



Date: March 17, 2017
To: Lou Malone, Eric Hansen, and John Brunke
Freeland Water and Sewer District Board of Commissioners
From: Gordon Wilson, Senior Program Manager *Gordon Wilson*
Copy: Andy Campbell, General Manager
Roger Kuykendall, Gray & Osborne
Subject: Sewer Financial Plan

The following technical memo documents the methodology, assumptions, and findings of the Freeland Sewer Financial Plan. It is more detailed than the summary memo you received on February 13, but the forecast numbers are the same.

In describing the outcome of the forecast, we will focus on two key measurements:

- The up-front General Facilities Charge (GFC) that existing property owners and newly developing properties would need to pay in order to connect to the system.
- The monthly cost per Equivalent Residential Unit (ERU).

The monthly cost per ERU is the ongoing unit cost of the system. It is not exactly the same as monthly sewer rates, but it is a close approximation, and it is more convenient when we are working with multiple scenarios. The cash flow forecast shown later in this memo contains both the unit cost and the monthly rates, so you can see them together. The actual monthly rates would need to be higher than the unit costs in the early years, so the system can build up a minimum level of operating cash balance.

At your request, we have focused our analysis on the Phase 1A service area, including the Main Street Sewer District (MSSD). Our basic source of planning data is the April 2016 Amendment to the Comprehensive Sewer Plan, prepared by Gray & Osborne (“Comprehensive Plan”), along with subsequent updates of capital costs by Gray & Osborne.

CONTINGENCIES AND CHOICES

There are three major variables that drive the results. The first two are contingencies (things beyond the District’s control) and one is a policy choice.

- **Additional Grant Funding:** The most significant single variable that drives the outcome of this forecast is how much additional grant (not loan) funding the District is able to receive from either the State or Island County. This can take the form of forgivable loans or State loans for which the County assumes responsibility for the annual payments. Regardless of the mechanism, if it does not have to be paid back by the ratepayers, we are calling it a grant. If the ratepayers have to pay it back, then it adds to the monthly rates.
- **Growth in ERUs through New Development:** This turns out to be the least significant of the three major variables, because a relatively high proportion (35%) of the operating and maintenance (O&M) costs are directly proportionate to volume, so if the number of customers increases, then O&M costs increase as well. But the growth rate still makes a difference in future years, because it allows fixed capital investment to be spread over more customers.

- **General Facilities Charge:** This is a policy choice that makes a big difference to how existing and future property owners are affected by connection to the sewer system. After the grants are subtracted from the project cost, any remaining capital costs constitute the “capital funding gap.” That gap can be filled by one of two main sources: existing property owners can pay up-front through the GFC, or the District can incur debt, including the already-planned \$1.25 million State Revolving Fund (SRF) loan. To whatever degree the District borrows, current and future ratepayers will pay higher monthly rates to service that debt. In addition to balancing the amount of up-front GFCs against debt, the District can choose to construct a two-tiered GFC: a higher GFC for new development, and a lower “conversion charge” for existing property owners with septic systems (or MSSD treatment facilities) that would be discontinued. So the formulation of the GFC not only makes a difference to the economic burden carried by existing property owners now and in the future; it also affects development costs faced by future customers.

SEQUENCE OF THE MEMO

After describing key assumptions, the sections below discuss the forecast results. The “Results” section describes the impact of all three variables on up-front and ongoing charges to customers. More detail about some of the assumptions is contained in **Appendix A**.

Warning: there are many possible ways to evaluate the choices and contingencies, which can become confusing. We modeled five levels of additional grant funding, four growth rates, and four potential ways to construct the GFC. That would be 80 potential scenarios--clearly there is a need to simplify.

The way we approached this is to focus initially on the first year of the forecast—2019—and the initial impact on customers. By doing this we can describe the results of “only” 20 scenarios by showing four charts—a chart for each GFC option, which shows the impact at varying levels of additional grant funding. Because some readers prefer charts and others prefer tables, we also provide a series of tables. The tables provide the same basic information as the charts, but they are grouped differently. Each table corresponds to a level of additional grant funding, and within a given table, the columns represent the different options for defining the GFC. These charts and tables are the heart of the analytical results. Between these two displays, the reader should be able to grasp the basic tradeoffs in this financial plan.

We then show a multi-year forecast for one of the combinations of GFC and grant funding. Additional forecast scenarios are provided in **Appendix B**—all of which assume the “baseline” ERU growth assumption of 1% per year.

Only at the end of the “Results” discussion do we look at the impact of alternate growth rates. To do that, we choose one combination of GFC and additional grant funding, and then we test the effect of different growth rates on that one scenario. Additional growth scenarios are shown in **Appendix C**.

At the end of the memo, we offer some observations about what the results mean for the District.

The GFC options are the most complicated but also the most important to understand, because that is a choice that the District gets to make. The other two variables—additional grant funding and growth rates—are out of the District’s control. Of those two, it is more important to understand the impact of additional grant funding, because the District can decide how much of it to request, and this one variable—more than any other—determines the customer impact and feasibility of this system. The growth rate is the hardest to predict, the least subject to District initiative, and—as it turns out—the least significant in terms of the burden on ratepayers.

KEY ASSUMPTIONS

Assumptions about the major forecast components are detailed in this section. These assumptions all assume that the system is in operation and initial customers are connected by January 2019.

Equivalent Residential Units (ERUs)

- Number of Existing ERUs: 190.4, based on the November 2014 – June 2015 winter average metered water usage. This figure includes customers in the Main Street Sewer District.
- Number of Buildout ERUs: 344.9 (calculated using method 2 shown below)

The Comprehensive Plan defines one sewer ERU as 140 gallons per day (gpd). ERUs are rounded off to the nearest tenth. For a list of Phase 1A area accounts and ERUs, see **Appendix A, Table A-1**.

“Unadjusted ERUs” are simply the winter average metered water consumption divided by 140 gpd. The 190.4 “adjusted ERUs” reflect the District’s minimum charge of one ERU per account.

Because growth projections in the Comprehensive Plan are expressed in unadjusted ERUs, we converted the buildout projections to adjusted ERUs, using the Method 2 shown in **Exhibit 1**. To be conservative, Method 2 assumes that the adjustment is a flat amount each year (30.9 ERUs). For that reason, the growth rates discussed in this memo are applied to the number of *unadjusted* ERUs each year, after which the adjustment of 30.9 ERUs is added to each year’s total.

Exhibit 1: ERU Growth Methodologies

Adjustment to Number of ERUs Due to Minimum 1.0 ERU	
Method 1 (more aggressive - assume adjustment multiple)	
159.5	Existing unadjusted ERUs
	140 gpd threshold
190.4	Existing adjusted ERUs
1.19	Adjustment multiple
314.0	Calculated 20-year ERUs per comp plan
374.8	Adjusted 20-year ERUs
Method 2 (more conservative - assume flat adjustment)	
159.5	Existing unadjusted ERUs
190.4	Existing adjusted ERUs
30.9	Difference in ERUs (flat adjustment)
	Assumes all new development has >140 gpd flow
314.0	Calculated 20-year ERUs per comp plan
344.9	Adjusted 20-year ERUs
	<i>Assume this method</i>

Growth

Four different growth scenarios are used in the forecast, as follows:

- Base Case Growth: 1.0% per year (2019-2038)
- Slower Growth: 0.4% per year (2019-2038)
- Faster Growth: 3.3% per year (2019-2038). This is the rate at which Phase 1A system buildout would occur in 20 years.
- Five-Year Growth Surge: 3.3% per year (2019-2024); 1.0% per year (2025-2038)

Costs

- Operations and Maintenance: 2019 O&M costs are based on the Comprehensive Plan provided by Gray and Osborne and then adjusted for inflation. Certain line items (power, natural gas, chemicals, sludge hauling, sludge treatment and disposal) are also adjusted for ERU growth. O&M costs are detailed in **Appendix A, Table A-2**.
- Capital: After adjusting for inflation, capital costs (including costs already incurred) total \$12,967,313. This figure assumes construction is completed in 2018. A summary of capital costs can be seen in **Appendix A, Table A-3**.
- The following escalation factors are used in calculating the inflated capital costs:
 - General Inflation: 2% per year (CPI-U Seattle-Tacoma-Bremerton 10-year average)
 - Construction Inflation: 3% per year (ENR-CCI 10-year average)

Funding Sources

The following funding sources have been secured by the district:

- Legislative Proviso: \$3.5 million
- Island County Rural Economic Development Grant (ICRED): \$2.7 million
- State Revolving Fund (SRF) Loan: \$1.25 million (20 years at 2% interest)

The forecast tests scenarios in which an additional \$3 million, \$4 million, \$4.5 million, and \$5 million in grants are received from the State or County. It also contains a scenario with no additional funding.

General Facility Charges

Four versions of the general facility charge have been calculated and tested in the forecast. Three of these deduct the \$1.25 million SRF loan from the cost basis, which significantly reduces the GFC. The District would not have to do that—it is a policy choice. We assumed it for these scenarios because we thought the District might want to lower the GFC for economic development purposes—to keep the cost of new development manageable.

A description of each of the four versions is listed below:

- Integrated charge - Assumes that existing property owners with septic systems pay the same charge as newcomers. Excludes \$1.25 million SRF loan from cost basis of the charge.
- Two-Tiered with \$3,000 Conversion Charge - This GFC assigns most grant money to offset the costs applicable to existing property owners with septic systems. Existing property owners would pay a \$3,000 “conversion charge”; new development would pay more.
- Two-Tiered with No Conversion Charge – Assumes that there is no up-front cost for existing property owners to connect to the system; new development pays the full GFC.
- Integrated Charge with Expanded Cost Basis - The fourth type of GFC includes the \$1.25 million SRF loan in the cost basis of the charge. Like the first option, this one is integrated—that is, the same charge would apply to existing ERUs and new development.

Reserves

- Capital Replacement Reserve: \$21,000 set aside per year beginning in 2019, growing at 3.6% per year.
 - This reserve covers the cost of vadose zone well replacements, with one of the eight wells replaced every two years beginning in 2031. Following the initial replacement, each well is assumed to need replacement every 12 years. Per Gray & Osborne, each well replacement is assumed to cost about \$50,000 in 2016 dollars. This reserve also funds the replacement of the MBR membrane at \$20,000 (in 2016 dollars) every 12 years. **Appendix A, Table A-4** contains a full capital replacement schedule.
- Minimum Operating Reserve: 45 days of O&M expenses
- Minimum Capital Reserve: 1% of asset costs

RESULTS

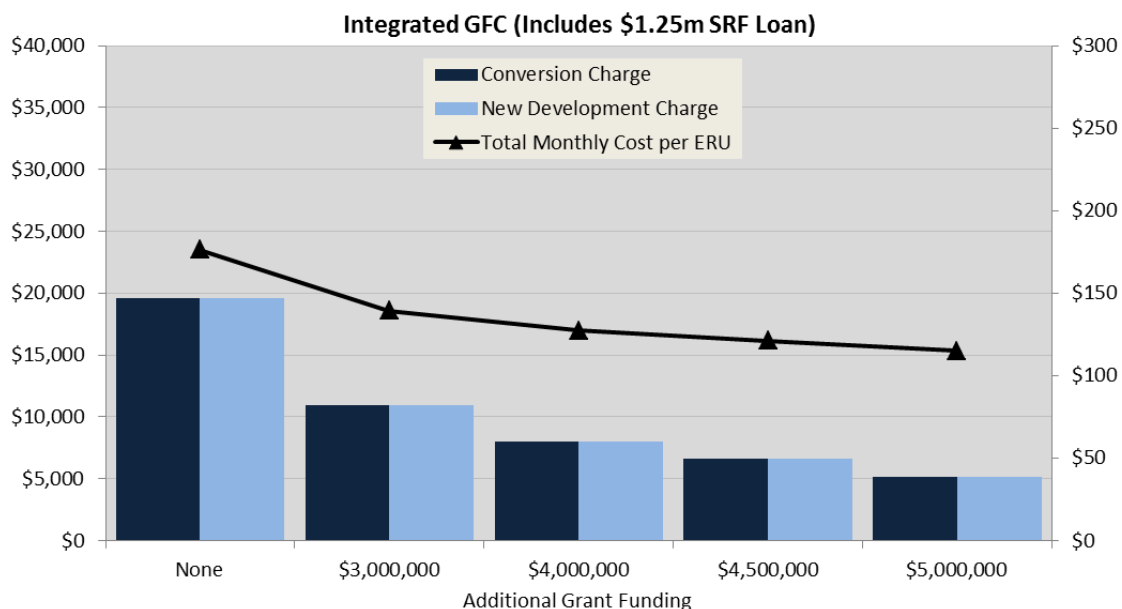
Impact of Alternative GFC Designs at Various Levels of Funding

This section outlines the results of each GFC approach at various levels of added grant funding, ranging from zero to \$ 5 million. For each funding scenario, the resulting conversion charge, new development charge, and the total monthly cost per ERU are reported.

Integrated Charge Excluding \$1.25m SRF Loan

With no additional grant funding, the GFC for both existing and new customers would be about \$16,000 per ERU, and the ongoing “unit cost” (that is, the cost per ERU, similar to monthly rates) would be about \$195 per month in 2019. At the other end of the grant funding spectrum—if an additional \$5 million is received—an integrated GFC would be about \$7,300 per ERU, and the monthly unit cost would be about \$134 per ERU. This is shown in **Exhibit 2**.

