

WATER RESOURCES BOARD

Tuesday, April 28, 2020
Operations & Maintenance Facility
1725 South Church Street
3:30 PM

AGENDA

-
1. Consent Agenda:
 - A. Consider JB&S Task Order 19-12, SRWTP Pall Feed Pumps #1 & #2 Repairs 2
 - B. Consider abandonment of sewer easement at Westlawn Pavilion 7
 - C. Consider WRRF Electrical & Instrumentation Building roof replacement bids..... 11
 - D. Consider WRRF sodium hypochlorite bids..... 13
 - E. Consider WRRF traveling irrigators purchase..... 15
 - F. Consider O&M meter vault bids..... 17
 - G. Consider SRWTP lagoon sludge removal contract extension 20
 - H. Consider SRWTP 2020 chemical bids..... 22
 2. Consider minutes from the March 3, 2020 meeting..... 24
 3. Consider Shelton Square proposed Special Sanitary Sewer Assessment District 32
 4. Consider SRWTP Specific Energy Pump Asset Management for High Service Pump Station 36
 5. Consider a proposal from Hazen and Sawyer for regulatory assistance and water quality planning in obtaining 2021 NPDES Permit 42
 6. Consider Water Resources and Stormwater Funds 2021 Draft Budgets..... 51
 7. Dashboard
 8. Financials
 9. Other business
 10. Adjourn



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MEMORANDUM

DATE: April 14, 2020

TO: Water Resources Board

FROM: Alan Cranford

SUBJECT: Water/Wastewater Mechanical/Electrical Services Contract Task Order No. 19-12
Stones River Water Treatment Plant

Background

Staff submits Task Order No. 19-12 for the Water/Wastewater Mechanical/Electrical Services Contract to remove, repair and reinstall the motor for Pall Feed Pumps #1 and #2.

The Task Order pricing includes removal of the motors, installation of new bearings, wash/bake stators and check for re-winds, and on-site dynamic balancing.

Fiscal Impact

The cost for the project is \$17,277.08. Funding requested to come from reserves.

Recommendations

For information only. Unfortunately, there was some miscommunication and this task order was completed prior to approval.

Attachments

SRWTP – JBS Task Order 19-12 – Pall Feed Pump Motors



...

TASK ORDER NO. 19-12

April 14, 2020

BETWEEN

**JOHN BOUCHARD & SONS COMPANY AND CITY OF MURFREESBORO
acting by and through the Murfreesboro Water and Sewer Department**

UNDER

Water/Wastewater System Mechanical/Electrical Services Contract

DATED

June 6, 2019 thru June 6, 2020

FOR

Pall Feed Pumps #1 & #2 Repairs

Task Order No. 19-12

Pall Feed Pumps #1 & #2 Repairs

Murfreesboro Water Plant

BACKGROUND

JBS has been asked to remove, repair, and re-install the Pall Feed Pump #1 & #2 motors under our existing service contract. We have prepared an estimate for the repair/rebuild of the pumps for your consideration. Budget pricing includes removal of the motors, installation of new bearings, wash/bake stators and check for re-winds, and on-site dynamic balancing.

SCOPE OF WORK

Labor and materials by JBS to repair and re-install Pall Feed Pump motors as described above, as needed.

FISCAL IMPACT**Murfreesboro Service Contract Rate Sheet - 2020 - Job # 20-C6542****Pall Feed Pumps Motors Repair # 1 & # 2 - Task Order # 19-12**

Description	Qty (hrs)	Rate	Extended
Project Mgr (RT)	10	\$75.00	\$750.00
Project Mgr (OT)		\$110.00	\$0.00
Machine Shop Millwright (RT)	143	\$60.00	\$8,580.00
Machine Shop Millwright (OT)		\$90.00	\$0.00
HVAC/Plb Service Tech (RT)		\$66.00	\$0.00
HVAC/Plb Service Tech (OT)		\$99.00	\$0.00
Air Compressor Tech (RT)		\$66.00	\$0.00
Air Compressor Tech (OT)		\$99.00	\$0.00
Laborer - Skilled (RT)		\$32.00	\$0.00
Laborer - Skilled (OT)		\$48.00	\$0.00
Laborer - Unskilled (RT)		\$23.00	\$0.00
Laborer - Unskilled (OT)		\$34.50	\$0.00

Equipment	Qty (hrs)	Rate/Hr	Extended
Welder		\$15.00	\$0.00
Power Threader		\$10.00	\$0.00
Mini/Midi Hammer		\$10.00	\$0.00
Variable Reach Forklift		\$27.00	\$0.00
Pickup Truck	61	\$15.00	\$915.00
Scissor Lift		\$19.00	\$0.00

Materials & Subcontractors		
Bolts, Compressor Oil, Tape, Grease Off, Clamp	JBS	\$221.39
Bearings	BDI	\$3,207.91
Wash & Bake Stator & Check For Rewind	Tennessee Electric	\$2,043.50
Onsite dynamic balancing on vertical motor	Cumberland Predictive	\$920.00
Markup on Material & Subcontractors	10.00%	\$639.28

TOTAL ESTIMATE**\$17,277.08**

Contractor:

City:

John Bouchard and Sons Company

City of Murfreesboro

By: David Proctor IV

By: _____

Name: David Proctor

Name: Shane McFarland

Title: Project Manager

Title: Mayor

Date: 4/14/20

Date: _____

Approved as to Form:

DocuSigned by:

Adam F. Tucker

Adam F. Tucker, City Attorney

CONTRACTOR NOTICE CONTACT INFORMATION

CITY NOTICE CONTACT INFORMATION

John Bouchard and Sons Company

Murfreesboro Water and Sewer Dept.

Mailing address 1024 Harrison St.
Nashville, TN 37203

Mailing address 300 NW Broad St.
Murfreesboro, TN 37130

Phone number 615-256-0112

Phone number 615-890-0862

Fax number 615-256-2427

Fax number 615-896-4259

Company Contact David Proctor

Company Contact Darren Gore

E-mail David.Proctor@jbouchard.com

E-mail dgore@murfreesborotn.gov



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MEMORANDUM

DATE: April 20, 2020
TO: Water Resources Board
FROM: Valerie H. Smith
SUBJECT: Sewer Easement Abandonment
Westlawn Pavilion

Background

This easement abandonment request is from Ragan Smith on behalf of the Developer of Westlawn Commercial. They are requesting the abandonment of an existing 20-foot sanitary sewer easement located as shown on the attached exhibit. This easement was recorded by plat and was intended for a proposed gravity sewer main to serve the property. The sanitary sewer was constructed differently than in the location of the recorded easement, so this easement is not correct. The Developer will dedicate a new sewer easement once the sewer for the development is constructed.

Recommendation

Staff recommends that the Board recommend to the Planning Commission and City Council approval of abandoning this existing sewer easement.

Fiscal Impact

Not applicable. The easement was dedicated through the recording of a plat by the developer.

Attachment

Easement Abandonment Request
Abandonment Exhibit



April 16, 2020

HAND DELIVERY

Ms. Valerie Smith, P.E.
Assistant Director of Engineering
Murfreesboro Water Resources Department
220 NW Broad Street
Murfreesboro, TN 37130

**RE: WESTLAWN PAVILION
ABANDONMENT OF 20' SANITARY SEWER EASEMENT
MURFREESBORO, TENNESSEE**

Dear Valerie:

We would like to apply for consideration of the abandonment of an existing 20-foot Sanitary Sewer Easement situated on the MAB Murfreesboro, LLC property (Map 093, Parcel 1.06) at the southwest quadrant of the intersection of Westlawn Boulevard with Veterans Parkway in Murfreesboro. Said easement was originally transferred to the city of Murfreesboro from Spivey & Hollingshead, LLC by instrument of record in Record Book 1432, page 2534 of the Rutherford County Register's Office on December 29, 2015. Said easement extends into the MAB Murfreesboro property from the southerly right-of-way of Westlawn Boulevard as shown on the attached exhibit. The right-of-way for Westlawn Boulevard was dedicated as shown on the final plat entitled "Westlawn, Section One" of record in Plat Cabinet 39, page 138, said Register's Office on March 11, 2016.

Subsequent to the transferal and dedication described above, Westlawn Boulevard and the sanitary sewer line contained therein were constructed in a manner that appears to be different from the intended design at the time of their recording. This resulted in a sanitary sewer manhole that was constructed outside the recorded easement, as shown on the attached exhibit.

At its November 20, 2019 meeting, the Planning Commission approved a final plat on this property creating a shopping center tract and five outparcels. This plat shows a proposed 30-foot Sanitary Sewer Easement that contains the previously constructed manhole and the newly designed sewer system that will tie into it. With this new design, there is still no infrastructure planned to fall within the previously recorded easement.

Attached, for your review and consideration at your next Board meeting, please find the following:

- The Sanitary Sewer Easement Abandonment Exhibit
- The Sanitary Sewer Easement Abandonment Description
- A copy of the letter sent to Matthew Blomeley, City of Murfreesboro Planning, for placement on the next Planning Commission agenda for Mandatory Referral

Ms. Valerie Smith
April 16, 2020
Page 2

RAGAN•SMITH

If you have questions or need additional information, please contact me.

Sincerely,

RAGAN-SMITH ASSOCIATES, INC.



Christopher J. Mabery, RLS
Survey Project Manager

CJM:kal

Enclosures

cc: Mr. Matthew Blomeley, City of Murfreesboro Planning Department

NOTES

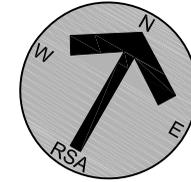
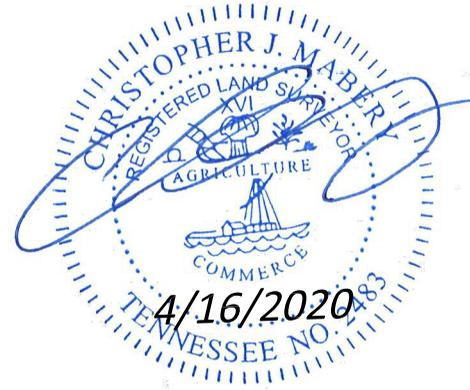
1. THE PURPOSE OF THIS EXHIBIT IS TO ABANDON THE EXISTING 20' SANITARY SEWER EASEMENT "A" OF RECORD IN RECORD BOOK 1432, PAGE 2534, R.O.R.C.T.
2. THIS EXHIBIT IS NOT A GENERAL PROPERTY SURVEY AS DEFINED UNDER RULE 0820.03-7.



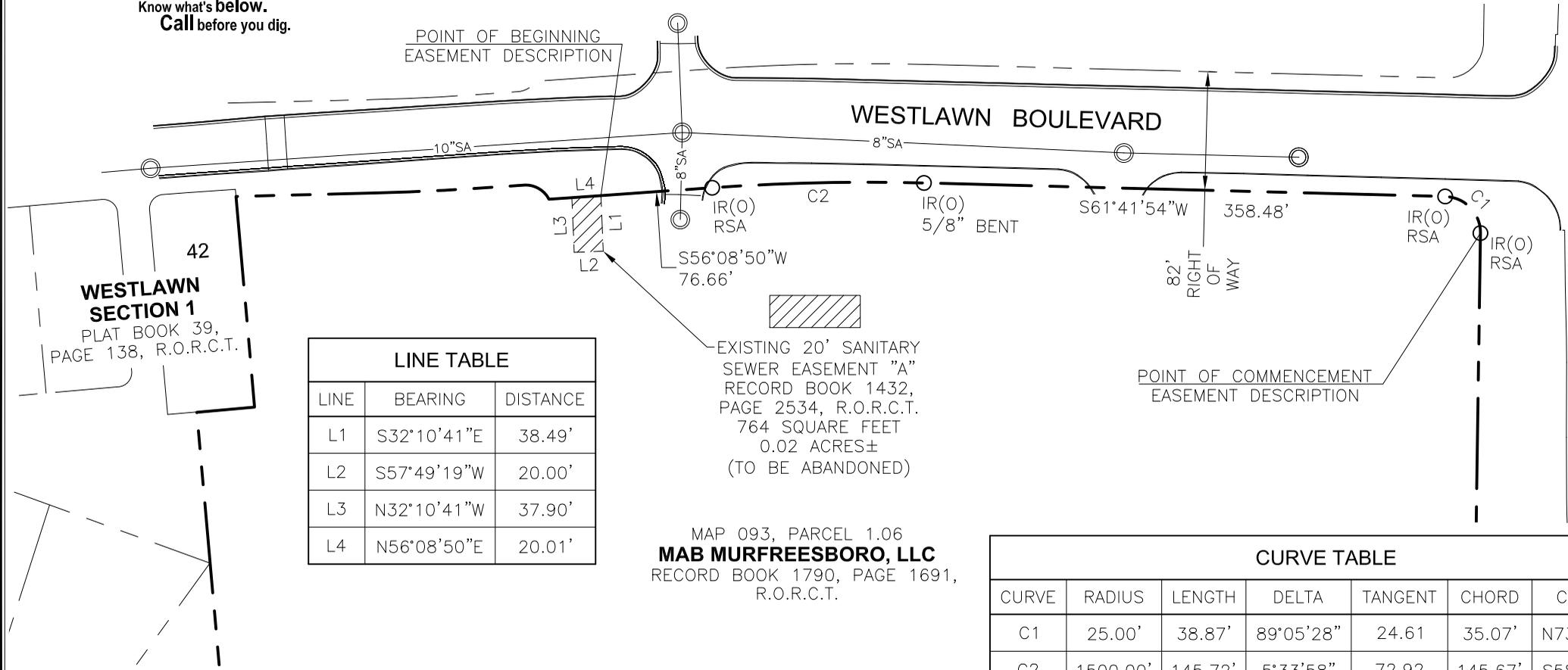
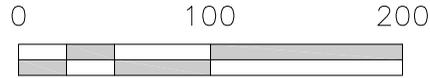
Know what's below.
Call before you dig.

LEGEND

- IR(O) IRON ROD (OLD)
- ⊙ EXISTING SANITARY SEWER MANHOLE
- SA- EXISTING SANITARY SEWER LINE
- R.O.R.C.T. REGISTER'S OFFICE FOR RUTHERFORD COUNTY, TENNESSEE



TNSPC: NAD 83



42
WESTLAWN SECTION 1
PLAT BOOK 39,
PAGE 138, R.O.R.C.T.

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S32°10'41"E	38.49'
L2	S57°49'19"W	20.00'
L3	N32°10'41"W	37.90'
L4	N56°08'50"E	20.01'

MAP 093, PARCEL 1.06
MAB MURFREESBORO, LLC
RECORD BOOK 1790, PAGE 1691,
R.O.R.C.T.

CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHD BRG
C1	25.00'	38.87'	89°05'28"	24.61	35.07'	N73°32'04"W
C2	1500.00'	145.72'	5°33'58"	72.92	145.67'	S58°53'37"W

RAGAN SMITH
LAND PLANNERS • CIVIL ENGINEERS
LANDSCAPE ARCHITECTS • SURVEYORS
Murfreesboro
Nashville
423-490-9400
615-244-8591
615-546-6050
ragansmith.com

**WESTLAWN PAVILION
MAB MURFREESBORO LLC**
7th CIVIL DISTRICT OF RUTHERFORD COUNTY,
CITY OF MURFREESBORO, TENNESSEE
SEWER EASEMENT ABANDONMENT EXHIBIT

DATE: APRIL 16, 2020
APPROVED: CJM
DRAWN: CJM
SCALE: 1" = 100'
JOB NO.: WK. ORDER 0885
06036 0885



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MEMORANDUM

DATE: April 17, 2020
TO: Water Resources Board
FROM: John Strickland
SUBJECT: Electrical & Instrumentation Building Roof Replacement

SUMMARY

At the Water Resource Recovery Facility (WRRF), the Electrical & Instrumentation building's roof is to be replaced by Don Kennedy Roofing Co. Inc.

STAFF RECOMMENDATION

Recommend to City Council approving the replacement of the WRRF's Electrical & Instrumentation building roof by Don Kennedy Roofing Co. Inc. at a cost of \$28,420.

BACKGROUND INFORMATION

Maintenance Staff determined that the over 30 year-old roof of the WRRF's Electrical & Instrumentation building needed to be replaced. Advice was sought from several contractors and the replacement was budgeted in the Department's capital improvement plan.

The City's Purchasing Department issued an Invitation to Bid with a bid opening on March 20, 2020. Don Kennedy Roofing Co. Inc. provided the only bid.

FISCAL IMPACT

\$65,000 was budgeted for the replacement of the roof and is requested to be funded from the Department's Rate Funded Capital Budget in the amount of \$28,420.

ATTACHMENTS

Bid Form

PURCHASING DEPARTMENT
BID FORM

You are invited to bid on the following:

Title: Electrical & Instrumentation Roof Replacement

INSTRUCTIONS:

All prices must include detailed costs. Costs included in the bid prices shall include parts, labor, accessories and any other standard equipment necessary provide this service, freight, and delivery. Pricing for each component shall be effective for one (1) year from date of bid award. The City is not subject to sales tax.

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	TOTAL PRICE
1	1	\$	<p>Electrical & Instrumentation Roof Replacement</p> <p>Completion desired within 30 days of issuance of PO and no later than June 30th, 2020. PO is expected to be issued late-April or Early-May.</p> <p style="text-align: center;"><i>note: see other proposals for pricing options.</i></p>	<p><u>\$28,420⁰⁰</u></p>



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MEMORANDUM

DATE: April 22, 2020
TO: Water Resources Board
FROM: John Strickland
SUBJECT: Request to Purchase Sodium Hypochlorite (Bleach)

SUMMARY

Consider the purchase of Sodium Hypochlorite, which is used at the Water Resource Recovery Facility (WRRF) as a secondary disinfectant of the Reuse Water, from low bidder Dycho Company Inc.

STAFF RECOMMENDATION

Recommend to City Council approving the purchase of Sodium Hypochlorite (Bleach) from Dycho Company Inc. at a cost of 82¢/gallon.

BACKGROUND INFORMATION

Murfreesboro has Tennessee’s largest and most sophisticated Reuse Water system. The water is beneficially used for irrigation at many places throughout the City e.g. the Department’s two farms, the Avenues, and Old Fort golf course. Environmental regulations require that the water be additionally disinfected with Sodium Hypochlorite; at an estimated annual cost of \$60,000.

The City’s Purchasing Department issued an Invitation to Bid with a bid opening on April 21, 2020. The results are tabulated below:

Supplier	Price/Gallon
Dycho Company, Inc.	\$0.8200
Brenntag Mid-South, Inc.	\$0.9118

FISCAL IMPACT

The expenses for Sodium Hypochlorite are reflected in the Fiscal Year 2020-21 Operating Budget. The contract prices will be good through June 30, 2022 with three (3) one-year extensions available.

ATTACHMENTS

Bid Form

Bid Name: 2020 WRRF Bleach

Chemical pricing shall be firm through June 30, 2022 with automatic annual renewals for up to three additional one-year terms. Freight charges shall be listed separately and may be adjusted for fuel cost once during the term of the contract. The City is not subject to sales tax.

Following placement of an order, on-site guaranteed delivery will occur within 3-5 days.

In compliance with this ITB, and subject to all conditions thereof, the undersigned agrees that if this bid response is accepted within 90 days from the date of opening, to furnish the item upon which price is quoted.

A Chemical Product Data Sheet shall accompany each chemical bid.

Item Number	Chemical	Price/gal	Minimum Delivery Quantity	Freight Charge per Delivery	Total Delivered Price/gal
1	Sodium Hypochlorite 12.5%	\$0.82/gal	4,000 gals	\$0	\$0.82/gal

Company Name: The Dycho Company, Inc.
Authorizing Signature: 
Name: J. Robert Shamblin, President
Date: 04/20/2020
Phone: 423-568-2112 / 800-654-1399
Email: rob@dychoco.com



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MEMORANDUM

DATE: April 22, 2020
TO: Water Resources Board
FROM: John Strickland
SUBJECT: Request to Purchase Traveling Irrigators

SUMMARY

Request to purchase traveling irrigators for the Water Resource Recovery Facility's Department owned Jordan and Coleman farms.

STAFF RECOMMENDATION

Recommend to City Council approving the purchase of three traveling irrigators for the WRRF's Department owned farms from Hughes Farm Services Inc. at a cost of \$97,500.

BACKGROUND INFORMATION

The Department owns the Jordan farm off Leanna Road and the much larger Coleman Farm off Central Valley Road. They were purchased to play a significant role toward ensuring compliance with the City's EPA discharge permit via land irrigation of treated water from the WRRF. Additionally, these irrigators will facilitate the utilization the pipeline extension recently laid at the Coleman Farm

The City's Purchasing Department issued an Invitation to Bid with a bid opening on April 15, 2020. Hughes Farm Services Inc. provided the only conforming bid.

FISCAL IMPACT

\$120,000 was budgeted to purchase three Traveling Irrigators and is requested to be funded from the Department's Rate Funded Capital Budget in the amount of \$97,500.

ATTACHMENTS

Bid Form

3. BID FORM

Bid Name: Traveling Sprinkler Irrigation Unit

All prices must include all costs. Costs included in the bid prices shall include parts, labor, accessories and any other standard equipment necessary to make this system operational, freight, delivery, installation, and training instructions. Pricing for each component shall be effective for one (1) year from date of bid award. The City is not subject to sales tax.

Explain type of warranty, length, coverage provided, bidder and purchaser liabilities and any associated costs. Specify any additions to the warranty coverage above the limits set forth in the attached specifications – (attach additional pages if necessary). *

State the name and location of the nearest authorized factory service facility or provider. **

For exceptions, if any, attach a separate sheet listing any exceptions to the specifications, with an explanation as to why the exception is equal to or better than the specification. Bidders may also submit with the bid a detailed description and specifications of the product(s).

Awarded bidder will honor price(s) for other local governments.

In compliance with this ITB, and subject to all conditions thereof, the undersigned agrees that if this bid response is accepted it will furnish any or all of the items upon which price(s) are quoted, at the price set opposite each item unless otherwise specified.

Item	Description	Mfr./Model	Quantity	Total Price
1	Traveling Sprinkler Irrigation Unit	Ocmis/VR4	2	\$65,000

* Manufacturer's one-year full warranty on machine. Bidder not liable for purchaser's own negligence.

** Hughes Farm Services Inc, 2939 Van Cleave Road, Murray KY 42071



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MEMORANDUM

DATE: April 13, 2020
TO: Water Resources Board
FROM: Donald Hughes
SUBJECT: Meter Vault Bid

BACKGROUND

MWRD Operations and Maintenance requested sealed bids to provide meter vaults to Murfreesboro Water Resources Department. We requested pricing for 8-meter vaults varying in size. The department received the following bids: Fortiline, Consolidated Pipe, Core & Main, and Southern Pipe. The bid opening was held at Operations & Maintenance on Thursday, April 2, 2020. See results below.

Bid Results	
Company	Total
Fortiline	\$30,591
Consolidated Pipe	\$36,172
Core & Main	\$36,600
Southern Pipe	\$36,840

RECOMMENDATION

Staff recommends the Board recommend to City Council approval to purchase 8-meter vaults from the lowest bidder, Fortiline.

FISCAL IMPACT

The department will purchase 8 meters vaults to include in our inventory. The upfront cost associated with this purchase will be \$30,591 with funding coming from Account 3104-252101. This cost will be recovered as tap fees are purchased.

The contract price will be valid for one year and is renewable every year for a maximum of five years at the option of the city.

ATTACHMENTS

Fortiline Itemized Bid

QUOTE



**Pricing for some of the products included in this quote may be impacted by Section 301 List 3: the proposed China tariff. In the event that the tariff is implemented, we will be forced to pass it on to the market. The actual price of these items may increase up to the rate of the tariff that is imposed. **

CUSTOMER NO	QUOTING BRANCH	QUOTE NO	QUOTE DATE	PAGE
215810	FORTILINE NASHVILLE	5948474	3/31/20	1

CUSTOMER
MURFREESBORO WATER&SEWER DEPT. P.O. BOX 1477 MURFREESBORO, TN 37133

PROJECT INFORMATION
43-GANG VAULT ANNUAL CONTRACT

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
30	1	EA	MWSD 3 GANG NON-TRAFFIC VAULT 4" PEXPE DIP 8'00 W/3 1"CC TAP CLASS 56 PIPE	N/C	N/C
40	3	EA	1"CORP STOP CCXFNPT 74101BCAPF NO LEAD	N/C	N/C
50	3	EA	1"X12" METER SETTER MIPXDP NO LEAD 720-412WDMD 44	N/C	N/C
60	3	EA	5/8"X1" MTR ADPT MIPXFIP KIT 710J14KIT NO LEAD	N/C	N/C
70	3	EA	1"X18" BRASS NIPPLE	N/C	N/C
80	1	EA	29"X59" ALUM HATCH S1R029059CD W/SLAM LOCK	N/C	N/C
90	1	EA	67"X37"X41.5" CONCRETE MTR VLT 3 GANG	3,069.9500	3,069.95
			Package Sub-total:		3,069.95
120	1	EA	MWSD 4 GANG NON-TRAFFIC VAULT 4" PEXPE DIP 8'00 W/4 1"CC TAP CLASS 56 PIPE	N/C	N/C
130	4	EA	1"CORP STOP CCXFNPT 74101BCAPF NO LEAD	N/C	N/C
140	4	EA	1"X12" METER SETTER MIPXDP NO LEAD 720-412WDMD 44	N/C	N/C
150	4	EA	5/8"X1" MTR ADPT MIPXFIP KIT 710J14KIT NO LEAD	N/C	N/C
160	4	EA	1"X18" BRASS NIPPLE	N/C	N/C
170	1	EA	29"X59" ALUM HATCH S1R029059CD W/SLAM LOCK	N/C	N/C
180	1	EA	67"X37"X41.5" CONCRETE MTR VLT 4 GANG	3,569.9500	3,569.95
			Package Sub-total:		3,569.95
210	1	EA	MWSD 5 GANG NON-TRAFFIC VAULT 4" PEXPE DIP 8'00 W/5 1"CC TAP CLASS 56 PIPE	N/C	N/C
220	5	EA	1"CORP STOP CCXFNPT 74101BCAPF NO LEAD	N/C	N/C
230	5	EA	1"X12" METER SETTER MIPXDP NO LEAD 720-412WDMD 44	N/C	N/C
240	5	EA	5/8"X1" MTR ADPT MIPXFIP KIT 710J14KIT NO LEAD	N/C	N/C
250	5	EA	1"X18" BRASS NIPPLE	N/C	N/C

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date. After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

CUSTOMER NO	JOB NAME	QUOTE NO	QUOTE DATE	PAGE
215810	43-GANG VAULT ANNUAL CONTRACT	5948474	3/31/20	2

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
260	1	EA	29"X59" ALUM HATCH S1R029059CD W/SLAM LOCK	N/C	N/C
270	1	EA	67"X37"X41.5" CONCRETE MTR VLT 5 GANG	4,075.9500	4,075.95
Package Sub-total:					4,075.95
300	1	EA	MWSD 6 GANG NON-TRAFFIC VAULT 4" PEXPE DIP 8'00 W/6 1"CC TAP CLASS 56 PIPE	N/C	N/C
310	6	EA	1"CORP STOP CCXFNPT 74101BCAPF NO LEAD	N/C	N/C
320	6	EA	1"X12" METER SETTER MIPXDP NO LEAD 720-412WDMD 44	N/C	N/C
330	6	EA	5/8"X1" MTR ADPT MIPXFIP KIT 710J14KIT NO LEAD	N/C	N/C
340	6	EA	1"X18" BRASS NIPPLE	N/C	N/C
350	1	EA	29"X59" ALUM HATCH S1R029059CD W/SLAM LOCK	N/C	N/C
360	1	EA	67"X37"X41.5" CONCRETE MTR VLT 6 GANG	4,579.9500	4,579.95
Package Sub-total:					4,579.95
JOBSITE CONTACT CHARLES HANCOCK OFFICE (615)893-1223 CELL (615)642-3313					
Subtotal:					15,295.80
Tax:					.00
Bid Total:					15,295.80

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date.
 After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

Ent By ZR 3/31/20 15:39:52



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MEMORANDUM

DATE: April 22, 2020
TO: Water Resources Board
FROM: Alan Cranford
SUBJECT: Lagoon Water Treatment Residuals Removal Contract Extension
Stones River Water Treatment Plant

Background

The Stones River Water Treatment Plant has two (2) lagoons that are used to store sediment (water treatment residuals (WTR)) removed during the water treatment process. There is only one (1) lagoon in operation at a time. Typically, a lagoon is in operation from January 2nd for a period of two (2) years. At times, depending on the raw water quality, a lagoon may be in operation for only one (1) year. Staff evaluates the lagoon that is in service each year around May to determine if there is enough space in the lagoon to remain in service for two (2) years.

The current contract extension dated April 4, 2019, with Slurry Systems ends June 30, 2020. Staff is requesting to extend the contract for a second time due to delay in the contractor being able to start the project. This delay is due to excessive rain events this year causing Slurry Systems to be behind on current obligations to other facilities and will not be able to mobilize till late May. The work can take up to six weeks for completion, depending on weather conditions and equipment issues, and this puts Slurry Systems in situation that may prevent them from completing the work prior to the June 30, 2020 deadline. The reason for the timing for the removal of the WTRs is that the farms that Slurry Systems uses wants the material placed on their fields during the May/June timeframe.

Fiscal Impact

The cost of removing the lagoon water treatment residuals is in FY20 Operating Budget in the amount of \$249,000.

Recommendations

Staff requests the Board recommend to the City Council to approve the second extension of the June 2018 contract with Slurry Systems, Inc.

Attachments

Slurry Systems Company Lagoon Contract Amendment and Extension 2021

**SECOND AMENDMENT
TO THE
CONTRACT
BETWEEN THE CITY OF MURFREESBORO
AND
SLURRY SYSTEMS COMPANY**

This Second Amendment ("Second Amendment") to the Contract, entered into June 1, 2018 ("Contract"), is effective as of this day _____, 2020, by and between the City of Murfreesboro ("City"), a municipal corporation of the State of Tennessee and Slurry Systems Company ("Contractor"), a Corporation of the State of Tennessee.

RECITALS

WHEREAS, on June 1, 2018 the City entered into a contract with Slurry Systems Company, for Water Treatment Plant Lagoon Water Treatment Residuals Removal at \$249,000 for the Water Resources Department; and,

WHEREAS, the term of the contract between the City and Contractor is currently from July 1, 2019 to June 30, 2020 and,

WHEREAS, the City may extend the Contract term pursuant to section 3 of the current Contract for an additional term; and

WHEREAS, pursuant to section 10 of the Contract, the Contract may be modified by a written amendment executed by all parties; and

WHEREAS, the parties desire to extend the term of the Contract and modify the beginning and ending dates to coincide with the expected scope of work:

NOW THEREFORE, the City and Contractor mutually agree to renew the current Contract for an additional term to begin on July 1, 2020 and end on June 30, 2021.

CITY OF MURFREESBORO

SLURRY SYSTEMS COMPANY:

By: _____
Shane McFarland, Mayor

By: _____
Edward R. Scott, Vice President

Approved as to form:

Adam F. Tucker, City Attorney



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Memorandum

DATE: March 30, 2020
TO: Water Resources Board
FROM: Alan Cranford
SUBJECT: 2020 Chemical Bid
 Stones River Water Treatment Plant

Background

Bids are to be publicly opened on March 23, 2020 for water treatment chemicals to be used at the Stones River Water Treatment Plant. There are only two chemicals bid this year. They are Calcium Oxide (Lime) and Fluorosilicic Acid (Fluoride). The bid tabulation is below.

