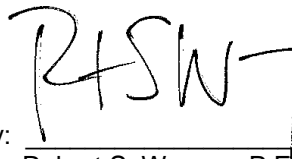


Harris County Municipal Utility District No. 136
October 14, 2021 Board Meeting
Engineer's Report

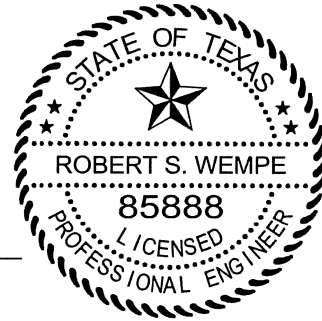
a. Asset Management Plan Update

See attached.

Engineer's Report Prepared by:



Robert S. Wempe, P.E.
Pape-Dawson Engineers, Inc.
TBPE Reg. No. 470



HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|---|----------------|--|--------------------|----------------|--|---|----------------------------|
| Highest Risk Items - Schedule for Repair or Replacement within One Year | | | | | | | |
| 1 | SS | 18" Sanitary Sewer Rehab (1,700 LF of CIP) | Clay Road | | | \$162,000 | |
| Total: | | | | | | \$162,000 | |
| High Risk Items - Evaluate Need for Repair or Replacement within Two Years | | | | | | | |
| 2 | LS1-E-CP1 | Control Panel | Lift Station No. 1 | 1988 | \$25,000 | \$43,750 | 4.13 |
| 3 | LS1-GC-MTS1 | Manual Transfer Switch | Lift Station No. 1 | 1987 | \$1,200 | \$2,100 | 4.00 |
| 4 | LS1-E-LTS1 | Lights | Lift Station No. 1 | 1970 | \$500 | \$875 | 3.75 |
| 5 | LS1-E-MCB1 | Main Circuit Breaker | Lift Station No. 1 | 1988 | \$2,000 | \$3,500 | 3.75 |
| 6 | LS1-LSP1-MCP1 | Motor Circuit Protector | Lift Station No. 1 | 1988 | \$1,200 | \$2,100 | 3.75 |
| 7 | LS1-LSP1-MS1 | Motor Starter | Lift Station No. 1 | 1988 | \$2,000 | \$3,500 | 3.75 |
| 8 | LS1-LSP2-MCP1 | Motor Circuit Protector | Lift Station No. 1 | 1988 | \$1,200 | \$2,100 | 3.75 |
| 9 | LS1-LSP2-MS1 | Motor Starter | Lift Station No. 1 | 1988 | \$2,000 | \$3,500 | 3.75 |
| 10 | LS1-LSP3-MCP1 | Motor Circuit Protector | Lift Station No. 1 | 1988 | \$1,200 | \$2,100 | 3.75 |
| 11 | LS1-LSP3-MS1 | Motor Starter | Lift Station No. 1 | 1988 | \$2,000 | \$3,500 | 3.75 |
| 12 | LS1-LSP1-LSP1 | Lift Station Pump No. 1 | Lift Station No. 1 | 1987 | \$28,000 | \$49,000 | 3.70 |
| 13 | LS1-LSP2-LSP2 | Lift Station Pump No. 2 | Lift Station No. 1 | 1987 | \$28,000 | \$49,000 | 3.70 |
| 14 | LS1-LSP3-LSP3 | Lift Station Pump No. 3 | Lift Station No. 1 | 1987 | \$28,000 | \$49,000 | 3.70 |
| 15 | LS1-S-WWC1 | Wet Well Coating | Lift Station No. 1 | 1970 | \$14,000 | \$24,500 | 3.63 |
| 16 | LS1-S-DWC1 | Dry Well Coating | Lift Station No. 1 | 1970 | \$14,000 | \$24,500 | 3.63 |
| 17 | LS1-E-CC1 | Correcting Capacitors | Lift Station No. 1 | 1988 | \$4,000 | \$7,000 | 3.57 |
| 18 | LS1-HVAC-ED1 | Exhaust Duct | Lift Station No. 1 | 1970 | \$1,000 | \$1,750 | 3.57 |
| 19 | LS1-LSP1-LSPM1 | Lift Station Pump No. 1 Motor | Lift Station No. 1 | 1987 | \$12,500 | \$21,875 | 3.50 |
| 20 | LS1-LSP1-PG1 | Pressure Gauge | Lift Station No. 1 | 1970 | \$100 | \$175 | 3.50 |
| 21 | LS1-LSP1-PG2 | Pressure Gauge | Lift Station No. 1 | 1970 | \$100 | \$175 | 3.50 |
| 22 | LS1-LSP2-LSPM2 | Lift Station Pump No. 2 Motor | Lift Station No. 1 | 1987 | \$12,500 | \$21,875 | 3.50 |
| 23 | LS1-LSP2-PG1 | Pressure Gauge | Lift Station No. 1 | 1970 | \$100 | \$175 | 3.50 |
