

MINUTES  
MURFREESBORO WATER RESOURCES BOARD  
March 22, 2022

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The Murfreesboro Water Resources Board met on Tuesday, March 22, 2022 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. Ron Crabtree, Mr. Kirt Wade, Ms. Madelyn Scales-Harris, Mr. Brian Kidd, Ms. Sandra Trail, and Ms. Kathy Nobles. Also present were Darren Gore, Valerie Smith, Doug Swann, Michele Pinkston, Roman Hankins, Marshall Fall, Alan Cranford, Joe Russell, John Strickland, Steve Campbell, Andy McCrary, Linda Sullivan, Travis Wilson, and Brent Fowler along with other members of the public.

The Consent Agenda were presented for the following considerations:

*A. Consider Keeneland Commercial Center sewer easement abandonment –*

The Developer is requesting the abandonment of an existing sewer easement. This easement was dedicated by plat when the property was subdivided. Now, with the development and combining of these lots the sewer main and easement are no longer necessary and are also in conflict with a proposed building. If a sewer main extension is necessary in a different location easement will be dedicated prior to the completion of the project.

Staff recommended approval of abandoning this existing sewer easement.

*B. Consider GAC media replacement contract extension –*

Granular activated carbon (GAC) media is used in the water treatment process to remove disinfection by-products (DBPs), total organic carbon (TOC) compounds, pharmaceutical and personal care products (PPCPs) and taste and odor compounds during the peak seasonal times. The Stones River Water Treatment Plant has four GAC contactors used in the treatment process. The Department changes media in one contactor per year, unless unusual circumstances exist.

Extending the existing contract for granular activated carbon for the water treatment plant is in the best interest of the Department. Calgon Carbon Corporation has agreed to the terms of the first amendment to their contract for granular activated carbon. The First Amendment is scheduled to start July 2022.

The cost for removing the existing GAC media, cleaning the contactor, and replacing the GAC media is \$122,840. Funding will be in the FY23 capital budget.

Staff recommended the Board recommend to City Council approving the amendment from Calgon Carbon Corporation.

*C. Consider JBS Task Order 22-02, GAC Actuator Replacement project –*

Staff submitted Task Order No. 22-02 for the Water/Wastewater Mechanical/Electrical Services Contract to replace GAC actuators at the water treatment plant. The existing actuators have met their useful life and are beginning to fail.

The Task Order includes disconnection and removal of ten actuators. Furnish and install ten new Beck actuators including electrical work, furnishing, and installing ten new NEMA1 disconnect switches, conduit, and extended wiring for ten actuators, and motor rotation check.

The cost for the project is \$103,964.08. Funding will be allocated in the FY23 capital budget. There is \$50,000 in the FY22 capital budget.

Staff recommended the Board recommend to the City Council approving JBS Task Order 22-02 in accordance with the JBS estimate.

*D. Consider JBS Task Order 22-03, Thompson Lane Pump Station Check Valve Replacement project –*

Staff requested approval for Task Order 22-03 under the annual Water/Wastewater Mechanical/Electrical Services Contract with John Bouchard & Sons (JBS) to furnish all materials and labor to replace two check valves located in Pump Station #10 (Thompson Lane).

The packing and flapper arms in the current check valves are worn out which has caused the check valves to develop a slow leak. These valves have been in service for roughly 20 years.

Staff recommended the Board recommend to City Council approval of Task Order 22-03 as submitted.

The total fiscal impact to initiate this task order is \$26,965.94. Funding will be from the Department's working capital reserves account.

*E. Consider SSR resident project representative services for Overall Creek Pump Station –*

Staff received bids for the Overall Creek Pump Station (OCPS) Expansion. The low bidder was Blakley Construction Services, LLC (BCS) in the base bid amount of \$4,963,947.

The Board previously approved a proposal from TTL, Inc. for outside construction inspection and testing as required by the contract documents. In addition to these services, staff requested approval of a task order from SSR for RPR services for the pump station construction as well. The Department has always relied on outside services for inspection of the construction of our large pump stations as well as inspections for upgrades to the WTP and WRRF. Our Engineering Inspectors do not have the expertise for inspections of Building Infrastructure.

A Task Order for RPR was requested of SSR, in addition to their Engineering Task Order, in the not to exceed amount of \$186,500. Final costs will be determined based on actual time on the jobsite at the submitted unit rates for RPR.

