

Memorandum

Village of Oak Brook – Water Rate Study Update – 2018

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November 30, 2018

Background

The Village of Oak Brook retained American Infrastructure Technologies, LLC (AIT) to prepare a detailed Capital Improvement Plan (CIP) for its water system and to develop a Water Rate Study in 2010. About one year after the completion of the study, City of Chicago announced a 4 year (25%, 15%, 15% and 15%) rate increase starting January 2012. This high rate increase was justified by Chicago to pay for its aging infrastructure which supplies water to the City and Suburbs. The DuPage Water Commission (DWC) which purchases water from Chicago and then sells it to the DuPage County municipalities including Oak Brook, increased its water rates to adjust for Chicago rate increase plus increases in its own expenditures by 30%, 20%, 18% and 17% starting in 2012.

In 2015 the Village asked AIT to update the water rate study. The goal was to make sure that water rates were appropriately set to collect enough revenue to pay for the water purchased from DWC and for the water system maintenance and repairs. AIT recommended a multiyear rate increase starting with 10% per year and tapering off to 7% per year increase. This was necessary to catch up with Chicago and DWC rate increases which had started in 2012.

While conducting the rate study update, AIT noticed a high percentage of water loss in the system. This is the difference in volume of water purchased from DWC and sold to the Village's water system customers and is also known as "non-revenue water". This high water loss was also affecting the water rates negatively because of the need to generate higher revenue to pay for the water loss.

Non-Revenue Water

AIT assisted the Village in 2016-2017 to help reduce the non-revenue water percentage from a high of 18% to 10%.

This was achieved by a multipronged approach which looked at:

- Possible water main leaks in the system
- Accuracy in meter readings and processing of water bill
- Age and accuracy of water meters

A water leak detection firm conducted a leak survey on majority of the Village's water mains. Several leaks were found and repaired.

A physical inspection was done at all major commercial customers to make sure there was no un-metered water usage. The existing water meter size was recalculated based on current building use.

A statistically significant sample of residential water meters were tested by a meter testing firm. Based on the testing results, the Village decided to do a Village wide residential meter changeout program. Old meters were replaced with highly accurate modern meters. This program started in 2018 and will be completed shortly.

This effort has paid off with the 2018 financials showing a higher revenue collection and reduced purchased water cost from DWC. This would help in reducing the magnitude of any future rate increases.

After the completion of the meter changeout program, an 8% non-revenue figure is used for future financial projections.

Future Water Rate Increases from the City of Chicago and the DuPage Water Commission (DWC)

The Village purchases all of its water from the DWC. The cost of purchased water is approximately 70% of its operating budget. Therefore, any changes in the purchased water rate will have a large impact on the finances of the water fund.

The DWC was contacted to find out about any planned rate increases. They indicated that for the next 5 years, the Commission would pass along any Chicago increases along with their own increases in labor, power etc.

The Chicago water rate increase, according to their website, is calculated based on the Consumer Price Index -- Urban Wage Earners and Clerical Workers (Chicago All Items) published by the United States' Bureau of Labor Statistics.

According to published data, the CPI is projected to increase by about 2% annually over the next five year. However, these projections are subject to unforeseen factors and the actual change may be different.

Based on the above data, the cost of purchased water from DWC to Oak Brook is projected to increase by 2% annually over the next 5 years.

Future Water Usage

It has been well documented that water usage in the U.S has been declining. The Chicago suburbs have seen a consistent decline in water usage over the years. Major factors attributed to this decline are:

- New plumbing fixtures and toilets which use less water
- Increased awareness of resource conservation
- Impact of higher water rates.
- Reduced household size in mature communities such as Oak Brook
- Well established landscaping in mature communities such as Oak Brook.

For this study a water usage reduction of 1 % per year is projected over the next 5 years.

This projection is based on the current land usage of the Village. Any changes such as new development, or redevelopment with higher water usage would change this projection.

Water System Expenses

Water System Expenses, broken down by key categories, are shown in table below.