| 24 | LS1-LSP2-PG2 | Pressure Gauge | Lift Station No. 1 | 1970 | \$100 | \$175 | 3.50 |
| 25 | LS1-LSP3-LSPM3 | Lift Station Pump No. 3 Motor | Lift Station No. 1 | 1987 | \$12,500 | \$21,875 | 3.50 |
| 26 | LS1-LSP3-PG2 | Pressure Gauge | Lift Station No. 1 | 1970 | \$100 | \$175 | 3.50 |
| 27 | LS1-S-PC1 | Pump Controller | Lift Station No. 1 | 1970 | \$5,000 | \$8,750 | 3.44 |
| 28 | LS1-HVAC-VTR1 | Ventilator | Lift Station No. 1 | 1970 | \$2,500 | \$4,375 | 3.28 |

HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|---|--------------|------------------------|--------------------|----------------|--|---|----------------------------|
| 29 | LS1-S-AH2 | Equipment Access Hatch | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 3.28 |
| 30 | LS1-S-AH4 | Interior Access Hatch | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 3.28 |
| 31 | LS1-S-AH1 | Stairway Access Hatch | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 3.28 |
| 32 | LS1-DH-ARV1 | Air Release Valve | Lift Station No. 1 | 1987 | \$119 | \$208 | 3.25 |
| 33 | LS1-GC-GP1 | Generator Plug | Lift Station No. 1 | 1970 | \$4,000 | \$7,000 | 3.25 |
| 34 | LS1-S-SP1 | Sump Pump | Lift Station No. 1 | 1970 | \$2,000 | \$3,500 | 3.25 |
| 35 | LS1-S-AH3 | Wet Well Manhole | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 3.25 |
| 36 | LS1-LSP1-CV1 | Check Valve | Lift Station No. 1 | 1970 | \$25,000 | \$43,750 | 3.20 |
| 37 | LS1-LSP2-CV1 | Check Valve | Lift Station No. 1 | 1970 | \$25,000 | \$43,750 | 3.20 |
| 38 | LS1-LSP3-CV1 | Check Valve | Lift Station No. 1 | 1970 | \$25,000 | \$43,750 | 3.20 |
| 39 | LS1-E-LT1 | Level Transmitter | Lift Station No. 1 | 1987 | \$3,700 | \$6,475 | 3.13 |
| 40 | LS1-E-AD1 | Autodialer | Lift Station No. 1 | 1987 | \$2,400 | \$4,200 | 3.00 |
| 41 | LS1-HVAC-EF1 | Exhaust Fan | Lift Station No. 1 | 1970 | \$1,000 | \$1,750 | 3.00 |
| 42 | LS1-LSP2-PV1 | Plug Valve | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 3.00 |
| 43 | LS1-LSP3-PG1 | Pressure Gauge | Lift Station No. 1 | 1970 | \$100 | \$175 | 3.00 |
| 44 | LS1-LSP1-PV1 | Plug Valve | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 2.75 |
| 45 | LS1-LSP1-PV2 | Plug Valve | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 2.75 |
| 46 | LS1-LSP2-PV2 | Plug Valve | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 2.75 |
| 47 | LS1-LSP3-PV1 | Plug Valve | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 2.75 |
| 48 | LS1-LSP3-PV2 | Plug Valve | Lift Station No. 1 | 1970 | \$3,000 | \$5,250 | 2.75 |
| Subtotal | | | | | | \$558,458 | |
| Price Adjustment from 2017 (20%) | | | | | | \$111,692 | |
| Total | | | | | | \$670,150 | |
| Medium Risk Items - Evaluate Need for Repair or Replacement within Three Years | | | | | | | |
| 49 | LS2-E-CP1 | Control Panel | Lift Station No. 2 | 1976 | \$25,000 | \$50,000 | 4.63 |
| 50 | LS2-E-CB1 | Main Circuit Breaker | Lift Station No. 2 | 1978 | \$2,500 | \$6,250 | 4.00 |
