LAKEHAVEN UTILITY DISTRICT
King County, Washington

Resolution No. 2012-1199

A RESOLUTION of the Board of Commissioners of Lakehaven Utility District, King County, Washington, revising the Capital Facilities Charges for the water and wastewater systems and amending Section 3 (A)(v) of Resolution No. 2011-1191.

WHEREAS, the Board has previously adopted Capital Facilities Charges for the water and wastewater systems to collect a proportionate share of the costs of the respective systems from connecting properties, and

WHEREAS, the Board periodically reviews the Capital Facilities Charges to make certain that they continue to represent a fair and proportionate charge for the cost of system facilities, and

WHEREAS, the Board having reviewed the Capital Facilities Charges and believing that the revisions herein are appropriate and in the best interests of the District;

NOW, THEREFORE, BE IT RESOLVED as follows:

1. Effective on the date of adoption below, Section 3 (A)(v) of Resolution No. 2011-1191 is amended to hereinafter read as follows:

   "3. A (v) Effective July 1, 2012, the charge for each E.R.U. of water service shall be $3,232.00 during 2012 and shall be based upon, and as set forth in, the May 23, 2012 Technical Memorandum for Recommended Water and Wastewater and Capital Facilities Charges, by FCS Group ("Technical Memorandum"), attached hereto and by this reference incorporated fully herein. Unless revised by the Board, future Capital Facilities Charges for the water system through 2016 shall be as set forth in Exhibit 26 to the Technical Memorandum. In all cases where a Water System Capital Facilities Charge is paid for connection to the water system, the District shall begin to charge the property owner the base monthly water rate for a 5/8"x3/4" water meter, or actual meter size installed if larger, for each E.R.U. of service covered by the payment on the earlier of the installation date of the water meter to serve the property or the date eighteen (18) months following payment of the Water System Capital Facilities Charge.

   As established in the current rate resolution, the District shall collect capacity rent from property owners using more capacity in the water system than acquired for the property served. The rental charge shall be based upon the portion of the Water System Capital Facilities Charge representing the cost of existing facilities ("Buy-in Charge"). The Buy-in Charge for 2012 shall be $2,620.00. Unless revised by the Board, the future Buy-in Charge for the water system through 2016 shall be as set forth in Exhibit 26 to the Technical Memorandum.

Effective July 1, 2012, the charge for each E.R.U. of sewer service shall be $2,968.00 during 2012 and shall be based upon, and as set forth in, the May 23, 2012 Technical Memorandum for Recommended Water and Wastewater and Capital Facilities Charges, by FCS Group ("Technical Memorandum"), attached hereto and by this reference fully incorporated herein. Unless revised by the Board, future Capital Facilities Charges for the wastewater system through 2016 shall be as set forth in Exhibit 26 to the Technical Memorandum. Effective July 1, 2012, the Capital Facilities Charge for each E.R.U. of sewer service for properties discharging to King County/Metro or the Midway Sewer District sewerage facilities, shall be $1,995.00. This amount, which represents a proportionate share of the cost of collection facilities only, shall be collected by the District in addition to any amounts for capital facilities collected by or on behalf of King County/Metro or the Midway Sewer District. In all cases where a Sewer System Capital Facilities Charge is paid for connection to the sewer system, the District shall begin to charge the property owner the base monthly sewer rate for each E.R.U. of service covered by the payment on the earlier of the issuance of the side sewer permit for the property or the date eighteen (18) months following payment of the Sewer System Capital Facilities Charge.

As established in the current rate resolution, the District shall collect capacity rent from property owners using more capacity in the sewer system than acquired for the property served. The rental charge shall be based upon the portion of the Sewer System Capital Facilities Charge representing the cost of existing facilities ("Buy-in Charge"). The Buy-in Charge for 2012 shall be $2,304.00. Unless revised by the Board, the future Buy-in Charge for the wastewater system through 2016 shall be as set forth in Exhibit 26 to the Technical Memorandum."

2. All other provisions of Resolution No. 2011-1191 not herein amended shall remain in full force and effect.

ADOPTED by the Board of Commissioners of Lakehaven Utility District, King County, Washington, at an open public meeting this 14th day of June, 2012.

ATTEST:

President and Commissioner	✓ Yea	Nay	Abstain
Vice President and Commissioner	✓ Yea	Nay	Abstain
Secretary and Commissioner	✓ Yea	Nay	Abstain

Commissioner	Yea	Nay	Abstain
Commissioner	Yea	Nay	Abstain

Approved as to form:

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FCS GROUP
Solutions-Oriented Consulting

Technical Memorandum

Date: May 23, 2012

To: John Bowman, General Manager, Lakehaven Utility District

From: Gordon Wilson, FCS GROUP

Subject: Recommended Water and Wastewater Capital Facilities Charges (CFCs)

This memo is to document and explain the rationale for the water and wastewater capital facilities charges (CFCs) that we recommend for Lakehaven Utility District. The calculations contained in this memo are built upon work previously performed by Kennedy/Jenks, but the recommended CFCs follow a revised methodology that we believe is more closely tailored to the District's current goals and characteristics of its asset base and capital program.

Background

CFCs in General

A Capital Facilities Charge (CFC) is a one-time charge imposed when a property is developed or redeveloped to a higher density. For utilities, CFCs are a common method to ensure equity between new and existing customers, by assigning to new customers an appropriate share of the capital cost of the existing system and the planned cost of future capital improvements. CFC revenue may only be used for capital expenditures, and only capital costs are taken into account in determining the amount of the charge. In general, a CFC represents the unit cost of capacity.

A CFC may have other names. The most generic name is "connection charge," but it may also be a General Facilities Charge, System Development Charge, Impact Fee, Improvement Charge, Capital Investment Fee, Capacity Charge, or other name. The common idea is that the fee recovers a share of general capital investment, not the cost of inspections or meter installation.

In Washington, the statute governing CFCs for special districts is RCW 57.08.005 (10). In this paragraph, the powers of a district include:

- [the power] to charge property owners seeking to connect to the district's systems, as a condition to granting the right to so connect, in addition to the cost of the connection, such reasonable connection charge as the board of commissioners shall determine to be proper in order that those property owners shall bear their equitable share of the cost of the system.

RCW 57.08.005 (10) also contains language about how a CFC is calculated:

- For the purposes of calculating a connection charge, the board of commissioners shall determine the pro rate share of the cost of existing

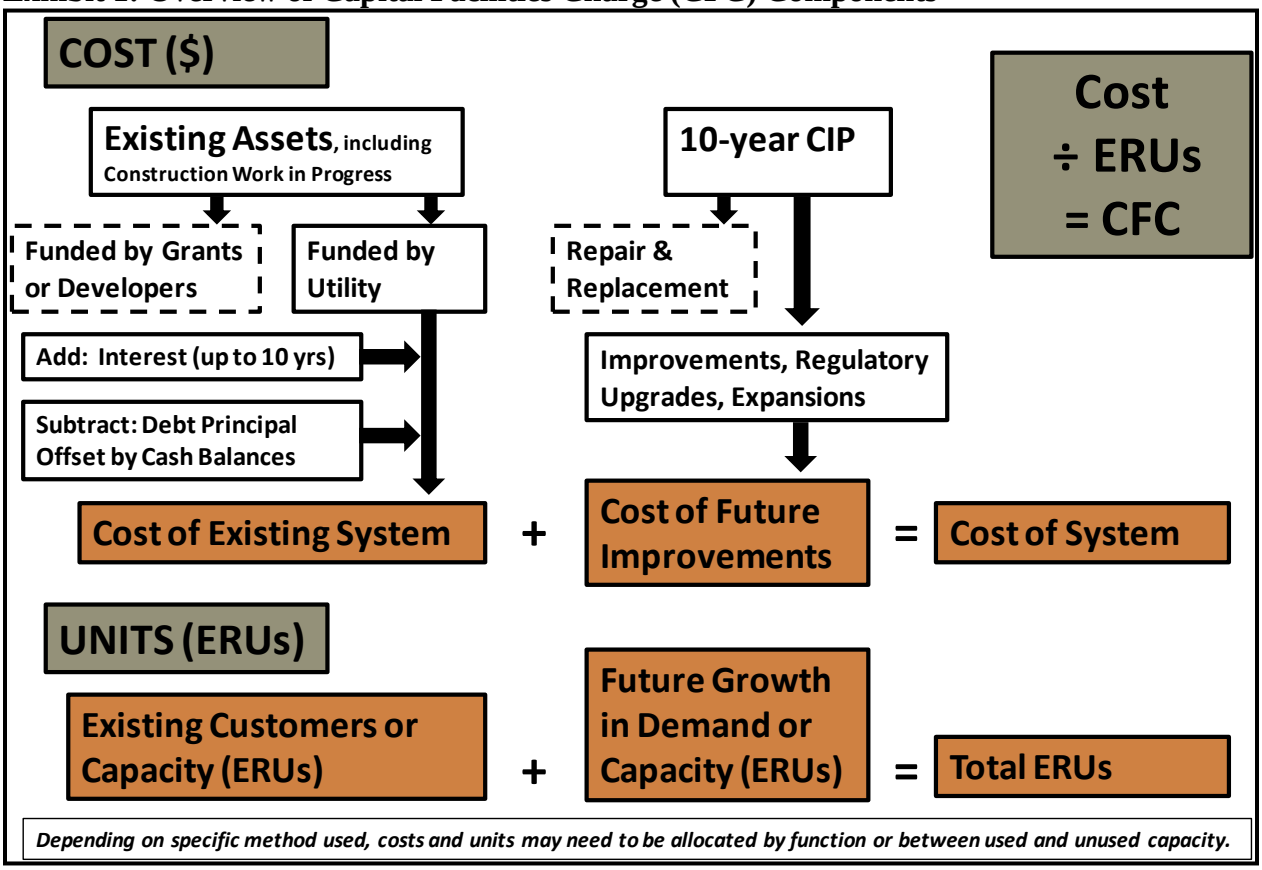
facilities and facilities planned for construction with the next ten years and contained in an adopted comprehensive plan and other costs borne by the district which are directly attributable to the improvements required by property owners seeking to connect to the system.

