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DEPARTMENT OF
PLANNING AND DEVELOPMENT

CITY OF SACRAMENTO
CALIFORNIA

1231 I STREET
SACRAMENTO, CA

June 11, 1991

Budget and Finance/
Transportation and Community Development Committee
Sacramento, California

ADMINISTRATION
ROOM 300
95814-2987
916-449-5571

ECONOMIC DEVELOPMENT
ROOM 300
95814-2987
916-449-1223

Subject: **PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS**

NUISANCE ABATEMENT
ROOM 301
95814-3982
916-449-5948

Honorable Members In Session:

SUMMARY

This staff report responds to a request to report back regarding a process for Council early review of major development projects. The proposed process would provide applicants with the opportunity to receive preliminary Council direction regarding policy considerations affecting proposed projects. Such review would enable developers to avoid possible unnecessary expenses associated with preparation of a detailed full application. This early review is intended to be supplemental to a traditional staff preliminary review.

The Early Review would not result in a binding agreement; rather, it would provide the developer an opportunity to discuss with Council the policy concerns and issues raised by the proposed project. The Council would retain complete discretion regarding all approvals as the proposed project continues through the traditional formal review process.

BACKGROUND

On April 9, 1991, the City Council Joint Committee of Budget & Finance and Transportation & Community Development requested staff to report back within 30 days regarding an Early Review process for major projects. The Joint Committee also requested staff to report back within 60 days on the Capitol Towers proposed project.

The existing process of optional staff preliminary review and formal application has not been entirely satisfactory. The staff preliminary review has focused as much on site design as on broad policy analysis, and does not have the benefit of Council validation of the staff interpretation of policy. Furthermore, public agencies and the general public have limited opportunity to provide early input into the process. The review proceeds without benefit of the interaction between decision makers, staff, applicant, and public -- a process which sensitizes the players to the concerns.

**PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE**

Consequently, the project design and application proceeds on the basis of an incomplete understanding of the issues. Having spent a great deal of time, effort, and money on the project, it is more difficult to disapprove or suggest major changes to the project.

The Early Review process is envisioned to provide a policy-oriented discussion of key development projects. Interested parties would be invited to identify policy concerns in a workshop format. The Councilmembers' responses would provide general indications as to whether these concerns are potentially significant. These indications would be tentative, recognizing that additional policy issues may surface during a more rigorous formal review. Nonetheless, the Council Early Review would effectively communicate to the applicant that the proposed project may need to be substantially modified or should not proceed through the formal review process.

Existing Process -- Staff Preliminary Review

At present, Planning staff performs a preliminary review of projects under the following circumstances:

- 1) All entitlements for projects in a PUD require staff preliminary review [see Zoning Code Section 8-E-4].
- 2) Major projects outside of PUDs are offered the optional service of staff preliminary review.
Major Project [see Zoning Code Section 3-C-10,23]:
 - o 75,000 square feet (or greater) in Central City
 - o 40,000 square feet (or greater) outside Central City [OB,C1,C2].

For this preliminary staff review, applicants submit materials that approach the detail of an actual application. This application includes an overall schematic plan designating the location of proposed land uses, general description of the types and intensities of uses, acreage proposed for each parcel, and the proposed traffic circulation system.

Copies of the application are distributed to Current Planning and Advance Planning, Environmental Services Division, other City Departments (i.e., Transportation, Public Works Development Services), and other agencies (i.e., Regional Transit). Staff reviews all aspects of the application including policy, site design, and building design. A written summary of comments is provided to the applicant, normally within a period of 30 days following receipt of the application. The applicant is encouraged by staff to modify the proposal pursuant to the preliminary review.

**PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE**

Projects in the Redevelopment area are handled differently. Agency staff works closely with potential applicants to develop a project that meets Agency objectives. Often, the Agency itself owns the property and issues a Request For Proposals to develop the property according to specified criteria that have been approved in advance by the Redevelopment Agency.

Existing Process -- Commission & Council Review/Approval

At present, major projects are approved by the Planning Commission or the City Council, depending on the entitlements requested.

Major projects with proper zoning entitlements require Planning Commission approval but do not require City Council approval [see Zoning Code Section 15]. Major projects that require plan amendments, subdivision maps, or rezoning are reviewed by the City Council.

Major projects in redevelopment areas, or projects undertaken with participation by the Redevelopment Agency (i.e., through a Disposition and Development Agreement or an Owner Participation Agreement) are subject to review by the Redevelopment Commission and approval by the City Council/ Redevelopment Agency, but generally are not subject to extensive review by the City Planning Commission.

