin

motor. The well was fitted with VFD controls capable of delivering 1200 GPM at 355' TDH via 60 feet of 8" discharge pipe to Baker 12" x 8"pitless adapter. The depth from the top of the pitless adaptor to the pump intake is 75 feet and there is 10 feet of 18" diameter steel casing penetrating the surface of which about 5 feet are visible. Also included in the upgrade was a new 250 KW natural gas-powered backup power generator with automatic transfer switch, and new instrumentation and SCADA telemetry improvements consistent with other infrastructure and capital improvements completed throughout the system.

The new facility will continue to employ a manganese sequestering regime along with disinfection and corrosion control measures until future full-scale treatment facilities can be funded and constructed under the CIP program. Currently manganese is not regulated under federal and state primary drinking water health standards. This mineral is a harmless aesthetic aspect of New England groundwater supplies that may be more noticeable to some consumers due to precipitated mineral staining resultant from the use of chlorinated cleaning products.

Mishnock Wells

The Mishnock Wells are located in Coventry, Rhode Island. The wellfield contains three gravel packed wells fitted with submersible vertical turbine pumps outfitted with variable frequency drives.

Mishnock Well Head #3	Gravel Packed Well 67.5', Developed March 2000, Cleaned in 2013 ,18" Steel Cased, 10' SS Screen	2 Stage 25 HP Vertical Turbine Max Flow 600 GPM Design Flow 575 GPM TDH 110 feet
Mishnock Well Head #4	Gravel Packed Well 72', Developed 2001,Cleaned in 2013, 18" Steel Cased, 10' SS Screen	2 Stage 30 HP Vertical Turbine Max Flow 800 GPM Design Flow 780 GPM TDH 114 feet
Mishnock Well Head #5	Gravel Packed Well 85', Developed 2001, Cleaned in 2013, 18" Steel Cased, 10' SS Screen	4 Stage 20 HP Vertical Turbine Max Flow 600 GPM Design Flow 450 GPM TDH 136 feet

Mishnock Treatment Facility

Water is supplied to the treatment plant via any combination of the three wells which can provide a combined total feed input of 1805 gallons per minute (GPM). The max treatment plant design flow is 2000 GPM.

The well water is first treated through deep bubble aeration. The aeration equipment removes, or strips, radon and carbon dioxide from the water. Stripping carbon dioxide increases the pH of the feed water which enhances downstream treatment and reduces costs associated with chemical pH adjustment. Water discharged from the deep bubble aeration units enters rapid mix tanks where specialized treatment chemicals (Poly-Aluminum Chloride and Potassium Permanganate) are injected into the flow stream. The treatment additives quickly convert dissolved minerals, primarily iron and manganese, to a solid state and also simultaneously coagulate organics into larger particles that can be more easily filtered. The treated well water is then discharged to the membrane ultrafiltration system. During the filtration cycle, well water flows into specialized tanks outfitted with thousands of suspended membrane fibers. The membrane fibers are like porous straws that only allow the passage of clean fresh water (permeate) via gentle suction

action provided by a series of permeate pumps. The clean filtered water is discharged to a clear well and slightly chlorinated to achieve compliance constraints required under the EPAs Ground Water Rule for virus inactivation. During production, the filtered solidified minerals and organic matter become concentrated within the tanks. To rid the membrane tanks these wastes, the filters go through a series of backwash/back pulse cycles to purge and reject the accumulated waste into a series of recycle tanks for solids settlement. After a settling period, the recycle system pumps the top clear portion of the water back to the head of the plant. This recycling of backwash water is accomplished to optimize water production and increase production efficiency (95-98% clean water recovery). The thickened mineral rich waste at the bottom of the recycle tanks is pumped to lagoons where the water either evaporates and/or percolates back into the ground recharging the aquifer while leaving iron and manganese solid residuals behind for accumulated disposal.

The combined 2.4 million gallons per day output of the Mishnock well field and treatment plant facilitates the Kent County Water Authority's strategic supply goals to meet current and anticipated EPA regulatory requirements, reduce the dependency on wholesale purchases from Providence Water Supply, provides redundant supply capacity should a catastrophic event occur to the Providence source, and improve supply capacity to support both economic and residential growth initiatives within the district.

Mishnock High and Low Service Pumping

The Mishnock Facility is outfitted with vertical turbine pumps that can discharge into both low service (334') and high service (500') gradients. The facility has three (3) VFD controlled 10" 1000 GPM vertical turbine high service pumps operating at 304 feet of TDH and two (2) VFD controlled 8" 1000 GPM vertical turbine low service pumps operating at 140 feet. Full utilization of the designed well field and treatment facility capacity can now be realized because the remainder of the 500 foot gradient transmission main along Mishnock Road has been completed.