- The cost of existing facilities shall not include those portions of the system which have been donated or which have been paid for by grants.
- The connection charge may include interest charges applied from the date of construction of the system until the connection, or for a period not to exceed ten years, whichever is shorter, at a rate commensurate with the rate of interest applicable to the district at the time of construction or major rehabilitation of the system, or at the time of installation of the lines to which the property owner is seeking to connect. . .

Calculation of CFCs

The basic calculation of a CFC is the applicable capital cost divided by the applicable equivalent residential units (ERUs). Exhibit 1 shows an overview of how a CFC is calculated, assuming an "integrated CFC" methodology, in which both existing and future costs are divided by both existing and future ERUs. Other methodologies can be used, but all of them contain the following basic components.

Exhibit 1: Overview of Capital Facilities Charge (CFC) Components



Following is a narrative description of the various components of a CFC.

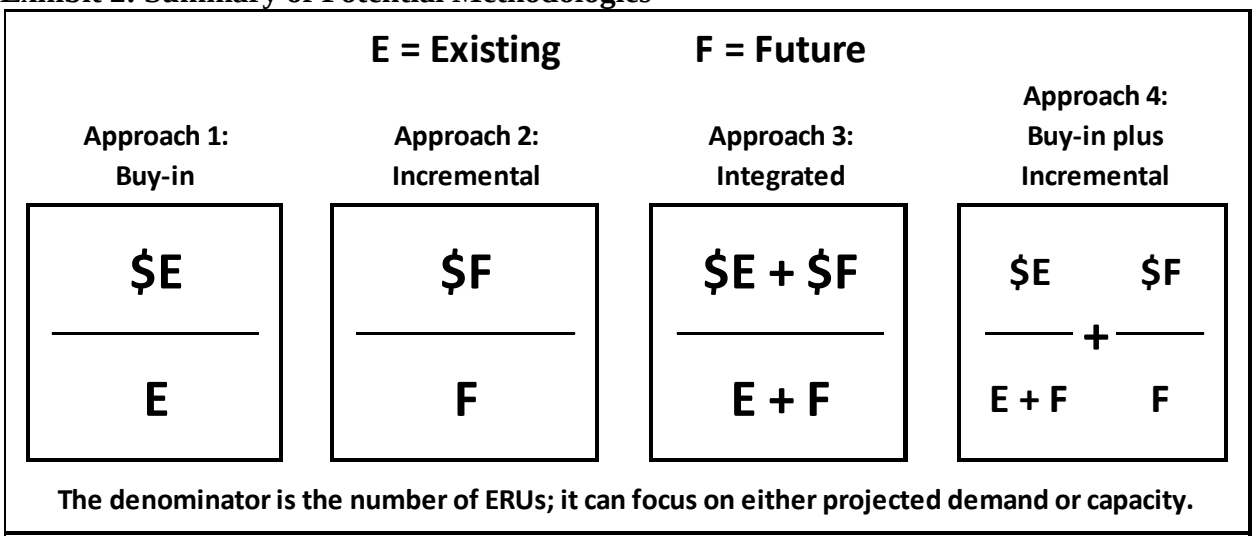
- **Existing Assets** – This is the original cost of existing capital assets (without subtracting depreciation), based on District accounting records. This figure only includes assets currently in service—retired assets are subtracted from the District's total asset value at the time they are retired.
- **Construction Work in Progress (CWIP)** – CWIP consists of money spent so far on partially completed capital improvement projects. Because the assets have not yet been placed in service, their cost will not normally be included in the District's asset inventory, so this cost must be added separately.
- **Assets Funded By Grants or Developers** – The total cost of assets funded by grants or developers must be subtracted from the total asset value. Only district-funded assets continue through the rest of the calculation.'
- **Interest (up to 10 years)** – The statute allows Districts to add up to 10 years of interest to the cost of existing assets. For assets less than 10 years old, the interest addition is only the number of years since the cost was incurred. For simplicity, we usually assume that the year an asset is placed in service is the year the entire cost was incurred, but for large, multi-phase assets, the calculation might take into account the actual timing of the expenditures. (This illustrates a general principle of conservatism in CFC calculations: when we make a simplification in the methodology, we try to err in the direction that leads to a lower charge.) The interest rate for this calculation is the average of the *Bond Buyer's* 25-bond Revenue Bond Index for a given year of construction ending on June 30. For assets placed in service prior to 1992 (i.e., assets more than 10 years old), we averaged the annual Bond Buyer's Index figures from 1946 through 1991. (The 25-Bond Index that is specific to revenue bonds began in 1980. Since that time, the Revenue Bond index has averaged .43% higher than a similar index for general obligation bonds. For the years 1946-1979, we estimated the Revenue Bond index by adding .43% to the G.O. Bond index.) The average used for assets more than ten years old turned out to be 5.55%.
- **Outstanding Debt Principal offset by Cash Balances** – Outstanding debt principal represents assets that are owned by the District for which today's ratepayers haven't yet paid. They are to be paid for as part of future years' debt service payments—payments in which a newly connecting customer will also be sharing. However, today's ratepayers *have* paid for the accumulated cash balances, which is a type of asset that can offset the outstanding debt. Note that cash balances are not the type of asset which the CFC can directly recover, because cash balances are not a capital asset, and the statute limits the CFC to the recovery of capital costs. So we subtract cash balances from the outstanding debt principal, but that subtraction does not go below zero. In cases such as the Lakehaven wastewater utility, for which cash balances exceed outstanding debt, the adjustment for outstanding debt is zero. The term "net outstanding debt principal" refers to the outstanding debt principal minus cash balances, but not less than zero.
- **Cost of Existing System** – This is the sum of the District-funded assets (including CWIP), plus up to ten years of interest, minus the net outstanding debt principal.

