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STATE WATER RESOURCES CONTROL BOARD

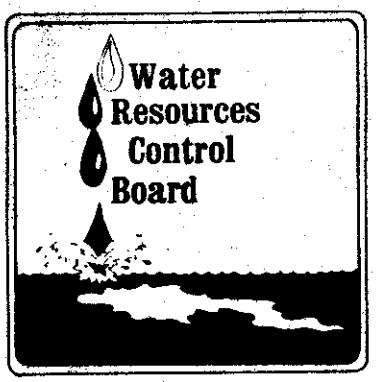
DIVISION of WATER QUALITY

REVENUE PROGRAM GUIDELINES

FOR

WASTEWATER AGENCIES

April 1983



CLEAN WATER GRANT PROGRAM BULLETIN

STATE WATER RESOURCES CONTROL BOARD
Division of Water Quality

Michael S. Sloss, Chief

Manager, CLEAN WATER GRANT PROGRAM
P.O. Box 100, Sacramento, California 95801

June 15, 1983

No. 54C - REVENUE PROGRAM GUIDELINES FOR WASTEWATER AGENCIES

This bulletin consolidates Clean Water Grant Bulletins Nos. 19, 32, 38A, 54B, 68C, and 79.

Attached for your information and use is the final edition of the revised Revenue Program Guidelines. These guidelines reflect changes in the federal regulations dated May 12, 1982 and apply to grants made after May 12, 1982. Grants made prior to May 12, 1982, are subject to the Guidelines in effect at the time of grant award.

The major statutory change affecting user charges on all grants, both prior to and after May 12, 1982, is the repeal of Industrial Cost Recovery (ICR) effective December 27, 1977. Any ICR payments collected prior to December 27, 1977 must be remitted, with identifying grant number and period covered, to:

Environmental Protection Agency, Region 9
Attention: Financial Management Office
215 Fremont Street
San Francisco, CA 94105

If a grantee submitted ICR payments to the Environmental Protection Agency (EPA) for any period after December 27, 1977, the payment will be refunded. Grantee should advise the EPA of the date of payment, amount and period covered. This information should be sent to:

U.S. Environmental Protection Agency (WH-547)
Washington, D.C. 20460

Extra copies of the Revenue Program Guidelines may be obtained by sending check or money order in the amount of $5.00 (tax and postage included) to the Project Close-out Section, Division of Water Quality, P. O. Box 100, Sacramento, CA 95801.

Any questions should be directed to the Revenue Program Specialist, at (916) 322-6558.

Michael S. Sloss, Chief
Division of Water Quality
Manager - Clean Water Grant Program

Attachment

REVENUE PROGRAM GUIDELINES

FOR

WASTEWATER AGENCIES

April, 1983

STATE WATER RESOURCES CONTROL BOARD

Division of Water Quality
Grants for Clean Water
P. O. Box 100
Sacramento, California 95801

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Introduction

These Guidelines are intended to provide assistance to municipalities in developing, implementing, and maintaining revenue programs and implementing ordinances to comply with Federal and State regulations. These guidelines apply to the majority of grantees, however, some grantees will desire to deviate from specific provisions. Deviations should be discussed with the Revenue Program Specialist.

The staff of the Division of Water Quality (Division) is available to answer inquiries relating to the preparation of revenue programs and implementing ordinances. If questions arise concerning the Division's interpretation of these Guidelines, applicants in accordance with Sections 3655-3658 of the State Regulations, may petition the State Water Resources Control Board (Board) for review of the Division's decisions.

If any coflicts exist between these Guidelines and Federal or State Grant Regulations, the Regulations shall take precedence over the Guidelines.

Article 1. Revenue Program

Section 1 - General

The revenue program is a formally documented determination of a system of User Charges developed by the grantee. It is designed to provide a source of revenues for operation and maintenance (including replacement), that satisfies the Federal Grant Regulations. In addition, debt service and revenue for establishing a capital reserve fund and an operating reserve fund may be collected by the system of charges based on actual use, or by ad valorem taxes.

A system of service charges is developed first by estimating the grantee's annual revenue requirements for the entire system, including those portions which were not grant funded. Rates are then set based on the identification of the users of the treatment works. This process is described in detail in this Article.

Revenue programs must be submitted by the grantee. Programs submitted by the consultant will not be accepted. The cover letter used to submit the revenue program must include the following information and be signed by the authorized representative:

1. Grantee's name, address and phone number

2. Grant number(s)

3. Purpose of revenue program

A proposed revenue program and estimated cost of future expansion must be submitted to the Division as part of the facilities plan during the planning process to satisfy the Federal Regulations 40 CFR 35.2030(b)(3)(vii). It will be reviewed by the Division and the grantee will be informed of any deficiency in the proposed system of charges.

A final revenue program and proposed (or existing) sewer use ordinance (see Article 2, section 7 of this document) must be submitted to the Division prior to award of a Step 3 grant in accordance with Federal Grant Regulations (40 CFR 35.2122). This requirement may be met at the same time the proposed revenue program is submitted for approval. In order for the proposed revenue program to meet the Federal revenue program requirements for award of a Step 3 grant, the following conditions must be met.

1. The alternative on which the revenue program is based must be the alternative selected for implementation.

2. The grantee must adopt the Facilities Plan (including the revenue program) as being adequate and in line with the grantee's needs.

3. The methodology and format of the revenue program must result in proportional distribution of charges on a fair and equitable basis.

A draft of the proposed rate ordinance must be submitted prior to award of a step 3 grant.

An enacted rate ordinance must be submitted prior to 90 percent of construction. The rates in the ordinance must agree with those shown in an approved revenue program. A new revenue program may be required if either construction or O&M costs have changed substantially. The enacted rate ordinance or resolution as required under 40 CFR 35.2208 need not be implemented until the treatment works are placed into operation.

The proposed revenue program may be either separately bound and labeled or included with the facilities plan. If the revenue program is included with the facilities plan, it is the grantees responsibility to insure that the Revenue Program Specialist receives a copy. The final revenue programs must be separately bound and labeled. One copy must be submitted to the Division for approval.

The revenue program forms contained in Appendix I, if utilized, will facilitate Division review and approval. In most cases, the forms indicate all the information that is necessary for a revenue program.

Section 2 - Annual Revenue Requirements

A. Operation and Maintenance (including replacement)

Municipalities need funds to pay the annual costs of operating and maintaining grant funded and non-grant funded treatment works. These costs include the costs of labor, power, chemicals, supplies, laboratory control and monitoring, general administration, billing, and incidental items incurred during normal operation. Also included are those expenditures termed ordinary repairs necessary to keep the facilities in proper operating condition, replacements as defined below and other administrative costs, such as overhead and accounting which are directly related to the operation and maintenance of the treatment works.

An estimate of operation and maintenance costs should be made by adjusting the grantee's latest operating cost data to reflect operational changes, wage escalation, and staffing changes.

A separate line item for replacement must be shown in the calculation of the annual revenue requirements. Replacement costs include all capital expenditures except:

1. Major rehabilitations which will be needed as individual unit processes near the end of their useful lives.

2. Structural rehabilitations.

3. Facility expansions or upgrades to meet future user demands.

Replacement costs include such items as: pumps, motors, telemetry and electrical controls, air scrubbing equipment, chlorination and dechlorination equipment, vehicles, radios, etc.

Replacement costs should be based, at a minimum, on a five year planning cycle. For example, assume that a grantee estimates it will have to replace $600,000 worth of equipment over the next five years and it has $100,000 in the replacement account. The annual replacement cost to be included in the user charge would be $\frac{\$600,000 - \$100,000}{5 \text{ years}} = \$100,000$ per year. This cost must be calculated each year.

The grantee may, in lieu of the five year replacement plan, deposit an amount in the replacement fund equal to the sum of the straight line depreciation (based on current costs) of the assets (excluding structural facilities such as buildings, ponds, pipes, etc).

B. Debt Service

Debt service is the annual sum of the principal and interest payments on proposed or outstanding obligations secured by bonds or loan contracts.

C. Capital Reserve Fund (optional)

Grantees are encouraged to establish a capital reserve fund to pay for future expansion, improvements, and rehabilitation. These capital reserves usually appear as a separate line item within the annual budget. In accordance with 40 CFR 35.2030(b)(7)(ii), grantee must be prepared to submit, upon request, a plan showing the estimated cost of future expansion/replacement and how these costs will be financed.

D. Operating Reserve Fund (optional)

Grantees are encouraged to establish an operating reserve fund to insure the proper operation of the treatment works. This fund is intended to satisfy costs associated with unanticipated price increases, additional chemical usage, etc. It does not include costs for replacement of equipment. Wastewater agencies in California normally operate with reserves equal to between 10 and 50 percent of annual revenue requirements, with most agencies being in the 20 to 40 percent range.

Section 3 - Identification of Users

After the annual revenue requirements are determined, the users of the treatment works and the characteristics of their wastewater must be identified. Flows and loadings (BOD_5, SS or other appropriate constituents) must be documented for the user groups listed below, so that proportional costs can be calculated. The methods for allocating the annual costs to various types of users is described in Section 4 of this Article.

A. Industrial Users. Industrial users contributing more than 25,000 GPD or utilizing 5%, or more, of plant design capacity must have costs allocated individually.

B. Residential Users. Individual cost allocations need not be made for various types of residential users. However, grantees may wish to divide residential users into single-family, multiple-family, or mobile home subgroups to allow for more refined cost allocations.

C. Commercial Users. Because of great variability in waste characteristics, the commercial group should be divided into sub-groups defined in Appendix F. The loads given in Appendix F need not be used if the grantee has supportable data relating to other specific flows and loads. Large commercial users contributing more than 25,000 GPD or utilizing 5%, or more, of plant design capacity must have costs allocated individually.

D. Institutional Users. Costs may be allocated to individual users or to user groups, such as public or private hospitals, convalescent homes, schools, colleges, correctional facilities, etc.

E. Septage. If septage is received at the treatment works, this category must be listed as a user class with the corresponding flows and loads. The charges established for septage dumpings must be based on its contributing loadings. Generally a 1,000 gallon dumping contains 45 lbs (5,400 mg/1) of BOD and 100 lbs of (12,000 mg/1) of suspended solids. Unless other loadings are documentable, these should be utilized.

F. Water Reclamation. Beneficiaries of the reclaimed water must be identified for projects involving water reclamation. Beneficiaries may be users of the reclaimed water or indirect beneficiaries, such as potable water users that benefit by the increase in total water supply. A narrative describing the basis for classifying the types of beneficiaries should be included. A table listing the beneficiaries, the type (direct and indirect), description of benefit, and projected use of the reclaimed water should also be included.

Section 4 - Allocation of Annual Revenue Requirements and Rate Determination

Allocation of annual costs is done in two steps. First, the cost is allocated among the treatment parameters in proportion to the percentages of costs that these parameters represent. Second, these amounts are divided by either total annual plant loadings or total design loadings to produce unit costs. When these unit costs are multiplied by the loadings or design quantities of each user, an annual rate in proportion to the user's demand on the system is established.

To minimize disagreement over cost allocation methods, the grantee should consult with the Division regarding any allocation method not described in these Guidelines.

A. Allocation Based on Flow Only

Allocations of costs to flow may be made if either one of the following conditions are met.

1. If the grantee's service area (or the service area of a municipality participating in a regional system) contains less than 10,000 current population, with no industrial users or septage flows; or

2. If residential design flow exceeds 95 percent of total design flow of the grant funded treatment works with no industrial users or septage flows.

B. Specific Circumstances

1. When special treatment facilities are required to process specific types of industrial, commercial, or septage wastes, the costs of these facilities must be allocated to the users who discharge the wastes. Unless the grantee complies with the provisions of Article 1, section 4, D, 4, all capital costs must also be allocated to the users who discharge these wastes.

2. An allocation of capital costs may be made to infiltration/inflow (I/I) for all treatment works components where I/I has been measured, or if the design specifically provided capacity for I/I. O&M cost may be allocated to I/I only if capital costs have been allocated to I/I. If O&M costs are allocated to I/I, these costs can only be a percentage of the cost allocated to flow. The Facilities Plan should be reviewed to determine the proper allocation to I/I.

3. The cost for engineering, contingencies, and other miscellaneous capital costs may be prorated among the various treatment parameters.

4. Administrative costs may be included in the O&M cost allocation, or they may be separated and allocated on another equitable basis, such as number of accounts.

5. Operation and maintenance costs must not be allocated to future users.

C. Allocations for Reclamation Facilities

In addition to the following, there is guidance on financial plans, revenue programs, and other financial considerations related to water reclamation projects in Interim Guidelines for Economic and Financial Analyses of Water Reclamation Projects (a State Water Resources Control Board publication).