Company Name	Chemicals	
	Calcium Oxide Price / lb	Fluorosilicic Acid Price / lb
Brenntag Midsouth	No Bid	\$0.1970
Carmeuse	\$0.123665	No Bid
Coyne Chemical	No Bid	No Bid
Dycho	No Bid	No Bid
Greer	No Bid	No Bid
Lhoist	\$0.12985	No Bid
Pennoco, Inc.	No Bid	\$0.2385
Univar	No Bid	\$0.1490

Lowest Responsible and Responsive Bid

Fiscal Impact

The price of the chemicals will be reflected in the FY21 Operating Budget with a contract price through June 30, 2021. The estimated annual expense for FY21 Operating Budget is identified in the table below.

Water Resources Department

300 NW Broad Street * P.O. Box 1477 * Murfreesboro, TN 37133-1477 * Office: 615 890 0862 * Fax: 615 896 4259
 TTY 615 848 3214 * www.murfreesborotn.gov

Recommendations

For information only. The bid went to the April 2, 2020 Council meeting.

Company Name	Chemical	Unit Price	Estimated Annual Expense
Carmeuse	Calcium Oxide	\$0.123665	\$225,000
Univar	Fluorosilicic Acid	\$0.1490	\$20,000

Staff has previously worked with all the above suppliers. All chemical suppliers have a good working relationship with the Department for the chemicals being supplied.

Attachments

None

MINUTES
MURFREESBORO WATER RESOURCES BOARD
March 3, 2020

The Murfreesboro Water Resources Board met on Tuesday, March 3, 2020 in the conference room at the Operations and Maintenance Building, 1725 S. Church Street. Present at the meeting were Board members: Mr. John Sant Amour, Dr. Al Carter, Mr. Brian Kidd, Ms. Sandra Trail, Mr. Kirt Wade, and Ms. Madelyn Scales-Harris. Also present were Darren Gore, Valerie Smith, Doug Swann, Michele Pinkston, Adam Tucker, Roman Hankins, Anita Heck, Steve Tate, Jimmy Stacey, Matt Powers, Joe Russell, Brent Fowler, Jay Bradley, Lynda Sullivan, Randy McCullough, Adam Todd, Andy McCrary, and Travis Wilson along with other members of the public.

The Consent Agenda was presented for the following considerations:

- A. Consider SRWTP Commercial Structures & Facilities Painting Contract Extension and SSR RPR Task Order 19-41-024.0 –*

In December 2018, staff brought the bids for repainting of the Stones River Water Treatment Plant and Auxiliary Intake Building over the next four years. The approved bidder was Commercial Painting, Inc. They started their painting in FY19 and this is the extension for the painting during FY21. FY21 is budgeted at \$445,000. The work will start after July 1, 2020.

The current cost of the FY21 project is \$397,200 for painting and \$43,100 for coating inspection from SSR and \$4,700 for contingency.

Staff recommended that the Board recommend to the City Council accepting Commercial Painting, Inc. second amendment for the painting contract and SSR coating inspection RPR task order.

- B. Consider SRWTP Chemical Bid Extensions –*

Bids were publicly opened on July 1, 2017 for water treatment chemicals to be used at the Stones River Water Treatment Plant. Section 1.3.4 of the bid documents states “the successful bidder shall provide the chemical(s) as specified. Pricing shall be effective for the term of the contract, which is through June 30, 2018 with the option to renew for up to three additional one-year terms.” The following companies have now renewed their contract for the third term through June 30, 2021. The bids are as follows:

American Development Company:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Sodium Hydroxide	\$0.168/lb	\$ 5,000.00

Brenntag Mid-South:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Citric Acid 50%	\$5.58/gal	\$ 16,000.00

Univar:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Sodium Chloride	\$0.16/lb	\$ 70,000.00

Bids were publicly opened on April 9, 2018 for water treatment chemicals to be used at the Stones River Water Treatment Plant. Section 1.3.4 of the bid documents states “The successful bidder shall provide the chemical(s) as specified. Pricing shall be effective for the term of the contract, which is through June 30, 2019 with the option to renew for up to three additional one-year terms.” The following companies have now renewed their contract for the second term through June 30, 2021. The bids are as follows:

American Development Company:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Hydrogen Peroxide	\$0.33/lb	\$ 26,000.00

Gulbrandsen Technologies, Inc.:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Polyaluminum Hydroxichloride	\$0.1977/lb	\$ 20,000.00

Bids were publicly opened on March 25, 2019 for water treatment chemicals to be used at the Stones River Water Treatment Plant. Section 1.3.4 of the bid documents states “The successful bidder shall provide the chemical(s) as specified. Pricing shall be effective for the term of the contract, which is through June 30, 2020 with the option to renew for up to three additional one-year terms.” The following companies have now renewed their contract for the first term through June 30, 2021. The bids are as follows:

American Development Company:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Calcium Thiosulfate	\$0.508/lb	\$ 12,000.00

American Development Company:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Phosphate	\$0.842/lb	\$ 45,000.00

American Development Company:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Sodium Permanganate	\$0.762/lb	\$ 285,000.00

Polydyne:

CHEMICAL	UNIT PRICE	EST. ANNUAL EXPENSE
Polyelectrolyte Coagulant Aid	\$0.91/lb	\$ 40,000.00

The price of the chemicals will be reflected in the FY 2020-21 Operating Budget. The contract price will be good through June 30, 2021.

Staff recommended the Board recommend to City Council approving the renewal of the chemical bid extensions as provided.

C. Consider AMI Server Software Upgrades –

The AMI servers are currently running on Windows Server Edition 2008 which has met its end of life effective January 14, 2020.

Also, MWRD is currently running Itron Fixed Network version 5.1. We need to upgrade to version 5.4 to resolve communication and time sync issues between the servers and the field devices.

Staff recommended upgrading the Windows Server Operating System from 2008 to 2016 (end of life 1/11/2027) and Fixed Network from version 5.1 to 5.4.

Fiscal impact will be a total of \$63,780 from FY20 rate-funded capital budget. This will replace a SAN (Storage Area Network) budgeted at \$60,000 which is not necessary at this time.

D. Consider a Proposal from Jobe, Hastings & Associates for the Water Resources Department Audit and the Stormwater Fund Audit for the Year Ending June 30, 2020 –

Jobe, Hastings & Associates submitted a proposal to perform the annual audits of Murfreesboro Water Resources Department and the Murfreesboro Stormwater Fund as of June 30, 2020.

The proposed fee is \$28,500. As the audit is performed during the subsequent fiscal year, funding will come from the Professional Services expense account in the FY21 budget year. This quote reflects no increase in the audit fee from FY19.

Staff recommended the Board recommend to City Council accepting the proposal as presented.

A motion was made by Madelyn Scales-Harris to accept the Consent Agenda as presented and it was seconded by Dr. Carter. The Board voted unanimously to approve.

The January 28, 2020 Board Minutes were unanimously accepted as submitted.

Staff presented the FY2019 Cost of Service for Water and Sewer Funds to the Board for their review.

The Murfreesboro Water Resources Department was provided a cost of service study (COSS) from Jackson Thornton Utilities Consultants for FY2019. Jackson Thornton provided a presentation to the Board summarizing the FY19 COSS. Next month, a pro forma for FY24 will be presented in conjunction with a discussion and analysis on rate design to meet the Department's 5-yr projected revenue requirements. The COSS was reviewed in a historical perspective; looking back at where the Department was in 2007, 2011, 2013, 2015 and 2017 and where the Department is as of 2019. The objectives of the COSS are to make sure there is enough revenue to meet the needs of the system, ensure fair and equitable rates as well as customers' ability to pay; thereby making the rates defensible. The COSS develops the process to determine revenue requirements, develops revenue requirements by rate class, develops recommended rate designs, and recommends potential rate changes.

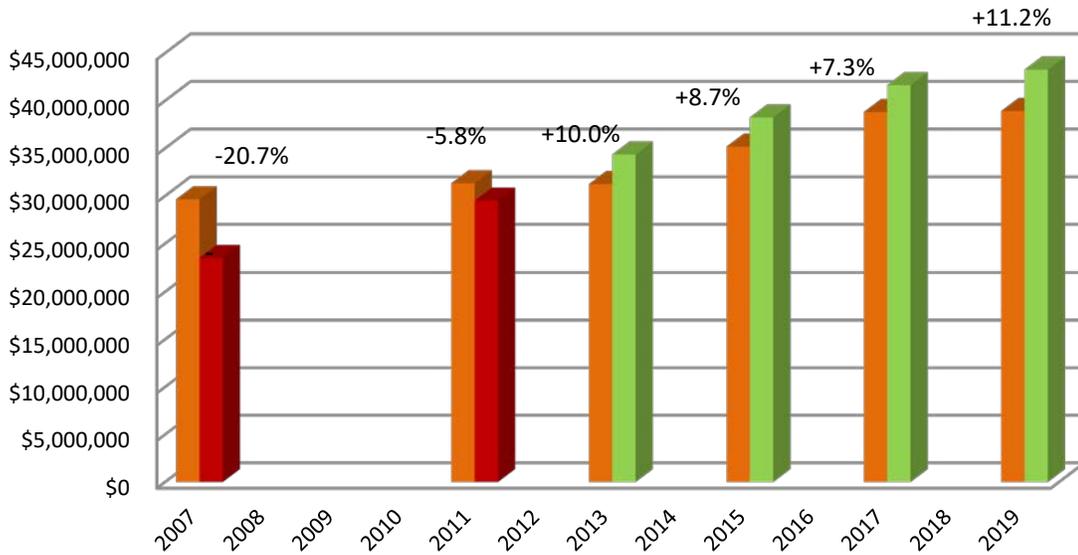
MWRD defines five customer classes. The customer classes are generally defined as follows:

- 1) Residential class includes detached and attached residential units, duplexes, mobile homes and apartments.

- 2) Small Commercial includes churches, hotel/motel and other retail/service establishments that have a meter smaller than 1 ½”.
- 3) Large Commercial includes Middle Tennessee Medical Center (MTMC) as well as the same categories as defined in small commercial but having a water meter 1 ½” or larger.
- 4) Industrial includes all industrial water and sewer users in MWRD’s water service area and all sewer users in CUD’s water service area.
- 5) Government includes MTSU, the VA hospital, schools and all internal Murfreesboro accounts.

When reviewing the Department’s recovery of cost in total, the following chart summarizes the Department’s history over FY07, FY11, FY13, FY15, FY17 and FY19 as pertaining to Total Rate Requirements and Total Rate Revenue. The Department started in a 20.7 percent under recovery in 2007 and is currently in an 11.2% over recovery (in total). When looking at the increase annual sales in sewer, staff believes the reason it only shows a 3.7% increase is due to General Mills discharging 49% less sewer on average to the City’s collection system after installing a new irrigation system in April 2017 to land apply their highly treated effluent on Indian Hills Golf Course.

TOTAL WATER AND SEWER RATE REQUIREMENTS AND RATE REVENUE



	2007 COSS	2011 COSS	2013 COSS	2015 COSS	2017 COSS	2019 COSS
Total Rate Requ'mnt	\$29,650,005	\$31,328,535	\$31,244,197	\$35,175,522	\$38,816,282	\$38,916,760
Total Rate Revenue	\$23,498,628	\$29,507,833	\$34,353,148	\$38,243,420	\$41,639,144	\$43,265,652

The Department is well positioned in understanding the cost, funding and rate structure to construct future improvements to meet customer demands and regulatory requirements. The FY24 pro forma will be presented in the Board’s March meeting and the associated 5-yr revenue requirements. Staff will also review potential rate designs that will ensure future cost of service is recovered through rate revenue.

Continued cost of service studies conducted biannually will guide management in making adjustments to rates so as to ultimately attempt to recover 100% from all customer classes; thereby preventing to the greatest degree possible any subsidies from one class to another or from the water utility to the sewer utility.

The Board considered sewer charges in CUD dual meter billing.

MWRD uses the following guidance on billing for multiple meters on a service:

- If there is a large meter and a small meter (Compound or High-Low), MWRD charges water and sewer minimums for the larger meter and consumption on both meters.
- If meters are similar size, MWRD charges based on whether each meter serves a single service line to the customer.

With regard to CUD billing for multiple meters on a service:

- CUD also has High-Low meters. They charge only one minimum on those configurations.
- On dual meters of a similar size, CUD charges the minimum charge on both meters, the assumption being that the customer would need a larger meter if only one was being used.

This question arose when it was determined that CUD was not being consistent in charging the MWRD sewer minimum for dual meters. On a new customer, CUD began charging two minimums on a dual 6" meter customer. When billing was questioned, and after conversation with MWRD, CUD began charging only one minimum to cover both 6" meters. The customer then asked about a refund for the period that two minimums were charged.

Staff feels that dual meter configurations serve as a redundancy for customers and the department, allowing the customer to continue to receive water if one meter fails.

Staff requested confirmation (as policy) of our current practice to charge only one minimum on a dual meter configuration. Additionally, in the absence of an adopted MWRD policy regarding charging minimum monthly bills on the dual meter configuration set up by CUD, staff recommended that no refunds be issued by MWRD based on customers being charged sewer per CUD's policy.

CUD currently has nine pairs of 6" dual meters that are affected by MWRD policy. Charging the full minimum on both meters in each pair would result in an additional \$9,000+ in monthly sewer income for MWRD.

Madelyn Scales-Harris made a motion to approve. Dr. Carter seconded. The motion unanimously passed.

The Board considered SSR Engineering Task Order 1941016.0, Biosolids Polymer System Replacement and Upgrade.

SSR submitted a task order to design the biosolids polymer system replacement and upgrade for the Murfreesboro Water Resource Recovery Facility (WRRF).

MWRD introduced to the Board at the December 2019 meeting the need to replace two existing dry polymer feed systems originally built in 2001 and 2008 that have met the end of their useful life. This

project has been included in the Department's 5-yr CIP and requires approval of an engineering task order to begin work. The polymer feed system injects polymer into the Water Resource Recovery Facilities biosolids in order to optimize their dewatering in the Fournier rotary presses.

In addition to the age of the system, the current arrangement compromises the overall capacity and effectiveness of the dewatering system. The polymer system upgrades will address these issues by designing an upgraded system, sized for future solids production loadings with 100-percent redundancy. Equipment planned includes the following:

- 2 sets of mixing/aging tanks, each sized for all 8 rotary presses
- 2 disperser/mixers (feeders), each sized for all 8 rotary presses
- 2 bag unloaders, each sized for all 8 rotary presses
- 10 polymer feed pumps (8 duty and 2 spare)

MWRD will procure the equipment and develop task orders for John Bouchard and Sons to install the polymer system using the City's master services agreement. Additionally, MR Systems will provide the integration of local controls and field instrumentation into the WRRF's Supervisory Control and Data Acquisition System (SCADA) using the City's master services agreement.

The Department has earmarked \$1,450,000 in FY20-21 from our working capital reserves to fund this project. Staff has increased that by \$150,000 based on the updated summary of costs provided by SSR.

Staff recommended the Board recommend to the City Council approval of SSR Task Order 1941016.0 in the amount of \$112,235.

Brian Kidd made a motion to approve. Sandra Trail seconded. The motion unanimously passed.

The Board considered development restrictions within Flow Monitoring Basin 10-Upper Reaches.

Based on recent temporary flow studies conducted in MWRD's sanitary sewer service area, surcharge conditions occurred under wet weather conditions that require staff to implement restricted connections to the sewer system. Staff recommended limiting density to 2.5 single family unit equivalents in the following areas:

- Flow monitoring basin 10A-3; area south of MTSU encompassing areas south of East Lytle St. to north of East Castle St.
- Flow monitoring basin 10A-4; area south of MTSU encompassing areas south of Alumni Dr. to north of John Bragg Hwy and north of University Ridge Apartments.

Between December 13, 2018 to January 21, 2019, the Department requested ADS, through our professional services agreement, to install three temporary sewer flow monitors within flow monitor Basin MF10 because a developer was interested in building a hotel north of E. Main Street along Rutherford Blvd. Staff was uncertain whether the downstream sewer main could handle the additional flow from a hotel.

Between the dates of December 23 to December 31, 2018, Murfreesboro received a total of 3.24" with the heaviest rain during this period being December 31st of 1.91". This rain produced sewer depths

from 5” to 20” at the temporary monitor locations. With these depths of flow, the surcharge elevations can be determined within the sewer main and manholes up and/or downstream of the monitor locations.

In 2011, upon receiving a Commissioners Order from the State of Tennessee Department of Environment and Conservation, staff created a Capacity Assurance Program (CAP) to explain the basis for coordinating capacity decision criteria for each sewer basin within our sewer system. The objective of the CAP was to enable the Department to authorize new sewer service connections or increases in flow from existing sewer service connections while not increasing the likelihood of creating sanitary sewer system overflows (SSO’s). Within the CAP the below table of Collection System Surcharge Condition Criteria was created to give guidelines as to when to disallow additional connections to the system.

Collection System Area/ Monitor Basin	Surcharge Condition Criteria
Area of Limited or No Backup	Sewer Hydraulic Gradeline within 1’ of MH Rim
Area of Significant Backup Complaints	Sewer Hydraulic Gradeline within 2’ of MH Rim
Siphon or Other Unique Structure	Evaluate Based on Design Criteria

Since the creation of this CAP, EPA Region 4 has created a little different guideline specified within different consent decrees given to municipalities within the southeast. The guideline is to disallow additional sewer connections and sewer extensions when sewer surcharges within three feet of the manhole rim.

Using this new surcharge guideline specified by EPA, and the recent flow monitoring study information, staff realizes the necessity to restrict development in the temporary flow monitor areas of 10A-3 and 10A-4. The recently passed Sewer Allocation Ordinance and supporting Resolution has reduced the allowed densities based on the current zonings, however, staff feels the results of the flow monitoring warrant the need to restrict development densities even further in order to allow the vacant properties within these areas to continue to develop.

Staff recommended restricting the development in Basins 10A-3 & 10A-4 to those allowable for a Commercial Zoning at 2.5 single family units per acre (sfu/acre) or 650 gallons per day per acre (gpd/acre) no matter the current zoning.

Brian Kidd made a motion to approve. Kirt Wade seconded. The motion unanimously passed.

The Board considered a proposal from CIA for Mercury Boulevard Pump Station and Flow Monitor Basin 9A Study.

With the recommendation to limit the density of development within Basin 10A-3 & 10A-4 the Department would like to study the Mercury Blvd Station, within Basin 10A-4, as well as gravity sewer mains and Pump Station #13, within Basin 9A, to determine whether the flow coming to the Mercury Blvd station could be pumped to Basin 9A in order to free up capacity within Basins 10A-3 & 10A-4.

Between the dates of December 23 to December 31, 2018, Murfreesboro received a total of 3.24” with the heaviest rain during this period being December 31st of 1.91”. This rain produced sewer depths

from 5” to 20” at the temporary monitor locations. These surcharge depths came within 3’ of the manhole rim at or near the temporary monitor locations within Basins 10A-3 & 10A-4. This depth, within 3’ of the manhole rim, is a guideline set by EPA to disallow additional sewer connections. Instead of disallowing connections staff would like CIA to study whether flow can be redirected to Basin 9A, and this basin handle the additional flow, in order to free up capacity in Basin 10A-4.

Staff recommended the Board recommend to Council approval of the Engineering Proposal from CIA in an amount not to exceed \$30,000.

This study is not included in the Department’s Capital Improvement Plan (CIP). It is therefore recommended that the cost come from working capital account.

Kirt Wade made a motion to approve. Dr. Carter seconded. The motion unanimously passed.

The Board reviewed Customer Service and credit card trends.

With the adoption of our IT Strategic Plan in 2012, Murfreesboro Water Resources Department embarked on an ambitious plan to improve various Customer Service systems, including our billing system (CIS.Infinity), online access (Infinity.Link), account access via telephone (Interactive Voice Response – IVR) and mobile service order system (CIS.Mobile).

Some of the key benefits achieved through implementation of the products and customer options include:

- MWRD has seen a 31% decrease in over-the-counter payments by customers
- MWRD has seen a 45+% decrease in payments via mail and night deposit
- Of all calls to the Customer Service department in 2019, over 75% were handled via the IVR and did not initially require Customer Service Clerk interaction
- In 2019, a total of \$8.3 million in credit card and e-check payments were processed
- Credit card and e-check payments increased by 15% from 2018 to 2019
- Average credit card/e-check transaction in 2019 was \$96.77 vs \$88.90 in 2018
- 90% of credit card/e-check payments were made online or via IVR
- Customer office visits are down over 30% on average from March 2013 to December 2019

Staff presented and discussed the Water Resources Dashboard Performance for January 2020.

Staff presented the Financial Reports for the year ending January 31, 2020.

There being no further business, the meeting was adjourned.

John Sant Amour, Chairman



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MEMORANDUM

DATE: April 15, 2020
TO: Water Resources Board
FROM: Darren Gore
SUBJECT: Shelton Square Participation &
Proposed Special Sanitary Sewer Assessment District (SSSAD)

Summary

Staff is presenting a proposal for a SSSAD to recoup the participation amount for the upsize of the sewer forcemain to serve the development identified as Shelton Square Subdivision in the amount of \$249,590. The SSSAD would only affect adjoining parcels.

Background

At the Nov/Dec 2017 Board meeting, the Board approved of participating with Bob Parks, the developer of the Shelton Square Subdivision (770 lots), to upsize the sewer forcemain from 6” to 8” to allow for additional development in the area. The participation amount totaled \$249,590. Gravity sewer, a sewer pump station and forcemain was the only option for sewer service in the area, which is west of I-24 and north of I-840. The Shelton property pumps to the northeast, under I-24 and discharges into an 18-inch gravity sewer along Florence Rd.

The attached exhibit illustrates the properties surrounding Shelton Square that have been identified by Developers and Staff as potential properties for development, which would be required to pay the SSSAD fee.

Recommendation

Staff recommends the creation of the SSSAD in the amount of \$500 per single family unit or equivalent.

Fiscal Impact

Based on the participation cost, number of units, and time value of money, the estimated Shelton Square SSSAD would be \$500 per single family unit (sfu).

Financing Assumptions & Sanitary Sewer Special Assessment Fee Calculation:

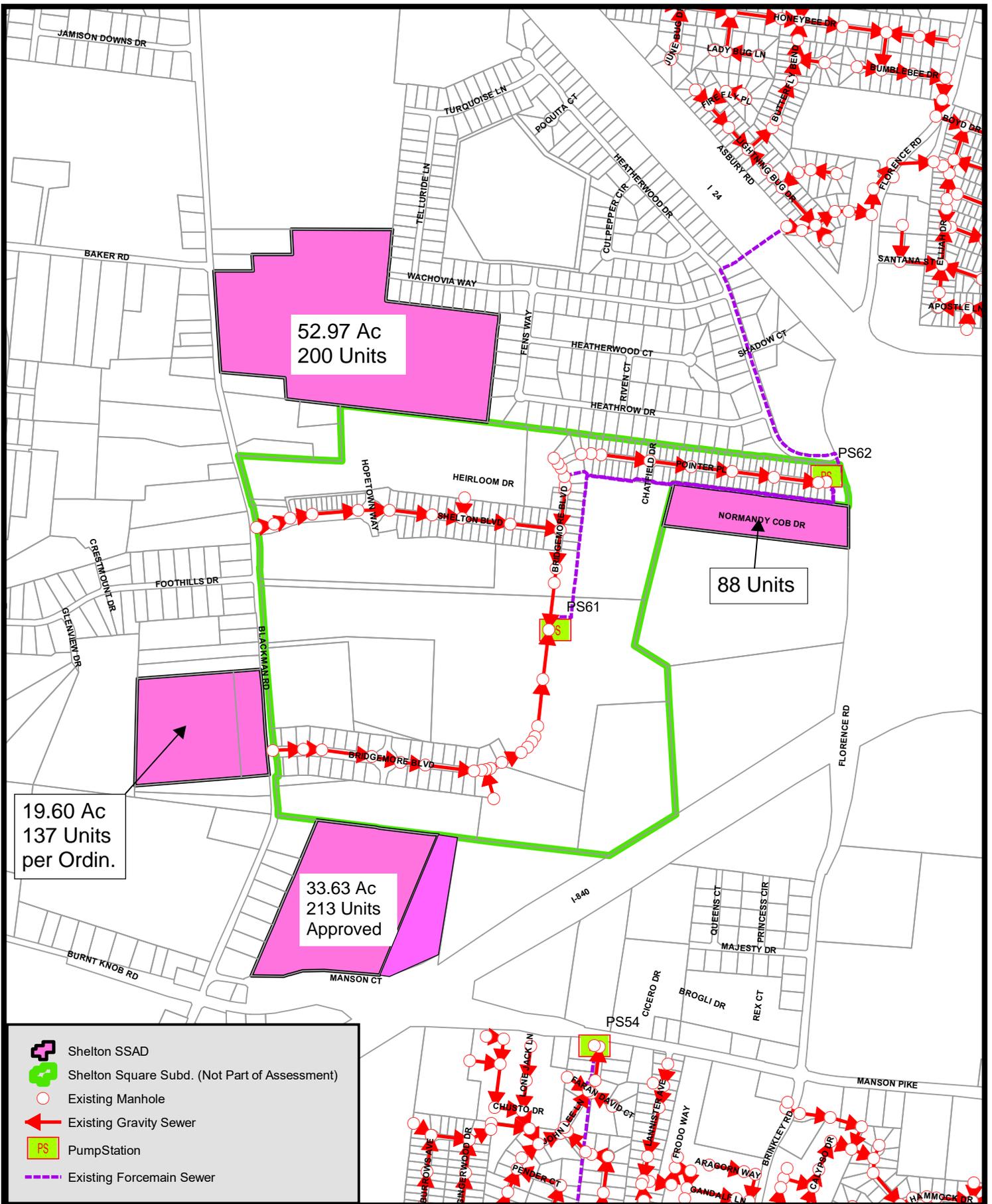
10-yr financing term @ 3.5% interest (w/ one pay period per year)
Assessment based on Estimated Single-Family Unit Count = 638 sfu's
Participation Costs = \$249,590
Finance Costs = \$30,011
Recommended Assessment at \$500 per sfu

The total cost for a sanitary sewer connection and capacity buy-in fee in this proposed SSSAD would therefore be:

Shelton Square Special Sewer Assessment = \$500 per sfu
Overall Creek Special Sewer Assessment = \$1,000 per sfu
Sanitary Sewer Capacity Buy-in Fee = \$2,550 per sfu
Total SFU cost = \$4,050

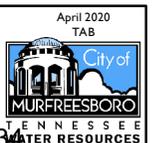
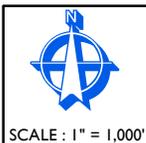
Attachments

Exhibit – Shelton Square Assessment Areas
Assessment District Cost Spreadsheet



MURFREESBORO WATER AND SEWER DEPARTMENT

Proposed Shelton Sanitary Sewer Assessment District



**Shelton Square
Sanitary Sewer Assessment District
April 15,2020**

# of Single Family Units	Installation Expense **	P Principal	Y # of Years	i Interest Rate	n Pay Periods per Year	R Payment Rate	Total Payment (R*n*Y)	Rounded (\$ / Unit)
638	\$249,590.00	\$249,590.00	10	3.50	1	\$30,011.04	\$300,110.43	\$500.00

** Participation Amount to Upsize the sewer forcemain.

The pump station per latest email can handle 1457 single family units.

741 Units Currently for Shelton leaves 716 Units Available but not sure will get this many extra units because of the ordinance.

$$R=i/100*(P/n)/(1-(i/(100*n)+1)^-(n*Y))$$



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MEMORANDUM

DATE: March 3, 2020

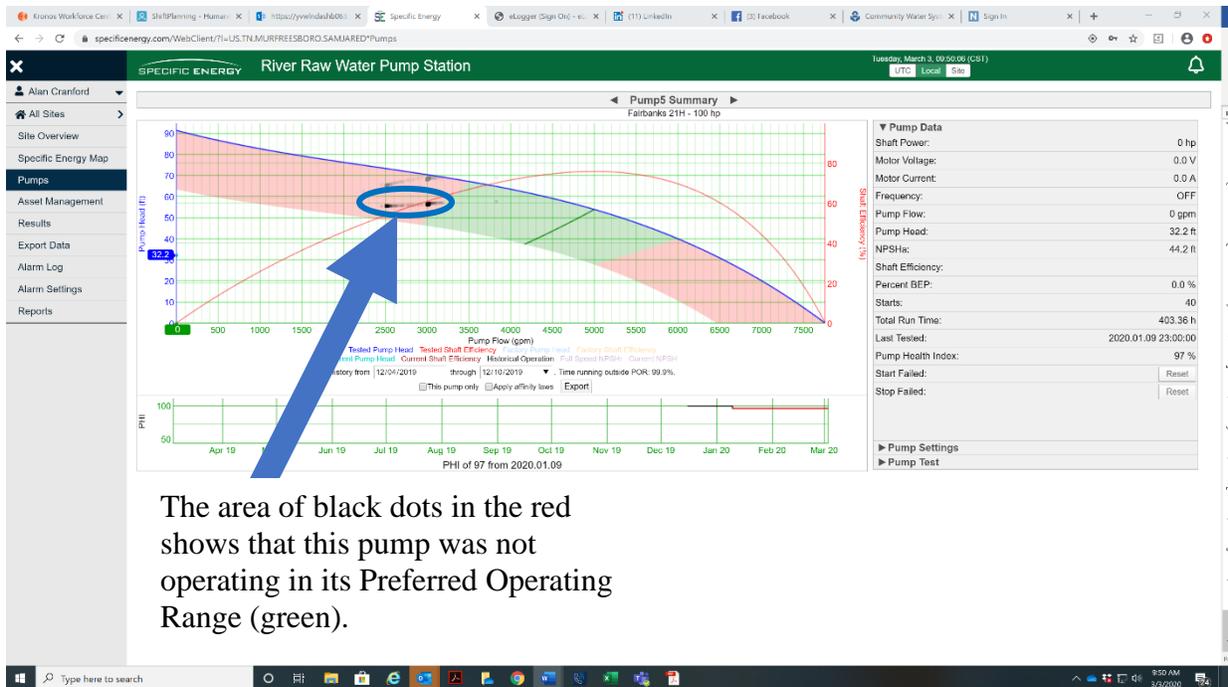
TO: Water Resources Board

FROM: Alan Cranford

SUBJECT: Specific Energy Pump Asset Management for High Service Pump Station
Stones River Water Treatment Plant

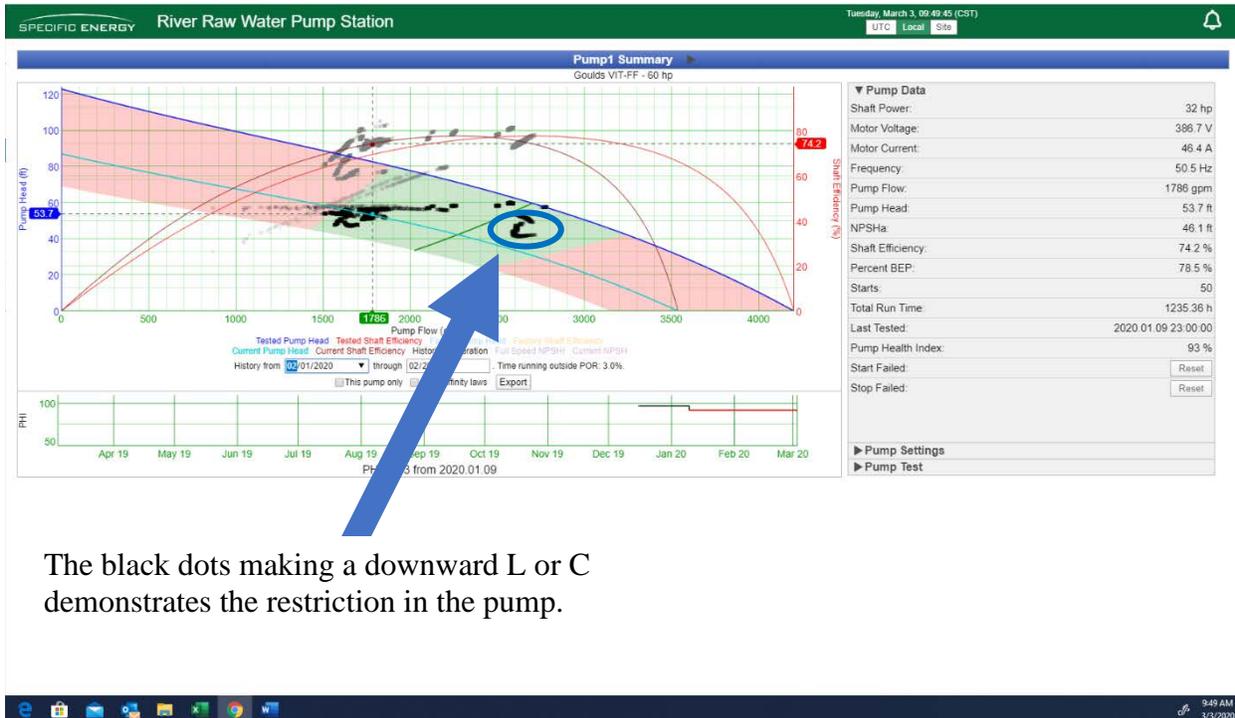
Background

In August, Staff brought a request to the Board to purchase this product for the Auxiliary and River Raw Water Pump Stations. It was approved by the City Council in September and installed and operational on December 5, 2019. When Specific Energy was operational and staff had access to the program on December 9, 2019, it was noticed that River Pump No. 5 was operating off the pump curve. (See below)



The standard procedure previously for plant operators, operating raw and finished water pumps, was simply to turn on the pump that provides the flow needed for water demand. Operators did not have the tools to determine if a pump is operating on its pump curve or if the pump is operating efficiently. This fact was noticed on the day the operators gained access to the Specific Energy software. Since this time, all staff has received training on the use of the program and its importance. Operators have continuously used the Specific Energy to select pumps for the specified flow, at the lowest specific energy and operating on the pump curve. On January 31, 2020, the river pumps were placed on Dynamic Pump Optimization (DPO) for controlling the pumps. On February 6, 2020, the auxiliary pumps were placed in DPO. Since this time the Specific Energy programming controls which pumps are operating in order to achieve the desired flow. Additionally, all pumps have operated on the curve at the preferred operating range (POR). If the pumps run within their preferred operating ranges (POR), it will minimize energy consumption without causing cavitation or other damaging effects.