Staff recommended the Board recommend to City Council approval of SSR's RPR Task Order. This project will be funded from Working Capital Reserves.

*F. Consider architectural services for O&M building addition –*

In 2015, O&M built a storage structure to house the CCTV equipment with plans to expand later. With the acquisition of additional equipment and vehicles, the Department has deemed it necessary to construct the addition. In O&M's FY22 Capital Budget, there is a line item for this project in the amount of \$225,000.

Johnson & Bailey (J+B) have developed plans for the design and installation of the storage building. Staff would like to request J+B to solicit bids and oversee the construction of the building.

Staff recommended the Board recommend to City Council approval to proceed with Johnson & Bailey for consulting services in the amount of \$19,601. This includes site survey, material testing, and architectural fee with total consulting fees not to exceed \$20,000. Funding will come from FY22 rate funded capital budget. Johnson & Bailey estimate the construction costs will be \$173,153.

*G. Consider network assessment –*

MWRD maintains two networks – Operations and Plants (SCADA), including servers, switches, and desktop computers supporting over 100 employees, plus business and plant operations.

It is important that MWRD have a detailed inventory of our networks, along with key information related to age of equipment, effectiveness of configuration and efficiency of our systems.

In addition to the detail of work performed and reports provided, this assessment will provide a baseline to use when moving to a mesh network provided by Comcast. The assessment will allow us to ensure proper bandwidth needs on the new network. The information gathered will also be critical to our 5-year Information Technology budget.

Staff recommended the Board approve the use of Waypoint Business Solutions to perform the network assessment at a cost of \$16,700. The work will take approximately two weeks to complete. Cost of the work will be paid from FY22 Operating Budget.

A motion was made by Kirt Wade to accept the Consent Agenda as presented and it was seconded by Dr. Carter. The Board voted unanimously to approve.

The January 25, 2022 Board Minutes were unanimously accepted as presented.

The Board considered a proposal for engineering study from CIA for Northeast Regional Pump Station along Cherry Lane.

In September 2019, the Board approved a proposal from Civil Infrastructure Associates (CIA) to verify the sewer master plan for Cherry Lane previously prepared by Wisner Company and also to design the improvements necessary to serve the sewer basin encompassed with Phase 2 of the roadway. This design work is fairly complete, however, is awaiting a final design of the roadway. The sewer master plan for Cherry Lane entails three sewer pump stations (SPS). The gravity lines and sewer force mains were to

be built with the roadway and the sewer pump stations would be built at a later date once development along the roadway occurred. The original design of the eastern most SPS located at the intersection of Cherry Lane and Old Cherry Lane was to abandon the Caroline Farms Subdivision SPS and discharge along Thompson Lane. The middle and western SPS's were to discharge into the Overall Creek SPS.

On a separate path and to serve the northeastern portions of Murfreesboro, SSR is under contract to design the NERPS. This station was to be located at the Water Treatment Plant. The design included gravity sewer interceptor lines being extended upstream to abandon three SPS's as well as a sewer force main that would discharge at the WRRF.

In January, SSR presented an updated cost estimate to staff based on recent costs of materials and construction. This updated cost estimate of the NERPS, gravity sewer and sewer force main was ~\$40M, which was an increase from the previous estimate of ~\$20M. It is this increase coupled with the small amount of developable land in the Basin upstream of this NERPS that staff felt compelled to study another alternative to reduce sewer flows to the existing VA and Thompson Lane pump stations and ultimately reduce flows from the Sinking Creek Interceptor.

Staff is requesting CIA to go back and revisit the design of the eastern most SPS along Cherry Lane. Staff would like to determine if the existing SPS's in the area could be re-routed to the eastern most proposed SPS and discharge to the WRRF, instead of Thompson Lane, to alleviate the possible need for future upgrades to the VA and Thompson Lane SPS's as well as the Sinking Creek Interceptor.

Staff recommended the Board recommend to City Council approval of this engineering proposal from CIA.

The Engineering proposal is in an amount not to exceed \$35,000. Funding will be from the Department's working capital reserves account.

Brian Kidd made a motion to approve. Kathy Nobles seconded. The motion unanimously passed.

The Board considered Temporary Flow Monitoring Study of Basins MF08 and MF12.

