CITY OF SACRAMENTO

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CITY MANAGER'S OFFICE
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March 3, 1982
UB82033:MLM;mm

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: Utility Billing System Re-design

APPROVED
BY THE CITY COUNCIL

MAR 9 1982

OFFICE OF THE
CITY CLERK

SUMMARY

The attached report recommending the adoption of a Resolution of Intent
to proceed with a re-design of the Utility Billing system was unanimous-
ly approved by the Budget and Finance Committee on March 2, 1982.

BACKGROUND

The Utility Billing system re-design has been explored and throughly
analyzed by staff during the last six months. The re-design has been a
number one priority on the City's data processing masterplan since 1978.
This current proposal:

1. Will cost $503,029 to install;
2. Will produce $155,000 more in annual revenues;
3. Will provide annual hard dollar savings of $31,594 and;
4. Will provide a responsive consumer oriented system.

Further savings and improved efficiency should result once this system
is fully optional.

The system, if approved today, will require a three year implementation
program. The purpose of the request for the Resolution of Intent is to
obtain a firm commitment for approval to purchase $32,441 of computer
hardware in FY 1983/84 to implement the software expenditures previously
discussed. All cost are recoverable from the utility propriety funds
either by direct allocation or via the City's indirect cost recovery
program.

RECOMMENDATION

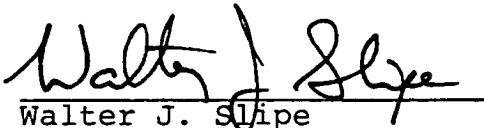It is recommended that the City Council:

1. Direct staff to proceed with the Utility Billing system re-design and;
2. Adopt the attached Resolution of Intent to appropriate approximately $32,441 of FY 1983/84 monies to implement the system.

Respectfully submitted,

Michael L. Medema
Acting Utility Services Officer

Recommendation Approved:

Walter J. Slipe
City Manager

RESOLUTION NO. 82-166

ADOPTED BY THE SACRAMENTO CITY COUNCIL ON DATE OF

A RESOLUTION OF INTENTION TO ACQUIRE COMPUTER HARDWARE IN FY 83-84 FOR SUPPORT OF THE RE-DESIGNED UTILITY BILLING OPERATION.

WHEREAS, the re-design of the utility billing system is number one priority on the Management Information Executive Committee Masterplan, and

WHEREAS, said re-design will require the purchase of additional needed data processing equipment (one (1) disk drive and two (2) disk packs), and

WHEREAS, approval for the purchase of additional equipment is needed now, for without the equipment, there is no need to go ahead with the re-design of the system, therefore

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO

City Council expresses its intention to direct staff to proceed with the design and implementation of an upgraded/enhanced utility billing system and expresses its intention to acquire one (1) disk drive and (2) disk packs in FY 83-84. Cost is currently estimated to be $32,441.

APPROVED
BY THE CITY COUNCIL

MAR 9 1982

OFFICE OF THE
CITY CLERK

_____
MAYOR

ATTEST:

_____
CITY CLERK

CITY OF SACRAMENTO

DEPARTMENT OF FINANCE
DIVISION OF UTILITY SERVICES

915 "I" STREET   SACRAMENTO, CA 95814
ROOM 112   TELEPHONE (916) 449-5454

LINDA TRETHEWAY
UTILITY BILLING SUPERVISOR

February 2, 1982
UB82019:LT;mm

Budget & Finance Committee
Sacramento, California

Honorable Members in Session:

SUBJECT: Utility Billing System Re-design

SUMMARY

This report requests that Council direct staff to move forward in the re-design and implementation of an improved consumer service oriented utility billing system and adopt the attached Resolution of Intent to appropriate funds for needed additional data processing equipment in FY 83-84. Cost is currently estimated to be $32,441.

BACKGROUND

In 1971, the City converted from ADP (Automated Data Processing) to EDP (Electronic Data Processing) using the County of Sacramento computer system. Microfiche was introduced in January of 1974 which significantly reduced paper output and helped begin to create a manageable history of utility billings. The number of service charges increased from three (3) (water, sewer and garbage) to five (5) with the addition of regional sewer in July of 1975 and garden refuse tax in July of 1976.