In addition to what was expected, it was found that when the raw pumps start getting clogged due to restrictions in flow, this is indicated by the unusual movement of the dots. (See below)



The black dots making a downward L or C demonstrates the restriction in the pump.

The benefits seen thus far have more than justified the purchase of the software and equipment. Having seen the pumps operating off the curve is likely the reason for the repairs need to the pumps. Repairs generally cost >\$25,000.

The Board and Council recently approved SSR to start designing upgrades for the High Service Pump Station. Based upon the quality data provided by Specific Energy, Staff would like to go ahead and request to purchase Specific Energy for the High Service Pump Station. This will allow Staff and SSR to review the data and determine the best solution for the upgrades.

Fiscal Impact

The cost for purchasing the Pump Asset Management and Optimization Software for the High Service Pump Station is \$26,100. Funding will come from reserves. Cost for annual service fees for the High Service Pump Station is \$10,400. This amount will be budgeted in the Annual Operating Budget.

Recommendation

Staff requests that the Board recommend to the City Council approving the purchase of Specific Energy for the high service pump station in accordance with their quote.

Attachments

Murfreesboro High Service Pump Station Quote



Alan Cranford
Water Treatment Plant Manager
P.O. Box 1477
Murfreesboro, TN
615-848-3222

Proposal for Pump Asset Management and Optimization

Project Description

Pump Asset Management and Optimization for: **Murfreesboro Water Resources Department
High Service Pump Station**

Description	Power (hp)	Notes
Pump 1	700 hp	
Pump 2	700 hp	
Pump 3	700 hp	
Pump 4	700 hp	

Overview of Services

Specific Energy proposes to furnish a Dynamic Pump Optimizer (DPO) configured for this pump station. The DPO implements Specific Energy’s asset management and optimization technologies.

Specific Energy’s DPO enables routine operator-initiated pump testing for comparison of current pump condition to ideal factory pump curves. The DPO calculates Pump Health Index (PHI), continually recalculates annualized excess energy costs due to worn pumps, and recommends pumps for repair or replacement based on a rigorous financial analysis. This financial analysis can be incorporated into a comprehensive pump asset management program to determine optimal scheduling of pump repairs.

Additionally, the DPO calculates the combination of pumps and speeds that satisfies current flow demand while maximizing energy efficiency. The DPO selects the most efficient combination of pumps and speeds that operates each pump within its Preferred Operating Range. As system conditions change throughout the day, the DPO recomputes the solution to ensure the station continues to operate at minimum specific energy (kWh/MG).

The DPO may be used in either Advisory Mode (operators use recommendations from the DPO to select which pumps and speeds to use) or DPO-Mode (pump station PLC uses recommendations from the DPO to continually operate the pump station at peak performance).

Detailed Scope of Services

Configuration and Installation Support Phase

The Configuration and Installation Support Fee is a one-time fee that includes the following services **provided by Specific Energy**:

Standard Services

- Configure Specific Energy equipment to match customer's specific application, including configuration of communications and modeling of station piping, pumps, and sensors.
- Deliver Specific Energy DIN-rail mountable hardware for field installation by others, including wiring instructions to connect the equipment to power and electrical equipment and controllers.
- Customized programming and written instructions to configure customer's equipment to communicate with the Specific Energy DPO.
- Unlimited support by Specific Energy's technical staff for the installation phase during normal business hours (Monday through Friday, 8 AM to 5 PM CT), including commissioning and initial troubleshooting. During this phase, the cellular or direct internet connection must be active so Specific Energy's staff can remotely monitor and troubleshoot the equipment.

The following items are not included in Specific Energy's Scope of Services, and are to be provided by others:

- Install Specific Energy DIN-rail mountable DPO inside existing pump station control panel (requires 12 VDC or 120 VAC from an uninterruptible power supply).
- Install instrumentation required by DPO: tank level or suction pressure, discharge pressure, pump station flow, and per pump powers, run statuses, and speeds.
- Configure pump station PLC to communicate with DPO.

Operational Phase

The Dynamic Pump Optimizer Annual Service Fee includes these services **by Specific Energy**:

- DPO and cellular modem replacement upon failure
- Unlimited Cellular data plan
- Secure 24-hour operator interface with no license restrictions for number of concurrent users
- Data logging at one-second resolution.
- Telephone and email technical support during normal business hours (Monday through Friday, 8 AM to 5 PM CT)
- Automatic updates for ongoing software enhancement, bug fixes, and security patches
- Monthly Pump Station Reports including individual pump report cards, delivered via email.

Quotation

Base fee (\$8,500/station)	\$	8,500	
CISF Pump Configuration Fee (\$1,800/pump)	\$	7,200	
Total One-Time Configuration and Installation Support Fee (CISF)			\$ 15,700

Base Fee, includes Specific Energy client interface, unlimited simultaneous users, one-second data logging, historical trending, exporting, alarm and event logging and reporting	\$	3,200	
Power fee, Pumps up to 2000 hp (\$3/hp * 2000 hp)	\$	6,000	
Power fee, Pumps > 2000 hp (\$1.5/hp * 800 hp)	\$	1,200	
Total Annual Service Fees			\$ 10,400

Proposal Total			\$ 26,100
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Summary

I am pleased to prepare this proposal for your consideration. This proposal is valid for 90 days from the date of this proposal.

Respectfully submitted,

Ben Steger

Signature

By signature below, I hereby agree to abide by the terms and conditions specified herein.

MURFREESBORO WATER RESOURCES DEPARTMENT

By: _____ Date: _____
Signature of Authorized Signer

Printed Name & Title of Authorized Signer



... creating a better quality of life

MEMORANDUM

DATE: April 20, 2020
TO: Water Resources Board
FROM: Darren Gore, Doug Swann
SUBJECT: Hazen and Sawyer Regulatory Assistance Task Order
2021 NPDES Permit

Summary

Approve a task order with Hazen and Sawyer to provide regulatory assistance for the Water Resources Department in obtaining our 2021 National Pollutant Discharge Elimination System (NPDES) permit. The task order involves six tasks as follows:

- Task 1 – Project Initiation/Data Gathering and Review
- Task 2 – Benchmarking
- Task 3 – Regulatory Coordination and Compliance Plan
- Task 4 – Stream Assessment Support
- Task 5 – 2021 Permit Reissuance Support
- Task 6 – On-Call Regulatory Support

Background

The Murfreesboro Water Resource Recovery Facility (MWRRF) serves a population of approximately 160,000. The University of Tennessee's Boyd center predicts a near 50 % increase in the population of Rutherford County by 2040. Murfreesboro can expect a significant increase in demand for wastewater services resulting from this growth. Staff has determined preliminarily a remaining WRRF capacity of 10-12 years given the historical growth of Murfreesboro's Urban Growth Boundary. In order to continue the socio-economic benefit the City has been afforded in the past and continue to be the economic engine to the State of Tennessee, staff believes all efforts should be made to expand the NPDES permit and in turn allow the WRRF to be expanded. The key lies in proving the West Fork Stones river has remaining assimilative capacity to accept the WRRF's highly treated effluent.

The WFSR has been assessed by the TN Department of Environment and Conservation (TDEC) as being impaired for sediment, low dissolved oxygen and nutrients. More recently, the State of Tennessee Division of Water Resources (DWR) has assessed the river as being impaired for nitrate/nitrite, total phosphorus, dissolved oxygen and sedimentation/siltation as well as assessing the upper reaches of Percy Priest Reservoir as being threatened due to high phosphorus as evidenced by elevated chlorophyll a levels.

Hazen and Sawyer (Hazen) has the expertise to help MWRD in determining the remaining assimilative capacity in the WFSR. In addition, Hazen has the personnel to advance the findings of MWRD's data-

[Water Resources Department](#)

300 NW Broad Street * P.O. Box 1477 * Murfreesboro, TN 37133-1477 * Office: 615 890 0862 * Fax: 615 896 4259
TTY 615 848 3214 * www.murfreesborotn.gov

driven approach and rationale to upper levels of TDEC personnel. Hazen proposes to provide Murfreesboro with regulatory and water quality planning and support in accordance with the attached proposal.

Fiscal Impact

Task	Start Date	End Date	Fee
TASK 1 – Project Initiation/ Data Gathering and Review	5/1/2020	6/31/2020	\$ 24,500
TASK 2 -Benchmarking	7/1/2020	9/31/2020	\$ 25,500
TASK 3 - Implementation Plan	10/1/2020	1/31/2021	\$ 41,100
TASK 4 - Stream Assessment Support	5/1/2020	4/30/2022	\$ 66,300
TASK 5 -2021 Permit Reissuance Support	10/1/2020	11/30/2021	\$ 33,000
Subtotal Tasks 1- 5			\$ 190,400
TASK 6 -On-Call Regulatory Services	5/1/2020	4/30/2022	\$ 13,300
Total w/ Task 6 Contingency			\$ 203,700

Recommendation

Staff recommends the Board recommend to City Council approval the attached Hazen and Sawyer Regulatory Assistance proposal.

Attachments

Hazen and Sawyer Regulatory Assistance proposal



Hazen and Sawyer
545 Mainstream Drive, Suite 320
Nashville, TN 37228 • 615.783.1515

March 24, 2020

Darren Gore, Director
Murfreesboro Water Resources Department
300 NW Broad Street P.O. Box 1477
Murfreesboro, TN 37133-1477

Re: Regulatory Water Quality Planning Services

Dear Mr. Gore:

Per our recent discussions, I am pleased to submit this proposal to provide regulatory assistance and water quality planning services to Murfreesboro.

Attached is a scope of work that describes the services to be provided. Please feel free to reach out to me should you have any questions via phone 615-490-8110 or 615-294-4779 or by email at squalls@hazenandsawyer.com. I look forward to working with Murfreesboro to achieve the City's regulatory objectives.

Sincerely,

Saya Ann Qualls-Hickey, PE, ENV SP
Associate Vice President

Regulatory/Water Quality Planning Services

Background

The City of Murfreesboro owns and operates a 20/24 mgd Water Resource Recovery Facility that discharges reclaimed water into the West Fork Stones River at mile 10.5. The NPDES permit for this facility expires on August 31, 2021.

Historically, the West Fork Stones River has been assessed as being impaired for sediment, low dissolved oxygen and nutrients. More recently, the State of Tennessee Division of Water Resources (DWR) has assessed the river as being impaired for nitrate/nitrite, total phosphorus, dissolved oxygen and sedimentation/siltation as well as assessing the upper reaches of Percy Priest Reservoir as being threatened due to high phosphorus as evidenced by elevated chlorophyll a levels.¹

The Murfreesboro Water Resource Recovery Facility (MWRRF) serves a population of approximately 160,000. The University of Tennessee's Boyd center predicts a near 50 % increase in the population of Rutherford County by 2040. Murfreesboro can expect a significant increase in demand for wastewater services resulting from this growth.

Hazen and Sawyer (Hazen) proposes to provide Murfreesboro with regulatory and water quality planning and support in accordance with the scope of work outlined below.

Project Goals and Objectives

Key project objectives include the following:

- Develop a complete understanding of DWR's current assessment methodology and basis for assessment
- Continue to foster a collaborative relationship with DWR
- Work with DWR to ensure that any DWR assessment decisions are based on science and without bias
- Provide support to achieve issuance of reasonable, defensible and protective permits for the MWRRF

To accomplish these objectives, the following major tasks are included in this project:

Task 1 – Project Initiation/Data Gathering and Review

Task 2 – Benchmarking

Task 3 Regulatory Coordination and Compliance Plan

¹ 2016 Final Tennessee 303(d) List

Task 4 – Stream Assessment Support

Task 5 – 2021 Permit Reissuance Support

Task 6 – On-Call Regulatory Support

Scope of Work

Task 1 - Project Initiation/Data Gathering and Review

This task entails a kick-off workshop to review the scope, budget, data needs and major milestones associated with this work. During this workshop we will identify/confirm MWRD's primary concerns and refine overall project objectives. Following the workshop, Hazen will provide MWRD with a meeting summary.

This task will also include gathering data related to effluent and instream water quality, biological, algal and stream assimilative capacity, permitting, current and future reuse practices; and data specifically used by TDEC for the 2020 assessment. Additionally, Hazen will compile information on development patterns, property values and tax base. Hazen anticipates gathering these data from sources that include:

- City of Murfreesboro
 - Water Resource Division
 - Community Development
 - GIS
 - Finance
- Rutherford County
 - Stormwater
 - GIS
 - Planning and Engineering
 - Budget and Finance
- State of Tennessee
 - Department of Environment and Conservation
 - Department of Economic and Community Development
 - Department of Agriculture
 - Advisory Commission on Intergovernmental Relations
- Federal
 - EPA
 - USACE
 - USGS

Hazen will conduct a workshop to review, compare and contrast the data and to identify/address any data gaps.

Following the workshop Hazen will prepare a technical memorandum (TM) that:

- Summarizes Murfreesboro's goals and objectives

- Presents the findings of the data review; and
- Provides a historical timeline of permitting and assessment

Task 2 – Benchmarking

The purpose of this task is to review DWR’s approach to permitting the MWRRF and assessment of the WFSR in contrast to other permits and assessments both within Tennessee and in surrounding states.

First, Hazen will compare and contrast Tennessee’s assessment, permitting and nutrient reduction approaches with select Region IV states. Hazen will work with MWRD to identify up to 3 states for comparison.

Next Hazen will compare and contrast the NPDES permit for MWRRF with similarly situated NPDES permits both in Tennessee and surrounding states. Hazen will work with MWRD to identify and select up to 3 Tennessee permits and up to 3 permits in other Region IV states.

Hazen will review the findings with MWRD and will prepare a TM that documents the benchmarking process and summarizes the results.

Task 3 – Regulatory Coordination and Compliance Plan

Based on the results of Tasks 1-2, Hazen will work with MWRD to develop a practical, realistic and effective implementation plan that provides a path forward towards a goal of achieving more certainty in the regulatory process. The plan will:

- Address the goals outlined in Task 1
- Review, evaluate and refine MWRD’s regulatory goals
- Identify and recommend regulatory options for permitting, assessment and water quality standards implementation.

Hazen will conduct a workshop with MWRD to review Tasks 1-2 and to present an outline of the implementation plan. Following the workshop, Hazen will prepare a draft of the plan for MWRD review and conduct a workshop to review and discuss the draft plan. Hazen will then prepare a final implementation plan following that review. The plan will inform the methods for implementing Tasks 4 and 5.

Task 4 – Stream Assessment Support

2020 303(d) List Follow-up

Hazen will review the 2020 assessment methodology and protocols along with the data upon which TDEC based the assessment. Hazen will compare these data with that collected by MWRD to identify areas of commonality and to and explore the reasons for any conflicting data. Hazen will also evaluate economic impacts associated with the current assessment of the WFSR. These may include:

- Potential treatment and reclaimed water management costs and subsequent impacts to ratepayers

- Development patterns, property values and tax base

Once these impacts are identified and quantified, Hazen proposes to schedule, prepare for and conduct a meeting with TDEC upper management to review the 2020 assessment, economic impacts, and plan for the 2022 assessment cycle.

2022 Assessment Cycle Sampling Plan

Hazen will also prepare for and conduct a meeting with follow-up meeting with TDEC to develop a specific sampling approach to provide data for assessment that builds upon Murfreesboro's existing water quality data set. The sampling plan will be developed in accordance with TDEC's sampling and assessment protocols. Hazen will review draft sampling plan with MWRD, TDEC and other key team members prior to finalizing the plan.

During the sampling period (assumed to be 18 months), Hazen will provide sampling coordination and periodic water quality data review that will be used to make needed adjustments in sampling protocols, locations or parameters. It is assumed Hazen will not perform field sampling or analysis.

Upon completion of data collection, Hazen will review and evaluate data with respect to Tennessee's Water Quality Standards, assessment methodologies and other appropriate metrics. Hazen will schedule, prepare for and coordinate a meeting between MWRD and TDEC to review the data collected along with the conclusions based on the data. Hazen will compile all data into formats suitable for submittal to TDEC for the 2022 assessment cycle. Hazen will then review the draft 2022 list and provide comments for MWRD as necessary.

Task 5 – 2021 Permit Reissuance Support

The application for reissuance of the MWRRF NPDES permit must be submitted no later February 28, 2021. Approximately six months prior to application submittal Hazen will work with MWRD to schedule, prepare for and conduct a pre-application meeting with DWR. The purpose of the meeting is to review changes/activities that have occurred during the permit term, to obtain guidance from DWR and to work collaboratively with DWR to achieve MWRD's goal of a reasonable, defensible and protective permit.

Hazen will assist MWRD in preparation of the permit application package and will also schedule, prepare for and conduct a meeting with DWR subsequent to receiving notice of a complete application. The purpose of this meeting will be to get an understanding of DWR's planned permitting approach and to provide input and additional information to address any concerns.

Upon receipt of the draft permit, Hazen will review in detail, check calculations and legal basis for specific provisions. Hazen will prepare comments on the draft permit for submittal to DWR. Hazen will also review any comments submitted by third parties and EPA on the draft permit.

Upon issuance of the final permit, Hazen will review in detail for changes that were or were not made in response to comments. Hazen's review will also include recommendations for additional actions including appeal of the permit if deemed necessary. Any assistance related to permit appeal or other post-issuance support will be provided either through Task 6, On-Call Regulatory Services.

Task 6 - On-Call Regulatory Services

This task entails assistance for unanticipated regulatory issues or concerns that may arise during the term of this project. An on-call not-to-exceed fee is established for this task and will be billed on an hourly basis using standard hourly rates.

SCHEDULE AND FEE

Fees for time spent on the project will be invoiced in accordance with the following terms and labor rates: Labor will be billed according to the rates in the attached 2020-2021 Standard Rate Table and are updated annually on July 1. Expenses will be billed at cost, with the total fee not to exceed \$203,700 unless further authorization is received from Murfreesboro.

The estimated per task fees (including expenses) and anticipated schedule (assuming an May 1, 2020, notice to proceed) are provided in the following table:

Task	Start Date	End Date	Fee
TASK 1 – Project Initiation/ Data Gathering and Review	5/1/2020	6/30/2020	\$ 24,500
TASK 2 -Benchmarking	7/1/2020	9/30/2020	\$ 25,500
TASK 3 - Regulatory Coordination and Compliance Plan	10/1/2020	1/30/2021	\$ 41,100
TASK 4 - Stream Assessment Support	5/1/2020	4/30/2022	\$ 66,300
TASK 5 -2021 Permit Reissuance Support	9/1/2020	10/31/2021	\$ 33,000
TASK 6 -On-Call Regulatory Services	5/1/2020	4/30/2022	\$ 13,300

Regulatory Assistance - Murfreesboro Water Resources Department
 City of Murfreesboro, Tennessee
 Estimated Fee

	TA/QC AVP	Proj. Dir. VP	TA/QC SA	PM AVP	A	SPE	AE	Total Hours	Fee Labor
TASK 1 – Project Initiation/ Data Gathering and Review									
Kick-off Meeting				8			16	24	\$4,098
Meeting summary				2			2	4	\$774
Gather data related to effluent and instream water quality, biological, algal and stream assimilative capacity, permitting, current and future reuse practices; and data specifically used by TDEC for the 2020 assessment				5			16	21	\$3,314
Compile information on development patterns, property values and tax base				4			8	12	\$2,049
Workshop: review data; identify/address gaps				10			16	26	\$4,620
Draft TM Summarizing data gathering, goals, historical permit timeline				12			24	36	\$6,146
Final TM							16	16	\$2,007
QA/QC	2		2					4	\$972
TASK 1 TOTAL =	2	0	2	41	0	0	98	143	\$23,979
TASK 2 -Benchmarking									
Compare TDEC's permitting and assessment approach to 3 other R4 states				2	12	4	24	42	\$6,125
Compare MWRRF's NPDES permit to 3 other similar permits in Tennessee and 3 other similar permits in R4				2	8	4	28	42	\$5,979
Draft TM Documenting the benchmarking process and summarizes the results				2	4	6	36	56	\$8,289
Final TM				2	2	2	16	24	\$3,585
QA/QC	2		2					4	\$972
TASK 2 TOTAL =	2	0	2	8	26	16	104	168	\$24,951
TASK 3 - Regulatory Coordination and Compliance Plan									
Tasks 1-2 Review Workshop; implementation plan scoping				14			24	38	\$6,669
Draft Regulatory Coordination and Compliance plan				12	16	24	64	116	\$17,644
Draft Regulatory Coordination and Compliance plan review workshop				6			16	22	\$3,575
Final Regulatory Coordination and Compliance Plan				6	12	12	40	70	\$10,474
QA/QC	4		4					8	\$1,944
TASK 3 TOTAL =	4	0	4	38	28	36	144	254	\$40,306
TASK 4 - Stream Assessment Support									
Review 2020 assessment methodology and protocols				4			8	12	\$2,049
Review TDEC data for 2020 assessment and compare to MWRD data				4			8	12	\$2,049
Evaluate treatment costs for meeting more stringent limits				2	4	8	8	30	\$5,101
Evaluate costs for expanded land-based management of reclaimed water				2	4	8	8	30	\$5,101
Draft TM Summarizing findings				2			24	26	\$3,533
Final TM				4			12	16	\$2,551
TDEC Meeting to review 2020 assessment, economic impacts, and planning for 2022				6			12	18	\$3,073
Follow up meeting with TDEC to develop specific sampling approach to provide data for assessment				6			16	22	\$3,575
Develop draft sampling plan				4			32	36	\$5,059
review draft sampling plan (2 meetings with MWRD and 1 with TDEC)				16			24	40	\$7,192
Final sampling plan				2			16	18	\$2,530
Sampling coordination (assume 18 months of sampling activities)				6			12	18	\$3,073
WQ Sampling Data review and evaluation				2	4	4	16	30	\$4,641
Presentation/submittal of data to TDEC for 2022 assessment				2	4	4	16	30	\$4,641
2022 303(d) list review and comment				4	4	8	20	36	\$5,498
QA/QC	11		11					22	\$5,347
TASK 4 TOTAL =	11	0	11	66	20	32	232	396	\$65,012
TASK 5 -2021 Permit Reissuance Support									
Pre application meeting with TDEC and prep				6			16	22	\$3,575
permit application assistance				6	8	10	24	52	\$8,310
pre-draft meeting with TDEC and prep				10			16	26	\$4,620
draft permit review and comment				10	6	6	16	42	\$7,380
final permit review and provide recommendations for next steps				8	4	6	19	41	\$6,909
QA/QC	3		4					7	\$1,571
PM								0	\$0
TASK 5 TOTAL =	3	0	3.5	40	18	22	91	190	\$32,365
TASK 6 -On-Call Regulatory Services									
address regulatory or technical issues not otherwise specified				50				50	\$13,066
TASK 6 TOTAL =	0	0	0	50	0	0	0	50	\$13,066



Fee Breakdown Per Task:

TASK 1 – Project Initiation/ Data Gathering and Review	\$23,979
TASK 2 -Benchmarking	\$24,951
TASK 3 - Regulatory Coordination and Compliance Plan	\$40,306
TASK 4 - Stream Assessment Support	\$65,012
TASK 5 -2021 Permit Reissuance Support	\$32,365
TASK 6 -On-Call Regulatory Services	\$13,066
Tasks 1 - 6 Total	\$199,679

Misc Hazen Expenses (Travel, Lodging, Meals, Etc.) \$3,994
Total Fee \$203,700



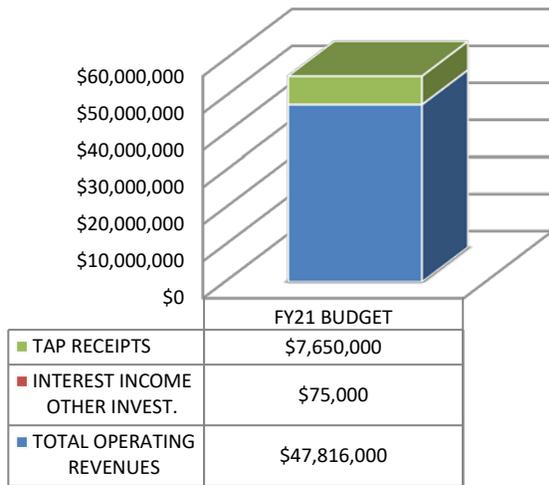
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MEMORANDUM

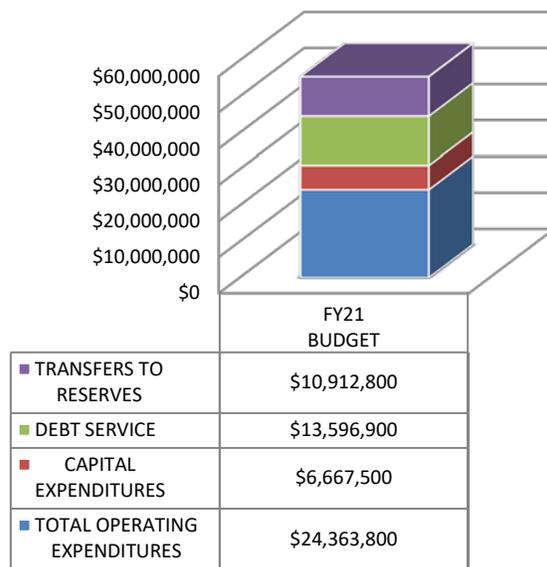
DATE: April 20, 2020
TO: Water Resources Board
FROM: Darren Gore, Doug Swann
SUBJECT: Murfreesboro Water Resources Department and Stormwater Fund 2020-2021 (FY21) **Draft Budget**

The Water Resources FY21 draft budget is balanced and is not expected to deviate significantly from the overall revenue and expense total of \$55,541,000. This amount is a \$111,000 over the FY20 budget and \$73,496 under FY20 projected revenues.

Total Revenues, \$55.54M



Total Expenses, \$55.54M



The FY21 total budget increase equates to a 0.20% increase. The reason for such a low increase in expenses across the board is due to salaries being frozen as a result of the COVID-19 pandemic. Staff has budgeted for nominal gains in rate revenue due to the state of emergency and lowered our anticipated tap revenue by 6%.

\$3,507,300 of sinking funds are being earmarked to assign the excess revenue for future construction or repair and replacement. The sinking funds identified below have been assigned rate revenue since FY12. The total FY21 earmarked amounts and FY12-20 "banked" amounts are as tabulated below:

Table 1: Designated Sinking Funds FY12-20 and FY21 Budget

Sinking Fund	FY12-20	FY21 Budget	
	Balance	Designated	Balance
General	1,400,000		1,400,000
Lift Station Replacement	1,126,232	250,000	1,376,232
NE FM & PS	3,391,254	500,000	3,891,254
WRRF Sludge/Biosolids	2,800,000	500,000	3,200,000
Walter Hill Dam Repairs	375,000	125,000	500,000
Sewer Rehab	1,000,000	1,000,000	2,000,000
Future Debt	4,159,380		4,159,380
Future Capital Expense	6,628,132	1,132,300	7,760,432
TOTALS	21,879,998	3,507,300	24,287,298

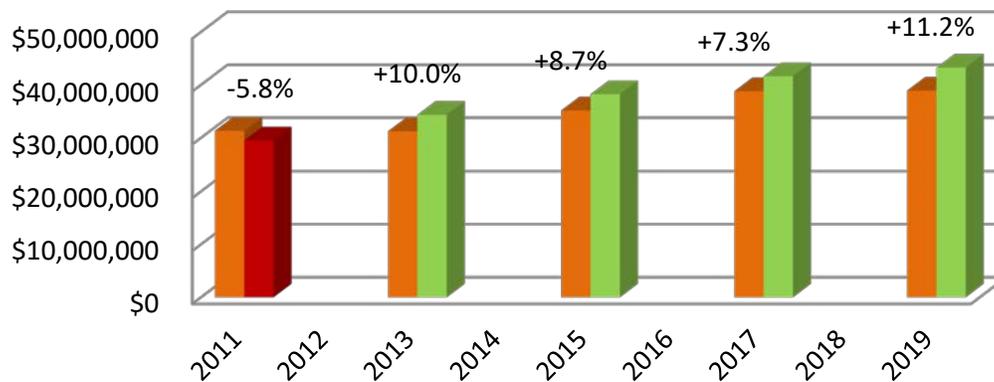
The use of sinking funds reduces the need to incur debt thereby alleviating the need for future rate increases.