Exhibit 2: Integrated GFC Approach



Two-Tiered GFC with \$3,000 Conversion Charge

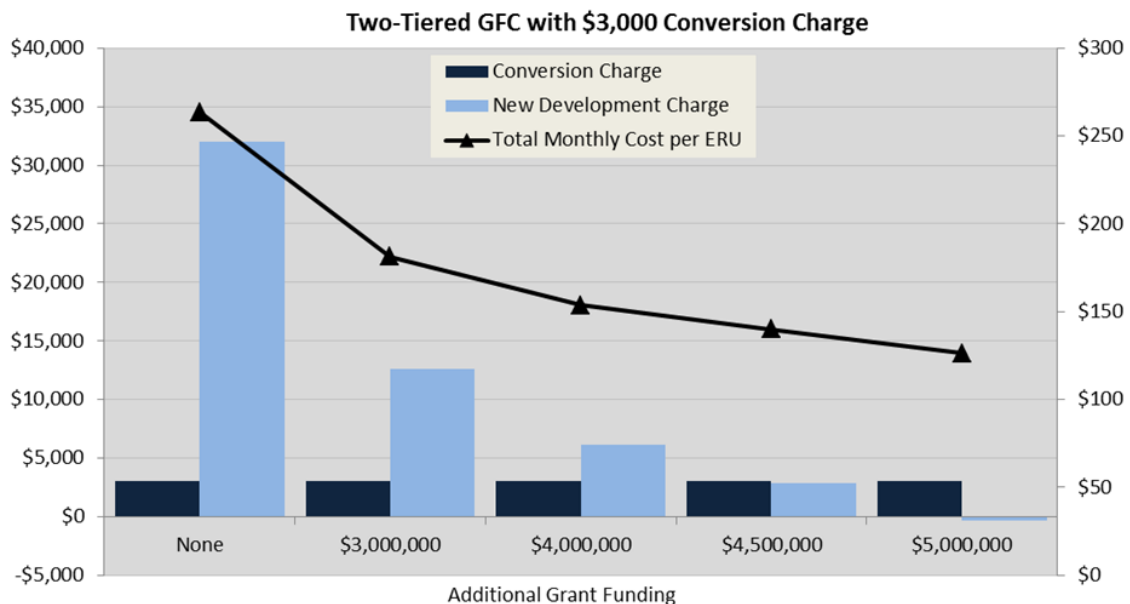
In any GFC calculation, grants must be subtracted from the cost basis. Under the two-tiered approach to a GFC, the cost basis is allocated between existing customers and new development, and then grants are first subtracted from the cost basis of existing customers. The rationale for this is twofold. First, the pollution from septic systems is the main reason the grants are being offered in the first place. Even without future development, existing septic systems create a problem that the State has an interest in resolving. Secondly, property owners with existing septic systems have an expensive asset. The requirement to connect to a public sewer system shortens the life of that asset. Creating a “conversion charge” that is separate from and lower than the new development GFC acknowledges in a general way the fact that owners of existing developed property are giving up something of value.

In this GFC approach, we assumed a conversion charge of \$3,000 for existing customers who are disconnecting septic systems (or discontinuing the MSSD treatment facility). Setting the conversion charge lower means that the GFC to new development charges must be higher in order to recover the same cost. Also, because the amount paid up-front by existing property owners would be reduced, this GFC method would require more debt to be incurred by the system, which would push up monthly unit costs compared to an integrated GFC.

Exhibit 3 shows that without any additional grant funding, holding the conversion charge to \$3,000 would mean a new development GFC of about \$32,000 per ERU and ongoing unit costs of about \$263 per month. If \$3 million more is received from grants, then the new development GFC would be about \$12,600, and the unit cost would be \$181 per month. If the amount of additional grants goes up to \$4 million, the comparable figures would be about \$6,100 and \$154 per month.

If \$4.5 million or \$5 million of additional grant funding is received, then it does not make sense to have a separate conversion charge set to \$3,000. Under the \$4.5 million scenario, the new development GFC would be just under \$3,000, which is equivalent to the integrated approach. If \$5 million in new grant funding is received and existing customers were to be charged \$3,000 per ERU, then new development would have a negative cost basis, which obviously would not make sense.

Exhibit 3: Two-Tiered with Conversion Charge



Two-Tiered GFC with No Conversion Charge

In the case of Freeland, there is enough projected grant revenue to more than offset all of the costs allocated to existing customers. As a result, the District has the option of completely eliminating the up-front charge payable by existing customers who are disconnecting septic systems.

That sounds nice, but there are two drawbacks. One is that the less existing customers have to pay up-front, the higher the new development GFC would have to be. In our experience with sewer utilities, when a GFC starts going over about \$10,000-\$11,000 per ERU, it is noticeably higher than the GFC of most other communities, and it can reasonably be assumed to be a disincentive to development. (That is one reason our first three GFC design options assume that the \$1.25 million SRF loan is deducted from the cost basis—to keep the calculated charge from being too high.)

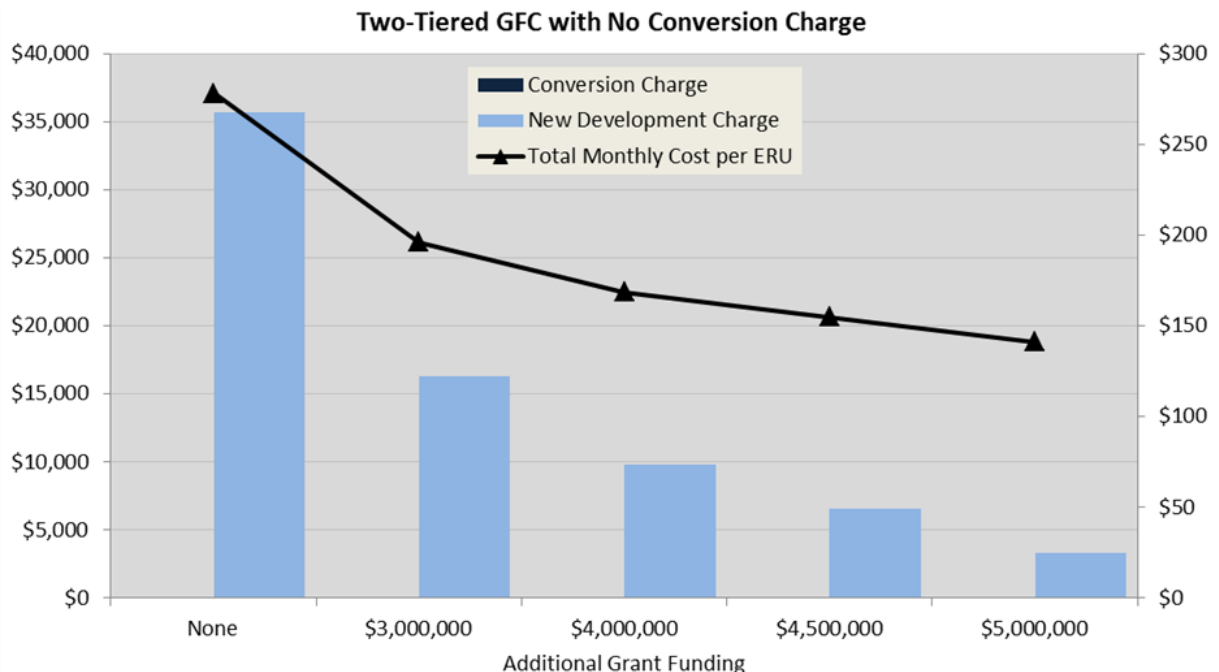
The second drawback is that the less that existing customers have to pay as an up-front charge, the more those same customers have to pay in monthly rates, because of the additional debt needed.

Exhibit 4 shows the impact of completely eliminating the conversion charge, at various levels of added grant funding.

If no more grant funding is available, then the new development GFC would be about \$36,000 and ongoing unit costs about \$278 per month. With \$3 million in new grant funds, the new development GFC would be about \$16,000, and at \$4 million in new grants, the GFC for newcomers would be about \$9,800—which we consider to be realistic. The next levels of grant funding--\$4.5 million and \$5 million—would likewise result in acceptable GFCs for new development: \$6,600 and \$3,300.

However, the rate impacts would be severe if the conversion charge is eliminated outright. With \$3 million in new grants, the ongoing unit cost would be about \$196 per month, while at \$4 million of new grants, it would still be \$169 per month. Likewise, the unit costs would be about \$155 per month at the \$4.5 million grant level and \$141 per month at the \$5 million grant level. There is no reasonable outcome for monthly rates if the conversion charge is completely eliminated.

Exhibit 4: Two-Tiered GFC with No Conversion Charge



Integrated Charge with Expanded Cost Basis

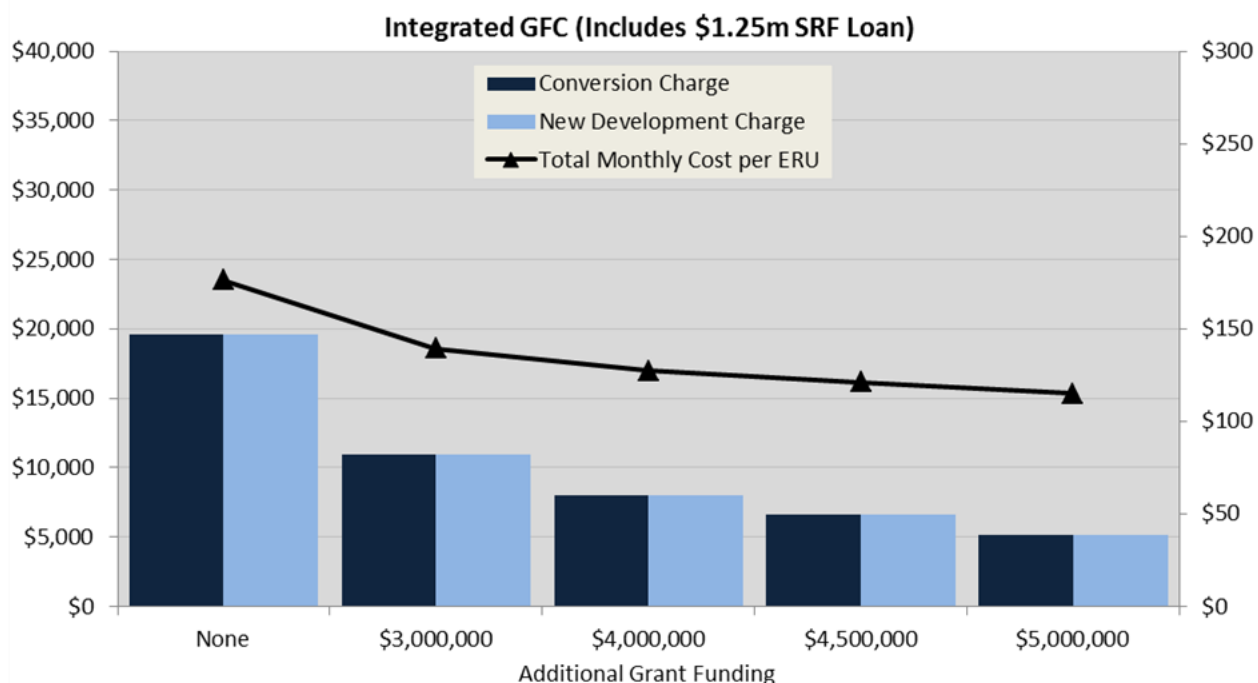
The calculation of the GFC has a numerator and a denominator. The *denominator* is the total number of ERUs that the system is designed to serve—344.9 ERUs after adjusting for the District minimum of one ERU per account. The numerator is the *cost basis* of the system, which normally would be projected total cost of the system minus the amount of offsetting grants. In this case, that would be about \$12.97 million in total cost (including projected inflation and costs already incurred) minus \$6.2 million and whatever amount of additional grants might be received. So, if no further grants were received, the full cost basis of the GFC would normally be about \$6.77 million—\$6,767,313, to be exact. The resulting full-cost GFC—again, assuming no further help with the capital costs—would be $\$6,767,313 \div 344.9 = \$19,621$ per ERU. That is a very high number.

The District cannot charge more than that, but it can always choose to charge less. In order to avoid creating such a strong disincentive for future growth, we assumed that the District would want to soften it somewhat. So in the first three GFC approaches we considered, we assumed that the District would elect to deduct an additional \$1,250,000 from the cost basis, corresponding to the amount already planned to be financed with an SRF loan. That assumption led to the results described above.

However, we have just seen that in some of our funding scenarios—as we tested the receipt of an additional \$4 million, \$4.5 million, \$5 million—the most objectionable numbers were not necessarily the GFC numbers but the ongoing cost per ERU, roughly corresponding to monthly rates. So in this fourth version of the GFC, we put the \$1.25 million back into the cost basis of the GFC, to see what it would take to get the rates more manageable for not only existing customers but also future customers. In this scenario we assumed an integrated GFC.

Those results are shown in **Exhibit 5**. We see that with a fully loaded cost basis, the calculated GFC ranges from \$19,621 (with no added funding support) to \$5,124 (with an additional \$5 million of grants). The ongoing cost per ERU ranges from \$176 per month to \$115 per month.

Exhibit 5: Integrated GFC with Expanded Cost Basis



The detailed calculation of the GFC for each of these four methods, along with the amount of debt that would be needed for each method, is shown in **Appendix D**.