| 51 | WP1-DH-FM1 | Turbine Meter | Water Plant No. 1 | 1970 | \$6,500 | \$11,375 | 3.88 |
| 52 | WP1-G-GE1 | Generator Enclosure | Water Plant No. 1 | 1996 | \$45,000 | \$78,750 | 3.88 |
| 53 | LS2-S-WWC1 | Wet Well Coating | Lift Station No. 2 | 1970 | \$14,000 | \$24,500 | 3.63 |
| 54 | LS2-S-DWC1 | Dry Well Coating | Lift Station No. 2 | 1970 | \$14,000 | \$24,500 | 3.63 |
| 55 | WP1-G-G1 | Generator | Water Plant No. 1 | 1997 | \$125,000 | \$218,750 | 3.82 |

HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|----|---------------|-----------------------------|--------------------|----------------|--|---|----------------------------|
| 56 | WP1-HVAC-SF1 | Supply Fan | Water Plant No. 1 | 1970 | \$2,500 | \$4,375 | 3.53 |
| 57 | LS2-GC-MTS1 | Manual Transfer Switch | Lift Station No. 2 | 1978 | \$3,500 | \$6,125 | 3.50 |
| 58 | LS2-HVAC-EF1 | Exhaust Fan | Lift Station No. 2 | 1978 | \$1,000 | \$1,750 | 3.50 |
| 59 | WP1-E-CC1 | Correction Capacitor | Water Plant No. 1 | 1997 | \$2,800 | \$4,900 | 3.50 |
| 60 | LS2-DH-CV1 | Check Valve | Lift Station No. 2 | 1978 | \$10,000 | \$17,500 | 3.48 |
| 61 | LS2-LSP1-LSP1 | Lift Station Pump No. 1 | Lift Station No. 2 | 1978 | \$32,000 | \$56,000 | 3.45 |
| 62 | LS2-LSP2-LSP2 | Lift Station Pump No. 2 | Lift Station No. 2 | 1978 | \$32,000 | \$56,000 | 3.45 |
| 63 | WP1-WW1-WWP1 | Water Well No. 1 Pump | Water Plant No. 1 | 1970 | \$225,000 | \$275,000 | 3.43 |
| 64 | WP1-BP4-BP1 | Booster Pump No. 4 | Water Plant No. 1 | 1977 | \$25,000 | \$43,750 | 3.38 |
| 65 | WP1-DH-FM2 | Turbine Meter | Water Plant No. 1 | 1970 | \$6,500 | \$11,375 | 3.38 |
| 66 | WP1-WW1-FM1 | Flow Meter | Water Plant No. 1 | 1970 | \$6,500 | \$11,375 | 3.38 |
| 67 | WP1-CS-SC1 | Scale No. 1 | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 3.37 |
| 68 | WP1-CS-SC2 | Scale No. 2 | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 3.37 |
| 69 | WP1-FPS-FST1 | Fluoride Storage Tank | Water Plant No. 1 | 1970 | \$3,000 | \$5,250 | 3.37 |
| 70 | LS2-HVAC-PVT1 | Ventilator | Lift Station No. 2 | 1978 | \$2,500 | \$4,375 | 3.28 |
| 71 | LS2-S-AH3 | Access Hatch | Lift Station No. 2 | 1978 | \$3,000 | \$5,250 | 3.28 |
| 72 | LS2-S-AH2 | Equipment Access Hatch | Lift Station No. 2 | 1978 | \$3,000 | \$5,250 | 3.28 |
| 73 | LS2-S-AH1 | Stairway Access Hatch | Lift Station No. 2 | 1978 | \$3,000 | \$5,250 | 3.28 |
| 74 | WP1-GST2-BFV2 | Butterfly Valve | Water Plant No. 1 | 1991 | \$2,224 | \$3,892 | 3.28 |
| 75 | LS2-GC-GP1 | Generator Plug | Lift Station No. 2 | 1978 | \$4,000 | \$7,000 | 3.25 |
| 76 | LS2-S-SP1 | Sump Pump | Lift Station No. 2 | 1978 | \$2,000 | \$3,500 | 3.25 |
| 77 | LS2-S-AH4 | Wet Well Manhole Grate | Lift Station No. 2 | 1978 | \$3,000 | \$5,250 | 3.25 |
| 78 | WP1-CS-EW1 | Eyewash | Water Plant No. 1 | 2007 | \$1,000 | \$1,750 | 3.25 |
| 79 | WP1-DH-ST1 | Strainer | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 3.25 |
| 80 | WP1-DH-ST2 | Strainer | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 3.25 |