Staff proposes to install temporary flow monitoring in Basins MF08 and MF12. This monitoring, through our professional services contract with ADS, LLC, will determine existing sewer flows coming to the SPS's within the Basin and also determine whether they are at capacity or can handle additional flows as the vacant properties within the Basin are developed.

The information from this monitoring will assist staff in determining if the NERPS design should continue or be abandoned, it will also assist staff in determining whether it is best for the system to upsize the eastern most SPS along Cherry Lane to take flows off of the VA and Thompson Lane SPS's and ultimately the Sinking Creek Interceptor.

In addition to the study of Basin MF08, staff also requested to install three temporary flow monitors to study the flows coming from the industries around General Mills (GM) which is an isolated area in Basin MF12. Staff has received several complaints from GM of sewer backup during wet weather and this

monitoring will help determine base sewer flows and if there are capacity issues during both dry and wet weather.

Staff performs temporary flow monitoring each year which is not typically brought to the Board for approval since staff stays within the approved annual budget amount. However, with the amount of monitors needed this year to cover Basin MF08 and MF12, staff felt it necessary to request approval.

Staff recommended the Board recommend to City Council approval of the additional monies, that will exceed the budget, in the amount of \$71,250.

Sandra Trail made a motion to approve. Madelyn Scales-Harris seconded. The motion unanimously passed.

The Board considered 285 N. Rutherford Apartments request for sewer variance.

Since 2020, the City and staff have received requests to renovate two different apartment complexes that currently allow renting out individual bedrooms instead of full apartment units as a whole. One is located at 2829 S. Rutherford Blvd (SRB) and the other is along 2315 N. Tennessee Blvd. The Capstone Real Estate Investment Group is in the middle of renovations to take these 3 and 4 bedroom units and split or bifurcate the units into a certain number of 1 and 2 bedroom units. This bifurcation will increase the number of units in an apartment complex, but at the same time reduce the number of beds and occupants.

Water usage data used at the SRB apartments, which has 3 and 4 rent by the bedroom units, was compared with the Richland Falls apartments along Dill Lane, which only has 1 and 2 bedroom units and just a few 3 bedroom units that rent as a unit and do not rent by the bedroom.

<i>Item</i>	<i>SRB (Rent by the Room complex)</i>	<i>Richland Falls (1, 2-bedroom Unit complex)</i>	<i>% Increase or Decrease</i>
Number of Units	180	276	53.3%
Number of Bedrooms	648	488	-24.7%
Bedroom to Unit Ratio	3.60	1.77	-50.9%
Number of Kitchens	180	276	53.3%
Number of Bathrooms	384	466	21.4%
<b>July 2019 - June 2020 Sewage discharge (gal)</b>	<b>16,529,586</b>	<b>7,624,000</b>	<b>-53.9%</b>
<b>July 2019 - June 2020 Sewage discharge per unit (gal)</b>	<b>91,831</b>	<b>27,623</b>	<b>-69.9%</b>

The most noteworthy comparison is the decrease in sewer discharged in total and on a per room basis when the bedroom count decreases and units are no longer rented by the room. Actual water usage data from a renovated apartment complex has not been made available to validate the comparisons; however, the reduction is so substantial on the two complexes evaluated, staff is confident there will be a reduction in discharge to the sewer in future bifurcation proposals.

The current proposal located at 285 N. Rutherford Blvd (NRB) apartment also has 3 and 4 rent by the bedroom units. The developer is requesting to bifurcate to 1-2 bedroom units for individual rentals.

The NRB, like the SRB location, is located within restricted Sewer Flow Basins 10-3 & 10-4. These Basins have been designated as only being able to develop at 2.5 single family units per acre (sfu/acre). Per City Code, an apartment unit is treated as one single family unit regardless of bedroom count.

Given the anticipated reduction of sewer discharge in an already stressed portion of MWRD's sewer collection system, staff supports this bifurcation within this restricted sewer flow basin. Staff will stipulate as a requirement that all existing water fixtures within these units be disposed of, and that all new low flow fixtures be installed with the renovations.

Staff recommended the Board recommend to City Council approval of a variance for this NRB location within Sewer Flow Basin 10-4.

With the increase in the number of proposed units, the development will be required to pay additional sewer connection fees in the amount of \$2550/unit over and above the number of existing units.

Brian Kidd made a motion to approve. Ron Crabtree seconded. The motion unanimously passed. Staff provided the Board a PowerPoint presentation of the IT Master Plan and CMMS Discovery.

