2023 Supplement to the Water System 30-Year Plan 3/25/2023

Executive Summary

As specified in the "Water System 30-Year Plan (2018-2048)", every 5 years an analysis of the financials of the water system is to be conducted and a supplement written to document the findings. This is the first 5-year supplement.

This supplement answers two questions:
Is the capital reserve account balance becoming too large or too small?
Is the operations account balance becoming too large or too small?

Four steps were undertaken to answer the questions:
1. Changes in planned and possible future spending were documented.
2. The changes were incorporated into a new cost and revenue schedule.
3. Metrics were developed for evaluating "too large" and "too small", as referenced above.
4. Tests were conducted to determine whether either account balance had become too large or too small.
Details of the analysis are in the full report.

Conclusions:
1) The tests found that neither account had become too large or too small, so no adjustment is recommended to the revenue stream for either account. The current capital reserve balance of $55,000 is appropriate and the projected balance of $81,000 five years from now is not excessive. This first 5-year supplement indicates that – based on current knowledge – the HLOA water system remains on an appropriate financial path for matching long-range costs with a stable revenue stream.

2) The amount of capital reserve to be accumulated is very sensitive to whether a supplementary well would or would not be needed. If the current well becomes limiting, a method to enhance its' production would be a less costly alternative and may be a sufficient solution. While significant advancements were made in the last 5 years in assessing the adequacy of the current well, substantial uncertainty remains. Additional investments in well instrumentation and hydrological analyses are important for determining the appropriate level of capital reserve accumulation in the future.

3) In the future, the HLOA may want to consider adopting a more loan-reliant strategy by funding one or more large capital improvement projects with a combination of a loan and capital reserve funds. Such a combination would reduce the target amount of capital reserve to be accumulated, but servicing the loan would require an increase in revenue. In contemplating this trade-off, it's important to note that the availability of grants and low-interest loans will be much greater when the HLOA water system crosses the state's threshold for being regulated as a "community water system".

Introduction

The purpose of this supplement is to follow one of the recommendations of the "Water System 30-Year Plan (2018-2048)" (hereafter referred to as the 2018 Plan). The recommendation reads: "A retrospective analysis of expenditures and revenue is to be conducted every 5 years and after a major financial change, to evaluate if the capital reserve is substantially falling behind or getting ahead of the cost and revenue schedule. The analysis should document any significant changes in expenses or revenue, any resulting adjustment made to the schedule, and any change in recommendations."

The 2018 Plan contained a comprehensive analysis of all expected costs in the next 30 years and a year-by-year cost schedule was built. The cost schedule was used to determine at what times operations would require an increase in revenue, and what *fixed* amount of annual revenue was needed to support operations and the capital reserve. This provided owners with a solid idea of what their future annual water assessments would be (versus owners experiencing frequent above-inflation increases or swings in their water assessments).

This is the first 5-year supplement and the analysis was conducted in the second half of 2022. While this supplement may be read in isolation, a full understanding of the topics within also requires some knowledge of the 2018 Plan.

This supplement answers two questions:
Is the capital reserve account balance becoming too large or too small?
Is the operations account balance becoming too large or too small?

Four steps are required to answer the questions:
1. Document changes in planned and possible future spending.
2. Incorporate changes into a new cost and revenue schedule.
3. Develop metrics for evaluating "too large" and "too small", as referenced above.
4. Test whether either account balance has become too large or too small.

Step 1 and the first paragraph of step 2 state costs in 2017 dollars unless otherwise stated.

STEP 1. Document changes in planned and possible future spending.

Changes in base operations, asset replacements, and potential new assets are described. For ease in comparing information between the 2018 Plan and this supplement, the section numbering and heading system in the 2018 Plan are used here.