The Murfreesboro Water Resources Department was provided a cost of service study (COSS) from Jackson Thornton Utilities Consultants for FY2019. That study was presented at the March 3, 2020 Board meeting. Jackson Thornton has since that time provided staff a pro forma for FY2024. The FY2024 pro forma was run using two scenarios:

- 1) Scenario "A" that assumes no new debt was added between FY19 and FY24. This assumes using reserves on hand to pay for \$49,000,000 in capital projects.
- 2) Scenario "B" where \$49,000,000 in debt (20-yr @ 3%) is incurred to pay for the Northeast Regional Pumping Station and Force main, Overall Creek Pump Station upgrades, as well as the necessary capital equipment to perform full scale biosolids drying at the Water Resource Recovery Facility (WRRF). Full payback of the total loan amount was assumed to start in FY2024.

The following chart summarizes the historical cost of service studies conducted by the Department from FY11 to FY19, illustrating the total rate revenue requirements and the actual rate revenue collected as an under or over recovery:

Chart 1: Total Water and Sewer Rate Requirements and Actual Rate Revenue



	2011 COSS	2013 COSS	2015 COSS	2017 COSS	2019 COSS
Total Rate Requ'mnt	\$31,328,535	\$31,244,197	\$35,175,522	\$38,816,282	\$38,916,760
Total Rate Revenue	\$29,507,833	\$34,353,148	\$38,243,420	\$41,639,144	\$43,265,652

Chart 2 contains a lot of information and is a combined look at both water and sewer revenues. The most relevant number to note is the \$3,049,614 “excess revenues” over and above anticipated expenses, or \$45,831,260 minus \$42,781,646 (on the upper right hand of the chart). The assumptions of the No Debt scenario demonstrate a 7.1% over-recovery in FY24.

Chart 2: Historical COS Studies and FY24 Pro Forma (No Debt Scenario)

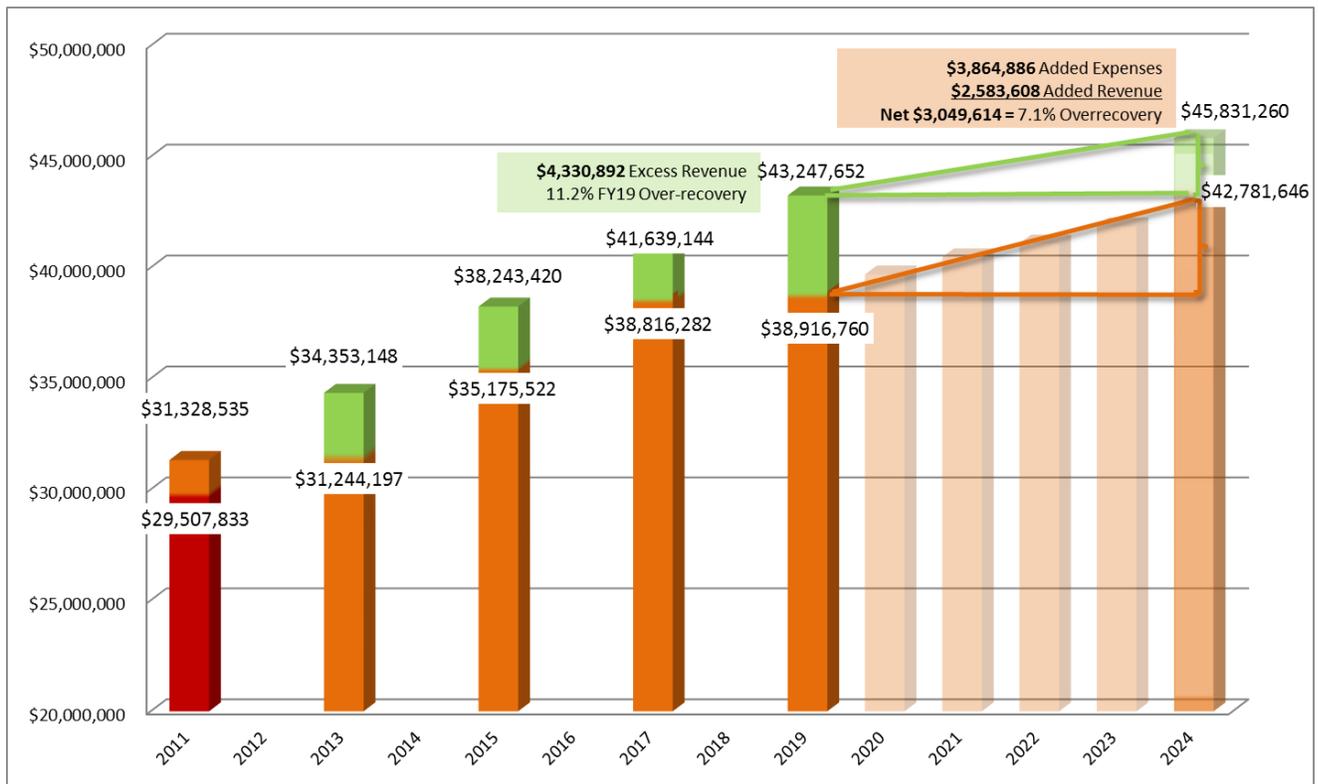
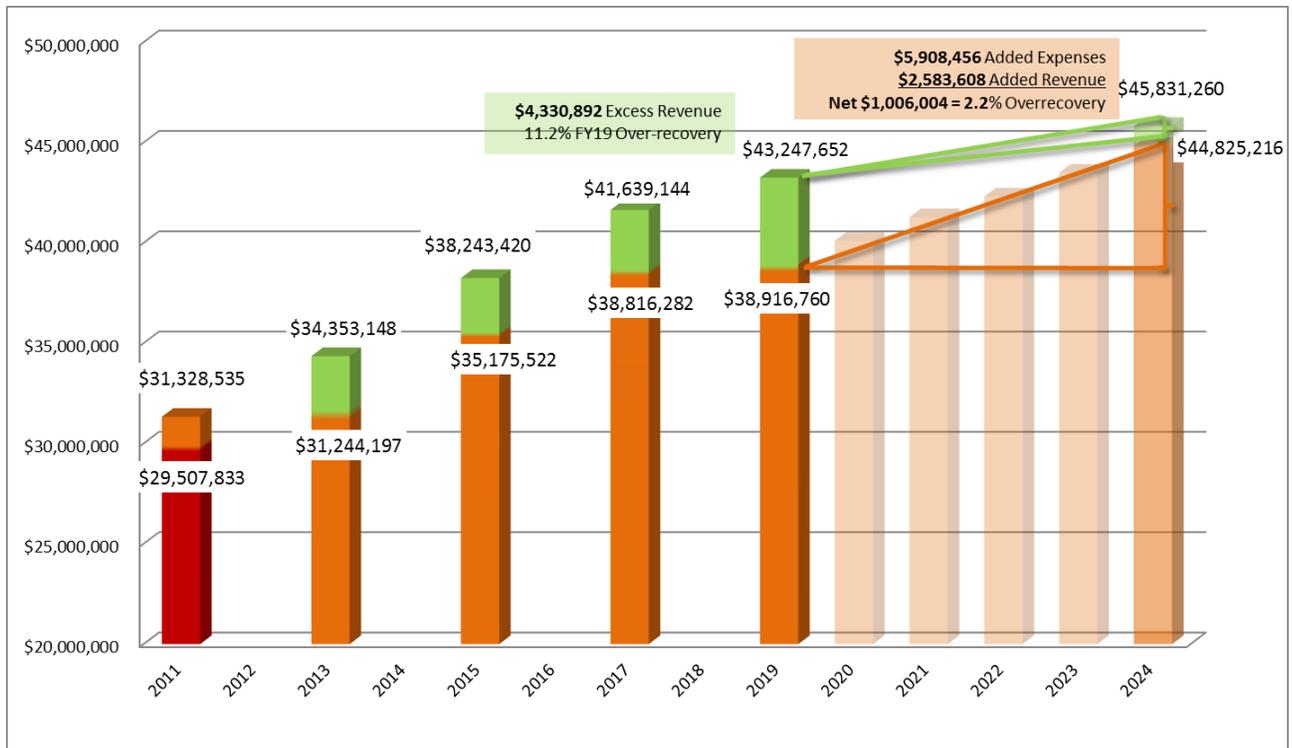


Chart 3 is also a combined look at both water and sewer revenues with the assumption of \$49,000,000 in debt service (20-yrs @ 3% fixed interest). The most relevant number to note is the \$1,006,004 “excess revenues” over and above anticipated expenses, or \$45,831,260 minus \$44,825,216 (on the upper right hand of the chart). The assumptions of the \$49M in debt scenario demonstrate a 2.2% over-recovery in FY24.

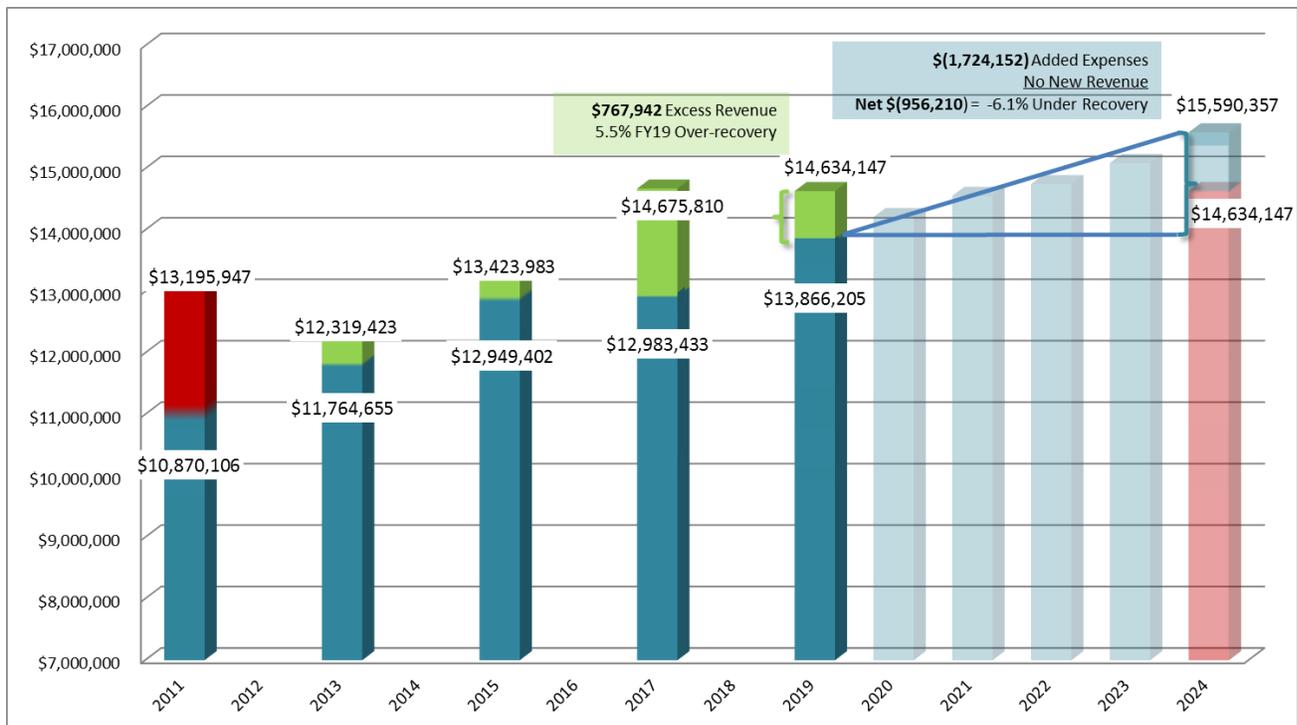
Chart 3: Historical COS Studies and FY24 Pro Forma (\$49M Debt Scenario)



While both of these scenarios demonstrate an over-recovery of anticipated revenue to cost of service expenses, there is a small issue associated with water rates not fully supporting the cost of service associated with water related expenses in FY24. The over-recoveries charted above entail a subsidization of sewer related revenue covering water related expenses. From a cost of service standpoint, this is not an ideal position and staff recommends avoiding it from occurring.

Chart 4 looks at water revenues and cost of service only. No new debt is associated with water expenses during the timeframe between FY19 and FY24, so debt service does not affect increased expenses; therefore, the increase of \$1,724,152 is associated with operations and maintenance only. Also, MWRD's water system is encompassed by Consolidated Utility District of Rutherford County; therefore, no new revenue derived from growth has been integrated into the FY24 pro forma. Using these assumptions, the water revenues are expected to fall short in an amount of \$(956,210) as compared to expenses in FY24, under-recovering (6.1)%.

Chart 4: Historical COS Studies and FY24 Pro Forma (Water Only)



A proposed rate design for meter sizes 5/8" to 2" below by adjusting the minimum annually as tabulated below recovers approximately 20% of the under-recovery anticipated for FY24. Making these adjustments over a 5-yr period would make up the "gap" of the anticipated (\$956,210) shortfall.

Table 2: Proposed Minimum Monthly Charge Adjustments

Meter (INCH)	Size	FY20 minimum	Total	FY21 minimum	Proposed	Difference	# of Accounts	Added Revenue
5/8"		\$8.22		\$8.72		\$0.50	24,917	\$149,501.00
1"		\$19.18		\$20.71		\$1.53	688	\$12,668.01
1-1/2"		\$41.10		\$43.77		\$2.67	359	\$11,508.82
2"		\$65.76		\$69.05		\$3.29	464	\$18,307.58
3"		\$164.40		\$164.40		\$0.00	96	\$0.00
4"		\$328.80		\$328.80		\$0.00	34	\$0.00
6"		\$685.00		\$685.00		\$0.00	17	\$0.00
8"		\$685.00		\$685.00		\$0.00	1	\$0.00
Total							26,576	\$191,985.41

While the water monthly minimums are nominal increases, based on the current economic conditions, MWRD staff is not recommending a water or sewer rate increases for FY21. These increases may be held off for one or two years, necessitating larger adjustments in FY23 and FY24.

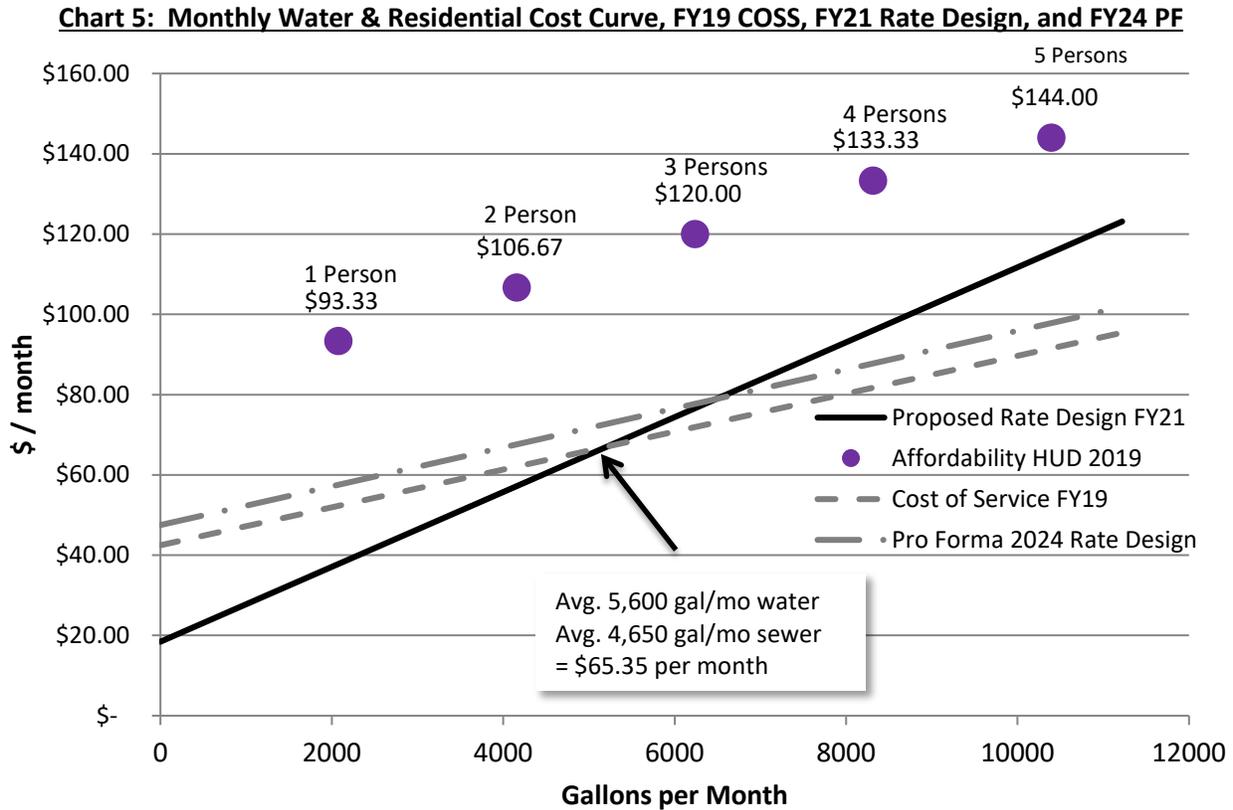


Chart 5 above demonstrates that MWRD’s current rate design meets the affordability index for 1-person through 5-person homes. The good news is that the pro forma for FY24 also meets the current 2019 HUD affordability indexes. Note however that the cost of service for FY19 and pro forma for FY24 do show the need to increase the minimum monthly fees rather substantially and flatten out the commodity charges.

The affordability limits above represent 4% of a very low-income earner (50% of median income) in Murfreesboro. The table below illustrates 2019 HUD housing limits. Median family income of 4 is established at \$80,000 per year, so 50% of median for a family of four is established as \$40,000 per year.

Table 3: 2019 HUD Low Income Family Incomes

	1 person	2 persons	3 persons	4 persons	5 persons
50% Median Family Income	\$28,000	\$32,000	\$36,000	\$40,000	\$43,200
4% annual	\$1,120	\$1,280	\$1,440	\$1,600	\$1,728
4% monthly	\$93.33	\$106.67	\$120.00	\$133.33	\$144.00

Staff is not recommending any changes to the system development charges (a.k.a., connection fees) for residential or nonresidential uses.

The FY21 total operating expenses, including benefits and payroll, increased \$32,524 or .13% over the FY20 budgeted amount. Total expenses including transfer to reserves increased 0.20% (see table below). The reason for such a low increase in expenses across the board is due to salaries being frozen as a result of the COVID-19 pandemic. With the uncertainty of the economic recovery, the Water Resources Department along with the City have not budgeted for employees raises for FY21. In the event the economy recovers better than expected, there are available funds to make salary adjustments during the middle of the budget year.

Table 4: Expense Categories % Change FY21 vs FY20

EXPENSE Category	% Change from FY20 budget
WATER, OPERATING & MAINTENANCE	-1.06%
SEWER, OPERATING & MAINTENANCE	1.37%
CUSTOMER BILLING & COLLECTION	-0.73%
ADM & GENERAL EXPENSES	0.23%
TOTAL OPERATING EXPENDITURES	0.13%
CAPITAL EXPENDITURES	-1.92%
DEBT SERVICE	0.80%
TRANSFERS TO RESERVES	0.93%
TOTAL EXPENDITURES/RESERVES	0.20%

STAFFING

The FY21 budget does not include any additional staffing requests as a result of the COVID-19 pandemic; however, prior to the state of emergency, the following personnel promotions and additional staffing were to be recommended:

- **Summary** – Addition of 2 ½ full-time equivalents and five promotions involving reclassification of job requirements. The total net increase anticipated with the new personnel and promotion/reclassifications is \$183,500. In the event that these positions are not able to be incorporated in the FY21 budget at some point and time, the Water Resources Department will maintain its current total of 173 full time and 8 part time positions, which includes 9 full-time positions in the stormwater department.
- **Operations and Maintenance** – One promotion/reclassification of an Administrative Assistant II to a Business Systems Analyst. With the anticipation of migrating to CityWorks, a Computerized Maintenance Management System (CMMS), and consistent with the Department’s Information Technology Master Plan, this promotion would ensure the development of a subject matter expert who would work with staff and vendor(s) to migrate O&M’s “as is” paper systems to a more advanced “to be” best practices. After implementation of new software this person would work with staff to improve the Department’s efficiency and effectiveness in water distribution and sewer collection systems asset management.
- **Administration/Finance** – One promotion/reclassification and a new hire:
 - An Accounting Clerk promoted to an Accounting Specialist I based on increased duties and complexity of job requirements.
 - A new hire for the position Administrative Aide I to help with customer billing processing and backup liaison with the finance department.
- **Customer Service** – One promotion/reclassification of an Administrative Support Specialist I promoted to an Administrative Support Specialist II. The Customer Service receptionist has taken on additional duties and is helping customers over the phone by answering basic account information and thereby alleviating that duty to the Customer Service Representatives.
- **Advanced Metering Infrastructure (AMI)** – One new hire of an AMI Technician. The new position would essentially maintain calibrations for customers with 2-inch and larger meters. Keeping the Department’s larger meters calibrated equals more accuracy in our billing consumption. It is anticipated that the efficiency and accuracy maintained in these larger meters would fund the position.
- **Water Resource Recovery Facility (WRRF)** – One promotion/reclassification and a full-time hire to

replace a part-time position at the Jordan and Coleman farms:

- A current W/WW Worker is requested to be promoted to Equipment Operator based on increased level of responsibility and job requirements.
- A part-time Equipment Operator is requested to be replaced with a full-time Maintenance Technician. The part-time Equipment Operator has been vacant for several years and a significant portion of the work was provided by contracted labor. The contract labor services have been eliminated as is the part-time Equipment Operator position. The deferred costs associated with these positions fund the requested full-time Maintenance Technician
- Engineering – One promotion/reclassification of an Administrative Aide II to an Executive Administrative Aide. The City Manager has created a new position of Executive Administrative Aide for Executive Directors and Assistant Manager positions. The Water Resource's Department has a candidate that fits the reclassification of job skills and requirements associated with an Executive Administrative Aide.

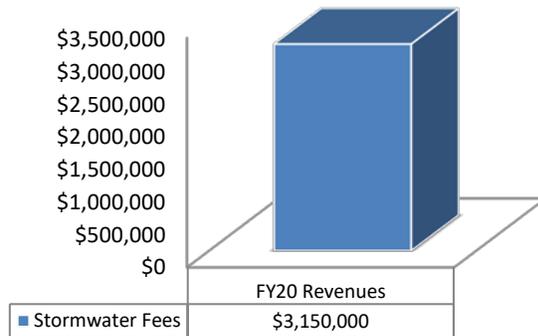
No raises are budgeted for Water Resources staff for F21. The total estimated costs associated with providing 4.0% increases to personnel within the non-exempt step program and 3% across the board for exempt and open range non-exempt personnel would be \$680,000. In the event that personnel raises are proposed after adoption of the FY21 budget, staff can use a portion of the future capital expenditures sinking fund and defer some capital expense purchases to fund the raises. This action would come back to the Board and City Council for approval.

The rate funded capital budget is \$6,667,500, which is a decrease of \$130,241 from the FY20 budget. MWRD's goal is a minimum of \$5 million per year in rate-funded capital purchases. Rate funded capital purchases are budgeted to decrease 1.9% and debt service expense to increase by \$108,580 (0.8%) as compared to the FY20 budget. This offset indicates the Department's strong financial position and ability to pay in cash what would otherwise need to be purchased through debt service.

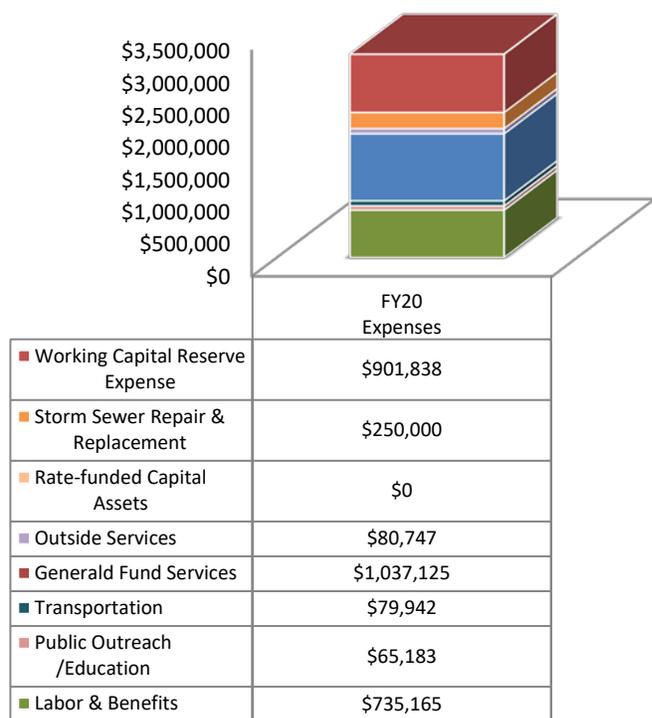
STORMWATER FUND

The Stormwater Fund budget is independent of the Department budget. It is funded from revenue based on a user fee of \$3.25 per single family equivalent. The fund will be in its twelfth year in FY21. No change is recommended to the fee. The net revenue generated by the stormwater fee is budgeted at \$3.15M

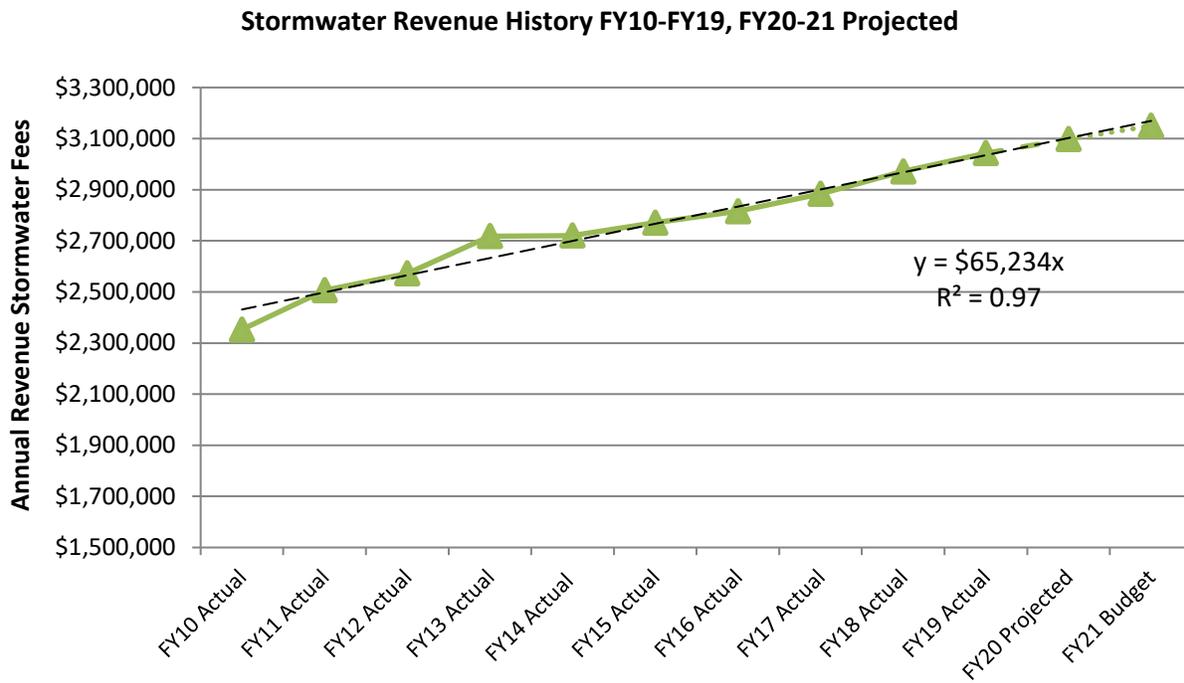
FY21 Revenues, \$3.15M



FY21 Expenses, \$3.15M



with operation expenses budgeted at \$1,998,162 and rate funded capital expenditures at \$0. The anticipated excess funds above operating expenses and rate funded capital expenditures are \$901,838. The stormwater fund has developed an extensive five (5) year Capital Improvements Plan, currently totaling \$5,445,000 from FY20 through FY24. A five (5) year pro forma has been developed to demonstrate the banking of excess revenues to pay for these proposed capital improvements without incurring any debt. Financial policies for the stormwater enterprise fund were adopted by the Water Resources Board and City Council on May 21, 2013 and July 11, 2013, respectively. An amendment to these policies was approved in FY18 to allow the minimum working reserve balance to be lowered to no less than three (3) months of operating expenses, or \$499,540 for FY21.



The chart above shows that the stormwater fund has grown by approximately \$65,000 each year. That is equal to approximately 1,667 single family unit equivalents annually. The average impervious square footage is equal to 3,470 square feet per single family unit, which equates to the City adding approximately 133 acres of imperviousness annually. These imperviousness areas have been required to meet the City’s permanent stormwater runoff treatment standards since 2008.

Staff has attached a PowerPoint that summarizes the proposed FY21 water resources budget and has also attached the detailed spreadsheet that itemizes all the Department’s general ledger accounts.

Recommendation

- 1) Recommendation of FY21 Water Resources DRAFT Budget to City Council.
- 2) Recommendation of FY21 Stormwater DRAFT Budget to City Council.

