

**CITY OF SHAVANO PARK
WATER ADVISORY COMMITTEE MEETING
900 SADDLETREE COURT, SHAVANO PARK, TX 78231
MONDAY, APRIL 20, 2020
5:00 PM
AGENDA**

SUPPLEMENTAL NOTICE OF MEETING BY LIVESTREAM / TELEPHONE CONFERENCE:

**THIS MEETING WILL BE CLOSED TO IN-PERSON ATTENDANCE BY
THE PUBLIC.**

In accordance with Order of the Office of the Governor issued March 16th, 2020, the governor has suspended various provisions of the Open Meetings Act pursuant to his state disaster authority, which now authorize the participation of a meeting by live-video stream or telephone. The City of Shavano Park Water Advisory Committee will conduct the Regular Meeting on Monday, April 20, 2020 at 5:00 p.m. at 900 Saddletree Court, Shavano Park Council Chambers in part by Livestream / telephone conference in order to advance the public health goal of limiting face-to-face meetings (also called “social distancing”) and slow down the spread of the Coronavirus (COVID-19).

Telephone Participation. The public toll-free dial-in number to participate in the telephonic meeting is 1-877-568-4106 and requires access code 242-031-093.

Livestream Participation. The livestream available via the GoToMeeting website from your computer, tablet or smartphone at: <https://www.gotomeet.me/ShavanoPark/april13wac>

You may be asked to download the free GoToMeeting app from Google Play or the Apple App Store. Follow GoToMeeting’s instructions to download and install the app.

The Livestream / telephone conference will be available to join at 4:30 pm (30 minutes prior to the meeting).

The public will be permitted to offer comments telephonically as provided by the agenda during Citizen’s to be Heard. Citizens who want to speak during this period, should sign up to speak prior to the beginning of the meeting by stating their intent and providing Name, Address, and Topic to be addressed. Follow the guidelines under agenda item 3. If unable to participate in the meeting, you may submit public comments by email to ztedford@shavanopark.org.

The meeting agenda and agenda packet are posted online at www.shavanopark.org.

A recording of the telephonic meeting will be made, and will be available to the public in accordance with the Open Meetings Act upon written request.

1. CALL TO ORDER

2. ROLL CALL

3. CITIZENS TO BE HEARD

The Water Advisory Committee welcomes Citizens to be heard, we request that if you wish to speak that you follow these guidelines. Pursuant to Resolution No. R-2019-011 citizens are given three (3) minutes to speak during Citizens to be heard. Members of the public may only speak once and cannot pass the individual's allotted time to someone else. In compliance with the Texas Open Meetings Act, the Water Advisory Committee may not deliberate on comments (Attorney General Opinion – JC0169)

4. CONSENT AGENDA

- a. Approval – Water Advisory Committee Meeting Minutes, March 9, 2020

5. REPORTS - Public Works Director Update

- a. Water system
 - i. Water System Infrastructure Updates
- b. Financial Report – February 2020

6. REGULAR BUSINESS

- a. Discussion / action – Replacement options for future water meters: “Drive-by” vs. “Cellular” data collection - PW Director
- b. Discussion / Update - Trinity Well Update - PW Director / Engineer

7. FUTURE ITEMS

- c. NW Military Water Line relocation

8. ADJOURNMENT

I, the undersigned authority, do hereby certify that the above Notice of Meeting of the governing body of the above named City of Shavano Park Water Advisory Committee is a true and correct copy of said Notice and that I posted a true and correct copy of said Notice on the bulletin boards, of the City Hall of said City Shavano Park, Texas, a place convenient and readily accessible to the general public at all times, and said Notice was posted on this the 15th day of April 2020 at 5:00 p.m. and remained so posted continuously for at least 72 hours preceding the scheduled time of said meeting.


Zina Tedford
City Secretary

Accessibility Statement

The City of Shavano Park City Hall is wheelchair accessible. The entry ramp is located in the front of the building. Accessible parking spaces are also available in the front and sides of the building. Sign interpretative services for meetings must be made 48 hours in advance of the meeting. Call the A.D.A. Coordinator at 817-447-5400 or TDD 1-800-735-2989.

**CITY OF SHAVANO PARK
WATER ADVISORY COMMITTEE MEETING
900 SADDLETREE CT, SHAVANO PARK, TX 78231
MONDAY, MARCH 9th, 2020**

6:30 P.M.
MINUTES

1. CALL TO ORDER

The meeting was called to order at 6:30 p.m. by Chairman Walea

2. ROLL CALL

PRESENT:

Al Walea
Tommy Peyton
Sam Bakke
Tomas Palmer

ABSENT:

Steve Fleming
Matt Trippy

3. CITIZENS TO BE HEARD

None

4. CONSENT AGENDA

a. Approval - Water Advisory Committee Meeting Minutes, February 10th, 2020

Member Peyton moved to approve above minutes, Member Palmer seconded. Motion passed.

5. REPORTS – Public Works Director Update

a. Water System

i. Well # 5 Repair Update

Director Peterson reviewed that Well # 5 went out on Sunday, February 23rd. The well was pulled on the 25th and inspected. On the 26th the well was televised and final inspection observed that motor was maxed out and blew the seals. On the 28th the well was put back together with a 50 hp motor vs the 40 hp originally installed. The well has not been back online because of rain delays and tests that came back with positive Bac-T results. Another test will be done on March 10th.

ii. Water System Infrastructure Updates

Well # 6 has had faulting issues again and the phase monitor, fuses and resisters were replaced. Wells # 7 & # 8 have been running without issues and Well # 9 will be discussed in a few minutes.

TxDot/NW Military update – City Manager Hill sent out an update last week and indicated that the asbestos pipe will be pulled, some might, but the majority will be filled in with grout.

Grant for the dump truck was signed and sent back. We are waiting for the signed contract before we can get the new truck built.

b. Financial Report December 2019

Finance Director Morey reviewed the financials for January and indicated that we were ahead of last year. The expenditures were right on target with last year. The revenues for the Debt Service, EAA and Water Service Fees are all ok. Member Tomas motioned to accept the financials and Member Peyton seconded. Motion passed.

6. REGULAR BUSINESS

a. Water Fund Budget Amendment – PW Director/Finance Director

Finance Director Morey reviewed what the amendment covered with the addition of monies for 50 water meters, Well # 5 motor equipment replacement, the new dump truck and the Miox System. Member Peyton made a motion to approve the Budget Amendment, Member Palmer seconded. Motion passed.

b. Discussion/action - Trinity Well Update - PW Peterson

Director Peterson introduced Mark Roetzel, a consultant who did the analysis of the Trinity Well. (Report is attached). Discussion concluded that the first thing to do is to camera the well again and do a gama test for 36 hrs. to see what those results show. Member Palmer motioned to camera the well and do the 36 hour gamma test before any further actions are taken and follow-up next meeting. Member Peyton seconded. Motion passed.

7. FUTURE ITEMS

a. Water Meter Drive-by System vs Cellular Read

8. ADJOURNMENT

Member Palmer made a motion to adjourn, Member Peyton seconded. Motion to adjourn passed. Meeting adjourned at 7:35p.m.

Peggy Stone
PW/Water Utility
Office Manager

Al Walea, Chairman

Date: _____

WATER ADVISORY COMMITTEE STAFF SUMMARY

Meeting Date: April 13, 2020

Agenda item: 5.b.

Prepared by: Brenda Morey

Reviewed by: Bill Hill

AGENDA ITEM DESCRIPTION:

Presentation of February 2020 Monthly Report

X

Attachments for Reference:

1) February 2020 Revenue and Expense Report

BACKGROUND / HISTORY:

The information provided in the attachment is for the FY 2019-20 budget period, month ending February 29, 2020. The "Current Budget" column contains the original adopted budget. This summary highlights a number of points related to the current month's activity.

DISCUSSION:

As of February 29, 2020, the Water Fund total revenues are \$425,131 or 40.96% of the total annual budgeted amount. Water Fund (Water Department & Debt Service) expenses total \$438,879 or 42.29% of budget.