- **10-year Capital Improvement Plan (CIP)** – This is the starting point for determining the applicable future capital costs. The projects must be shown in the most recent adopted comprehensive plan, but the cost estimates can be updated to reflect information known since then. For Lakehaven, we used the estimates from the 2012 adopted CIP, except that we excluded two large wastewater projects (the Biological Nutrient Removal, or BNR project for both Redondo and Lakota plants) because those projects were added to the District's CIP since the last wastewater comprehensive plan update in 2009.
- **Cost of Future Improvements** – Repair and Replacement (R&R) projects are excluded from the future cost basis for the CFC. The only CIP estimates included in the Lakehaven CFC calculation are projects that consist of improvements in functionality, regulatory upgrades, or capacity expansions. For example, if an old pipe is simply being replaced, it is excluded from the CFC cost basis. However, if it is being upsized to handle additional flows, or if a treatment plant component is being upgraded to meet current regulatory requirements, then it is included. (Note that in the recommended approach, water supply is calculated using an "incremental" methodology, which is defined below and is different from the integrated methodology. For water supply, our "future capital" definition is more restrictive; it only includes two major projects that expand the number of ERUs we can supply—Second Supply Project (SSP) and OASIS. However, for water non-supply, wastewater treatment, and wastewater collection, we use an integrated methodology, and capital projects that improve functionality or meet regulatory requirements are included in the future capital cost basis.)
- **Cost of System** – In an integrated methodology, this is the sum of the cost of the existing system and the cost of future improvements. It is the numerator in the integrated CFC calculation.
- **Existing and Future Demand or Capacity (ERUs)** – The denominator in the CFC calculation is the units of service, typically measured in ERUs. With ERUs (as with the costs), there are both existing and future components. In determining the denominator, there are two important decisions in choosing a specific methodology: whether to include unused capacity with existing or future costs, and whether to focus on the *capacity* of the assets (i.e., the potential demand that could conceivably be served by those facilities) or the *demand* projected to be served by the current and future assets. For many utilities, the distinction between using capacity vs. projected demand in the denominator might not be significant, but for Lakehaven, it makes a notable difference to the resulting CFC, particularly for Water. For the water CFC, the difference between capacity and demand is the primary reason we recommend treating water supply differently from non-supply.

Potential Methodologies

There are several potential ways to construct the CFC. These methods vary in which types of costs and ERUs are included. They also can differ in whether the existing and future components are combined or treated separately. Exhibit 2 shows the primary methods we have discussed with the Board.

Exhibit 2: Summary of Potential Methodologies



- **Buy-in Method** – This method focuses entirely on what existing customers have invested already in the system, ignoring projected future costs and ERUs. The denominator can focus on either existing customers or existing capacity (i.e., the number of potential ERUs that could be served with the infrastructure that has been paid for by existing customers). To whatever degree that current customers have paid for capacity in advance of the demand, the capacity figure creates a larger denominator, yielding a smaller CFC.
- **Incremental Method** – This method focuses only on projected future costs and units, ignoring existing customers and the capacity that serves them. It can include unused capacity with future costs by dividing the cost of existing infrastructure between the percentage that is used and the percentage not yet used. In this variation, which we recommend for Water Supply, the "future costs" in the numerator includes not only the ten-year CIP but also costs for existing infrastructure that has already been paid for but not yet used. That total future cost is divided by the total potential future customers (i.e., unused capacity plus new capacity added from the CIP projects).
- **Integrated Method** – This approach combines existing and future costs and divides the total by the total future ERUs. Because existing and future are blended, it does not matter whether unused capacity is counted as part of existing or future costs. However, with this method, it is still necessary to decide whether the total refers to total *projected* customers over a ten-year period or total *potential* customers (i.e., total capacity).
- **Buy-in plus Incremental Method** – This is the District's current method. It emphasizes "making growth pay for growth" by creating a future facilities CFC that is separate from an existing facilities CFC, then adding them together. This approach typically yields a higher number than the other approaches, because it charges new customers for a share of the existing system (in proportion with what existing customers have paid) and then has new customers pay all of the cost of new capital improvements. Because the denominator for the future facilities CFC is relatively small, this method is particularly sensitive to the size of the CIP. So when an exceptionally large project is in the CIP (such as the SSP filtration plant), this method makes the CFC unstable over time.

Criteria for Choosing Methodology

Following are some criteria to consider in choosing a CFC calculation method. Note that the criteria compete with each other—for example, a method that ensures that growth pays for growth will probably be less stable than one that blends past and future capital costs. Choosing the appropriate methodology for the District's water and wastewater CFCs will inevitably be a process of deciding which criteria are most important at this time, given the District's current goals and the characteristics of its asset base and CIP. No one method will meet all criteria.

- **Stability over time** – The CFC is intended to provide equity between groups of customers connecting at different points in time. Stability over time helps preserve intergenerational equity. If the completion of a large CIP project causes a sharp drop in the level of the CFC (because a large capital cost is now spread over the entire customer base instead of just newly connecting customers), it naturally raises the question of whether the previous group of new customers was overpaying.
- **Growth pays for growth** – Infrastructure built earlier is typically less expensive than infrastructure built later. For the Lakehaven water supply, the Second Supply Project and OASIS together cost $2,082 per ERU, which is over eight times the capital cost of wells, which is $253 per ERU. For wastewater treatment capacity there is also a cost advantage, even though it is not as extreme--$1,884/ERU for future capital improvements compared with $1,511 for existing assets. "Growth pays for growth" means that new customers pay the full marginal cost of the newly built infrastructure. The rationale for this is the idea that existing customers should enjoy a cost preference by virtue of their having joined the system at an earlier stage in its development.
- **Ease of explanation** – Simplicity is a virtue. The more readily the CFC methodology can be explained to someone, the more likely it will be accepted.
- **Legal defensibility** – In order to be recommended, the method needs to be legally sound and fit comfortably within applicable statutes, case law, and accepted professional practice.
- **Fit with capacity rental charges** – In general, methods that emphasize making growth pay for growth are less compatible with the underlying rationale for the capacity rental program. The capacity rental charges are paid by existing customers, not new development. When an existing customer uses significantly more water or wastewater than is implied by their CFC previously paid, it does not mean that they are newcomers; it means that they should have (in theory) paid for more capacity back when they originally were connected. As a result, a method that assumes equal status between those paying the CFC now and those who connected in past years is a more natural fit with the capacity rental program.
- **Continuity with past charges** – Large increases are generally difficult to implement and may require a phase-in period. Large decreases raise questions about whether existing ratepayers are being adequately protected, since any capital costs not funded by CFCs must be funded ultimately by rates.
- **Equity** – Does it feel fair? Would it look fair to a wide range of disinterested observers? This is a subjective criterion but nonetheless important.

Water CFC

This section describes the basic costs and ERUs for the water system, including backup detail and data sources. We then discuss potential calculation methods and our recommended approach.

Note that the figures in this memo are updated from the figures presented to the Board in its February 14 workshop. There are two main changes from the February figures. We now assume a lower interest rate for the pre-1992 assets, which reduces the CFC for both Water and Wastewater. In addition, we have excluded from the Wastewater future capital costs two large projects that were not listed in the 2009 Wastewater Comprehensive Plan.

Existing Costs

Exhibits 3 and 4 show the calculation of the Water existing cost basis, first with totals only and secondly broken out by function between Non-supply, Existing SSP, and Wells.

Exhibit 3: Water CFC - Existing Cost Basis

Water

Existing Cost Basis		
Plant-in-Service		$ 157,762,116
plus: Construction Work in Progress		2,374,419
less: Meters and Services		(8,460,521)
less: Grants and Contributions		(48,875,139)
Original Cost Basis		**$ 102,800,875**
plus: Up to 10 Years Interest		$ 39,334,392
less: Net Outstanding Debt Principal		
Outstanding Debt Principal	$ (21,746,033)	
Existing Cash Balances	5,976,632	
Net Outstanding Debt Principal		$ (15,769,401)
Total Existing Cost Basis		**$ 126,365,865**

Exhibit 4: Water CFC – Existing Cost Basis Allocated by Function

Water

Existing Cost Basis Allocated by Function	**Total**	**Non Supply**	**Existing SSP**	**Wells**
Plant-in-Service	$ 157,762,116	$ 105,439,675	$ 44,226,665	$ 8,095,775
plus: Construction Work in Progress	2,374,419	2,374,419	-	-
less: Meters and Service	(8,460,521)	(8,460,521)	-	-
less: Grants and Contributions	(48,875,139)	(48,875,139)	-	-
Original Cost Basis	**$ 102,800,875**	**$ 50,478,434**	**$ 44,226,665**	**$ 8,095,775**
plus: Up to 10 Years Interest	39,334,392	19,782,452	14,224,920	5,327,020
Less: Net Outstanding Debt Principal				
Outstanding Debt Principal	(21,746,033)	(10,677,980)	(9,355,509)	(1,712,544)
Offset: Existing Cash Balances	5,976,632	2,934,713	2,571,248	470,672
Net Outstanding Debt Principal	$ (15,769,401)	(7,743,268)	(6,784,262)	(1,241,872)
Total Existing Cost Basis	**$ 126,365,865**	**$ 62,517,618**	**$ 51,667,324**	**$ 12,180,923**

One of the numbers in the previous two exhibits is $39,334,392 in interest added to the asset costs. Exhibit 5 shows the detailed calculation that lies behind that figure. It also shows interest added to the existing supply assets, separated between wells and the existing SSP investment.