| 81 | LS2-DH-PV1 | Plug Valve | Lift Station No. 2 | 1978 | \$615 | \$1,076 | 3.22 |
| 82 | WP1-HPT1-CC1 | HPT Control Cabinet | Water Plant No. 1 | 1977 | \$15,000 | \$26,250 | 3.19 |
| 83 | WP1-HPT2-CC1 | HPT Control Cabinet | Water Plant No. 1 | 1970 | \$15,000 | \$26,250 | 3.19 |
| 84 | WP1-WW1-WWPM1 | Water Well No. 1 Pump Motor | Water Plant No. 1 | 1970 | \$25,000 | \$43,750 | 3.18 |
| 85 | LS2-E-LT1 | Level Transmitter | Lift Station No. 2 | 1978 | \$3,700 | \$6,475 | 3.13 |
| 86 | WP1-CS-CL1 | Chlorinator No. 1 | Water Plant No. 1 | 1977 | \$5,000 | \$8,750 | 3.13 |

HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|-----|----------------|---------------------------------------|--------------------|----------------|--|---|----------------------------|
| 87 | WP1-CS-CL2 | Chlorinator No. 2 | Water Plant No. 1 | 1977 | \$5,000 | \$8,750 | 3.13 |
| 88 | WP1-LAS-LT1 | Level Transmitter | Water Plant No. 1 | 2007 | \$3,700 | \$6,475 | 3.13 |
| 89 | WP1-WW1-MCC1 | Water Well No. 1 Motor Control Center | Water Plant No. 1 | 1997 | \$30,000 | \$52,500 | 3.38 |
| 90 | WP1-FPS-FDT1 | Fluoride Day Tank | Water Plant No. 1 | 1970 | \$3,000 | \$5,250 | 3.12 |
| 91 | WP1-FPS-PST1 | Phosphate Storage Tank | Water Plant No. 1 | 1970 | \$4,500 | \$7,875 | 3.12 |
| 92 | WP1-WW1-CP1 | Control Panel | Water Plant No. 1 | 1997 | \$10,000 | \$17,500 | 3.35 |
| 93 | LS2-HVAC-ED1 | Exhaust Duct | Lift Station No. 2 | 1978 | \$1,000 | \$1,750 | 3.07 |
| 94 | WP1-G-ATS1 | Automatic Transfer Switch | Water Plant No. 1 | 1997 | \$15,000 | \$26,250 | 3.32 |
| 95 | WP1-CS-CA1 | Chlorine Analyzer | Water Plant No. 1 | 1970 | \$3,500 | \$6,125 | 3.03 |
| 96 | WP1-DH-BFV1 | Butterfly Valve | Water Plant No. 1 | 1970 | \$2,240 | \$3,920 | 3.03 |
| 97 | WP1-LAS-BLDG1 | LAS Building | Water Plant No. 1 | 2007 | \$9,400 | \$16,450 | 3.03 |
| 98 | LS2-E-AD1 | Autodialer | Lift Station No. 2 | 1978 | \$2,400 | \$4,200 | 3.00 |
| 99 | LS2-LSP1-LSPM1 | Lift Station Pump No. 1 Motor | Lift Station No. 2 | 1978 | \$12,500 | \$21,875 | 3.00 |
| 100 | LS2-LSP2-LSPM2 | Lift Station Pump No. 2 Motor | Lift Station No. 2 | 1978 | \$12,500 | \$21,875 | 3.00 |
| 101 | WP1-BP1-BPM1 | Booster Pump No. 1 Motor | Water Plant No. 1 | 1983 | \$8,500 | \$14,875 | 3.00 |
| 102 | WP1-BP2-BPM1 | Booster Pump No. 2 Motor | Water Plant No. 1 | 1983 | \$8,500 | \$14,875 | 3.00 |
| 103 | WP1-BP3-BPM1 | Booster Pump No. 3 Motor | Water Plant No. 1 | 1983 | \$8,500 | \$14,875 | 3.00 |
| 104 | WP1-BP4-BPM1 | Booster Pump No. 4 Motor | Water Plant No. 1 | 1977 | \$8,500 | \$14,875 | 3.00 |
| 105 | WP1-CS-BVs | Ball Valve | Water Plant No. 1 | 1970 | \$200 | \$350 | 3.00 |
| 106 | WP1-CS-EF1 | Exhaust Fan | Water Plant No. 1 | 1970 | \$1,000 | \$1,750 | 3.00 |
| 107 | WP1-CS-VR1 | Vacuum Regulator No. 1 | Water Plant No. 1 | 1970 | \$1,000 | \$1,750 | 3.00 |
| 108 | WP1-CS-VR2 | Vacuum Regulator No. 2 | Water Plant No. 1 | 1970 | \$1,000 | \$1,750 | 3.00 |