The Murfreesboro Water Resources Department (MWRD) developed an Information Technology Master Plan with the help of Westin Engineering in January of 2013. The Department was very aggressive implementing the following enterprise-wide, off-the-shelf, state-of-the art software platforms:

- EZ-PAY on-line credit card payment system
- Customer Information System (CIS) replacement with Advanced Utility Systems (AUS)
- Mobile Workforce Management (MWM); a service order tracking system within AUS
- Interactive Voice Response (IVR); an over the phone account inquiry and payment system with AUS.
- Advanced Metering Infrastructure (AMI); wireless meter reading implementation offering early leak notification and water budgeting tools.
- Financial Information Systems (FIS) replacement with MUNIS Enterprise Resource Planning (ERP) software; integrating with the City's budgeting, payroll, and procurement process.

All of these systems were implemented and actively on-line by June of 2017. The last remaining element of the Department's IT Master Plan is the Computerized Maintenance Management System (CMMS).

Recently, however, Rutherford County acquired Cityworks, a GIS-centric solutions for public asset management that integrates with the County's and City's ESRI Geographic Information System (GIS) mapping platform.

The City of Murfreesboro was able to acquire Cityworks by "piggy-backing" off of the County's contract. Murfreesboro's primary goal in utilizing Cityworks is its PLL module, a GIS-centric solution for (P)ermitting, (L)icensing, and (L)and management. Murfreesboro has been slowly implementing PLL with the expectation that they will be able to track the full lifecycle of public assets and achieve greater

collaboration across departments. The Water Resources Department is within the workflow of PLL and expects to achieve greater efficiencies in plan reviews and approvals.

AMS, or Asset Management System, is a less complicated module of Cityworks to implement. The City Streets Department has successfully implemented AMS and expects to start tracking digital service and work orders by June of this year.

The quick wins for O&M and Customer Service will be the consolidation of service and work orders in one system; increasing preventive maintenance efficiencies, as well as allow us to determine likelihood and consequence of failure of critical assets. AMS will also allow the Department to review and access inventory of assets quicker and timelier.

The Task Order for implementing components of Cityworks AMS for FY22 is anticipated to be \$75,000 and approximately \$300,000 for FY23. MWRD has budgeted \$750,000 for AMS implementation for FY22 and FY23.

Staff provided the Board a PowerPoint presentation of U.S. EPA Lead and Copper Rule Revisions.

The U.S. EPA established an effective date for the Lead and Copper Rule Revisions (LCRR) of December 16, 2021. The new LCRR's compliance deadline is October 16, 2024. This gives drinking water systems almost three years to take actions needed for regulatory compliance. The Department must complete a lead service line inventory. All service lines on the Department's side and private side must be evaluated to ensure that no service lines meeting the EPA's requirement exist. If they do exist, a plan must be developed to replace these lines on the public and/or private side. In addition, a plan must be developed to sample all schools and childcare facilities.

EPA established the Lead and Copper Rule (LCR) in 1991 to protect public health and reduce exposure to lead and copper in drinking water. The rule requires systems to monitor drinking water at customer taps. If lead concentrations exceed an action level of 0.015 mg/L (15 ppb) or copper concentrations exceed an action level of 1.3 mg/L in more than 10% (90<sup>th</sup> percentile) of customer taps sampled, the system must undertake several additional actions to control corrosion. If the action level for lead is exceeded, the system must also inform the public about steps they should take to protect their health and may have to replace lead service lines under their control.

While the action level of lead remains at 0.015 mg/L (15 ppb) and action level of copper remains at 1.3 mg/L, there is a new trigger level for lead at 0.010 mg/L (10 ppb). It also has increased sampling per location. The current rule has a one-liter sample collected and the new LCRR has five one-liter collections. The only samples used are the first one-liter and the fifth one-liter.

The new LCRR is changing how corrosion control is evaluated and what type of phosphate is recognized for corrosion control. EPA will only recognize orthophosphate as a phosphate for corrosion control. The Department will be making slight adjustments to its phosphate in order to meet the new requirements. This will result in a substantial increase in the phosphate expenditures from previous years.

The Department’s plan for its service lines is to get certification of employees who can confirm the materials used when installing the service line. This certification is acceptable by TDEC and EPA. There could be as many as 13,400 customer private service lines that will need physical investigations. This will require digging down on the private side of the meter box to identify the composition/material of the customer’s service line. This will involve notification to our customers of the required work and why the work is being conducted.