Revenues:

- Water consumption (5015) billed in February for usage during the month of January is \$25,562. Total consumption for the month is approximately 1,879,000 gallons more than the same month, prior year or \$7,596 of revenue due to a drier than normal month.
- The Debt Service Charge (5018) and Water Service Fee (5019) remain on target with budget as these are flat fees and not related to volume charges recognized, at 41.76% and 42.03% respectively.
- The EAA Pass Thru (5036) fees are charged to customers based on usage, \$3,678 was recorded for the month and 40.98% of the annual budgeted amount has been recognized to date.

Expenses:

Water department (606) expenses for the day-to-day operations are below budget with \$41,557 spent this month or 33.82% utilized year to date. SCADA System Maintenance (6070) includes the cost of renewal of the annual maintenance contract. Water System Maintenance (6072) includes costs for hydrant parts for repairs. Bad debt expense (9050) reflects two accounts written off, both situations involved leaks, properties were sold, approximately one half of the account balances had been paid.

Debt service payments were made as scheduled in February, for principal and interest. The next payments are due in August, for interest only.

Payroll:

The City is on a bi-weekly payroll; there have been 11 pay periods out of 26 so 42.31% of the budget should be expensed in the line items directly related to personnel. The Utility is below budget in the Salaries (1010) due to the vacancy in the superintendent position, which is charged 50/50 between Public Works and the Water Utility. This position was filled at the end of February. Overtime is ahead of budget for the year at 66.34%. On top of the normal overtime for weekend well readings, this fiscal year the crew has addressed two main breaks, both on Happy Trail. TMRS (1040) expense is at 39.92%, on track with the related compensation accounts. Expense for Workers' Comp Insurance (1037) is recognized quarterly and is at 19.24%, below budget due to the position vacancy. Next expense recognition will be in March. Special allowances and employee insurance accounts are also below budget due to superintendent vacancy.

COURSES OF ACTION: None related to the Report.

FINANCIAL IMPACT: N/A

STAFF RECOMMENDATION: N/A

CITY OF SHAVANO PARK
REVENUE & EXPENSE REPORT (UNAUDITED)
AS OF: FEBRUARY 29TH, 2020

20 -WATER FUND
FINANCIAL SUMMARY

% OF YEAR COMPLETED: 41.67

| | CURRENT BUDGET | CURRENT PERIOD | YEAR TO DATE ACTUAL | BUDGET BALANCE | % OF BUDGET |
|-------------------------------------|---------------------|-------------------|------------------------|-------------------|----------------|
| <u>REVENUE SUMMARY</u> | | | | | |
| NON-DEPARTMENTAL | <u>1,037,890.00</u> | <u>60,634.76</u> | <u>425,130.50</u> | <u>612,759.50</u> | <u>40.96</u> |
| TOTAL REVENUES | <u>1,037,890.00</u> | <u>60,634.76</u> | <u>425,130.50</u> | <u>612,759.50</u> | <u>40.96</u> |
| | ===== | ===== | ===== | ===== | ===== |
| <u>EXPENDITURE SUMMARY</u> | | | | | |
| WATER DEPARTMENT | 849,856.00 | 41,556.99 | 287,413.68 | 562,442.32 | 33.82 |
| DEBT SERVICE | <u>188,034.00</u> | <u>151,465.46</u> | <u>151,465.46</u> | <u>36,568.54</u> | <u>80.55</u> |
| TOTAL EXPENDITURES | <u>1,037,890.00</u> | <u>193,022.45</u> | <u>438,879.14</u> | <u>599,010.86</u> | <u>42.29</u> |
| | ===== | ===== | ===== | ===== | ===== |
| REVENUES OVER/ (UNDER) EXPENDITURES | 0.00 | (132,387.69) | (13,748.64) | 13,748.64 | 0.00 |

20 -WATER FUND
FINANCIAL SUMMARY

% OF YEAR COMPLETED: 41.67

| REVENUES | CURRENT BUDGET | CURRENT PERIOD | YEAR TO DATE ACTUAL | BUDGET BALANCE | % OF BUDGET |
|--|-------------------|-------------------|------------------------|-------------------|----------------|
| <u>NON-DEPARTMENTAL</u> | | | | | |
| <u>WATER SALES</u> | | | | | |
| 20-599-5015 WATER CONSUMPTION | 627,000.00 | 25,561.82 | 257,020.39 | 369,979.61 | 40.99 |
| 20-599-5016 LATE CHARGES | 6,000.00 | 0.00 | 1,973.34 | 4,026.66 | 32.89 |
| 20-599-5018 DEBT SERVICE | 188,317.00 | 15,738.26 | 78,646.14 | 109,670.86 | 41.76 |
| 20-599-5019 WATER SERVICE FEE | 58,092.00 | 4,878.16 | 24,416.68 | 33,675.32 | 42.03 |
| 20-599-5036 EAA PASS THRU CHARGE | 83,681.00 | 3,677.50 | 34,292.50 | 49,388.50 | 40.98 |
| 20-599-5037 CONNECTION/DISCONNECT FEE | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-599-5040 TAPPING FEES | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL WATER SALES | 963,090.00 | 49,855.74 | 396,349.05 | 566,740.95 | 41.15 |
| <u>MISC./GRANTS/INTEREST</u> | | | | | |
| 20-599-7000 INTEREST INCOME | 12,000.00 | 588.04 | 5,072.96 | 6,927.04 | 42.27 |
| 20-599-7011 OTHER INCOME | 0.00 | 2.67 | 9.79 (| 9.79) | 0.00 |
| 20-599-7012 LEASE OF WATER RIGHTS | 10,000.00 | 0.00 | 0.00 | 10,000.00 | 0.00 |
| 20-599-7028 TCEQ GRANT | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-599-7060 CC SERVICE FEES | 1,200.00 | 129.78 | 862.56 | 337.44 | 71.88 |
| 20-599-7075 SITE/TOWER LEASE REVENUE | 37,200.00 | 3,094.87 | 15,464.24 | 21,735.76 | 41.57 |
| 20-599-7090 SALE OF FIXED ASSETS | 0.00 | 0.00 | 408.24 (| 408.24) | 0.00 |
| 20-599-7097 INSURANCE PROCEEDS | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL MISC./GRANTS/INTEREST | 60,400.00 | 3,815.36 | 21,817.79 | 38,582.21 | 36.12 |
| <u>TRANSFERS IN</u> | | | | | |
| 20-599-8072 TRF IN-CAPITAL REPLACEMENT | 14,400.00 | 6,963.66 | 6,963.66 | 7,436.34 | 48.36 |
| 20-599-8090 PRIOR PERIOD ADJUSTMENT | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-599-8099 TRF IN - RESERVES | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL TRANSFERS IN | 14,400.00 | 6,963.66 | 6,963.66 | 7,436.34 | 48.36 |
| TOTAL NON-DEPARTMENTAL | 1,037,890.00 | 60,634.76 | 425,130.50 | 612,759.50 | 40.96 |
| TOTAL REVENUES | 1,037,890.00 | 60,634.76 | 425,130.50 | 612,759.50 | 40.96 |
| | ===== | ===== | ===== | ===== | ===== |