| 109 | WP1-CS-VR3 | Vacuum Regulator No. 3 | Water Plant No. 1 | 1970 | \$1,000 | \$1,750 | 3.00 |
| 110 | WP1-CS-VR4 | Vacuum Regulator No. 4 | Water Plant No. 1 | 1970 | \$1,000 | \$1,750 | 3.00 |
| 111 | WP1-DH-GV1 | Gate Valve | Water Plant No. 1 | 1970 | \$3,000 | \$5,250 | 3.00 |
| 112 | WP1-E-AD1 | Autodialer | Water Plant No. 1 | 1970 | \$2,400 | \$4,200 | 3.00 |
| 113 | WP1-FPS-FHP1 | Fluoride Hand Pump | Water Plant No. 1 | 1970 | \$200 | \$350 | 3.00 |
| 114 | WP1-FPS-FMP1 | Fluoride Metering Pump | Water Plant No. 1 | 1970 | \$1,350 | \$2,363 | 3.00 |
| 115 | WP1-FPS-PMP1 | Phosphate Metering Pump | Water Plant No. 1 | 1970 | \$1,350 | \$2,363 | 3.00 |
| 116 | WP1-FPS-SK1 | Sink | Water Plant No. 1 | 1970 | \$200 | \$350 | 3.00 |
| 117 | WP1-GST2-MH2 | GST No. 2 Manhole | Water Plant No. 1 | 1991 | \$6,500 | \$11,375 | 3.00 |

HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|---|---------------|----------------------------|-------------------|----------------|--|---|----------------------------|
| 118 | WP1-HVAC-PH1 | Portable Heater | Water Plant No. 1 | 1970 | \$200 | \$350 | 3.00 |
| 119 | WP1-LAS-LMP1 | Metering Pump No. 1 | Water Plant No. 1 | 2007 | \$1,350 | \$2,363 | 3.00 |
| 120 | WP1-LAS-LMP2 | Metering Pump No. 2 | Water Plant No. 1 | 2007 | \$1,350 | \$2,363 | 3.00 |
| 121 | WP1-LAS-LMP3 | Metering Pump No. 3 | Water Plant No. 1 | 2007 | \$1,350 | \$2,363 | 3.00 |
| Subtotal | | | | | | \$1,378,676 | |
| Price Adjustment from 2017 (20%) | | | | | | \$275,735 | |
| Total | | | | | | \$1,654,411 | |
| Low Risk Items - Evaluate Need for Repair or Replacement within Five Years | | | | | | | |
| 122 | WP1-WW1-CV1 | Check Valve | Water Plant No. 1 | 1970 | \$25,000 | \$43,750 | 2.95 |
| 123 | WP1-WW1-SCV1 | Silent Check Valve | Water Plant No. 1 | 1970 | \$25,000 | \$43,750 | 2.95 |
| 124 | WP1-BP1-BP1 | Booster Pump No. 1 | Water Plant No. 1 | 1983 | \$25,000 | \$43,750 | 2.88 |
| 125 | WP1-BP2-BP1 | Booster Pump No. 2 | Water Plant No. 1 | 1983 | \$25,000 | \$43,750 | 2.88 |
| 126 | WP1-BP3-BP1 | Booster Pump No. 3 | Water Plant No. 1 | 1983 | \$25,000 | \$43,750 | 2.88 |
| 127 | WP1-E-CB1 | Main Circuit Breaker | Water Plant No. 1 | 1997 | \$7,500 | \$13,125 | 3.13 |
| 128 | WP1-GST1-FV1 | Flap Valve | Water Plant No. 1 | 1977 | \$3,000 | \$5,250 | 2.88 |
| 129 | WP1-GST1-MH1 | GST No. 1 Manhole | Water Plant No. 1 | 1977 | \$3,500 | \$6,125 | 2.88 |
| 130 | WP1-GST1-MH2 | GST No. 1 Manhole | Water Plant No. 1 | 1977 | \$3,500 | \$6,125 | 2.88 |
| 131 | WP1-GST2-FV1 | Flap Valve | Water Plant No. 1 | 1991 | \$3,000 | \$5,250 | 2.88 |
| 132 | WP1-GST2-MH1 | GST No. 2 Manhole | Water Plant No. 1 | 1991 | \$3,500 | \$6,125 | 2.88 |
| 133 | WP1-GST2-LI1 | GST No. 2 Level Indicator | Water Plant No. 1 | 1991 | \$2,500 | \$4,375 | 2.85 |
| 134 | WP1-CS-DP1 | Disinfection Control Panel | Water Plant No. 1 | 2008 | \$12,000 | \$21,000 | 2.82 |