In 1977, the Data Processing Masterplan was designed to determine the data processing needs of the City and how best to utilize a new computer which was to be installed in 1978. At that time, a re-design of the entire utility billing system was identified as being the number one priority on that Masterplan list. It has been number one ever since.

In 1978, the City began operating its own Data Processing Department and broke away from the County computer system.

In 1979, the first Utility Billing Masterplan document was published detailing re-design and modification features for an upgraded and enhanced utility billing system. Also in 1979, computer terminals were installed in the Utility Services Division giving staff limited inquiry capability to the consumer's records. Microfiche then served as back-up and for historical purposes only.

Bi-monthly billing of metered accounts in the same cycles as flat rated accounts was implemented in 1980. Even with remote inquiry and both metered and flat rated accounts being billed in the same cycles, many problems still exist in the utility billing system as it is designed today.

The present system is labor intensive and totally dependent on paperwork for input activity. Three separate Masterfiles are maintained (UB, regional sewer and meters) duplicating information and taking up file space. Accounts can be accessed by account number only which slows down response time to customer inquiries while the account number is being looked up through a series of cross-reference listings. Historical information is available on microfiche or paper only which also impacts response time to customer complaints and inquiries. The current method of producing utility bills is confusing to both the customer and the Utility Services staff.

In 1981, six months were devoted to re-evaluating the 1979 Masterplan to determine which needs had changed and which needs still remained. The result of this effort was an upgraded and enhanced Masterplan for the re-design of the utility billing system. Staff is ready to proceed with the actual development and implementation of this system.
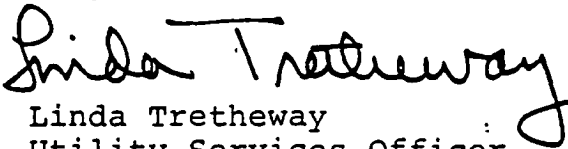
FINANCIAL

The re-designed system will incur a one-time cost of $32,441 for additional needed data processing equipment. On-going expenditures amount to $23,370. The first year cost will be $55,061. These minimal costs are offset by hard dollar savings of $54,964, soft dollar savings of $83,428 and anticipated increased revenues of $160,000-$350,000. See attached cost/benefit analysis for details.

RECOMMENDATION

It is recommended that Council direct staff to move forward in the re-design and implementation of the conceptualized upgraded/enhanced utility billing system and adopt the attached Resolution of Intent to appropriate funds for needed additional data processing equipment in FY 83-84.

Respectfully submitted,

Linda Tretheway
Utility Services Officer

For Transmittal:

Finance Administration & Budget

attachment

COST/BENEFIT ANALYSIS
UTILITY BILLING RE-DESIGN

I. Costs

The cost of re-designing the Utility Billing system is based on enhancing and updating the present system using the existing UB Masterfile and the City Parcel File and enlarging the scope of the computer's role in the billing function in order to bring the City of Sacramento into 1980's technology.

The UB Masterfile, the main data base, will need to be reconstructed and enlarged to include more information than is currently being stored (historical data, cross reference indexing, weed abatement, etc.). This growth will necessitate the purchase of additional data processing equipment (one (1) disk drive and two (2) disk packs) for the City computer system. The actual amount of additional space required will be 1.15 disk packs.

In addition, there will be a conversion period during which parallel runs will be made with both the former system and the upgraded system. This will create a one-time cost to produce bills under both systems for a one month period (see Appendix A). The entire process, beginning with detailed analysis and design through conversion and implementation will take 114 man months of programmer time.