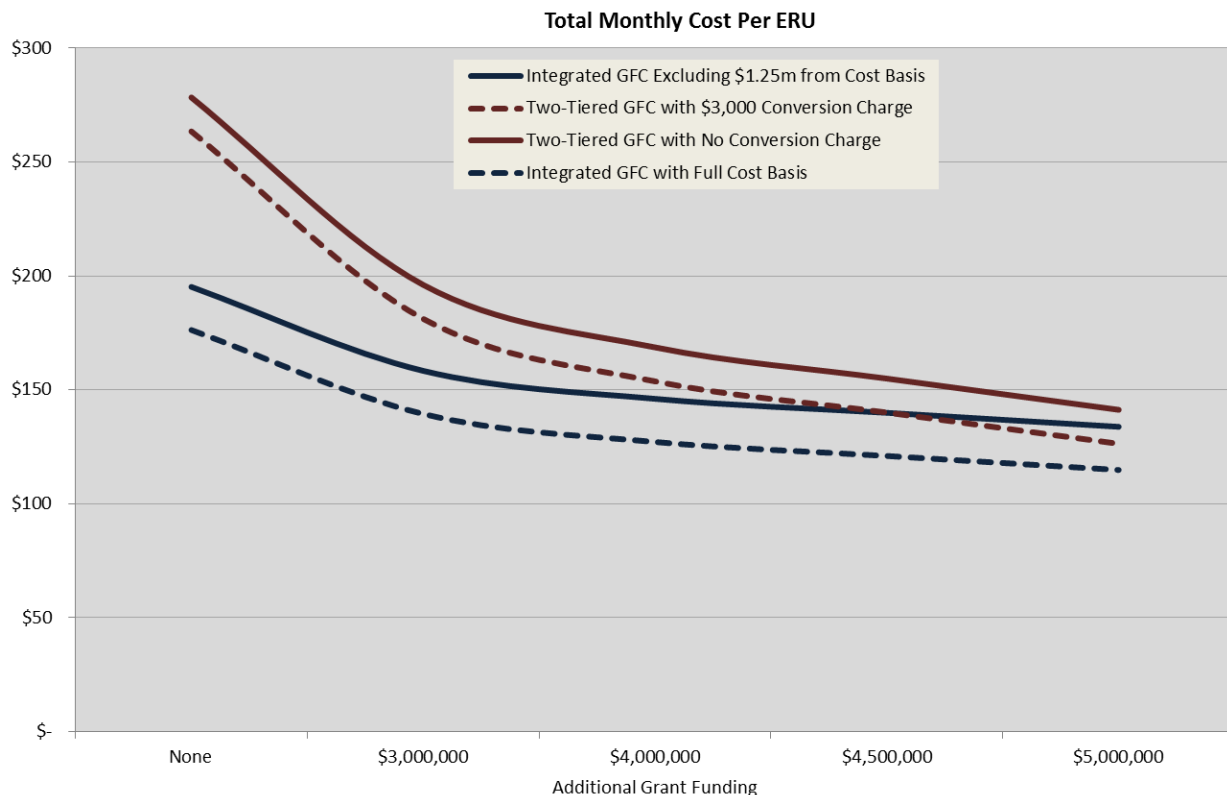
Relative Rate Impact

Exhibit 6 depicts the relative rate impact of the various scenarios we have been discussing. In this chart, we again use the ongoing cost per ERU as a proxy measure for monthly rates. Bear in mind that in the early years of the forecast, actual rates would be a few dollars *higher* than these monthly unit costs, in order to build adequate operating and capital reserves.

The chart shows that under all of the GFC methods, if no additional funding support is forthcoming, then rates will be over \$175 per month. Even if an additional \$3 million of grant funding materializes, rates would be over \$139 per month—and that \$139 per month level would only result from an up-front GFC to existing and new customers of almost \$11,000 per ERU.

In general, the lowest rates would result from the integrated GFC with a fully loaded cost basis, including the \$1.25 million SRF loan. However, there is a tradeoff: those options are also the ones with the highest up-front charges to existing customers. In contrast, the highest rates would result from the GFC method in which there is no conversion charge to existing customers. So for existing customers, there is a clear tradeoff between “pay now” or “pay later.”

Exhibit 6: Total Monthly Cost per ERU by GFC Approach



Tables Showing Results of Scenarios

Exhibit 7 shows the same results but organized differently and in tabular form. Each block assumes a different level of additional grant funding. Within each block, the four columns represent the four GFC methods that we described above.

Exhibit 7: Results of Alternative GFC Methods and Levels of Added Grant Funding

Assumed Additional Grant Funding:	Impact of Alternative Approaches to General Facilities Charge (GFC)	Exclude \$1.25m from GFC Cost Basis			Integrated GFC Full Cost Basis	
		Integrated GFC	Two-Tiered GFC	Two-Tiered GFC		
None	GFC - Conversions	\$ 15,997	\$ 3,000	\$ -	\$ 19,621	
	GFC - New Development	15,997	32,014	35,711	19,621	
	Total Debt (incl. \$1.25 m SRF loan)	3,721,484	6,196,113	6,767,313	3,031,474	
	Annual Debt Service	227,594	378,934	413,867	185,395	
	Projected Unit Costs as of 2019:					
	Monthly Debt Service/ERU	\$ 99.61	\$ 165.85	\$ 181.14	\$ 81.14	
	Monthly O&M Costs/ERU	86.38	88.4	88.01	85.93	
	Monthly Capital Replacement/ERU	9.19	9.19	9.19	9.19	
	Total Monthly Cost per ERU	\$ 195.19	\$ 263.43	\$ 278.34	\$ 176.26	
	\$ 3,000,000	GFC - Conversions	\$ 7,299	\$ 3,000	\$ -	\$ 10,923
GFC - New Development		7,299	12,596	16,293	10,923	
Total Debt (incl. \$1.25 m SRF loan)		2,377,583	3,196,113	3,767,313	1,687,573	
Annual Debt Service		145,405	195,464	230,396	103,206	
Projected Unit Costs as of 2019:						
Monthly Debt Service/ERU		\$ 63.64	\$ 85.55	\$ 100.84	\$ 45.17	
Monthly O&M Costs/ERU		85.51	86.4	86.05	85.06	
Monthly Capital Replacement/ERU		9.19	9.19	9.19	9.19	
Total Monthly Cost per ERU		\$ 158.34	\$ 181.17	\$ 196.08	\$ 139.42	
\$ 4,000,000		GFC - Conversions	\$ 4,399	\$ 3,000	\$ -	\$ 8,024
	GFC - New Development	4,399	6,124	9,821	8,024	
	Total Debt (incl. \$1.25 m SRF loan)	1,929,743	2,196,113	2,767,313	1,239,543	
	Annual Debt Service	118,017	134,307	169,240	75,806	
	Projected Unit Costs as of 2019:					
	Monthly Debt Service/ERU	\$ 51.65	\$ 58.78	\$ 74.07	\$ 33.18	
	Monthly O&M Costs/ERU	85.22	85.8	85.40	84.77	
	Monthly Capital Replacement/ERU	9.19	9.19	9.19	9.19	
	Total Monthly Cost per ERU	\$ 146.07	\$ 153.75	\$ 168.66	\$ 127.14	
	\$ 4,500,000	GFC - Conversions	\$ 2,950	\$ 3,000	\$ -	\$ 6,574
GFC - New Development		2,950	2,887	6,585	6,574	
Total Debt (incl. \$1.25 m SRF loan)		1,705,633	1,696,113	2,267,313	1,015,623	
Annual Debt Service		104,311	103,729	138,661	62,112	
Projected Unit Costs as of 2019:						
Monthly Debt Service/ERU		\$ 45.65	\$ 45.40	\$ 60.69	\$ 27.18	
Monthly O&M Costs/ERU		85.08	85.45	85.1	84.62	
Monthly Capital Replacement/ERU		9.19	9.19	9.19	9.19	
Total Monthly Cost per ERU		\$ 139.92	\$ 140.04	\$ 154.95	\$ 121.00	
\$ 5,000,000		GFC - Conversions	\$ 1,500	\$ 3,000	\$ -	\$ 5,124
	GFC - New Development	1,500	(349)	3,348	5,124	
	Total Debt (incl. \$1.25 m SRF loan)	1,481,713	1,196,113	1,767,313	791,703	
	Annual Debt Service	90,617	73,150	108,083	48,418	
	Projected Unit Costs as of 2019:					
	Monthly Debt Service/ERU	\$ 39.66	\$ 32.02	\$ 47.31	\$ 21.19	
	Monthly O&M Costs/ERU	84.93	85.12	84.75	84.48	
	Monthly Capital Replacement/ERU	9.19	9.19	9.19	9.19	
	Total Monthly Cost per ERU	\$ 133.78	\$ 126.33	\$ 141.24	\$ 114.86	

In these tables, columns shaded gray represent options that do not make sense because they would either eliminate the new development GFC or make it essentially the same as the integrated charge.

Columns that are shaded yellow are options that we think most worth consideration by the District, given each level of added grant funding. With the first three funding scenarios (either no additional grants or \$3 million or \$4 million in added grants), no option looks particularly reasonable, but if the District were to decide to move forward with those funding levels, then we suggest close consideration of the two-tiered GFC with a \$3,000 conversion charge.

With \$4.5 million of additional grants, then the two integrated options (the leftmost column and rightmost column) represent a straight tradeoff between monthly rates and up-front charges to existing customers. With either of those options, a GFC of either \$2,950 or \$6,574 would be quite reasonable for new development.

If \$5 million of additional grant funding were to be available, then we suggest consideration of the integrated GFC with the full cost basis. An initial charge to existing customers of \$5,124 might be worth it in order to get the ongoing costs down to “only” \$115 per month per ERU.

ANNUAL FORECAST

Exhibit 8 on the following page illustrates the revenue requirement forecast that could be prepared for any combination of GFC method, level of added grants, and ERU growth. This particular forecast assumes the most optimistic amount of increased grant funding, which is \$5 million. This is not to imply that \$5 million is expected to materialize—in fact, at present there is no commitment from the State or County for any additional grant funding. However, the \$5 million scenario is the one that yields the most manageable and realistic impact on customers, so it is shown here.

In addition, this scenario assumes an integrated GFC with a full cost basis, which would be \$5,124. The final key assumption in this scenario is the “base case” level of growth in unadjusted ERUs, which is 1% per year. We will show the impact of alternate growth rates in the next section.

Note that while the average monthly cost per ERU in 2019 is \$114.86, the actual rates in 2019 would need to be \$120.00 per month in order to start building sufficient operating and capital fund balances. After that the rates grow by 0.5% per year. The difference between the average monthly cost per ERU and the rates narrows over the life of the forecast. By 2028, the average monthly cost per ERU and the rates are nearly the same--\$128.31 versus \$128.66.

Additional cash flow forecasts for different scenarios are included in **Appendix B**. They illustrate each of the other four funding scenarios, ranging from no additional grants to an additional \$4.5 million. For each funding scenario, we chose the GFC method that we felt would be the most advantageous (or least disadvantageous) to the District’s existing customers. In doing that, we made our best guesses about the District’s preferences between “pain now” and “pain later”—that is, between up-front conversion charges and ongoing monthly rates. For the three most difficult funding scenarios—with zero, \$3 million, and \$4 million in additional grants—we chose the two-tiered GFC with a \$3,000 conversion charge. For the \$4.5 million funding scenario, **Appendix B** contains two forecasts: one with the integrated GFC excluding \$1.25m from the cost basis, and the other with the integrated GFC with the full cost basis. We felt that both of those options were worth close consideration by the District if that level of funding assistance were to materialize.

All of the scenarios in **Appendix B** assume the “base case” level of growth, which is 1% per year.

Exhibit 8: Revenue Requirement assuming \$5 million in Additional Grants, Integrated GFC with Full Cost Basis, 1% Annual Growth in Unadjusted ERUs

Revenue Requirement Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total No. ERUs	190.4	192.0	193.6	195.2	196.8	198.5	200.2	201.9	203.6	205.3
O&M Costs Excl. State Taxes	\$186,773	\$190,508	\$196,336	\$200,971	\$205,719	\$210,584	\$215,570	\$220,678	\$225,913	\$231,277
Planned Capital Transfer	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Total Debt Service	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418
Total Cost Before State Taxes	\$256,191	\$260,682	\$267,294	\$272,739	\$278,328	\$284,064	\$289,952	\$295,995	\$302,198	\$308,565
State Taxes	6,251	6,361	6,522	6,655	6,792	6,932	7,075	7,223	7,374	7,529
Total Cost Including State Tax	\$262,442	\$267,043	\$273,816	\$279,394	\$285,120	\$290,996	\$297,027	\$303,218	\$309,572	\$316,095
Annual Increase in Total Costs		1.8%	2.5%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%
Annual Cost/ERU	1,378	1,391	1,414	1,431	1,449	1,466	1,484	1,502	1,520	1,540
Avg Monthly Cost/ERU	114.86	115.90	117.86	119.28	120.73	122.16	123.64	125.15	126.71	128.31
Planned Rate Increase		0.50%	0.50%	0.50%	0.50%	1.00%	1.00%	1.00%	1.00%	1.00%
Monthly Rate/ERU	\$ 120.00	\$ 120.60	\$ 121.20	\$ 121.81	\$ 122.42	\$ 123.64	\$ 124.88	\$ 126.13	\$ 127.39	\$ 128.66
Summary of Unit Costs:										
Monthly O&M per ERU	\$ 84.48	\$ 85.45	\$ 87.32	\$ 88.64	\$ 89.99	\$ 91.32	\$ 92.68	\$ 94.06	\$ 95.48	\$ 96.93
Monthly Debt Service per ERU	21.19	21.01	20.84	20.67	20.50	20.33	20.15	19.98	19.82	19.65
Monthly Capital Replacement/ERU	9.19	9.44	9.70	9.97	10.24	10.52	10.81	11.10	11.41	11.72
Avg Monthly Cost/ERU	\$ 114.86	\$ 115.90	\$ 117.86	\$ 119.28	\$ 120.73	\$ 122.16	\$ 123.64	\$ 125.15	\$ 126.71	\$ 128.31
Operating Fund										
Beginning Balance	\$ -	11,734	22,553	30,316	33,964	34,753	35,573	36,414	37,275	38,158
Plus: Rate Revenue	274,176	277,862	281,579	285,325	289,102	294,516	300,009	305,582	311,236	316,973
Plus: Interest Earnings	29	86	132	166	180	183	185	188	191	193
Total Resources	\$274,205	\$289,682	\$304,264	\$315,808	\$323,246	\$329,452	\$335,767	\$342,183	\$348,702	\$355,324
Less: Expenditures										
O&M Expense incl. State Tax	193,024	196,869	202,859	207,626	212,511	217,516	222,645	227,901	233,287	238,806
Debt Service	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418
Transfer to Capital - Planned	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Transfer to Capital - Oper Surplus	-	-	-	2,284	3,193	2,700	2,141	1,503	781	-
Total Expenditures	262,442	267,043	273,816	281,678	288,313	293,696	299,168	304,720	310,353	316,095
Ending Balance	\$ 11,734	\$ 22,553	\$ 30,316	\$ 33,964	\$ 34,753	\$ 35,573	\$ 36,414	\$ 37,275	\$ 38,158	\$ 39,036
Target Balance (45-60 days of O&M Exp)										
Maximum	31,730	32,362	33,347	34,130	34,933	35,756	36,599	37,463	38,348	39,256
Minimum	23,797	24,272	25,010	25,598	26,200	26,817	27,449	28,097	28,761	29,442
Over/(Under) Minimum	(12,063)	(1,718)	5,306	8,366	8,554	8,756	8,964	9,178	9,397	9,595
Ending Balance before Int & Surplus Xfer	11,763	\$ 22,639	\$ 30,449	\$ 36,414	\$ 38,126	\$ 38,456	\$ 38,740	\$ 38,966	\$ 39,130	\$ 39,229
Surplus Transfer	-	\$ -	\$ -	\$ 2,284	\$ 3,193	\$ 2,700	\$ 2,141	\$ 1,503	\$ 781	\$ -
Capital Fund										
Beginning Balance	-	21,053	51,516	83,081	115,782	149,654	185,308	222,219	260,427	299,971
Plus: Transfers from Operating	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Plus: Gen Facilities Charge Revenue	-	8,527	8,691	8,854	9,018	9,756	9,931	10,105	10,279	10,453
Plus: Interest Earnings	53	181	336	496	662	835	1,016	1,204	1,397	1,598
Less: Capital Expenditures										
Vadose Zone Wells	-	-	-	-	-	-	-	-	-	-
MBR membranes	-	-	-	-	-	-	-	-	-	-
Other Capital Expenditures	-	-	-	-	-	-	-	-	-	-
Total Expenditures	-	-	-	-	-	-	-	-	-	-
Ending Balance	21,053	51,516	83,081	115,782	149,654	185,308	222,219	260,427	299,971	340,893
Target Minimum Balance (1% of assets)	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
Over/(Under) Target Minimum	(98,948)	(68,484)	(36,919)	(4,218)	29,654	65,308	102,219	140,427	179,971	220,893

