

DATE ISSUED: October 24, 2002

REPORT NO. 02-250

ATTENTION: Rules Committee  
Agenda of October 30, 2002

SUBJECT: Monthly Water/Sewer Billing

SUMMARY

Issues - 1) Shall the City Council authorize the City Manager to adopt the Preferred Alternative for monthly water/sewer billing as described in the following report? 2) Shall the Council authorize that the expenditure of advanced revenue received as a result of the Preferred Alternative be limited specifically to funding the costs, both initial and ongoing, of monthly billing through the duration of the rate case? 3) Shall Municipal Code Section 67.0222 be modified to authorize regular, scheduled estimation of water/sewer bills?

Manager's Recommendations - 1) Adopt the Preferred Alternative. 2) Limit the expenditure of advance revenue to the costs of monthly billing. 3) Modify Municipal Code Section 67.0222.

Other Recommendations - The Public Utilities Advisory Commission, at its September 16, 2002 meeting, unanimously recommended that the Council adopt the Preferred Alternative as well as limiting the advanced revenue to the costs of monthly billing.

Fiscal Impact – Estimates of the initial development cost to implement the Preferred Alternative for monthly billing range from \$829,847 to \$1,263,272. Estimates of the annual additional recurring costs for monthly billing range from \$925,063 to \$987,054. The costs for both the initial development as well as annual recurring costs will be evenly split between the Water and Sewer funds.

Should the Preferred Alternative be adopted, both the Water and Sewer funds will be positively impacted in the near-term due to the reduction in the time between consumption by the customers and the date of the billing for consumption. The collection of receipts earlier than they are received with the current bi-monthly system will result in advanced revenue during Fiscal Year 2004 of approximately \$5.2 million each to the Water and Sewer funds. No long-term change in revenues collected will result from the change to monthly billing.

## BACKGROUND

On April 30, 2002 the City Council adopted a motion to increase the fees for water service in the City of San Diego. As part of this motion the City Manager was directed to require that the Water Department implement a monthly billing system no later than December 31, 2003. Since that time, a project team composed of staff from the Water Department (WD), the Metropolitan Wastewater Department (MWW), and the San Diego Data Processing Corporation (DPC) has developed a proposed implementation plan for monthly billing for water utility services (i.e., water, sewer and stormwater charges).

### Current System

Currently there are 262,144 water/sewer accounts in San Diego:

- 210,350 accounts receive **bi-monthly bills** using a winter rate for sewer charges (i.e., the sewer charges are based on the wintertime average for water consumption rather than year-round water consumption readings). Their water meters are read bi-monthly. These accounts generally have one water meter per dwelling unit, such as single-family homes.
- 44,242 accounts receive **bi-monthly bills** using actual year-round water consumption readings as the basis for both water and sewer charges. Their water meters are read bi-monthly. These accounts are primarily small businesses and multiple family dwelling units.
- 7,552 accounts receive **monthly bills** for water and sewer charges using actual monthly meter readings. These accounts are large commercial and industrial customers.

### Analysis

The project team evaluated a number of alternatives for the conversion, including those suggested in Black and Veatch's October 25, 2001 report on this issue. The evaluations considered the criteria outlined below:

1. Monthly billing must begin by December 2003; however, monthly billing should begin as early in FY 2004 (July 2003) as possible
2. The conversion to monthly billing should be easily understood by customers—the impact of the annual change in water/sewer rates should not be confused with the change in billing frequency
3. Minimize the chance of errors being introduced into the billing system as a result of information system changes by:
  - a. Minimizing the number of system changes
  - b. Minimizing the complexity of system changes
  - c. Allowing adequate opportunity to test changes before implementing them
4. Do not add staff to the Water Department for monthly billing
5. Make monthly billing conversion revenue neutral—stay within the water and wastewater rate cases

## DISCUSSION

## Preferred Alternative for Monthly Billing System

We recommend that monthly billing be initiated on September 1, 2003 and be accomplished by estimating water consumption for every other month. That is, we would continue our current bi-monthly meter reading schedule but would generate a monthly bill that would be based alternately on estimated monthly consumption and actual monthly consumption.