| 135 | WP1-GST1-EL1 | Exterior Ladder | Water Plant No. 1 | 1992 | \$2,500 | \$4,375 | 2.82 |
| 136 | WP1-GST2-EL1 | Exterior Ladder | Water Plant No. 1 | 1991 | \$2,500 | \$4,375 | 2.82 |
| 137 | WP1-GST2-GV1 | Gate Valve | Water Plant No. 1 | 1991 | \$4,000 | \$7,000 | 2.82 |
| 138 | WP1-GST2-GV2 | Gate Valve | Water Plant No. 1 | 1991 | \$4,000 | \$7,000 | 2.82 |
| 139 | WP1-WW1-WWCP1 | Water Well No. 1 Controls | Water Plant No. 1 | 1970 | \$15,000 | \$26,250 | 2.80 |
| 140 | WP1-GST1-BFV3 | Butterfly Valve | Water Plant No. 1 | 1977 | \$2,224 | \$3,892 | 2.78 |
| 141 | WP1-LAS-AA1 | Ammonia Analyzer | Water Plant No. 1 | 2008 | \$13,000 | \$22,750 | 2.78 |
| 142 | WP1-WW1-BFV1 | Butterfly Valve | Water Plant No. 1 | 1970 | \$1,401 | \$2,452 | 2.78 |
| 143 | WP1-WW1-BFV1 | Butterfly Valve | Water Plant No. 1 | 1970 | \$1,401 | \$2,452 | 2.78 |
| 144 | WP1-HPT1-GV1 | Gate Valve | Water Plant No. 1 | 1977 | \$500 | \$875 | 2.77 |

HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|-----|---------------|-----------------------------|--------------------|----------------|--|---|----------------------------|
| 145 | WP1-HPT1-GV2 | Gate Valve | Water Plant No. 1 | 1977 | \$500 | \$875 | 2.77 |
| 146 | WP1-HPT2-GV1 | Gate Valve | Water Plant No. 1 | 1970 | \$500 | \$875 | 2.77 |
| 147 | WP1-HPT2-GV2 | Gate Valve | Water Plant No. 1 | 1970 | \$500 | \$875 | 2.77 |
| 148 | LS2-LSP1-PV1 | Plug Valve | Lift Station No. 2 | 1978 | \$3,000 | \$5,250 | 2.75 |
| 149 | LS2-LSP2-PV1 | Plug Valve | Lift Station No. 2 | 1978 | \$3,000 | \$5,250 | 2.75 |
| 150 | LS2-LSP2-PV2 | Plug Valve | Lift Station No. 2 | 1978 | \$2,000 | \$3,500 | 2.75 |
| 151 | WP1-HPT2-PG1 | Pressure Gauge | Water Plant No. 1 | 1970 | \$200 | \$350 | 2.75 |
| 152 | WP1-WW1-ARV1 | Air Release Valve | Water Plant No. 1 | 1970 | \$119 | \$208 | 2.75 |
| 153 | WP1-BP1-CV1 | Check Valve | Water Plant No. 1 | 1970 | \$25,000 | \$43,750 | 2.70 |
| 154 | WP1-BP2-CV1 | Check Valve | Water Plant No. 1 | 1970 | \$25,000 | \$43,750 | 2.70 |
| 155 | WP1-BP3-CV1 | Check Valve | Water Plant No. 1 | 1970 | \$25,000 | \$43,750 | 2.70 |
| 156 | WP1-BP4-CV1 | Check Valve | Water Plant No. 1 | 1977 | \$25,000 | \$43,750 | 2.70 |
| 157 | WP1-LAS-AS1 | Interstitial Alarm System | Water Plant No. 1 | 2007 | \$5,000 | \$8,750 | 2.69 |
| 158 | WP1-CS-CL3 | Chlorinator No. 3 | Water Plant No. 1 | 2008 | \$5,000 | \$8,750 | 2.63 |
| 159 | WP1-CS-CL4 | Chlorinator No. 4 | Water Plant No. 1 | 2008 | \$5,000 | \$8,750 | 2.63 |
| 160 | WP1-GST1-LT1 | GST No. 1 Level Transmitter | Water Plant No. 1 | 1977 | \$3,700 | \$6,475 | 2.63 |
| 161 | WP1-GST2-LT1 | GST No. 2 Level Transmitter | Water Plant No. 1 | 1991 | \$3,700 | \$6,475 | 2.63 |
| 162 | WP1-CS-SC3 | Scale No. 3 | Water Plant No. 1 | 2008 | \$2,000 | \$3,500 | 2.87 |
| 163 | WP1-CS-SC4 | Scale No. 4 | Water Plant No. 1 | 2008 | \$2,000 | \$3,500 | 2.87 |
| 164 | WP1-GST1-LI1 | GST No. 1 Level Indicator | Water Plant No. 1 | 1977 | \$2,500 | \$4,375 | 2.60 |