4.1 Base Operations (changes)

4.1.1 Expanded regulatory requirements

In 2018 the HLOA water user base was close to crossing the state's threshold for being regulated as a "community water system". The change in status would result in an additional $8,000 per year in costs (for expanded sample analysis and hiring a part-time water system operator to meet expanded regulatory requirements). The 2018 Plan

assumed this would occur in 2023. However, based on the state's criteria there was no growth in the HLOA water use base in the last five years. Therefore, the date for being regulated as a community water system was changed to 2028 in the new cost schedule.

4.1.2 Professional assistance with operations

To lighten the workload on volunteers and to familiarize a part-time operator with the HLOA water system, the 2018 Plan included $1,000 in 2020, 2021, and 2022. This cost did not eventuate in any year because there was initially difficulty in identifying an individual, and the workload on volunteers subsequently dropped to a large degree due to improvements made to the water system's infrastructure. Additionally, the 2018 Plan errored in continuing to budget for this cost after the $8,000 per year scheduled increase began in 2023 (per section 4.1.1 above) and thus it has been removed from the new cost schedule.

Other changes to base operations

Access to accurate and comprehensive well data, and problems with the data formatting system, were identified in 2022 as significant problems by a geohydrologist/engineer hired by the HLOA. The water committee anticipates that internet access to facilitate the upload of automated data collection and enable automated alarm alerts will begin in 2023 at a cost of $700 per year. The new cost schedule incorporates this change.

4.2 Asset Replacements (changes)

Table 1 summarizes asset replacement changes (all minor) that have been incorporated into the forward-looking cost schedule, along with the rationale for each change.

Table 1. Changes to asset replacement schedule.

Asset replacement	Cost in 2018 Plan and scheduled year	Changes to be incorporated in new cost schedule	Justification for change
New well house	$12,000 (2026)	$15,000; year unchanged	$3,000 added for plumbing and electric modifications.
Telemetry system (named "sensors and upload" and "control panel" in the new cost schedule)	$20,000 (2030)	Reallocated into two line items of roughly $10,000 each, one scheduled earlier and one later than in the 2018 Plan: - sensor package coupled with automated data upload and automated alarm alert (2023) - control panel (2033)	Highest priority recommendation from contracted Technical Memorandum of July 2022. *[Note: The E-PUR technical memo report due in April 2023 will likely result in revisions to cost and/or schedule.]*
Liner for reservoir	$12,000 (2040)	$16,000; year unchanged	$4,000 added for fittings.

4.3 Potential New Assets (changes)

The three potential new assets in the 2018 Plan are updated below.

4.3.1 Continuous disinfection

Context. The 2018 Plan was completed after 7 of 12 water samples tested positive for coliforms in June/July 2016, and 2 of 10 samples tested positive for coliforms in September/October 2017. At those times the state Drinking Water Program was in discussions with the HLOA regarding the possible need for continuous disinfection if the pattern continued or if samples were to test positive for *E. coli* bacteria (all samples tested further for the presence of *E. coli* had been negative). The cost for continuous disinfection was estimated at a minimum of $32,000 plus an annual operating cost of up to $3,000.

Developments in the last 5 years.

- To address the problem, from 2016 through 2018 the water committee improved pump operations, installed flushing hydrants and improved flushing procedures, and installed an improved control panel.
- Due to balancing against two other objectives, the residence time of water in the reservoir remains substandard at 14-21 days versus the industry standard of 3-5 days. Even so, all water samples after October 2017 have been negative for total coliforms.

Updated assessment. These developments indicate the need for continuous disinfection is less likely than it was when the 2018 Plan was written. It is reasonable to believe the 2016 and 2017 pattern will not re-occur. However, if a water sample(s) tests positive for coliforms, additional mitigation measures can be implemented and/or the current ones conducted more frequently. The probability that this new asset will be needed in the next decade is *low* (rated *medium* in the 2018 Plan).

4.3.2 Small-volume water tank

Context. The 2018 Plan identified two benefits of a smaller (10,000-gallon) water tank. A smaller tank dedicated to household water use would allow it to be operated at the industry standard of 3-5 days water residence time and allow the 50,000-gallon reservoir to be dedicated to water storage for firefighting. The cost of a small-volume water tank and associated infrastructure was estimated to be up to $61,000.