20 -WATER FUND
WATER DEPARTMENT

% OF YEAR COMPLETED: 41.67

| EXPENDITURES | CURRENT BUDGET | CURRENT PERIOD | YEAR TO DATE ACTUAL | BUDGET BALANCE | % OF BUDGET |
|---|-------------------|-------------------|------------------------|-------------------|----------------|
| <u>PERSONNEL</u> | | | | | |
| 20-606-1010 SALARIES | 206,130.00 | 13,546.81 | 74,243.39 | 131,886.61 | 36.02 |
| 20-606-1015 OVERTIME | 8,000.00 | 97.12 | 5,306.94 | 2,693.06 | 66.34 |
| 20-606-1020 MEDICARE | 2,990.00 | 200.57 | 1,171.91 | 1,818.09 | 39.19 |
| 20-606-1025 TWC (SUI) | 720.00 | 0.00 | 0.00 | 720.00 | 0.00 |
| 20-606-1030 HEALTH INSURANCE | 27,450.00 | 2,002.00 | 10,010.00 | 17,440.00 | 36.47 |
| 20-606-1031 HSA | 170.00 | 12.95 | 64.75 | 105.25 | 38.09 |
| 20-606-1033 DENTAL INSURANCE | 1,360.00 | 106.64 | 533.20 | 826.80 | 39.21 |
| 20-606-1035 VISION CARE INSURANCE | 330.00 | 25.35 | 126.75 | 203.25 | 38.41 |
| 20-606-1036 LIFE INSURANCE | 280.00 | 19.50 | 97.50 | 182.50 | 34.82 |
| 20-606-1037 WORKERS' COMP INSURANCE | 6,890.00 | 0.00 | 1,325.67 | 5,564.33 | 19.24 |
| 20-606-1040 TMRS RETIREMENT | 28,750.00 | 1,972.56 | 11,478.01 | 17,271.99 | 39.92 |
| 20-606-1070 SPECIAL ALLOWANCES | <u>10,650.00</u> | <u>496.18</u> | <u>2,728.99</u> | <u>7,921.01</u> | <u>25.62</u> |
| TOTAL PERSONNEL | 293,720.00 | 18,479.68 | 107,087.11 | 186,632.89 | 36.46 |
| <u>SUPPLIES</u> | | | | | |
| 20-606-2020 OFFICE SUPPLIES | 1,500.00 | 145.87 | 424.86 | 1,075.14 | 28.32 |
| 20-606-2030 POSTAGE | 3,130.00 | 241.03 | 1,554.37 | 1,575.63 | 49.66 |
| 20-606-2035 EMPLOYEE APPRECIATION | 100.00 | 0.00 | 22.49 | 77.51 | 22.49 |
| 20-606-2050 PRINTING & COPYING | 600.00 | 0.00 | 23.81 | 576.19 | 3.97 |
| 20-606-2060 MED EXAMS/SCREENING/TESTING | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 |
| 20-606-2070 JANITORIAL SUPPLIES | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 |
| 20-606-2075 BANK/CREDITCARD FEES | 5,100.00 | 1,023.51 | 4,778.76 | 321.24 | 93.70 |
| 20-606-2080 UNIFORMS | 1,200.00 | 174.98 | 409.14 | 790.86 | 34.10 |
| 20-606-2090 SMALL TOOLS | 2,000.00 | 0.00 | 1,834.15 | 165.85 | 91.71 |
| 20-606-2091 SAFETY SUPPLIES/EQUIPMENT | <u>1,200.00</u> | <u>0.00</u> | <u>655.61</u> | <u>544.39</u> | <u>54.63</u> |
| TOTAL SUPPLIES | 15,030.00 | 1,585.39 | 9,703.19 | 5,326.81 | 64.56 |
| <u>SERVICES</u> | | | | | |
| 20-606-3012 ENGINEERING SERVICES | 10,000.00 | 0.00 | 831.25 | 9,168.75 | 8.31 |
| 20-606-3013 PROFESSIONAL SERVICES | 2,000.00 | 0.00 | 0.00 | 2,000.00 | 0.00 |
| 20-606-3020 ASSOCIATION DUES & PUBS | 2,215.00 | 0.00 | 682.00 | 1,533.00 | 30.79 |
| 20-606-3030 TRAINING/EDUCATION | 2,700.00 | 765.00 | 1,350.00 | 1,350.00 | 50.00 |
| 20-606-3040 TRAVEL/MILEAGE/LODGING/PERD | 1,500.00 | 0.00 | 65.42 | 1,434.58 | 4.36 |
| 20-606-3050 INSURANCE - LIABILITY | 4,075.00 | 0.00 | 3,797.87 | 277.13 | 93.20 |
| 20-606-3060 UNIFORM SERVICES | 2,500.00 | 163.15 | 1,003.03 | 1,496.97 | 40.12 |
| 20-606-3070 INSURANCE - PROPERTY | 1,985.00 | 0.00 | 1,850.00 | 135.00 | 93.20 |
| 20-606-3075 CONSERV. ED./REBATES | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 |
| 20-606-3080 SPECIAL SERVICES | 500.00 | 18.05 | 429.20 | 70.80 | 85.84 |
| 20-606-3082 WATER ANALYSIS FEES | <u>6,500.00</u> | <u>58.00</u> | <u>2,637.70</u> | <u>3,862.30</u> | <u>40.58</u> |
| TOTAL SERVICES | 34,075.00 | 1,004.20 | 12,646.47 | 21,428.53 | 37.11 |
| <u>CONTRACTUAL</u> | | | | | |
| 20-606-4075 COMPUTER SOFTWARE/INCODE | 9,066.00 | 223.82 | 5,052.86 | 4,013.14 | 55.73 |
| 20-606-4085 EAA -WATER MANAGEMENT FEES | 84,084.00 | 6,586.52 | 34,192.63 | 49,891.37 | 40.66 |
| 20-606-4086 CONTRACT LABOR | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-4099 WATER RIGHTS/LEASE PAYMENTS | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL CONTRACTUAL | 93,150.00 | 6,810.34 | 39,245.49 | 53,904.51 | 42.13 |