A basic concept to be applied in the establishment of user charges and prices is that beneficiaries of waste treatment or water reclamation services should pay their allocated share of the costs of such services. Such beneficiaries may be indirect beneficiaries or nonusers of the reclaimed water, such as potable water users that benefit by delaying the need for new potable water facilities. For projects with the primary purpose of water reclamation, such as Class D projects, users and other beneficiaries (as can be reasonably included) of the reclaimed water shall pay the local share of capital and operation and maintenance costs. For projects with the purpose of both water reclamation and water pollution control, waste dischargers shall pay the local share of costs allocated to water pollution control, and users and other beneficiaries of the reclaimed water shall pay the local share of costs allocated to water reclamation.

Cost allocation procedures to separate costs between water reclamation and water pollution control are described in the Interim Guidelines cited above and in EPA's Construction Grants 1982, Municipal Wastewater Treatment, Interim Final, July, 1982.

Federal law encourages the generation of revenues in excess of costs for reclamation projects to lower the costs of wastewater management and to benefit environmental improvement programs [Clean Water Act, Section 201(d) and (e)]. All revenues in excess of costs shall be used by the wastewater management agency to lower wastewater discharger charges (such as sewer service and user charges) and aid in financing other environmental improvement programs. Excess revenues may also be used to help pay off the unused

portions of existing water supply facilities if a commitment has been to abandon or withhold permanently from use such portions of facilities because of the use of reclaimed water. They may also be reserved for the long term maintenance or expansion of the reclaimed water system. To assure such application of revenues when the wastewater management agency is a multipurpose agency such as a city, the revenues shall be deposited into accounts designated for this purpose. Applicants who are not wastewater management agencies are encouraged to use excess revenues to benefit the community through environmental improvement programs or lowering prices of all water customers in their service areas.

For projects that have a significant component with the primary function of water reclamation rather than water pollution control, the wastewater services user charges [Clean Water Act, Section 201(b)(1)(A) and (B); 40 CFR 35.2122] shall apply only to the portion of the capital and annual costs allocated to water pollution control.

Sufficient revenue must be collected to pay all the local share of capital and annual costs for the reclamation facilities. Users of the reclaimed water shall be charged a reasonable price set at a level to: a) ensure recovery of the costs allocated to the users and prevent inappropriate subsidy, and b) encourage the generation of excess revenue as described above. Reclaimed water users can be subsidized to the extent that reclaimed water prices are competitive with other water sources. Subsidies must be identified, quantified, and justified.

If there are beneficiaries of reclaimed water that are not direct users, consideration should be given to methods of collection of revenue from them. For example, reclaimed water costs can be integrated with fresh water costs in setting prices, in a manner similar to the way the costs of new fresh water supplies are combined with the costs of existing supplies and spread over all customers, both existing and new. Fresh water users may benefit from some users relying on reclaimed water, such as by delaying the need to develop new fresh water supplies. It may be appropriate for fresh water prices to include some of the costs of the reclaimed water system such that reclaimed water prices can be lowered sufficiently to provide incentive for reclaimed water use.

D. Regulations Affecting Rate Determination

1. The portion of the annual revenue requirements which constitute the cost of O&M (including replacement) of the treatment works must be recovered from users of the system by means of a user charge system based either on actual use or through an approved ad valorem tax system. The total O&M budget may, however, be offset by income derived from the operation of the wastewater facilities; such as sale of used equipment, sludge, sludge gas, power created by the effluent or from residues, renovated wastewater, farm corps, or other by-products, as well as investment income from wastewater treatment related assets. The user charge system must result in the distribution of the O&M costs among all users in proportion to their loadings

on the treatment works. (Clean Water Act, Section 204(b)(1)(A); 40 CFR 35.2140.) A user charge based on actual use may take the form of a flat rate, unit rate on water consumption, fixture unit rate, equivalent dwelling unit, or other type of charge which recovers the cost equitably.

2. Section 204(b)(1) of P.L. 97-117 prohibits the granting of reduced service charges to special interest or economic groups, including senior citizens.

   Section 204(b)(1) reads, in part:

   > "...each recipient of waste treatment services within the applicant's jurisdiction, as determined by the Administrator, will pay its proportionate share (except as otherwise provided in this paragraph) and maintenance (including replacement) of any waste treatment services provided by the applicant..."

   Accordingly, revenue programs which include systems of charges which are inconsistent with the above interpretation of the Federal Law will not be approved by the Division.

3. Any preexisting agreements which levy charges for more or less than what would be collected on actual use will not be allowed to continue, and the charges must be revised to reflect actual use [40 CFR 35.2140(g)]. Industries which reserve additional capacity, must pay the additional capital cost associated with that reserved capacity.

4. User charges must recover the cost of operation and maintenance (including replacement) from all users based on their proportionate contribution to the total wastewater loadings from all users. The State recommends that user rates designed to recover all other costs be proportional to the cost of the service rendered. Charges for these other revenue requirements may be collected through service charges, ad valorem taxes, or assessments. If they are collected through service charges, and the grantee does not wish to recover the other costs in proportion to system use, public notice describing the impacts of the proposed rate structure is required. An opportunity for public comment within a reasonable period of time prior to final adoption of the rate ordinance by the applicant must be given. Notice shall be given by direct mailing to all organizations and individuals who have previously requested such notice and to all users of the system who will be adversely affected by the change in rates.

   The notice must substantially follow the format of the Public Notice Format in Appendix H. The applicant may wish to include in the notice a discussion of the facts which prompted the proposed rate ordinance, and the pros and cons of the enactment.

Section 5 - Implementation and Maintenance

A. Implementing Ordinances

A grantee's system of charges, as described in the final revenue program, must be incorporated in one or more municipal legislative ordinances or other legally binding requirements. The legislative action must be taken according to the following schedule:

1. Step 3 grants awarded under regulations promulgated on February 11, 1974: The proposed revenue program must be approved before funds can be released beyond the 50 percent level; a final revenue program must be approved and a rate ordinance implementing rates from the revenue program must be enacted before funds can be released beyond the 80 percent level.

2. For grants awarded after April 24, 1978: The implementing rate ordinance and an up-dated revenue program, if required, must be approved before 90 percent of construction. The actual collection of charges must begin when operation of the treatment works commences. A certification of enactment of an acceptable sewer use ordinance (Appendix C), or the ordinance, must also be sumbitted before funds can be released beyond the 90 percent level of construction.

3. Step 3 grants awarded after June 30, 1979: In addition to paragraph 2, above, a revenue program and a draft of the proposed rate ordinance must be approved before the Step 3 grant is awarded.

B. Accounting Systems

Accounting for revenues and expenses of wastewater conveyance, treatment, and disposal shall be separate from other activities of the grantee. A single fund or multiple funds may be established for these three wastewater activities. All special districts including County Water, Community Service and Public Utility districts must use the uniform system of accounts prescribed for wastewater disposal districts under Title 2, Division 2, Chapter 2, Sections 1101.1 through 1103.4 of the California Administrative Code. Those grantees not subject to the uniform system of accounts must establish accounting systems for wastewater treatment conveyance, treatment, and disposal which will provide essentially the same level of detail as the uniform system.

All revenues collected for operation and maintenance (including replacement) shall be deposited in a separate fund. This fund shall have two accounts, as follows:

1. Operation and Maintenance: Designated for the specific purpose of defraying the operation and maintenance costs of wastewater conveyance, treatment and disposal.

2. Replacement: Designated for the specific purpose of ensuring replacement funds are available to maintain the capacity and performance of the treatment works over its useful life. This fund does not include money set aside for unexpected price increases which should be accumulated in an operating reserve fund.

Fiscal year-end balances in the operation and maintenance account and the replacement account shall be used for no other purposes than those designated for these accounts. Monies which have been transferred from other sources to meet temporary shortages in the operation, maintenance and replacement fund shall be returned to their respective accounts upon appropriate adjustment of the user charge rates for operation, maintenance and replacement. The user charge rate shall be adjusted so that the transferred monies will be returned to their respective accounts within the fiscal year following the fiscal year in which the monies were borrowed. Any excess in the operations and maintenance fund may be used to adjust the rate for the user(s) causing the excess in the next year.

Revenues from use of reclaimed water shall be allocated and accounted for in accordance with Section 4.C of Article 1 of these guidelines.

C. Requirements for Review and Approval

Implementation and maintenance of an approved revenue program is required as a condition of every grant contract. Each grantee must maintain all records which are necessary to document compliance with Federal and State regulations.

The grantee is subject to audit by auditors from EPA and/or the State Controller's Office. Audits may be coordinated with operation and maintenance inspections and audits of other grant conditions.

The grantee shall review its rate structure and ordinances as required and revise them as necessary to reflect actual funding needs of the treatment works. A copy of the review work papers and rate ordinance change, if any, shall be forwarded to the Division's Revenue Program Specialist.

Any time rates are changed, a copy of the new rate ordinance/resolution shall be submitted to the Division's Revenue Program Specialist for review.

Article 2. Special Considerations

Section 1 - Regional Treatment Systems

Consolidation of treatment works is required in water quality control plans where feasible, desirable and economical to accomplish good water quality management. When treatment works serving more than one municipality are consolidated into a regional system, the following special requirements for institutional and financial arrangements apply.

A. Institutional Arrangements

Any number of institutional arrangements between agencies participating in a regional system are acceptable. Special districts or joint powers authorities may be formed or service agreements entered into which designate one agency as "lead agency" to apply for and receive grant funds. Regardless of which institutional arrangement is chosen, the user charge system outlined in the revenue program must cover all wastewater treatment or reclamation services provided by the grantee, and each participating agency must adopt its own user charge system rate ordinance or resolution.

B. Submission of Revenue Program for Regional System

If the regional agency is authorized to bill the individual users within the system, only one revenue program and rate ordinance/resolution is required. If the regional agency bills the subscribing agencies, which in turn bills the individual users, separate revenue programs are required for the regional and each subscribing agency. Each subscribing agency must also adopt its own rate ordinance/resolution based on the approved Revenue Program.

If each subscribing agency has reserved capacity in the regional plant, they must pay the fixed costs associated with that capacity in addition to the variable costs determined by their actual flow and loadings. For regional facilities which do not allocate specific capacity to each subscribing agency all costs may be based on the actual flow and loadings.

C. "Fair and Equitable" Guidelines

Grant contracts between the State and grantee require that the project be operated at all times to provide service to existing and future participating agencies, persons, and users on a fair and equitable basis. Accordingly, the Board has adopted "Guidelines for Administering the 'Fair and Equitable' Clause Contained in Clean Water Grant Contracts" (Appendix B), in order to insure fairness of the costs assessed to subscribing agencies and of the conditions imposed by the regional agency. Treatment work costs for both capital and operation and maintenance must be distributed among the participating agencies in direct proportion to use.

Assessing higher charges to users outside a municipality than to users inside does not comply with State and Federal Grant Regulations. Part or all of the outside charges may, however, be collected through a medium different from that used to collect inside charges. For example, in a given situation inside charges may be collected through a combination of ad valorem taxes and service charges, and outside charges collected entirely through a service charge that is equal to the sum of the inside charges for similar services. Additional charges may be assessed to outside users only if it is demonstrated that inside users pay indirectly for similar services.

Compensation for abandoned facilities and debt equalization programs may be beneficial if all agencies can agree on terms. However, it should be noted that negotiations on terms can cause delays.

Section 2 - Individual Systems

A system of user charges must be established where privately owned, alternative wastewater treatment works (including dual waterless/greywater systems) serve one or more principal residences or small commercial establishments which are neither connected nor a part of any conventional treatment works and where grant funds for construction are used.

Section 3 - Connection Fees

Normally, a portion of the capital costs of a project are recovered from future users through connection fees. If connection fees are not collected because anticipated growth does not occur, the capital costs of the plant must be recovered from the existing users. Because anticipated growth does not always occur, existing users should be informed of these potential costs before commitments are made to fund projects. Accordingly, for treatment works with more than 25 percent of the total treatment plant capacity reserved for future users, an analysis is required of the charges which would be assessed to existing users if anticipated growth does not occur. This analysis must be included in the proposed revenue program.

Connection fees may be used to recover debt service costs which would have been recovered on an annual basis, if the user had been connected when the treatment works began operation. This fee may not be used to recover excessive costs from future users of treatment works in order to reduce charges to current users. Connection fees may <u>not</u> be used to fund replacement costs.

For reclamation projects that free potable water for future use, a connection charge consistent with the added water supply benefit should be considered. If the availability of additional water produces growth related environmental impact(s), a portion of the connection fee may be used to mitigate the impact(s) consistent with Section 201(d) and (e) of the Clean Water Act.