Attachments

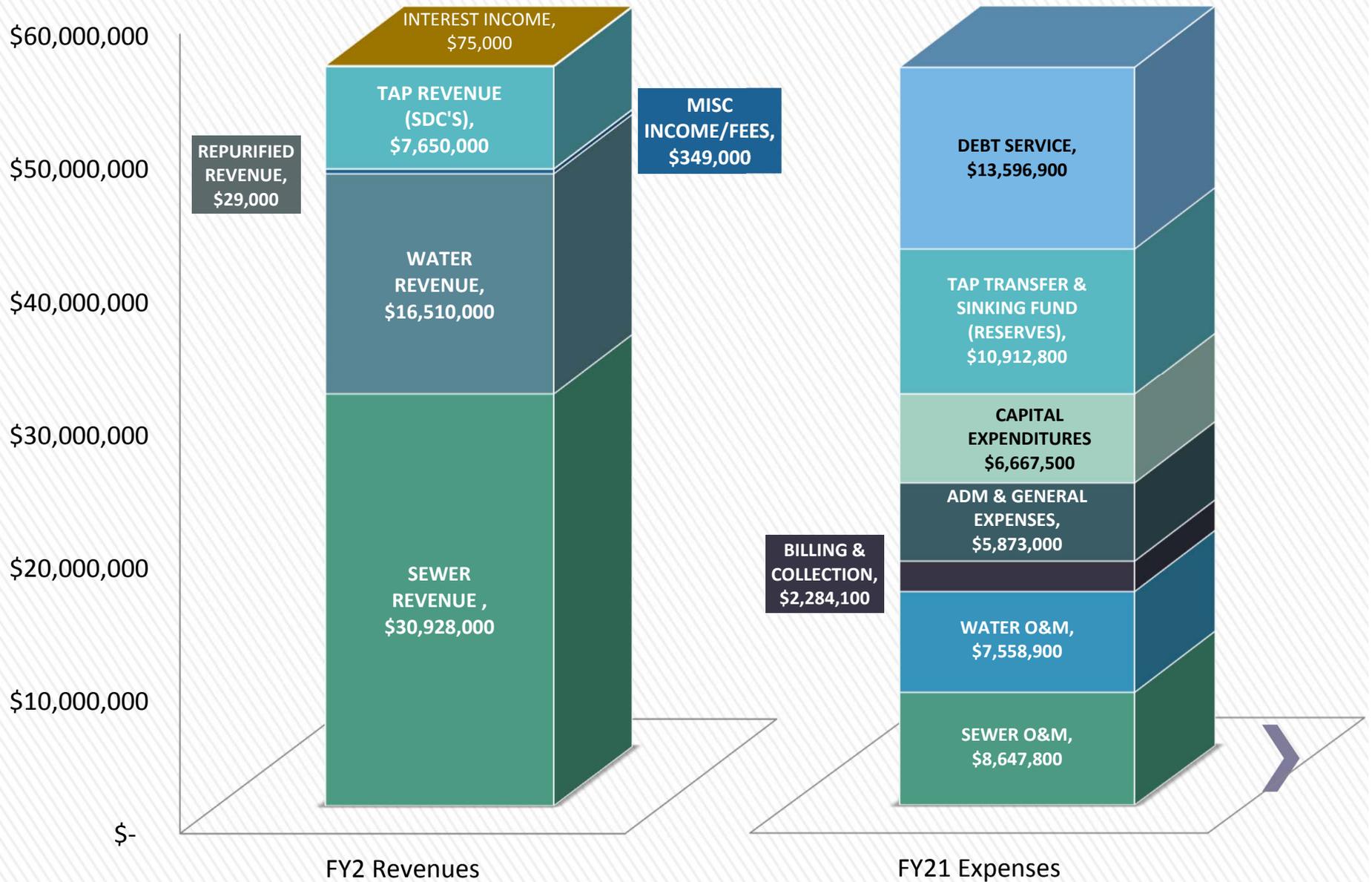
FY21 Water Resources and Stormwater Budget summary slides

FY21 DRAFT BUDGET

April 28, 2020



Revenues Balance to Expenses, \$55,541,000

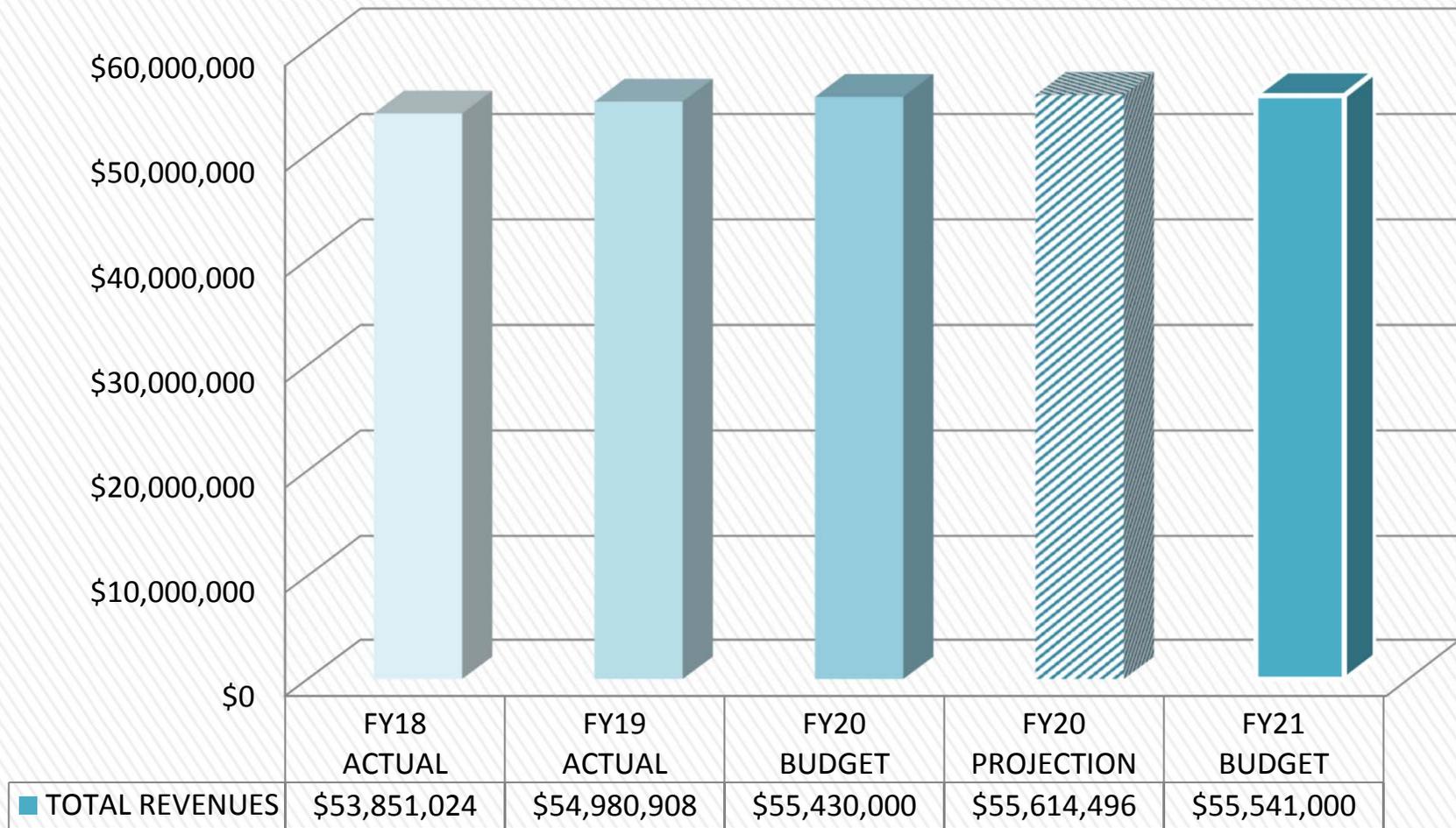


Expense Categories % Change FY21 vs FY20

EXPENSE Category	% Change from FY20 budget
WATER, OPERATING & MAINTENANCE	-1.06%
SEWER, OPERATING & MAINTENANCE	1.37%
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TOTAL OPERATING EXPENDITURES	0.13%
CAPITAL EXPENDITURES	-1.92%
DEBT SERVICE	0.80%
TRANSFERS TO RESERVES	0.93%
TOTAL EXPENDITURES/RESERVES	0.20%



Total Revenues Comparison from FY18-FY21

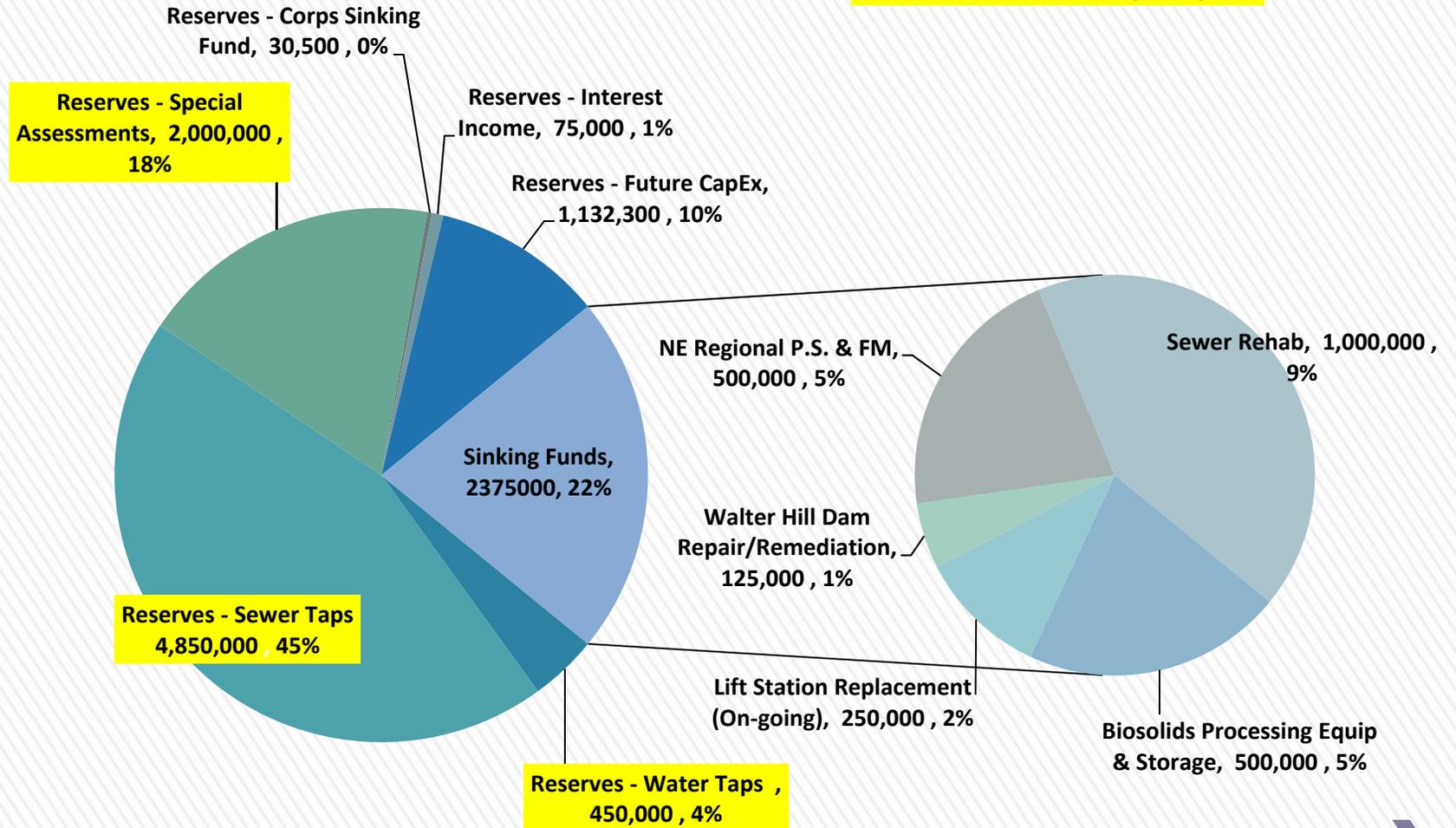


Water Sales ↓ 0.9% from Last Years Budget
Sewer Sales ↑ 3.8% from Last Years Budget



FY21 RESERVE EXPENSES & SINKING FUNDS \$10,912,800

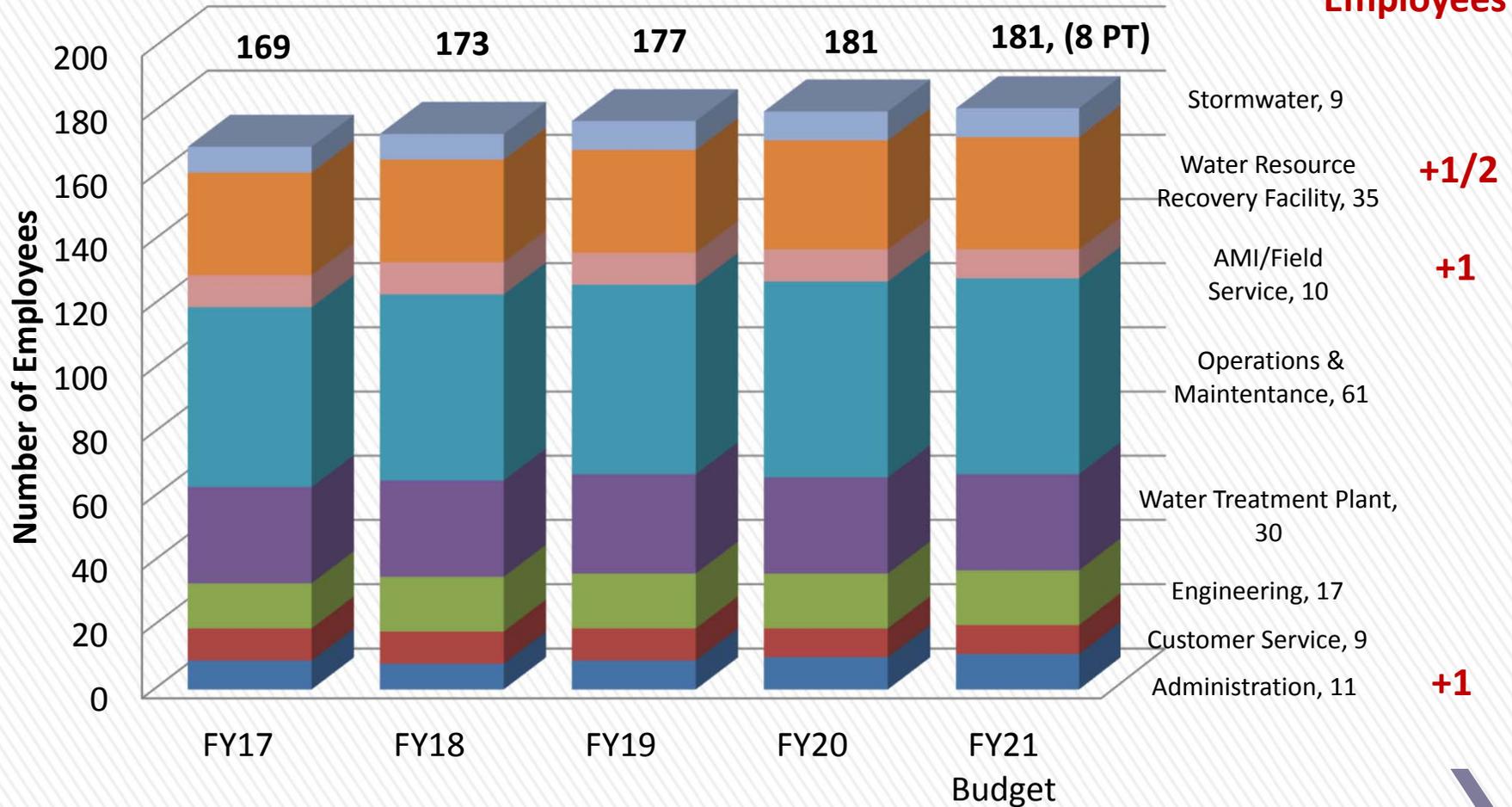
TAP REVENUE = \$7,300,000



Personnel

POSITIONS BY DIVISION

**Deferred
Request of New
Employees**



Affect on Budget if Planned Raises/Promotions & New Employees are Approved later

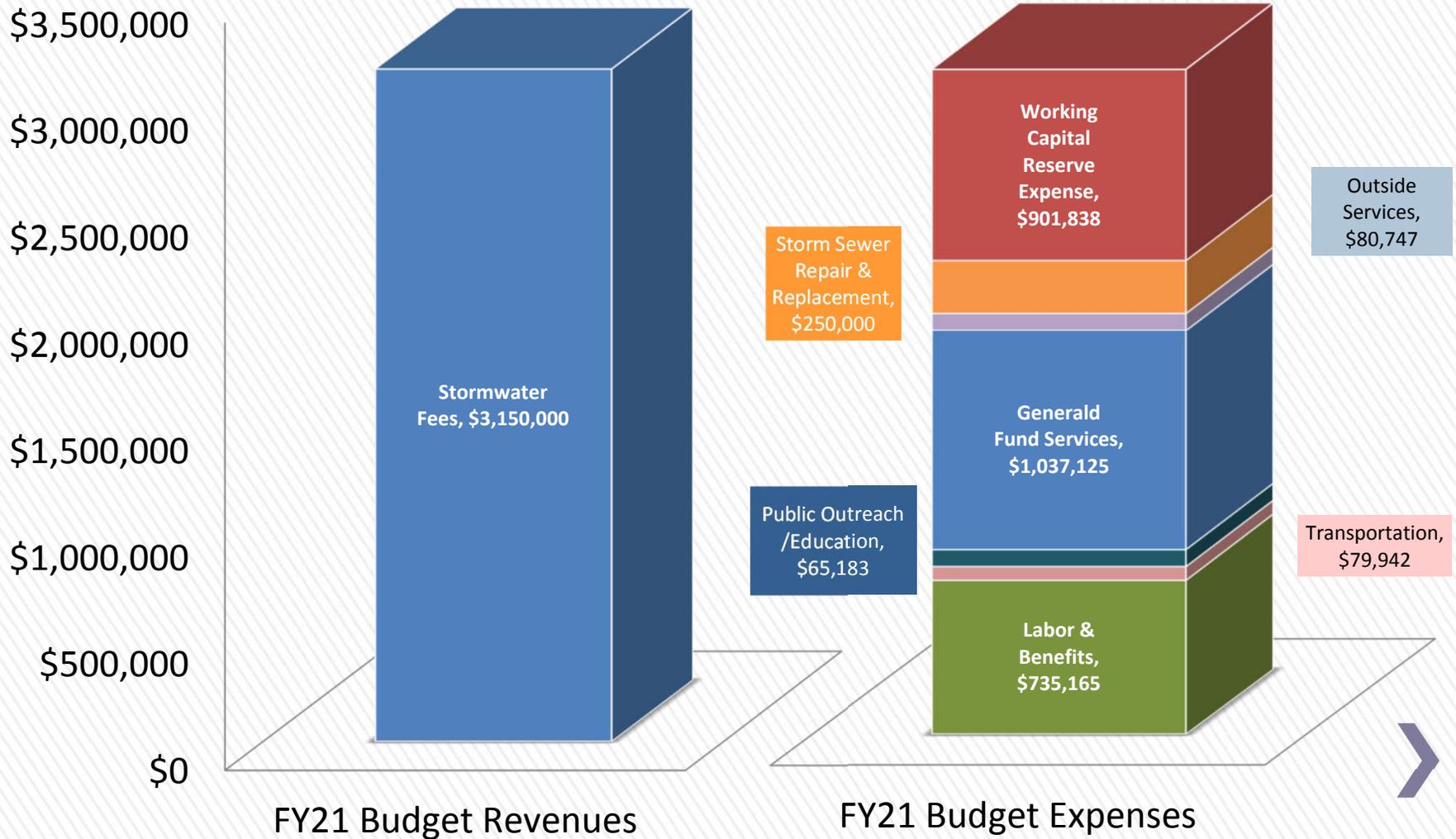
Personnel Cost Category	Additional Costs (% Change)
New Positions (2 ½ Full-time Equivalents)	\$157,500
Promotions	\$26,000
Raises (173 FTE's, 8 PT)	\$680,000
TOTAL OPERATING EXPENDITURES	\$863,500
Operating Expense Increase %	3.7%
Total Expense Budget Increase	1.8%

*** Amounts represent full-year. If approved mid-budget year, would be prorated accordingly**

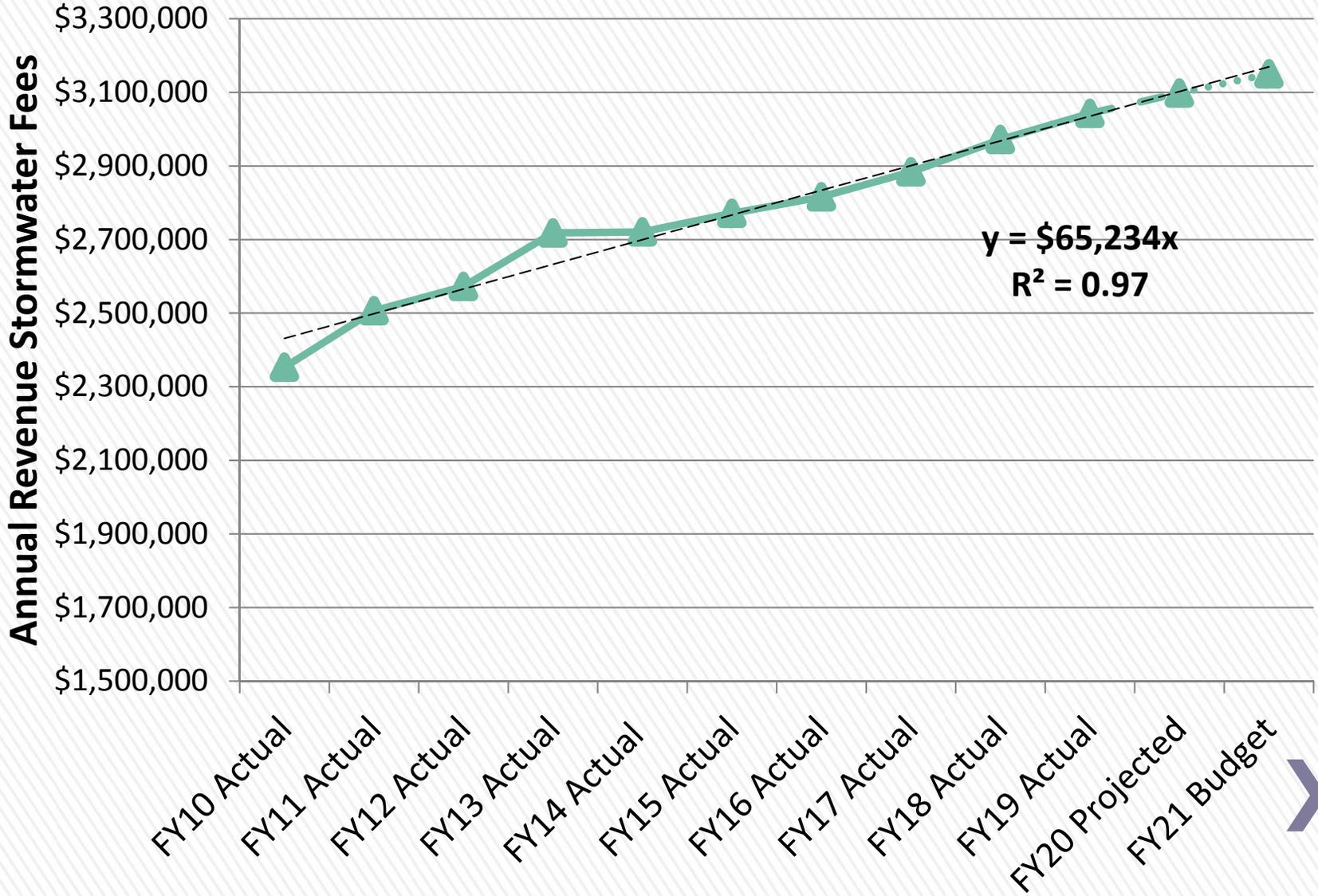
***Revenue would come from combination of Capital Expenditure cuts (\$6,667,500) and decrease in Future Capital Expenditure Reserve Fund (\$1,132,300)**



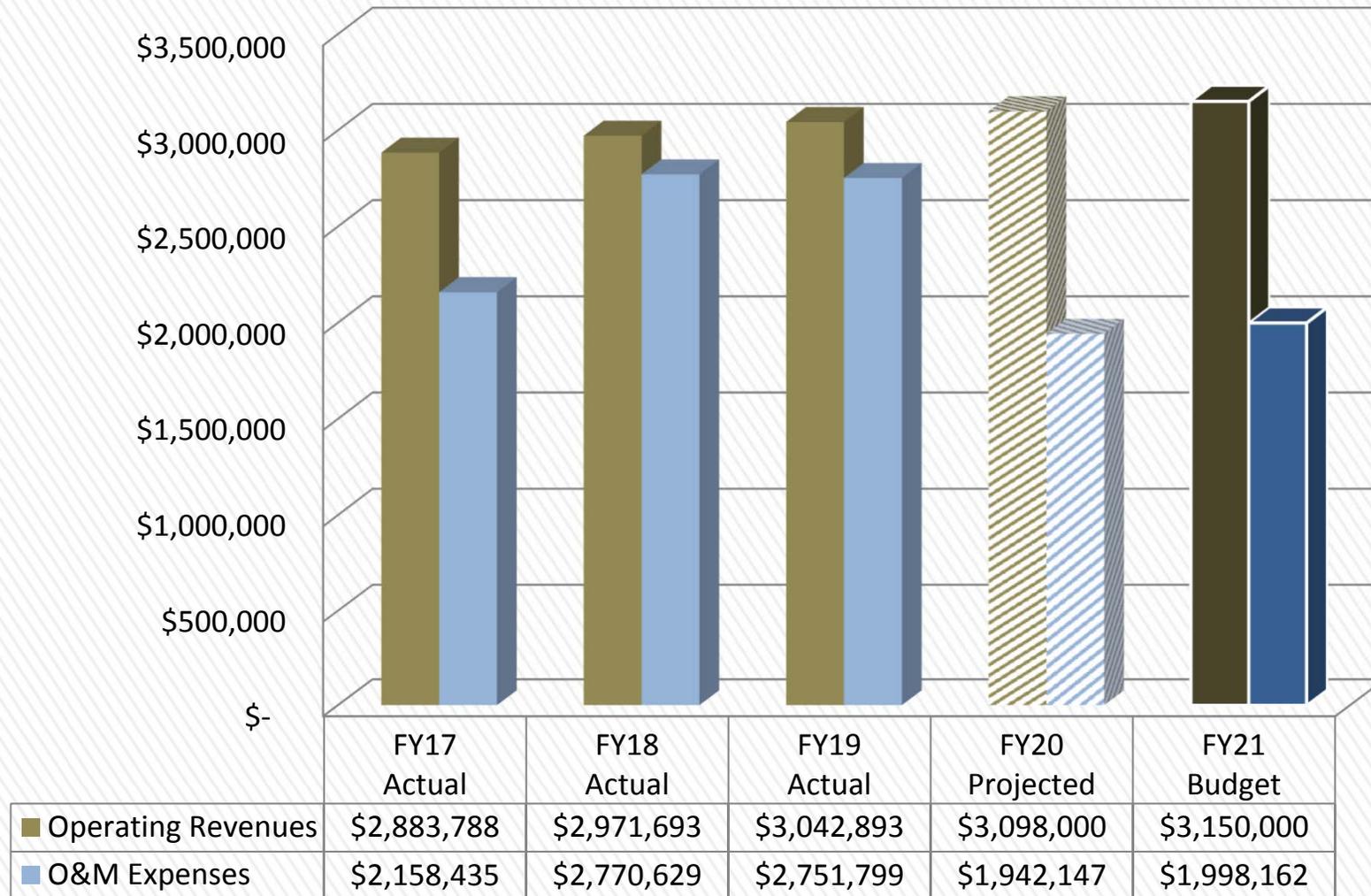
Stormwater Revenues Balance to Expenses, \$3,150,000



Stormwater Revenue History FY10-FY19 FY20-21 Projected



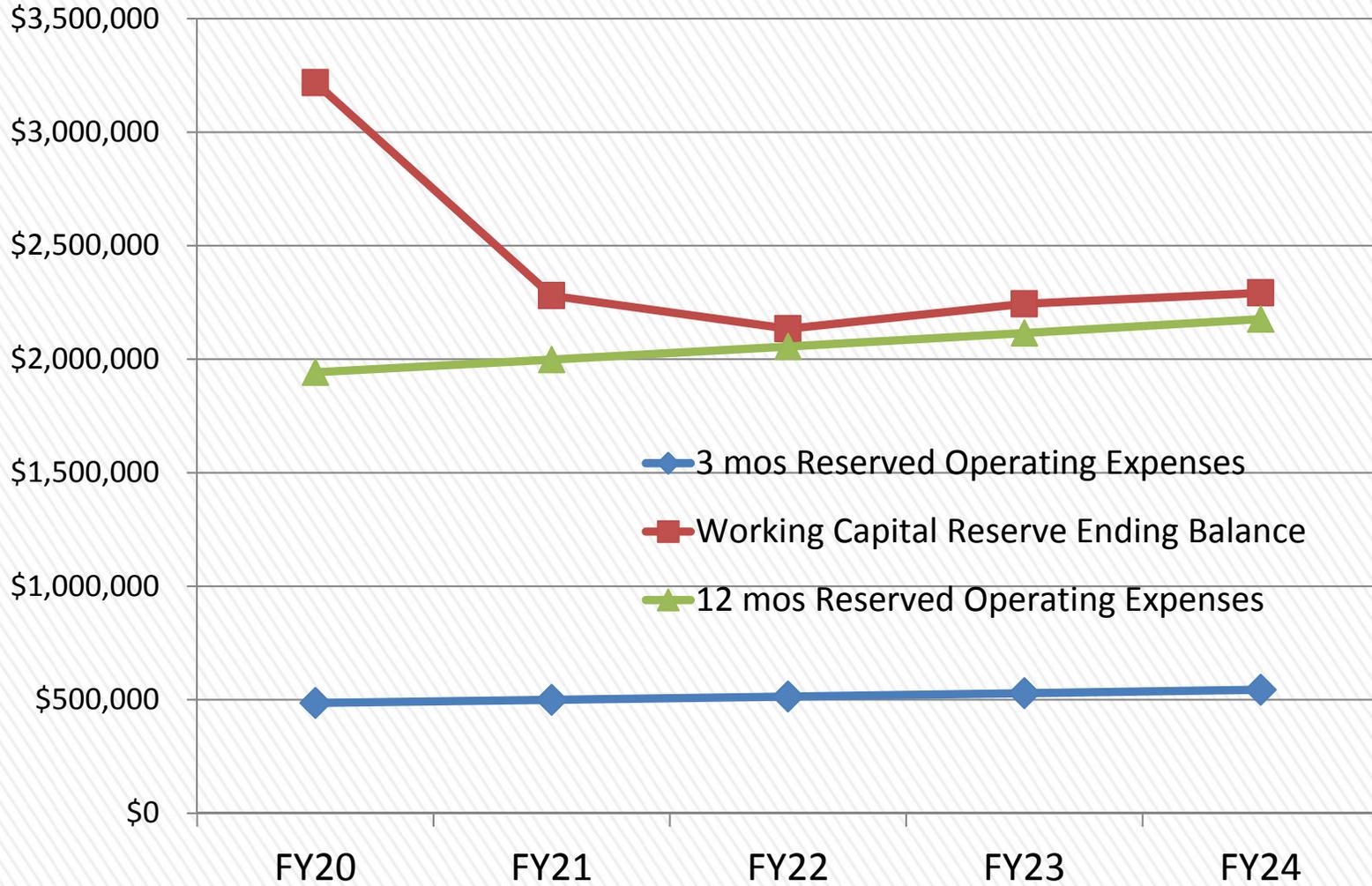
Stormwater Revenues & Expenses



Operating Expenses ↑ 1.6% from FY20 Projections



Draft Projected Stormwater Working Capital Reserve Balance FY19-23



FY20 Accomplishments

- ❑ Completed the Overall Creek Pump Station Capacity Study
- ❑ Completed the Walter Hill Dam Rehabilitation
- ❑ Created the Sewer Allocation Ordinance and companion Resolution to protect the City's wastewater collection system and treatment facility capacity
- ❑ Completed the installation of a Small-scale Biosolids Dryer Unit at the WRRF
- ❑ Completed a Waste Load Allocation model to integrate into a site-specific rationale for TDEC review as a prototype for the City's upcoming 2021 NPDES permit
- ❑ Updated watershed characteristics for pollutant reduction

FY21 Goals

- ❑ Finalize the Preliminary Design Phase of the NE Regional Pump Station, Forcemain and Gravity Sewer
- ❑ Finalize wet-weather treatment study at the Water Resource Recovery Facility (WRRF)
- ❑ Complete application for the 2021 National Pollutant Discharge Elimination System (NPDES) permit rationale
- ❑ Complete the tank painting and repairs for Mill St., Halls Hill and Tiger Hill
- ❑ Support migration to GIS-centric Computerized Maintenance Management Software (CMMS) via Cityworks AMS
- ❑ Create a detailed tree coverage for use in i-Tree & Infoswmm modeling software

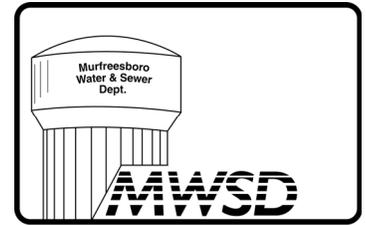


MURFREESBORO WATER RESOURCES

Integrated • Sustainable • Affordable

QUESTIONS?





