

1. End of water year balances (April 13, 2018 to March 31, 2019)

Water account total:	\$14,568
• Operating budget:	\$ 1,486
• Emergency repairs reserve:	\$ 5,592
• Capital reserve:	\$ 7,490

Operating budget line-item report

Lines 1-6 were planned projects.

Line item	Approved	Actual cost	Explanation
1. Finish repair of Feb. 2018 water main rupture	\$ 1,600	\$ 2,947	\$ 579 Meter had to be replaced instead of repaired \$2,368 Reconnect main to fire hydrant
2. Water level sensor and logger (automated data recording system)	\$ 1,100	\$ 1,050	Committee planned to install at no cost. However, a broken well seal was found (costed in line 8). Sensor was lowered with pump during pump replacement (line 9).
3. Telemetry relay or better antennas	\$ 1,000	\$ 657	Over 20 new alarms due to loss of communication resulting in one empty reservoir and several near-misses. Installation of directional antennas solved the problem.
4. Repair valve at NW corner of Tamarack Road	\$ 1,000	\$ 0	Lowest priority project – defer due to overrun on line 1.
5. Purchase of 300 feet of pipe for inventory	\$ 2,000	\$ 2,185	Added purchase of couplers. Condition of main at bottom of system is fragile – when leak occurs, pipe and couplers in inventory will reduce length of water outage.
6. Improvements recommended during Oregon Assoc. of Water Utilities visit	\$ 200	\$ 158	Caution rings on fire hydrants, install lower temperature thermostat in wellhouse, install sampling port at wellhouse.
7. Base operations	\$ 2,000	\$ 2,006	Electricity, water analysis, OAWU dues, insulation, free chlorine strips, chlorine, supplies to protect pipe inventory from damaging UV light, miscellaneous parts.
8. Emergencies Unanticipated repairs	\$ 3,000	\$ 2,411	Mix-up in terms; unanticipated repairs is correct title. \$ 825 Telemetry trouble-shooting and repair. Includes pressure transducer to inventory. \$1,080 Fabricate broken well seal; remove and replace with boom truck. \$ 506 Leak was capped. Repair to occur in good weather on next year's budget. Four leaks on service lines repaired at owner's expense.
9. Emergency repair		\$ 4,408	Replace pump and drop pipe. \$4,408 added to the operating budget from the emergency repair reserve. Note: This expense paid for with the \$5,000 2017 donation.
10. Total	\$11,900	\$15,822	Note: \$11,414 total actual cost (giving a net balance of \$486) before addition of \$4,408 to operating budget.

Emergency repair reserve

Balance on 4-13-2018 \$ 0
 + \$10,000 from capital reserve
 - \$ 4,408 transfer to operating budget to pay for emergency repair
 Balance on 3-31-2019 \$ 5,592 (includes remaining \$592 of 2017 donation)

Capital reserve

Balance on 4-13-2018 \$13,010
 + \$7,000 annual contribution
 - \$10,000 transfer to establish emergency repairs reserve
 - \$ 1,000 transfer to operating budget for cushion against cost overrun
 - \$ 1,520 expenses > revenue
 Balance on 3-31-2019 \$ 7,490

2. Changes in well

- Recent data validates the 2017 belief that the well has two sources of water. In April through June a flush of infiltration from rain and melting snow supplies the well. As that water source declines later in the year, water pumped from the well increasingly reflects a second water source that is deeper, warmer, gassy, anoxic, harder, and more alkaline.
- Water pumped in the last 9 months has drawn more strongly from the second source than in past years. Prior to the flush of infiltration that occurred in the second half of April 2019, early April pre-pumping and post-pumping water levels were at the lowest levels since measurements began in December 2016, and the maximum time to 95% recovery had increased from two hours throughout 2017 to 12 hours in early April 2019. These changes may be related to the 1.5 million gallons of leaks and leak-associated water use that occurred in the last 19 months.