| 165 | WP1-LAS-ST1 | Storage Tank | Water Plant No. 1 | 2007 | \$2,000 | \$3,500 | 2.60 |
| 166 | WP1-CS-CA2 | Chlorine Analyzer | Water Plant No. 1 | 2008 | \$3,500 | \$6,125 | 2.53 |
| 167 | WP1-GST1-BFV4 | Butterfly Valve | Water Plant No. 1 | 1977 | \$1,823 | \$3,190 | 2.53 |
| 168 | WP1-WW1-GV1 | Gate Valve | Water Plant No. 1 | 1970 | \$500 | \$875 | 2.53 |
| 169 | LS2-LSP1-PV2 | Plug Valve | Lift Station No. 2 | 1978 | \$2,000 | \$3,500 | 2.50 |
| 170 | WP1-CS-CBP1 | Chlorine Booster Pump | Water Plant No. 1 | 2008 | \$3,500 | \$6,125 | 2.75 |
| 171 | WP1-CS-ES1 | Emergency Shower | Water Plant No. 1 | 2007 | \$2,500 | \$4,375 | 2.50 |
| 172 | WP1-E-PG1 | Portable Generator | Water Plant No. 1 | 2006 | \$75,000 | \$131,250 | 2.75 |
| 173 | WP1-HPT1-PG1 | Pressure Gauge | Water Plant No. 1 | 1977 | \$200 | \$350 | 2.50 |
| 174 | WP1-HVAC-EF1 | Exhaust Fan | Water Plant No. 1 | 2007 | \$1,000 | \$1,750 | 2.50 |
| 175 | WP1-LAS-BVs | Ball Valves | Water Plant No. 1 | 2007 | \$200 | \$350 | 2.50 |

HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|---|---------------|-------------------------------|-------------------|----------------|--|---|----------------------------|
| 176 | WP1-WW1-CAV1 | Combination Air Valve | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 2.50 |
| 177 | WP1-E-DCA1 | Direct Current Alarms | Water Plant No. 1 | 2008 | \$750 | \$1,313 | 2.57 |
| 178 | WP1 -E-UPC1 | Universal Process Controllers | Water Plant No. 1 | 2008 | \$1,500 | \$2,625 | 2.57 |
| 179 | WP1-GST2-BFV3 | Butterfly Valve | Water Plant No. 1 | 2006 | \$1,823 | \$3,190 | 2.53 |
| 180 | WP1-BP1-PG1 | Pressure Gauge | Water Plant No. 1 | 1970 | \$100 | \$175 | 2.25 |
| 181 | WP1-BP2-PG1 | Pressure Gauge | Water Plant No. 1 | 1970 | \$100 | \$175 | 2.25 |
| 182 | WP1-BP3-PG1 | Pressure Gauge | Water Plant No. 1 | 1970 | \$100 | \$175 | 2.25 |
| 183 | WP1-BP4-PG1 | Pressure Gauge | Water Plant No. 1 | 1977 | \$100 | \$175 | 2.25 |
| 184 | WP1-E-XFMR3 | Transformer | Water Plant No. 1 | 2008 | \$3,000 | \$5,250 | 2.50 |
| 185 | WP1-E-LC1 | Load Center | Water Plant No. 1 | 2008 | \$800 | \$1,400 | 2.50 |
| 186 | WP1-GST1-CPR1 | Cathodic Protection Rectifier | Water Plant No. 1 | 2017 | \$5,000 | \$8,750 | 2.19 |
| 187 | WP1-GST1-BFV2 | Butterfly Valve | Water Plant No. 1 | 2008 | \$2,224 | \$3,892 | 2.28 |
| 188 | WP1-BP1-GV1 | Gate Valve | Water Plant No. 1 | 1970 | \$3,000 | \$5,250 | 2.00 |
| 189 | WP1-BP1-GV2 | Gate Valve | Water Plant No. 1 | 1970 | \$3,000 | \$5,250 | 2.00 |
| 190 | WP1-BP2-GV1 | Gate Valve | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 2.00 |
| 191 | WP1-BP2-GV2 | Gate Valve | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 2.00 |
| 192 | WP1-BP3-GV1 | Gate Valve | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 2.00 |
| 193 | WP1-BP3-GV2 | Gate Valve | Water Plant No. 1 | 1970 | \$2,000 | \$3,500 | 2.00 |
| 194 | WP1-BP4-GV1 | Gate Valve | Water Plant No. 1 | 1970 | \$3,000 | \$5,250 | 2.00 |