Account Title	2017	2018	2019	2020	2021	2022	2023	
	Actual	Budget	Projection	Projection	Projection	Projection	Projection	
EXPENSES								
PURCHASED WATER								
DWC O&M rate (Fiscal Year) \$/1000 gal	4.8-4.88	4.88-4.94	\$ 5.05	\$ 5.15	\$ 5.25	\$ 5.36	\$ 5.46	From discussion with DWC. See write up
			-	-	-	-	-	
DWC Purchased Water - k gals	995,102	985,329	946,957	937,487	928,112	918,831	909,643	Calculated based on non-revenue percentage and water sales
Non-revenue water reported on LMO2 (%)	10.80	11	8	8	8	8	8	Non revenue projections
Water sold	887,631	876,943	871,200	862,488	853,863	845,324	836,871	1% decrease from 2019 onward due to conservation and price effect
	-	-	-	-	-	-	-	
DWC Purchasd water cost \$/year	4,836,874	4,851,000	4,780,880	4,827,733	4,875,045	4,922,820	4,971,064	
OPERATION AND MAINTENANCE EXPENSES								
Personnel	869,673	817,930	828,410	866,002	904,972	945,696	988,252	Source: Village 2019-2023 budget document
Materials and Supplies	487,635	77,610	76,210	78,496	80,581	83,277	85,775	Source: Village 2019-2023 budget document
Operations and Contractual	615,740	615,740	616,715	609,647	627,936	646,774	666,177	Source: Village 2019-2023 budget document
Total Operation and Maintenance Expenses	1,357,308	1,511,280	1,521,335	1,554,145	1,613,489	1,675,747	1,740,204	
EXCEPTIONAL CHARGES								
Transfers to other funds	401,600	405,170	551,930	568,385	585,436	603,000	621,090	Source: Village 2019-2023 budget document
Vehicle Replacement Charges	77,810	29,050	37,590	48,080	49,790	50,110	51,920	Source: Village 2019-2023 budget document
TOTAL EXCEPTIONAL CHARGES	479,410	434,220	589,520	616,465	635,226	653,110	673,010	
TOTAL OPERATING EXPENSES	6,673,592	6,796,500	6,891,735	6,998,343	7,123,760	7,251,677	7,384,278	
DEBT SERVICE								
CAPITAL EXPENSES								
TOTAL CAPITAL EXPENSES	57,700	2,785,220	6,224,075	3,567,340	3,465,000	2,885,425	3,000,000	Source: Village 2019-2023 budget document
TOTAL EXPENSES	6,731,292	9,581,720	13,115,810	10,565,683	10,588,760	10,137,102	10,384,278	

The purchased water category, as discussed earlier, is based on a 2% annual increase from the DWC. The annual purchased water quantity is based on a 1 % per year reduction in the water sold in the Village. The non-revenue water is projected to be at 8%.

Personnel expenses were supplied by the Village in their 2009 budget summary prepared for 2019-2023 and were forecasted to grow at 4.5% per year.