GROWTH RATE SENSITIVITY ANALYSIS

This section examines the impact of different ERU growth rates on the monthly cost per ERU in 2028, which is ten years after the assumed system start date. To do this, we focused on one funding scenario, in which an additional \$5 million in grants is received and the District decides to create an integrated General Facilities Charge using the full cost basis. Under this scenario, new customers would be charged \$5,124 per ERU at the time of connection, generating about \$976,000 in revenue. As a result of this and the favorable amount of grant funding assumed in this scenario, the amount of

debt needed by the system would be only about \$792,000—in other words, the District would not need to draw all of the planned \$1.25 million SRF loan.

Even after this relatively favorable capital funding picture, the ongoing cost per ERU would still average almost \$115 per month in 2019. Of this total, about \$85 per month would be operating and maintenance (O&M) costs, \$9 per month would consist of a transfer to the capital fund for future replacement of assets, and \$21 per month would come from debt service. This is the lowest unit cost of debt service of all the scenarios we examine in this analysis.

As we saw in the cash flow projection in **Exhibit 8**, the monthly rates corresponding to this \$115 monthly unit cost would be \$120 per month in the first year of the forecast, about \$5 per month above the monthly unit cost. It would take several years of building system balances for the rates to roughly equal the unit costs.

What would happen to the average monthly cost per ERU after the first year? **Exhibit 9** addresses that question.

Exhibit 9: Growth Rate Sensitivity Analysis; Assumes \$5 million in Additional Grants; Integrated GFC with Full Cost Basis

Growth Rate Sensitivity Analysis	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Base Case Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 1.0%	-	-	-	1.6	3.2	4.8	6.5	8.1	9.8	11.5	13.2	14.9
Total ERUs	190.4	190.4	190.4	192.0	193.6	195.2	196.9	198.5	200.2	201.9	203.6	205.3
GFC - Conversions	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
GFC - New Development	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
Total Monthly Cost per ERU	\$ -	\$ -	\$114.86	\$115.90	\$117.86	\$119.28	\$120.73	\$122.16	\$123.64	\$125.15	\$126.71	\$128.31
Slower Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 0.4%	-	-	-	0.6	1.3	1.9	2.6	3.2	3.9	4.5	5.2	5.8
Total ERUs	190.4	190.4	190.4	191.0	191.7	192.3	193.0	193.6	194.3	194.9	195.6	196.2
GFC - Conversions	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
GFC - New Development	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
Total Monthly Cost per ERU	\$ -	\$ -	\$114.86	\$116.51	\$118.55	\$120.40	\$122.29	\$124.22	\$126.13	\$128.08	\$130.07	\$132.11
Five-Year Growth Surge												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth:												
2019-2024 3.3%	-	-	-	5.3	10.7	16.3	22.1	28.1	30.0	31.9	33.8	35.7
2025-2038 1.0%	-	-	-	-	-	-	-	-	-	-	-	-
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	220.4	222.3	224.2	226.1
GFC - Conversions	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
GFC - New Development	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
Total Monthly Cost per ERU	\$ -	\$ -	\$114.86	\$113.71	\$115.50	\$115.40	\$115.31	\$115.24	\$117.45	\$113.67	\$115.07	\$116.50
Faster Growth (Buildout in 20 Years)												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 3.3%	-	-	-	5.3	10.7	16.3	22.1	28.1	34.3	40.7	47.3	54.1
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	224.7	231.1	237.7	244.5
GFC - Conversions	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
GFC - New Development	\$ -	\$ 5,124	\$ 5,227	\$ 5,329	\$ 5,432	\$ 5,534	\$ 5,637	\$ 5,739	\$ 5,842	\$ 5,944	\$ 6,046	\$ 6,149
Total Monthly Cost per ERU	\$ -	\$ -	\$114.86	\$113.71	\$115.50	\$115.40	\$115.31	\$115.24	\$115.20	\$115.18	\$115.19	\$115.24

In the base case growth scenario, unadjusted ERUs would grow by 1% per year, so over the ten years between 2019 and 2028, the number of total ERUs (that is, after the adjustment for the minimum of one ERU per account) would grow from 190.4 to 205.3 ERUs. The result of that assumption would be an average monthly cost per ERU of \$128.31.

The other assumptions test a slower growth rate at 0.4% per year, faster growth at 3.3% per year (enough to reach buildout in 20 years), and a scenario with a five-year surge at 3.3% immediately after sewer is installed, followed by a more moderate 1% per year thereafter.

The average cost per ERU resulting from those scenarios ranges from \$115 to \$132 per month by 2028. Very fast growth allows the system to keep up with growing O&M costs without much of a rate increase over the next ten years, but even the fastest growth scenario does not result in declining rates over time.

CONCLUSION

New sewer systems are always expensive. Small systems tend to be more expensive than large systems, because fixed costs cannot be spread over a large customer base. Systems relying on land application or direct injection for the disposal of wastewater—such as the vadose zone wells proposed for Freeland due to the environmental sensitivity of Holmes Harbor—are also more expensive than treatment facilities with an outfall into a body of water. What we see in Freeland is all of those factors combining to drive the cost to customers extremely high.

No matter what, this is a difficult situation for property owners in the Phase 1A area. There is no easy option. Additional grant support and growth over time would ameliorate the most severe impacts, but this would inevitably be a high-cost system for years to come. With average O&M costs at about \$85 per month and capital replacement costs another \$10 per month, initial monthly rates would be about \$100 even if there were no debt service at all. The most favorable of all the scenarios analyzed in this study would have rates beginning at \$120 per month. **Appendix B, Table B-1** shows that with no additional grants and a \$3,000 conversion charge, initial rates would need to be \$264 per month.

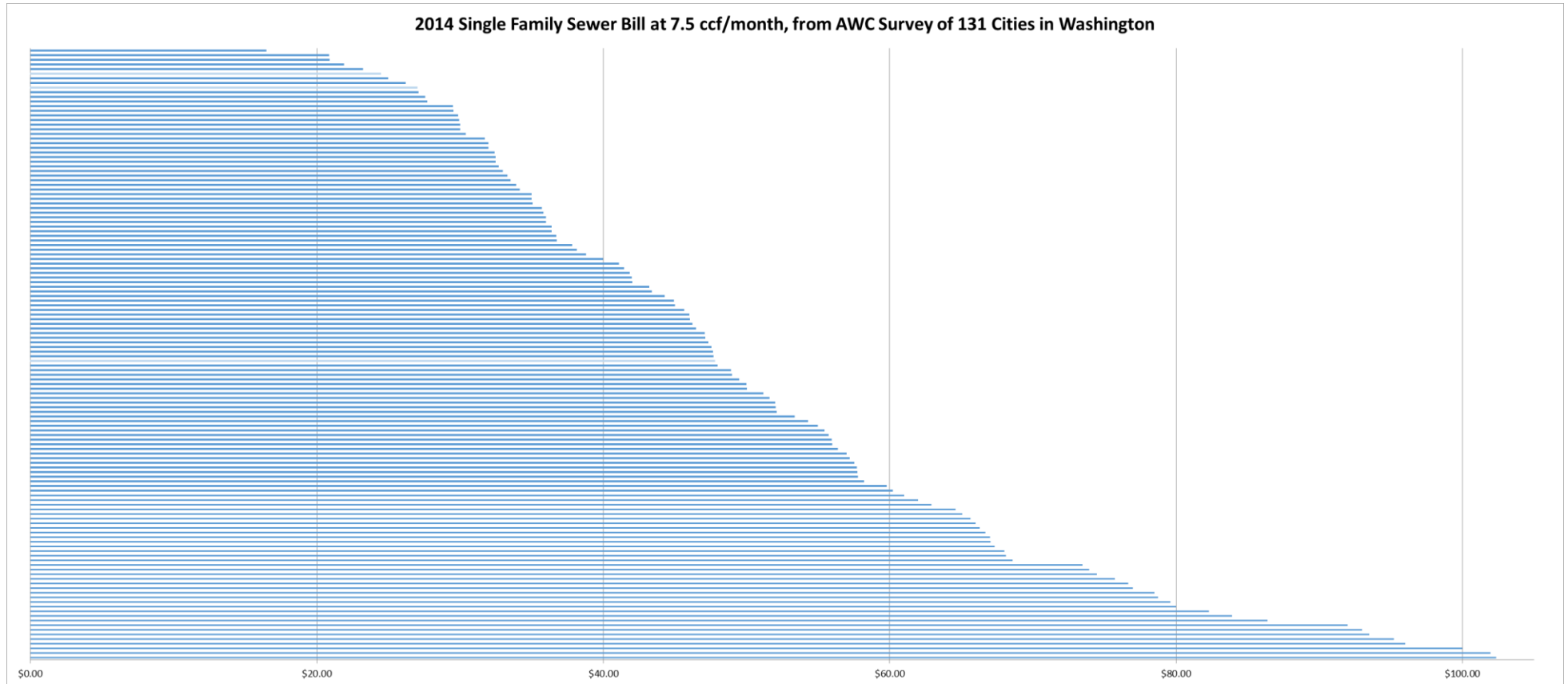
In order to get a new sewer system off the ground and make an Urban Growth Area developable, sacrifice from local property owners is to be expected. However, there are limits to what can reasonably be asked of people. The Board will have to make that judgment call, but if no further grant funding at all were received, it would be hard to claim that this system is economically feasible for the customer base for which it is designed. That seems to be the easiest question to answer.

How much additional grant funding would put the system within range economically? Again, the Board would need to make that determination in consultation with property owners and the County, and that question is more difficult. Our suggested answer is: at least \$5 million. O&M and capital replacement costs alone put ongoing rates at about \$100 per month—a level that would be among the highest in the state but not entirely surprising for a new sewer system.

Just to provide a frame of reference: **Exhibit 10** on the following page shows the results of a comparative survey of sewer rates taken in 2014 by the Association of Washington Cities (AWC). Because the survey was sent to city governments, no districts were included in the data base. Not every city responded to the survey, but it is still a broad cross-section—131 cities. The chart does not show the names of the cities, but the monthly sewer charges are visible along the X-axis. The survey assumed 7.5 ccf per month, equivalent to about 1.3 ERUs using the Freeland standard ERU of 140 gallons per day. A \$120 monthly rate for 1.3 ERUs would cost a Freeland property owner \$156 per month. Even a \$100 sewer rate in Freeland—with the improbable assumption of the system being 100% paid for by grants—would cost a property owner with 1.3 ERUs \$130 per month. A couple of cities in the AWC survey were over \$100 per month in 2014, but just barely. No city in this survey even approached a charge for 7.5 ccf/month of \$156, or even \$130.

Given the operating and capital costs projected in the Comprehensive Plan for this system, our conclusion is that without a commitment from the State or County for at least \$5 million of additional grant funding, it would be difficult to responsibly move forward with construction of this system.