Section 4 - Standby Charges

Standby charges may be used to recover debt service from potential users prior to connection, if service is available and the standby charge is proportionate to the available service. Standby charges shall not be charged to properties for which no capacity or insufficient capacity is available.

Section 5 - Minimum Charges

If a grantee charges by both flat rate for some users and water consumption, or variable rate for others, a minimum charge may be established for the variable rate users to collect the fixed costs of providing service. This charge must be the minimum charged to any user group. For example, if apartments are charged a flat rate which is less than the single family rate, the minimum charge to customers paying on water consumption would be the rate charged to apartments, not single family residences. The same minimum charge must be applied to all user groups which have a minimum charge, unless it can be shown that fixed costs vary significantly.

Section 6 - Ad Valorem Taxes

Unless a grantee has an approved system of ad valorem (A.V.) taxes, operation and maintenance (including replacement) costs must be collected by means of a user charge. Other costs (debt service, capital reserve, etc.) may be collected via ad volorem taxes. If ad valorem taxes are used for these purposes, the user charge for tax exempt organizations may <u>not</u> be adjusted to recoup these lost taxes (160 Cal Rptr 925; 100 CA 3d547).

Section 7 - Sewer Use Ordinance

Section 40 CFR 35.2122 and related sections of the EPA Construction Grants Program regulations require that each applicant for grant assistance for a Step 3 project demonstrate that a sewer use ordinance or other legally binding requirement will be enacted and enforced in each jurisdiction served by the treatment works.

Unless an executed copy of the sewer use ordinance is specifically requested by the Division, applicants or grantees may comply with these requirements by submitting certifications in accordance with the following:

1) A certification letter showing satisfactory evidence of compliance (Appendix C-1) must be submitted prior to the Step 3 grant award (40 CFR 35.2122). This letter must be signed by the person given authority to make grant applications.

2) A final certification letter (Appendix C-2) must be submitted prior to 90 percent completion of any Step 3 project or grant payments will be withheld (40 CFR 35.2208).

The State grant contract contains a grant condition stating that wastewater systems will be operated as a regional system, and will provide service to existing and future users on a fair and equitable basis. When the sewer use ordinance contains clauses differentiating between inside and outside users, the ordinance must be submitted for review to determine whether or not the "fair and equitable" clause has been violated.

Apendix C-3 contains paragraphs which may be incorporated in the sewer use ordinance that satisfy the federal requirements.

APPENDIX A

DEFINITIONS

As used in these Guidelines, the following words and terms shall have the meaning as set forth below:

Act: The Clean Water Act (33 U.S.C. 1251 et seq. as amended).

Ad Valorem Tax: A tax based upon the value of real property.

Applicant: A municipality which has applied for a grant.

CAC: California Administrative Code.

Capital Costs: Costs of major rehabilitation, expansion or upgrading required as facilities reach the end of their useful life.

CFR: Code of Federal Regulations.

Combined Sewer: Sewage - storm or industrial - storm drain combination.

Commercial User: All retail stores, restaurants, office buildings, laundries, and other private business and service establishments, including churches and lodges.

Connection Fee: A fee paid by a new system user for the capital costs of capacity made available for its use.

Construction: The planning, designing, and construction of any treatment works (for further definition refer to Sec. 35.2005 under construction).

Division: The Division of Water Quality of the State Water Resources Control Board.

Financial Plan: A description of the proposed institutional arrangements that will be used to manage the project, and of the amount and sources of funds necessary to finance the grantee's share of the project cost and to provide for cash flow during the design and construction periods.

Future Capacity: Available treatment works capacity which is not needed to serve existing users.

Grantee: A municipality that has executed a Federal grant agreement and a State grant contract.

Industrial User: Any nongovernmental nonresidential user of publicly owned treatment works which is identified in the Standard Industrial Classification Manual, 1972, Office of Management and Budget, as amended and supplemented, under the following division:

a. Division A - Agriculture, Forestry, and fishing;

b. Division B - Mining;

c. Division D - Manufacturing;

d. Division E - Transportation, Communications, Electric, Gas, and Sanitary;

e. Division I - Services.

A user in the Divisions listed may be excluded if it is determined that the user will introduce primarily segregated domestic waste or wastes from sanitary conveniences.

Infiltration: Water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

Inflow: Water other than wastewater that enters a sewer system (including sewer service connections) from sources such as, but not limited to, roof leaders, celler drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash waters, or drainage. Inflow does not include, and is distinguished from infiltration.

Municipality: Public body created by or pursuant to Federal or State law. (Further explanation may be found in Section 35.2005 under municipality.)

Project: The scope of work for which Federal assistance is awarded by a grant or grant amendment.

Reclaimed Water: Water which, as a result of treatment of waste, is suitable for direct beneficial use or a controlled use that would not otherwise occur. (California Water Code, Section 13050(n)).

Regional Agency: An entity selected or created to serve as the agency to represent a number of local agencies participating in a grant funded regional facility.

Rehabilitation: Extraordinary expenditures for obtaining and installing equipment, accessories, or appurtenances which extend the service life and/or improve the capacity or efficiency of the treatment works as originally designed. Rehabilitation costs are considered capital outlays.

Replacement: Expenditures for obtaining and installing equipment, accessories, or appurtenances which are necessary during the service life of the treatment works to maintain the capacity and performance for which such works were designed and constructed. The term "operation and maintenance" (O & M) includes replacement.

Revenue Program: A formally documented determination of charges which is designed to provide revenues for operation and maintenance (including replacement), and local debt service for treatment works, and which demonstrates compliance with Federal Grant Regulations on user charges.

Service Charge: A charge levied on a user of the treatment works which includes a user charge to recover the costs of operation and maintenance (including replacement) and which may include a charge for capital reserve and debt service.

Subscribing Agency: A public sewering agency which contributes wastewater from its sewage collection system to a system operated by another municipality.

Treatment Works: Any devices and systems used in the collecting, storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature to implement Section 201 of the Act, or necessary to recycle or reuse water at the most economical cost over the useful life of the works. See 40 CFR 35.2005 Treatment Works for further explanation.

User: A recipient of wastewater treatment services as described in the definition of "Treatment Works".

User Charge: A charge levied on users of a treatment works for the cost of operation and maintenance, including replacement (40 CFR 35.2005.)

APPENDIX B

GUIDELINES FOR ADMINISTERING "FAIR AND EQUITABLE" CLAUSE CONTAINED IN CLEAN WATER GRANT CONTRACTS

INTRODUCTION

The State Board became involved in consolidation and regionalization of wastewater treatment facilities as a result of the Clean Water Bond Law of 1970. This law made large amounts of State and Federal funds available to local agencies for construction of wastewater facilities. In order to maximize the benefit obtained from grant funds, the State Board has a responsibility to encourage and require regionalization and consolidation of facilities where such regionalization or consolidation would result in a more efficient and economical solution to local problems. No participant in grant funded regional facilities should be permitted to utilize such facilities unfairly or inequitably.

In some cases, however, the concept of regionalization of facilities was impeded by the attitudes and conduct of the entity selected as the regional agency. In these cases, the regional agency was either reluctant to furnish service to other local agencies or areas which should be served by the regional facilities, or the regional agency sought to impose unreasonable costs or inequitable conditions upon local agencies or areas which were intended to be served by the regional facilities.

In order to meet the problems just indicated, and to foster necessary regionalization and consolidation of treatment works, State grant contracts, where appropriate, were written to contain a special condition. This condition stated that systems would be developed and operated as regional systems, sized to meet regional needs and that service would be provided to existing and future agencies on a fair and equitable basis.

GUIDELINES

Intent. The intent of the "fair and equitable" requirement is to protect agencies which are required to join regional systems as a result of State Board planning decisions, from undue financial burdens or inequitable treatment by the regional agencies. These guidelines are directed at two areas of concern:

1. The cost assessed to incoming agencies or areas, and
2. The appropriateness of conditions imposed by the regional agency.

It is recognized that in some cases an outlying community may have a separate cost associated with collecting waste and transporting this waste to a regional system. If this cost results from a separate system owned and operated by the outlying community the cost would be the sole responsibility of the outlying community. However, once the waste reaches the boundary of a grant supported regional system as defined by the State's planning program, the regional facility shall be available to the outlying community and these guidelines shall apply.

Reasonable Costs and Charges. The costs and charges assessed by the regional agency against incoming agencies and areas shall not exceed the actual costs incurred by the regional agency in furnishing service to the incoming agency or area. In determining reasonable costs and charges, consideration should be given to the following items:

1. The amount of hydraulic flow (both peak and average) from the incoming agency or area.

2. The strength of the waste to be treated (BOD, COD, etc.) from the incoming agency or area.

3. Special characteristics of the waste (is it toxic and liable to cause plant upset or require additional treatment facilities for adequate treatment) from the incoming agency or area.

4. The original costs, interest paid to date, remaining life and grant funded portion of existing facilities.

5. Capacity of grant funded facilities allocated to the incoming agency or area.

6. Costs of treatment and conveyance, including both capital costs and operation and maintenance costs.

Costs which exceed the actual costs incurred by the regional agency and which in effect penalize incoming agencies or areas are improper and are not considered fair and equitable. Costs of treatment, both capital costs and operation and maintenance costs, must be apportioned among the users in direct proportion to the actual or allocated use. Costs of conveyance may be assigned directly to an incoming agency or area in direct proportion to use if it is geographically separate or if it has other distinct and discrete characteristics; otherwise, all conveyance costs shall be considered a basic part of the regional facilities and shall be lumped together with treatment costs and apportioned in the same manner as are treatment costs.

Conditions for Service. Incoming agencies and areas shall be subjected to conditions which are reasonably related to and necessary for maintenance of the integrity and treatment capacity of the regional facilities. For example, the following types of conditions will ordinarily be considered appropriate:

1. Conditions which limit flows from the incoming agency or area to that flow allocated to this agency or area as a part of grant funding.

2. Conditions requiring adequate maintenance of the collection system of the incoming agency or area.

3. Conditions which require the incoming agency or area to adopt and implement necessary source control or industrial pretreatment program.

Conditions which interfere with the jurisdiction and authority of the incoming agency or area, except as necessary to maintenance of the integrity and treatment capacity of the regional facilities are improper.

PROCEDURE FOR RESOLVING DIFFERENCES BETWEEN AGENCIES

The regional agency and incoming agencies or areas should make every attempt to reach an amicable agreement. However, any such agreement must reflect charges reasonably proportional to the costs of services rendered and must comply with the State Board's Revenue Program Guidelines. If agreement cannot be reached by the local agencies, the State Board staff will make such a determination in accordance with these guidelines. If either party feels that the staff's determination is not proper, they may appeal the decision to the State Board.

CERTIFICATION

The undersigned, Executive Officer of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true and correct copy of guidelines duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 1, 1973.

Bill B. Dendy

Bill B. Dendy
Executive Officer

B
14-3

APPENDIX C-1

SATISFACTORY EVIDENCE OF COMPLIANCE

SEWER USE ORDINANCE

I, (name) certify, as a duly authorized representative of (grantee), that the (grantee) will have, in each jurisdiction served by the treatment works, an enacted sewer use ordinance or other legally binding requirement, which will comply with 40 CFR 35.2130. This ordinance will be enacted prior to 90% of construction and enforced upon completion of construction.

Date (typed)

Telephone (typed)

Name (signature)

(typed)

Title (typed)

APPENDIX C-2

LETTER OF CERTIFICATION FOR

SEWER USE ORDINANCE

I, (name) , an attorney at law, authorized to practice law in the State of California, and employed as legal counsel for (grantee) , have reviewed the grantee's enacted sewer use ordinance. This ordinance meets the requirements of Federal Regulations 40 CFR 35.2130 in that:

1) It prohibits any new connections from inflow sources to the sanitary sewer portions of the sewer system; and
2) It requires new sewers and connections to the sewer system to be properly designed and constructed; and
3) It prohibits the introduction into the treatment works of any toxics or other pollutants in amounts or concentrations that endanger public safety and physical integrity of the treatment works; or cause violation of effluent or water quality limitation; or preclude the selection of the most cost effective alternative for wasteweater treatment and sludge disposal.

It is my opinion that the grantee has the legal authority to enforce these provisions of the sewer use ordinance upon all existing and future users of the wastewater treatment works.

Date (typed)

Telephone (typed)

Name (signature)

(typed)

Title (typed)

APPENDIX C-3

SAMPLE PARAGRAPHS TO SATISFY THE
FEDERAL REQUIREMENTS IN 40 CFR 35.2130

1) The ordinance shall prohibit any new connections from inflow sources into the sanitary sewer portions of the sewer system.