Spring Lake Well (out of service)

The Spring Lake Well is 81 feet deep with 15 feet of screen. This facility consists of a gravel-packed well constructed in 1960 by R.E. Chapman. The Spring Lake Well contains a 50 HP vertical turbine pump designed to operate at 200 feet TDH discharging into an 8-inch ductile iron main. In 1998, the Spring Lake Well was redeveloped and re-screened at a smaller diameter. Currently, the well facility has been reduced in capacity to approximately 300 gpm due to well field fouling and excessive drawdown in the well casing. Capital funding will be required to rehabilitate this water supply source with a replacement well, treatment technology, instrumentation, backup power generator and building to be compliant with EPA regulatory initiatives and integration with ongoing system wide water facility operational improvements (5/95 81ft. 66ft 14" casing 15' of 14" screen).

Storage Facilities

There are a total of eleven (11) water storage sites within the distribution system including one (1) pair of underground reservoirs, one (1) ground level reservoir, eight individual (8) standpipes, and one (1) elevated spheroid. Completion of both Capital Improvement (CIP) and Infrastructure Replacement (IFR) projects over the years has eliminated the operational viability of five (5) water storage facilities and their future demolishment is contingent upon infrastructure

replacement funding being made available. There are currently (4) four active water storage and two (2) water tanks that have been taken temporarily offline in response to water age and associated quality concerns due to the massive decline in water demand within the overall service area over the last decade. The storage facilities are described in Table 2.

Table 2. Active Water Storage Tanks

Storage Facility	Supplied By	Service Gradient Supplied	Overflow Elevation	Height (ft.)	Diameter (ft.)	Capacity (Million Gallons)	Type	Material	Cathodic Protection	Year Constructed
Read School House Road	Clinton Ave. P. S.	High (500') North	500	25	100	1.5	ground tank	concrete	no	2009
Setian Lane	Clinton Ave. P.S. & Quaker Lane P.S., Mishnock Wells/ Treatment Plant	Low (334')	334	20	160	3.0	ground tank	steel	no	1969
Frenchtown Rd.	Clinton Ave. P.S., Quaker Lane P.S., Mishnock Wells/ Treatment Plant, East Greenwich Well	Low (334')	334	50	78	1.5	ground tank	concrete	no	1977
Technology Park	Johnsons Blvd. P.S., Setian Ln. P.S., West Warwick Industrial Park P.S., & Mishnock Wells/ Treatment Plant	High (500') South	500	150	85 at centerline	1.5	Elevated Spheroid	steel	yes	1988

Wholesale Interconnections

The primary wholesale sources of supply for the KCWA are through interconnections with Providence Water and the City of Warwick Water Department (indirectly from Providence Water). Following is a description of each wholesale interconnection.

Clinton Avenue Pump Station

The Clinton Avenue Pump Station, located in Scituate, Rhode Island, is the main source of water supply for the KCWA. This facility is fed via a 30-inch water main that is tied into Providence Water's 78-inch aqueduct. The pump station is fitted with a combination of variable frequency drive and continuous speed pumps that boost water from the Providence system operating at a hydraulic grade of approximately 231 feet MSL to the KCWA's low service system, which operates at a hydraulic grade of 334 feet and high service north, 500 feet MSL. The Clinton Avenue Pump Station contains five (5.5 MGD) low service vertical turbine pumps 3 of which are variable frequency drives and two (3.0 MGD) high service vertical turbine pumps. The station is fitted with instrumentation to facilitate remote control and monitoring of the operation.

Emergency generator standby power is available to keep the station in operation during a public utility power failure event.

Low service pumps feed a 30-inch low service discharge header exiting the pump station, which splits to supply both 16 and 24 inch diameter low service transmission mains outside the station on Clinton Avenue. The high service pumps feed a 12-inch diameter high service transmission main which is the only source of supply for the isolated high service north 500 foot gradient. Capital funding is necessary to install a new transmission main to link this gradient with the 500 foot south gradient. This transmission main link will correct a substantive vulnerability by providing a vital redundant supply capability that currently does not exist for both gradient zones. This project is currently under design.

Oaklawn Avenue Interconnection

The Oaklawn Avenue interconnection is the second wholesale interconnection to Providence Water. It is located near the intersection of Oaklawn Avenue and Old Spring Road in Cranston, Rhode Island. Primarily, the Oaklawn Avenue interconnection services small portions of Cranston and West Warwick. There is a closed gate valve at the intersection of Providence Street and Wakefield Street in West Warwick isolating the interconnection from the KCWA's low service system. Water is supplied from the Oaklawn Avenue interconnection to the KCWA by gravity at a hydraulic grade of approximately 231 feet MSL. Currently there is no other redundant supply source for this isolated pressure zone. Historic master meter records for the Oaklawn Avenue interconnection indicate that an average of approximately 130 million gallons of water per year (0.35 MGD) is supplied to the KCWA customers from this connection. Capital funding is necessary to install a new pressure reducing station in the vicinity of the closed gradient isolation valve in Providence Street that isolates the KCWA 334 gradient from the Oaklawn 231 gradient. Installation of the pressure reducing station would facilitate a redundant source of supply to this isolation gradient by reducing the 334 gradient reduced to match the pressure equivalent at the Oaklawn meter station thereby affording a source of supply from each end of the isolated pressure zone. This pressure reducing station will correct a substantive vulnerability by providing a vital redundant supply capability in the event of a casualty at the Oaklawn connection or Providence wholesale supply.