20 -WATER FUND
WATER DEPARTMENT

% OF YEAR COMPLETED: 41.67

| EXPENDITURES | CURRENT BUDGET | CURRENT PERIOD | YEAR TO DATE ACTUAL | BUDGET BALANCE | % OF BUDGET |
|---|-------------------|-------------------|------------------------|-------------------|----------------|
| <u>MAINTENANCE</u> | | | | | |
| 20-606-5005 EQUIPMENT LEASES | 1,500.00 | 0.00 | 150.00 | 1,350.00 | 10.00 |
| 20-606-5010 EQUIPMENT MAINT & REPAIR | 5,000.00 | 0.00 | 2,582.65 | 2,417.35 | 51.65 |
| 20-606-5015 ELECTRONIC EQPT MAINTENANCE | 500.00 | 0.00 | 177.29 | 322.71 | 35.46 |
| 20-606-5020 VEHICLE MAINTENANCE | 3,000.00 | 35.04 | 382.85 | 2,617.15 | 12.76 |
| 20-606-5030 BUILDING MAINTENANCE | 2,500.00 | 0.00 | 258.43 | 2,241.57 | 10.34 |
| 20-606-5060 VEHICLE & EQPT FUELS | <u>4,000.00</u> | <u>532.00</u> | <u>1,794.73</u> | <u>2,205.27</u> | <u>44.87</u> |
| TOTAL MAINTENANCE | 16,500.00 | 567.04 | 5,345.95 | 11,154.05 | 32.40 |
| <u>DEPT MATERIALS-SERVICES</u> | | | | | |
| 20-606-6011 CHEMICALS | 16,500.00 | 0.00 | 5,121.95 | 11,378.05 | 31.04 |
| 20-606-6050 WATER METERS & BOXES | 4,500.00 | 173.38 | 1,460.20 | 3,039.80 | 32.45 |
| 20-606-6055 FIRE HYDRANTS & VALVES | 7,000.00 | 0.00 | 8,940.59 (| 1,940.59) | 127.72 |
| 20-606-6060 HUEBNER STORAGE TANK | 5,000.00 | 590.00 | 10,288.46 (| 5,288.46) | 205.77 |
| 20-606-6061 ELEVATED STORAGE TANK- #1 W | 4,750.00 | 0.00 | 198.75 | 4,551.25 | 4.18 |
| 20-606-6062 WELL SITE #2-EAA MONITORED | 1,300.00 | 0.00 | 0.00 | 1,300.00 | 0.00 |
| 20-606-6063 WELL SITE #3-NOT OPERATION | 1,800.00 | 0.00 | 0.00 | 1,800.00 | 0.00 |
| 20-606-6064 WELL SITE #4-NOT OPERATION | 1,300.00 | 910.48 | 910.48 | 389.52 | 70.04 |
| 20-606-6065 WELL SITE #5-EDWARDS BLENDI | 4,000.00 | 0.00 | 223.49 | 3,776.51 | 5.59 |
| 20-606-6066 WELL SITE #6-MUNI TRACT | 4,000.00 | 0.00 | 222.89 | 3,777.11 | 5.57 |
| 20-606-6067 WELL SITE #7 | 4,000.00 | 0.00 | 3,672.89 | 327.11 | 91.82 |
| 20-606-6068 WELL SITE #8 | 4,000.00 | 0.00 | 222.89 | 3,777.11 | 5.57 |
| 20-606-6069 WELL SITE #9-TRINITY | 4,000.00 | 0.00 | 562.50 | 3,437.50 | 14.06 |
| 20-606-6070 SCADA SYSTEM MAINTENANCE | 7,000.00 | 2,339.25 | 4,822.45 | 2,177.55 | 68.89 |
| 20-606-6071 SHAVANO DRIVE PUMP STATION | 22,500.00 | 0.00 | 8,905.46 | 13,594.54 | 39.58 |
| 20-606-6072 WATER SYSTEM MAINTENANCE | 22,500.00 | 3,113.95 | 10,667.39 | 11,832.61 | 47.41 |
| 20-606-6080 STREET MAINT SUPPLIES | <u>1,500.00</u> | <u>1,604.00</u> | <u>2,406.00 (</u> | <u>906.00)</u> | <u>160.40</u> |
| TOTAL DEPT MATERIALS-SERVICES | 115,650.00 | 8,731.06 | 58,626.39 | 57,023.61 | 50.69 |
| <u>UTILITIES</u> | | | | | |
| 20-606-7040 UTILITIES - ELECTRIC | 75,000.00 | 3,046.39 | 20,775.16 | 54,224.84 | 27.70 |
| 20-606-7042 UTILITIES - PHONE/CELL | 825.00 | 111.00 | 555.00 | 270.00 | 67.27 |
| 20-606-7044 UTILITIES - WATER | <u>300.00</u> | <u>16.75</u> | <u>183.81</u> | <u>116.19</u> | <u>61.27</u> |
| TOTAL UTILITIES | 76,125.00 | 3,174.14 | 21,513.97 | 54,611.03 | 28.26 |
| <u>CAPITAL OUTLAY</u> | | | | | |
| 20-606-8010 NON-CAP ELECTRONIC EQUIPMEN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-8015 NON-CAPITAL - COMPUTERS | 750.00 | 0.00 | 724.40 | 25.60 | 96.59 |
| 20-606-8020 NON-CAPITAL MAINTENANCE EQU | 1,000.00 | 345.00 | 840.24 | 159.76 | 84.02 |
| 20-606-8045 CAPITAL-COMPUTER EQUIPMENT | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-8050 CAPITAL - VEHICLES | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-8060 CAPITAL- EQUIPMENT | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-8080 WATER SYSTEM IMPROVEMENTS | 28,700.00 | 0.00 | 23,856.67 | 4,843.33 | 83.12 |
| 20-606-8081 CAPITAL - BUILDING | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-8085 CAPITAL-WATER TOWER/STORAGE | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-8087 WATER METER REPLACEMENT | 14,400.00 | 0.00 | 6,963.66 | 7,436.34 | 48.36 |
| 20-606-8091 CAPITAL - WELL #1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-8095 CAPITAL - WELL #5 | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL CAPITAL OUTLAY | 44,850.00 | 345.00 | 32,384.97 | 12,465.03 | 72.21 |

CITY OF SHAVANO PARK
REVENUE & EXPENSE REPORT (UNAUDITED)
AS OF: FEBRUARY 29TH, 2020

20 -WATER FUND
WATER DEPARTMENT

% OF YEAR COMPLETED: 41.67

| EXPENDITURES | CURRENT BUDGET | CURRENT PERIOD | YEAR TO DATE ACTUAL | BUDGET BALANCE | % OF BUDGET |
|---|-------------------|-------------------|------------------------|-------------------|----------------|
| <u>INTERFUND TRANSFERS</u> | | | | | |
| 20-606-9000 EOY ASSET RECLASS | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-9010 TRF TO GENERAL FUND | 22,050.00 | 0.00 | 0.00 | 22,050.00 | 0.00 |
| 20-606-9020 TRF TO CAPITAL REP. FUND 72 | 138,706.00 | 0.00 | 0.00 | 138,706.00 | 0.00 |
| 20-606-9050 BAD DEBT EXPENSE | 0.00 | 860.14 | 860.14 (| 860.14) | 0.00 |
| 20-606-9090 DEPRECIATION EXPENSE | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-606-9095 PENSION EXPENSE | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> |
| TOTAL INTERFUND TRANSFERS | 160,756.00 | 860.14 | 860.14 | 159,895.86 | 0.54 |
| | | | | | |
| TOTAL WATER DEPARTMENT | 849,856.00 | 41,556.99 | 287,413.68 | 562,442.32 | 33.82 |

20 -WATER FUND
DEBT SERVICE

% OF YEAR COMPLETED: 41.67

| EXPENDITURES | CURRENT BUDGET | CURRENT PERIOD | YEAR TO DATE ACTUAL | BUDGET BALANCE | % OF BUDGET |
|---|-------------------|-------------------|------------------------|-------------------|----------------|
| <u>CAPITAL OUTLAY</u> | | | | | |
| 20-607-8000 BOND PRINCIPAL EOY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-607-8011 ACCRUED BOND INTEREST | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-607-8012 2009 CO - PRINCIPAL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-607-8013 2009 CO - INTEREST | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-607-8014 2009 GO REFUND - PRINCIPAL | 40,073.00 | 40,072.50 | 40,072.50 | 0.50 | 100.00 |
| 20-607-8015 2009 GO REFUND - INTEREST | 801.00 | 801.45 | 801.45 (| 0.45) | 100.06 |
| 20-607-8016 2017 GO REFUNDING (2009) PR | 70,000.00 | 70,000.00 | 70,000.00 | 0.00 | 100.00 |
| 20-607-8017 2017 GO REFUNDING (2009) IN | 66,400.00 | 33,550.00 | 33,550.00 | 32,850.00 | 50.53 |
| 20-607-8020 BOND UNAMORTIZED LOSS | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-607-8030 BOND AGENT FEES | 200.00 | 200.00 | 200.00 | 0.00 | 100.00 |
| 20-607-8035 BOND ISSUANCE COSTS | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-607-8056 2018 GO REFUNDING (2009) PR | 3,083.00 | 3,082.50 | 3,082.50 | 0.50 | 99.98 |
| 20-607-8057 2018 GO REFUNDING (2009) IN | <u>7,477.00</u> | <u>3,759.01</u> | <u>3,759.01</u> | <u>3,717.99</u> | <u>50.27</u> |
| TOTAL CAPITAL OUTLAY | 188,034.00 | 151,465.46 | 151,465.46 | 36,568.54 | 80.55 |
| <hr/> | | | | | |
| TOTAL DEBT SERVICE | 188,034.00 | 151,465.46 | 151,465.46 | 36,568.54 | 80.55 |
| <hr/> | | | | | |
| TOTAL EXPENDITURES | 1,037,890.00 | 193,022.45 | 438,879.14 | 599,010.86 | 42.29 |
| | ===== | ===== | ===== | ===== | ===== |
| REVENUES OVER/(UNDER) EXPENDITURES | 0.00 (| 132,387.69) (| 13,748.64) | 13,748.64 | 0.00 |
| | ===== | ===== | ===== | ===== | ===== |

Water Advisory Committee Agenda Form

Meeting Date: April 20, 2020

Agenda item: 6.a

Prepared by: Brandon Peterson

Reviewed by: Bill Hill

AGENDA ITEM DESCRIPTION:

Discussion / Action – Replacement options for future water meters: “Drive-by” vs. “Cellular” data collection - PW Director

X

Attachments for Reference:

- 1) New Drive-by Reader Cost
- 2) Cost Comparison between new Meters

BACKGROUND / HISTORY: The City purchased the Badger Meter system in February 2007. The meters purchased at the time were CE (Classic Endpoint) which consists of two components:

- 1) a brass meter body (25 year life)
- 2) a register and endpoint (with a 10 year battery)

At the end of each month, Public Works reads each meter’s water usage by driving through the city with a meter reader. The meter reader is able to read data that is transmitted by the meters and store the data onto the reader where it is downloaded and used to calculate water bills.