For example, a single family home that currently receives a bi-monthly bill in February, April, and June, would now also receive bills in January, March, and May that would be based on the estimated consumption for each of those months. The bills for February, April and June would continue to be produced based upon actual consumption but would now only reflect one month's consumption rather than two. Any difference between the billed consumption and actual consumption for January, March and May (months where consumption was estimated) would be reconciled in the succeeding month when actual consumption is verified via the regular meter reading schedule. Any differences would be corrected in the bill(s) for February, April and June.

One potential criticism of using consumption estimates is the accuracy of billing estimation models. However, in San Diego, the Water Department has used billing estimation for many years in those instances where actual meter readings could not be physically obtained. This model has been refined several times over the years and is now highly accurate as a predictor of actual consumption. The model incorporates actual consumption from the previous billing period, as well as actual consumption from the same seasonal period the previous year. These data are used to generate a reliable estimate of daily consumption, which is then applied to the current billing period for which consumption is being estimated. Currently, 94% of estimated bills for single family domestic accounts are within 10% HCF or less of actual monthly consumption.

Another potential criticism of using consumption estimates is that a customer with a dramatic change in water consumption (such as a major leak) could eventually receive a bill with a significant additional amount due when an actual reading follows estimated readings. While this is a legitimate concern in many water systems, it is of considerably less concern in San Diego because:

- Due to the weather and the location of water meters, 99.6% of all bi-monthly customer meters are actually read on-schedule. Thus, the possibility of a customer receiving multiple consecutive estimated reads (which is the case in many water systems) is miniscule.
- Under the proposed monthly billing process, customers would receive the same bi-monthly actual reads they get now. Thus, the time that would elapse until a change is detected would be the same as it is now.

## Costs and Revenue Impact

The following tables outline the estimated one-time and recurring costs associated with the monthly billing proposal recommended:

<b>COST BY FUND</b>	<b>ONE TIME</b>	<b>ANNUAL RECURRING</b>
WATER FUND	High: \$ 631,658 Low: \$ 414,923	High: \$493,527 Low: \$462,533
SEWER FUND	High: \$ 631,658 Low: \$ 414,923	High: \$493,527 Low: \$462,533
TOTAL	High: \$1,263,272 Low: \$ 829,847	High: \$987,054 Low: \$925,066
<b>COST BY ORGANIZATION</b>	<b>ONE TIME</b>	<b>ANNUAL RECURRING</b>
SDDPC	High: \$1,008,227 Low: \$ 574,801	High: \$464,347 Low: \$402,359
WATER	\$127,522	\$261,353
SEWER	\$127,522	\$261,353
TOTAL	High: \$1,263,272 Low: \$ 829,847	High: \$987,054 Low: \$925,063

Under the estimated billing proposal, the Water and Sewer Funds will be significantly impacted positively in the fiscal year of implementation (FY 2004). This is due to the reduction in the number of days between actual consumption by the customer and the date the bill is issued.

Currently, accounts on a bi-monthly billing cycle are billed 60 days in arrears. Under the current recommendation, accounts would be billed only 30 days in arrears. The result of this change is the collection of receipts 30 days sooner than would normally occur under the existing billing cycle. The receipt of revenue 30 days sooner than expected results in an additional 30 days' revenue for both the Water and Sewer funds during the year of implementation only.

The revenue collected during the year of implementation is not "new revenue;" it merely represents the collection of receipts sooner than anticipated in the year of implementation for each bi-monthly account. Over time, this revenue flows back to customers when each account is closed in the future. Whereas accounts that are closed under the existing billing cycle would owe up to 60 days of consumption, the change to monthly billing would result in these accounts owing up to maximum of 30 days consumption only, the remaining 30 days' consumption having already been paid by a result of the conversion to monthly billing

The collection of receipts sooner than anticipated would result in a positive impact to the Water and Sewer Funds during Fiscal Year 2004, the year of implementation, as outlined below:

Water Fund	\$5,184,260
Sewer Fund	\$5,195,220

There would also be an increase to the Storm Water Fund, which is also billed as part of the utility, of \$170,595 due to the 30-day advancement of receipts described above.