Exhibit 5: Water CFC – Interest on Existing Assets

Water

Up to 10 Years Interest on Water Asset Inventory less Grants and Contributions

Source: District asset records at December 2010, excluding meters & services. Age distribution assumed proportional to figures in Kennedy/Jenks Draft Technical Memo Attachment B-1. Interest rates from *Bond Buyer* 25-bond Revenue Bond Index at June 30 each year.

	Assets excluding Meters & Svcs	Grants & Contributions	Net Asset Value	Interest Rate	Years of Interest	Simple Interest
Pre-1992	$ 56,452,777	$ (27,208,552)	$ 29,244,225	5.55%	10	$ 16,225,843
1992	3,424,600	(1,245,604)	2,178,996	6.58%	10	1,433,779
1993	-	(1,941,349)	(1,941,349)	5.79%	10	(1,124,041)
1994	5,362,110	(1,409,567)	3,952,543	6.56%	10	2,592,868
1995	1,551,859	(1,533,930)	17,929	6.28%	10	11,259
1996	1,295,340	(629,638)	665,702	6.20%	10	412,735
1997	796,432	(656,004)	140,428	5.82%	10	81,729
1998	1,390,118	(199,378)	1,190,740	5.36%	10	638,236
1999	3,239,103	(771,728)	2,467,375	5.62%	10	1,386,665
2000	1,494,072	(922,879)	571,193	5.98%	10	341,574
2001	2,401,350	(441,328)	1,960,022	5.52%	10	1,081,932
2002	4,752,215	(1,144,205)	3,608,010	5.41%	10	1,951,933
2003	4,367,116	(1,181,582)	3,185,534	4.97%	9	1,424,889
2004	3,398,751	(2,893,893)	504,858	5.37%	8	216,887
2005	25,001,599	(3,197,747)	21,803,852	4.77%	7	7,280,306
2006	8,003,479	(2,929,743)	5,073,736	5.31%	6	1,616,492
2007	6,766,588	(1,168,159)	5,598,429	4.71%	5	1,318,430
2008	4,724,590	(1,829,071)	2,895,519	5.25%	4	608,059
2009	8,249,891	(773,016)	7,476,875	5.77%	3	1,294,247
2010	6,629,605	(1,056,738)	5,572,867	4.85%	2	540,568
Total	**$ 149,301,595**	**$ (53,134,111)**	**$ 96,167,484**			**$ 39,334,392**

Existing Supply Assets	Net Asset Value	Interest Rate	Years of Interest	Simple Interest
SSP Existing Assets	$ 44,226,665	5.36%	6	$ 14,224,920
Wells	$ 8,095,775	6.58%	10	$ 5,327,020
Total Existing Supply Assets	**$ 52,322,441**			**$ 19,551,940**

Future Costs

Exhibit 6 summarizes 10-year future capital costs. The detailed CIP for Water is shown in Exhibit 7, along with the classification of individual projects between R&R and improvements.

Exhibit 6: Water CFC – Future Cost Basis

Water

Future Cost Basis: 2012 - 2021 CIP		
Second Supply Project (SSP)	$	25,852,088
OASIS Project Costs		20,310,000
10 Year Non-Supply CIP Costs		6,802,000
Total Future Cost Basis	**$**	**52,964,088**

Exhibit 7: Water CFC – Detail for Future Capital Improvements/Upgrades

Summary of 2012 Adopted CIP Project Name	10-Year Total Costs	Improvement/ Upgrade (%)	R & R (%)	10 Year Improvement Costs
Water Projects				
Oasis Property (for future phases)	$ 5,450,000	100%	0%	**$ 5,450,000**
Oasis Phase II	$ 2,250,000	100%	0%	**$ 2,250,000**
Oasis Phase I	$ 6,310,000	100%	0%	**$ 6,310,000**
Water Site Equipment Documentation	$ 50,000	0%	100%	**$ -**
Water Telemetry Design & Upgrade	$ 1,600,000	100%	0%	**$ 1,600,000**
Balance of Second Supply Project	$ 2,037,038	100%	0%	**$ 2,037,038**
Second Supply Project - Filtration	$ 23,815,050	100%	0%	**$ 23,815,050**
Well 10C Treatment	$ 320,000	0%	100%	**$ -**
Well Upgrades - Undefined	$ 500,000	0%	100%	**$ -**
Well 33 Pump Controls	$ 200,000	0%	100%	**$ -**
Well 25 Generator/Fuel Tank	$ 100,000	0%	100%	**$ -**
Water Storage Tank Mixing	$ 550,000	100%	0%	**$ 550,000**
Pressure Zone 490 Upgrade	$ 152,000	100%	0%	**$ 152,000**
WM-1st Ave S: 316th to BPA (OASIS Ph II)	$ 4,140,000	100%	0%	**$ 4,140,000**
WM-538 To 578 Pressure Zone (OASIS Ph II)	$ 2,160,000	100%	0%	**$ 2,160,000**
Service. Connection Replace. Program	$ 3,500,000	0%	100%	**$ -**
Meter Install New/Replacement	$ 2,000,000	0%	100%	**$ -**
WM- Distribution Improvements	$ 4,500,000	100%	0%	**$ 4,500,000**
Water System Plan - 2014	$ 300,000	0%	100%	**$ -**
Water System Plan - 2020	$ 300,000	0%	100%	**$ -**
Joint Water/Wastewater Projects (50% each)				
SWM- Road/Street Main Relocations	$ 7,432,000	0%	100%	**$ -**
Document & Bus Process Mgt Platform	$ 100,000	0%	100%	**$ -**
Information System Upgrades	$ 295,000	0%	100%	**$ -**
Facility Security - Cameras/Lock Upgrades	$ 300,000	0%	100%	**$ -**
Office Facility Improvements	$ 6,000,000	0%	100%	**$ -**
Miscellaneous Field Work (On Call Contract)	$ 3,000,000	0%	100%	**$ -**
Vehicles Replacements	$ 4,000,000	0%	100%	**$ -**

WATER	10 Year
Total Improvement/Upgrades	**$ 52,964,088**
SSP	$ 25,852,088
Oasis	$ 20,310,000
Non Supply Improvements	$ 6,802,000

Water Capacity and Demand (ERUs)

Exhibit 8 shows the source of our estimates for water capacity and demand. Estimating capacity for a well system is difficult. According to Kennedy/Jenks (K/J), the most recent estimate of the average annual reliable groundwater yield was 12.3 mgd, for 2008 Water System Comprehensive Plan. Using the conversion factor contained in the comprehensive plan, that well capacity is equivalent to 48,235 ERUs. K/J reports that system records show 42,700 ERUs currently served, which implies that 5,535 ERUs (or 11% of the well capacity) is currently unused.

For the Second Supply Project and OASIS future capacity increment, we followed the K/J assumptions that the SSP as a whole would add 29,739 ERUs of reliable capacity, while OASIS would add 17,255 ERUs. The SSP estimate is based on the assumption (taken from the 2008 Water Comp Plan) that 60% of the water right from SSP would be reliable. For the ten-year projected demand, we interpolated on a straight line between current usage and the Comp Plan's projected 2025 demand, which turned out to be 51,616 ERUs at the 10-year point.