Example: Prohibited Waste Discharges

No person shall discharge or cause to be discharged any rainwater, stormwater, groundwater, street drainage, subsurface drainage, yard drainage, including evaporative type air cooler discharge water, into any sewerage facility which is directly or indirectly connected to the sewerage facilities of the City (Sanitary District);

and

Discharge of Rainwater

Any rainwater, stormwater, groundwater, or water from street drainage, subsurface drainage, or yard drainage water.

2) The ordinance shall insure that new sewers and connections to the sewer system are properly designed and constructed.

Example: Plans for sewerage construction shall meet all design requirements of the public corporation having area jurisdiction and shall also meet the design requirements as established from time to time by the Engineer;

and

Inspection of all sewerage construction shall be made by personnel of the City (District) in the manner described in the following sections:

In addition, the City's (District's) sewer design and construction specifications must define a maximum allowable infiltration/exfiltration rate for new sewers.

3) The ordinance shall prohibit the introduction of toxics and certain pollutants.

Example: No person shall discharge or cause to be discharged to any public sewer which directly or indirectly connects to the District sewerage system any toxic or other wastes, if in the opinion of the Manager such wastes may have an adverse or harmful effect on sewers, maintenance personnel, wastewater treatment plant personnel or equipment, treatment plant effluent quality, public or

private property, or may otherwise endanger the public, the local environment or create a public nuisance. The District Manager in determining the acceptability of specific wastes, shall consider the nature of the waste and the adequacy and nature of the collection, treatment and disposal system available to accept the waste.

LIST OF USEFUL LIVES AND ALLOCATION PARAMETERS

To reasonably allocate costs among the various users of wastewater treatment works, a "useful life" must be determined for each major component. Also, the cost of each component must be attributed to its major function. Following is a list of acceptable lives and loading parameters. These are satisfactory for general applications, but the design engineer may wish to adjust them for a specific treatment works. However, use of other parameters or useful lives must be substantiated by documentation or reference.

Treatment Units Component	A Loading Parameter	B Useful Life	Treatment Units Component	A Loading Parameter	B Useful Life
Grit Chamber			Digester		
Structure	Flow	40 yrs.	Structure	50% BOD 50% SS	30 yrs.
Equipment	SS	15	Equipment	50% BOD 50% SS	12
Screen or comminutor			Pumping stations		
Structure	Flow	40	Structures	Flow	40
Equipment	SS	15	Equipment	Flow	20
Influent pump station			Ponds		
Structure	Flow		Embankment	Flow	50
Equipment	Flow	15	Equipment	BOD	20
Primary clarifier			Sludge thickening		
Structure	Flow	40	Structure	50% BOD 50% SS	40
Equipment	35% BOD 65% SS	25	Equipment	50% BOD 50% SS	15
Activated sludge					
Structure	25% BOD 75% Flow	40	Buildings	Flow	40
Equipment	BOD	25	Carbon adsorption	BOD	25
Trickling filter					
Structure	25% BOD 75% Flow	40	Interceptor		50
Equipment	BOD	20			
Secondary clarifier			Outfall		75
Structure	Flow	40			
Equipment	BOD	25			
Chlorination facilities					
Structure	Flow	30			
Equipment	Flow	12			

If alternative values more applicable to the treatment works as determined by the design authority are used, they must be approved by the Division. "Useful life" refers to expected period of time during which specific components are expected to remain operable (as used in the Uniform System of Accounts) and not as defined in Section 35.905–25 of the EPA regulations.

COMMERCIAL USER STRENGTH CHARACTERISTICS

The attached list was derived from the data made available to the State Water Resources Control Board (SWRCB) staff by East Bay Municipal Utility District, San Jose, Los Angeles County Sanitation District, and the Sacramento Regional County Sanitation District. The results generally represent the mean of the values used by the large agencies which collected the data with extreme values eliminated in some cases.

The SWRCB staff feels that the data on strength is representative of most cities in California. The data is provided for your information and it will be accepted by the SWRCB staff. If you feel that the data provided in the enclosure is not representative of your service area, please feel free to utilize more representative data. If strength values for commerical users other than those provided on this list are utilized, supporting data should be submitted to verify those strength values.

STANDARD CLASSIFICATIONS	CHARACTERISTIC STRENGTH	
	BOD (ppm)	SS (ppm)
Average Residential (varies depending on average water usage per capita)	175 - 200	175 - 200
Auto Steam Cleaning	1,150	1,250
Bakery, Wholesale	1,000	600
Bars Without Dining Facilities	200	200
Car Wash	20	150
Department & Retail Stores	150	150
Hospital & Convalescent	250	100
Hotel With Dining Facilities	500	600
Hotel Without Dining Facilities	310	120
Industrial Laundry	670	680
Laundromat	150	110
Commercial Laundry	450	240
Markets With Garbage Disposals	800	800
Mortuaries	800	800
Professional Office	130	80
Repair Shop and Service Stations	180	280
Restaurant	1,000	600
School & College	130	100
Soft Water Service	3	55
Septage	5,400	12,000

G

Table G-1.

ESTIMATED WATER CONSUMPTION AT DIFFERENT TYPES OF ESTABLISHMENTS [16]

Type of establishment	Flow, gpd/ person or unit
Dwelling units, residential:	
Private dwellings on individual wells or metered supply	50–75
Apartment houses on individual wells	75–100
Private dwellings on public water supply, unmetered	100–200
Apartment houses on public water supply, unmetered	100–200
Subdivision dwelling on individual well, or metered supply, per bedroom	150
Subdivision dwelling on public water supply, unmetered, per bedroom	200
Dwelling units, treatment:	
Hotels	50–100
Boarding houses	50
Lodging houses and tourist homes	40
Motels, without kitchens, per unit	100–150
Camps:	
Pioneer type	25
Children's, central toilet and bath	40–50
Day, no meals	15
Luxury, private bath	75–100
Labor	35–50
Trailer with private toilet and bath, per unit (2½ persons)*	125–150
Restaurants (including toilet):	
Average	7–10
Kitchen wastes only	2½–3
Short order	4
Short order, paper service	1–2
Bars and cocktail lounges	2
Average type, per seat	35
Average type, 24-hr, per seat	50
Tavern, per seat	20
Service area, per counter seat (toll road)	350
Service area, per table seat (toll road)	150
Institutions:	
Average type	75–125
Hospitals	150–250
Schools:	
Day, with cafeteria or lunch room	10–15
Day, with cafeteria and showers	15–20
Boarding	75
Theatres:	
Indoor, per seat, two showings per day	3
Outdoor, including food stand, per car (3½ persons)	3–5

ESTIMATED WATER CONSUMPTION AT DIFFERENT TYPES OF ESTABLISHMENTS [16] *(Continued)*

Type of establishment	Flow, gpd/person or unit
Automobile service stations:	
Per vehicle served	10
Per set of pumps	500
Stores:	
First 25-ft frontage	450
Each additional 25-ft frontage	400
Country clubs:	
Resident type	100
Transient type, serving meals	17- 25
Offices	10–15
Factories, sanitary wastes, per shift	15–35
Self-service laundry, per machine	250–500
Bowling alleys, per alley	200
Swimming pools and beaches, toilet and shower	10–15
Picnic parks, with flush toilets	5–10
Fairgrounds (based on daily attendance)	1
Assembly halls, per seat	2
Airport, per passenger	2½

[a] Add 125 gallons per trailer space for lawn sprinkling, car washing, leakage, etc.
Note: Water under pressure, flush toilets, and wash basins are assumed provided unless otherwise indicated. These figures are offered as a guide; they should not be used blindly. Add for any continuous flows and industrial usages. Figures are flows per capita per day, unless otherwise stated.

G

Table G-2.

DESIGN UNIT SEWAGE FLOWS FOR RECREATIONAL FACILITIES

Yellowstone National Park

Establishment	Unit	Flow, gpd/unit
Campground (developed)	Person	25
Lodge or cabins	Person	50
Hotel	Person	75
Trailer village	Person	35
Dormitory, bunkhouse	Person	50
Residence homes, apartments	Person	75
Mess hall	Person	15
Offices and stores	Employee	25
Visitor centers	Visitor	5
Cafeteria	Table seat	150
Dining room	Table seat	150
Coffee shop	Counter seat	250
Cocktail lounge	Seat	20
Laundromat	Washing machine	500
Hospital	Bed	200
Gas station	Station	2,000–5,000
Fish-cleaning station	Station	7,500

G

Table G-3

AVERAGE SEWAGE FLOWS FROM INSTITUTIONAL FACILITIES [1, 6]

Institution	Average flow, gpcd
Medical hospital	175
Mental hospital	125
Prisons	175
High schools	20
Elementary schools	10

G

Table G-4

SEWAGE FLOWS FROM COMMERCIAL DISTRICTS [6]

Establishment	Unit	Average flow, gpd/unit
Shopping center	Employee	60
Small business	Employee	20
Restaurant	Meal	7
Airport	Passenger	5
Theater	Seat	5
Motel	Person	50
Hotel	Person	100

G

Table G-5

FIXTURE UNITS PER FIXTURE OR GROUP [20]

Fixture type	Fixture unit value as load factors**
1 bathroom group consisting of tank-operated water closet, lavatory, and bathtub or shower stall	6
Bathtub* (with or without overhead shower)	2
Bidet	3
Combination sink-and-tray	3
Combination sink-and-tray with food-disposal unit	4
Dental unit or cuspidor	1
Dental lavatory	1
Drinking fountain	½
Dishwasher, domestic	2
Floor drains	1
Kitchen sink, domestic	2
Kitchen sink, domestic, with food waste grinder	3
Lavatory	1
Lavatory	2
Lavatory, barber, beauty parlor	2
Lavatory, surgeon's	2
Laundry tray (1 or 2 compartments)	2
Shower stall, domestic	2
Showers (group) per head	3
Sinks:	
Surgeon's	3
Flushing rim (with valve)	8
Service (trap standard)	3
Service (P trap)	2
Pot, scullery, etc.	4
Urinal, pedestal, syphon jet, blowout	8
Urinal, wall lip	4
Urinal stall, washout	4
Urinal trough (each 2-ft section)	2
Wash sink (circular or multiple), each set of faucets,	2
Water closet, tank-operated	4
Water closet, valve-operated	8

* A shower head over a bathtub does not increase the fixture value.
Note: For a continuous or semicontinuous flow into a drainage system, such as from a pump, pump ejector, air-conditioning equipment, or similar device, two fixture units shall be allowed for each gpm of flow.

** A fixture unit is equivalent to 1 cfm (cubic ft/min)

MISCELLANEOUS WATER USAGE ESTIMATES [16]

Unit	Normal water consumption
Water closet, tank	4–6 gal/use
Water closet, flush valve, 25 psi	30 gpm
Wash basin	1½ gal/use
Bathtub	30 gal/use
Shower head	25–30 gal/use
Garden hose, ⅝ in., 25-ft head	200 gph
Garden hose, ¾ in., ¼-in. nozzle, 25-ft head	300 gph
Fire hose, 1½ in., ½-in. nozzle, 70-ft head	2,400 gph
Continuous flowing drinking fountain	75 gph
Lawn sprinkler	120 gph
Automatic home laundry machine	30–50 gal/load
Dishwashing machine, home type	6 gal/load
Dishwashing machine,* commercial:	
Stationary rack type, at 15 psi	6–9 gpm
Conveyor type, at 15 psi	4–6 gpm
Garbage grinder, home type	1–2 gpd/person

Water use†	gpm	Total gal	gpcd
Automatic home-type washing machine	3–7	36–50 per load	6.5–9
Automatic home-type dishwasher	2.5–5	4–8 per load	6
Garbage disposal unit, home-type	1.5–2.5	...	3–4
Lawn sprinkler, 3,000-sq-ft lawn, 1-in./week	...	1,850 per week	75
Air conditioner, home-type, water-cooled, 3-ton unit, 8 hr./day, 2 gpm/ton	6	2,880 per day	825

* Does not include water to fill wash tank.
† Adapted from "Land Uses and Water Consumption Requirements," *Public Works*, 90, 120; April, 1959. (Abstract and condensation of thesis by Rodolfo Silva.)

1. **Babbitt**, H. E., and E. R. Baumann: *Sewerage and Sewage Treatment*, 8th ed., Wiley, New York, 1958.

6. Hubbell, J. W.: Commercial and Institutional Wastewater Loadings, *J. WPCF*, vol. 34, no. 9, 1962.

16. **Salvato, J. A.:** The Design of Small Water Systems, *Public Works*, vol. 91, no. 5, 1960.