In 2013, some of the registers started having issues and not accurately recording the water flowing through the meters. Once notified of the problem, Badger came and swapped out all the meters with the faulty registers under warranty. In January 2017, the drive-by software was upgraded.

In December 2019, Badger informed the City that they discontinued the meter model that we currently use (CE) in order to improve and advance new technology. Badger’s new drive-by replacement model is called the ME (Migratable Endpoint). Additionally, Badger now offers cellular meters which can be read through AT&T Cellular network. Therefore, only ME or Cellular Badger meters are available for future replacement.

The Cellular meter transmits readings near constantly through cell towers. This allows both the resident and the City access to that information almost immediately. Using the APP software, residents themselves can constantly monitor usage from a computer or smart device. The APP can detect leaks, see min/hour/daily/monthly usage. Currently, the info is available monthly after the meters are read. Because of the advantages available to the residents who have a cellular system, six residential properties who experienced reoccurring water challenges have

already opted into the use of the cellular meter system. This allows them to track real-time water usage. In exchange for offering the cellular system, these six residents pay the small difference in the monthly fee normally paid to Badger (\$0.89 / monthly)

DISCUSSION:

For the month ending January 2020, there were 47 meters that were not read by the drive through meter reader. PW staff was then required go to each residence and manually read and record water usage. For February there were 99 meters and in March there was 115 meter not reading. Staff troubleshooting has determined that meters not read during the drive-by because the batteries had failed. We can assume over time that the number of meters unable to be read will increase as there are 476 meters that are originally installed in January/February 2007 and have not been replaced.

Because the components (including the battery) of our original CE meters are no longer available, the City can replace the inoperable meters with the similar “drive-by system (ME) or replace them with a cellular system.

ME. If the City opts to stay with the drive-by system (new ME), a new ME meter reader will need to be purchased (unfortunately, the City’s CE drive-by reading equipment will not read the newer ME meters). During the drive-by reading, both CE and ME systems could be driven at the same time. The cost of the additional equipment would be approximately \$2,000. (see attachment 1). The readings and information from both system readers would be able to be uploaded into INCODE and the bills would then be processed.

Cellular. If the City moves to the Cellular reading system for replacements, then there would be a gradual swap out of meters over time. Because the meters are constantly read by cellular, the importing of the individual cellular meters is programed to occur at the same time the data file from the drive-by readings are imported into INCODE. During this transition period, the City will read meters using two systems, similar to what we are doing now.

Staff frequently use “data profiles” from the monthly readings to discuss usage and leaks with customers. This consumes a substantial amount of time. With customer awareness of their own data profile throughout the month by using cellular, the amount of problems are expected to be reduced.

Meter Costs. The costs of meters has gradually increased over the years. The cost of a cellular meter is slightly higher than ME. Regardless of which meter we select, the replacement costs will likely exceed the available funds in the Capital Replacement Fund or the amount received annually from the “Water Service Fee” (\$59,280). A future rate increase in the Water Service Fee may need to be reviewed.

Below is a comparison chart:

| | Cellular (Orion LTE-M) | ME (Orion) |
|----------------|--|--|
| Cost per meter | \$273.89 | \$256.75 |
| Cost per month | \$7.34 | \$7.34 |
| Software | \$0.89 | \$0.06 |
| Hardware | \$300/annually | Not required |
| Warranty | 25 yr brass body/10 yr endpoint/register | 25 yr brass body/10 yr endpoint/register |
| Data Profile | Resident has full access | Contact PW to obtain Monthly |

*Costs are all based on a ¾" service meter (398 of 711 are ¾" meters)

Currently, the City pays a "drive-by" meter software fee of \$0.06 / meter / month. Total = (\$511.92/year).

- The ME style meters would be the same cost. Total = (\$511.92/year).
- The cellular style meter software fee is \$0.89 / meter / month Total = (\$7,593.48 / year once all 711 meters eventually outfitted as cellular).

If the City chooses to start replacing the CE with cellular, then the extra \$0.83 cost per month must be considered. Option 1 is to transfer the cost to the customer. This would require a fee schedule change (water rate increase). Option 2 is for the City to absorb the cost, at least initially. Considering that in this current FY, only 82 meters are projected to be replaced, it seems reasonable for the City to be able to absorb this cost. As we budget next year the number of meters to be replaced, we will likely have to address the cost if we do not immediately address.

COURSES OF ACTION: The City has funds to purchase 82 cellular meters in this year's fiscal budget. A recommendation needs to be prepared for Council.

COA 1: Replace CE with ME

COA 2: Replace CE with Cellular and absorb cost (for now; consider fee change later)

COA 3: Replace CE with Cellular and pass cost to customer (\$0.89 / month)

FINANCIAL IMPACT:

| $\frac{3}{4}$ " Meter | Ea. Meter Cost | 82 meters Cost | 1 Meter monthly fee | 82 meters Monthly fee | 82 meters Annual fee |
|------------------------|----------------|----------------|---------------------|-----------------------|----------------------|
| Orion LTE-M (Cellular) | \$273.89 | \$22,458.98 | \$0.89 | \$72.98 | \$875.76 |
| Orion ME | \$256.75 | \$21,053.50 | \$0.06 | \$4.92 | \$59.04 |

NOTE: The cost per meter varies with the size. The cost above is for a $\frac{3}{4}$ " meter. The costs for other sizes is approximately the same difference.

STAFF RECOMMENDATION: Staff recommends incrementally replacing old meters with the Cellular read system and at the appropriate time in the future increasing the monthly water meter service fee to cover the cost.



QUOTATION

1600 Clovis Barker Rd. Suite 202
San Marcos, TX 78666
PHONE: 512-781-7302
FAX: 512-781-7308

CREATED DATE: March 16, 2020
QUOTED BY: Chip Woods
REQUESTED BY: Brandon Peterson
PHONE:
EMAIL: pwdirector@shavanopark.org

BILL TO: City of Shavano Park

SHIP TO: City of Shavano Park

EFFECTIVE DATES: 3/16/2020 - 5/15/2020

| SALESPERSON | PROPOSAL SUBJECT | SHIPPING TERMS | PAYMENT TERMS |
|-------------|----------------------|--|---------------|
| Chip Woods | ORION ME TRANSCEIVER | Prepay/No Charge For Shipments > \$25,000 FCA Factory/Warehouse | Net 30 Days |

| QTY | PRODUCT DESCRIPTION | UNIT PRICE | AMOUNT |
|-----|----------------------|-------------|-------------|
| 1 | ORION ME TRANSCEIVER | \$ 1,995.00 | \$ 1,995.00 |
| | | \$ - | \$ - |
| | | \$ - | \$ - |
| | | \$ - | \$ - |
| | | \$ - | \$ - |
| | | \$ - | \$ - |
| | | \$ - | \$ - |
| | | \$ - | \$ - |
| | | \$ - | \$ - |
| | | \$ - | \$ - |

Sales Tax: To be quoted at time of order.
Est. Lead Time: To be provided at time of order.

| | |
|------------------|-------------|
| SUBTOTAL | \$ 1,995.00 |
| SALES TAX | \$ - |
| FREIGHT | Add |
| TOTAL | \$ 1,995.00 |

Notes and Assumptions:

Badger Meter continues to improve and redesign our products to provide our customers with state-of-the-art technology solutions. Therefore, Badger Meter reserves the right to provide our newest product solutions as an alternative to the proposed products, provided the replacement products meet the following requirements: are substantially similar to and are at least of equal quality and performance to, are in conformance with the requirements in the applicable specifications, meet the actual needs or are otherwise suitable for the intended use, and are priced at an amount that does not exceed the price of the quoted products.

THANK YOU FOR YOUR BUSINESS!!