Exhibit 8: Water CFC – Capacity and Projected Demand (ERUs)

Water

Water Supply Capacity		
Wells:		
Avg Annual Reliable Groundwater Yield	12,300,000 gpd	
Conversion Factor (per 2008 Comprehensive Plan)	255 gpd/ERU	
Assumed Well Capacity (ERUs)	48,235 ERUs	100%
ERUs currently served (from system records)	42,700 ERUs	89%
Unused well capacity	**5,535 ERUs**	11%
Second Supply Project (SSP):		
Total Expansion in Supply	65,000,000 gpd	
District Entitlement	19%	
Assumed Percentage Reliable	60%	
Adjusted Growth in Supply	7,583,333 gpd	
Incremental Growth in ERUs	**29,739 ERUs**	
OASIS:		
Expansion in Supply	4,400,000 gpd	
Incremental Growth in ERUs	**17,255 ERUs**	
Incremental Growth in Capacity - SSP plus OASIS	**46,993 ERUs**	

Water System Projected Demand (Assumed Capacity for Non-Supply Assets)	
Projected 2025 Demand (per Comp Plan)	54,000 ERUs
Projected 2021 Demand	**51,616 ERUs**
(interpolated from 2017 and 2025 figures in Comp Plan)	
ERUs currently served (from system records)	42,700 ERUs
Incremental Growth in System Demand (10 years)	8,916 ERUs

Summary of Water Data

Exhibit 9 summarizes the Water system data applicable to the calculation of the CFC. Existing costs total $126.4 million, while the 10-year improvement CIP is $53.0 million. The incremental growth in demand over 10 years is 8,916 ERUs, while the incremental growth in supply capacity is 46,993 ERUs. The fact that there is such a difference between projected growth in demand and the supply capacity has implications for the appropriate method, which will be discussed below.

Exhibit 9: Water CFC – Summary of Basic Data

Water		Current Plant	Improvement CIP	Total
Cost Basis				
Book value after adjustments for contributed assets and debt principal net of cash				
Existing Supply - Wells				
Used Well Capacity		$ 10,783,088		
Unused Well Capacity		1,397,835		
Total Wells		$ 12,180,923		
Existing SSP-Unused Capacity		51,667,324		
Total Existing Supply		$ 63,848,247		$ 63,848,247
New Supply - SSP			$ 25,852,088	
New Supply - OASIS			20,310,000	
Total New Supply			$ 46,162,088	46,162,088
Non-Supply		62,517,618	6,802,000	69,319,618
Total Cost Basis		**$ 126,365,865**	**$ 52,964,088**	**$ 179,329,953**
Capacity (ERUs)				
ERUs currently served	89%	42,700 ERUs		42,700 ERUs
Future ERUs-existing wells	11%	5,535 ERUs		5,535 ERUs
Future ERUs-SSP			29,739 ERUs	29,739 ERUs
Future ERUs-OASIS			17,255 ERUs	17,255 ERUs
Total Projected Capacity	100%	48,235 ERUs	46,993 ERUs	**95,229 ERUs**
Projected 10-Year Demand Growth (ERUs)				
ERUs currently served		42,700 ERUs		42,700 ERUs
Projected Growth by 2021			8,916 ERUs	8,916 ERUs
2021 Projected Demand		42,700 ERUs	8,916 ERUs	**51,616 ERUs**

Recommended Methodology - Water

Exhibit 10 is a summary of the potential methodologies as they apply to the Lakehaven water utility.

Exhibit 10: Summary of Potential CFC Methods – Water

Water		
Current CFC	**$3,097 /ERU**	
Scenario A:	**$3,431 /ERU**	**+11%**
Buy-in plus Incremental (10-year)		
Scenario B:	**$1,883 /ERU**	**-39%**
Integrated (based on Projected Capacity)		
Scenario C:	**$3,474 /ERU**	**+12%**
Integrated (based on Projected 2021 Demand)		
Scenario D: Hybrid	**$3,232 /ERU**	**+4%**
Supply: Buy-in plus Incremental; Non-Supply: Integrated		
Scenario E:	**$2,620 /ERU**	**-15%**
Buy-in only		

For Lakehaven Water, the current method (buy-in plus incremental) is unstable over time, due primarily to the large Second Supply Project (SSP) straddling the line between "existing" and "future"—about $51.7 million of its cost has already been booked into the asset inventory, but about $25.9 million (mostly for a filtration plant) is still in the CIP. With the current method, the $25.9 million is spread over a small denominator (the incremental growth in capacity), but when the filtration plant project is completed and the asset placed in service, that large cost will suddenly be divided by a much larger denominator—the existing as well as future ERUs. This will noticeably reduce the calculated CFC in that year, which weakens that method as a means of achieving intergenerational equity.

The integrated method is simple and avoids the instability of the current method, but its result depends to a large degree on whether the denominator is the capacity of the water supply or the ten-year forecasted demand. As shown in Exhibit 10, using supply capacity as the denominator leads to a CFC of $1,883, while using projected demand leads to a CFC of $3,474. The main problem with using the supply capacity as the denominator in an integrated CFC is that the non-supply facilities (i.e., distribution and storage assets) are not sized to deliver enough water to serve 95,229 ERUs. In fact, the 10-year growth forecasted in the Comprehensive Plan is our best estimate of the capacity of the pipes and storage assets by the end of the 10-year CIP.

At present there is a mismatch between the projected capacity of the water supply and the projected capacity of the pipes and storage facilities needed to deliver that water. The supply capacity increment is 46,993 ERUs, while the non-supply capacity increment (i.e., the projected demand growth over the next ten years) is only 8,916 ERUs. Dividing by 95,229 ERUs leaves us with a CFC that is too low; however, dividing by 51,616 ERUs would mean that we would be placing all of the cost of 46,993 ERUs' worth of supply capacity on the next 8,916 new customers. Neither approach feels very fair, and the approach that uses projected demand as the denominator might even be vulnerable to legal challenge.

Our recommended approach is to calculate separate CFCs for water supply and non-supply, then add them together. The recommended calculation is shown in Exhibit 11.

Exhibit 11: Water CFC – Recommended Hybrid Method – Supply Component

Water Supply	Incremental Approach (Future CIP plus Unused Capacity)			
		Current Plant	Expansion CIP	Total
Cost (Future + Unused Capacity):				
Unused Well Capacity	11%	$ 1,397,835		$ 1,397,835
SSP Existing	89%	51,667,324		51,667,324
SSP Future			$ 25,852,088	25,852,088
OASIS			20,310,000	20,310,000
Incremental Supply Cost	100%	$ 53,065,159	$ 46,162,088	**$ 99,227,246**
ERUs (Future + Unused Capacity):				
Unused Well Capacity		5,535 ERUs		5,535 ERUs
SSP (Existing + Future)			29,739 ERUs	29,739 ERUs
OASIS			17,255 ERUs	17,255 ERUs
Total Incremental Supply		5,535 ERUs	46,993 ERUs	**52,529 ERUs**
Calculated CFC per ERU - Supply				**$1,889 /ERU**

Water Non-Supply	Integrated Approach (Based on Projected 2021 Demand)		
	Current Plant	Expansion CIP	Total
Cost (Existing plus Future):			
Existing Assets plus CIP	$ 126,365,865	$ 52,964,088	$ 179,329,953
Less: SSP/OASIS	51,667,324	46,162,088	97,829,411
Less: Wells	12,180,923		12,180,923
Non-Supply Costs	$ 62,517,618	$ 6,802,000	**$ 69,319,618**
ERUs (Existing plus Future):			
ERUs currently served	42,700 ERUs		42,700 ERUs
Projected Growth by 2021		8,916 ERUs	8,916 ERUs
2021 Projected Demand	42,700 ERUs	8,916 ERUs	**51,616 ERUs**
Calculated CFC per ERU - Non-Supply			**$1,343 /ERU**

Water	Summary of Hybrid CFC Methodology
Supply CFC	$1,889 /ERU
plus:	
Non-Supply CFC	$1,343 /ERU
Total CFC	**$3,232 /ERU**

For the supply part of the CFC, we recommend an Incremental methodology, one that ignores the current investment in wells to the degree that the well capacity is used. The cost of unused well capacity, plus the existing investment in SSP (also unused capacity), is added to the projected future cost of SSP and OASIS to determine the total cost basis of $99.2 million. That total cost is divided by the total capacity that can be served by the unused well capacity, SSP as a whole, and OASIS, which is 52,529 ERUs, to yield a supply CFC of $1,889.

This approach preserves the cost advantage of existing customers who connected at an earlier stage, when the District's well supply was being developed, thus meeting the "growth pays for growth" criterion. In order to preserve stability in the charge, we would recommend that the distinction between well supply and SSP/OASIS supply be retained in future updates of the CFC. As the remaining well capacity is used up by future growth, future CFC updates can move the newly used well costs from the "future" to the "existing" column. However, in the interest of a stable charge, we recommend that the SSP and OASIS increments always be kept separate and divided by the total capacity created by those two major projects.