20. **United States** of America Standards Institute, *National Plumbing Code*, USASI A40.8, 1955.

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Table W-7

TYPICAL COMPOSITION OF DOMESTIC SEWAGE

(All values except settleable solids are expressed in mg/liter)

Constituent	Concentration		
	Strong	Medium	Weak
Solids, total	1,200	700	350
Dissolved, total	850	500	250
Fixed	525	300	145
Volatile	325	200	105
Suspended, total	350	200	100
Fixed	75	50	30
Volatile	275	150	70
Settleable solids, (ml/liter)	20	10	5
Biochemical oxygen demand, 5-day, 20°C (BOD_{5}-20°)	300	200	100
Total organic carbon (TOC)	300	200	100
Chemical oxygen demand (COD)	1,000	500	250
Nitrogen, (total as N)	85	40	20
Organic	35	15	8
Free ammonia	50	25	12
Nitrites	0	0	0
Nitrates	0	0	0
Phosphorus (total as P)	20	10	6
Organic	5	3	2
Inorganic	15	7	4
Chlorides*	100	50	30
Alkalinity (as $CaCO_3$)*	200	100	50
Grease	150	100	50

* Values should be increased by amount in carriage water.

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Table W-8

ESTIMATE OF THE COMPONENTS OF TOTAL WASTEWATER

Component	Dry weight, gpcd
Water supplies and ground water, assumed to have little hardness	12.7
Feces (solids, 23%)	20.5
Urine (solids, 3.7%)	43.3
Toilet (including paper)	20.0
Sinks, baths, laundries, and other sources of domestic wash waters	86.5
Ground garbage	30.0
Water softeners	*
Total for domestic sewage from separate sewerage systems, excluding contribution from water softeners	213.0
Industrial wastes	200.0‡
Total for industrial and domestic wastes from separate sewerage system	413.0
Storm water	25.0†
Total for industrial and domestic wastes from combined sewerage system	438.0

* Variable.
† Will vary with the season.
‡ Will vary with the type and size of industries.

APPENDIX H

PUBLIC NOTICE FORMAT

NOTICE OF PROPOSED CHANGE IN WASTEWATER TREATMENT RATES

The City Council of the City of Springvale is considering a rate ordinance for wastewater treatment which provides that capital costs will not be recovered in proportion to system use. The effect of the ordinance is to reduce costs to industrial and commercial users with a corresponding increase in the rates to residential users.

The following table shows the rates proposed to be charged typical users in the industrial, commercial, and residential categories using the proposed rate structure. The table compares these rates with what they would be if they were calculated in proportion to system use.

PROPOSED MONTHLY CHARGES

Type of User	Proposed Rate Structure	Proportion to Use	Difference
Largest Industrial User	$1,500	$2,000	-$500
Typical Industrial User	$ 750	$1,000	-$250
Typical Commercial User	$ 300	$ 400	-$100
Typical Residential User	$ 9	$ 7	+$ 2

The City Council invites you to attend and participate in a public discussion of this proposed ordinance. It will be held:

Date:

Time:

Place:

Any comments which are received by the City Council prior to this date will also be considered.

(A discussion of the facts which prompted the proposed rate ordinance and the pros and cons of its enactment may be inserted here or included on a separate sheet of paper).

APPENDIX I

REVENUE PROGRAM FORMS

AND

INSTRUCTIONS

FORM 1. SUMMARY OF USERS AND WASTE CHARACTERISTICS

1. PURPOSE:

   (a) To identify groups of residential, commercial and industrial users.

   (b) To show wastewater characteristics, design capacity to be provided, and estimated annual volumes and quantities of pollutants for these groups, and for the special classification.

2. TO COMPLETE THE FORM:

   COLUMN

   A — Enter number of users (connections) in each group.

   B — Enter names of users or user groups. See Appendix F for list of typical commercial user groups.

   C-E — Show wastewater characteristics for each parameter: Average dry weather flow in MGD, BOD and SS in mg/l (See Appendix F).

   F-H — Show design capacity for design flow, BOD and SS in lbs/day.

   I-K — Enter estimated annual contributions for each parameter: Average dry weather flow volume in MG, BOD and SS in total lbs. or 1,000 lbs.

3. NOTES:

   (a) If BOD and SS do not adequately describe the wastewater, use COD, TOD, settleable solids, or other relevant parameters. The loading shall be consistent with the design basis of the treatment works.

   (b) Total annual capacity should be based on a 365 day use for all user groups. Variations from the 365 day use must be approved by Division of Water Quality, Financial Management Unit.

   (c) I/I must be separately identified. The difference between ADWF (col C) and design flow (col F) is that design flow is the peak flow for seasonal users.

FORM 1

MUNICIPALITY: _____

Summary of Users and Wastewater Characteristics

DATE: _____

A Number of Users	B USERS USER GROUPS	WASTEWATER CHARACTERISTICS C ADWF MGD	D BOD MG/L	E SS MG/L	DESIGN CAPACITY F DESIGN FLOW MGD	G BOD LBS/DAY (DxFx 8.34)	H SS LBS/DAY (ExFx 8.34)	TOTAL ANNUAL CAPACITY I VOLUME MG (Cx365)	J BOD LBS (CxDx 3044)	K SS LBS (CxEx 3044)
	Subtotal									
	Special Classifications									
	Infiltration/Inflow									
	Future Capacity									
	TOTALS									

FORM 2: OPERATION AND MAINTENANCE (INCLUDING REPLACEMENT) COST DATA

1. PURPOSE:

   (a) To show current year O&M costs and estimated O&M costs in accordance with Article 1, Section 2A of the Revenue Program Guidelines.

   (b) To show current year Administration costs and estimated Administration costs in accordance with Article 1, Section 4B of the Revenue Program Guidelines.

   (c) To establish an operating reserve fund as discussed in Article 1, Section 2D of the Revenue Program Guidelines (Operating reserves are strongly recommended, but not required by these guidelines).

2. TO COMPLETE THE FORM:

   (a) Each municipality should enter cost date as required. For regional facilities, the lead agency and each subscribing agency should enter on this form only the cost incurred on its own facilities. For example, the lead agency may operate and maintain the treatment plant and interceptor and each subscribing agency may operate and maintain its own collection systems.

   (b)* Fixed costs are those costs which do not vary directly with flow (i.e., labor, testing, etc.). Replacement costs, which are normally fixed costs, must be separately identified.

   (c)* Variable costs (separation of these costs is optional - all costs may be included in the fixed costs total if desired) are costs which vary directly with flow (i.e. chemicals).

   (d) Methods for estimating the amount of reserves to be established in the Operating Reserve Fund are set forth in Article 1, Section 2D of the Revenue Program Guidelines.

   (e) Show total outstanding indebtedness (principal and interest) for current year and first full year of operation on Line 7.

3. NOTES:

   (a) Replacement costs will be calculated in accordance with Article 1, Section 2 of the Revenue Program Guidelines. Records showing computations will be retained by grantee and are subject to audit.

*Separating costs into variable/fixed components is optional. All costs, except replacement, may be combined if desired.

MUNICIPALITY: _____ DATE: _____

FORM 2

Operation and Maintenance Costs and Debt Service

COST CATEGORY	CURRENT YEAR YEAR:	ESTIMATED COST FIRST FULL YEAR OF OPERATION YEAR:
1. TREATMENT FACILITIES		
FIXED COSTS		
REPLACEMENT COSTS		
TOTAL FIXED COSTS		
VARIABLE COSTS		
SUBTOTAL		
2. COLLECTION SYSTEM		
FIXED COSTS		
REPLACEMENT COSTS		
TOTAL FIXED COSTS		
VARIABLE COSTS		
SUBTOTAL		
3. MISCELLANEOUS		
OVERHEAD		
OPERATING RESERVE		
OTHER		
SUBTOTAL		
4. TOTAL - FIXED COSTS		
5. TOTAL - VARIABLE COSTS		
6. TOTAL O&M COSTS		
7. DEBT SERVICE		
PRINCIPAL & INTEREST		

FORM 3: CAPITAL COST ALLOCATION (NOT REQUIRED IF FLOW ONLY IS USED).

1. PURPOSE:

   (a) To show computation of capital cost percentages to be allocated among users for flow, BOD and SS. Other parameters must be shown if applicable.

   (b) To compute Federal grant amount and local cost.

2. TO COMPLETE THE FORM:

   (a) Enter total costs of collection system, treatment plant and outfall/intercept in column B.

   (b) Allocate cost for flow, BOD and SS for treatment plant according to parameters for components shown in Appendix E. Enter totals only, but retain work papers for subsequent audit. Collection system and outfall/intercept will be allocated 100 percent to flow.

3. NOTES:

   (a) To determine the Federal grant amount (line 11), multiply total GF costs (line 9), Column B, by 75 percent.

   (b) Records showing computations of allocations to flow, BOD and SS will be maintained by grantee and are subject to audit.

MUNICIPALITY: _____

DATE: _____

FORM 3

Cost Allocation

	A	B TOTAL COST	C FLOW		D BOD		E SS	
			%	$	%	$	%	$
	COSTS:							
1.	COLLECTION SYSTEM							
2.	TREATMENT PLANT							
3.	OUTFALL/INTERCEPT							
4.	TOTAL PROJECT COST							
5.	STEP 3 ADMIN. COST							
6.	STEP 1 & 2 COSTS							
7.	SUBTOTAL - ALL COSTS							
8.	LESS EXCLUSIONS							
9.	TOTAL G.F. COSTS							
10	LOCAL SHARE (8 + 12 1/2% of 9)							

* For Exclusions, See Appendix , Paragraph 8.

FORM 4: UNIT COST DETERMINATION

1. PURPOSE:

   (a) To calculate the unit cost for each parameter.

2. TO COMPLETE THE FORM:

   COLUMN

   B — List the parameter allocation percentages determined from Forms 3. For infiltration/inflow (I/I), the allocation will be based on percentage of flow parameter only. This is calculated from Form 1 by dividing infiltration/inflow (column I) by total annual volume.

   C — Allocate annual costs to each parameter. Annual O&M and Operating Reserve Fund and debt service costs are obtained from Form 2. Capital Outlay costs can be determined at the discretion of the Grantee.

   D — Total quantities are obtained from Form 1. Modify total flow for I/I. (See note (d) below)

   E — Unit costs are obtained by dividing total cost for each parameter, column C, by column D.

3. NOTES

   (a) Allocation of costs for O&M can be calculated on the basis of (i) 1/3 to each parameter, (ii) the capital cost allocations from Form 3, or (iii) any other allocation which can be justified by the Grantee.

   (b) A participating or subscribing agency should have separate unit cost determinations which show those costs incurred prior to discharging wastewater into facilities controlled and operated by the regional agency.

   (c) Operating Reserves can be included in O&M, Item 4, Column C. However, if separate, show on another Form 4.

   (d) Total design quantities will be used for Debt Service and Capital Outlay. Total annual quantities will be used for O&M. If fixed and variable costs are separately identified on Form 2, fixed costs will be allocated by design flow and variable costs by ADWF (separate Form 4's will be used for fixed and variable costs).

FORM 4

MUNICIPALITY _____

UNIT COST DETERMINATION

DATE _____

A Cost Category	B Parameter Allocation Percentages	C Annual Cost Allocated to Each Parameter	D Total Quantities (See Instructions)	E Unit Cost $ For Each Parameter
1. CAPITAL OUTLAY	Optional			
I/I				
Flow				
BOD				
SS				
2. DEBT SERVICE	From Form 3 Line 7	From Form 2 Line 7		
I/I				
Flow				
BOD				
SS				
3. O&M Variable		From Form 2 Line 5		
I/I				
Flow				
BOD				
SS				
4 O&M Fixed		From Form 2 Line 4		
I/I				
Flow				
BOD				
SS				

FORM 5: SUMMARY OF FUND COSTS

1. PURPOSE:

   (a) To calculate the total costs for each user/user group based on the various funds (O&M, Debt Service, Capital Outlay). A separate Form 5 will be needed for each fund utilized.

2. TO COMPLETE THE FORM:

   COLUMN

   A, B — Same as Form 1.

   C, E, G — Write in parameters from Form 1, for each fund. For the Debt Service and Capital Outlay funds, use design capacity. Annual capacity will be used for the O&M fund. If O&M costs are separated into fixed and variable costs, design capacity will be used for fixed costs and annual capacity for variable costs.

   D, F, H — Dollar amounts are determined by multiplying the parameters in Columns C, E, and G by the unit cost at the top of each group of columns.

   I — This column is a summation of parameters costs from Columns D, F, and H for each user/user group.