Exhibit 10: Comparative Sewer Rates, from Association of Washington Cities 2014 Survey of 131 Cities in Washington



APPENDIX A

Table A-1: Metered Consumption Data

Table A-2: Projected O&M Costs in Inflated Dollars

Table A-3: Capital Improvement Program Summary

Table A-4: Capital Replacement Schedule For Vadose Zone Wells and MBR Membranes

Table A-2: Projected O&M Costs in Inflated Dollars

Projected O&M Costs (Inflated Dollars)

Description	Driver	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2038
Phase 1A Design												
WWTF & Collection System Labor	1	\$ 58,366	\$ 59,534	\$ 60,724	\$ 61,939	\$ 63,178	\$ 64,441	\$ 65,730	\$ 67,045	\$ 68,386	\$ 69,753	\$ 85,029
Administration	1	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	30,920
Electrical Power	2	18,041	18,401	19,338	19,922	20,524	21,144	21,782	22,440	23,118	23,816	32,069
Natural Gas	2	1,061	1,082	1,138	1,172	1,207	1,244	1,281	1,320	1,360	1,401	1,886
Maintenance and Repair	1	21,224	21,649	22,082	22,523	22,974	23,433	23,902	24,380	24,867	25,365	30,920
Miscellaneous (Lab, Chemicals)	1	10,612	10,824	11,041	11,262	11,487	11,717	11,951	12,190	12,434	12,682	15,460
Carbon Addition (MicroC 2000)	2	2,122	2,165	2,253	2,321	2,391	2,463	2,537	2,614	2,693	2,774	3,735
Groundwater Monitoring	1	10,612	10,824	11,041	11,262	11,487	11,717	11,951	12,190	12,434	12,682	15,460
Sludge Hauling	2	21,224	21,649	22,751	23,438	24,146	24,875	25,626	26,400	27,197	28,019	37,728
Sludge Treatment and Disposal	2	22,285	22,731	23,888	24,610	25,353	26,119	26,907	27,720	28,557	29,419	39,614
Total Before State Tax		\$ 186,773	\$ 190,508	\$ 196,336	\$ 200,971	\$ 205,719	\$ 210,584	\$ 215,570	\$ 220,678	\$ 225,913	\$ 231,277	\$ 292,820
State tax on rate revenue *		6,251	6,361	6,522	6,655	6,792	6,932	7,075	7,223	7,374	7,529	9,330
Total After State Tax		\$ 193,024	\$ 196,869	\$ 202,859	\$ 207,626	\$ 212,511	\$ 217,516	\$ 222,645	\$ 227,901	\$ 233,287	\$ 238,806	\$ 302,150
* State tax figure assumes scenario with \$5 million in additional grant funding, integrated GFC with full cost basis, and base case ERU growth (1%/year).												
Assumed annual escalation driver:												
1: Inflation only												
2: Inflation and growth in ERUs												
% of O&M Costs sensitive to ERU growth: 35%												

Table A-3: Capital Improvement Program Summary

Type	Description	Total Project Costs (Uninflated \$)	Total Project Costs (Inflated \$)
Treatment	Wastewater Facility Property Acquisition	\$ 800,000	\$ 800,000
Treatment	Construction of WWTF, Phase 1A	\$ 7,410,000	\$ 7,739,150
Collection	Construction of Collection System Phase 1A	\$ 4,240,000	\$ 4,428,163
Total		\$ 12,450,000	\$ 12,967,313

Table A-4: Capital Replacement Schedule

Replacement Costs are in 2016 Dollars
Annual Inflation Rate 2.00%

Cumulative Inflation Factor (Base Year 2016)					1.06	1.08	1.10	1.13	1.15	1.17	1.20
Item	Useful Life	Initial Replacement	Second Replacement	Constant Dollar Cost	2019	2020	2021	2022	2023	2024	2025
MBR											
Membranes	12	2031	2043	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Well Replacement											
Well #1	12	2031	2043	\$ 50,000	-	-	-	-	-	-	-
Well #2	12	2033	2045	\$ 50,000	-	-	-	-	-	-	-
Well #3	12	2035	2047	\$ 50,000	-	-	-	-	-	-	-
Well #4	12	2037	2049	\$ 50,000	-	-	-	-	-	-	-
Well #5	12	2039	2051	\$ 50,000	-	-	-	-	-	-	-
Well #6	12	2041	2053	\$ 50,000	-	-	-	-	-	-	-
Well #7	12	2043	2055	\$ 50,000	-	-	-	-	-	-	-
Well #8	12	2045	2057	\$ 50,000	-	-	-	-	-	-	-
Total Inflated Cost per Year					\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
% Growth in Set-aside						3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
Annual Set-aside					21,000	21,756	22,539	23,351	24,191	25,062	25,964
Set-aside Balance					21,000	42,756	65,295	88,646	112,837	137,899	163,864
Cumulative Inflation Factor											
	1.22	1.24	1.27	1.29	1.32	1.35	1.37	1.40	1.43	1.46	1.49
Item	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
MBR											
Membranes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26,917	\$ -	\$ -	\$ -	\$ -	\$ -
Well Replacement											
Well #1	-	-	-	-	-	67,293	-	-	-	-	-
Well #2	-	-	-	-	-	-	-	70,012	-	-	-
Well #3	-	-	-	-	-	-	-	-	-	72,841	-
Well #4	-	-	-	-	-	-	-	-	-	-	-
Well #5	-	-	-	-	-	-	-	-	-	-	-
Well #6	-	-	-	-	-	-	-	-	-	-	-
Well #7	-	-	-	-	-	-	-	-	-	-	-
Well #8	-	-	-	-	-	-	-	-	-	-	-
Total Inflated Cost per Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 94,211	\$ -	\$ 70,012	\$ -	\$ 72,841	\$ -
% Growth in Set-aside	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
Annual Set-aside	26,899	27,867	28,871	29,910	30,987	32,102	33,258	34,455	35,696	36,981	38,312
Set-aside Balance	190,763	218,630	247,501	277,411	308,398	246,289	279,547	243,990	279,686	243,826	282,138
Cumulative Inflation Factor											
	1.52	1.55	1.58	1.61	1.64	1.67	1.71	1.74	1.78	1.81	1.85
Item	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
MBR											
Membranes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 34,138	\$ -	\$ -	\$ -	\$ -
Well Replacement											
Well #1	-	-	-	-	-	-	85,344	-	-	-	-
Well #2	-	-	-	-	-	-	-	-	88,792	-	-
Well #3	-	-	-	-	-	-	-	-	-	-	92,379
Well #4	75,783	-	-	-	-	-	-	-	-	-	-
Well #5	-	-	78,845	-	-	-	-	-	-	-	-
Well #6	-	-	-	-	82,030	-	-	-	-	-	-
Well #7	-	-	-	-	-	-	85,344	-	-	-	-
Well #8	-	-	-	-	-	-	-	-	88,792	-	-
Total Inflated Cost per Year	\$ 75,783	\$ -	\$ 78,845	\$ -	\$ 82,030	\$ -	\$ 204,826	\$ -	\$ 177,584	\$ -	\$ 92,379
% Growth in Set-aside	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
Annual Set-aside	39,691	41,120	42,600	44,134	45,723	47,369	49,074	50,841	52,671	54,567	56,532
Set-aside Balance	246,046	287,166	250,922	295,056	258,749	306,118	150,365	201,206	76,293	130,860	95,013
Cumulative Inflation Factor											
	1.88	1.92	1.96	2.00	2.04	2.08	2.12	2.16	2.21	2.25	2.30
Item	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
MBR											
Membranes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 43,295	\$ -	\$ -	\$ -	\$ -
Well Replacement											
Well #1	-	-	-	-	-	-	-	108,237	-	-	-
Well #2	-	-	-	-	-	-	-	-	-	112,610	-
Well #3	-	-	-	-	-	-	-	-	-	-	-
Well #4	-	96,112	-	-	-	-	-	-	-	-	-
Well #5	-	-	-	99,994	-	-	-	-	-	-	-
Well #6	-	-	-	-	104,034	-	-	-	-	-	-
Well #7	-	-	-	-	-	-	108,237	-	-	-	-
Well #8	-	-	-	-	-	-	-	-	-	112,610	-
Total Inflated Cost per Year	\$ -	\$ 96,112	\$ -	\$ 99,994	\$ -	\$ 104,034	\$ -	\$ 259,769	\$ -	\$ 225,220	\$ -
% Growth in Set-aside	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
Annual Set-aside	58,567	60,675	62,860	65,123	67,467	69,896	72,412	75,019	77,720	80,517	83,416
Set-aside Balance	153,579	118,143	181,003	146,131	213,598	179,459	251,871	67,121	144,840	138	83,554

APPENDIX B

Cash Flow Forecasts Under Various Scenarios:

Table B-1: No Additional Grant Funding, Two-Tiered GFC with \$3,000 Conversion Charge, 1% Annual Growth

Table B-2: \$3 million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge, 1% Annual Growth

Table B-3: \$4 million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge, 1% Annual Growth

Table B-4: \$4.5 million in Additional Grants, Integrated GFC Excluding \$1.25m from Cost Basis, 1% Annual Growth

Table B-5: \$4.5 million in Additional Grants, Integrated GFC with Full Cost Basis, 1% Annual Growth

Table B-1: Revenue Requirement Assuming No Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge, 1% Annual Growth in Unadjusted ERUs

Revenue Requirement Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total No. ERUs	190.4	192.0	193.6	195.2	196.8	198.5	200.2	201.9	203.6	205.3
O&M Costs Excl. State Taxes	\$ 186,773	\$ 190,508	\$ 196,336	\$ 200,971	\$ 205,719	\$ 210,584	\$ 215,570	\$ 220,678	\$ 225,913	\$ 231,277
Planned Capital Transfer	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Total Debt Service	378,934	378,934	378,934	378,934	378,934	378,934	378,934	378,934	378,934	378,934
Total Cost Before State Taxes	\$ 586,707	\$ 591,198	\$ 597,810	\$ 603,255	\$ 608,844	\$ 614,580	\$ 620,468	\$ 626,511	\$ 632,714	\$ 639,081
State Taxes	14,316	14,426	14,587	14,720	14,857	14,997	15,140	15,288	15,439	15,594
Total Cost Including State Tax	\$ 601,023	\$ 605,624	\$ 612,397	\$ 617,975	\$ 623,701	\$ 629,577	\$ 635,608	\$ 641,799	\$ 648,153	\$ 654,676
Annual Increase in Total Costs		0.8%	1.1%	0.9%	0.9%	0.9%	1.0%	1.0%	1.0%	1.0%
Annual Cost/ERU	3,157	3,154	3,163	3,166	3,169	3,172	3,175	3,179	3,183	3,189
Avg Monthly Cost/ERU	263.05	262.86	263.60	263.82	264.10	264.31	264.57	264.90	265.29	265.74
Planned Rate Increase		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Monthly Rate/ERU	\$ 264.00	\$ 265.32	\$ 266.65	\$ 267.98	\$ 269.32	\$ 270.67	\$ 272.02	\$ 273.38	\$ 274.75	\$ 276.12
Summary of Unit Costs:										
Monthly O&M per ERU	\$ 88.01	\$ 88.95	\$ 90.79	\$ 92.08	\$ 93.40	\$ 94.70	\$ 96.03	\$ 97.39	\$ 98.79	\$ 100.21
Monthly Debt Service per ERU	165.85	164.47	163.11	161.77	160.46	159.08	157.73	156.40	155.10	153.81
Monthly Capital Replacement/ERU	9.19	9.44	9.70	9.97	10.24	10.52	10.81	11.10	11.41	11.72
Avg Monthly Cost/ERU	\$ 263.05	\$ 262.86	\$ 263.60	\$ 263.82	\$ 264.10	\$ 264.31	\$ 264.57	\$ 264.90	\$ 265.29	\$ 265.74
Operating Fund										
Beginning Balance	\$ -	2,164	7,838	14,914	24,655	36,105	36,863	37,696	38,549	39,424
Plus: Rate Revenue	603,187	611,297	619,473	627,716	636,025	644,727	653,500	662,344	671,261	680,250
Plus: Interest Earnings	5	25	57	99	154	218	229	240	251	261
Total Resources	\$ 603,193	\$ 613,487	\$ 627,368	\$ 642,729	\$ 660,834	\$ 681,051	\$ 690,592	\$ 700,280	\$ 710,061	\$ 719,935
Less: Expenditures										
O&M Expense incl. State Tax	201,089	204,934	210,924	215,691	220,576	225,581	230,710	235,966	241,352	246,871
Debt Service	378,934	378,934	378,934	378,934	378,934	378,934	378,934	378,934	378,934	378,934
Transfer to Capital - Planned	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Transfer to Capital - Oper Surplus	-	-	-	-	875	14,392	17,059	19,693	22,233	24,678
Total Expenditures	601,023	605,624	612,397	617,975	624,575	643,969	652,668	661,491	670,386	679,353
Ending Balance	\$ 2,164	\$ 7,838	\$ 14,914	\$ 24,655	\$ 36,105	\$ 36,863	\$ 37,696	\$ 38,549	\$ 39,424	\$ 40,320
<i>Target Balance (45-60 days of O&M Exp)</i>										
Maximum	33,056	33,688	34,672	35,456	36,259	37,082	37,925	38,789	39,674	40,582
Minimum	24,792	25,266	26,004	26,592	27,194	27,811	28,444	29,092	29,756	30,436
Over/(Under) Minimum	(22,627)	(17,428)	(11,090)	(1,937)	8,911	9,052	9,252	9,457	9,668	9,884
Ending Balance before Int & Surplus Xfer	2,170	\$ 7,863	\$ 14,971	\$ 24,754	\$ 37,134	\$ 51,474	\$ 54,984	\$ 58,482	\$ 61,908	\$ 65,259
Surplus Transfer	-	\$ -	\$ -	\$ -	\$ 875	\$ 14,392	\$ 17,059	\$ 19,693	\$ 22,233	\$ 24,678
Capital Fund										
Beginning Balance	-	21,053	96,372	173,880	253,617	335,622	423,531	513,875	606,700	702,050
Plus: Transfers from Operating	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Plus: Gen Facilities Charge Revenue	-	53,271	54,295	55,320	56,344	60,954	62,042	63,131	64,219	65,308
Plus: Interest Earnings	53	293	674	1,066	1,469	1,893	2,338	2,794	3,264	3,746
Less: Capital Expenditures										
Vadose Zone Wells	-	-	-	-	-	-	-	-	-	-
MBR membranes	-	-	-	-	-	-	-	-	-	-
Other Capital Expenditures	-	-	-	-	-	-	-	-	-	-
Total Expenditures	-	-	-	-	-	-	-	-	-	-
Ending Balance	21,053	96,372	173,880	253,617	335,622	423,531	513,875	606,700	702,050	799,975
Target Minimum Balance (1% of assets)	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
Over/(Under) Target Minimum	(98,948)	(23,628)	53,880	133,617	215,622	303,531	393,875	486,700	582,050	679,975