WATER RESOURCES

DASHBOARD PERFORMANCE

March 2020



MWRD FY2020-2024 CIP

NO.	PROJECT	2019-2020 2019	2020-2021 2020 Issue	2021-2022 2021 Issue	2022-2023 2022 Issue	2023-2024 2023 Issue	TOTAL
	Construction- Northeast Regional PS & Force Main						\$0
	Overall Creek PS & Force Main Upgrade						\$0
	Construction- Biosolids Processing Equipment						\$0
	TOTAL Capital Improvements funded from Debt Service	\$0	\$0	\$0	\$0	\$0	\$0

NO.	PROJECT	2019-2020 2020 FY	2020-2021 2021 FY	2021-2022 2022 FY	2022-2023 2023 FY	2023-2024 2024 FY	TOTAL
	Sewer rehab- Account 335	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$5,000,000
	Meters, Water/Sewer Taps, Hydrants - 280, 290, 300, 310	\$435,000	\$435,000	\$435,000	\$435,000	\$435,000	\$2,175,000
	Water lines- Account 320	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$1,750,000
	Sewer Lines - Account 330	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$1,750,000
	Biolsolids Processing Equip & Storage Sinking Fund	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$2,500,000
	Walter Hill Dam Repair/Remediation Sinking Fund	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$625,000
	Lift Station Replacement Sinking Fund	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,250,000
	NE Regional PS & FM Sinking Fund	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$2,500,000
	GAC Replacement	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$625,000
	High Service Pumps & Membrane Pump Improv.		\$1,000,000				\$1,000,000
	Vehicle and Equipment Replacement	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$7,500,000
	TOTAL Capital Improvements funded from Rates	\$5,135,000	\$6,135,000	\$5,135,000	\$5,135,000	\$5,135,000	\$26,675,000

NO.	PROJECT	2019-2020 2020 FY	2020-2021 2021 FY	2021-2022 2022 FY	2022-2023 2023 FY	2023-2024 2024 FY	TOTAL
	W&S CAPITAL IMPROVEMENT PROJECTS						
	Misc FY20 Working Reserve Commitments	\$1,850,000					\$1,850,000
	Biosolids Processing Equipment & Storage Addition	\$1,000,000	\$9,500,000	\$5,500,000			\$16,000,000
	Replace Biosolids Polymer System	\$100,000	\$1,350,000				\$1,450,000
	Overall Creek Pump Station & Force Main Upgrade	\$500,000	\$7,500,000	\$4,300,000			\$12,300,000
	NE Regional Engineering Design	\$500,000	\$1,500,000	\$250,000	\$250,000		\$2,500,000
	NE Regional P.S. & Force Main		\$3,000,000	\$10,000,000	\$7,500,000		\$20,500,000
	Cherry Lane / Sazerac Sanitary Sewer		\$1,000,000	\$1,500,000			\$2,500,000
	SR840 Interchange Area Sanitary Sewer	\$200,000	\$1,100,000	\$1,100,000			\$2,400,000
	Joe B. Jackson Sanitary Sewer	\$50,000	\$750,000				\$800,000
	MWRRF Wet Weather Treatment Train Impr	\$50,000	\$150,000	\$500,000	\$2,500,000	\$2,500,000	\$5,700,000
	Mill Street Painting, Halls Hill and Tiger Hill Tank Repairs	\$1,000,000	\$1,800,000				\$2,800,000
	Replace Pall Membranes					\$650,000	\$650,000
	High Service PS & Membrane Feed Pump Improv.		\$2,500,000				\$2,500,000
	Direct Potable Reuse Demonstration			\$350,000	\$350,000		\$700,000
	Stones River Water Qual Sampling / NPDES Permitting	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$750,000
	Subtotal CAPITAL PROJECTS	\$5,400,000	\$30,300,000	\$23,650,000	\$10,750,000	\$3,300,000	\$73,400,000
	TRANSPORTATION (Water/Sewer Imp.)						
	Bradyville Pike			\$1,500,000	\$1,500,000	\$500,000	\$3,500,000
	Jones Blvd Widening		\$500,000	\$500,000			\$1,000,000
	Cherry Lane Repurified Main Extension (14,600 LF)		\$2,000,000	\$1,000,000			\$3,000,000
	Cherry Lane Sanitary Sewer Construction	\$150,000	\$1,000,000	\$1,500,000			\$2,650,000
	SR 99 Widening- Old Fort to Cason Lane		\$500,000	\$1,000,000			\$1,500,000
	St. Clair St.		\$500,000				\$500,000
	John Rice Blvd & Rucker Lane		\$200,000				\$200,000
	Maney Avenue Reconstruction - Phase 2		\$250,000	\$250,000			\$500,000
	Wilkinson Pike Reconstruction (MCP to TL)		\$650,000	\$650,000			\$1,300,000
	Subtotal TRANSPORTATION PROJECTS	\$150,000	\$5,600,000	\$6,400,000	\$1,500,000	\$500,000	\$14,150,000
	REHABILITATION						
	Sewer Rehabilitation - Maintenance Contract	\$2,770,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$8,770,000
	INFORMATION TECHNOLOGY PROJECTS						
	IT/Computer Systems Hardware Upgrades	\$350,000	\$100,000	\$100,000	\$100,000	\$100,000	\$750,000
	Electronic Content Management (Scanning/Imaging)		\$250,000	\$250,000			\$500,000
	IT Design Services & Consulting	\$100,000	\$100,000	\$100,000			\$300,000
	Comp Maintenance Management System (CMMS)		\$400,000	\$600,000			\$1,000,000
	Subtotal INFORMATION TECHNOLOGY PROJECTS	\$450,000	\$850,000	\$1,050,000	\$100,000	\$100,000	\$2,550,000
	TOTAL Projects from Working Capital Reserves	\$8,770,000	\$38,250,000	\$32,600,000	\$13,850,000	\$5,400,000	\$98,870,000

PROJECTED RESERVE FUND BALANCE REVENUE (TAPS)	\$8,000,000	\$7,500,000	\$7,500,000	\$7,500,000	\$7,500,000
SINKING FUND DEPOSITS TO RESERVES FROM RATES	\$2,375,000	\$3,375,000	\$2,375,000	\$2,375,000	\$2,375,000
SECURED MIN. BALANCE FOR WORKING CAPITAL RESERVES	\$24,331,276	\$24,817,902	\$25,314,260	\$25,820,545	\$26,336,956
PROJECTED WORKING CAPITAL RESERVE BALANCE	\$83,220,668	\$55,845,668	\$33,120,668	\$29,145,668	\$33,620,668
FUNDS ABOVE SECURED MINIMUM BALANCE	\$58,889,392	\$31,027,766	\$7,806,408	\$3,325,123	\$7,283,712

Preliminary *Draft* 5-YR CAPITAL IMPROVEMENTS PLAN (CIP)
STORMWATER UTILITY FUND, FY20.-24

NO.	PROJECT	Originator	2019-2020 2020 FY	2020-2021 2021 FY	2021-2022 2022 FY	2022-2023 2023 FY	2023-2024 2024 FY	TOTAL
			<i>Projected</i>	<i>Budget</i>	<i>Pro Forma</i>	<i>Pro Forma</i>	<i>Pro Forma</i>	
	Neighborhood Projects (NP)							
NP-1	Memorial Blvd / Haynes Dr. Drainage Improvements	City Eng	\$125,000	\$50,000				\$175,000
NP-2	Mitchell-Nielson Drainage Project	City Eng	\$50,000					\$100,000
NP-3	Huntwood/Leaf Ave Neighborhood Drainage Imp.	City Eng	\$100,000	\$100,000				\$200,000
NP-4	Southern Meadows / Kimbro Woods Drainage Imp.	City Eng	\$500,000	\$500,000				\$1,025,000
NP-5	Liberty Dr. / Thatcher Trace Spring Box	City Eng	\$50,000	\$75,000				\$125,000
NP-6	Pennington Drive Drainage Repair/Upgrade (Added)	City Eng						\$0
NP-7	Gateway Pond Repair	Eng/MRSD						\$0
NP-8	Hardwood Drive Drainage Upgrade (Added)	City Eng	\$250,000					\$250,000
NP-9	Pacific Place/Riverrock Blvd Drainage Imp.	City Eng	\$0	\$0				\$0
	Subtotal		\$1,075,000	\$725,000				\$1,875,000
	Water Quality Improvement (Compliance) Projects (WQ)							\$0
WQ-1	Town Creek Bioretention BMP's @ Cannonsburgh	MWRD						\$0
WQ-2	Molloy Lane Water Quality Pond	MWRD	\$25,000	\$125,000	\$75,000			\$225,000
WQ-3	Rosebank Springs Constructed Wetlands	City Eng	\$35,000	\$165,000	\$115,000			\$350,000
WQ-4	Lee's Branch Stream Restoration	City Eng	\$25,000					\$25,000
WQ-5	West Fork Stones River at Cason Trail; bank repair	MWRD	\$140,000					\$180,000
WQ-6	Bear Branch Water Quality Mitigation	City Eng						\$0
WQ-7	Sinking Creek Headwater protection BMP	MWRD/Eng	\$30,000	\$50,000	\$150,000	\$150,000	\$150,000	\$530,000
WQ-8	Todd's Lake Regional Wetlands Improvements	City Eng						\$0
WQ-9	Hooper's Bottom Regional Water Quality Project	City Eng	\$25,000	\$150,000		\$175,000	\$175,000	\$550,000
WQ-10	Lytle Creek/Ridgley Road Bacteriological Reduction (Added)	MWRD	\$15,000	\$75,000	\$25,000			\$125,000
WQ-11	Memorial Blvd/VA Pond Trash Rack (Added)	MWRD						\$0
WQ-12	Spence Creek Restoration	MWRD/Eng	\$25,000	\$25,000	\$25,000			\$100,000
WQ-13	E. Lokey Ave Trash Rack at Sinking Creek	MWRD	\$30,000	\$75,000				\$105,000
WQ-14	Sinking Creek/ Northfield Blvd Commercial Retrofit Study/Project	MWRD	\$25,000	\$50,000	\$100,000			\$185,000
WQ-15	Overall Street retrofit/ bioretention - streetscape	MWRD	\$35,000	\$100,000				\$135,000
WQ-16	Downtown planter box retrofits study/project	MWRD	\$50,000	\$50,000				\$110,000
	Subtotal		\$460,000	\$865,000	\$490,000	\$325,000	\$325,000	\$2,620,000
	Public Drainage/Streets Participation Projects (PD)							\$0
PD-1	Maney Avenue Phase 2	City Eng						\$50,000
PD-2	Town Creek Conveyance (Murfree Springs to Cannonsburgh)	City Eng	\$500,000	\$250,000	\$100,000			\$900,000
PD-3	Maple St. Alley Permeable Paver Project	City Eng						\$0
	Subtotal		\$500,000	\$250,000	\$100,000			\$950,000
	Totals		\$2,035,000	\$ 1,840,000	\$ 590,000	\$ 325,000	\$ 325,000	\$ 5,445,000

EFFECTIVE UTILITY MANAGEMENT
Financial Viability
MWRD WORKING CAPITAL ACCOUNT SUMMARY

ESTIMATED Working Capital at 3/31/20

Board Designated (System Dev, Assessments, etc) as of 6/30/19	\$	34,445,773
Undesignated Excess Funds as of 6/30/19		48,028,398
Estimated Reserve Revenue thru 12/31/19		5,513,624
Estimated Reserve Expenditures thru 12/31/19		(3,635,518)
		84,352,277

COMMITTED Reserves at 3/24/20

Rucker Lane Widening Sewer Extensions	74,095	
2018/19 Sewer Rehab Change Order #2	79,645	
S&ME - 2020 Sewer Rehab Design	448,000	
Tank Painting (Mill, Tiger, Halls Hill)	2,244,030	
ELI - Thompson Lane Utility Relocation TDOT	140,455	
SSR Task Order - High Service & Membrane Pumps	140,130	
JBS Task Order 19-05 - 3 Aerator Install WRRF	70,047	
Sewer Rehab Change Order #1	150,812	
ADS Temporary Flow Monitoring	69,000	
SEC Engineering Task Order - Salem Hwy Ph 3	17,100	
SSR Task Order Overall Creek PS Upgrade	842,628	
Commercial Painting SRWTP C.O. #1	19,913	
CIA - Cherry Lane Ph2 Utility Design	39,920	
SRWTP Trough Construction Joint Repair	54,519	
ELI - Joe B. Jackson West P.S. and Sewer Design	39,000	
JBS Task Order 19-06 - #5 Raw Water Pump Repair	28,000	
Sanitary Sewer 2019/20 Rehabilitation Contract	2,458,616	
CIS Software Upgrade V4	343,000	
Purchase of Two (2) Aerators at WRRF	217,046	
SSR Task Order - Mill, Tiger, Halls Hill Tank Painting	133,679	
SSR Task Order 201 Facilities Plan	183,493	
Biosolids Thermal Dryer Install (JBS & MR)	107,137	
Overall Creek P.S. Upgrades (VFD's)	275,428	
S&ME - 2019 Sewer Rehab Design	210,875	
WRRF Aerator 2A Gearbox Replacement	130,930	
Biosolids Small-scale Thermal Dryer	216,250	
H-S Blackman Park Sewer Design	180,000	
SEC Jones Blvd Utility Design Proposal	14,225	
Northeast Regional PS & Conv - SSR	1,851,388	
Bradyville Pike Utility Design - Neil-Schaffer	22,710	
Wilkinson Pike Utilities Design	10,190	10,812,261
		10,812,261

APPROVAL Requests at 4/28/20

Specific Energy Pump Asset Management Software	26,100	
Hazen Sawyer Regulatory Assistance	203,700	229,800
		229,800

BALANCE of Working Capital at 4/28/20 after COMMITMENTS **\$ 73,310,216**

DESIGNATED Projects Pending

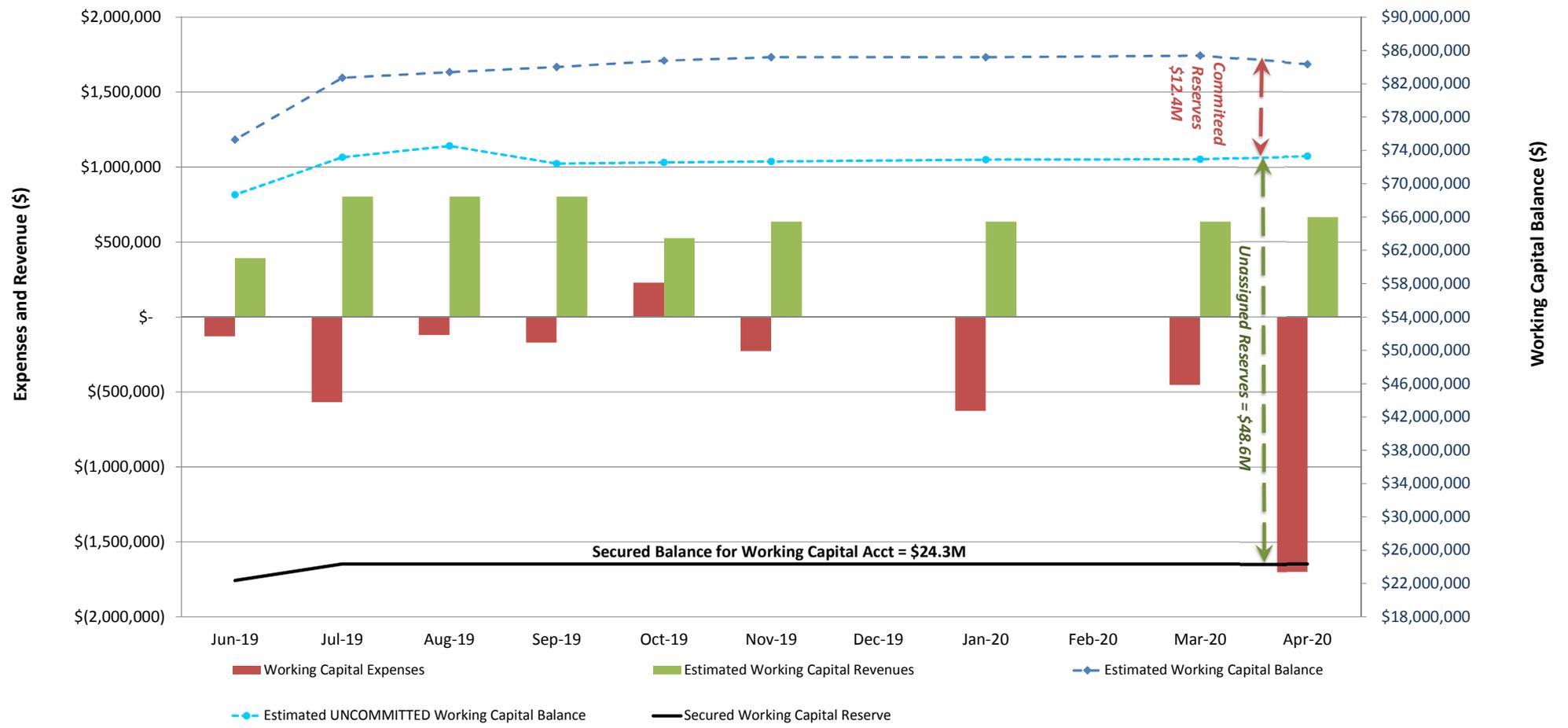
N/A		-
		-

ESTIMATED UNCOMMITTED Working Capital Reserves as of April 28, 2020 **\$ 73,310,216**

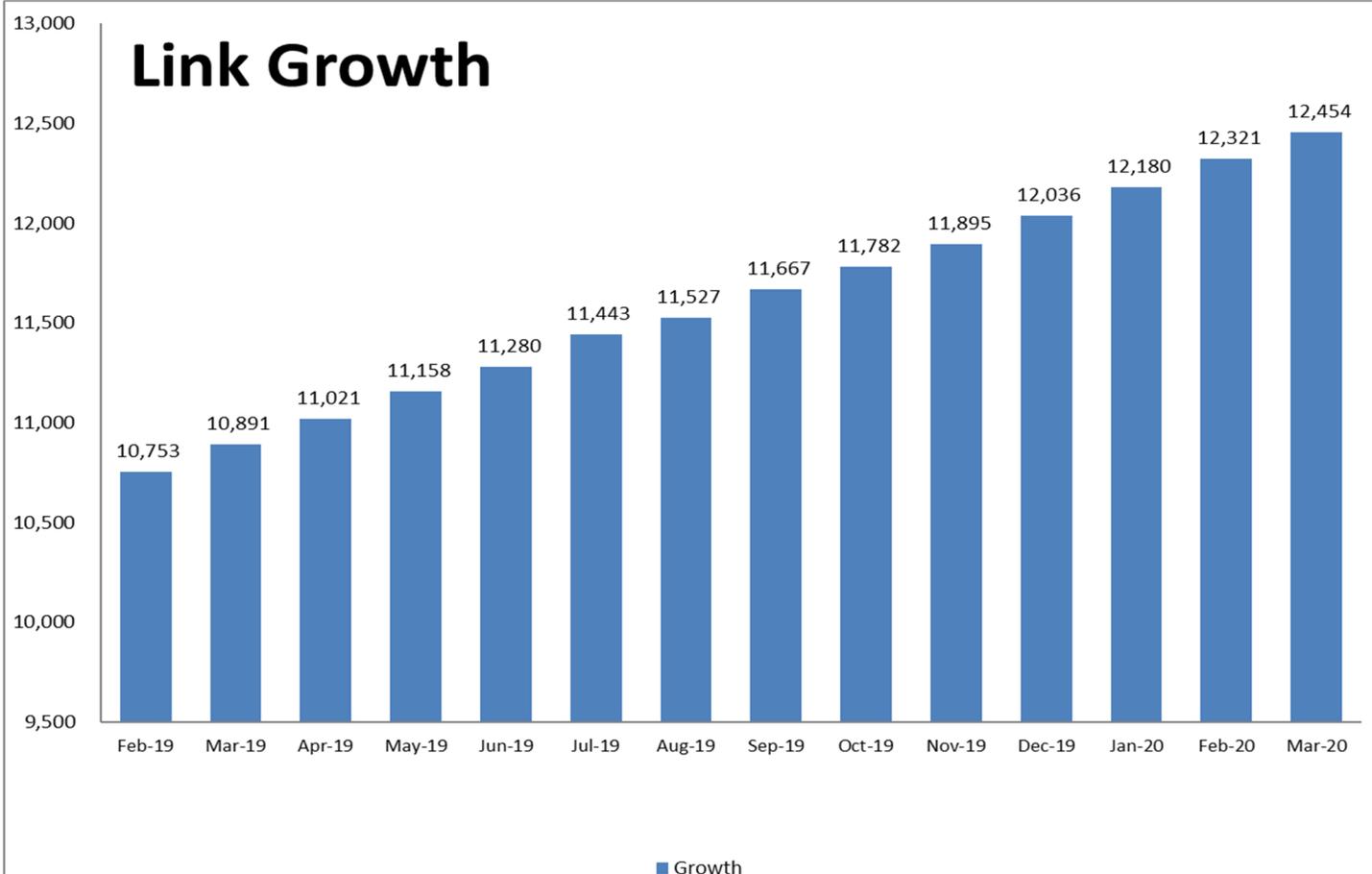
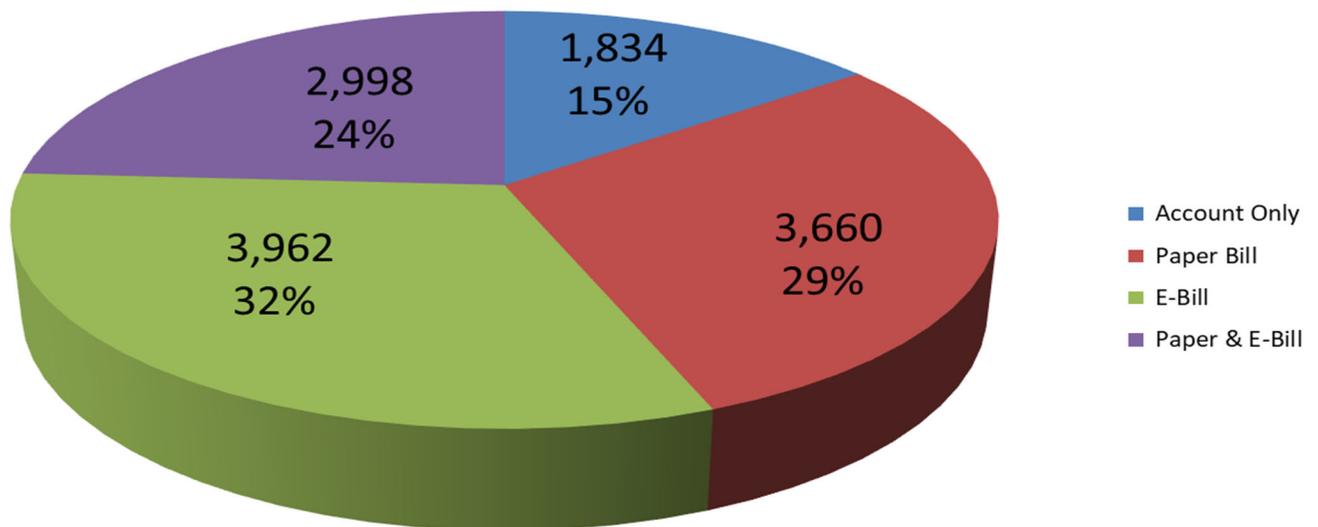
SECURED FY19-20 Operating and Maintenance Expenses **\$ 24,331,276**

UNASSIGNED Working Capital Funds (Est. Uncommitted - Secured) **\$ 48,978,940**

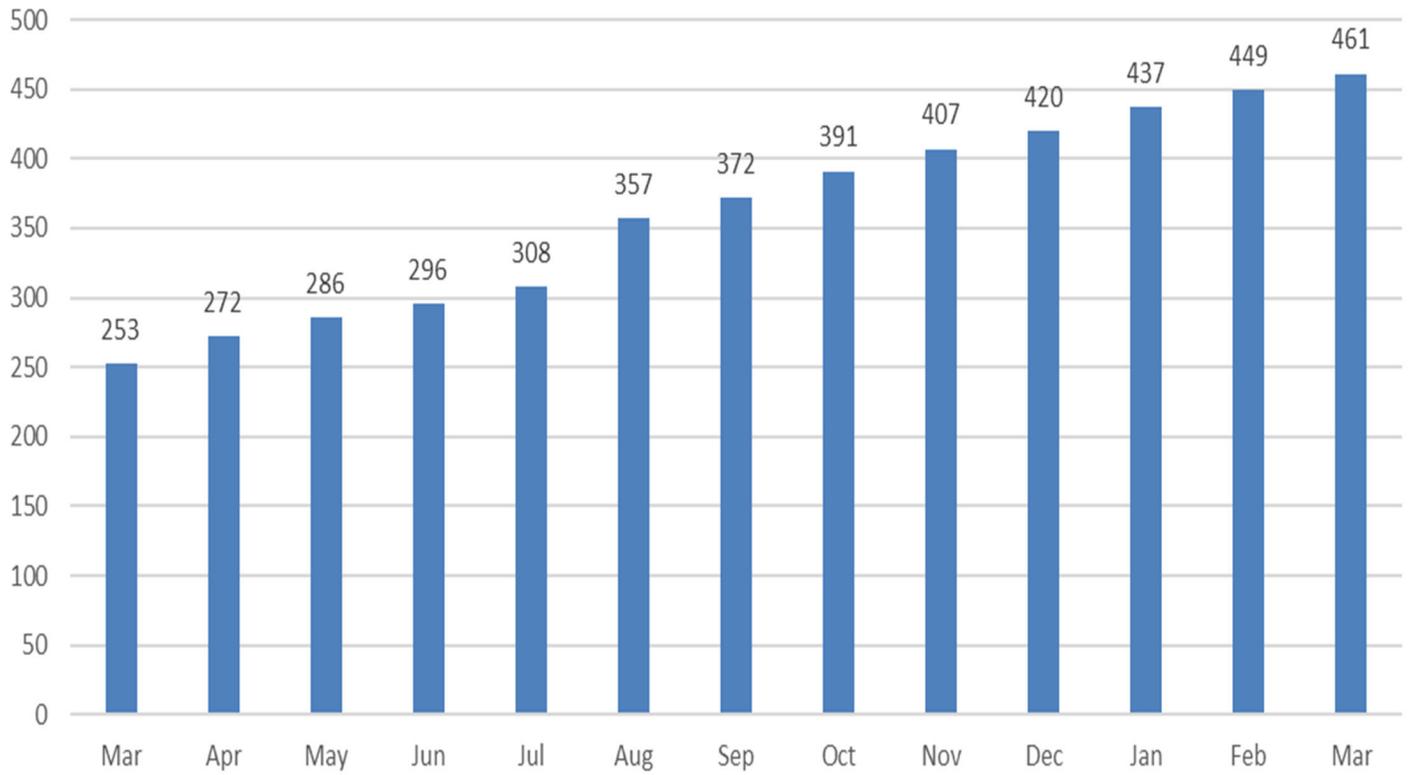
MWRD Working Capital Reserves Dashboard



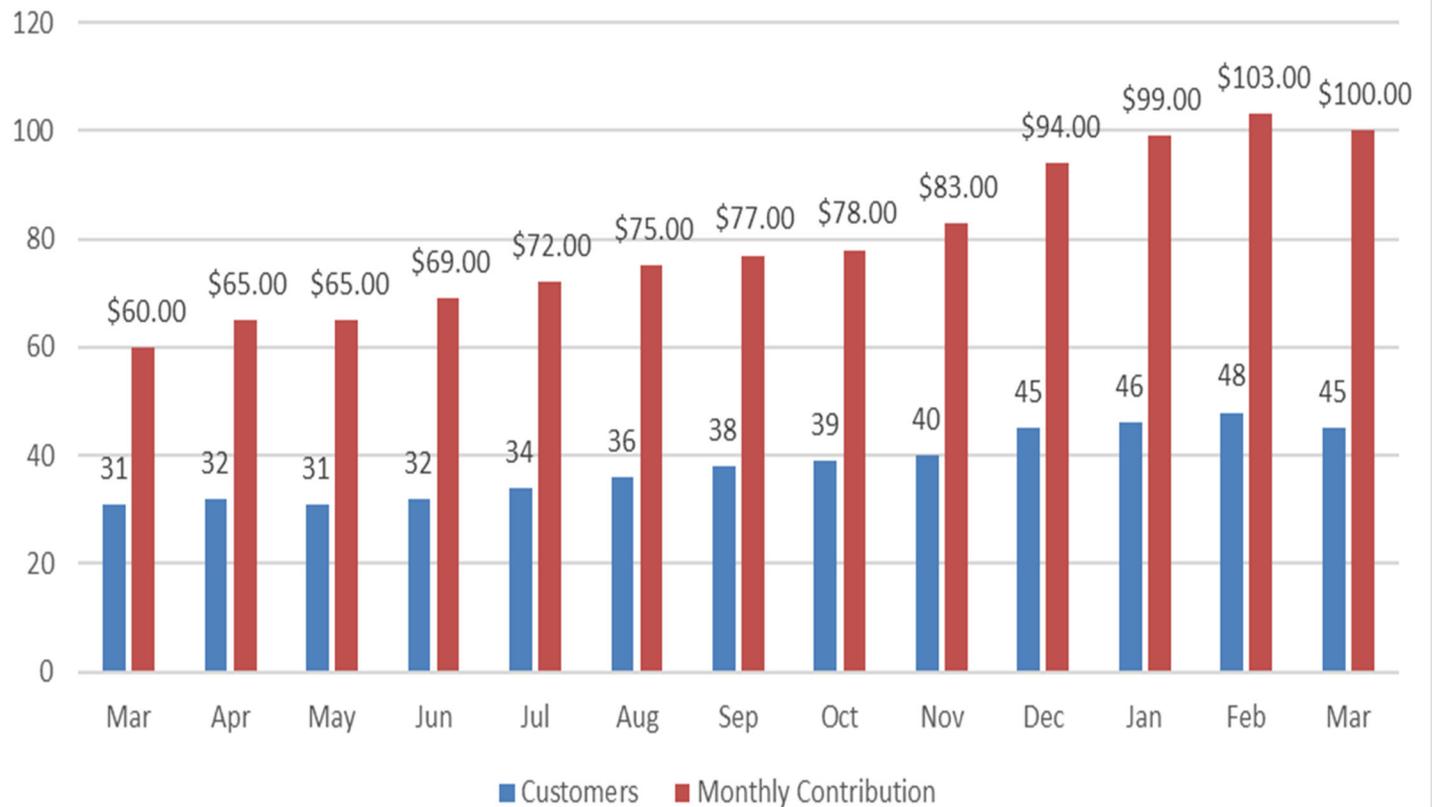
Infinity.Link Customers as of March 2020 = 12,454