Developments in the last 5 years.

- As stated in 4.3.1, an industry-standard residence time of 3-5 days would be ideal, however, all water samples after October 2017 have been negative for coliforms despite the longer reservoir residence time. Furthermore, additional mitigation measures are available if a water sample(s) tests positive for coliforms.
- The benefit of dedicating the 50,000-gallon reservoir to water storage for firefighting was evaluated via a visit to the High Lostine by individuals from the Oregon Department of Forestry and U.S. Forest Service in 2021. They believed a dedicated reservoir is not necessary for nearly all wildfire scenarios given the efficient mobilization of professional resources and if (a) owners prudently use reservoir water by deploying low-volume (1 to 2 gallons per minute) sprinklers and (b) a gated weir is constructed in the year-round stream at the south end of the HLOA's western common lot with an underground delivery pipe to a readily accessible fill site for firefighting vehicles.

Updated assessment. These developments indicate the need for a small-volume tank has decreased. The probability that this new asset will be needed in the next decade is *low* (rated *medium to high* in the 2018 Plan).

4.3.3 Adequacy of the well

Context. Based on manual water-level measurements started late in 2016, the 2018 Plan called attention to uncertainty regarding whether the HLOA well could meet projected future water demand. This called into question whether modifying the existing well or drilling a supplementary well would be required.

Developments in the last 5 years. An automated data acquisition system was installed in the spring of 2019 to continuously record the well's water level and allow hydrological parameters of the bedrock aquifer to be calculated. In the summer of 2022 the Board hired a geohydrologist/engineer to examine three years of water level data and evaluate whether the well and aquifer will support future water demand as the number of full-time residences increases. Due to difficulties installing the water level sensor to the optimal depth in 2019 and other

shortcomings in instrumentation, standard hydrological calculations were not attempted by the geohydrologist/engineer. However, extrapolation methods (by the water committee) allowed calculation of 4 million gallons (minimum) as the volume of water the pump has access to. This *preliminary estimate* is 4 to 5 times greater than the current annual water demand, and would be sufficient for full occupancy in the High Lostine. On the other hand, on some days in July and August our water demand exceeds our maximum water supply, causing the reservoir level to drop even though the pump is working 100% of its allotted time. This is because current pump operation parameters – set to minimize potential pump damage and reduce water system residence time – limit the fraction of time the pump is on. As occupancy increases in the High Lostine, this over-demand will happen on more days and temporary water shortages could occur if the pump is not run more hours per day. New instrumentation needs to be added to help develop a solution to this conundrum.

Updated assessment. Based on the currently available data, the probability that this new asset will be needed in the next decade is *medium* (rated *unknown* in the 2018 Plan). If recommendations from the geohydrologist/engineer in his July 2022 Technical Memorandum are pursued, high-quality data will be available in the future to validate and refine the preliminary findings. While that could reduce the probability of needing this new asset to medium minus or low, a rating of medium is appropriate for this supplement. The potential impact of climate change on the subsurface water resource will need to be monitored in the coming decades.

If this capital improvement project were to be deemed necessary, it could be drilling a supplementary well, or enhancing the existing well by either deepening it or by hydraulic fracturing of the water-bearing zone. The probability of success of each approach will need to be estimated by professionals. Cost estimates vary from up to $70,000 (2017 dollars) for a supplementary well and connecting it to the water system and controller, $30,000 (2022 dollars) for deepening the well approximately 200 feet, and up to $20,000 (2022 dollars) for hydraulic fracturing.

4.3.4 Summary of potential new assets

Table 2 shows asset costs and compares the probability rating between the 2018 Plan and this supplement for each of the potential new assets.

Table 2. Probability rating of potential new assets in 2018 versus 2023.