Finally, while the upgraded system will require much less manual labor than the current system, resulting in decreased employee services, it is highly recommended that a new position be added to the Utility Services Division to provide ongoing technical support. This position would require a person who is not a skilled data processing analyst, but one who understood the entire Utility Billing system from both the data processing side and the Utility Services Division daily operation side and who would act as liaison between Utility Services and EDP. For the purposes of this analysis, the salary of a Sr. Data Processing Technician was used. The following provides a breakdown of the manpower and cost for development of the proposed system:

A. **One Time Cost**

    1. **Equipment**

        a. Sperry Univac Disk Storage Device $ 27,360

        b. Dual Access Feature   2,160

                Sub total $ 29,520

                Sales tax   1,771

                Shipping   150

                    Sub total $ 31,441

        c. Disk Pack (2)   1,000

                  Total One Time Cost $ 32,441

    2. **Conversion Manpower and Computer Time****

        a. Parallel run of old/new systems
           (see Appendix A) $ 11,948

        b. Program development (114 man months)   458,640

** It must be kept in mind that this cost is going to be incurred by Data Processing for programmer and computer time whether effort is being put into Utility Services or any other department/ division. When the Management Information Executive Committee list was prioritized, the placement of the Utility Billing Redesign as the number one priority indicated that a considerable effort was to be expected and accepted.

B. **Ongoing Expenditures**

    1. **Equipment**

        a. Annual maintenance on disk storage device $ 3,000

    2. **Maintenance Manpower**

        a. Billing Systems Analyst   20,370+

                Total Ongoing Annual Cost $ 23,370

II. Benefits

The benefits to be realized by enhancing the present Utility Billing system are numerous and widespread, affecting several operating departments in the City. Upgrading the present system will provide a smoother automated method of updating utility services accounts, increase the accuracy and timeliness of interaction with other systems, improve customer relations with clearer, more understandable utility service bills, greatly reduce the intensity of labor and materials currently needed to support the system as it functions today, and aid in increasing revenues to the City.

Itemized below, by department, is a listing of tangible (hard and soft dollars) and intangible benefits that can be derived through the enhancement/upgrading of the present Utility Billing system:

A. Increased Revenue (hard dollars):
   1. Collections
      a. Of $30,000 collected by RCA on closed accounts during 1981, the City received only $15,000. With an in-house collections sub-system, the City should be able to collect 100% of the amount recovered on closed accounts rather than 50% received now from a collection agency. $ 15,000

   2. Billings
      a. Interaction with City Parcel File on an automatic basis would increase the number of accounts being billed by .5% to 1.0% $145,000 - 290,000

B. Tangible Hard Dollar Cost Savings:
   1. Data Processing
      a. Reduced frequency and volume of reports on standard computer paper. $ 2,000
   2. Utility Services
      a. Reduced postage and paper costs with ability to combine accounts for same parcel on one bill.   5,000
      b. Reduced cost for pre-printed forms with elimination of batch processing.   1,300

B. Tangible Hard Dollar Cost Savings (contd.):

    c. Elimination of one (1) UB Rep. II
       with automatic generation of lien
       releases. $ 19,561

    d. Elimination of one (1) Utility
       Services Inspector with implemen-
       tation of Field Inspector tracking
       sub-system.   22,903

  3. Utility Bill Insert Users

    a. Elimination of insert cost with
       printed message capability on data
       mailer-type bill.   4,200

       TOTAL HARD DOLLAR SAVINGS $ 54,964

C. Tangible Soft Dollar Cost Savings

  1. Data Processing

    a. Reduction of keypunch hours with
       elimination of batch processed
       documents (see Appendix B). $ 10,199

  2. Utility Services

    a. Reduced time to research customer ac-
       counts with all historical informa-
       tion in system and available on term-
       inals.   18,912

    b. Reduced time to process deeds with
       automatic updating of accounts
       through parcel file interaction.   36,199

    c. Reduced time with change from batch
       processing to on-line interactive
       updating.   6,298

    d. Reduced time by using data mailers
       instead of stuffing bills.   9,456

    e. Reduced time with automatic inter-
       face between Utility Billing system
       and general ledger.   2,364

       TOTAL SOFT DOLLAR SAVINGS $ 83,428

D. Intangible Benefits

  1. Accounting

    a. General Ledger and other expense and revenue
       files and reports will be automatically up-
       dated as part of a weekly process. This
       will ensure timeliness and accuracy.