The Board considered FY2026 Pro Forma and FY2023 Rate recommendation.

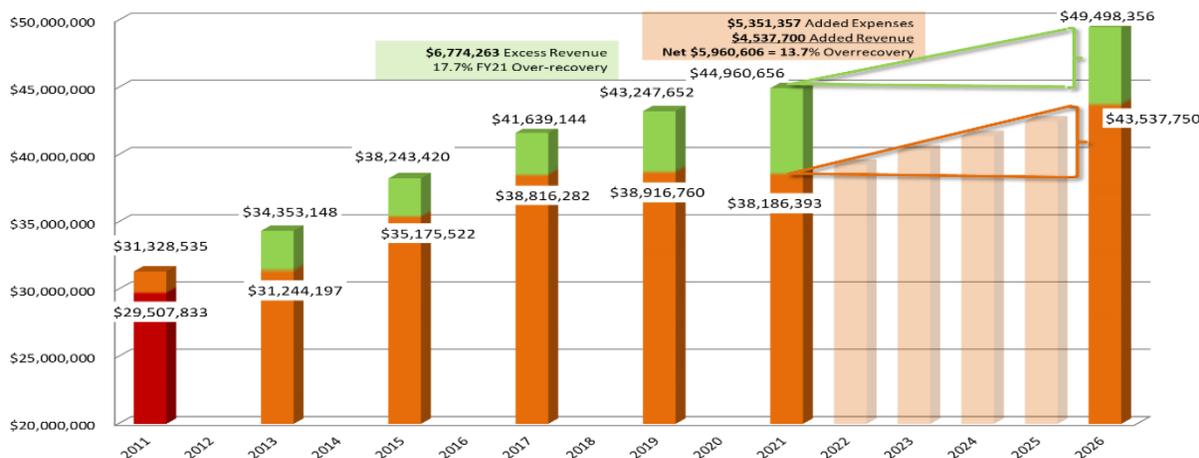
The Murfreesboro Water Resources Department was provided a cost-of-service study (COSS) from Jackson Thornton Utilities Consultants for FY2021. Jackson Thornton has also provided staff a pro forma for FY2026. The FY2026 pro forma was run using two scenarios:

- 1) Scenario “A” assumes no new debt was added between FY21 and FY26. This assumes using reserves on hand to pay for \$45,000,000 in capital projects.
- 2) Scenario “B” where \$45,000,000 in debt (20-yr @ 4%) is incurred to pay for projects such as the Northeast Regional Pumping Station and Force Main and the full scale biosolids drying at the Water Resource Recovery Facility (WRRF).

Water revenue is expected to under-recover in FY26, but sewer is expected to over-recover in FY26. Sewer over-recovers to such a degree that it can effectively subsidize the water revenue shortfall. This is not ideal in one of the principles involved in cost of service, which is to have each fund have a rate design that covers all of its incurred expenses.

The chart below illustrates the total water and sewer expenses and revenues. The most relevant number to note is the \$5,960,606 net over-recovery in FY26, or \$49,498,356 minus \$43,537,750. The assumptions of the No Debt scenario demonstrate a 13.7% over-recovery in FY26.