Potential new asset	**Estimated cost**	**In 2018: Probability the new asset will be needed in the next decade**	**In 2023: Probability the new asset will be needed in the next decade**
Continuous disinfection	$32,000 minimum	Medium	Low
Small-volume water tank	up to $61,000	Medium to high	Low
Better well	up to $70,000	Unknown	Medium

The first two potential new assets provide alternate solutions to the possibility of a recurrence of a pattern of coliform-positive samples. Each of their probabilities is low, but 5 years of a clean track record is too short to not enter a cost in the new schedule. While it is highly unlikely that both assets will be required, we cannot predict at this time which solution will be optimal. Therefore, the cost schedule will assume a 50% probability that one of the assets is needed. This probability is captured by entering approximately 50% of the average cost, equal to $25,000, in year 15 (2037) of the new cost schedule using the name “coliforms”. If there is a lack of significant coliform-positive samples in the next decade the probability and cost should be lowered further.

A supplementary well, or alternatively one of the two methods of enhancing the existing well, is entered in the schedule at the mid-point cost of $50,000 in year 10 (2032). Although it's certainly possible a better well won't be needed in the next 10 years, given its indispensable role, potential high cost, and the non-validated preliminary findings it would be a mistake to not include it in the cost schedule. It is named "better well" in the schedule.

Table 3 shows changes in cost schedule entries for potential new assets.

Table 3. Cost schedule entries for potential new assets in 2018 versus 2023.

Potential new asset	Cost in 2018 Plan and scheduled year	Cost in 2023 supplement and scheduled year
Continuous disinfection –OR– Small-volume water tank (named "coliforms" in the cost schedule)	$50,000 (either 2028 or 2038)*	$25,000 (2037)
Better well	$50,000 (either 2028 or 2038)*	$50,000 (2032)

* At the time the 2018 Plan was completed, there was no basis for predicting which asset would be needed first and when. Therefore, assets were anonymously and arbitrarily scheduled for one-third (2028) and two-thirds (2038) through the plan period.

Other changes to potential new assets

Backup power to the well was installed in 2022; this capital improvement project cost $16,000. It was not included in the 2018 Plan.

Summary of changes documented in step 1

For the new cost schedule:

- Projected costs for 30 years of base operations sum to $16,000 lower.
- Projected costs for future asset replacements are $7,000 higher (Table 1).
- Projected costs for future potential new assets are $25,000 lower (Table 3).
- No capital improvement project has been dropped relative to the 2018 Plan but $16,000 was spent in 2022 on a capital improvement project not included in the 2018 Plan.

All together these changes sum to a net decrease of $18,000 compared to the 2018 Plan.

STEP 2. Incorporate changes into a new cost and revenue schedule.

Changes described in step 1 were entered into the new 30-year schedule, which covers water-year 2023/24 to 2052/53. Three other changes were entered into the new schedule, and past water-years 2018/19 to 2022/23 were included to accommodate these changes.

- A deposit of $24,381 was added to the capital reserve in water-year 2020/21. This was new revenue obtained for a long period of unpaid water assessments plus accrued interest.
- The new schedule was adjusted assuming an average annual inflation rate of 3%. The schedule in the 2018 Plan did not inflation-adjust for either additions to base operations or for capital improvement projects.

- The capital reserve balance for the beginning of water-year 2019/20 was corrected[1].

The new cost and revenue schedule is on page 10.

STEP 3. Develop metrics for evaluating "too large" and "too small".

The two questions to be answered are:
Is the capital reserve account balance becoming too large or too small?
Is the operations account balance becoming too large or too small?

Capital reserve metrics

The 2018 Plan states that any given capital improvement project should not spend more than approximately half of the capital reserve balance in the year the project is scheduled to occur[2].

- The cost and revenue portions of the schedule are deemed to match well when all medium and high-cost capital improvement projects pass the metric of not spending more than approximately half of the capital reserve balance in the years they are scheduled to occur, but most fail to *easily* pass the metric.
- If all or most of the higher cost projects *easily* pass the metric, serious consideration should be given to reducing revenue.
- If some medium- and high-cost projects do not pass the metric, serious consideration should be given to increasing revenue.