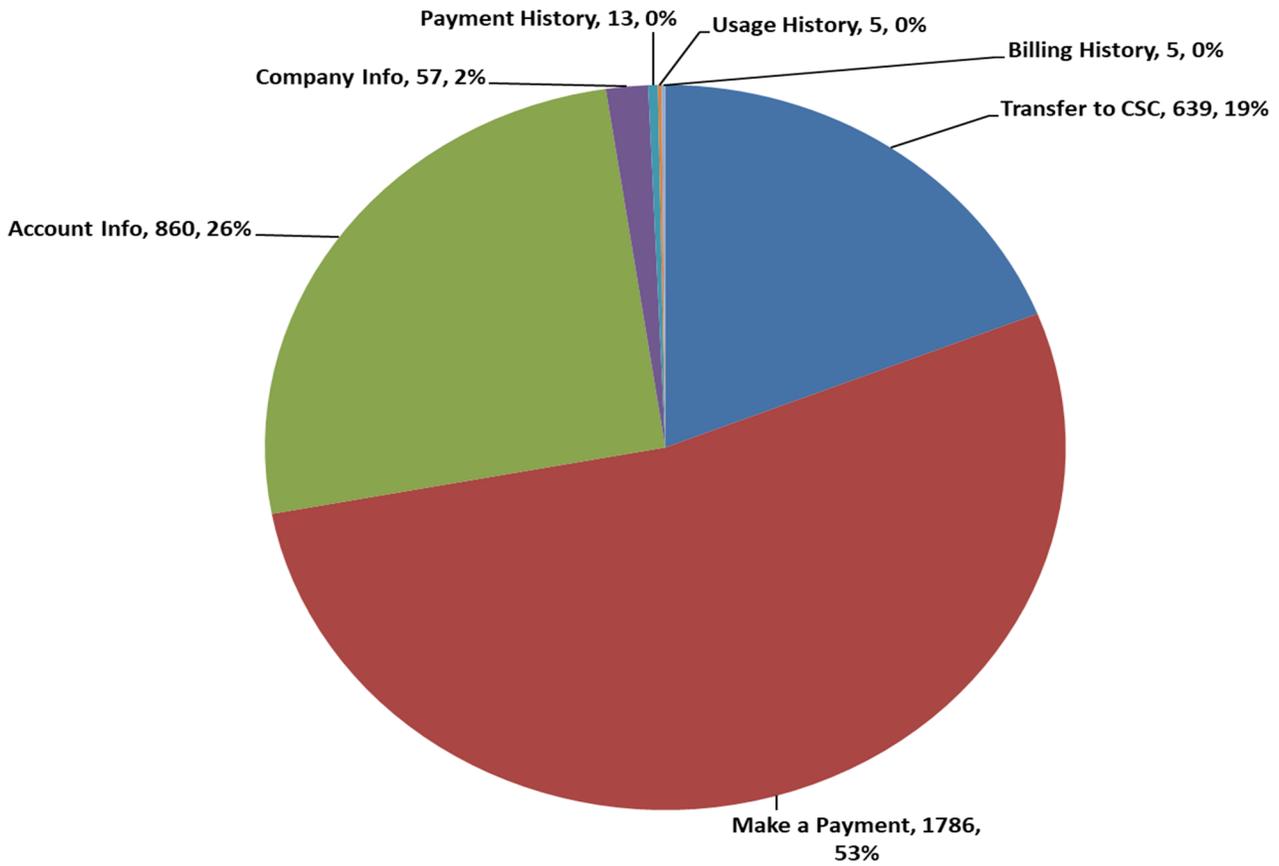
AMI Customer Portal Users



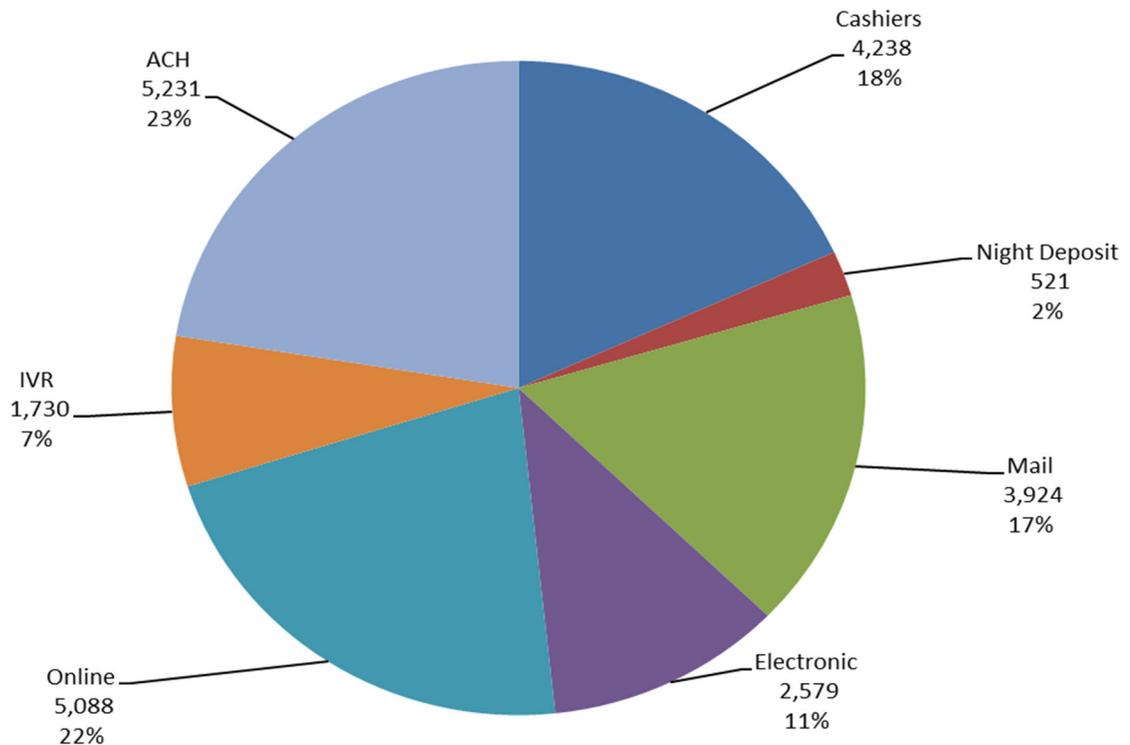
H₂O Users & Monthly Contributions



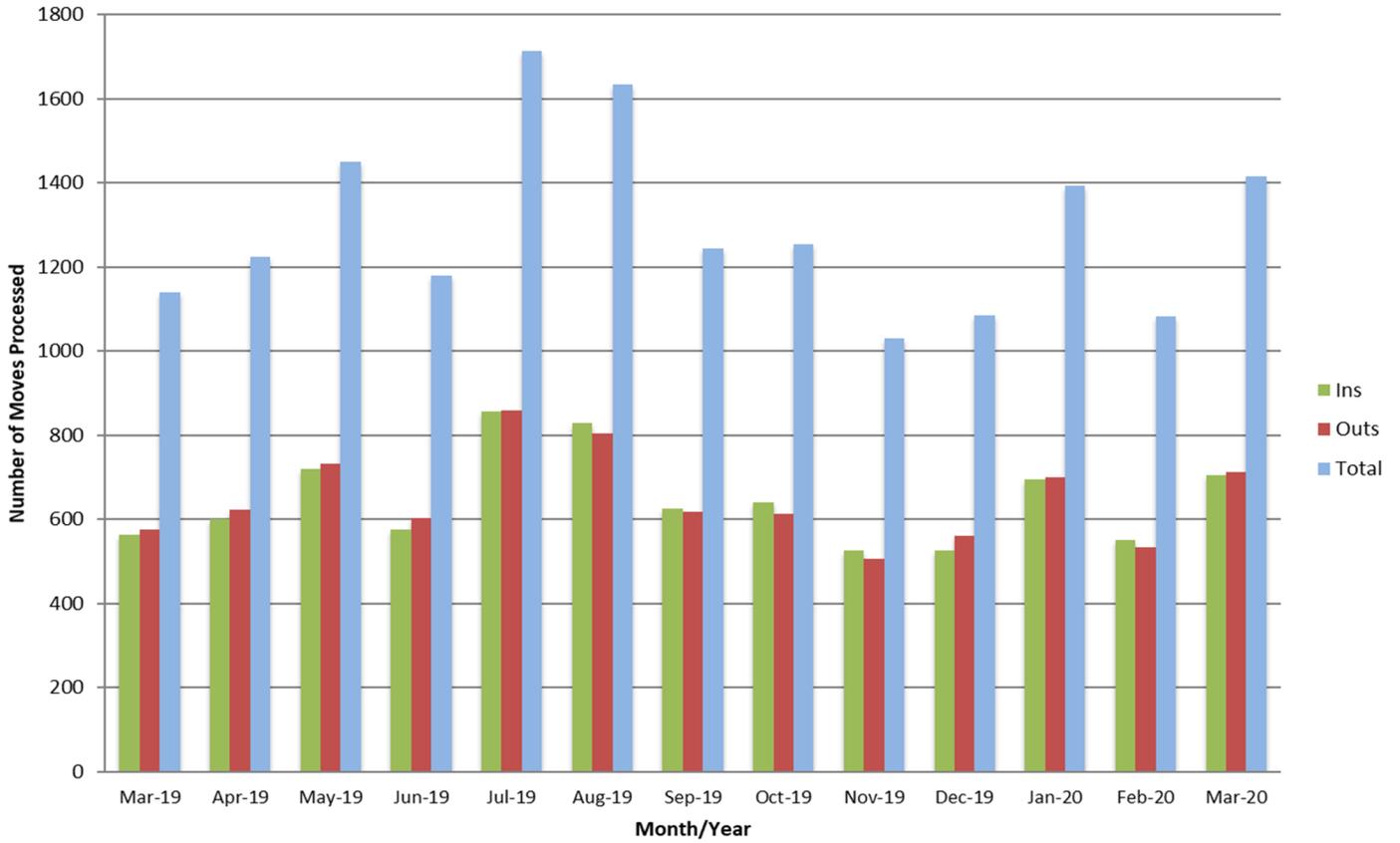
IVR Calls From 03/01-03/31/20 = 3,365



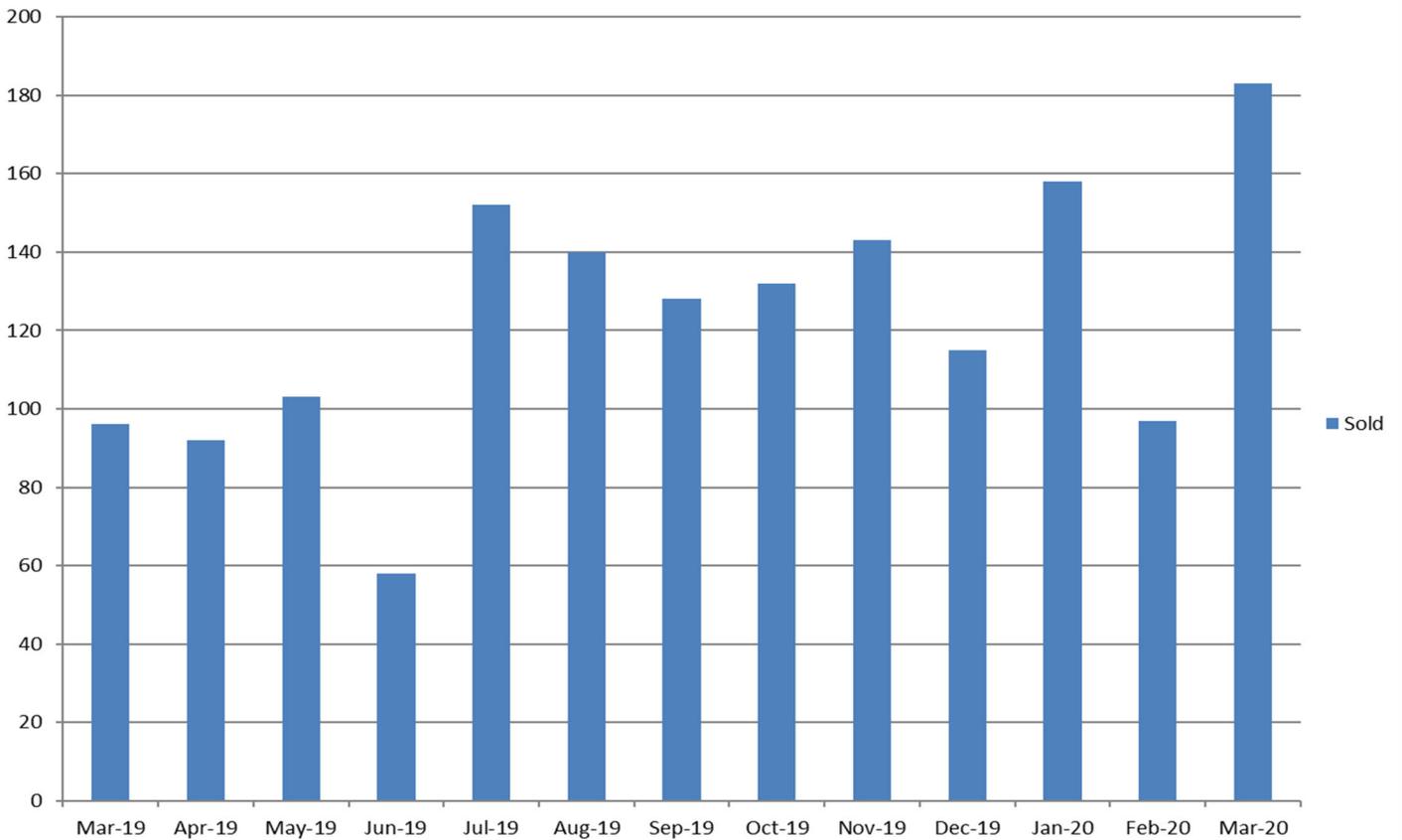
March 2020 Payments by Type



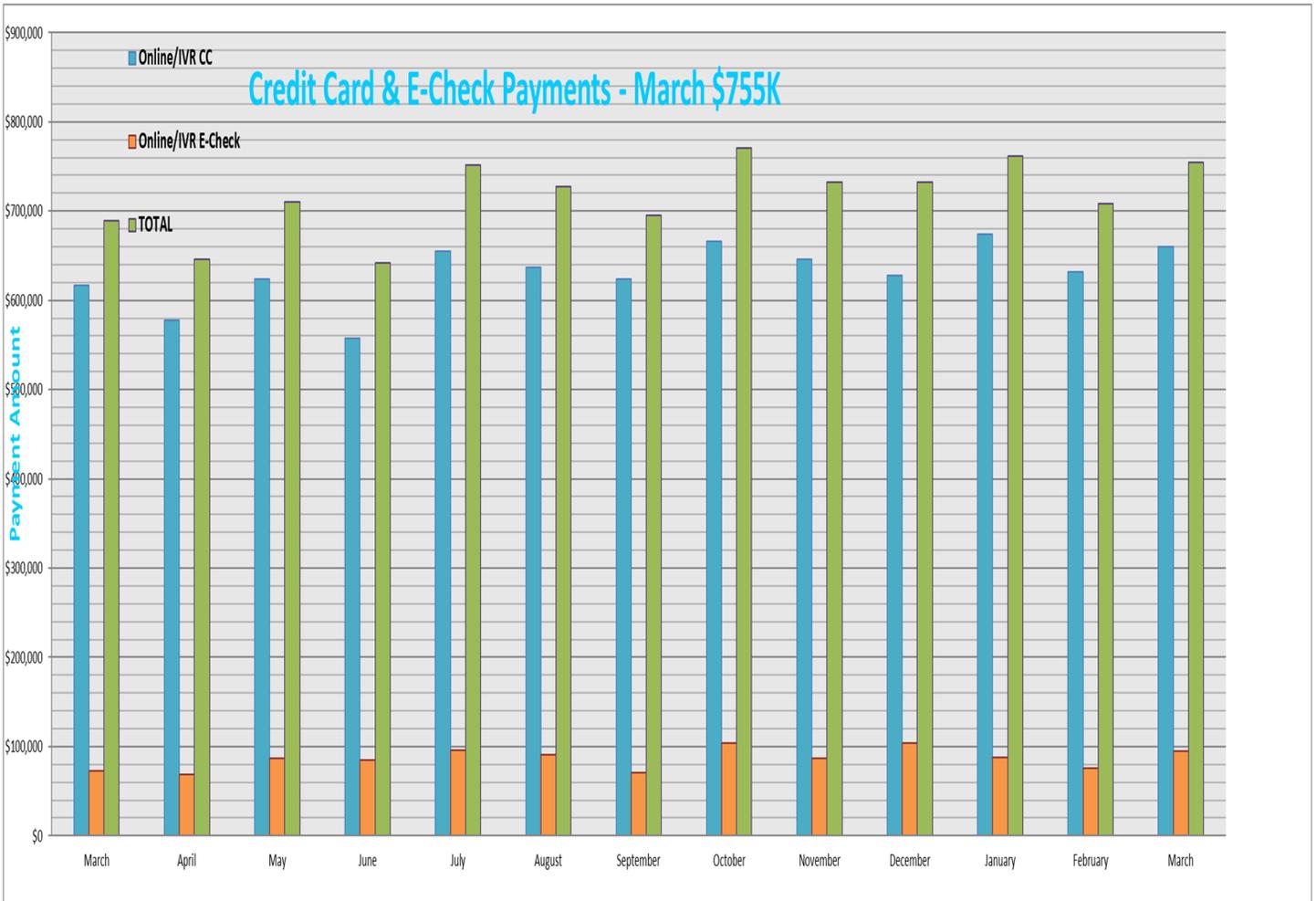
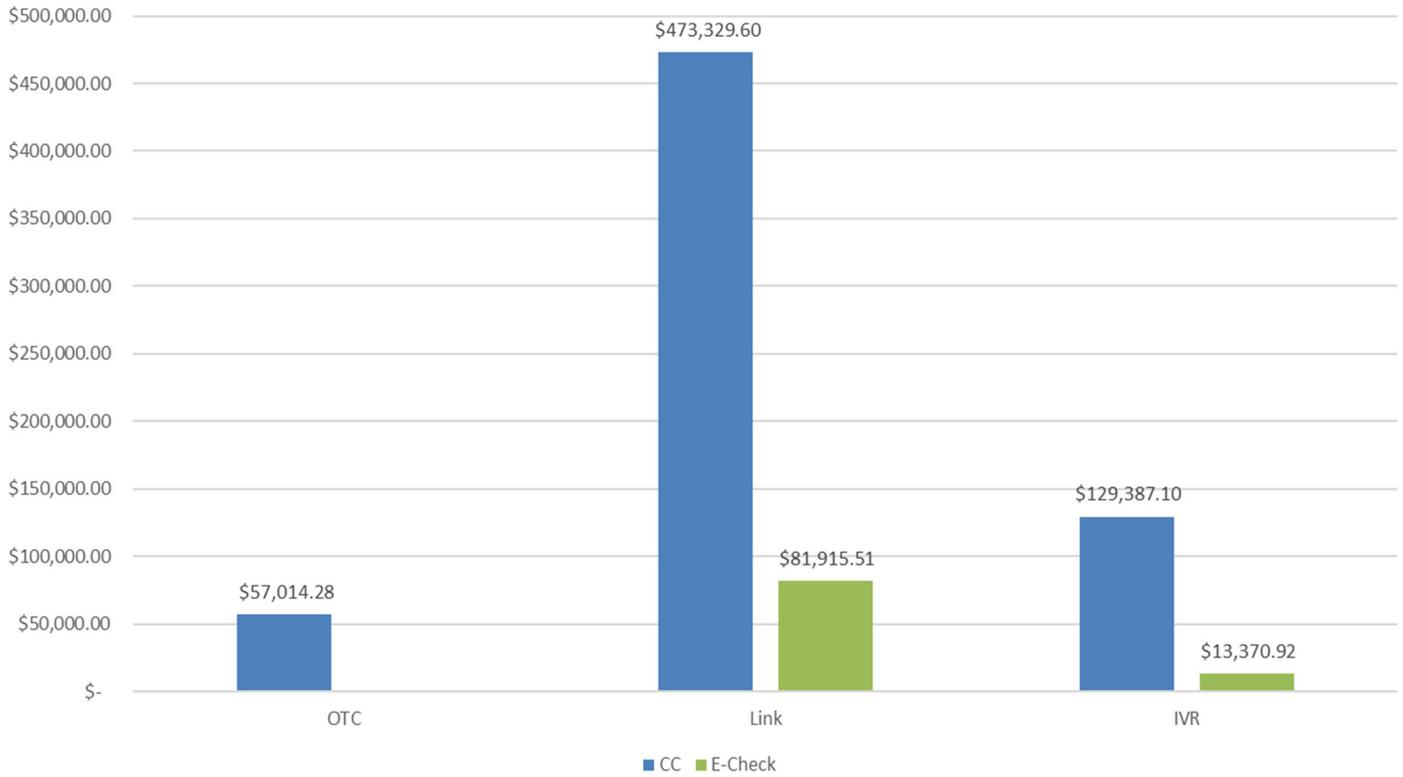
March Moves Processed = 1,416



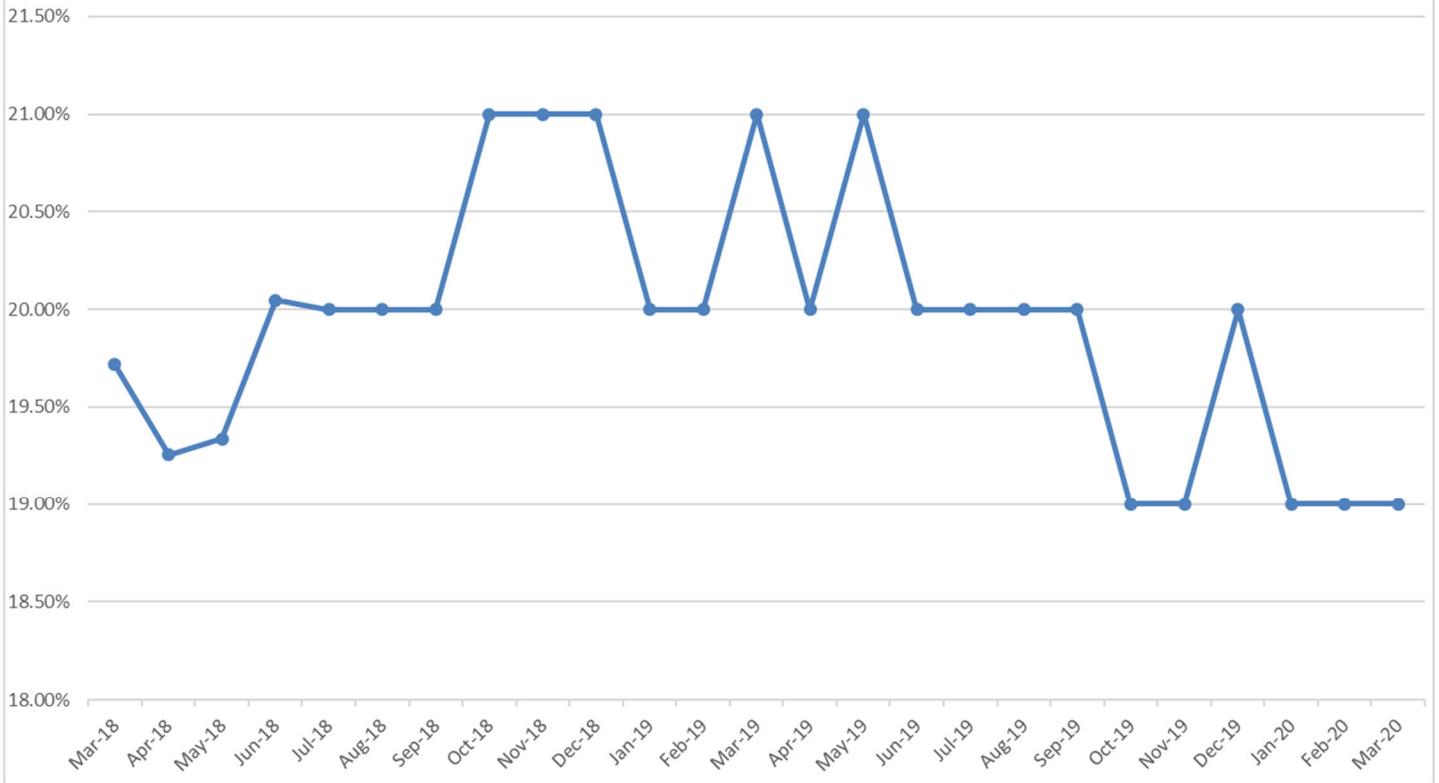
March Taps Sold = 183



Electronic Payment Method March 2020



Water Loss - 12-month rolling average

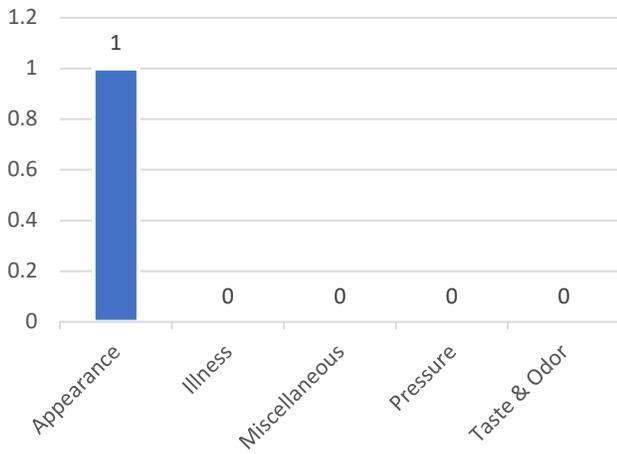


STONES RIVER WATER TREATMENT PLANT

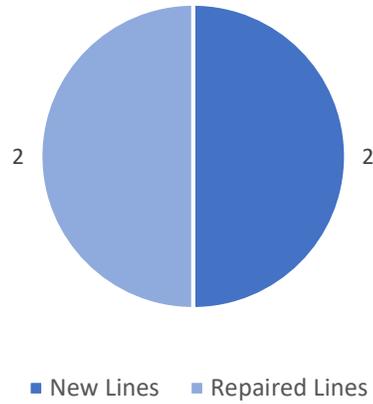
Dashboard Report

March 2020

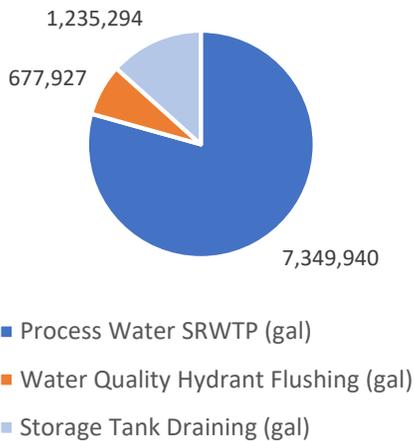
Drinking Water Laboratory Section Water Quality Complaints



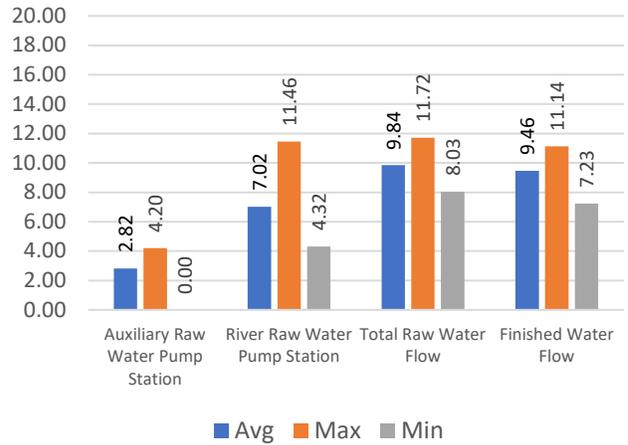
Drinking Water Laboratory Section New & Repaired Lines Tested



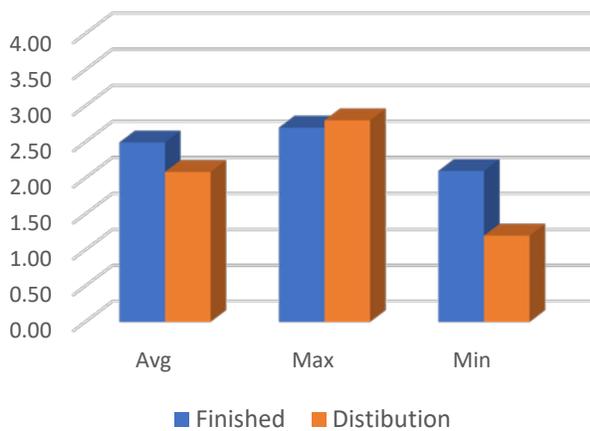
Water Quality Water Used Not Sold



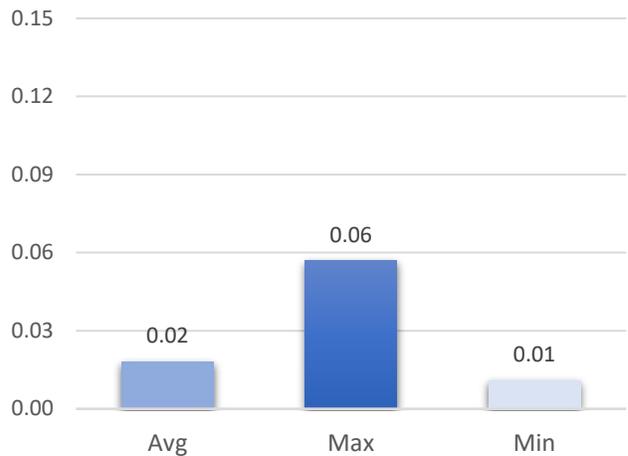
Plant Operations Section Flow (MGD)



Plant Operations Section Chlorine (mg/L)



Plant Operations Section Finished Turbidity (NTU)