Quaker Lane Pump Station

The Quaker Lane Pump Station has been rehabilitated to increase capacity and provide supply to both the 334 and in the future 500 foot pressure gradient from a hydraulic grade of 231 feet MSL. This facility is located in the vicinity of the intersection of Quaker Lane and Centerville Road in Warwick. The Quaker Lane Pump Station is currently only able of increase capacity to 334 low service gradient through the use of variable frequency drive pumping capabilities. The rehabilitation also included instrumentation for remote operation and monitoring, and emergency backup power generator equipment to keep the station operational during an electrical utility outage. Capital funding is required to install the high service pumps in conjunction with the design and construction of the transmission main necessary to implement supply capacity to the 500 foot gradient. The station capacity will be variable throughout each gradient pumping range. Overall the station yield will increase from 3500 GPM to 7,000 GPM once the high service pumps and transmission main are in full operation. The pump station pumps from the City of Warwick's water system which is supplied by Providence Water's aqueduct. Typically, this station is not operated during the winter months because consumer demands can be accommodated using the Mishnock Treatment Plant, Clinton Avenue wholesale sources in

concert with the East Greenwich Well.

Potowomut Interconnection (Wholesale)

The KCWA wholesales water to the City of Warwick via the Potowomut interconnection. The Potowomut interconnection is located on Old Forge Road in Warwick. This interconnection services approximately 1000 residents. The facilities at this connection are owned, operated and maintained by Warwick Water Department.

Pumping Facilities

The KCWA owns and operates two (2) transmission pumping and three (3) system booster pumping stations. As noted previously, a transmission pump station pumps water from a supply source and a system booster pump station pumps from within the distribution system from one gradient to another. Following is a brief description of each pumping facility.

Clinton Avenue Pump Station (Transmission Pump Station)

The Clinton Avenue Pump Station serves as the primary interconnection to Providence Water as well as a pump station that boosts water from the Providence Water system to the KCWA low service zone (334' gradient). Station upgrades were completed in the Summer of 2006, the station is capable of pumping to the high service zone (500' gradient). The pump station contains five (5.5 MGD) low service vertical turbine pumps and two (3.0 MGD) high service vertical turbine pumps. It also has an emergency backup generator to provide standby power.

Quaker Lane Pump Station (Transmission Pump Station)

The Quaker Lane Pump Station is a wholesale interconnection with the City of Warwick. Water from this interconnection is also conveyed from Providence Water aqueduct. This facility transports water from the City of Warwick to the KCWA low service zone (334' gradient). The facility contains three low service pumps and accommodation for two future high service pumps. The rehabilitation to the pump station to date includes variable speed low service pumps, instrumentation for remote operation and monitoring, control and plumbing accommodations for high service pumping capabilities along with structural, electrical and mechanical improvements. The total capacity of the station will be 7,000 GPM once capital funding can be made available to purchase and install the high service pumps and construct approximately 2 miles of 16 inch high service transmission main from the station to the existing high service main in the vicinity of RT2 and East Greenwich Ave, West Warwick.

Johnson Boulevard Booster Pump Station (System Booster Pump Station)

The Johnson Boulevard Booster Pump Station was constructed in order to supply the high service pressure zone (500' gradient) that includes the Technology Park, Arnold Road, Mishnock, and Wood Estates areas of Coventry, East Greenwich, West Warwick and West Greenwich. This facility contains three vertical turbine pumps. There is one (1) 1,200 GPM pump operating at 175 feet TDH and two (2) 2,300 GPM pumps operating at 208 feet TDH. Emergency power is also provided at this booster pump station. The station is fitted with instrumentation for 24 hour remote operation and monitoring. Pump cycle can be set to be controlled by water elevation in either the Carr Pond Tank (currently offline) or the Technology Park Tank. An emergency generator is located onsite to provide emergency power during utility

outages.

Setian Lane Pump Station (System Booster Pump Station)
The Setian Lane Pump Station is located on Setian Lane in West Warwick. It is a below ground package booster station. This facility takes suction from the Setian Lane Tank in the low service zone and pumps to the high service zone (500' gradient). The station is fitted with instrumentation for 24 hour remote operation and monitoring. Pump cycle can be set to be controlled by water elevation in either the Carr Pond Tank (currently offline) or the Technology Park Tank. The pump station contains three (3) 700 gpm pumps which serve as lead, lag and standby pumps. The pump station capacity is approximately 1.9 MGD. An emergency generator is located onsite to provide emergency power during utility outages.

West Warwick Business Park Pump Station (System Booster Pump Station)

The West Warwick Business Park Pump Station is located at the intersection of Route 2 and James P. Murphy Highway in West Warwick. It is a below ground package booster station. This facility takes suction from the low service zone and pumps to the high service zone (500' gradient). The station is fitted with instrumentation for 24 hour remote operation and monitoring. Pump cycle can be set to be controlled by water elevation in either the Carr Pond Tank (currently offline) or the Technology Park Tank. The pump station contains 2 pumps and has a pumping capacity of 1.2 MGD. This facility is not fitted with an emergency power generator as other facilities can be used to maintain supply to the 500 foot south gradient during power outages.