For the non-supply part of the CFC, we recommend using an integrated approach, with a denominator based on the ten-year projected demand of 51,616 ERUs. This leads to a non-supply CFC of $1,343 per ERU. When added to the supply CFC, the total recommended CFC is $3,232, which is a 4% increase over the current CFC.

We recommend a different approach for the capacity rental charges than for new development. As we explained above the capacity rental charges are paid not by new customers but by existing customers who occupy properties for which not enough capacity was paid for at the time those properties were originally connected to the system. The "growth pays for growth" rationale does not apply as well to these customers. At the same time, for the capacity rental charges, it is especially valuable to have a charge that is simple and easy to explain. As shown in Exhibit 12, the Water buy-in charge is calculated at $2,620 per ERU, which is less than the recommended CFC of $3,232. In order to prevent new development from trying to "game" the system by minimizing their ERUs at the time of connection and then buying additional capacity at a reduced rate, we recommend that existing customers opting to permanently buy additional capacity pay the full CFC rate of $3,232. However, as long as they are in "rental" status, paying extra monthly charges in lieu of buying additional units of capacity, we recommend that the rate they pay be based on a buy-in unit cost of $2,620.

Exhibit 12: Water CFC – Buy-in Method Recommended for Capacity Rental Charges

Water	Buy-in Charge Only		
	Current Plant	Improvement CIP	Total
Cost Basis	$ 126,365,865		
ERUs currently served	42,700 ERUs		
Future ERUs-existing plant	5,535 ERUs		
Total Capacity (ERUs)	48,235 ERUs		
Buy-in Unit Cost	**$2,620 /ERU**		

Wastewater CFC

This section mirrors the Water section, describing the basic costs and ERUs for the wastewater system, including backup detail and data sources. We then discuss potential calculation methods and our recommended approach.

Existing Costs

Exhibits 13 and 14 show the calculation of the Wastewater existing cost basis, first with totals only and secondly broken out by function between Treatment and Collection.

Exhibit 13: Wastewater CFC – Existing Cost Basis

Wastewater

Existing Cost Basis				
Plant-in-Service			$	172,292,806
Grants and Contributions				(87,128,948)
plus: Construction Work in Progress				2,593,114
Original Cost Basis			**$**	**87,756,972**
plus: Interest				42,361,045
less: Net Outstanding Debt Principal				
Outstanding Debt Principal		(3,362,631)		
Offset: Existing Cash Balances	$	9,400,820		
Net Outstanding Debt Principal				-
Total Existing Cost Basis			**$**	**130,118,017**

Exhibit 14: Wastewater CFC – Existing Cost Basis Allocated by Function

Wastewater

Existing Cost Basis Allocated by Function	**Total**	**Treatment**	**Collection**
Plant-in-Service	$ 172,292,806	$ 82,798,506	$ 89,494,300
Grants and Contributions	(87,128,948)	(41,871,433)	(45,257,515)
plus: Construction Work in Progress	2,593,114	1,246,169	1,346,945
Original Cost Basis	**$ 87,756,972**	**$ 42,173,242**	**$ 45,583,730**
plus: Interest	42,361,045	20,357,387	22,003,659
Less: Net Outstanding Debt Principal			
Outstanding Debt Principal	$ (3,362,631)	(1,615,975)	(1,746,656)
Offset: Existing Cash Balances	$ 9,400,820	$ 4,517,738.54	4,883,081
Net Debt Principal	$ -	$ -	$ -
Total Existing Cost Basis	**$ 130,118,017**	**$ 62,530,628**	**$ 67,587,389**
(Interest + Net Debt + Original Cost Basis)			

Exhibit 15 shows the detailed calculation that lies behind one of the cost components: the $42,361,045 in interest added to the asset costs. It also shows the allocation of the interest cost between Treatment and Collection, based on their respective shares of the asset base.

Exhibit 15: Wastewater CFC – Interest on Existing Assets

Wastewater

Up to 10 Years Interest on Wastewater Asset Inventory less Grants and Contributions

Source: District asset records at December 2010. Age distribution assumed proportional to figures in Kennedy/Jenks Draft Technical Memo Attachment C-2. Interest rates from *Bond Buyer* 25-bond Revenue Bond Index at June 30 each year.

	Asset Inventory	Grants & Contributions	Net Asset Value	Interest Rate	Years of Interest	Simple Interest
Pre-1992	$ 108,290,912	$ (57,932,300)	$ 50,358,612	5.55%	10	$ 27,940,933
1992	$ 1,997,498	$ (1,344,630)	$ 652,868	6.58%	10	$ 429,587
1993	$ 3,838,052	$ (1,888,578)	$ 1,949,474	5.79%	10	$ 1,128,746
1994	$ 2,682,956	$ (1,888,578)	$ 794,378	6.56%	10	$ 521,112
1995	$ 2,882,134	$ (2,275,802)	$ 606,332	6.28%	10	$ 380,776
1996	$ 3,039,058	$ (1,522,706)	$ 1,516,352	6.20%	10	$ 940,138
1997	$ 1,642,189	$ (1,539,419)	$ 102,770	5.82%	10	$ 59,812
1998	$ 1,325,924	$ (230,847)	$ 1,095,077	5.36%	10	$ 586,961
1999	$ 1,418,430	$ (822,599)	$ 595,831	5.62%	10	$ 334,857
2000	$ 4,202,192	$ (796,828)	$ 3,405,364	5.98%	10	$ 2,036,408
2001	$ 2,314,901	$ (295,000)	$ 2,019,901	5.52%	10	$ 1,114,985
2002	$ 5,103,843	$ (1,603,597)	$ 3,500,246	5.41%	10	$ 1,893,633
2003	$ 2,864,563	$ (2,667,630)	$ 196,933	4.97%	9	$ 88,088
2004	$ 5,639,108	$ (471,201)	$ 5,167,907	5.37%	8	$ 2,220,133
2005	$ 6,011,497	$ (3,284,482)	$ 2,727,015	4.77%	7	$ 910,550
2006	$ 984,637	$ (1,607,254)	$ (622,617)	5.31%	6	$ (198,366)
2007	$ 3,537,403	$ (1,621,774)	$ 1,915,629	4.71%	5	$ 451,131
2008	$ 4,191,613	$ (2,149,236)	$ 2,042,377	5.25%	4	$ 428,899
2009	$ 6,822,772	$ (1,564,713)	$ 5,258,059	5.77%	3	$ 910,170
2010	$ 3,503,123	$ (1,621,774)	$ 1,881,349	4.85%	2	$ 182,491
	$ 172,292,806	**$ (87,128,948)**	**$ 85,163,858**			**$ 42,361,045**

Functional Allocation		Net Asset Value	Simple Interest
Treatment	**48.1%**	$ 40,927,072	$ 20,357,387
Redondo & Lakota Structures, Land & Equipment			
Collection	**51.9%**	44,236,785	22,003,659
Mains, Lift Stations & Other Infrastructure			
Total Wastewater		**$ 85,163,858**	**$ 42,361,045**

Future Costs

Exhibit 16 summarizes 10-year future capital costs. The detailed CIP for Wastewater is shown in Exhibit 17, along with the classification of individual projects between R&R and improvements.