3. NOTES

   (a) The Operating Reserve Fund is included on Form 2 as part of the total Operation and Maintenance Costs. If the municipality desires to keep a separate accounting for operating reserves in an Operating Reserve Fund, then a separate Form 5 will be required for this fund. (Reduce the O&M cost accordingly.) The applicable unit parameters for the Operating Reserve Fund will be the same as for Operations and Maintenance Costs.

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: _____ DATE: _____

A Number of Users	B USER GROUP	FLOW		BOD		SS		TOTAL
		UNIT COST =		UNIT COST =		UNIT COST =		
		C FLOW	D $	E BOD	F $	G SS	H $	I $
	INFILTRATION/INFLOW							
	FUTURE CAPACITY							
	FEDERAL FACILITIES							
	TOTALS							

FORM 6: ANNUAL REVENUE REQUIRED

1. PURPOSE:

   (a) To sum up individual fund costs from Form 7.

2. TO COMPLETE THE FORM:

   COLUMN

   A, B — Same as Forms 1 and 5.

   C-E — Transfer Fund costs from Form 5, Column I.

   F — Administrative Costs can either be included with O&M Costs or calculated separately. One method of calculation is to divide the total administration costs (Form 2, Lines 3, 4, 5) by the total number of users (Form 8, Column A) and then multiply this value by the number of users in each user group.

   G — I/I can be included in other costs or separately allocated. I/I may be allocated by the same manner as O&M costs, flow volume of users, land area of users, number of hook-ups or discharges of users or property value of users if use of ad valorum taxes has been approved.

   H — Any other parameter utilized.

   I — Summation of Columns C through H.

   J — Column I divided by Column A for each user group.

   K — Column J divided by 12.

3. NOTE:

   (a) Use only those columns applicable to your program.

MUNICIPALITY: _____

FORM 6

DATE: _____

Total Revenue

A NUMBER OF USERS	B USER GROUPS	C FIXED O&M	D VAR O&M	E DEBT SERVICE	F CAPITAL OUTLAY	G I/I	H	I Total Annual Revenue Required	J Average Annual Revenue Required	K Average Monthly Revenue Required
	INFILTRATION/INFLOW									
	FUTURE CAPACITY									
	FEDERAL FACILITIES									
	TOTAL									

FORM 7: RATE DETERMINATION AND REVENUE PROGRAM SUMMARY

1. PURPOSE:

   (a) To show proposed method for collecting the total monthly revenues shown on Form 6, Column I. The municipality must develop a charge system that results in distribution of costs which are reasonably proportional to each user's contribution to the treatment works.

   (b) To show a summary of total revenues and total disbursements.

2. TO COMPLETE THE FORM:

   (a) Charge systems may include a combination of one of more of the following:

      (1) Flat rates

      (2) Rates based on water consumption

      (3) Rates based on monitoring

      (4) Connection fees

      (5) Standby charges

      (6) Ad-Valorem taxes

   (b) The summary of total revenues and disbursements should include a complete breakdown of revenue sources and disbursements into the various fund structures.

FORM 7

MUNICIPALITY _____ DATE _____

RATE DETERMINATION AND REVENUE PROGRAM SUMMARY

FIRST FULL YEAR OF OPERATION _____

EXHIBIT 1

FORM 1 MUNICIPALITY: _____

Summary of Users and Wastewater Characteristics DATE: _____

A Number of Users	B USERS USER GROUPS	WASTEWATER CHARACTERISTICS C ADWF MGD	D BOD MG/L	E SS MG/L	DESIGN CAPACITY F DESIGN FLOW MGD	G BOD LBS/DAY (DxFx 8.34)	H SS LBS/DAY (ExFx 8.34)	TOTAL ANNUAL CAPACITY I VOLUME MG (Cx365)	J BOD LBS (CxDx 3044)	K SS LBS (CxEx 3044
17,480	RESIDENTIAL	3.71	260	285	3.71	8045	8818	1354.2	2,936,242	3,218,57
325	COMMERCIAL	0.37	260	285	0.37	802	879	135.1	292,833	320,99(
40	RESTAURANTS	0.05	1,000	600	0.05	417	250	18.3	152,200	91,32(
5	MARKETS	0.01	800	800	0.01	67	67	3.7	24,352	24,35
17,850	Subtotal	4.14			4.14	9331	10,014	1,511.3	3,405,627	3,655,23
XX	Special Classifications									
XX	Infiltration/Inflow	0.56	XX	XX	0.56	XX	XX	204.4	XX	XX
XX	Future Capacity	1.30			1.30	2819	3090	XX	XX	XX
	TOTALS									
		6.00			6.00	12,150	13,104	1715.7	3,405,627	3,655,23

EXHIBIT 1

NORMAL CALCULATIONS

EXHIBIT 1

MUNICIPALITY: _____ DATE: _____

FORM 2

Operation and Maintenance Costs and Debt Service

COST CATEGORY	CURRENT YEAR YEAR:	ESTIMATED COST FIRST FULL YEAR OF OPERATION YEAR:
1. TREATMENT FACILITIES		
FIXED COSTS		425,000
REPLACEMENT COSTS		25,000
TOTAL FIXED COSTS		450,000
VARIABLE COSTS		110,000
SUBTOTAL		460,000
2. COLLECTION SYSTEM		
FIXED COSTS		85,000
REPLACEMENT COSTS		5,000
TOTAL FIXED COSTS		90,000
VARIABLE COSTS		10,000
SUBTOTAL		100,000
3. MISCELLANEOUS		
OVERHEAD		5,000
OPERATING RESERVE		11,500
OTHER		
SUBTOTAL		16,500
4. TOTAL - FIXED COSTS		556,500
5. TOTAL - VARIABLE COSTS		120,000
6. TOTAL O&M COSTS		676,500
7. DEBT SERVICE		
PRINCIPAL & INTEREST		34,000

EXHIBIT 1

FORM 3

MUNICIPALITY: _____

DATE: _____

Cost Allocation

	A	B TOTAL COST	C FLOW		D BOD		E SS	
			%	$	%	$	%	$
	COSTS:							
1.	COLLECTION SYSTEM	100,000	100	100,000				
2.	TREATMENT PLANT	5,000,000	55	2,750,000	25	1,250,000	20	1,000,000
3.	OUTFALL/INTERCEPT	1,000,000	100	1,000,000				
4.	TOTAL PROJECT COST	6,100,000	63	3,850,000	20	1,250,000	17	1,000,000
5.	STEP 3 ADMIN. COST	200,000		126,000		40,000		34,000
6.	STEP 1 & 2 COSTS	800,000		504,000		160,000		136,000
7.	SUBTOTAL - ALL COSTS	7,100,000		4,480,000		1,450,000		1,170,000
8.	LESS EXCLUSIONS	1,065,000		800,000		200,000		65,000
9.	TOTAL G.F. COSTS	6,035,000		3,680,000		1,250,000		1,105,000
10	LOCAL SHARE (8 + 12 1/2% of 9)	1,819,375	69	1,260,000	20	356,250	11	203,125

* For Exclusions, See Appendix , Paragraph 8.

EXHIBIT 1

FORM 4 MUNICIPALITY _____

UNIT COST DETERMINATION

DATE _____

A Cost Category	B Parameter Allocation Percentages	C Annual Cost Allocated to Each Parameter	D Total Quantities (See Instructions)	E Unit Cost $ For Each Parameter
1. CAPITAL OUTLAY	Optional			
I/I				
Flow	69	34,500	5.44	6341.9
BOD	20	10,000	12,150	0.8230
SS	11	5,500	13,104	0.4197
		50,000		
2. DEBT SERVICE	From Form 3 Line 7	From Form 2 Line 7		
I/I				
Flow	69	23,460	5.44	4312.5
BOD	20	6,800	12,150	0.5597
SS	11	3,740	13,104	0.2854
3. O&M Variable		From Form 2 Line 5		
I/I				
Flow				
BOD				
SS				
4 O&M Fixed		From Form 2 Line 4		
I/I				
Flow	33 1/3	225,500	1,511.3	149.21
BOD	33 1/3	225,500	3,405,627	0.066214
SS	33 1/3	225,500	3,655,235	0.061692
		676,500		

EXHIBIT 1

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: O + M

DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 149.21 C FLOW	FLOW $ D $	BOD UNIT COST = .066214 E BOD	BOD $ F $	SS UNIT COST = .061692 G SS	SS $ H $	TOTAL I $
17480	RESIDENTIAL	1354.2	202,060	2,936,242	194,420	3,218,573	198,560	595,040
325	COMMERCIAL	135.1	20,158	292,833	19,390	320,990	19,804	59,352
40	RESTAURANTS	18.3	2,730	152,200	10,078	91,320	5,634	18,442
5	MARKETS	3.7	552	24,352	1,612	24,352	1,502	3,666
	INFILTRATION/INFLOW							
	FUTURE CAPACITY							
	FEDERAL FACILITIES							
	TOTALS	1511.3	225,500	3,405,627	225,500	3,655,235	225,500	676,500

I-5

EXHIBIT 1

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: DEBT SERVICE DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 4312.5		BOD UNIT COST = 0.5597		SS UNIT COST = 0.2854		TOTAL
		C FLOW	D $	E BOD	F $	G SS	H $	I $
17,480	RESIDENTIAL	3.71	15,999	8045	4,503	8818	2,517	23,019
325	COMMERCIAL	0.37	1,596	802	449	879	251	2,296
40	RESTAURANTS	0.05	216	417	233	250	71	520
5	MARKETS	0.01	43	67	37	67	19	99
	INFILTRATION/INFLOW							
	FUTURE CAPACITY	1.30	5,606	2819	1,578	3090	882	8,066
	FEDERAL FACILITIES							
	TOTALS	5.44	23,460	12,150	6,800	13,104	3,740	34,000

EXHIBIT 1

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: CAPITAL OUTLAY DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 6341.9		BOD UNIT COST = 0.8230		SS UNIT COST = 0.4197		TOTAL
		C FLOW	D $	E BOD	F $	G SS	H $	I $
17,480	RESIDENTIAL	3.71	23,528	8045	6,621	8818	3,701	33,850
325	COMMERCIAL	0.37	2,347	802	660	879	369	3,376
40	RESTAURANTS	0.05	317	417	343	250	105	765
5	MARKETS	0.01	63	67	55	67	28	146
	INFILTRATION/INFLOW							
	FUTURE CAPACITY	1.30	8,245	2819	2,321	3090	1297	11,863
	FEDERAL FACILITIES							
	TOTALS	5.44	34,500	12,150	10,000	13,104	5,500	50,000

I-7

EXHIBIT 1

MUNICIPALITY: _____

DATE: _____

FORM 6

Total Revenue

A NUMBER OF USERS	B USER GROUPS	C FIXED O&M	D VAR O&M	E DEBT SERVICE	F CAPITAL OUTLAY	G I/I	H	I Total Annual Revenue Required	J Average Annual Revenue Required	K Average Monthly Revenue Required
17,480	RESIDENTIAL	595,040		23,019	33,850			651,909	37	3.10
325	COMMERCIAL	59,352		2,296	3,376			65,024	200	16.70
40	RESTAURANTS	18,442		520	765			19,727	493	41.10
5	MARKETS	3,666		99	146			3,911	782	65.20
	INFILTRATION/INFLOW									
	FUTURE CAPACITY			8,066	11,863			19,929		
	FEDERAL FACILITIES									
	TOTAL	676,500		34,000	50,000			760,500		

EXHIBIT 1

FORM 7

MUNICIPALITY _____ DATE _____

RATE DETERMINATION AND REVENUE PROGRAM SUMMARY

FIRST FULL YEAR OF OPERATION _____

INCOME:

RESIDENTIAL	= 3.10 X 17,480 X 12 =	650,256
COMMERCIAL	= 16.70 X 325 X 12 =	65,130
RESTAURANTS	= 41.10 X 40 X 12 =	19,728
MARKETS	= 65.20 X 5 X 12 =	3,912
CONNECTION CHARGE	= 25 X 800 =	20,000
		759,026

EXPENSES

O+M	676,500
DEBT	34,000
CAPITAL	50,000
	760,500

CONNECTION CHARGE:

ASSUME 25 CONNECTIONS PER YEAR - NEED $19,929

19,929 ÷ 25 = $800.00

6-1

EXHIBIT 2

FLOW ONLY CALCULATIONS

EXHIBIT 2

FORM 1

MUNICIPALITY: _____

Summary of Users and Wastewater Characteristics

DATE: _____

A Number of Users	B USERS USER GROUPS	WASTEWATER CHARACTERISTICS C ADWF MGD	D BOD MG/L	E SS MG/L	DESIGN CAPACITY F DESIGN FLOW MGD	G BOD LBS/DAY (DxFx 8.34)	H SS LBS/DAY (ExFx 8.34)	TOTAL ANNUAL CAPACITY I VOLUME MG (Cx365)	J BOD LBS (CxDx 3044)	K SS LBS (CxEx 30
318	RESIDENTIAL	0.064								
10	COMMERCIAL	0.003								
2	RESTAURANTS	0.001								
1	MARKET	0.0005								
	Subtotal	.0685								
X	Special Classifications									
X	Infiltration/Inflow	.0200	X	X		X	X		X	X
X	Future Capacity	.0115						X	X	X
	TOTALS	.1000								