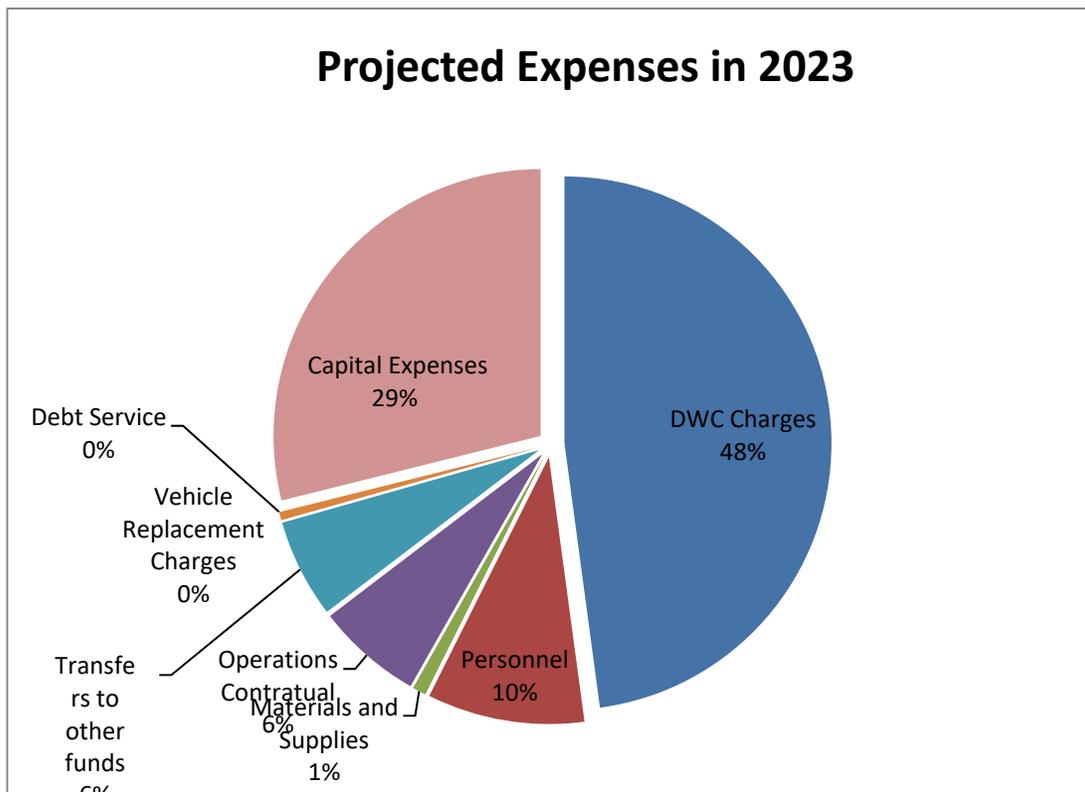
Material and supplies projections were supplied by the Village.

The Operations and Contractual category figures, also supplied by the Village, has been significantly increased over the past year. This includes JULIE locating expenses, ongoing water main leak detection expenses and other water system maintenance items. It is recommended, that this budget category should be reviewed annually to make sure it reflects the needs for the system maintenance.

Transfer to other funds category is generally used to reimburse the Village management and other departments for their time spent in managing the water system. These figures were supplied by the Village. This category has also been increased over prior years.

Capital expenses were supplied by the Village. It is our understanding that these projects were identified in a recent hydraulic study.

The pie graph below shows the projected total 2023 water system expenses.