This quotation is an offer, made subject to the terms & conditions found on our website:
www.badgermeter.com/Company/Legal/Sales-terms.aspx



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| SALESPERSON | PROPOSAL SUBJECT | SHIPPING TERMS | PAYMENT TERMS |
|-------------|------------------|--|---------------|
| Chip Woods | METER OPTIONS | Prepay/No Charge For Shipments > \$25,000 FCA Factory/Warehouse | Net 30 Days |

| QTY | PRODUCT DESCRIPTION | ORION LTE-M | ORION ME |
|-----|--|------------------|-------------|
| | POSITIVE DISPLACEMENT OPTIONS | \$ - | \$ - |
| | RECORDALL M35 3/4" PD w/ LL BRZ Bottom, HR-E LCD Encoder in USGallons w/ ORION w/ Twist-Tight connector | \$ 243.62 | \$ 226.48 |
| | RECORDALL M55 1" PD w/ LL BRZ Bottom, HR-E LCD Encoder in USGallons w/ ORION w/ Twist-Tight connector | \$ 296.51 | \$ 279.36 |
| | RECORDALL M120 1.5" PD w/ LL BRZ Bottom, HR-E LCD Encoder in USGallons w/ ORION w/ Twist-Tight connector | \$ 517.15 | \$ 500.01 |
| | RECORDALL M170 2" PD w/ LL BRZ Bottom, HR-E LCD Encoder in USGallons w/ ORION w/ Twist-Tight connector | \$ 694.76 | \$ 677.62 |
| | | | |
| | ULTRASONIC OPTIONS | | |
| | E-SERIES E35 3/4" Ultrasonic 9-dial in USGallons w/ ORION w/ Twist-Tight connector | \$ 273.89 | \$ 256.75 |
| | E-SERIES E55 1" Ultrasonic 9-dial in USGallons w/ ORION w/ Twist-Tight connector | \$ 304.16 | \$ 287.02 |
| | E-SERIES 1.5" Ultrasonic 9-dial in USGallons w/ ORION w/ Twist-Tight connector | \$ 578.79 | \$ 561.65 |
| | E-SERIES 2" Ultrasonic 9-dial in USGallons w/ ORION w/ Twist-Tight connector | \$ 742.91 | \$ 725.76 |
| | | \$ - | \$ - |
| | | SUBTOTAL | \$ 3,514.67 |
| | | SALES TAX | \$ - |
| | | FREIGHT | Add |
| | | TOTAL | \$ 3,514.67 |

Sales Tax: To be quoted at time of order.
 Est. Lead Time: To be provided at time of order.

Notes and Assumptions:



QUOTATION

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|-------------|------------------|--|---------------|
| Chip Woods | METER OPTIONS | Prepay/No Charge For Shipments > \$25,000 FCA Factory/Warehouse | Net 30 Days |

| QTY | PRODUCT DESCRIPTION | ORION LTE-M | ORION ME |
|-----|---------------------|-------------|----------|
|-----|---------------------|-------------|----------|

Badger Meter continues to improve and redesign our products to provide our customers with state-of-the-art technology solutions. Therefore, Badger Meter reserves the right to provide our newest product solutions as an alternative to the proposed products, provided the replacement products meet the following requirements: are substantially similar to and are at least of equal quality and performance to, are in conformance with the requirements in the applicable specifications, meet the actual needs or are otherwise suitable for the intended use, and are priced at an amount that does not exceed the price of the quoted products.

THANK YOU FOR YOUR BUSINESS!!

This quotation is an offer, made subject to the terms & conditions found on our website:
www.badgermeter.com/Company/Legal/Sales-terms.aspx

Water Advisory Committee Agenda Form

Meeting Date: April 13, 2020

Agenda item: 6.b

Prepared by: Brandon Peterson

Reviewed by: Bill Hill

AGENDA ITEM DESCRIPTION:

Discussion/Update – Trinity Well Discussion/Update – PW Director

X

Attachments for Reference:

a. Well 9 Video Inspection Review (Consultant)

BACKGROUND / HISTORY: Updates highlighted. On March 14, 2019 the Miox stopped generating chlorine to treat the water produced by the Trinity well, thus requiring the Trinity well to be taken offline.

The initial quote received from Miox was to replace the Miox cabinet for approximately \$60k. I initiated an assessment to determine whether we needed to continue using Miox or switch to an alternate hyper chlorite system.

In June, I later engaged subject matter experts Grant Snyder (Geologist who helped start the initial Trinity Well, and Lou Portillo who is a water treatment engineer. Grant Snyder suggested the City take water sample of the Trinity Aquifer to determine the water quality. The water tests results came back with equal results as the startup tests. Grant recommended keeping the Miox system due to the water quality test results.

On July 30th Water Resources Corp. (WRC) removed the cabinet and shipped to Miox in Sugarland Texas. In early August, Miox sent a quote with 3 options for repairs or replacements, City selected replacement of components that were necessary.

In mid-October, WRC installed and tested the Miox cabinet. Upon completion of the install, Public Works staff continued other preparations in order to place the well back in operation. Staff noticed a decline in production, and called upon Advanced Water Well Technologies (AWWT) for a professional opinion. November 1st, AWWT determined there is either a hole in a bowl (Trinity has 14 bowls), or the pump. AWWT advised that there could be risk and if we ran the well it could cause further damage to other equipment. City considered their advice and decided to place the well back online and monitor closely.

On November 15th I placed the well back in operation with a pump rate of 205 gal/min. and by November 20th the pump rate dropped to 182 gal/min. which is a significant drop in 5 days. The resulting drop is gals/min results in the Well running almost constantly (not good). Again, consulting with AWWT they believe there is a hole in the pump or one of the bowls, which need repairing.

On February 6th AWWT pulled the Trinity well to determine the reason for why the well lost

production. A meeting with AWWT, Engineer Consultant and City Staff was held on February 11th to show the motor seals were blown, and pump cast iron bowls 1-4 were pitted, while ductile iron bowls 5-14 were fine; as well as all the stainless steel impellers.

On March 9th WAC members discussed the next step to run a camera survey and a gamma test to determine the integrity of the well and see if additional funds should be utilized to get the well restored and placed back in operation. March 17th camera survey was completed and sent to the engineer consultant for his review and recommendations. Engineer provided his review in attachment A.

DISCUSSION: Over the winter break I sent another water chemistry sample off to the lab for further analysis. Results came back a week later, and I requested Grant Snyder to review the results and provide some guidance as to what can be done. If any of the results differ from when the well originally started, then to explain the good and the bad.

Things to keep in mind also, since the Trinity has been down for so long:

- Residents have not complained about the water quality (yellow/rusty color)
- Less staff time checking all the equipment at Well #1.
- Lots of maintenance expenses too annually or every other year.

Basic review of the engineers report is as follows:

- From 16 ft to 40 ft in the hole the casing is moderately corroded with significant surface delamination and pitting.
- Some minor corrosion the rest of the way down the casing to the water surface elevation.
- Mineral precipitation on the screened zone is heavy, with very significant blockage of the 1/8 inch slots
- Mineral precipitation below the screened interval from 1006 ft to the well bottom at 1173 ft, is moderate.
- There is a 16 ft section of broken pipe, a section of 1 inch sample tubing that was broken off in a previous exploration.
- The aquifer static water level has declined since the initial install. Water quality often degrades as the aquifer level declines, due to contributing flows shifting toward deeper water bearing strata that often contain higher TDS concentrations.

In order to restore the well, the following actions are likely:

- Agitate the well screens via brushing or acidizing the well
- Install a new stainless steel pump and motor (Motor only if needed)
- Refurbish existing stainless steel water column pipe/couplings where needed

- Adjust chemical treatment process, convert to different treatment injections

COURSES OF ACTION: Therefore, this leaves the City with limited options.

1. City can abandon the well and plug it completely
 2. City can restore the well
 3. City can cap the well and hold it in an idle position until needed in the future.
-

FINANCIAL IMPACT: A couple options are as follows:

#1 – Pull and inspect the pump, will cost approximately \$3,500 (Completed)

#2 – If we restore the well back to service, estimated cost is \$70,000, this includes casing corrosion evaluation, casing cathodic protection, casing plug for the lower 10 ft, casing cleaning, well pump test, installation of new/existing equipment, sodium hypochlorite (liquid bleach) and potassium permanganate (mitigate taste and odor), iron filter replacement (replacing the media inside the sand filters)

#3 – If the City abandons the well and plugs it per TCEQ requirements, the estimated cost is \$70,000 This includes, plugging the well and all supplies required, and restorations and landscaping needed on the surface.