Table B-2: Revenue Requirement Assuming \$3 Million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge, 1% Annual Growth in Unadjusted ERUs

Revenue Requirement Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total No. ERUs	190.4	192.0	193.6	195.2	196.8	198.5	200.2	201.9	203.6	205.3
O&M Costs Excl. State Taxes	\$ 186,773	\$ 190,508	\$ 196,336	\$ 200,971	\$ 205,719	\$ 210,584	\$ 215,570	\$ 220,678	\$ 225,913	\$ 231,277
Planned Capital Transfer	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Total Debt Service	195,464	195,464	195,464	195,464	195,464	195,464	195,464	195,464	195,464	195,464
Total Cost Before State Taxes	\$ 403,236	\$ 407,728	\$ 414,339	\$ 419,785	\$ 425,374	\$ 431,110	\$ 436,998	\$ 443,041	\$ 449,244	\$ 455,611
State Taxes	9,839	9,949	10,110	10,243	10,380	10,520	10,663	10,811	10,962	11,117
Total Cost Including State Tax	\$ 413,076	\$ 417,677	\$ 424,450	\$ 430,028	\$ 435,754	\$ 441,630	\$ 447,661	\$ 453,852	\$ 460,206	\$ 466,729
Annual Increase in Total Costs		1.1%	1.6%	1.3%	1.3%	1.3%	1.4%	1.4%	1.4%	1.4%
Annual Cost/ERU	2,170	2,175	2,192	2,203	2,214	2,225	2,236	2,248	2,260	2,273
Avg Monthly Cost/ERU	180.79	181.28	182.70	183.58	184.52	185.40	186.34	187.33	188.36	189.45
Planned Rate Increase		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Monthly Rate/ERU	\$ 184.00	\$ 184.92	\$ 185.84	\$ 186.77	\$ 187.71	\$ 188.65	\$ 189.59	\$ 190.54	\$ 191.49	\$ 192.45
Summary of Unit Costs:										
Monthly O&M per ERU	\$ 86.05	\$ 87.00	\$ 88.86	\$ 90.17	\$ 91.51	\$ 92.82	\$ 94.17	\$ 95.55	\$ 96.95	\$ 98.39
Monthly Debt Service per ERU	85.55	84.84	84.14	83.45	82.77	82.06	81.36	80.68	80.00	79.34
Monthly Capital Replacement/ERU	9.19	9.44	9.70	9.97	10.24	10.52	10.81	11.10	11.41	11.72
Avg Monthly Cost/ERU	\$ 180.79	\$ 181.28	\$ 182.70	\$ 183.58	\$ 184.52	\$ 185.40	\$ 186.34	\$ 187.33	\$ 188.36	\$ 189.45
Operating Fund										
Beginning Balance	\$ -	7,327	15,706	23,011	30,481	35,352	36,150	36,989	37,849	38,730
Plus: Rate Revenue	420,403	426,056	431,754	437,499	443,290	449,355	455,470	461,634	467,849	474,114
Plus: Interest Earnings	18	58	97	134	171	196	200	204	208	212
Total Resources	\$ 420,422	\$ 433,441	\$ 447,557	\$ 460,643	\$ 473,943	\$ 484,903	\$ 491,820	\$ 498,827	\$ 505,905	\$ 513,056
Less: Expenditures										
O&M Expense incl. State Tax	196,612	200,457	206,447	211,214	216,099	221,104	226,233	231,489	236,875	242,394
Debt Service	195,464	195,464	195,464	195,464	195,464	195,464	195,464	195,464	195,464	195,464
Transfer to Capital - Planned	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Transfer to Capital - Oper Surplus	-	-	-	-	2,666	6,928	6,970	6,923	6,761	6,482
Total Expenditures	413,076	417,677	424,450	430,028	438,420	448,557	454,631	460,774	466,967	473,210
Ending Balance	\$ 7,327	\$ 15,706	\$ 23,011	\$ 30,481	\$ 35,352	\$ 36,150	\$ 36,989	\$ 37,849	\$ 38,730	\$ 39,634
<i>Target Balance (45-60 days of O&M Exp)</i>										
Maximum	32,320	32,952	33,936	34,720	35,523	36,346	37,189	38,053	38,938	39,846
Minimum	24,240	24,714	25,452	26,040	26,642	27,259	27,892	28,540	29,204	29,884
Over/(Under) Minimum	(16,912)	(9,008)	(2,442)	4,441	8,710	8,890	9,097	9,309	9,526	9,749
Ending Balance before Int & Surplus Xfer	7,346	\$ 15,764	\$ 23,107	\$ 30,615	\$ 38,189	\$ 43,273	\$ 44,159	\$ 44,976	\$ 45,700	\$ 46,327
Surplus Transfer	-	\$ -	\$ -	\$ -	\$ 2,666	\$ 6,928	\$ 6,970	\$ 6,923	\$ 6,761	\$ 6,482
Capital Fund										
Beginning Balance	-	21,053	63,981	108,313	154,084	201,331	251,505	303,265	356,649	411,701
Plus: Transfers from Operating	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Plus: Gen Facilities Charge Revenue	-	20,960	21,363	21,766	22,169	23,983	24,411	24,840	25,268	25,696
Plus: Interest Earnings	53	212	430	654	886	1,129	1,383	1,646	1,916	2,195
Less: Capital Expenditures										
Vadose Zone Wells	-	-	-	-	-	-	-	-	-	-
MBR membranes	-	-	-	-	-	-	-	-	-	-
Other Capital Expenditures	-	-	-	-	-	-	-	-	-	-
Total Expenditures	-	-	-	-	-	-	-	-	-	-
Ending Balance	21,053	63,981	108,313	154,084	201,331	251,505	303,265	356,649	411,701	468,462
Target Minimum Balance (1% of assets)	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
Over/(Under) Target Minimum	(98,948)	(56,019)	(11,687)	34,084	81,331	131,505	183,265	236,649	291,701	348,462

Table B-3: Revenue Requirement Assuming \$4 Million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge, 1% Annual Growth in Unadjusted ERUs

Revenue Requirement Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total No. ERUs	190.4	192.0	193.6	195.2	196.8	198.5	200.2	201.9	203.6	205.3
O&M Costs Excl. State Taxes	\$186,773	\$190,508	\$196,336	\$200,971	\$205,719	\$210,584	\$215,570	\$220,678	\$225,913	\$231,277
Planned Capital Transfer	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Total Debt Service	134,307	134,307	134,307	134,307	134,307	134,307	134,307	134,307	134,307	134,307
Total Cost Before State Taxes	\$342,080	\$346,571	\$353,183	\$358,628	\$364,217	\$369,954	\$375,841	\$381,884	\$388,087	\$394,454
State Taxes	8,347	8,457	8,618	8,751	8,887	9,027	9,171	9,318	9,470	9,625
Total Cost Including State Tax	\$350,427	\$355,028	\$361,801	\$367,379	\$373,105	\$378,981	\$385,012	\$391,203	\$397,557	\$404,080
Annual Increase in Total Costs		1.3%	1.9%	1.5%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
Annual Cost/ERU	1,840	1,849	1,869	1,882	1,896	1,909	1,923	1,938	1,953	1,968
Avg Monthly Cost/ERU	153.37	154.09	155.73	156.84	157.99	159.10	160.26	161.47	162.72	164.02
Planned Rate Increase		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Monthly Rate/ERU	\$ 157.00	\$ 157.79	\$ 158.57	\$ 159.37	\$ 160.16	\$ 160.96	\$ 161.77	\$ 162.58	\$ 163.39	\$ 164.21
Summary of Unit Costs:										
Monthly O&M per ERU	\$ 85.40	\$ 86.36	\$ 88.22	\$ 89.53	\$ 90.87	\$ 92.20	\$ 93.55	\$ 94.93	\$ 96.34	\$ 97.78
Monthly Debt Service per ERU	58.78	58.29	57.81	57.34	56.87	56.38	55.91	55.43	54.97	54.52
Monthly Capital Replacement/ERU	9.19	9.44	9.70	9.97	10.24	10.52	10.81	11.10	11.41	11.72
Avg Monthly Cost/ERU	\$ 153.37	\$ 154.09	\$ 155.73	\$ 156.84	\$ 157.99	\$ 159.10	\$ 160.26	\$ 161.47	\$ 162.72	\$ 164.02
Operating Fund										
Beginning Balance	\$ -	8,287	16,796	23,394	29,315	34,453	35,917	36,755	37,617	38,501
Plus: Rate Revenue	358,714	363,537	368,399	373,301	378,242	383,417	388,634	393,894	399,197	404,543
Plus: Interest Earnings	21	63	100	132	159	183	189	191	192	194
Total Resources	\$358,734	\$371,886	\$385,295	\$396,826	\$407,717	\$418,054	\$424,740	\$430,840	\$437,006	\$443,237
Less: Expenditures										
O&M Expense incl. State Tax	195,120	198,965	204,955	209,722	214,606	219,612	224,741	229,996	235,382	240,902
Debt Service	134,307	134,307	134,307	134,307	134,307	134,307	134,307	134,307	134,307	134,307
Transfer to Capital - Planned	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Transfer to Capital - Oper Surplus	-	-	-	-	-	2,972	2,785	1,830	756	-
Total Expenditures	350,427	355,028	361,801	367,379	373,105	381,953	387,797	393,032	398,313	404,080
Ending Balance	\$ 8,287	\$ 16,796	\$ 23,394	\$ 29,315	\$ 34,453	\$ 35,917	\$ 36,755	\$ 37,617	\$ 38,501	\$ 38,964
<i>Target Balance (45-60 days of O&M Exp)</i>										
Maximum	32,074	32,707	33,691	34,475	35,278	36,101	36,944	37,808	38,693	39,600
Minimum	24,056	24,530	25,268	25,856	26,458	27,075	27,708	28,356	29,020	29,700
Over/(Under) Minimum	(15,769)	(7,734)	(1,875)	3,459	7,995	8,842	9,047	9,261	9,481	9,264
Ending Balance before Int & Surplus Xfer	8,308	\$ 16,858	\$ 23,494	\$ 29,447	\$ 34,612	\$ 39,073	\$ 39,728	\$ 39,637	\$ 39,449	\$ 39,158
Surplus Transfer	-	\$ -	\$ -	\$ -	\$ -	\$ 2,972	\$ 2,785	\$ 1,830	\$ 756	\$ -
Capital Fund										
Beginning Balance	-	21,053	53,183	86,457	120,906	156,567	194,163	233,061	273,299	314,917
Plus: Transfers from Operating	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Plus: Gen Facilities Charge Revenue	-	10,190	10,386	10,582	10,778	11,660	11,868	12,076	12,284	12,492
Plus: Interest Earnings	53	185	348	517	692	875	1,065	1,263	1,467	1,678
Less: Capital Expenditures										
Vadose Zone Wells	-	-	-	-	-	-	-	-	-	-
MBR membranes	-	-	-	-	-	-	-	-	-	-
Other Capital Expenditures	-	-	-	-	-	-	-	-	-	-
Total Expenditures	-	-	-	-	-	-	-	-	-	-
Ending Balance	21,053	53,183	86,457	120,906	156,567	194,163	233,061	273,299	314,917	357,958
Target Minimum Balance (1% of assets)	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
Over/(Under) Target Minimum	(98,948)	(66,817)	(33,543)	906	36,567	74,163	113,061	153,299	194,917	237,958

Table B-4: Revenue Requirement Assuming \$4.5 million in Additional Grants, Integrated GFC Excluding \$1.25 from Cost Basis, 1% Annual Growth in Unadjusted ERUs