The table below represents the impact of the monthly billing proposal’s expected cost and revenue to both the Water and Sewer funds over the course of the current rate cases (our implementation has allocated no costs to the Storm Water Fund):

	FY 2003 <sup>1</sup>	FY 2004 <sup>2</sup>	FY 2005	FY 2006	FY 2007	TOTAL
<b>WATER FUND</b>						
Revenue	0	5,184,260	0	0	0	\$5,184,260
Cost						
High	631,658	493,527	493,527	493,527	493,527	2,605,766
Low	414,923	462,533	462,533	462,533	462,533	2,265,055
Balance						
High						<b>\$2,578,494</b>
Low						<b>\$2,919,205</b>
<b>SEWER FUND</b>						
Revenue	0	5,195,220	0	0	0	5,195,220
Cost						
High	631,658	493,527	493,527	493,527	493,527	2,605,766
Low	414,923	462,533	462,533	462,533	462,533	2,265,055
Balance						
High						<b>\$2,578,494</b>
Low						<b>\$2,919,205</b>
<b>STORM WATER</b>						
Revenue	\$0	170,595	0	0	0	170,595
Cost	0	0	0	0	0	0
Balance						<b>\$170,595</b>

<sup>1</sup> Costs for FY 2003 are development cost  
<sup>2</sup> Costs for FY 2004–2007 are recurring costs

## Alternatives Considered

We examined a number of alternatives for monthly billing. Monthly billing with monthly meter reading was rejected because it would entail a significant on-going cost and the addition of 17 additional Water Department staff to obtain and process 1,254,000 additional meter readings each year. We estimate the additional annual cost of monthly reading alone (i.e., not including monthly billing costs) at \$903,000.

The following alternatives were also considered:

- 1) Bill half of the bi-monthly meter-read each month. This option would delay the receipt of revenue to the Water and Sewer funds. The result of this change is the collection of receipts 30 days later than would normally occur under the existing billing cycle. The collection of receipts later than anticipated would result in a negative impact to the Water and Sewer funds during the year of implementation of approximately \$5.2 million each.
- 2) Bill Sewer one month, Water the other month. Depending upon which service has its billing delayed that fund would have the receipts of its revenues delayed by 30 days during the transition period. The delay in collection of receipts would negatively impact that fund by approximately \$10.4 million during the transition year.
- 3) Bill bi-monthly with two coupons, the first due the first month; the second the following month. This option would have similar impact as option #1 above. The delay in the receipt of revenue to both funds by 30 days would negatively impact the funds by approximately \$5.2 million during the transition year.

## Information Systems Changes and Testing

At the highest review level, SDDPC technical resources have scanned the 800+ CIS programs to identify the potentially affected programs. Over 60 programs may need some form of change, as well as new programs introduced. Each of these identified programs handles a customer's read cycle and meter read in some way, shape, or form to calculate due dates, service shut-off and turn-on information as well as usage information at the detail level for over 262,000 accounts. An additional 75+ programs which keep track of the type of bill for both ease of user identification and calculation of Winter Rates are also being investigated for modification. These programs also handle special bill calculations such as the canceling and re-billing of historical bills, special fees and rate proration, and the consumption estimation routines necessary to produce an estimated bill.

In addition to direct billing of usage, CIS also maintains consumption information interfaces and updates the Water Resources Landscape Database used by the Water Conservation Program to monitor water consumption targets for individual customers. SDDPC development and testing would insure that interfacing databases can accept and update the new monthly data appropriately.

The myriad of conditions above are complex. Each of the 262,000+ accounts billed may be impacted by one or many conditions every billing cycle. To insure that the change from bi-monthly to monthly billing is successful, the SDDPC testing process will review all changes made to the system, tested under all likely conditions – and will include a comparative parallel test (i.e., Does the bill created from the new monthly process update CIS the same way as the bi-monthly bill would have? Is the new monthly bill comparative to what the bi-monthly bill would have been?).

In order to test the billing portion of these modifications, the system will be run through a simulation of 4 to 6 months of meter reading, billing, payment processing, and credit review processes. Within the City's customer base, there are also other unique cycles that require "special handling" during the test phase (some current non-residential businesses, and American Water Works- Cal Am sewer-only customers). Additionally, testing of data occurring during the Winter Rate Monitoring period will be simulated - adding another extended condition.

Notwithstanding these complexities, SDDPC Executive Management, as well as CIS resources are committed to the success of this project. With focus on identification of the solution approach, task and deliverable identification, and the expertise of the CIS team, the appropriate solution(s) will be implemented by the target date recommended.