#4 – If the City caps the well and leaves it opened for future use, the estimated cost is \$XX,XXX. This includes Casing corrosion evaluation, casing cathodic protection, temporary well cap, transmission line temporary cap/clean out, and treatment system cleaned out for temporary storage.

- Estimates provided by AWWT and Water Resources.

STAFF RECOMMENDATION: Staff will analyze and review in detail the costs with WAC to gain a consensus on the future of the well.

M Roetzel Consulting, LLC
Integrated Engineering Solutions
Texas Registration No. 9475

April 16 2020

Mr. Brandon Peterson
Public Works/Water Director
City of Shavano Park
Via: Email

Re: Well No. 9
Well Inspection Video Review

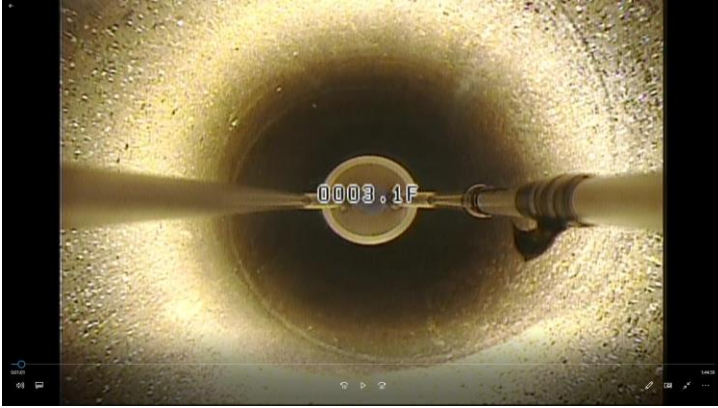
Dear Mr. Peterson:

I have reviewed the Well No.9 video inspection completed by Advanced Water Well Technologies (AWWT) on March 17, 2020 and offer this review as a supplement to my earlier report of March 3rd. The well was video inspected from the surface to the well bottom at 1,173 feet below ground level (bgl). Following are several key observations from that inspection.

Video Observations

The well was constructed in 2010 with three (3) louver screened casing intake zones and solid high-strength low alloy (HSAL) solid casing lengths between the screened intervals to enhance water intake from these three preferred water bearing zones. The original well depth was 1440 ft bgl, with two of the three screened intake zones near the bottom and below the current well bottom depth of 1173 ft bgl (one 50ft zone at 1206 to 1256 ft bgl, and the other 70ft zone at 1,338 to 1,408 ft bgl). The well bottom has now been plugged to an elevation 33 feet above the top of the upper of these two abandoned screened zones, leaving only one 50-ft screened intake zone at 955 to 1006 ft bgl. While the 2010 Driller's Log shows an upper 20-inch casing to 40 ft bgl followed by 12-inch solids and screened casing below that depth, the constructed well is all 12-inch casing.

The top 16 feet of the casing interior is smooth and exhibits only minor surface rusting. However, the zone from about 16 to 40 feet bgl appears to be moderately corroded with significant surface delamination (scales) and pitting. This scaling could also be a failed internal liner in this zone, but the video does not provide adequate information to make this determination. Below about 40 feet to about 150 feet bgl there are recurring areas of local surface rusting. Surface corrosion lessens below about 150 feet to the current water surface depth of 365 ft bgl. No significant corrosion is apparent below the water level.



Casing upper section above 16 ft – good condition



Casing at 17 ft with significant corrosion and delamination (or failed liner)

Corrosion is a complex electro-chemical process, but may be influenced by several factors here, including:

1. The large operating draw-down of about 550 to 600 ft intakes and exhausts fresh air into the well casing with each pump cycle, providing a recurring source of oxygen. This oxygen-rich atmosphere and moderately saline water vapor condensation on the interior surface may facilitate corrosion of the casing in this upper zone.
2. It is not clear from the 2010 Driller's Report what well completion method or materials changed at the 40 ft depth, but this is identified as the transition point between the upper 20-inch casing (not now present) and the lower 12-inch casing. Unknown thickness and materials of the exterior annulus backfill through this zone may be impacting corrosion through varying electrical conductivity, with the more severely corroded zone between about 16 to 40 ft bgl perhaps acting as a sacrificial anode to the adjacent upper and lower zones. This may also be a failed liner in this zone, as noted above.
3. The recurring areas of increased corrosion between about 40 to 150 ft bgl tend to be vertically aligned, perhaps suggesting that the casing pipe is slightly out of plumb through this depth, leaning to one side – being not uncommon for such wells. Any such vertical misalignment would tend to concentrate condensate along one side of

the casing, and the moderate salinity (about 900mg/L) would then increase electrical conductivity in these areas and exacerbate local corrosion.

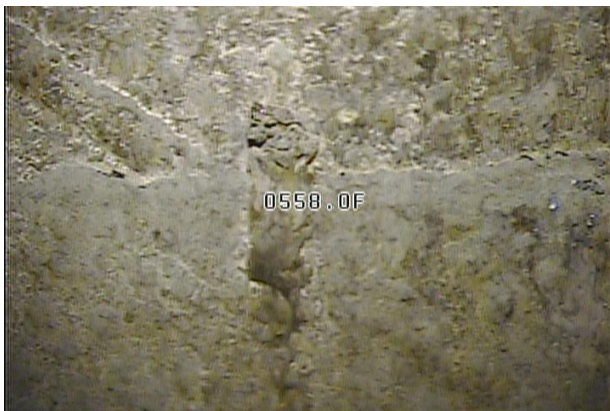
If Shavano Park elects to restore Well No.9 or idle it for potential future use, then this upper corrosion should be reviewed in more detail by a corrosion engineer or specialist to better determine the extent and cause(s) of this corrosion, and develop a mitigation plan. Cathodic protection may offer needed protection, either as passive protection (zinc or magnesium anodes) or active protection (impressed current), subject to more detailed evaluations.

The casing pipe is helical-wound (cork screw fabrication) with field welded joints spaced at about 40 feet, and generally in good condition except for the upper zones of corrosion discussed above.



Casing at 278 ft bgl. View of helical-wound fabrication line and field welded pipe splice

Surface mineral precipitates become more significant below the water surface with increased water depth. The light color of these deposits suggests these minerals to likely be comprised largely of calcium carbonate (limestone).



Casing at 558 ft bgl. Mineral precipitate layer increasing with depth

Mineral precipitation on the screened zone is heavy, with very significant blockage of the 1/8-inch slots apparent through the complete 50-ft screened zone. This may be in part due to the increased surface area provided by the screen slots (compared to the solid casing surface), due to microbial bio-slimes (iron and sulphur bacteria) forming on these surfaces and thereby enhancing precipitation, and due to fine solids entering through and wedging in the slots thereby further enhancing precipitation.



Casing slots at 955 ft bgl top of screened interval with heavy precipitation



Casing slots at 1006 ft bgl bottom of screened interval with heavy precipitation

Mineral precipitation below the screened interval from 1006 to the well bottom at 1173 ft bgl is moderate. This 167 ft zone is now static, since the original lower screened zones have been plugged, and this condition may enhance dissolved solids concentration in the static water column and related precipitation. While some static zone is desirable to accumulate silt and debris below the screened intake zones (30 feet was provided in the original well), there is no benefit to such a long static zone. Integrity of the lower casing plug discussed below also raises some questions. Therefore, if Shavano Park elects to restore Well No.9 to service, the well casing should be properly plugged to a depth of about 1040 ft bgl.

A 16 ft broken section of piping is present from 1157 ft bgl to the well bottom at 1173 ft bgl, then extends into the bottom plug surface below that depth. A section of 1-inch sample tubing was reportedly lost into the well some time ago, and this appears to be the remnants of that piping.