Exhibit 16: Wastewater CFC – Future Cost Basis

Wastewater

Future Cost Basis: 2012 - 2021 CIP		
Treatment	$	3,445,000
Collection		26,480,000
Total Future Cost Basis	**$**	**29,925,000**

Exhibit 17: Wastewater CFC – Detail for Future Capital Improvements/Upgrades

Summary of 2012 Adopted CIP Project Name	10-Year Total Costs	Improvement/ Upgrade (%)	R & R (%)	10 Year Improvement Costs	C = Collection T=Treatment
Wastewater Projects					
Lakota Digester Mixer Replacement	$ 2,650,000	0%	100%	$ -	T
Lakota Piston Pump Replacement	$ 50,000	0%	100%	$ -	T
Lakota PLC Replacement	$ 800,000	0%	100%	$ -	T
Lakota Mag Flow Meter Replacement	$ 75,000	0%	100%	$ -	T
Lakota/Redondo Quartz Sleeve Replacement	$ 55,000	0%	100%	$ -	T
Lakota Dewatering Upgrade	$ 700,000	100%	0%	$ 700,000	T
Lakota Methane Utilization - Study	$ 30,000	100%	0%	$ 30,000	T
Lakota Headworks Upgrade	$ 660,000	100%	0%	$ 660,000	T
Lakota Diffuser Upgrade	$ 300,000	100%	0%	$ 300,000	T
Lakota BNR - exclude (not in Comp Plan)	$ -	100%	0%	$ -	T
Lakota Plant Upgrades - Undefined	$ 500,000	100%	0%	$ 500,000	T
Lakota Autocad Plant Drawings	$ 150,000	0%	100%	$ -	T
Lakota Make-Up Unit 302/282 Replacement	$ 180,000	0%	100%	$ -	T
Redondo Waste Gas Flame Replacement	$ 25,000	0%	100%	$ -	T
Redondo Prim & Secondary Drive Unit Replace	$ 250,000	0%	100%	$ -	T
Redondo Roto Disk Thickener	$ 100,000	0%	100%	$ -	T
Redondo Cogen	$ 475,000	100%	0%	$ 475,000	T
Redondo Asphalt Seal Coat	$ 15,000	0%	100%	$ -	T
Redondo BNR - exclude (not in Comp Plan)	$ -	100%	0%	$ -	T
Redondo Odor Control Improvement	$ 280,000	100%	0%	$ 280,000	T
Redondo Plant Upgrades - Undefined	$ 500,000	100%	0%	$ 500,000	T
Redondo Autocad Plant Drawings	$ 75,000	0%	100%	$ -	T
Redondo SCADA System	$ 100,000	0%	100%	$ -	T
I & I Study	$ 1,400,000	100%	0%	$ 1,400,000	C
Pump Station 22 Improvements	$ 150,000	100%	0%	$ 150,000	C
Pump Station 33 Upsize & Force Main Reroute	$ 6,100,000	100%	0%	$ 6,100,000	C
Pump Station 44 - South End Diversion	$ 5,000,000	100%	0%	$ 5,000,000	C
Pump Station Equipment Documentation	$ 50,000	0%	100%	$ -	C
Pump Station Undefined Upgrades	$ 330,000	100%	0%	$ 330,000	C
SM-FW Downtown Trunk Upgrade	$ 6,250,000	100%	0%	$ 6,250,000	C
SM-Collection Improvements	$ 7,250,000	100%	0%	$ 7,250,000	C
Wastewater System Plan - 2015	$ 300,000	0%	100%	$ -	
Wastewater System Plan - 2021	$ 300,000	0%	100%	$ -	
Joint Water/Wastewater Projects (50% each)					
SWM- Road/Street Main Relocations	$ 7,432,000	0%	100%	$ -	
Document & Bus Process Mgt Platform	$ 100,000	0%	100%	$ -	
Information System Upgrades	$ 295,000	0%	100%	$ -	
Facility Security - Cameras/Lock Upgrades	$ 300,000	0%	100%	$ -	
Office Facility Improvements	$ 6,000,000	0%	100%	$ -	
Miscellaneous Field Work (On Call Contract)	$ 3,000,000	0%	100%	$ -	
Vehicles Replacements	$ 4,000,000	0%	100%	$ -	

WASTEWATER	10 Year
Total Improvements/Upgrades	**$ 29,925,000**
Collection	$ 26,480,000
Treatment	$ 3,445,000

Wastewater Capacity and Demand (ERUs)

Exhibit 18 and 19 show the source of our estimates for wastewater capacity and demand. For Treatment, the rated plant capacity for both Redondo and Lakota is 15.6 mgd. In order to define the flow associated with one ERU, annual residential wastewater rate revenue as divided by the number of residential accounts to create an average $/ERU, which was applied to the total wastewater rate revenue (including commercial and other classes) to estimate the total number of ERUs for each of the past five years. That figure was divided by the peak month plant flow for each year, as shown in Exhibit 18. The five-year average became our conversion factor of 276 gallons/day per ERU.

Exhibit 18: Wastewater CFC - Detail for Wastewater Conversion Factor

Wastewater

Combined Plant Flows			Peak Month
	Calculated	Peak Month	Unit Flow
Year	ERUs (T + C)	GPD	(gpd/ERU)
2005	38,644	9,060,000	234
2006	38,615	12,900,000	334
2007	37,616	10,620,000	282
2008	38,885	9,010,000	232
2009	39,081	10,230,000	262
2010	38,824	10,530,000	271
5-yr Avg.	**38,585**	**10,658,000**	**276**

Source: NPDES Fact Sheets for Lakota and Redondo

Exhibit 19: Wastewater CFC – Capacity and Projected Demand (ERUs)

Wastewater

Treatment Plant Capacity			
Rated Plant Capacity - Redondo & Lakota	15,600,000	gpd	
Assumed Conversion Factor (5-year avg)	276	gpd/ERU	
Plant Capacity (ERUs)	**56,477**	**ERUs**	100%
ERUs currently served			
Current plant flows (5-year avg)	38,585	ERUs	
Collection Only (CO) customers	3,660	ERUs	
CO customers to be redirected to Lakota	2,790	ERUs	
Remaining CO customers after redirection	870	ERUs	
Current ERUs after redirection	**41,375**	**ERUs**	73%
Unused plant capacity	**15,102**	**ERUs**	27%

Wastewater System Projected Demand (Assumed Capacity for Collection Assets)		
Projected 2021 Demand	**47,145**	**ERUs**
Assuming same growth as water system		
Current ERUs after redirection	41,375	ERUs
Incremental Growth in System Demand (10 years)	5,770	ERUs

Using the conversion factor of 276 gpd/ERU, the total rated plant capacity is 56,477 ERUs. The five-year average of current plant flows is 38,535 ERUs. In addition, there are 3,660 ERUs of Collection Only (CO) customers whose flows now go to King County or Pierce County treatment plants. During the ten-year forecast period, 2,790 of the Collection Only customers are expected to be redirected to the District's Lakota plant, leaving only 870 Collection Only customers remaining. The current demand after redirection consists of 41,375 ERUs, or 73% of the plant capacity. So the unused plant capacity is estimated at 15,102 ERUs, or 27% of the total. Assuming the same percentage growth as the water system, the 2021 projected demand is 47,145 ERUs, which implies incremental growth over the next 10 years of 5,770 ERUs.

Summary of Wastewater Data

Exhibit 20 summarizes the Wastewater system data applicable to the calculation of the CFC. Existing costs total $130.1 million, while the 10-year improvement CIP is $29.9 million. The incremental growth in demand over 10 years is 5,770 ERUs, while the growth that can be accommodated by unused treatment capacity is 15,102 ERUs.

Exhibit 20: Wastewater CFC - Summary of Basic Data

Wastewater		Current	Future	Total
Cost Basis				
Book value after adjustments for contributed assets and debt principal net of cash				
Existing Treatment				
Used Treatment Capacity		$ 45,810,293		
Unused Treatment Capacity		16,720,335		
Total Treatment		$ 62,530,628	$ 3,445,000	$ 65,975,628
Collection		67,587,389	26,480,000	94,067,389
Total Cost Basis		**$ 130,118,017**	**$ 29,925,000**	**$ 160,043,017**
Capacity (ERUs)				
ERUs currently served	73%	41,375 ERUs		41,375 ERUs
Future ERUs-existing plant	27%		15,102 ERUs	15,102 ERUs
Total Projected Capacity	100%	41,375 ERUs	15,102 ERUs	56,477 ERUs
Demand Growth (ERUs)				
ERUs currently served		41,375 ERUs		41,375 ERUs
Projected Growth by 2021			5,770 ERUs	5,770 ERUs
2021 Projected Demand		41,375 ERUs	5,770 ERUs	47,145 ERUs

Recommended Methodology - Wastewater

Exhibit 21 summarizes the potential methodologies as they apply to the Lakehaven wastewater utility.