Revenue Requirement Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total No. ERUs	190.4	192.0	193.6	195.2	196.8	198.5	200.2	201.9	203.6	205.3
O&M Costs Excl. State Taxes	\$186,773	\$190,508	\$196,336	\$200,971	\$205,719	\$210,584	\$215,570	\$220,678	\$225,913	\$231,277
Planned Capital Transfer	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Total Debt Service	138,661	138,661	138,661	138,661	138,661	138,661	138,661	138,661	138,661	138,661
Total Cost Before State Taxes	\$346,434	\$350,925	\$357,537	\$362,983	\$368,572	\$374,308	\$380,195	\$386,238	\$392,441	\$398,809
State Taxes	8,453	8,563	8,724	8,857	8,994	9,134	9,277	9,425	9,576	9,731
Total Cost Including State Tax	\$354,887	\$359,488	\$366,261	\$371,840	\$377,565	\$383,441	\$389,473	\$395,663	\$402,017	\$408,540
Annual Increase in Total Costs		1.3%	1.9%	1.5%	1.5%	1.6%	1.6%	1.6%	1.6%	1.6%
Annual Cost/ERU	1,864	1,872	1,892	1,905	1,919	1,932	1,945	1,960	1,975	1,990
Avg Monthly Cost/ERU	155.33	156.03	157.65	158.74	159.88	160.97	162.12	163.31	164.55	165.83
Planned Rate Increase		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Monthly Rate/ERU	\$ 159.00	\$ 159.80	\$ 160.59	\$ 161.40	\$ 162.20	\$ 163.01	\$ 163.83	\$ 164.65	\$ 165.47	\$ 166.30
Summary of Unit Costs:										
Monthly O&M per ERU	\$ 85.45	\$ 86.40	\$ 88.27	\$ 89.58	\$ 90.92	\$ 92.24	\$ 93.59	\$ 94.97	\$ 96.39	\$ 97.83
Monthly Debt Service per ERU	60.69	60.18	59.69	59.20	58.72	58.21	57.72	57.23	56.75	56.28
Monthly Capital Replacement/ERU	9.19	9.44	9.70	9.97	10.24	10.52	10.81	11.10	11.41	11.72
Avg Monthly Cost/ERU	\$ 155.33	\$ 156.03	\$ 157.65	\$ 158.74	\$ 159.88	\$ 160.97	\$ 162.12	\$ 163.31	\$ 164.55	\$ 165.83
Operating Fund										
Beginning Balance	\$ -	8,396	17,075	23,906	30,122	35,131	35,930	36,771	37,633	38,517
Plus: Rate Revenue	363,283	368,168	373,092	378,056	383,061	388,302	393,585	398,912	404,282	409,696
Plus: Interest Earnings	21	64	102	135	164	188	190	192	194	195
Total Resources	\$363,304	\$376,627	\$390,269	\$402,097	\$413,347	\$423,620	\$429,705	\$435,875	\$442,109	\$448,408
Less: Expenditures										
O&M Expense incl. State Tax	195,226	199,071	205,061	209,828	214,713	219,718	224,847	230,103	235,489	241,008
Debt Service	138,661	138,661	138,661	138,661	138,661	138,661	138,661	138,661	138,661	138,661
Transfer to Capital - Planned	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Transfer to Capital - Oper Surplus	-	-	-	-	486	4,061	3,272	2,387	1,381	250
Total Expenditures	354,887	359,488	366,261	371,840	378,052	387,502	392,744	398,050	403,399	408,790
Ending Balance	\$ 8,396	\$ 17,075	\$ 23,906	\$ 30,122	\$ 35,131	\$ 35,930	\$ 36,771	\$ 37,633	\$ 38,517	\$ 39,422
<i>Target Balance (45-60 days of O&M Exp)</i>										
Maximum	32,092	32,724	33,709	34,492	35,295	36,118	36,961	37,825	38,710	39,618
Minimum	24,069	24,543	25,281	25,869	26,471	27,089	27,721	28,369	29,033	29,713
Over/(Under) Minimum	(15,673)	(7,468)	(1,376)	4,253	8,659	8,842	9,050	9,264	9,484	9,709
Ending Balance before Int & Surplus Xfer	8,417	\$ 17,139	\$ 24,008	\$ 30,257	\$ 35,782	\$ 40,179	\$ 40,233	\$ 40,212	\$ 40,092	\$ 39,868
Surplus Transfer	-	\$ -	\$ -	\$ -	\$ 486	\$ 4,061	\$ 3,272	\$ 2,387	\$ 1,381	\$ 250
Capital Fund										
Beginning Balance	-	21,053	53,952	88,013	123,268	159,754	198,246	238,059	279,233	321,808
Plus: Transfers from Operating	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Plus: Gen Facilities Charge Revenue	-	10,957	11,167	11,378	11,589	12,537	12,761	12,985	13,209	13,432
Plus: Interest Earnings	53	187	354	527	706	893	1,088	1,290	1,499	1,715
Less: Capital Expenditures										
Vadose Zone Wells	-	-	-	-	-	-	-	-	-	-
MBR membranes	-	-	-	-	-	-	-	-	-	-
Other Capital Expenditures	-	-	-	-	-	-	-	-	-	-
Total Expenditures	-	-	-	-	-	-	-	-	-	-
Ending Balance	21,053	53,952	88,013	123,268	159,754	198,246	238,059	279,233	321,808	365,826
<i>Target Minimum Balance (1% of assets)</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>	<i>120,000</i>
Over/(Under) Target Minimum	(98,948)	(66,048)	(31,987)	3,268	39,754	78,246	118,059	159,233	201,808	245,826

Table B-5: Revenue Requirement Assuming \$4.5 million in Additional Grants, Integrated GFC with Full Cost Basis, 1% Annual Growth in Unadjusted ERUs

Revenue Requirement Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total No. ERUs	190.4	192.0	193.6	195.2	196.8	198.5	200.2	201.9	203.6	205.3
O&M Costs Excl. State Taxes	\$186,773	\$190,508	\$196,336	\$200,971	\$205,719	\$210,584	\$215,570	\$220,678	\$225,913	\$231,277
Planned Capital Transfer	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Total Debt Service	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418
Total Cost Before State Taxes	\$256,191	\$260,682	\$267,294	\$272,739	\$278,328	\$284,064	\$289,952	\$295,995	\$302,198	\$308,565
State Taxes	6,251	6,361	6,522	6,655	6,792	6,932	7,075	7,223	7,374	7,529
Total Cost Including State Tax	\$262,442	\$267,043	\$273,816	\$279,394	\$285,120	\$290,996	\$297,027	\$303,218	\$309,572	\$316,095
Annual Increase in Total Costs		1.8%	2.5%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%
Annual Cost/ERU	1,378	1,391	1,414	1,431	1,449	1,466	1,484	1,502	1,520	1,540
Avg Monthly Cost/ERU	114.86	115.90	117.86	119.28	120.73	122.16	123.64	125.15	126.71	128.31
Planned Rate Increase		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Monthly Rate/ERU	\$ 123.00	\$ 123.62	\$ 124.23	\$ 124.85	\$ 125.48	\$ 126.11	\$ 126.74	\$ 127.37	\$ 128.01	\$ 128.65
Summary of Unit Costs:										
Monthly O&M per ERU	\$ 84.48	\$ 85.45	\$ 87.32	\$ 88.64	\$ 89.99	\$ 91.32	\$ 92.68	\$ 94.06	\$ 95.48	\$ 96.93
Monthly Debt Service per ERU	21.19	21.01	20.84	20.67	20.50	20.33	20.15	19.98	19.82	19.65
Monthly Capital Replacement/ERU	9.19	9.44	9.70	9.97	10.24	10.52	10.81	11.10	11.41	11.72
Avg Monthly Cost/ERU	\$ 114.86	\$ 115.90	\$ 117.86	\$ 119.28	\$ 120.73	\$ 122.16	\$ 123.64	\$ 125.15	\$ 126.71	\$ 128.31
Operating Fund										
Beginning Balance	\$ -	18,588	32,225	33,149	33,932	34,736	35,559	36,403	37,268	38,154
Plus: Rate Revenue	281,030	284,809	288,618	292,459	296,330	300,384	304,472	308,592	312,747	316,935
Plus: Interest Earnings	46	137	198	198	198	197	196	195	194	193
Total Resources	\$281,077	\$303,535	\$321,041	\$325,805	\$330,460	\$335,317	\$340,227	\$345,191	\$350,209	\$355,282
Less: Expenditures										
O&M Expense incl. State Tax	193,024	196,869	202,859	207,626	212,511	217,516	222,645	227,901	233,287	238,806
Debt Service	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418	48,418
Transfer to Capital - Planned	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Transfer to Capital - Oper Surplus	-	4,130	13,879	12,281	10,407	8,565	6,601	4,510	2,288	-
Total Expenditures	262,442	271,173	287,694	291,675	295,526	299,561	303,628	307,727	311,860	316,095
Ending Balance	\$ 18,588	\$ 32,225	\$ 33,149	\$ 33,932	\$ 34,736	\$ 35,559	\$ 36,403	\$ 37,268	\$ 38,154	\$ 38,994
Target Balance (45-60 days of O&M Exp)										
Maximum	31,730	32,362	33,347	34,130	34,933	35,756	36,599	37,463	38,348	39,256
Minimum	23,797	24,272	25,010	25,598	26,200	26,817	27,449	28,097	28,761	29,442
Over/(Under) Minimum	(5,209)	7,953	8,139	8,334	8,536	8,742	8,953	9,170	9,393	9,552
Ending Balance before Int & Surplus Xfer	18,635	\$ 36,492	\$ 47,225	\$ 46,411	\$ 45,340	\$ 44,321	\$ 43,200	\$ 41,973	\$ 40,637	\$ 39,187
Surplus Transfer	-	\$ 4,130	\$ 13,879	\$ 12,281	\$ 10,407	\$ 8,565	\$ 6,601	\$ 4,510	\$ 2,288	\$ -
Capital Fund										
Beginning Balance	-	21,053	51,516	83,081	115,782	149,654	185,308	222,219	260,427	299,971
Plus: Transfers from Operating	21,000	21,756	22,539	23,351	24,191	25,062	25,964	26,899	27,867	28,871
Plus: Gen Facilities Charge Revenue	-	8,527	8,691	8,854	9,018	9,756	9,931	10,105	10,279	10,453
Plus: Interest Earnings	53	181	336	496	662	835	1,016	1,204	1,397	1,598
Less: Capital Expenditures										
Vadose Zone Wells	-	-	-	-	-	-	-	-	-	-
MBR membranes	-	-	-	-	-	-	-	-	-	-
Other Capital Expenditures	-	-	-	-	-	-	-	-	-	-
Total Expenditures	-	-	-	-	-	-	-	-	-	-
Ending Balance	21,053	51,516	83,081	115,782	149,654	185,308	222,219	260,427	299,971	340,893
Target Minimum Balance (1% of assets)	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
Over/(Under) Target Minimum	(98,948)	(68,484)	(36,919)	(4,218)	29,654	65,308	102,219	140,427	179,971	220,893

APPENDIX C

Growth Scenarios:

Table C-1: No Additional Grant Funding, Two-Tiered GFC with \$3,000 Conversion Charge

Table C-2: \$3 million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge

Table C-3: \$4 million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge

Table C-4: \$4.5 million in Additional Grants, Integrated GFC Excluding \$1.25m from Cost Basis

Table C-5: \$4.5 million in Additional Grants, Integrated GFC with Full Cost Basis

Table C-1: Growth Scenarios Assuming No Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge

Growth Rate Sensitivity Analysis	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Base Case Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 1.00%	-	-	-	1.6	3.2	4.8	6.5	8.1	9.8	11.5	13.2	14.9
Total ERUs	190.4	190.4	190.4	192.0	193.6	195.2	196.9	198.5	200.2	201.9	203.6	205.3
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$32,014	\$32,654	\$33,294	\$33,934	\$34,575	\$35,215	\$35,855	\$36,496	\$37,136	\$37,776	\$38,416
Total Monthly Cost per ERU	\$ -	\$ -	\$263.05	\$262.86	\$263.60	\$263.82	\$264.10	\$264.31	\$264.57	\$264.90	\$265.29	\$265.74
Slower Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 0.40%	-	-	-	0.6	1.3	1.9	2.6	3.2	3.9	4.5	5.2	5.8
Total ERUs	190.4	190.4	190.4	191.0	191.7	192.3	193.0	193.6	194.3	194.9	195.6	196.2
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$32,014	\$32,654	\$33,294	\$33,934	\$34,575	\$35,215	\$35,855	\$36,496	\$37,136	\$37,776	\$38,416
Total Monthly Cost per ERU	\$ -	\$ -	\$263.05	\$264.23	\$265.81	\$267.20	\$268.63	\$270.11	\$271.49	\$272.92	\$274.40	\$275.92
Five-Year Growth Surge												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development annual growth:												
2019-2024												
2025-2038				5.3	10.7	16.3	22.1	28.1	30.0	31.9	33.8	35.7
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	220.4	222.3	224.2	226.1
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$32,014	\$32,654	\$33,294	\$33,934	\$34,575	\$35,215	\$35,855	\$36,496	\$37,136	\$37,776	\$38,416
Total Monthly Cost per ERU	\$ -	\$ -	\$263.05	\$257.89	\$255.80	\$251.90	\$248.09	\$244.38	\$245.46	\$240.59	\$240.91	\$241.29
Faster Growth (Buildout in 20 Years)												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 3.30%	-	-	-	5.3	10.7	16.3	22.1	28.1	34.3	40.7	47.3	54.1
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	224.7	231.1	237.7	244.5
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$32,014	\$32,654	\$33,294	\$33,934	\$34,575	\$35,215	\$35,855	\$36,496	\$37,136	\$37,776	\$38,416
Total Monthly Cost per ERU	\$ -	\$ -	\$263.05	\$257.89	\$255.80	\$251.90	\$248.09	\$244.38	\$240.77	\$237.27	\$233.89	\$230.64

Table C-2: Growth Scenarios Assuming \$3 Million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge

Growth Rate Sensitivity Analysis	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Base Case Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 1.00%	-	-	-	1.6	3.2	4.8	6.5	8.1	9.8	11.5	13.2	14.9
Total ERUs	190.4	190.4	190.4	192.0	193.6	195.2	196.9	198.5	200.2	201.9	203.6	205.3
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$12,596	\$12,848	\$13,100	\$13,352	\$13,604	\$13,856	\$14,108	\$14,360	\$14,612	\$14,864	\$15,115
Total Monthly Cost per ERU	\$ -	\$ -	\$180.79	\$181.28	\$182.70	\$183.58	\$184.52	\$185.40	\$186.34	\$187.33	\$188.36	\$189.45
Slower Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 0.40%	-	-	-	0.6	1.3	1.9	2.6	3.2	3.9	4.5	5.2	5.8
Total ERUs	190.4	190.4	190.4	191.0	191.7	192.3	193.0	193.6	194.3	194.9	195.6	196.2
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$12,596	\$12,848	\$13,100	\$13,352	\$13,604	\$13,856	\$14,108	\$14,360	\$14,612	\$14,864	\$15,115
Total Monthly Cost per ERU	\$ -	\$ -	\$180.79	\$177.86	\$177.92	\$176.13	\$174.38	\$172.69	\$174.40	\$170.13	\$171.05	\$172.02
Five-Year Growth Surge												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth:												
2019-2024												
2025-2038				5.3	10.7	16.3	22.1	28.1	30.0	31.9	33.8	35.7
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	220.4	222.3	224.2	226.1
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$12,596	\$12,848	\$13,100	\$13,352	\$13,604	\$13,856	\$14,108	\$14,360	\$14,612	\$14,864	\$15,115
Total Monthly Cost per ERU	\$ -	\$ -	\$180.79	\$177.86	\$177.92	\$176.13	\$174.38	\$172.69	\$171.06	\$169.50	\$168.00	\$166.58
Faster Growth (Buildout in 20 Years)												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 3.30%	-	-	-	5.3	10.7	16.3	22.1	28.1	34.3	40.7	47.3	54.1
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	224.7	231.1	237.7	244.5
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$12,596	\$12,848	\$13,100	\$13,352	\$13,604	\$13,856	\$14,108	\$14,360	\$14,612	\$14,864	\$15,115
Total Monthly Cost per ERU	\$ -	\$ -	\$180.79	\$177.86	\$177.92	\$176.13	\$174.38	\$172.69	\$171.06	\$169.50	\$168.00	\$166.58