Broken sample pipe piece top at 1157 ft bgl



Broken sample pipe bottom at 1173 ft bgl (2 separate pieces here)

Well Precipitation

The amount of precipitation present in the remaining screened zone from 955 to 1006 ft bgl seems very significant, particularly considering that the well was acidized in 2016 during the last repairs. While it cannot be determined from available information if this is a greater rate or lesser rate of precipitation than the original well, several factors may adversely influence this precipitation mechanism.

The aquifer static water level has steady declined since 2010: 250 ft bgl (2010); 340 ft bgl (2017); and 365 ft bgl (2020). Water quality often degrades as the aquifer level declines, with the balance of contributing flows shifting toward deeper water-bearing strata that often contain higher total dissolved solids (TDS) concentrations. Although the lower screened zones have been plugged in Well No.9, hydrogeologic communication between these strata (i.e. rock fracturing and other natural flow pathways) may still be significant, particularly with the large operating draw-down differential pressures presented here (about 550 to 600 feet).

The Driller's Log also suggests that the annulus space between the 18.5-inch bore hole and the 12.75-inch OD casing was backfilled with ¼-inch gravel through the three screened zones (930 to 1430 ft bgl), providing an open flow path between screened zones along the outside face of the casing. It is not apparent how such a continuous gravel annulus was intended to isolate flows from each zone, without the use of packers or similar flow-stop devices between screened zones. This suggests that the current upper screened zone (955 to 1006 ft bgl) would draw water from all water-bearing strata to the original well bottom at 1430 ft bgl, and that water quality may have degraded as the aquifer level has declined.

Limited use of the well over the past several years may also have provided more static times when microbial bio-slimes could grow on the screen slots, then enhancing mineral precipitation.

Well Restoration

Well No.9 may be restored to service if desired by Shavano Park, thereby continuing to provide a non-Edwards Aquifer supply. However, several challenges are presented for restoration.

Well Casing Corrosion. Some provisions should be made to better understand and mitigate corrosion of the upper casing zone between about 17 to 40 ft bgl, if the observed scaling is confirmed as corrosive damage. Passive cathodic protection is initially assumed here, subject to more detailed evaluations.

Well Bottom Plug. A new 10-ft concrete bottom plug at 1040 to 1050 ft bgl is assume here to better ensure no internal casing flow from the abandoned lower well depth. However, nothing can now be done to stop potential flow from lower depths along the annulus gravel pack outside of the casing.

Well Casing Precipitation. Precipitation clogging of the screened zone will likely be an ongoing operational challenge, perhaps requiring cleaning every 3 to 5 years based on these most recent observations. Well conditioning will then be required as described in the October 2016 Water System Engineering report (mechanical cleaning, acidizing and chlorination).

Well Hydraulic Performance. Once the well casing is cleaned, hydraulic performance should again be determined with a short-term pumping test (4 hours) to establish static water level, draw-down and recovery for final pump sizing. Earlier longer 36-hr and 48-hr pumping tests have confirmed no local aquifer boundary conditions, so a shorter test will suffice here.

Pump Replacement and Corrosion Protection. Following well performance confirmation, pump size can be determined and a new pump can be installed. The current 100HP size

is assumed here, with stainless steel upper bowls and discharge check valves to mitigate corrosion observed in the recently removed pump.

Water Treatment System. The downstream MIOX chlorine oxidation system should be replaced with a sodium hypochlorite (bleach) system for iron oxidation, and a potassium permanganate (or similar) liquid solution can be added to help mitigate taste and odor concerns, with TCEQ approval. The iron removal closed-vessel sand filter media should also be replaced to ensure proper operations.

The following preliminary budget amounts seem reasonable for this initially assume well restoration scope.

| Well No 9 Restoration Preliminary Cost Opinion | | |
|---|------------------|--|
| Item | Cost | Comment |
| Casing Corrosion Evaluation | \$5,500 | Corrosion Engineer |
| Casing Cathodic Protection | \$2,500 | Assuming passive protection |
| Casing Plug | \$9,000 | 10-ft cement plug at 1040 bgl |
| Casing Cleaning/Chem Treatment | \$75,000 | Assumed recurring cost at 3 to 5 years |
| Well Pumping Test | \$9,500 | Assuming 4-hr pump test |
| Well Pump | \$70,000 | Assm 100HP with st.stl. upper bowls/CV |
| Liquid bleach and KPO ₄ systems | \$25,000 | To replace MIOX, pending TCEQ apprvl |
| Iron Filter Sand Replacement | \$5,000 | |
| Total: | \$201,500 | |

Well Abandonment

Well No.9 may be abandoned and removed from the Water Utility's assets. However well closure requires complete cement filling and demolition of the well site surface features, likely costing \$65k to \$75k for this well. The well would also then never be available for potential use once demolished. However I understand that well abandonment may also be restricted by use requirements defined in the associated original funding bond documents.

The following preliminary budget amounts seem reasonable for this initially assume well restoration scope.

| Well No 9 Abandonment Preliminary Cost Opinion | | |
|---|-----------------|------------------------------------|
| Item | Cost | Comment |
| Well Closure | \$70,000 | Plugging and capping per TCEQ regs |
| Site Restoration | \$3,500 | Removal of surface improvements |
| Total: | \$73,500 | |

Well Idling

Well No.9 may be temporarily removed from service (idled), and adequately maintained to allow future re-activation and use in the event of a future severe regional drought. However, several challenges are also presented for idling.

Well Casing Corrosion. Some provisions should be made to better understand and mitigate corrosion of the upper casing zone between about 17 to 40 ft bgl. Passive cathodic protection is initially assumed here, subject to more detailed evaluations.

Temporary Well Cap. The well must be temporarily capped with a water-tight secure cap to protect against contamination or tampering.

Water Transmission Line. The 6-inch water transmission line between Well No.9 and the tank site should be temporarily removed from service, drained and capped at both ends. The transmission line can then be returned to service at some future date by refilling, shock chlorinating, flushing and reconnecting to the well and treatment system tank. If the downstream end of the transmission line near the storage tanks will still be used for interconnection of Well No.1, then a removable spool piece and blind-flanges should be used to isolate the de-active portion of the line from the utility.

Water Treatment System. The water treatment system should be temporarily removed from service. The MIOX system can be demolished (to be replaced with a future chlorine bleach and KPO₄ system if needed), and sand media removed from the pressure filter. Connection to the downstream water storage tanks should be temporarily removed.

Alternate Well Supply. If desired, the inactive Edwards well at the tanks site (Well No.1) may be reactivated to provide another water supply, understanding that Shavano Park currently holds more than enough Edwards Aquifer water rights to meet anticipated service demands. However, this option would require more detailed evaluations and is not included with preliminary pricing here.

| Well No 9 Idling Preliminary Cost Opinion | | |
|--|-----------------|--|
| Item | Cost | Comment |
| Casing Corrosion Evaluation | \$5,500 | Corrosion Engineer |
| Casing Cathodic Protection | \$2,500 | Assuming passive protection |
| Temp Well Cap | \$500 | Secure cap |
| Well Electrical Partial Demo | \$1,500 | Removing switchgear |
| Transmission Line Temp Removal | \$1,500 | Drained and capped at both ends |
| Treatment System Temp Removal | \$7,500 | MIOX demo, Filter sand removal, Disconnect |
| Total: | \$19,000 | |

Based on these various challenges and considering that Shavano Park now has more than adequate Edwards Aquifer water right to meet current and anticipated utility demands, restoration of Well No.9 does not currently appear to be the best available option.

Abandonment of Well No.9 also does not appear to be the best available option; since the cost is relatively high and once abandoned the well is no longer available as a potential water resource for the utility.

Idling of the well appears to provide a cost-effective and logical option for Shavano Park at this time. Should the well ever be needed again as a water supply, the various restoration activities described above can be then completed. Well casing corrosion should be evaluated further now if the well is to be idled, ensuring a good long-term operating condition.

I trust this supplemental preliminary assessment will assist your ongoing utility management considerations. Please advise if you require any additional information or support.

Very truly,
MRoetzel Consulting, LLC



Mark Roetzel, P.E., RPLS, CFM
Principal