D. Intangible Benefits (contd.)

   2. Weed Abatement

      a. Weed abatement charges will be added onto the utility service bill producing charges in a more timely manner than is presently being done. Some hard dollar savings will most likely be realized here. However, because of problems with the present weed abatement billing system, those savings cannot be quantified at this time.

      b. Weed abatement liens will be included in liens for utility services placed on properties for delinquent charges.

   3. Revenues and Collections

      a. Automatic updating of UB records from the City Parcel File will cause daily editing of that file. This daily edit will greatly assist in maintaining the accuracy of the Parcel File.

      b. A collections sub-system will give the City the capability of following up on closed and/or delinquent accounts without going through an outside collection agency which may charge a service fee or take a percentage of the collections.

      c. While the City Parcel File contains only one address for the legal owners of properties in the City, the UB system will carry additional mailing information when it is available which can be accessed if necessary.

   4. Data Processing

      a. Rather than some receipts being read through the card reader in EDP (full payments) and some receipts being keypunched (partial payments), all receipts will be keypunched. This will keep all receipts together in one place and greatly reduce the number of rejected batches which must be reprocessed because of card reader problems or partial payment problems presently being experienced.

   5. Water, Sewer, Waste Removal

      a. Present UB accounts consist of one long record which contains all data pertinent to that specific account. In order to change one bit of data, several parts of the record must also be changed. With the UB accounts being broken into smaller parts, or modules, bits of

5. Water, Sewer, Waste Removal (contd.)

   a. (contd.)
      data may be changed independently without
      changing the entire account. This is es-
      pecially important when considering in-
      creasing or decreasing the number of ser-
      vices billed on each account. For example,
      much greater flexibility will allow the
      addition of a new service charge without
      an extensive system re-write.

   b. Garbage start and stop notices, needed by
      Waste Removal for the servicemen on the
      routes, will automatically be created and
      printed by the computer.

   c. Rates for services will automatically be
      computed by the system once the correct
      billing information is entered. UB Reps
      presently compute rates and input them
      manually causing many errors which must
      be corrected later, often taking more time
      to correct than to input them right the
      first time.

   d. Interaction with the computer terminal will
      be done in "English" so that all user depart-
      ments will be able to read and understand
      the utility billing information without the
      need to have "codes" and confusing displays
      translated.

   e. Ability to produce rate modeling reports will
      greatly assist in determining the need for
      increased revenue and the rates needed to
      produce that revenue.

   f. Management information such as number of ac-
      counts or amount of revenue by type of ser-
      vice or type of account will be readily
      available through the terminals rather than
      making special programming requests of EDP
      and waiting for the results.

6. Utility Services

   a. All of the above, plus........

   b. Ability to update utility billing accounts
      by inputing directly through the terminals
      will save paperwork, manual effort and en-
      sure more timely, accurate information on
      the files.

   c. Ability to access accounts by account (par-
      cel) number, service address number and legal
      owner name will increase response time to
      customer inquiries.

6. Utility Services (contd.)

   d. Elimination of separate Meter Masterfile and
      Regional Sewer Masterfile and incorporation
      as modules into the UB Masterfile will save
      file space and reduce duplicate effort in
      maintaining individual accounts.

   e. Automated retrieval of last twelve billings
      history and last five updates for each ac-
      count will reduce research time and increase
      response time to customer inquiries.

   f. Rates will no longer be computed by hand.
      Usage codes will be input and rates will be
      computed by the system. This will eliminate
      many errors.

   g. Complaints and special information concerning
      accounts will be maintained in the system for
      ready reference. History will be maintained
      on microfiche. This will eliminate the need
      for paper, research time and improve response
      time to customer inquiries.