Revenues

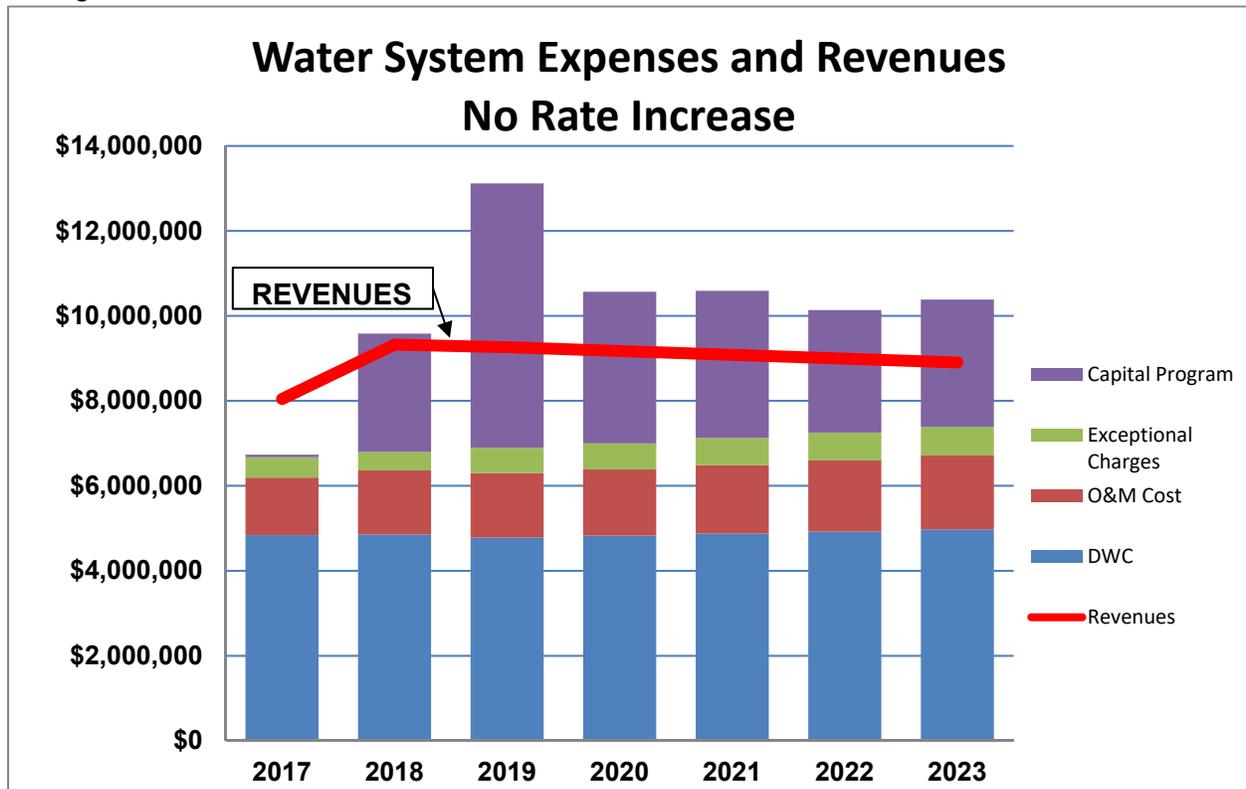
The water system revenues are generated from user charges. Some charges are fixed and other are based on the amount of water used. The Village has a different rate for out-of-town customers. Historically, out-of-town customers account for about 25% of the water sold by the Village. The current Village water tariff does not have a break for high volume users or provide an incentive for water conservation.

The Village also has the same user charge for all categories of customers. It is recommended that the Village explore the user charge based on the meter size. This would allow the larger commercial customers pay a higher fee since a big portion of the water system is installed and maintained to provide the fire protection and peak flow to these large customers.

The rates should be set to generate adequate revenue to pay for the on-going operation of the water system and the capital expenses. It is desirable to maintain a water fund balance of 3 to 6 months of operating expenses.

Rate Analysis

The 2018 water fund balance and the projected expenses over next 5 years were reviewed and compared to the projected revenues. The graph below shows the expenses and revenues through 2023 with no rate increase.



A close analysis of the graph shows that even without any rate increase the system would generate enough revenues to pay for the O&M costs and a substantial portion of the capital program.

Recommended Rates

The water system revenue projections without any rate increase are enough to pay for all O&M and substantial portion of the capital program.

A capital program is usually of a short duration as opposed to the continuous expense of operations and maintenance. Increasing rates for a short duration to pay for capital projects is not a common practice. Instead bonds are floated to pay for capital projects and they are paid off from the system revenue over a longer period of time. This keeps the water rates stable.

Since the water system revenues are adequate to pay for a portion of the capital expenses, several options are available to the Village, such as:

1. No increase in water rates or a modest increase in rates (CPI) and pay for capital projects from Village's funds by spreading the capital program over 7 or 8 years instead of 5 years
2. Increase rates substantially to pay for the capital projects in next 5 years. Rates may have to be lowered at the end of the 5 year capital program
3. No increase in water rates or a modest increase in rates (CPI) and pay for capital projects from bond proceeds