These metrics assume the capital reserve is the dominant source of funds for capital improvement projects; the metrics will need to be adjusted if the water system moves to a more loan- or grant-reliant approach.

Operations account metrics

The initial operations account balance in 2018 will be adjusted for an assumed average annual inflation rate of 3%.

- The most current water-year operations account closing balance is compared to the inflation-adjusted 2018 operations account balance. The former should be in the range of approximately 10% smaller to 25% larger than the latter.
- If outside this range, a series of year-by-year calculations are performed to test whether the outside-the-range result is persistence over multiple years. (Persistence is important because the operations account includes the operating budget carryover and the emergency repairs reserve, both of which can vary year to year.) The same calculation is performed year-by-year on the four most recent years, by comparing the subject water-year's operations account closing balance to the 2018 operations account balance adjusted for the proper number of years of inflation. If at least three of the last four years fall outside the minus 10% to plus 25% range, persistence is established.
- If a decrease is more negative than minus 10% and persistent, serious consideration should be given to increasing revenue to support the operations account.

[1] When the cost and revenue schedule was developed in 2018, it projected an estimated *water account* balance of $15,000 for the beginning of water-year 2019/20. In spring 2018 there was a single water account and no formal capital reserve account. Later in 2018 several new financial bins were created and funded. Specifically, $12,520 was transferred to the operations account ($10,000 to the newly created financial bin named "emergency repairs reserve" and $2,520 to a newly created financial bin named "operating budget carryover"), and the remainder of $490 was retained in the newly-formalized capital reserve account. The first annual contribution to the newly-formalized capital reserve account ($7,000) was made in water-year 2018/19, resulting in a capital reserve account balance of $7,490 for the beginning of water-year 2019/20. Thus, for the beginning of water-year 2019/20, the projected *water account* balance of $15,000 (as stated in the schedule in the 2018 Plan) ended up being a *capital reserve account* balance of $7,490. However, the cost and revenue schedule published in the 2018 Plan did not get updated with this change.

[2] "Approximately half" is defined in the 2018 Plan as 50% plus (1/10th of 50%) = 55%. Example: If the capital reserve balance is $50,000, then a capital improvement project can spend up to 55% of that balance, or $27,500.

- If an increase is more positive than plus 25% and persistent, serious consideration should be given to reducing revenue into the operations account -or- raising the money limits for line items in the operations account (i.e., the allowable operating budget carryover and the cap on the emergency repairs reserve) to account for inflation.

STEP 4. Test whether either account balance has become too large or too small.

Capital reserve account

In the cost schedule developed in step 2, tests were performed for each year with a scheduled capital improvement project, using the metrics developed in step 3. All capital improvement projects passed the metric of not exceeding more than approximately half of the capital reserve balance. The highest cost project – the "better well" project – barely passed the metric; when it was shifted one year forward in time it failed to pass the metric. All other projects *easily* passed the metric. These results indicate that the cost and revenue portions of the schedule match well. Therefore, we recommend no change to annual contributions to the capital reserve account.

If the "better well" was the more costly supplementary well ($70,000 in 2017 dollars), the project would have to occur in 2048 in order to pass the metric, or a hybrid loan-capital reserve funding strategy would be required to do the project at an earlier date. On the other hand, if the supplementary well is assumed or concluded to never be needed, then capital reserve contributions could be scaled back starting around 2030. These findings show the amount of capital reserve to be accumulated is very sensitive to whether a supplementary well would or would not be needed.

Operations account

The water-year 2021/22 closing balance in the operations account ($16,508) was tested using the metrics developed in step 3. The initial operations account balance in 2018 was $12,520 (see footnote 1 above); at an assumed average annual inflation rate of 3% this is equivalent to $14,091 in 2022 dollars. To meet the thresholds, the water-year 2021/22 closing balance should be in the range of approximately $12,700 ($14,091 minus 10%) to $17,600 ($14,091 plus 25%). The water-year 2021/22 closing balance of $16,508 was within that range. Therefore, we recommend no change to annual revenue directed to the operations account.