EXHIBIT 2

MUNICIPALITY: _____ DATE: _____

FORM 2

Operation and Maintenance Costs and Debt Service

COST CATEGORY	CURRENT YEAR YEAR:	ESTIMATED COST FIRST FULL YEAR OF OPERATION YEAR:
1. TREATMENT FACILITIES		
FIXED COSTS		45,000
REPLACEMENT COSTS		5,000
TOTAL FIXED COSTS		
VARIABLE COSTS		
SUBTOTAL		50,000
2. COLLECTION SYSTEM		
FIXED COSTS		10,000
REPLACEMENT COSTS		1,000
TOTAL FIXED COSTS		
VARIABLE COSTS		
SUBTOTAL		11,000
3. MISCELLANEOUS		
OVERHEAD		4,000
OPERATING RESERVE		1,000
OTHER		
SUBTOTAL		5,000
4. TOTAL - FIXED COSTS		
5. TOTAL - VARIABLE COSTS		
6. TOTAL O&M COSTS		66,000
7. DEBT SERVICE		
PRINCIPAL & INTEREST		12,000

EXHIBIT 2

FORM 3

MUNICIPALITY: _____

DATE: _____

Cost Allocation

	A	B TOTAL COST	C FLOW		D BOD		E SS	
			%	$	%	$	%	$
	COSTS:							
1.	COLLECTION SYSTEM							
2.	TREATMENT PLANT							
3.	OUTFALL/INTERCEPT							
4.	TOTAL PROJECT COST							
5.	STEP 3 ADMIN. COST							
6.	STEP 1 & 2 COSTS							
7.	SUBTOTAL – ALL COSTS							
8.	LESS EXCLUSIONS							
9.	TOTAL G.F. COSTS							
10	LOCAL SHARE (8 + 12 1/2% of 9)							

* For Exclusions, See Appendix , Paragraph 8.

NOT REQUIRED

EXHIBIT 2

FORM 4

MUNICIPALITY _____

UNIT COST DETERMINATION

DATE _____

A Cost Category	B Parameter Allocation Percentages	C Annual Cost Allocated to Each Parameter	D Total Quantities (See Instructions)	E Unit Cost $ For Each Parameter
1. CAPITAL OUTLAY	Optional			
I/I				
Flow				
BOD				
SS				
2. DEBT SERVICE	From Form 3 Line 7	From Form 2 Line 7		
I/I				
Flow	100	12,000	0.08	150,000
BOD				
SS				
3. O&M Variable		From Form 2 Line 5		
I/I				
Flow				
BOD				
SS				
4 O&M Fixed		From Form 2 Line 4		
I/I				
Flow	100	66,000	0.0685	963,504
BOD				
SS				

EXHIBIT 2

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: O+M DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 963,504 C FLOW	FLOW D $	BOD UNIT COST = E BOD	BOD F $	SS UNIT COST = G SS	SS H $	TOTAL I $
118	RESIDENTIAL	0.064	61,664					
10	COMMERCIAL	0.003	2,891					
2	RESTAURANTS	0.001	964					
1	MARKET	0.0005	481					
		0.0685	66,000					
	INFILTRATION/INFLOW							
	FUTURE CAPACITY							
	FEDERAL FACILITIES							
	TOTALS	0.0685	66,000					

EXHIBIT 2

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: DEBT DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 150,000		BOD UNIT COST =		SS UNIT COST =		TOTAL
		C FLOW	D $	E BOD	F $	G SS	H $	I $
	RESIDENTIAL	.064	9,600					
	COMMERCIAL	.003	450					
	RESTAURANTS	.001	150					
	MARKET	.0005	75					
	INFILTRATION/INFLOW							
	FUTURE CAPACITY	.0115	1725					
	FEDERAL FACILITIES							
	TOTALS	0.08	12,000					

EXHIBIT 2

FORM 6

MUNICIPALITY: _____

DATE: _____

Total Revenue

A NUMBER OF USERS	B USER GROUPS	C FIXED O&M	D VAR O&M	E DEBT SERVICE	F CAPITAL OUTLAY	G I/I	H	I Total Annual Revenue Required	J Average Annual Revenue Required	K Average Monthly Revenue Required
318	RESIDENTIAL	61,664		9,600				71,264	224	18.75
10	COMMERCIAL	2,891		450				3,341	334	27.75
2	RESTAURANTS	964		150				1,114	557	46.50
1	MARKET	481		75				556	556	46.25
	INFILTRATION/INFLOW									
	FUTURE CAPACITY			1,725				1,725		
	FEDERAL FACILITIES									
	TOTAL	66,000		12,000				78,000		

EXHIBIT 2

FORM 7

MUNICIPALITY _____ DATE _____

RATE DETERMINATION AND REVENUE PROGRAM SUMMARY

FIRST FULL YEAR OF OPERATION _____

CONNECTION CHARGE: ASSUME 5 NEW CONNECTIONS PER YEAR

1,725 ÷ 5 = $345/CONNECTION (MINIMUM)

EXHIBIT 3

SEPARATE FIXED AND VARIABLE COSTS

ALLOCATE OVERHEAD & I/I BY CONNECTION

EXHIBIT 3

FORM 1

MUNICIPALITY: _____

Summary of Users and Wastewater Characteristics

DATE: _____

A Number of Users	B USERS USER GROUPS	WASTEWATER CHARACTERISTICS C ADWF MGD	D BOD MG/L	E SS MG/L	DESIGN CAPACITY F DESIGN FLOW MGD	G BOD LBS/DAY (DxFx 8.34)	H SS LBS/DAY (ExFx 8.34)	TOTAL ANNUAL CAPACITY I VOLUME MG (Cx365)	J BOD LBS (CxDx 3044)	K SS LBS (CxEx 304
784	SINGLE FAMILY RESIDENCES	4.7568	200	200	4.7568	7,934	7,934	1,736.2	2,895,940	2,895,9
867	MULTI FAMILY + MOBILE HOMES	0.3361	200	200	0.3361	561	561	122.7	204,618	204,61
103	COMMERCIAL OFFICES	0.0129	130	80	0.0129	14	9	4.7	5,105	3,14
54	RETAIL STORES	0.0043	150	150	0.0043	5	5	1.6	1,963	1,96
4	LAUNDROMATS	0.0400	150	110	0.0400	50	37	14.6	18,264	13,39
43	RESTAURANTS	0.0430	1,000	600	0.0430	359	215	15.7	130,892	78,53
5	CHURCHES	0.0007	200	200	0.0007	1	1	0.3	426	42
1	CANNERY	0.0012	1,200	900	0.0570	570	428	0.4	4,383	3,28
25,861	Subtotal	5.1950			5.2508	9,494	9,190	1896.2	3,261,591	3,201,30
	Special Classifications									
	Infiltration/Inflow	0.7500			0.7500			273.8		
	Future Capacity	0.9992			0.9992	1,667	1,667			
	TOTALS	6.9442			7.0000	11,161	10,857	2170.0	3,261,591	3,201,30

EXHIBIT 3

MUNICIPALITY: _____ DATE: _____

FORM 2

Operation and Maintenance Costs and Debt Service

COST CATEGORY	CURRENT YEAR YEAR:	ESTIMATED COST FIRST FULL YEAR OF OPERATION YEAR:
1. TREATMENT FACILITIES		
FIXED COSTS		475,000
REPLACEMENT COSTS		25,000
TOTAL FIXED COSTS		500,000
VARIABLE COSTS		115,000
SUBTOTAL		615,000
2. COLLECTION SYSTEM		
FIXED COSTS		85,000
REPLACEMENT COSTS		5,000
TOTAL FIXED COSTS		90,000
VARIABLE COSTS		10,000
SUBTOTAL		100,000
3. MISCELLANEOUS		
OVERHEAD		5,000
OPERATING RESERVE		11,500
OTHER		
SUBTOTAL		16,500
4. TOTAL - FIXED COSTS		590,000
5. TOTAL - VARIABLE COSTS		125,000
6. TOTAL O&M COSTS		731,500
7. DEBT SERVICE		
PRINCIPAL & IN		40,000

EXHIBIT 3

MUNICIPALITY: _____

FORM 3

DATE: _____

Cost Allocation

	A	B Total Cost	C FLOW		D BOD		E SS	
			%	$	%	$	%	$
	COSTS:							
1.	COLLECTION SYSTEM	100,000	100	100,000				
2.	TREATMENT PLANT	5,000,000	55	2,750,000	25	1,250,000	20	1,000,000
3.	OUTFALL/INTERCEPT	1,000,000	100	1,000,000				
4.	TOTAL PROJECT COST	6,100,000	63	3,850,000	20	1,250,000	17	1,000,000
5.	STEP 3 ADMIN. COST	200,000		126,000		40,000		34,000
6.	STEP 1 & 2 COSTS	800,000		504,000		160,000		136,000
7.	SUBTOTAL - ALL COSTS	7,100,000		4,480,000		1,450,000		1,170,000
8.	LESS EXCLUSIONS	1,065,000		800,000		200,000		65,000
9.	TOTAL G.F. COSTS	6,035,000		3,680,000		1,250,000		1,105,000
10	LOCAL SHARE (8 + 12 1/2% of 9)	1,819,375	69	1,260,000	20	356,250	11	203,125

* For Exclusions, See Appendix . Paragraph 8.

EXHIBIT 3

FORM 4 MUNICIPALITY _____

UNIT COST DETERMINATION

DATE _____

A Cost Category	B Parameter Allocation Percentages	C Annual Cost Allocated to Each Parameter	D Total Quantities (See Instructions)	E Unit Cost $ For Each Parameter
1. CAPITAL OUTLAY	Optional			
I/I *	12%	3,600		
Flow	57%	17,100	6.25	2,736
BOD	20%	6,000	11,161	0.5376
SS	11%	3,300	10,857	0.3039
		30,000		
2. DEBT SERVICE	From Form 3 Line 7	From Form 2 Line 7		
I/I *	12%	4,800		
Flow	57%	22,800	6.25	3,648
BOD	20%	8,000	11,161	0.7168
SS	11%	4,400	10,857	0.4053
		40,000		
3. O&M Variable		From Form 2 Line 5		
I/I **	13%	16,250		
Flow	20%	25,000	1896.2	13.1843
BOD	33%	41,250	3,261,591	0.012647
SS	34%	42,500	3,261,305	0.013276
		125,000		
4 O&M Fixed		From Form 2 Line 4		
I/I **	13%	76,700		
Flow	20%	118,000	5.2508	22,472.8
BOD	33%	194,700	9494	20.5076
SS	34%	200,600	9,190	21.8281
		590,000		

* I/I CAPITAL + DEBT = 0.75 ÷ (5.2508 + 0.75) = 12%
FLOW = 69% (FORM 3) − 12% = 57%

** I/I O+M = 273.8 ÷ 2170 = 13% (FORM 1)
FLOW = 33% − 13% = 20%

EXHIBIT 3

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: FIXED O+M DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 22,472.8		BOD UNIT COST = 20.5076		SS UNIT COST = 21.8281		TOTAL
		C FLOW	D $	E BOD	F $	G SS	H $	I $
	SINGLE FAMILY	4.7568	106,899	7,934	162,707	7,934	173,184	442,790
	MULTI-FAMILY+MOBILE HOMES	0.3361	7,553	561	11,505	561	12,246	31,304
	COMMERCIAL	0.0129	290	14	287	9	196	773
	RETAIL	0.0043	97	5	103	5	109	309
	LAUNDROMATS	0.0400	898	50	1,026	37	808	2,732
	RESTAURANTS	0.0430	966	359	7,362	215	4,693	13,021
	CHURCHES	0.0007	16	1	21	1	22	59
	CANNERY	0.0570	1,281	570	11,689	428	9,342	22,312
	INFILTRATION. INFLOW							
	FUTURE CAPACITY							
	FEDERAL FACILITIES							
	TOTALS	5.2508	118,000	9,494	194,700	9,190	200,600	513,300