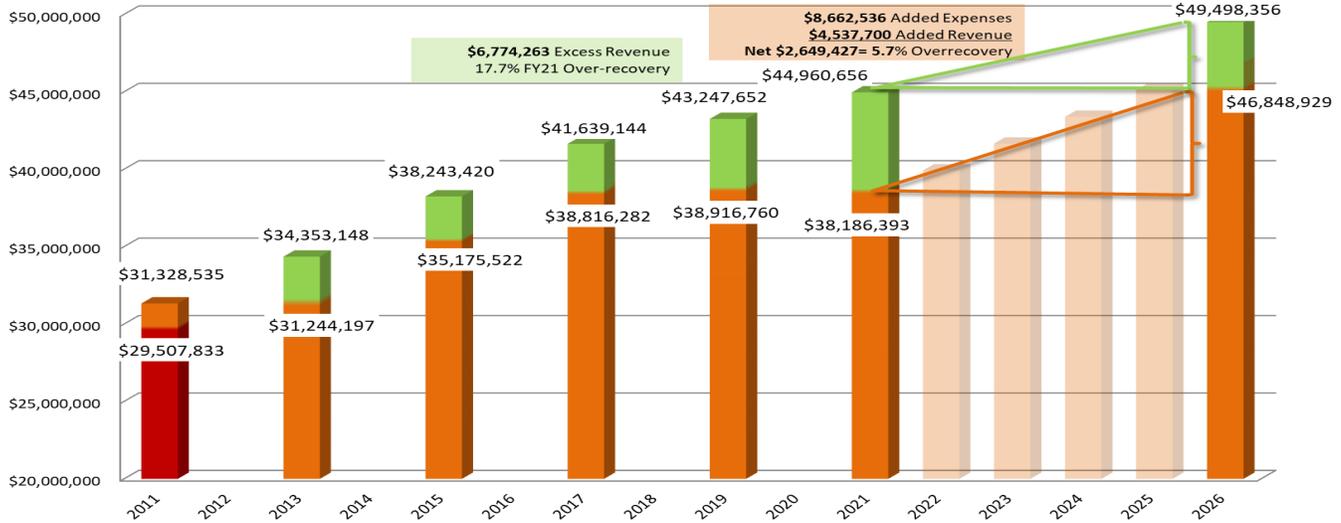
**Historical COS Studies and FY26 Pro Forma (No Debt Scenario)**



The next chart is also a combined look at both water and sewer revenues with the assumption of \$45,000,000 in debt service (20-yrs @ 4% fixed interest). The most relevant number to note is the

\$2,649,427 net over-recovery in FY26, or \$49,498,356 minus \$46,848,929. The assumptions of the \$45M in debt scenario demonstrate a 5.7% over-recovery in FY24.

**Historical COS Studies and FY26 Pro Forma (\$45M Debt Scenario)**



No new debt is associated with water expenses during the timeframe between FY21 and FY26, so debt service does not affect increased expenses; therefore, the increase of \$2,221,376 is associated with operations and maintenance only. Also, MWRD’s water system is encompassed by Consolidated Utility District of Rutherford County; therefore, minimal revenue derived from growth has been integrated into the FY26 pro forma, or \$433,877. Using these assumptions, the water revenues are expected to fall short in an amount of \$(1,584,435) as compared to expenses in FY26, under-recovering (9.4)%.

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 FY26. Making these adjustments over a 4-yr period in conjunction with FY22’s water rate increase would make up 95% of the “gap” of the anticipated shortfall.

**Proposed Minimum Monthly Charge Adjustments**

Meter Size (INCH)	FY22 Total minimum	FY23 Proposed minimum	Difference	# Of Accounts	Added Revenue
5/8”	\$8.72	\$9.72	\$1.00	25,434	\$305,213
1”	\$20.71	\$21.54	\$0.83	689	\$6,851
1-1/2”	\$43.77	\$45.08	\$1.31	344	\$5,421
2”	\$69.05	\$70.77	\$1.72	437	\$9,052
3”	\$164.40	\$164.40	\$0.00	96	\$0.00
4”	\$328.80	\$328.80	\$0.00	26	\$0.00
> 6”	\$685.00	\$685.00	\$0.00	12	\$0.00
			Total	27,038	\$326,536

Current rates curves for water and sewer show that 9,575 gallons of water per month are required to be sold to residential customers before full cost-of-service recovery; however, for sewer only 3,240 gallons of sewer are required to be sold to achieve full cost-recovery. Given the averages of 5,730 gallons per month of water consumed by residential customers and 4,900 gallons per month of sewer, one can see why the sewer fund is over-recovering and water fund is under-recovering.

MWRD's current rate design meets the affordability index for 1-person through 5-person homes. The pro forma for FY26 also meets the current 2021 HUD affordability indexes. The cost-of-service for FY21 and pro forma for FY26 do show the need to increase the minimum monthly fees rather substantially and flatten out the commodity charges.

Staff recommended the Board recommend to City Council the minimum monthly water charge adjustments as identified for 5/8" meters through 2" meters. No sewer fee adjustments are recommended.

Brian Kidd made a motion to approve. Ron Crabtree seconded. The motion unanimously passed.

Staff presented and discussed the Water Resources Dashboard Performance for February 2022.

Staff presented the Financial Reports for the year ending February 28, 2022.

There being no further business, the meeting was adjourned.

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John Sant Amour, Chairman