Conclusions

1) The purpose of the schedule in the 2018 Plan was to match long-range costs with a stable revenue stream. In contrast, the purpose of the new schedule was to test whether the set of changes described in steps 1 and 2 resulted in a mismatch between costs and revenue. The adopted metrics did not identify a mismatch for either account, and consequently no adjustment is recommended to the revenue stream for either account. The current capital reserve balance of $55,000 is appropriate and the amount of annual capital reserve contribution does not result in an excessive capital reserve balance in the next 5 years. This first 5-year supplement indicates that – based on current knowledge – the HLOA water system remains on an appropriate financial path for matching long-range costs with a stable revenue stream. A small increase in water assessments may be needed in a given year but any such increases should be small and occasional.

2) The amount of capital reserve to be accumulated is very sensitive to whether a supplementary well would or would not be needed. If the current well becomes limiting, a method to enhance its' production would be a less costly alternative and may be a sufficient solution. While significant advancements were made in the last 5 years in assessing the adequacy of the current well, substantial uncertainty remains. Additional investments in well

instrumentation and hydrological analyses are important for determining the appropriate level of capital reserve accumulation in the future.

3) Projected capital reserve balances increased dramatically after 2040 because there weren't any capital improvement projects scheduled after that year. This situation is a function of a much poorer ability to foresee major expenditures that far into the future, and these projected capital reserve balances are therefore suspect.

4) In the future, the HLOA may want to consider adopting a more loan-reliant strategy by funding one or more large capital improvement projects with a combination of a loan and capital reserve funds. Such a combination would reduce the target amount of capital reserve to be accumulated, but servicing the loan would require an increase in revenue. In contemplating this trade-off, it's important to note that the availability of grants and low-interest loans will be much greater when the HLOA water system crosses the state's threshold for being regulated as a "community water system".

5) There is a substantial amount of guesswork and uncertainty involved in assigning capital improvement projects to a particular year, making a forward-looking financial analysis somewhat difficult. In contrast to this deterministic approach, a probabilistic approach such as Monte Carlo simulation might be more useful; however the latter would require a contract to obtain the expertise.

6) Section 5.2 of the 2018 Plan discusses risk tolerance and risks; these topics continue to be highly pertinent for this 5-year supplement but are not repeated here in the interest of brevity.