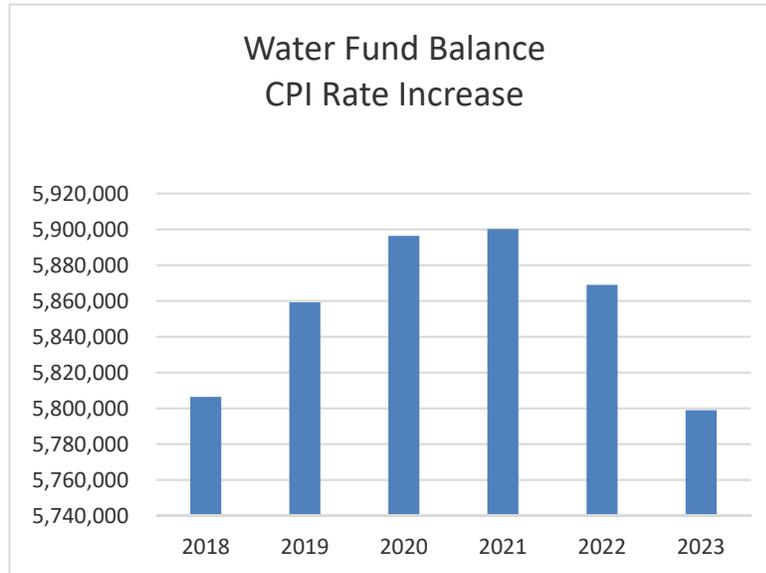
Analysis of options 1 and 2 are discussed below:

Option 1 – CPI increase only in rates – Capital program extended to 8 years

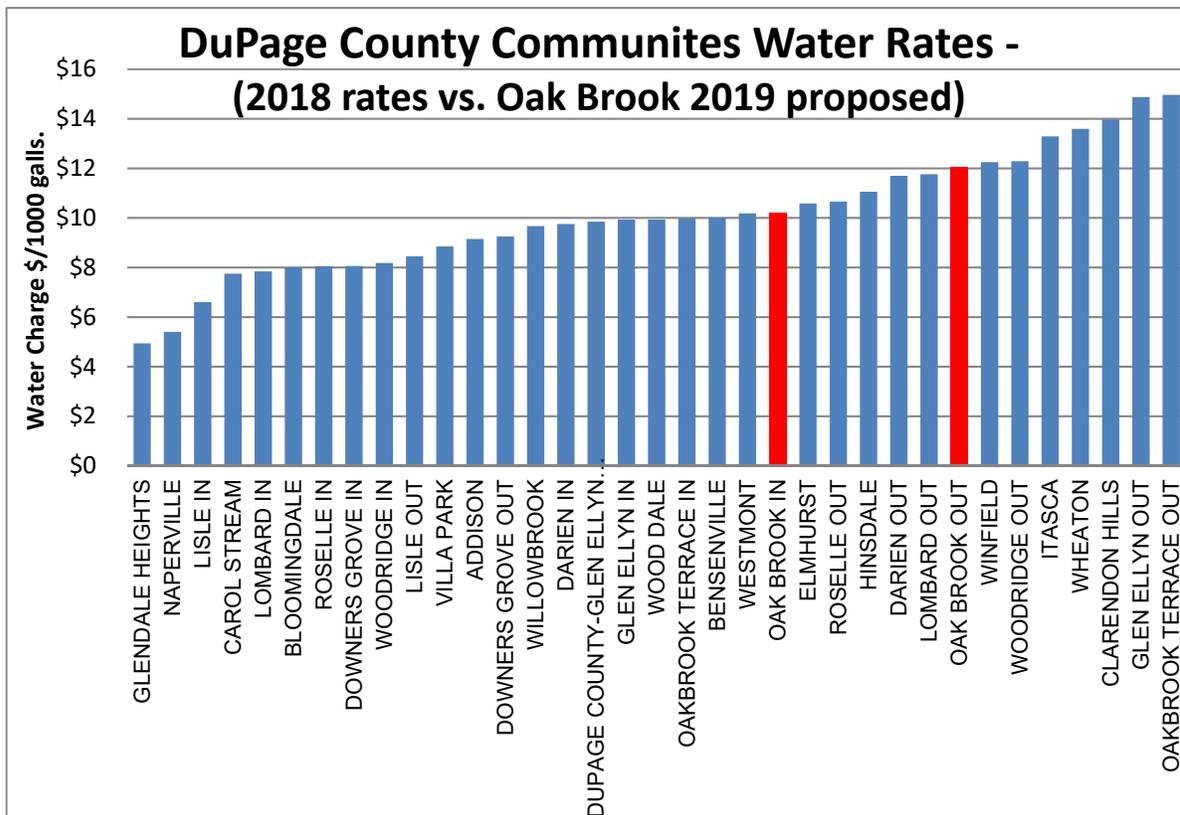
Under this option, the proposed rates would be:

<u>Water Rate</u>	2018	2019	2020	2021	2022	2023
Annual increase		2.0%	2.0%	2.0%	2.0%	2.0%
Fixed Charge - \$/customer/month	10.00	10.00	10.00	10.00	10.00	10.00
Metered Charge within corporate limits - \$/1000 gal	10.00	10.20	10.40	10.61	10.82	11.04
Metered Charge outside corporate limits - \$/1000 gal	11.81	12.05	12.29	12.53	12.78	13.04

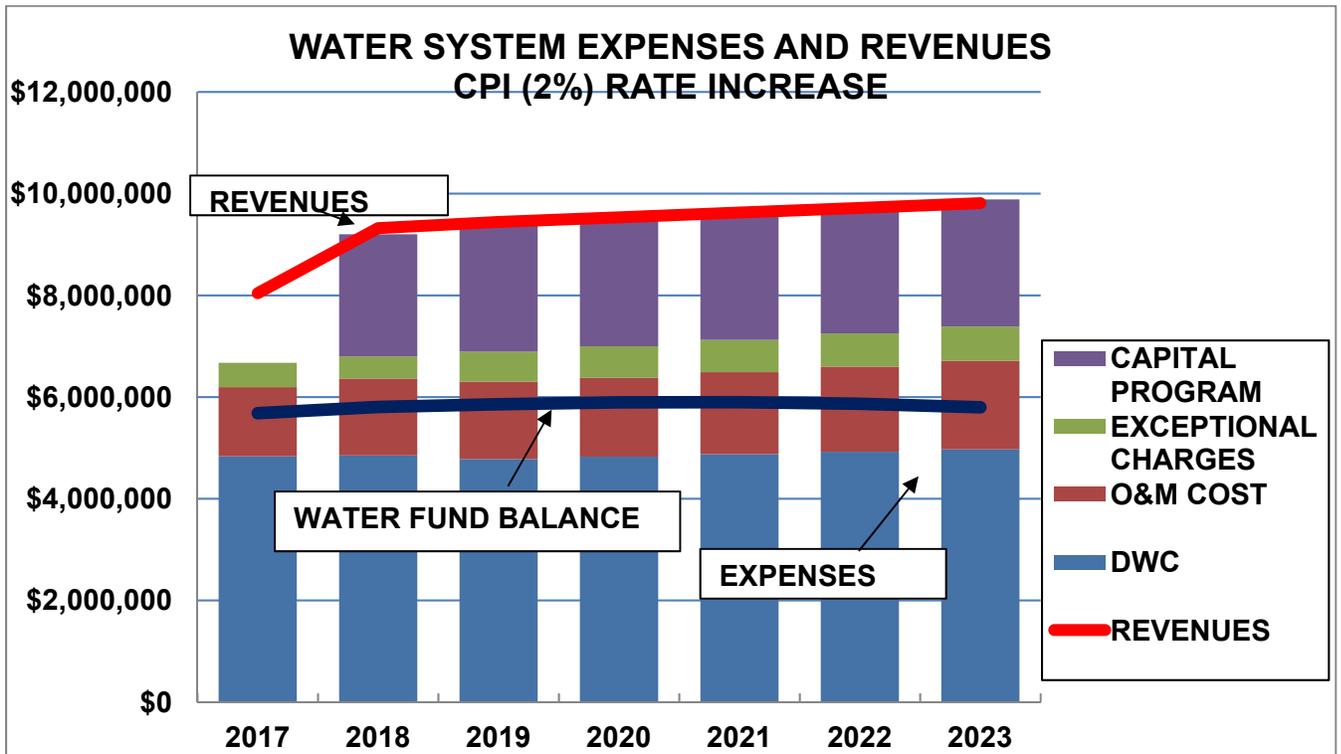
These rates would support a capital program of \$2.5 million per year. The water fund balance under this option is shown below:



The 2019 rates under this option would compare with adjacent communities on Lake Michigan water from the DWC. The Oak Brook rates are proposed 2019 rates.



The expenses and revenue projections for this option are:



The revenues balance the expenditures. The water fund balance stays stable.

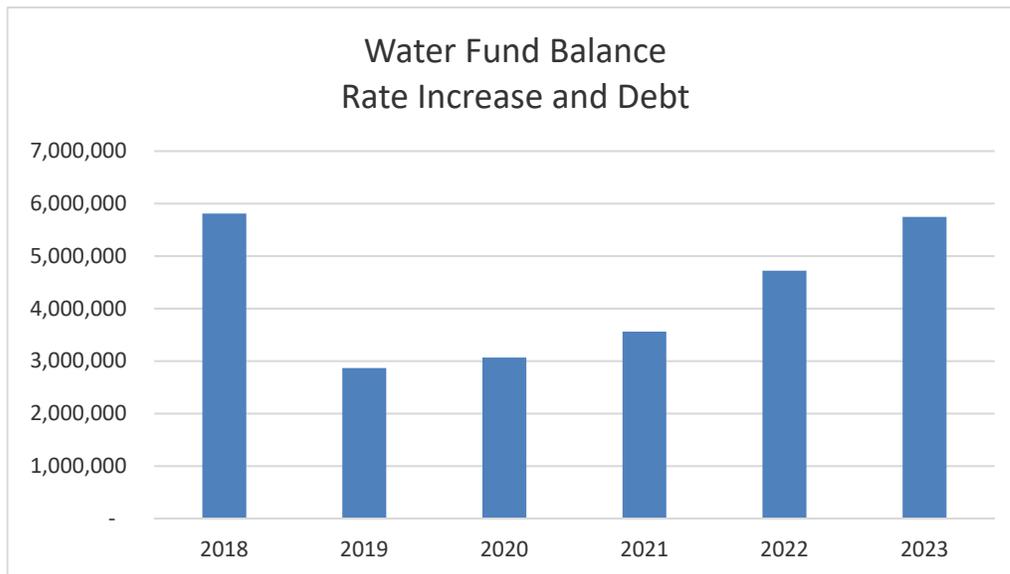
Option 2 – Increase rates to pay for 5-year capital program

Under this option, the rates would be increased to generate enough revenue to pay for the 5 year capital program.