Exhibit 21: Summary of Potential CFC Methods – Wastewater

Wastewater		
Current CFC	**$2,784 /ERU**	
Scenario A:	**$4,285 /ERU**	**+54%**
Buy-in plus Incremental (10-year)		
Scenario B:	**$2,834 /ERU**	**+2%**
Integrated (based on Projected Capacity)		
Scenario C:	**$3,395 /ERU**	**+22%**
Integrated (based on Projected 2021 Demand)		
Scenario D: Hybrid	**$3,163 /ERU**	**+14%**
Treatment: Integrated (Capacity); Collection: Integrated (Demand)		
Scenario E:	**$2,304 /ERU**	**-17%**
Buy-in only		

With Wastewater, the choices are not as clear-cut as they are with Water, but there are still some advantages and disadvantages with each method. The current Buy-in plus Incremental methodology is still less stable than the other methods, and with updated 10-year CIP figures, it would be a sharp increase over the current CFC. The integrated approach still yields different answers depending on whether treatment capacity or projected 2021 demand is used as the denominator. The treatment plants have capacity estimates independent of the 10-year time horizon, but for collection, the ten-year growth in customers is still the best indicator of the ten-year capacity of the pipes and lift stations, since that is the level of growth for which the comprehensive plan identifies capital improvements.

Our recommendation is to use a hybrid approach, separating the treatment and collection functions. This approach is stable, it addresses the differences between capacity and projected demand, and it naturally yields a Collection Only CFC which would still apply in areas that will continue to flow toward King County or Pierce County plants. Whereas for Water, the Supply CFC is an incremental method, for Wastewater, we recommend using an integrated CFC for both treatment and collection. The only difference between them is that for treatment, total plant capacity should be used for the denominator, whereas for collection, projected 2021 demand should be used for the denominator.

Exhibit 22 shows the results of the recommended approach.

Exhibit 22: Wastewater CFC – Recommended Hybrid Method

Wastewater Treatment	Integrated Approach (Based on Capacity)		
	Current	Future	Total
Cost Basis (Existing plus Future):	$ 62,530,628	$ 3,445,000	$ 65,975,628
ERUs (Total Capacity):			
ERUs currently served	41,375 ERUs		41,375 ERUs
Future ERUs-existing plant		15,102 ERUs	15,102 ERUs
Total ERUs	41,375 ERUs	15,102 ERUs	56,477 ERUs
Calculated CFC per ERU - Treatment			**$1,168 /ERU**

Wastewater Collection	Integrated Approach (Based on Projected 2021 Demand)		
	Current	Future	Total
Cost Basis (Existing plus Future):	$ 67,587,389	$ 26,480,000	$ 94,067,389
ERUs (Projected 2021 Demand):			
ERUs currently served	41,375 ERUs		41,375 ERUs
Projected Growth by 2021		5,770 ERUs	5,770 ERUs
2021 Projected Demand	41,375 ERUs	5,770 ERUs	47,145 ERUs
Calculated CFC per ERU - Collection			**$1,995 /ERU**

Wastewater	Summary of Hybrid CFC Methodology
Treatment CFC	$1,168 /ERU
plus:	
Collection CFC	$1,995 /ERU
Total CFC	**$3,163 /ERU**

The treatment CFC would use a total existing and future cost basis of $66.0 million and a total rated plant capacity of 56,477 ERUs, yielding a treatment CFC of $1,168 per ERU. For the collection system (and for Collection Only customers), the total cost basis is $94.1 million. Spread over a projected 2021 demand of 47,145 ERUs, the collection CFC is $1,995 per ERU. The total of both treatment and collection CFCs is $3,163, an increase of 14% over the current CFC.

For the same reasons as with Water, we recommend that the Buy-in method be used as the basis of the capacity rental charges for wastewater. This calculation yields a buy-in unit cost of $2,304 per ERU, as shown in Exhibit 23.

Exhibit 23: Wastewater CFC–Buy-in Method Recommended for Capacity Rental Charges

Wastewater	Buy-in Charge Only		
	Current	Future	Total
Cost Basis	$ 130,118,017		
ERUs currently served	41,375 ERUs		
Future ERUs-existing plant	15,102 ERUs		
Total Capacity (ERUs)	56,477 ERUs		
Buy-in Unit Cost	**$2,304 /ERU**		

Summary of Recommendations

Exhibit 24 shows a summary of the recommended CFCs and the buy-in unit costs to be used for the capacity rental program. Because the recommended Wastewater CFC is 14% higher than the current level, we recommend that it be implemented in two steps, with 6.6% increases each year. That would result in a $2,968 CFC in 2012 and a $3,163 CFC in 2013.

Exhibit 24: Summary of Recommendations

Water		
Current CFC	**$3,097 /ERU**	
Recommended CFC	**$3,232 /ERU**	**+4%**
Buy-in Unit Cost - Capacity Rental Charges	**$2,620 /ERU**	**-15%**
No phase-in needed		
Wastewater		
Current CFC	**$2,784 /ERU**	
Recommended CFC	**$3,163 /ERU**	**+14%**
Buy-in Unit Cost - Capacity Rental Charges	**$2,304 /ERU**	**-17%**
Recommended Phase-In for Wastewater CFC:		
2012	**$2,968 /ERU**	**+6.6%**
2013	**$3,163 /ERU**	**+6.6%**

Schedule of Future CFCs

In Board discussions about the capital facilities charges, the question arose about how to keep the Water and Wastewater Capital Facilities Charges (CFCs) gradually up-to-date with increasing costs, thus avoiding a sudden "rate shock" the next time CFCs are formally analyzed and updated.

In response to that question, we prepared a forecast of what the Water and Wastewater CFCs would be ten years from now, assuming the ten-year CIP and the debt issues planned in last year's rate study. To inflate capital costs, we assumed escalation at 3.15% per year, which is the 1991-2011 average increase from the ENR Construction Cost Index. For the interest to be added to assets constructed over the coming ten years, we assumed 5.59%, which is the 1992-2010 average of the *Bond Buyer* 25-Bond Revenue Bond Index at June 30 each year. We assumed that the recommended methodology would be continued. For the Water CFC, we assumed that after demand exceeds the capacity of wells, the water supply component of the charge will be based on the total cost of Second Supply and OASIS projects divided by the number of ERUs that can be served by those projects. The result of this forecast is shown in Exhibit 25 below.

Exhibit 25: Summary of 10-year CFC Forecast

Water	2012	2022	Avg. Annual Increase
Current CFC	**$3,097 /ERU**		
Recommended CFC	**$3,232 /ERU**	**$4,757 /ERU**	**3.9%**
Buy-in Unit Cost - Capacity Rental Charges	**$2,620 /ERU**	**$4,295 /ERU**	**5.1%**
Wastewater			
Current CFC	**$2,784 /ERU**		
Recommended CFC	**$3,163 /ERU**	**$4,204 /ERU**	**3.2%**
(To be phased in over two years)			
Buy-in Unit Cost - Capacity Rental Charges	**$2,304 /ERU**	**$3,303 /ERU**	**3.7%**

The average annual increases implied by the ten-year forecast are 3.9% for the Water CFC and 5.1% for the Water Buy-in Unit Cost used for the capacity rental program. After taking into account the phase-in of the Wastewater CFC to its recommended level over two years, the average annual increases implied by the ten-year forecast are 3.2% for the Wastewater CFC and 3.7% for the Wastewater Buy-in Unit Cost used for the capacity rental program. These annual percentage increases lead to the recommended schedule of future CFCs shown in Exhibit 26. We provided a five-year schedule, assuming that by 2016 a more formal update of the CFC calculation will have been undertaken.

Exhibit 26: Recommended Schedule of Future Capital Facilities Charges

	Water			
	CFC	% Increase	Buy-In Unit Cost	% Increase
Current	$3,097 /ERU		N/A	
2012	$3,232 /ERU	4.4%	$2,620 /ERU	
2013	$3,359 /ERU	3.9%	$2,753 /ERU	5.1%
2014	$3,492 /ERU	3.9%	$2,892 /ERU	5.1%
2015	$3,629 /ERU	3.9%	$3,039 /ERU	5.1%
2016	$3,773 /ERU	3.9%	$3,192 /ERU	5.1%

	Wastewater			
	CFC	% Increase	Buy-In Unit Cost	% Increase
Current	$2,784 /ERU		N/A	
2012	$2,968 /ERU	6.6%	$2,304 /ERU	
2013	$3,163 /ERU	6.6%	$2,388 /ERU	3.7%
2014	$3,265 /ERU	3.2%	$2,476 /ERU	3.7%
2015	$3,370 /ERU	3.2%	$2,567 /ERU	3.7%
2016	$3,478 /ERU	3.2%	$2,661 /ERU	3.7%