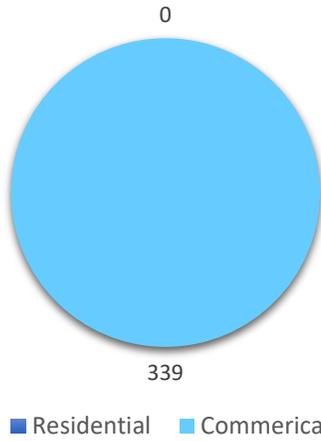


STONES RIVER WATER TREATMENT PLANT

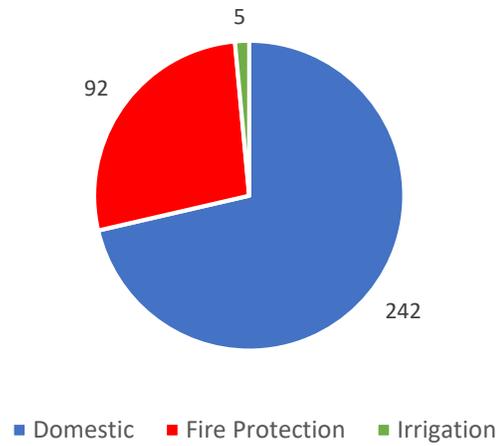
Dashboard Report

March 2020

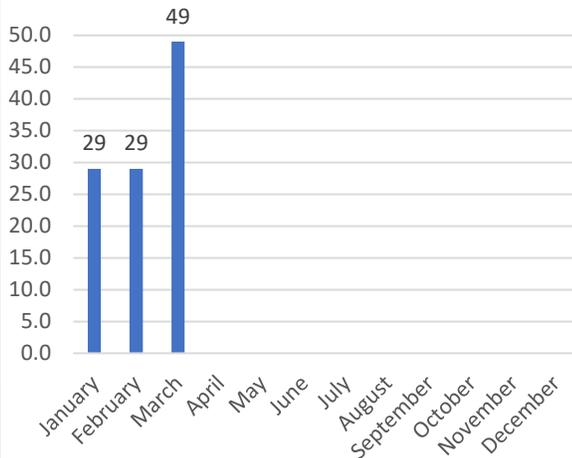
Cross-Connection Control Section Number of Devices Tested By Category



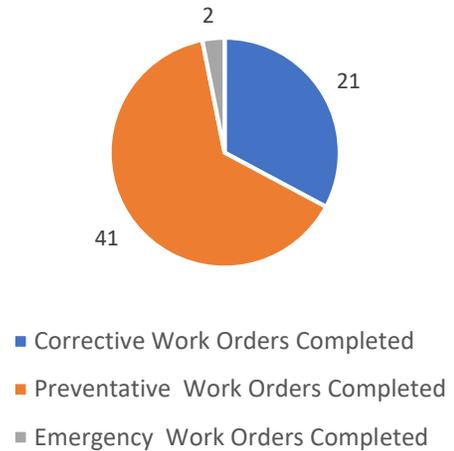
Cross-Connection Control Section Number of Devices Tested



Drinking Water Operations Section Pall Membrane Module Pin Count



Drinking Water Maintenance Section Work Order Status

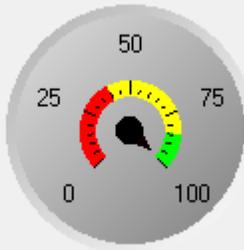


MURFREESBORO WATER RESOURCE RECOVERY FACILITY

DASHBOARD REPORT

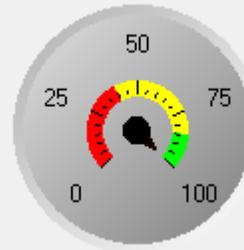
March, 2020

BOD PERCENT REMOVAL



98.9

AMMONIA PERCENT REMOVAL

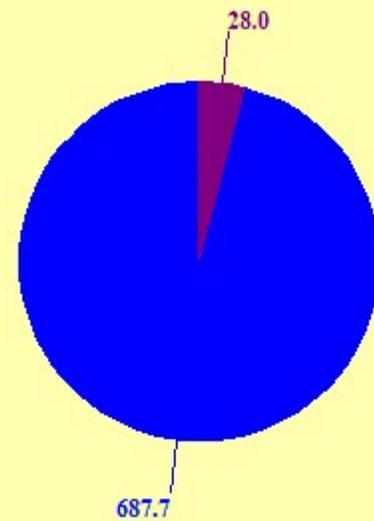


99.4

740.499
**MILLION GALLONS
TREATED**

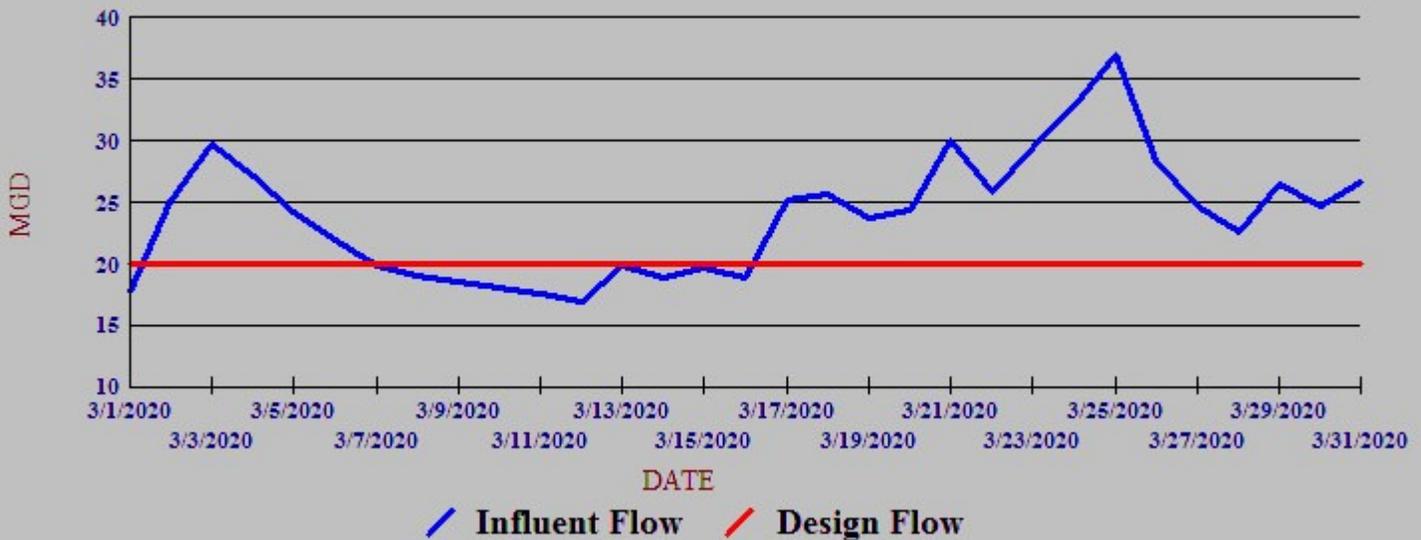
3,011.73
**TONS
BIOSOLIDS
REMOVED**

EFFLUENTS

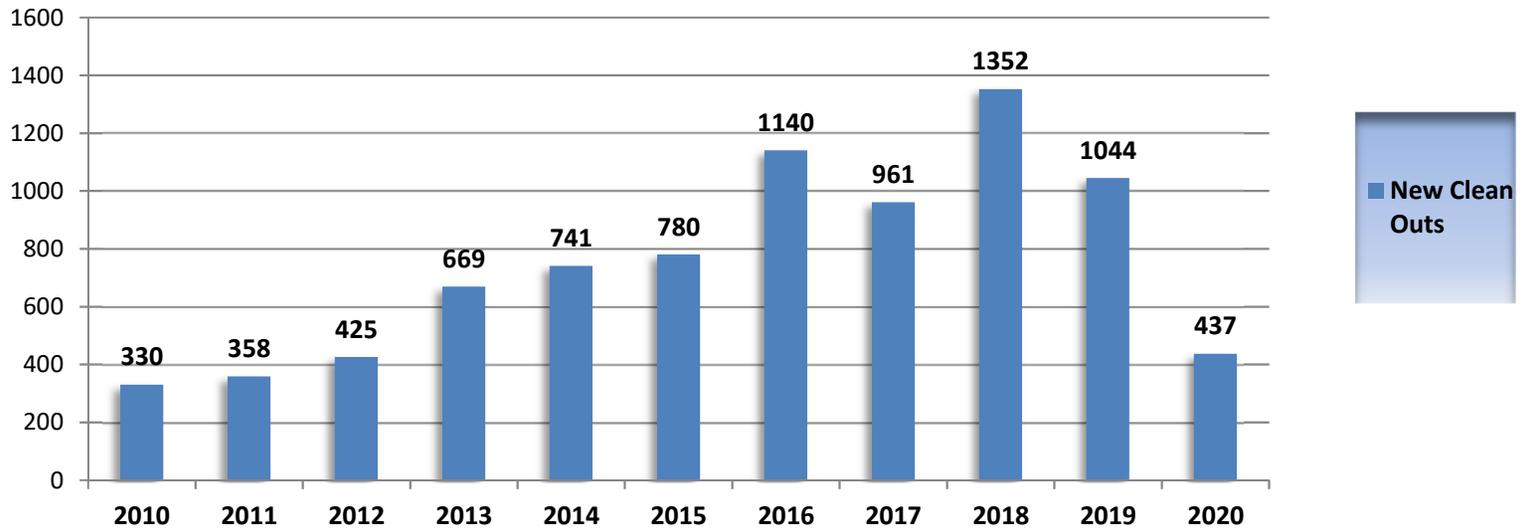


MGD
■ DISCHARGE ■ REUSE

AVERAGE INFLUENT FLOW



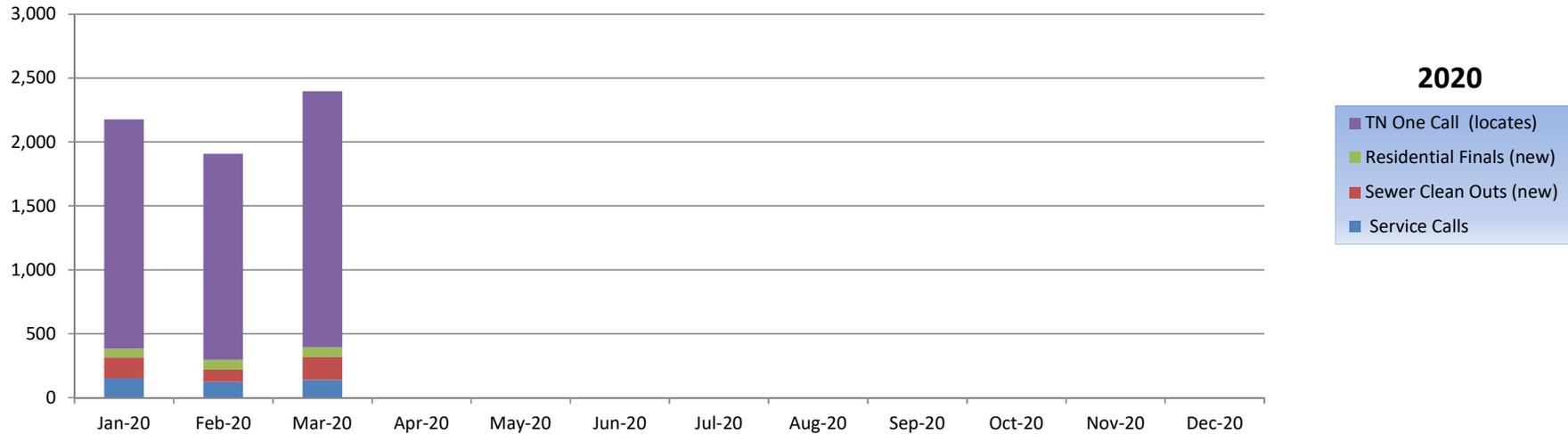
NEW SEWER CLEAN OUTS



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
New Clean Outs	330	358	425	669	741	780	1140	961	1352	1044	437

** For the calendar year Jan-Dec*

OPERATIONS & MAINTENANCE MONTHLY TOTALS



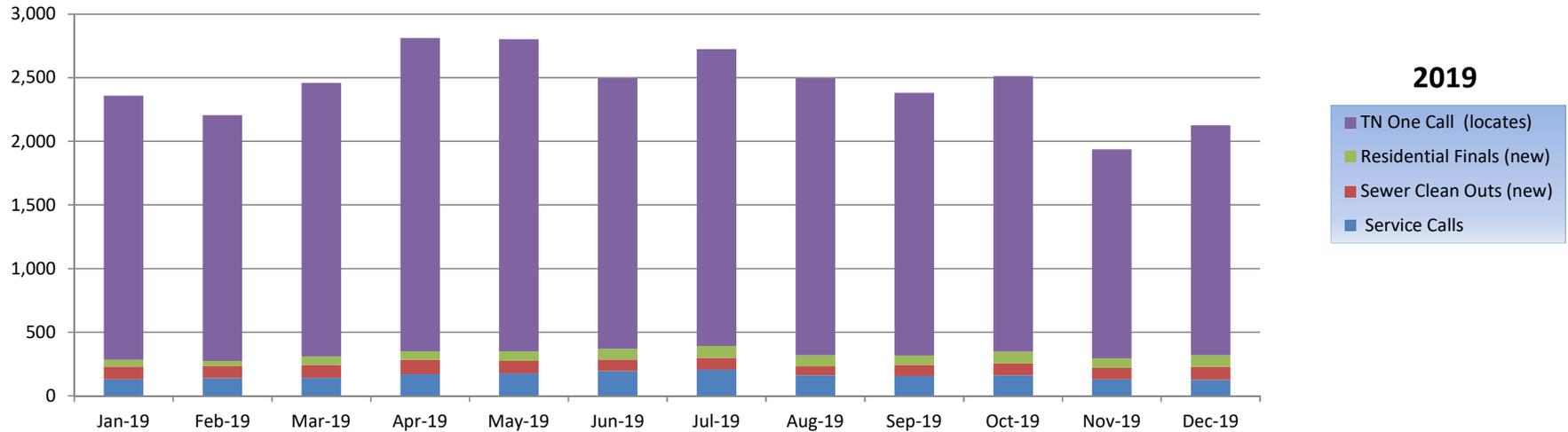
	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total
Service Calls	148	123	138										
Sewer Clean Outs (new)	166	94	177										
Residential Finals (new)	68	79	77										
TN One Call (locates)	1,794	1,611	2,004										
TOTAL	2,176	1,907	2,396										6,479

MWRD OPERATIONS & MAINTENANCE

ASPHALT PURCHASES

<i>Date</i>	<i>Approval</i>	<i>Vendor</i>	<i>Type</i>	<i>Rate</i>	<i>Qty</i>	<i>Total</i>	<i>FY Total</i>
7/23	DH	Hawkins	BM	\$48.50	23.97	\$1,162.55	\$1,162.55
7/23	DH	Hawkins	411E	\$60.50	8.00	\$484.00	\$1,646.55
7/23	DH	Hawkins	411E	\$60.50	54.06	\$3,270.63	\$4,917.18
7/26	DH	Hawkins	BM	\$48.50	71.84	3,484.24	\$8,401.42
7/29	DH	Hawkins	BM	\$48.50	90.02	4,365.97	\$12,767.39
7/30	DH	Hawkins	BM	\$48.50	79.41	3,851.39	\$16,618.77
7/30	DH	Hawkins	BM	\$48.50	72.00	3,492.00	\$20,110.77
7/31	DH	Hawkins	BM	\$48.50	85.00	\$4,122.50	\$24,233.27
8/27	DH	Hawkins	BM	\$48.50	80.67	\$3,912.50	\$28,145.77
8/27	DH	Hawkins	BM	\$48.50	7.98	\$387.03	\$28,532.80
8/28	DH	Hawkins	411E	\$60.50	10.04	\$607.42	\$29,140.22
8/29	DH	Hawkins	411E	\$60.50	15.97	\$966.19	\$30,106.40
10/31	DH	Hawkins	BM	\$48.50	10.00	\$485.00	\$30,591.40
10/31	DH	Hawkins	411E	\$60.50	14.04	\$849.42	\$31,440.82
10/31	DH	Hawkins	411E	\$60.50	10.09	\$610.45	\$32,051.27
11/25	DH	Hawkins	411E	\$61.25	20.03	\$1,226.84	\$33,278.10
12/23	DH	Hawkins	411E	\$64.75	14.00	\$906.50	\$34,184.60
12/31	DH	Hawkins	BM	\$52.50	88.02	\$4,621.05	\$38,805.65
12/31	DH	Hawkins	411E	\$64.75	9.89	\$640.38	\$39,446.03
1/31	DH	Hawkins	411E	\$60.50	11.99	\$725.40	\$40,171.43
2/17	DH	Hawkins	411E	\$60.50	6.00	\$363.00	\$40,534.43
3/20	DH	Hawkins	411E	\$60.50	15.02	\$908.71	\$41,443.14
3/30	DH	Hawkins	411E	\$60.50	15.19	\$919.00	\$42,362.13

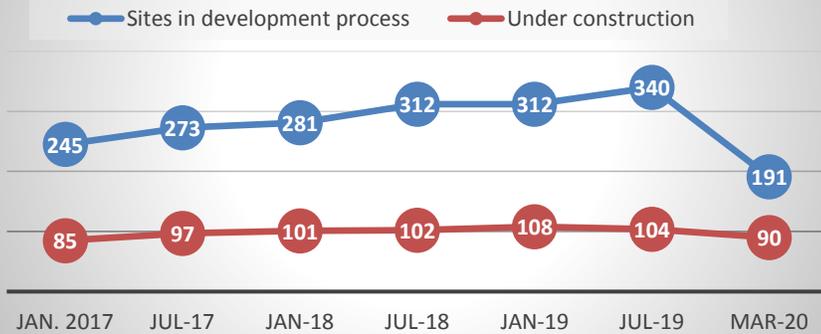
OPERATIONS & MAINTENANCE MONTHLY TOTALS



	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total
Service Calls	129	138	139	168	176	193	205	159	156	159	128	124	1,874
Sewer Clean Outs (new)	100	95	104	115	97	91	93	72	85	94	89	102	1,137
Residential Finals (new)	52	41	65	65	76	84	93	86	75	94	75	91	897
TN One Call (locates)	2,076	1,931	2,150	2,463	2,452	2,125	2,334	2,177	2,064	2,165	1,645	1,807	25,389
TOTAL	2,357	2,205	2,458	2,811	2,801	2,493	2,725	2,494	2,380	2,512	1,937	2,124	29,297

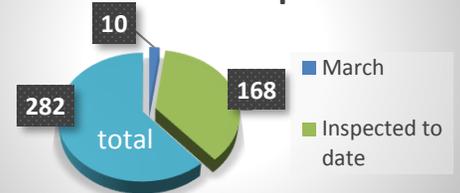
Stormwater Dashboard – March 2020

Construction Phase Inspections of Stormwater Control Measures (SCMs)



Inspection Program

Stormwater Post Construction Inspections

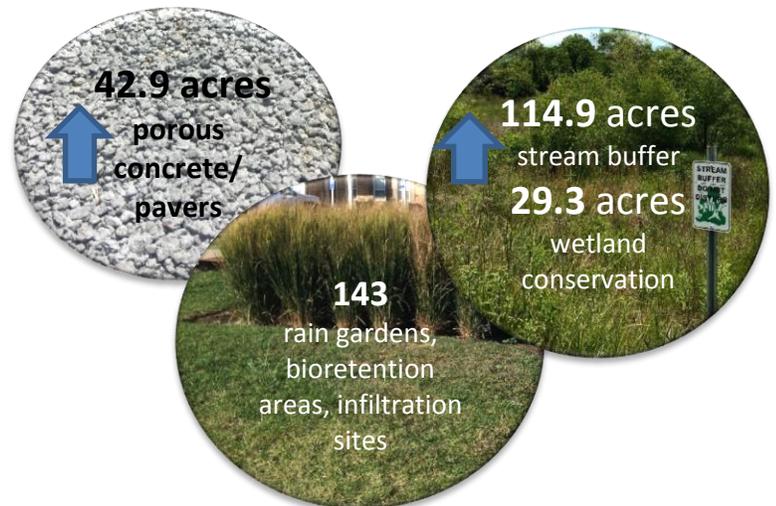


Education and Outreach



May/June – distributing trees to streamside property owners along Spence Creek and West Fork Stones River.

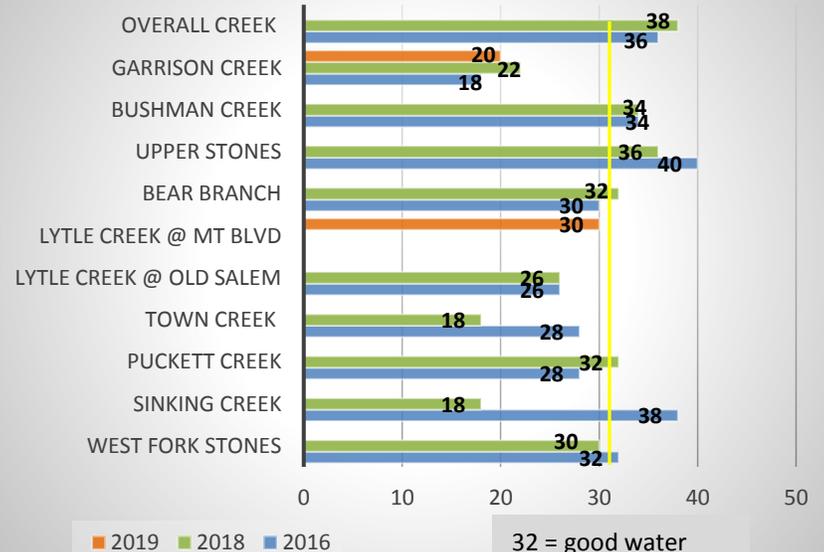
LID/ Green Infrastructure

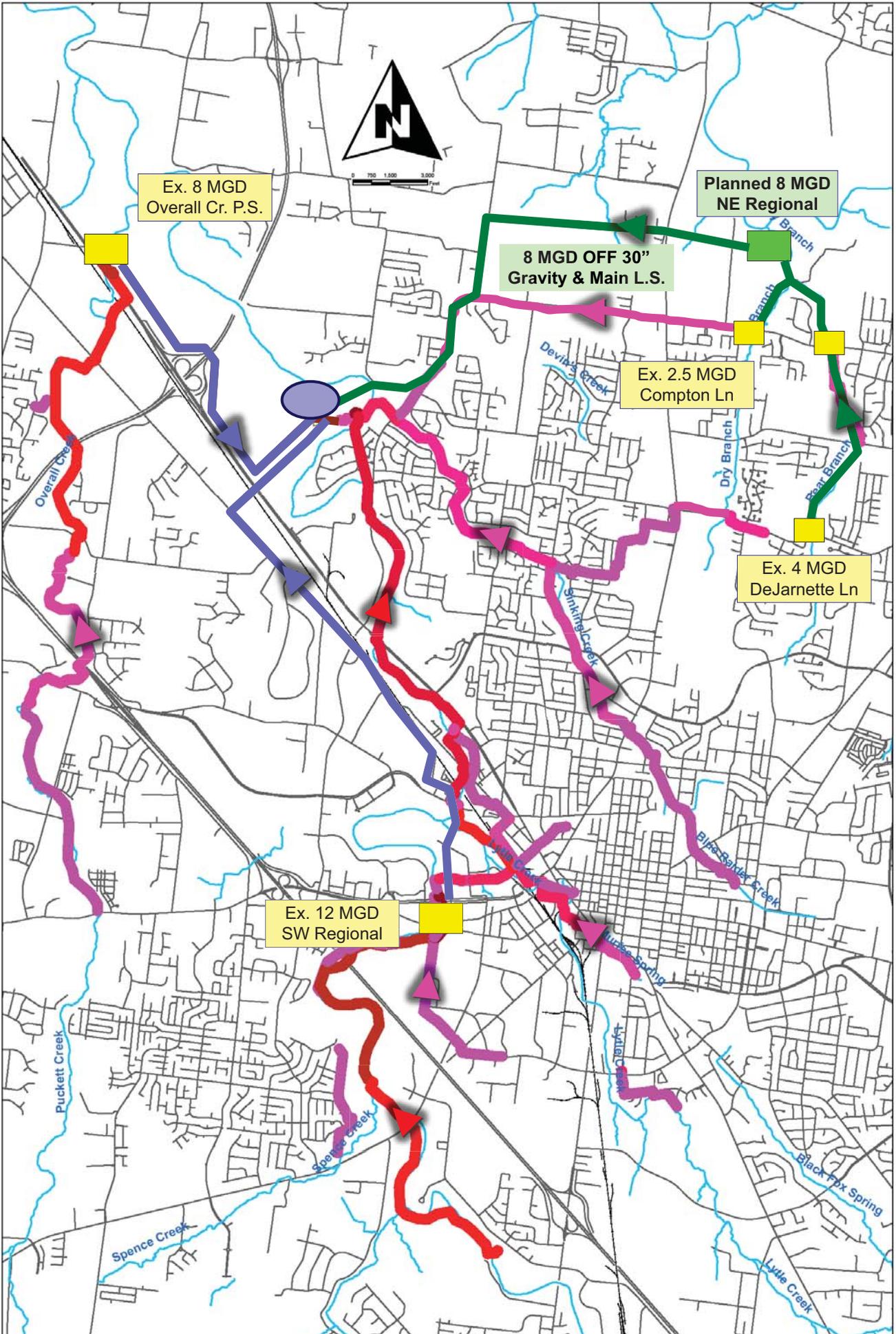


Stormwater Infrastructure

	March	YTD	Total
Junction Boxes	64	194	16,771
Headwalls	41	94	6,974
Ponds	5	12	530
Gravity Mains	7,012 ft	25,110 ft	705.9 miles
Weirs	5	8	312
WQ Units	1	1	113
Underground Storage	0	0	30

Water Quality Scorecard





**MURFREESBORO WATER RESOURCES DEPARTMENT
OPERATING REVENUES AND EXPENDITURES
NINE MONTHS ENDED MARCH 31, 2020**

	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Operating Revenues			
Water Revenue	\$ 12,185,070	\$ 16,654,000	73%
Repurified Revenue	\$ 23,413	\$ 26,000	90%
Wastewater Revenue	\$ 22,218,768	\$ 29,804,000	75%
Other Income	\$ 644,975	\$ 596,000	108%
Total Operating Revenues	\$ 35,072,227	\$ 47,080,000	74%
Water Operating Expenses	\$ 7,315,382	\$ 11,526,114	63%
Wastewater Operating Expenses	\$ 8,202,517	\$ 12,829,162	64%
Total Operating Expenses	\$ 15,517,899	\$ 24,355,276	64%
Net Earnings from Operations	\$ 19,554,328	\$ 22,724,724	86%

	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
WATER REVENUES			
Metered Water	\$ 11,099,092	\$ 15,200,000	73%
Water Adjustments	\$ (10,401)	\$ (26,000)	40%
Private Fire Protection	\$ 85,340	\$ 112,000	76%
Service Initiation Fees	\$ 181,975	\$ 230,000	79%
Late Fees	\$ 550,372	\$ 700,000	79%
Non-Payment Fees	\$ 115,395	\$ 180,000	64%
Returned Payment Fees	\$ 6,390	\$ 8,000	80%
Cross Connection	\$ 137,825	\$ 225,000	61%
Enernoc	\$ 19,082	\$ 25,000	76%
Miscellaneous	\$ -	\$ -	
TOTAL WATER REVENUES	\$ 12,185,070	\$ 16,654,000	73%

REPURIFIED REVENUES			
Repurified Revenue	\$ 23,413	\$ 26,000	90%
TOTAL REPURIFIED REVENUES	\$ 23,413	\$ 26,000	90%

WASTEWATER REVENUES			
Enernoc	\$ 7,004	\$ 5,000	140%
Sewer Charges	\$ 21,872,947	\$ 29,500,000	74%
Sewer Adjustments	\$ (61,647)	\$ (140,000)	44%
Surveillance	\$ 28,728	\$ 38,000	76%
Sampler	\$ 13,500	\$ 18,000	75%
BOD	\$ 226,327	\$ 275,000	82%
Amonia	\$ 47,415	\$ 60,000	79%
Septage Charges	\$ 76,655	\$ 45,000	170%
STEP Revenue	\$ 7,838	\$ 3,000	261%
TOTAL SEWER REVENUES	\$ 22,218,768	\$ 29,804,000	75%

OTHER INCOME			
Interest Earnings	\$ 472,299	\$ 400,000	118%
Inspections	\$ 128,136	\$ 166,000	77%
Miscellaneous	\$ 44,540	\$ 30,000	148%
TOTAL OTHER INCOME	\$ 644,975	\$ 596,000	108%

**MURFREESBORO WATER RESOURCES DEPARTMENT
 OPERATING REVENUES AND EXPENDITURES
 NINE MONTHS ENDED MARCH 31, 2020**

	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Water Operating Expenses			
Water Source	\$ 96,766	\$ 208,000	47%
Water Treatment	\$ 2,839,540	\$ 4,259,169	67%
Water Storage	\$ 18,001	\$ 67,300	27%
Water Distribution	\$ 1,186,979	\$ 1,776,098	67%
Cross Connection	\$ 232,907	\$ 351,959	66%
Water Plant Administration	\$ 514,646	\$ 977,419	53%
AMI Field Services	\$ 559,438	\$ 919,329	61%
O&M Admin Allocation (40%)	\$ 161,228	\$ 229,594	70%
Customer Service Allocation (50%)	\$ 470,048	\$ 690,837	68%
Engineering Allocation (40%)	\$ 249,247	\$ 463,758	54%
Field Inspection Allocation (25%)	\$ 90,601	\$ 112,868	80%
Admin Allocation (40%)	\$ 895,981	\$ 1,469,782	61%
Total Water Operating Expenses	\$ 7,315,382	\$ 11,526,114	63%
Wastewater Operating Expenses			
Wastewater Collections	\$ 1,461,585	\$ 2,213,855	66%
Wastewater Rehab	\$ 96,991	\$ 158,500	61%
Wastewater Pump Stations	\$ 627,260	\$ 779,924	80%
Wastewater Industrial Surveillance	\$ 218,278	\$ 320,878	68%
Wastewater House Services	\$ 10,670	\$ -	
Wastewater Treatment	\$ 1,773,076	\$ 2,953,269	60%
Wastewater Disposal	\$ 465,967	\$ 727,407	64%
WRRF Administration	\$ 632,605	\$ 916,888	69%
STEP System	\$ 2,020	\$ 24,000	8%
Repurified Treatment	\$ 34,388	\$ 121,000	28%
Repurified Distribution	\$ 3,326	\$ 29,500	11%
Repurified Disposal	\$ 174,813	\$ 309,797	56%
O&M Admin Allocation (60%)	\$ 241,841	\$ 344,391	70%
Customer Service Allocation (50%)	\$ 470,048	\$ 690,837	68%
Engineering Allocation (60%)	\$ 373,870	\$ 695,638	54%
Field Inspection Allocation (75%)	\$ 271,804	\$ 338,605	80%
Admin Allocation (60%)	\$ 1,343,972	\$ 2,204,674	61%
Total Sewer Operating Expenses	\$ 8,202,517	\$ 12,829,162	64%

**MURFREESBORO WATER RESOURCES DEPARTMENT
OPERATING REVENUES AND EXPENDITURES
NINE MONTHS ENDED MARCH 31, 2020**

SUMMARY OF NET TAP FEES	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Water Taps/Reserves	\$ 336,652	\$ 500,000	67%
Sewer Taps/Reserves	\$ 3,839,484	\$ 5,500,000	70%
Special Assessment Districts	\$ 1,285,631	\$ 2,000,000	64%
	<u>\$ 5,461,768</u>	<u>\$ 8,000,000</u>	<u>68%</u>

DEBT SERVICE	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Principal	\$ 1,980,441	\$ 11,547,588	17%
Interest	\$ 1,175,580	\$ 1,940,732	61%
	<u>\$ 3,156,021</u>	<u>\$ 13,488,320</u>	<u>23%</u>

Debt Coverage Ratio	YTD ACTUAL	ANNUAL BUDGET	% TO BUDGET
Operating Net Earnings	\$ 19,554,328	\$ 22,724,724	86%
Debt Service	\$ 3,156,021	\$ 13,488,320	23%
	6.20	1.68	