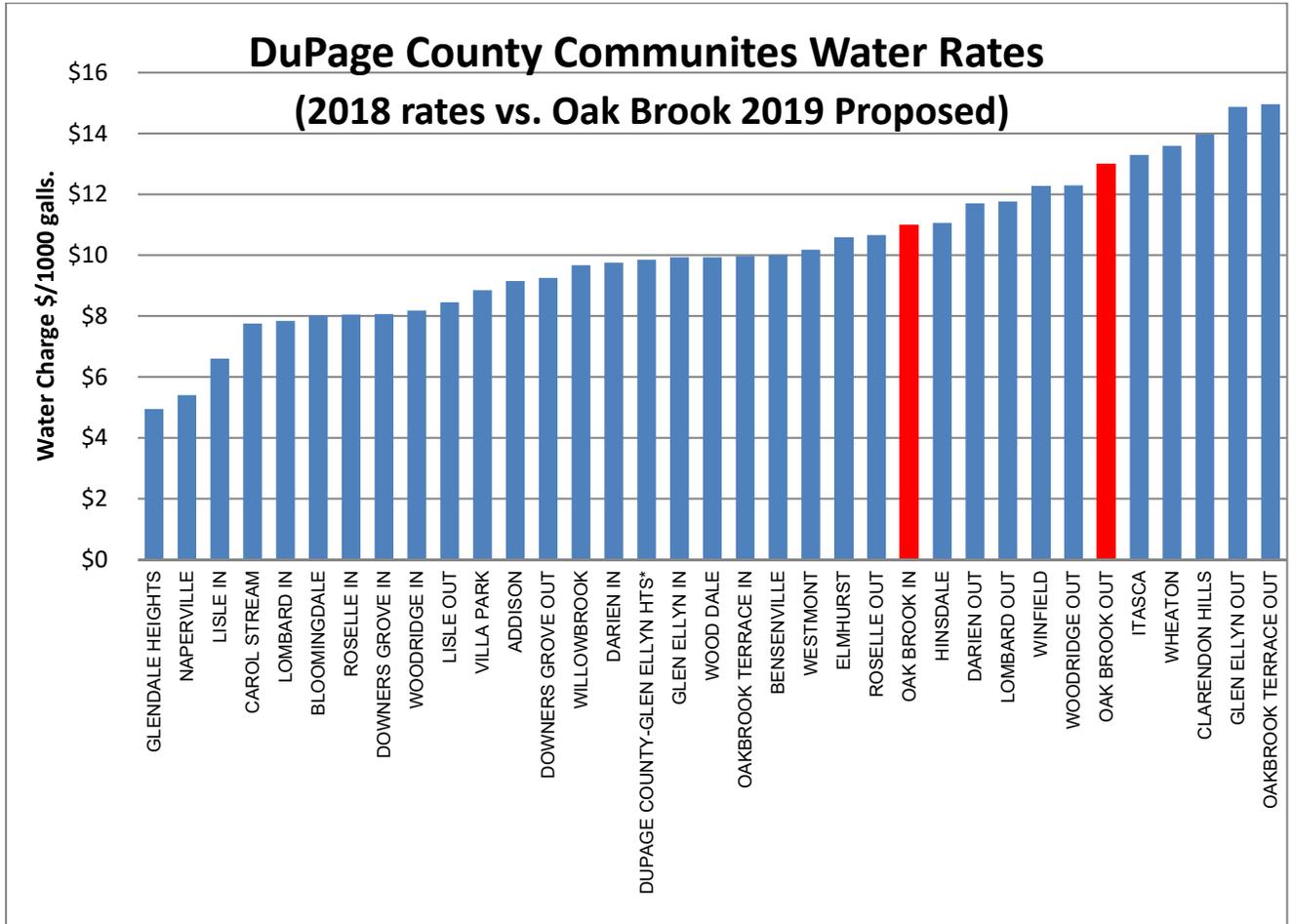
The proposed rates would be:

Water Rate	2018	2019	2020	2021	2022	2023
Annual increase		10.0%	7.0%	4.0%	3.0%	2.0%
Fixed Charge - \$/customer/month	10.00	10.00	10.00	10.00	10.00	10.00
Metered Charge within corporate limits - \$/1000 gal	10.00	11.00	11.77	12.24	12.61	12.86
Metered Charge outside corporate limits - \$/1000 gal	11.81	12.99	13.90	14.46	14.89	15.19

The water fund balance based on these rates would be:



The rate comparison to adjacent municipalities is shown below. The graph compares rates 2018 rates with the proposed Oak Brook rates for 2019 for option 2.



Conclusions

- There appears to be rate stability from the City of Chicago and DWC at this time.
- The Village has successfully addressed the non-revenue water issue resulting in positive revenues in the water fund.
- The current water rates and water fund cash balance is adequate to fund the water system O&M costs.
- Capital costs can be spread out over years and paid with modest (CPI) increases in water rates.
- It is recommended that either the capital program be spread out a few more years or the option of bonds or loan be used to pay for the capital projects, so the rates remain stable.
- The Village should investigate a large meter service charge associated with fire flow needs.