| 195 | WP1-BP4-GV2 | Gate Valve | Water Plant No. 1 | 1970 | \$3,000 | \$5,250 | 2.00 |
| 196 | WP1-E-SPD1 | Surge Protection Device | Water Plant No. 1 | 2014 | \$1,500 | \$2,625 | 2.25 |
| Subtotal | | | | | | \$839,939 | |
| Price Adjustment from 2017 (20%) | | | | | | \$167,988 | |
| Total | | | | | | \$1,007,927 | |
| Lowest Risk Items - Evaluate Need for Repair or Replacement within Ten Years | | | | | | | |
| 197 | WP1-GST1-RV1 | GST No. 1 Roof Vent | Water Plant No. 1 | 2017 | \$10,000 | \$17,500 | 1.88 |
| 198 | WP1-GST2-RV1 | GST No. 2 Roof Vent | Water Plant No. 1 | 2017 | \$10,000 | \$17,500 | 1.88 |
| 199 | WP1-GST1-BFV1 | Butterfly Valve | Water Plant No. 1 | 2017 | \$1,823 | \$3,190 | 1.78 |
| 200 | WP1-GST2-BFV1 | Butterfly Valve | Water Plant No. 1 | 2016 | \$1,823 | \$3,190 | 2.03 |
| 201 | WP1-GST1-RH1 | GST No. 1 Roof Hatch | Water Plant No. 1 | 2017 | \$8,000 | \$14,000 | 1.75 |
| 202 | WP1-GST2-CPR1 | Cathodic Protection Rectifier | Water Plant No. 1 | 2017 | \$5,000 | \$8,750 | 1.69 |

HCMUD No. 136
Asset Replacement/Assessment Plan
September 2021

| | Asset ID | Asset Name | Location | Installed Date | Replacement Cost Estimate ¹ | Estimated Replacement and Installation Cost | Asset Composite Risk Value |
|--|---------------|--|-------------------|----------------|--|---|----------------------------|
| 203 | WP1-GST1-MH3 | GST No. 1 Flush Type Cleanout | Water Plant No. 1 | 2017 | \$3,500 | \$6,125 | 1.63 |
| | | | | | | Subtotal | \$70,256 |
| | | | | | | Price Adjustment from 2017 (20%) | \$14,051 |
| | | | | | | Total | \$84,307 |
| Lowest Risk Items - Evaluate Need for Repair or Replacement later than Ten Years (Replacement Only) | | | | | | | |
| 204 | WP1-GST1-GST1 | GST No. 1 | Water Plant No. 1 | 1977 | \$450,000 | \$650,000 | |
| 205 | WP1-GST2-GST2 | GST No. 2 | Water Plant No. 1 | 1991 | \$450,000 | \$625,000 | |
| 206 | WP1-HPT1-HPT1 | Hydro Tank No. 1 | Water Plant No. 1 | 1997 | \$75,000 | \$131,250 | |
| 207 | WP1-HPT2-HPT2 | Hydro Tank No. 2 | Water Plant No. 1 | 1997 | \$40,000 | \$70,000 | |
| | | | | | | Subtotal | \$1,476,250 |
| | | | | | | Price Adjustment from 2017 (20%) | \$295,250 |
| | | | | | | Total | \$1,771,500 |
| Lowest Risk Items - Evaluate Need for Repair or Replacement later than Ten Years (Coating Only) | | | | | | | |
| 208 | WP1-GST1-ETC1 | Ground Storage Tank No. 1 Exterior Coating | Water Plant No. 1 | 2017 | \$170,000 | \$185,000 | |
| 209 | WP1-GST1-ITC1 | GST No. 1 Interior Coating | Water Plant No. 1 | 2017 | \$170,000 | \$185,000 | |
| 210 | WP1-GST2-ETC1 | Ground Storage Tank No. 2 Exterior Coating | Water Plant No. 1 | 2017 | \$170,000 | \$185,000 | |
| 211 | WP1-GST2-ITC1 | GST No. 2 Interior Coating | Water Plant No. 1 | 2017 | \$160,000 | \$175,000 | |
| | | | | | | Subtotal | \$730,000 |
| | | | | | | Price Adjustment from 2017 (20%) | \$146,000 |
| | | | | | | Total | \$876,000 |
| | | | | | | Grand Total: | \$5,556,144 |