Table C-3: Growth Scenarios Assuming \$4 Million in Additional Grants, Two-Tiered GFC with \$3,000 Conversion Charge

Growth Rate Sensitivity Analysis	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Base Case Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 1.0%	-	-	-	1.6	3.2	4.8	6.5	8.1	9.8	11.5	13.2	14.9
Total ERUs	190.4	190.4	190.4	192.0	193.6	195.2	196.9	198.5	200.2	201.9	203.6	205.3
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$ 6,124	\$ 6,246	\$ 6,369	\$ 6,491	\$ 6,614	\$ 6,736	\$ 6,859	\$ 6,981	\$ 7,103	\$ 7,226	\$ 7,348
Total Monthly Cost per ERU	\$ -	\$ -	\$153.37	\$154.09	\$155.73	\$156.84	\$157.99	\$159.10	\$160.26	\$161.47	\$162.72	\$164.02
Slower Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 0.4%	-	-	-	0.6	1.3	1.9	2.6	3.2	3.9	4.5	5.2	5.8
Total ERUs	190.4	190.4	190.4	191.0	191.7	192.3	193.0	193.6	194.3	194.9	195.6	196.2
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$ 6,124	\$ 6,246	\$ 6,369	\$ 6,491	\$ 6,614	\$ 6,736	\$ 6,859	\$ 6,981	\$ 7,103	\$ 7,226	\$ 7,348
Total Monthly Cost per ERU	\$ -	\$ -	\$153.37	\$154.90	\$156.82	\$158.55	\$160.32	\$162.13	\$163.90	\$165.72	\$167.58	\$169.48
Five-Year Growth Surge												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development annual growth:												
2019-2024												
2025-2038				5.3	10.7	16.3	22.1	28.1	30.0	31.9	33.8	35.7
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	220.4	222.3	224.2	226.1
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$ 6,124	\$ 6,246	\$ 6,369	\$ 6,491	\$ 6,614	\$ 6,736	\$ 6,859	\$ 6,981	\$ 7,103	\$ 7,226	\$ 7,348
Total Monthly Cost per ERU	\$ -	\$ -	\$153.37	\$151.18	\$151.96	\$150.87	\$149.82	\$148.80	\$150.71	\$146.65	\$147.77	\$148.93
Faster Growth (Buildout in 20 Years)												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 3.3%	-	-	-	5.3	10.7	16.3	22.1	28.1	34.3	40.7	47.3	54.1
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	224.7	231.1	237.7	244.5
GFC - Conversions	\$ -	\$ 3,000	\$ 3,060	\$ 3,120	\$ 3,180	\$ 3,240	\$ 3,300	\$ 3,360	\$ 3,420	\$ 3,480	\$ 3,540	\$ 3,600
GFC - New Development	\$ -	\$ 6,124	\$ 6,246	\$ 6,369	\$ 6,491	\$ 6,614	\$ 6,736	\$ 6,859	\$ 6,981	\$ 7,103	\$ 7,226	\$ 7,348
Total Monthly Cost per ERU	\$ -	\$ -	\$153.37	\$151.18	\$151.96	\$150.87	\$149.82	\$148.80	\$147.83	\$146.91	\$146.04	\$145.23

Table C-4: Growth Scenarios Assuming \$4.5 million in Additional Grants, Integrated GFC Excluding \$1.25 from Cost Basis

Growth Rate Sensitivity Analysis	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Base Case Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 1.0%	-	-	-	1.6	3.2	4.8	6.5	8.1	9.8	11.5	13.2	14.9
Total ERUs	190.4	190.4	190.4	192.0	193.6	195.2	196.9	198.5	200.2	201.9	203.6	205.3
GFC - Conversions	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
GFC - New Development	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
Total Monthly Cost per ERU	\$ -	\$ -	\$139.92	\$140.76	\$142.51	\$143.72	\$144.98	\$146.20	\$147.47	\$148.78	\$150.14	\$151.55
Slower Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 0.4%	-	-	-	0.6	1.3	1.9	2.6	3.2	3.9	4.5	5.2	5.8
Total ERUs	190.4	190.4	190.4	191.0	191.7	192.3	193.0	193.6	194.3	194.9	195.6	196.2
GFC - Conversions	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
GFC - New Development	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
Total Monthly Cost per ERU	\$ -	\$ -	\$139.92	\$141.49	\$143.45	\$145.22	\$147.03	\$148.89	\$150.71	\$152.57	\$154.48	\$156.43
Five-Year Growth Surge												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth:												
2019-2024												
2025-2038				5.3	10.7	16.3	22.1	28.1	30.0	31.9	33.8	35.7
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	220.4	222.3	224.2	226.1
GFC - Conversions	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
GFC - New Development	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
Total Monthly Cost per ERU	\$ -	\$ -	\$139.92	\$138.09	\$139.23	\$138.48	\$137.77	\$137.08	\$139.10	\$135.13	\$136.35	\$137.61
Faster Growth (Buildout in 20 Years)												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 3.3%	-	-	-	5.3	10.7	16.3	22.1	28.1	34.3	40.7	47.3	54.1
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	224.7	231.1	237.7	244.5
GFC - Conversions	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
GFC - New Development	\$ -	\$ 2,950	\$ 3,009	\$ 3,068	\$ 3,127	\$ 3,186	\$ 3,245	\$ 3,304	\$ 3,363	\$ 3,422	\$ 3,481	\$ 3,540
Total Monthly Cost per ERU	\$ -	\$ -	\$139.92	\$138.09	\$139.23	\$138.48	\$137.77	\$137.08	\$136.43	\$135.83	\$135.27	\$134.76

Table C-5: Growth Scenarios Assuming \$4.5 million in Additional Grants, Integrated GFC with Full Cost Basis

Growth Rate Sensitivity Analysis	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Base Case Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 1.0%	-	-	-	1.6	3.2	4.8	6.5	8.1	9.8	11.5	13.2	14.9
Total ERUs	190.4	190.4	190.4	192.0	193.6	195.2	196.9	198.5	200.2	201.9	203.6	205.3
GFC - Conversions	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
GFC - New Development	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
Total Monthly Cost per ERU	\$ -	\$ -	\$121.00	\$121.99	\$123.90	\$125.27	\$126.67	\$128.05	\$129.48	\$130.94	\$132.45	\$134.00
Slower Growth												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 0.4%	-	-	-	0.6	1.3	1.9	2.6	3.2	3.9	4.5	5.2	5.8
Total ERUs	190.4	190.4	190.4	191.0	191.7	192.3	193.0	193.6	194.3	194.9	195.6	196.2
GFC - Conversions	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
GFC - New Development	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
Total Monthly Cost per ERU	\$ -	\$ -	\$121.00	\$122.63	\$124.65	\$126.48	\$128.35	\$130.26	\$132.15	\$134.08	\$136.05	\$138.07
Five-Year Growth Surge												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth:												
2019-2024 3.3%	-	-	-	5.3	10.7	16.3	22.1	28.1	30.0	31.9	33.8	35.7
2025-2038 1.0%	-	-	-	-	-	-	-	-	-	-	-	-
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	220.4	222.3	224.2	226.1
GFC - Conversions	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
GFC - New Development	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
Total Monthly Cost per ERU	\$ -	\$ -	\$121.00	\$119.69	\$121.31	\$121.05	\$120.81	\$120.59	\$122.75	\$118.93	\$120.28	\$121.67
Faster Growth (Buildout in 20 Years)												
Converted ERUs	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4	190.4
New Development - annual growth: 3.3%	-	-	-	5.3	10.7	16.3	22.1	28.1	34.3	40.7	47.3	54.1
Total ERUs	190.4	190.4	190.4	195.7	201.1	206.7	212.5	218.5	224.7	231.1	237.7	244.5
GFC - Conversions	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
GFC - New Development	\$ -	\$ 6,574	\$ 6,705	\$ 6,837	\$ 6,968	\$ 7,100	\$ 7,231	\$ 7,363	\$ 7,494	\$ 7,626	\$ 7,757	\$ 7,889
Total Monthly Cost per ERU	\$ -	\$ -	\$121.00	\$119.69	\$121.31	\$121.05	\$120.81	\$120.59	\$120.40	\$120.24	\$120.11	\$120.02

APPENDIX D

Table D-1: Calculation of Each General Facilities Charge Method and Resulting Debt Needed

GFC Scenario Excludes \$1.25m from Cost Basis	
Capital Costs and Potential Funding	
Total Project Cost	\$ 12,967,313
Funding Strategy	
Loans	
SRF Loan	1,250,000
Grants	
Legislative Proviso (Unspent)	3,500,000
ICRED Grant	2,700,000
Additional Grant	5,000,000
Gap before GFC Revenue & Added Debt	\$ 517,313
Integrated General Facilities Charge (GFC)	
General Facilities Charge (GFC) Calculation	
Total Project Cost	\$ 12,967,313
<i>Includes costs already incurred</i>	
Less Grants (incl grant already spent)	11,200,000
Net System Cost before Adjustment	1,767,313
Adjust for Planned SRF Loan	1,250,000
Net System Cost	\$ 517,313
20-year adjusted ERUs	344.9
Initial General Facilities Charge (GFC)	\$ 1,500
Gap before GFC Revenue & Added Debt	
Existing ERUs	190.4
Up-front GFC revenue	\$ 285,600
Additional debt needed	\$ 231,713
Total debt needed	\$ 1,481,713
Annual debt service (2%, 20 years)	90,617
Monthly debt service per ERU	\$ 39.66

GFC Scenario Includes Full Cost Basis	
Capital Costs and Potential Funding	
Total Project Cost	\$ 12,967,313
Funding Strategy	
Loans	
SRF Loan	N/A
Grants	
Legislative Proviso (Unspent)	3,500,000
ICRED Grant	2,700,000
Additional Grant	5,000,000
Gap before GFC Revenue and Debt	\$ 1,767,313
Integrated General Facilities Charge (GFC)	
General Facilities Charge (GFC) Calculation	
Total Project Cost	\$ 12,967,313
<i>Includes costs already incurred</i>	
Less Grants (incl grant already spent)	11,200,000
Net System Cost before Adjustment	1,767,313
Adjust for Planned SRF Loan	-
Net System Cost	1,767,313
20-year adjusted ERUs	344.9
Initial General Facilities Charge (GFC)	\$ 5,124
Gap before GFC Revenue and Debt	
Existing ERUs	190.4
Up-front GFC revenue	975,610
Total debt needed	\$ 791,703
Annual debt service (2%, 20 years)	48,418
Monthly debt service per ERU	\$ 21.19

GFC Scenario Excludes \$1.25m from Cost Basis				
Two-Tiered General Facilities Charge (GFC) With No Conversion Charge				
Assign grants first to existing ERUs sufficient to eliminate conversion charge.				
	Existing		New	
	Development	Development	Total	
ERUs	190.4	154.5	344.9	
% ERUs	55.2%	44.8%	100.0%	
System Cost	\$ 7,158,528	\$ 5,808,785	\$ 12,967,313	
Grants	7,158,528	4,041,472	11,200,000	
<i>% of Grants</i>	63.9%	36.1%	100.0%	
Planned SRF Loan	-	1,250,000	1,250,000	
Cost Basis	\$ -	\$ 517,313	\$ 517,313	
20-yr adjusted ERUs	190.4	154.5	344.9	
Calculated GFC rate	\$ -	\$ 3,348	\$ 1,500	
Existing ERUs	190.4	-	190.4	
Up-front GFC revenue	\$ -	\$ -	\$ -	
Additional debt needed			\$ 517,313	
Total debt needed			\$ 1,767,313	
Annual debt service (2%, 20 years)			108,083	
Monthly debt service per ERU			\$ 47.31	

GFC Scenario Excludes \$1.25m from Cost Basis				
Two-Tiered General Facilities Charge (GFC) Set to \$3,000/Existing ERU				
Assign grants first to set conversion charge to: \$3,000/ERU				
	Existing		New	
	Development	Development	Total	
ERUs	190.4	154.5	344.9	
% ERUs	55.2%	44.8%	100.0%	
System Cost	\$ 7,158,528	\$ 5,808,785	\$ 12,967,313	
Grants	6,587,328	4,612,672	11,200,000	
<i>% of Grants</i>	58.8%	41.2%	100.0%	
Planned SRF Loan	-	1,250,000	1,250,000	
Cost Basis	\$ 571,200	\$ (53,887)	\$ 517,313	
20-yr adjusted ERUs	190.4	154.5	344.9	
Calculated GFC rate	\$ 3,000	\$ (349)	\$ 1,500	
Existing ERUs	190.4	-	190.4	
Up-front GFC revenue	\$ 571,200	\$ -	\$ 571,200	
Additional debt needed			\$ (53,888)	
Total debt needed			\$ 1,196,113	
Annual debt service (2%, 20 years)			73,150	
Monthly debt service per ERU			\$ 32.02	