col. 1	col. 2	col. 3	col. 4	col. 5	col. 6	col. 7	col. 8	col. 9	col. 10	col. 11	col. 12	col. 13
Water year	Base ops	Planned projects	Unanticip. repairs	Emergency repair contrib.	Total operating budget	Total oper. budget w/ inflation	Capital reserve contribution w/ inflation	Total budget [= revenue need] w/ inflation	Capital reserve year-end balance w/ inflation	Capital improve. project name	Capital improve. project cost	Capital improve. project cost w/ inflation
2018/19	$2,000	$5,000	$2,000	$2,000	$11,000	$11,000	$7,000	$18,000	$7,490			
2019/20	$2,000	$5,000	$2,000	$2,000	$11,000	$11,330	$9,270	$20,600	$16,760			
2020/21	$2,000	$5,000	$2,000	$2,000	$11,000	$11,670	$9,548	$21,218	$50,689			
2021/22	$2,000	$5,000	$2,000	$2,000	$11,000	$12,020	$9,835	$21,855	$60,524			
2022/23	$2,000	$5,000	$2,000	$2,000	$11,000	$12,381	$10,130	$22,510	**$54,653**	Backup power	$16,000	$16,000
2023/24	$2,700	$5,000	$2,000	$2,000	$11,700	$13,564	$10,433	$23,997	**$54,787**	Sensors & upload	$10,000	$10,300
2024/25	$2,700	$5,000	$2,000	$2,000	$11,700	$13,970	$10,746	$24,717	$65,533			
2025/26	$2,700	$5,000	$2,000	$2,000	$11,700	$14,390	$11,069	$25,458	$76,602			
2026/27	$2,700	$5,000	$2,000	$2,000	$11,700	$14,821	$11,401	$26,222	**$69,001**	New well house	$15,000	$19,002
2027/28	$2,700	$5,000	$2,000	$2,000	$11,700	$15,266	$11,743	$27,009	$80,744			
2028/29	$10,700	$5,000	$2,000	$2,000	$19,700	$26,475	$12,095	$38,570	$92,840			
2029/30	$10,700	$5,000	$2,000	$2,000	$19,700	$27,269	$12,458	$39,728	$105,298			
2030/31	$10,700	$5,000	$2,000	$2,000	$19,700	$28,087	$12,832	$40,919	$118,130			
2031/32	$10,700	$5,000	$2,000	$2,000	$19,700	$28,930	$13,217	$42,147	$131,346			
2032/33	$10,700	$5,000	$2,000	$2,000	$19,700	$29,798	$13,613	$43,411	**$69,330**	Better well	$50,000	$75,629
2033/34	$10,700	$5,000	$2,000	$2,000	$19,700	$30,692	$14,022	$44,714	**$67,772**	Control panel	$10,000	$15,580
2034/35	$10,700	$5,000	$2,000	$2,000	$19,700	$31,613	$14,442	$46,055	$82,215			
2035/36	$10,700	$5,000	$2,000	$2,000	$19,700	$32,561	$14,876	$47,437	$97,090			
2036/37	$10,700	$5,000	$2,000	$2,000	$19,700	$33,538	$15,322	$48,860	$112,412			
2037/38	$10,700	$5,000	$2,000	$2,000	$19,700	$34,544	$15,782	$50,326	**$84,356**	Coliforms	$25,000	$43,838
2038/39	$10,700	$5,000	$2,000	$2,000	$19,700	$35,580	$16,255	$51,835	$100,611			
2039/40	$10,700	$5,000	$2,000	$2,000	$19,700	$36,648	$16,743	$53,390	$117,354			
2040/41	$10,700	$5,000	$2,000	$2,000	$19,700	$37,747	$17,245	$54,992	**$103,941**	Liner for reservoir	$16,000	$30,658
2041/42	$10,700	$5,000	$2,000	$2,000	$19,700	$38,880	$17,762	$56,642	$121,703			
2042/43	$10,700	$5,000	$2,000	$2,000	$19,700	$40,046	$18,295	$58,341	$139,998			
2043/44	$10,700	$5,000	$2,000	$2,000	$19,700	$41,247	$18,844	$60,091	$158,842			
2044/45	$10,700	$5,000	$2,000	$2,000	$19,700	$42,485	$19,409	$61,894	$178,252			
2045/46	$10,700	$5,000	$2,000	$2,000	$19,700	$43,759	$19,992	$63,751	$198,243			
2046/47	$10,700	$5,000	$2,000	$2,000	$19,700	$45,072	$20,591	$65,664	$218,835			
2047/48	$10,700	$5,000	$2,000	$2,000	$19,700	$46,424	$21,209	$67,633	$240,044			
2048/49	$10,700	$5,000	$2,000	$2,000	$19,700	$47,817	$21,845	$69,662	$261,889			
2049/50	$10,700	$5,000	$2,000	$2,000	$19,700	$49,252	$22,501	$71,752	$284,390			
2050/51	$10,700	$5,000	$2,000	$2,000	$19,700	$50,729	$23,176	$73,905	$307,566			
2051/52	$10,700	$5,000	$2,000	$2,000	$19,700	$52,251	$23,871	$76,122	$331,437			
2052/53	$10,700	$5,000	$2,000	$2,000	$19,700	$53,819	$24,587	$78,406	$356,024			