#### Business System Changes

Several business procedures are expected to be impacted by the conversion to monthly billing, although most of these are internal procedures associated with account management and should be transparent to the customer. However, an amendment to Municipal Code Section 67.0222 will be required to allow the department to bill for “estimated” consumption on a regular basis. Currently, the Municipal Code allows for estimated billings only in those cases where an actual meter reading could not be obtained. The City Attorney’s Office has recommended changing the language to clearly allow the department to bill based upon estimated consumption on a routine basis. The proposed ordinance which would affect this amendment, as well as a red line version reflecting the proposed changes to Municipal Code Section 67.0222 are attached as exhibits A and B respectively.

Another consideration will be the impact of monthly billing on existing bill collection procedures. At this time, the department is recommending the retention of the current process which provides for shut-off for non-payment after 45 days, and **to only trigger this process as a result of an actual read**. This would ensure that every account shut off for non-payment would have consumption verified through an actual read.

Finally, to lessen the impact of having 3 months consumption billed in back to back months we are proposing to allow customers who are concerned with the amount of the first monthly bill, to chose between two alternatives upon initiation of monthly billing. Alternative one would be a one time “monthly billing conversion deferral” of 60 days. Alternative two would be to defer their first monthly bill by spreading payments out over 8 months. Customers, who elected to do so, could be allowed to chose either, but not both, of these alternatives.

### September Start Date

We propose to begin monthly billing on September 2, 2003. Sewer rate changes will occur in March 2003, water rate changes will occur in July 2003, and the winter water use factor (which is the basis for sewer fee calculations for most customers) will also occur in July 2003. By waiting until September to begin monthly billing, we will be able to provide every customer with one bi-monthly bill, with all the rate changes incorporated, before the customer receives his or her first new monthly bill. Thus, customers will be able to see: first, the difference between the FY03 bi-monthly and the FY04 bi-monthly bills; and then, the difference between the FY04 *bi-monthly* and the FY04 *monthly* bills. Lumping the impacts of rate changes and monthly billing together, by starting the monthly bills in July 2003, would cause considerable confusion among customers and would decrease the impact of monthly billing.

The transition to monthly billing would occur throughout September, with 50% of the customers receiving their first monthly bill and the other 50% receiving their last bi-monthly bill. During October and thereafter, all customers would be receiving monthly bills.

In parallel with the above development and implementation, we will be conducting focus group meetings with our customers to identify the best education and notification efforts which ensure adequate awareness of the billing changes and minimize confusion. This effort will also include a redesigned bill to improve overall clarity, bill inserts, and notification of billing changes through the City's web-site.

### Implementation of New Customer Information System (CIS)

Consideration has been given to implementing a new CIS as part of the conversion to monthly billing. While from a technical standpoint such a conversion as part of monthly billing would be advantageous, given the 12-month timeframe for monthly billing implementation, such a conversion would be infeasible. Research in the industry indicates that conversion to a new CIS system takes from 12-18 months for full system development and installation, excluding procurement, which can take 6-12 months. An additional 6-12 months is required to fully convert the business environment and prepare the customer base<sup>1</sup>, bringing the total conversion timeframe to 24-48 months.

In addition, the costs for conversion to an up-to-date CIS range between \$50-80 per customer account in development and implementation costs, including internal cost for training, marketing, and project overhead costs. Given the 262,000 accounts currently billed, expected costs for implementation would range from \$13 to \$21M. Given that the current rate cases for both Water and Sewer have been developed to address critical capital needs, we do not have the financing for a new CIS at this time. We will however continue to examine alternative financing solutions available in the CIS market, which could allow a phased implementation of a new system.

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<sup>1</sup>Data from 2001 assessment survey KMG Inc. Includes data from 9 private and 11 public utilities with annual revenues of \$50-300m.



ALTERNATIVE

Adopt one of the other monthly billing alternatives described in the above report.

Respectfully submitted,

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Larry Gardner  
Water Department Director

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Approved: Richard Mendes  
Utilities General Manager

RUIZ/MB

Note: The attachments are not available in electronic format. A copy is available for review in the Office of the City Clerk.

- Attachments:
1. Exhibit A – Proposed Ordinance
  2. Exhibit B – Proposed Changes to Municipal Code Section 67.0222