EXHIBIT 3

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: VARIABLE O+M DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 13.1843		BOD UNIT COST = 0.012647		SS UNIT COST = 0.013276		TOTAL
		C FLOW	D $	E BOD	F $	G SS	H $	I $
	SINGLE FAMILY	1,736.2	22,891	2,895,940	36,625	2,895,940	38,446	97,962
	MULT-FAMILY + MOBILE HOMES	122.7	1,618	204,618	2,588	204,618	2,717	6,923
	COMMERCIAL	4.7	62	5,105	65	3,141	42	169
	RETAIL	1.6	21	1,963	25	1,963	26	72
	LAUNDROMATS	14.6	192	18,264	231	13,394	178	601
	RESTAURANTS	15.7	207	130,892	1,655	78,535	1,043	2,905
	CHURCHES	0.3	4	426	5	426	6	15
	CANNERY	0.4	5	4,383	56	3,288	42	103
	INFILTRATION/INFLOW							
	FUTURE CAPACITY							
	FEDERAL FACILITIES							
	TOTALS	1896.2	25,000	3,261,591	41,250	3,201,305	42,500	108,750

EXHIBIT 3

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: DEBT DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 3648		BOD UNIT COST = 0.7168		SS UNIT COST = 0.4053		TOTAL
		C FLOW	D $	E BOD	F $	G SS	H $	I $
	SINGLE FAMILY	4.7568	17,353	7,934	5,687	7934	3,216	26,256
	MULTI FAMILY + MOBILE HOMES	0.3361	1,226	561	402	561	227	1,855
	COMMERCIAL	0.0129	47	14	10	9	4	61
	RETAIL	0.0043	14	5	4	5	2	22
	LAUNDROMATS	0.0400	146	50	36	37	15	197
	RESTAURANTS	0.0430	157	359	257	215	87	501
	CHURCHES	0.0007	3	1	1	1	0	4
	CANNERY	0.0570	208	570	409	428	173	790
		5.2508	19,156	9,494	6,806	9190	3,724	29,686
	INFILTRATION/INFLOW							
	FUTURE CAPACITY	0.9992	3,644	1,667	1194	1,667	676	5,514
	FEDERAL FACILITIES							
	TOTALS	6.2500	22,800	11,161	8,000	10,857	4,400	35,200

EXHIBIT 3

MUNICIPALITY: _____

FORM 5

Summary of Fund Costs

FUND: CAPITAL DATE: _____

A Number of Users	B USER GROUP	FLOW UNIT COST = 2736 C FLOW	FLOW D $	BOD UNIT COST = 0.5376 E BOD	BOD F $	SS UNIT COST = 0.3039 G SS	SS H $	TOTAL I $
	SINGLE FAMILY	4.7568	13,015	7,934	4,265	7934	2,411	19,691
	MULTI FAMILY + MOBILE HOMES	0.3361	920	561	302	561	170	1,392
	COMMERCIAL	0.0129	35	14	8	9	3	46
	RETAIL	0.0043	12	5	2	5	2	16
	LAUNDROMATS	0.0400	109	50	27	37	11	147
	RESTAURANTS	0.0430	118	359	193	215	65	376
	CHURCHES	0.0007	2	1	1	1	0	3
	CANNERY	0.0570	156	570	306	428	130	592
		5.2508	14,367	9,494	5,104	9190	2,792	22,263
	INFILTRATION/INFLOW							
	FUTURE CAPACITY	0.9992	2,733	1,667	896	1,667	508	4,137
	FEDERAL FACILITIES							
	TOTALS	6.2500	17,100	11,161	6,000	10,857	3,300	26,400

EXHIBIT 3

MUNICIPALITY: _____

FORM 6

DATE: _____

Total Revenue

A NUMBER OF USERS	B USER GROUPS	C FIXED O&M	D VAR O&M	E DEBT SERVICE	F CAPITAL OUTLAY	G I/I	H ADMIN (FORM 2)	I Total Annual Revenue Required	J Average Annual Revenue Required	K Average Monthly Revenue Required
23,784	SINGLE FAMILY	442,790	97,962	26,256	19,691	93,210	15,175	695,084	29	2.44
1,867	MULTI-FAMILY + MOBILE HOME	31,304	6,923	1,855	1,392	7,317	1,191	49,982	27	2.23
103	COMMERCIAL OFFICES	773	169	61	46	404	66	1,519	15	1.23
54	RETAIL STORES	309	72	22	16	212	34	665	12	1.03
4	LAUNDROMATS	2,732	601	197	147	16	3	3,696	924	77.00
43	RESTAURANTS	13,021	2,905	501	376	169	27	16,999	395	32.94
5	CHURCHES	59	15	4	3	20	3	104	21	1.73
1	CANNERY	22,312	103	790	592	2	1	23,800	23,800	1,983.33
	INFILTRATION/INFLOW	76,700	16,250	4,800	3,600					
	FUTURE CAPACITY			5,514	4,137			9,651		
	FEDERAL FACILITIES									
	TOTAL	513,300	125,000	40,000	30,000	101,350	16,500	801,500		

EXHIBIT 3

FORM 7

MUNICIPALITY _____ DATE _____

RATE DETERMINATION AND REVENUE PROGRAM SUMMARY

FIRST FULL YEAR OF OPERATION _____

CONNECTION CHARGE: Assume 10 new connections per year. Connection charge = $\frac{\$9,651}{10}$ = $965/new connection(Minimum)

PROPOSED CHARGES:

Single Family	$2.50
Multi-Family	2.25
Mobile Homes	2.25
Commercial*	2.25
Retail*	2.25
Laundromats	2.00/month/machine (total of 40 machines)
Restaurants*	0.81/ccf
Churches*	2.25
Cannery*	44.51/ccf

* Minimum charge for any user is $2.25/month.

EXHIBIT 4

EQUIVALENT DWELLING UNIT CALCULATION

EXHIBIT 4

CAPITAL COST ALLOCATION

	Estimated Cost	Useful Life Years	Capital Recovery Factor at 6 Percent	Capital Recovery Cost	Loading Parameter Allocation - Percent Flow	BOD	SS	Capital Cost Share Flow	BOD	SS
Existing Facilities										
Treatment plants	$ 3,000,000	30	0.07265	$218,000	40	30	30	$ 87,200	$ 65,400	$ 65,400
Interceptors	2,500,000	50	0.06344	158,600	100			158,600	--	--
Subtotal	$ 5,500,000			$376,600				$245,800	$ 65,400	$ 65,400
Proposed Facilities - Main Treatment Plant										
Earthwork	$ 85,000	50	0.06344	$ 5,400	100			$ 5,400	$ --	$ --
Concrete	403,000	40	0.06646	26,800	100			26,800	--	--
Aeration system modifications	80,000	25	0.07823	6,400		50	50	--	3,200	3,200
Final clarifier	100,000	25	0.07823	7,800		50	50	--	3,900	3,900
Fixed film reactor drain	90,000	40	0.06646	6,000	100			6,000	--	--
Fixed film reactor mechanism	45,000	20	0.08719	3,900	100			3,900	--	--
Fixed film reactor media	400,000	20	0.08719	34,900	100			34,900	--	--
Fixed film reactor enclosure	75,000	40	0.06646	5,000	100			5,000	--	--
Fixed film reactor pumps	40,000	20	0.08719	3,500	100			3,500	--	--
DAF conversion	110,000	20	0.08719	9,600		50	50	--	4,800	4,800
Return A.S.	30,000	40	0.06646	2,000		50	50	2,000	--	--
Digester dome, equipment	195,100	25	0.07823	15,200		50	50	--	7,600	7,600
Chlorination system	80,000	30	0.07265	5,800	100			5,800	--	--
Dual media filter	275,000	20	0.08719	24,000		50	50	--	12,000	12,000
Process pipework	250,000	40	0.06646	16,600	100			16,000	--	--
Process covers	400,000	40	0.06646	26,600	40	30	30	10,600	8,000	8,000
Ventilation and odor control	175,000	30	0.07265	12,700	100			12,700	--	--
Influent and effluent pumping	40,000	25	0.06646	3,100	100			3,100	--	--
Wet weather flow facilities	200,000	40	0.06646	13,300	100			13,300	--	--
Sludge equipment	110,000	20	0.08719	9,600		50	50	--	4,800	4,800
Sludge piping	70,000	40	0.06646	4,600		50	50	--	2,300	2,300
Sludge ponds	120,000	50	0.06344	7,600		50	50	--	3,800	3,800
Subtotals	$ 3,373,000			$250,400				$149,600	$ 50,400	$ 50,400
Treatment Plant										
Earthwork	$ 10,000	50	0.06344	$ 600	100			$ 600	$ --	$ --
Concrete	70,000	40	0.06646	4,600	100			4,600	--	--
Fixed film drain and enclosure	130,000	40	0.06646	8,600	100			8,600	--	--
Fixed film-mechanism and media	370,000	20	0.08719	32,300	100			32,300	--	--
Digester gas system	10,000	25	0.07823	800		50	50	--	400	400
Process pipework	150,000	40	0.06646	10,000	100			10,000	--	--
Chlorination system	80,000	30	0.07265	5,800	100			5,800	--	--
Dual media filters	150,000	20	0.08719	13,100		50	50	--	6,500	6,500
Process covers	440,000	40	0.06646	29,200	40	30	30	11,600	8,800	8,800
Ventilation and odor control	100,000	20	0.08719	8,700	100			8,700	--	--
Sludge piping and ponds	40,000	40	0.06646	2,600		50	50	--	1,300	1,300
Sludge equipment	40,000	20	0.08719	3,600		50	50	--	1,800	1,800
Subtotal	$ 1,590,000			$119,800				$ 82,200	$ 18,800	$ 18,800
Reclamation/Disposal										
Earthwork	$ 838,000	50	0.06344	$ 53,200	100			$ 53,200	$ --	$ --
Pump station	160,000	20	0.08719	14,000	100			14,000	--	--
Piping	261,000	40	0.06646	17,300	100			17,300	--	--
Structures	254,000	40	0.06646	16,900	100			16,900	--	--
Subtotal	$ 1,513,000			$101,400				$101,400	$ --	$ --
Rialto Interceptor										
Pump station (including structures)	$ 150,000	40	0.06646	$ 10,000	100			$ 10,000	$ --	$ --
Emergency power and equipment	40,000	20	0.08719	3,500	100			3,500	--	--
Interceptor	588,000	50	0.06344	37,300	100			37,300	--	--
Subtotal	$ 778,000			$ 50,800				$ 50,800	$ --	$ --
Total	$12,754,000			$899,000				$629,800	$134,600	$134,600
Percentage Allocation				100%				70.0%	15.0%	15.0%

EXHIBIT 4

BUDGET COSTS ALLOCATION

Budget Item	Amount ($000)	Allocation Percent			Allocation Amount ($000)		
		Flow	BOD	SS	Flow	BOD	SS
Treatment and disposal	$ 647	34.0	33.0	33.0	$220.0	$213.5	$213.5
Collection	141	80.0	10.0	10.0	112.8	14.1	14.1
Capital	254	70.0	15.0	15.0	177.8	38.1	38.1
Subtotal	$1,042				$510.6	$265.7	$265.7
Subtotal Percent Allocation					49.0%	25.5%	25.5%
Administration	376	49.0	25.5	25.5	$184.2	$ 95.9	$ 95.9
Total	$1,418				$694.8	$361.6	$361.6
Total Percent Allocation					49.0%	25.5%	25.5%

EXHIBIT 4

SERVICE UNIT ASSIGNMENT FORMULA (1982/83)

Parameter	Allocation	Assumed Loadings for a Service Unit[1]	
Flow	49.0%	Flow	208 gal/day
BOD	25.5	BOD	260 mg/l
SS	25.5	SS	285 mg/l

Service Unit Assignment[2] =

$$\left[\frac{\text{Daily flow}}{208}\right]\left[0.49 + \frac{\text{BOD concentration}}{260} \times 0.255 + \frac{\text{SS concentration}}{285} \times 0.255\right]$$

1 - A single faimly unit or equivalent.
2 - Formula is designed to provide a multiplier for high strength flows.

EXHIBIT 4

SUMMARY OF USERS, WASTE CHARACTERISTICS AND SERVICE UNIT ASSIGNMENTS (1982/83)

No. of Users	User Groups	Flow (Mgd)	BOD mg/l	SS mg/l	BOD lbs/day	SS lbs/day	Service Units
17,840	Residential	3.71	260	285	8,045	8,820	17,840
325	Commercial	0.37	260	285	800	880	1,770
40	Restaurants	0.05	1,000	600	420	250	470
5	Markets	0.01	800	800	65	65	120
	Subtotal	4.14			9,330	10,015	20,200
	Future capacity	1.30			2,068	2,567	5,540
	Design capacity	5.44			11,398	12,582	25,740