   h. The UB Masterfile will be updated automatically
      on a daily basis with changes made to the City
      Parcel File. A result of this automated up-
      dating will be the closing of old accounts,
      opening of new accounts, changing of owner
      and address information on accounts and the
      necessary output being produced as a result
      of all this activity (i.e., closing bills,
      prorated bills, new account applications,
      etc.) This will greatly improve the ac-
      curacy of the information in the UB Master-
      file and keep the file current on a daily
      basis. This automatic activity will also
      reduce labor requirements.

   i. Liens will automatically be released and forms
      produced to forward to the County to be re-
      corded once an account with liened amounts
      has been paid in full, including the record-
      ing charge which will be added to the bill
      at the time the lien is recorded. Presently,
      the customer must notify this division once
      they pay their bill when they want the lien
      to be released. This will greatly reduce
      staff time in responding to lien release re-
      quests.

   j. The ability to print duplicate bills for cus-
      tomers who request them will eliminate hand
      produced bills which are not always accurate
      and sometimes not readable.

6. Utility Services (contd.)

   k. The Field Inspectors' Tracking sub-system will
      eliminate paper and manual effort currently
      being expended in great quantities in order
      to follow the status of various accounts.

7. Customers

   a. Credits will no longer be pro-rated across
      all services but will be applied against the
      total bill only. This will clean up a lot
      of confusion for customers who, for example,
      may deduct an amount from their bill for
      missed garbage service and find on their
      next bill that the deducted amount has been
      spread out over all services and deducted in
      part from each one.

   b. City utility bills will appear in "free form'
      showing charges only for services rendered,
      indicating credits and adjustments against
      the total only, and eliminating the use of
      "codes" to indicate status of amounts owing.
      The new bills will provide ample space for
      the City to print selected messages for sel-
      ected types of accounts, areas of the City,
      etc. This message capabiltiy will provide
      a more direct method of communication be-
      tween the City and its customers.

   c. Ability to receive more prompt attention when
      inquiring about bill since representatives
      will be able to access account several ways
      and have more information directly in front
      of him/her via the terminal. This will
      greatly improve customer relations. Infor-
      mation available will include billing and
      payment history, complaint history and
      other data currently available on fiche or
      paper only.

On the next page is a summary of the costs, increased revenues
and savings (hard and soft dollars) which will be generated by the
enhanced/upgraded Utility Billing system.

One Time Cost	$ 32,441
Ongoing Expenditures	23,370
First Year Cost	$ 55,061
Annual Cost	$ 23,370

Increased Revenues	$160,000 - 305,000
Savings (hard dollars)	$ 54,964
Savings (soft dollars)	83,428

FIRST YEAR NET GAIN
(hard dollars only) $159,903 - 304,903

(hard/soft dollars) $243,331 - 388,331

ANNUAL NET GAIN
(hard dollars only) $191,594 - 336,594

(hard/soft dollars) $275,022 - 420,022

Based on the above information, I feel that the re-design of
the Utility Billing system will result in improved service to the
public, more efficient use of data base information, a step closer
to standardizing information related to the operation of several
departments/divisions, and a reduction of unnecessary staff time
now being expended.

Further, it is recommended that approval be given for the next
phase of this project. This next phase is the detailed analysis,
design and programming effort necessary to bring the enhancements
and upgraded features on-line. This phase should commence as soon
as possible as the entire project has been number one on the priority
list for some time and should be completed so that other projects
may receive the attention they deserve.

BREAKDOWN OF COST FOR PARALLEL RUN BASED ON AVERAGE MONTHLY COST OF
PRESENT SYSTEM.

Daily Update		$ 5,529
Meter System		169
Edit	$ 122	
Compute	47	
Billing Process		3,969
Compute	$ 1,460	
Print	657	
Report	15	
Delinquents	37	
Materials	1,800	
Analysis		1,857
Miscellaneous		424
		$ 11,948

BREAKDOWN OF KEYPUNCH SAVINGS.

Present average monthly input hours

    85 hours @ $23.50/hour $ 1,997.50

Elimination of documents and input of
receipts only

    61.6 hours @ $23.50/hour   1,147.60

               monthly savings $ 849.90

               annual savings $ 10,198.80