Date of pumping test	Pre-pumping water level, feet below surface	Post-pumping water level, feet below surface	Gallons of leaks and leak-associated use in previous 12 months (number of leaks)
4/10/2017	-71	-73	0 (0)
4/1/2018	-59	-151	~ 900,000 (6)
3/27/2019	-103	~ -235	~ 600,000 (5)
4/13/2019	-90	~ -225	

- Conclusion: Understanding the significance of these changes for the HLOA water system requires 5-10 years of data. In the interim, greater effort should be devoted to reducing the volume of leaks.
 - Repair telemetry system to restore ability for precise monitoring of the interval between pump cycles, and assess the display weekly to identify a leak earlier.
 - Install meter in main exiting reservoir to more rapidly and easily detect location of a leak on mains.
 - Policy for shutting off water to a lot amended to address leaks.

3. Spending and operating budget requests for water year 2019/2020 (April 1, 2019 to March 31, 2020)

<u>Spending request from 30-Year Plan*</u>		<u>Allocation of \$5,000 April 2019 donation</u>		<u>Operating budget request</u>
Planned projects	\$ 5,150	plus \$4,050	equals	\$ 9,200
Base operations	\$ 2,060			\$ 2,060
Unanticipated repairs	\$ 2,060			\$ 2,060
Emergency repair reserve contribution	\$ 2,060	\$ 950		\$ 2,060
Capital reserve contribution	\$ 9,270			not included
Total	\$20,600		Total	\$15,380

Add capital reserve contribution	\$ 9,270
Remainder of donation to Emergency repair reserve**	\$ 950
Total	\$25,600

* Includes inflation adjustment

** Emergency repairs reserve balance of \$5,592 plus addition of \$2,060 and \$950 brings balance to \$8,602.

Operating budget request, detail

Lines 1-8 are planned projects.

Line item	Budgeted cost	Justification
1. Replace and upgrade telemetry system logic controller and display	\$ 2,500	1. Can not access controls to change the pump cycle. 2. Water level graph does not work properly which hampers rapid identification of leaks. 3. Alarm lights don't always work.
2. Meter-setters for eight lots converting to meters with above-ground readout	\$ 2,000	All owners with old meters must convert. Water account pays only for meter-setter purchase; owner pays for meter, labor, and other materials.
3. Redeploy well's water level sensor to correct depth	\$ 800	Sensor is not recording critical data because it climbed the drop pipe during pump replacement.
4. Install bypass, meter, & setter at reservoir main	\$ 2,500	Will reduce water outage due to a leak on a main from days to a few hours.
5. Install pump kill switch	\$ 400	Prevent rupture of main if there is an error in valving.
6. Contract with professional water operator	\$ 1,000	40 hours to become familiar with system, help with trouble-shooting, and help with identifying and managing improvements.
7. Repair well house roof	\$ 0	Volunteer labor and spare roofing.
8. Attach permanent ladder to inside of reservoir	\$ 0	Spare ladder. Means to extract self out of reservoir if accidentally fall in.
9. Base operations	\$ 2,060	Electricity, water analysis, OAWU dues, maintenance parts & supplies.
10. Unanticipated repairs	\$ 2,060	Notes: ~\$1,000 is already obligated to complete repair of capped leak. If necessary, \$1,486 is available in last year's operating budget balance.
11. Emergency repair reserve contribution	\$ 2,060	
12. Total	\$15,380	

Three projects were deferred to a later year:

- Install 300 feet of main extending to LRR-Tamarack intersection, purchase 60 feet for inventory. \$6,500
- Repair of valve at NW corner of Tamarack Road. \$1,500
- Hire engineer to develop a solid cost for smaller tank and structure, to enable an improved cost-benefit analysis. Need to reduce uncertainty on well before moving forward on smaller tank. Unknown

4. Water rates for water year 2019/2020

- Water use rate remains at \$10 per 1,000 gallons
- Water system lot assessment increases to \$410 per lot

5. Water system – fire interface topics

- Expanded memo to Board (pages 4-5)
- Sprinkler head rules and information (pages 6-7)

6. Updated Operations and Maintenance Manual

7. Water System 30-Year Plan

- Purpose, goals, process, findings
- Q&A