Proposed Major Project Early Review Process

Staff recommends that the Council adopt a major project Early Review process that identifies policy issues, degree of conflict with existing policy, and provides, where appropriate, general policy direction which could consist of suggestions:

- o that staff consider modifying adopted policies (with subsequent report back on the overall consequences of any possible modifications to policy), or
- o that the applicant modify the project to conform with adopted land use plans and other City Council policies, or
- o that the project is so inconsistent with existing policies that the project should not proceed.

The review process would generally precede or be concurrent with the traditional review process described above and would consist of the following components:

**PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE**

1. Purpose and Scope of Review

The purpose of the early review would be to provide initial consideration of such policy issues as:

- o the appropriateness of the proposed land use concept;
- o the relationship between the proposed project and existing or proposed plans, policies, and goals pertaining to the subject site and the area in which it is located; and
- o the appropriateness of any special financing mechanisms or potential public subsidy.

The early review would be limited to consideration of broad policy and land use issues. The staff recommendation and the Council discussion would identify:

- o aspects of the project that are conceptually unacceptable;
- o and the potential for resolving conflicts with existing policy and providing general policy direction for the applicant to proceed.

Detailed site planning, design and environmental issues would not be reviewed at this stage, but would be addressed as the project proceeds through the traditional formal review process.

2. Type of Projects Subject to Early Review

To be eligible for early review, proposed projects would have to meet policy issue criteria. The project would require an entitlement involving significant land use policy issues. Examples of such policy issues would include a major change in land use, significant change in the quantity or quality of housing stock, a change in the density/ intensity of development, or significant infrastructure/financial impacts.

3. Initiation of Early Review Process

The Early Review Process would be initiated by any of the following:

- A) Applicant request for review with staff concurrence; or
- B) Concurrence by majority vote of the Council when initiated by:
 - 1) Staff (i.e., absent applicant request) or
 - 2) Individual Councilmember sponsorship.

A) In reaction to a developer's request for Early Review, staff would determine whether or not the project meets the policy issue criteria, as defined above. If staff concurs that the project should go through the Early Review process, then staff would schedule the item for Commission/ Council/ Agency hearings.

**PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE**

A) It is also conceivable that during the course of a standard staff preliminary review (or during the early stages of a formal application review), the applicant is notified of serious potential conflicts with existing policy. The applicant may request initiation of the Council review process at that time.

B-1,2): In the event that an applicant does not request the Early Review Process, staff or an individual Councilmember may recommend that the Council, by majority vote, require the Early Review process for a proposed project.

B-2): In the event that an application for Early Review is rejected by staff, a written explanation will be provided to Councilmembers of why the project does not meet the policy issue criteria. The Council would have the opportunity to initiate the Early Review by majority vote.

4. Public Noticing & Public Testimony

The Early Review would not legally require public noticing because no official action (i.e., granting of a discretionary entitlement) would be taken. It would be useful to the decision making process to solicit input from affected groups in addition to consultations with the applicant. It is strongly recommended that courtesy noticing be provided to:

- o 300' radius property owners [for Commission(s) and Council/Agency meetings]
- o Interested citizen organizations [for Commission(s) and Council/Agency meetings]
- o Individuals who testified at the Commission(s) meeting [for Council/Agency meeting].

Public testimony should be encouraged at the earliest stages possible in order to provide every opportunity for neighborhood or other interested groups (including other agency staff) to state their concerns.

5. Time Frame for Completion of Early Review

It is anticipated that an Early Review will require approximately 60 days from receipt of a complete Early Review application. This time frame includes staff review, preparation of staff report, and public hearings. Processing time may vary depending upon workload and meeting agendas.

**PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE**

6. Council/Commission Disposition

Early review projects shall proceed first to the Commission(s), with the Council/ Redevelopment Agency hearing scheduled to follow as soon as possible (approximately 2-3 weeks).

Optionally, the item could be heard by a Committee of the Council (i.e., Transportation & Community Development Committee) prior to review by the full Council. However, community groups may have difficulty attending these afternoon meetings. Since the purpose of the Early Review is to provide for a broad range of input, it is recommended that the hearings be held during regular Council sessions.

If the project is in a redevelopment area, following review by the Redevelopment Commission, the Redevelopment Agency would conduct the review, unless the project also involved a change in land use, in which case it would also go to the City Planning Commission.

7. Extent of Council/Commission "Action"

It must be recognized that any action taken during the Early Review process is not an "official action". Neither the Commission nor Council may approve or tentatively approve a project without adequate environmental review and without the standard review and public hearing process. The Commission/Council would be identifying those policy issues which its members feel are significant, based on limited analysis and less than complete information. The Process would occur in a workshop format.

The City and Redevelopment Agency staffs would be expected to prepare a report concerning identified major policy issues to the Commission(s), and revise the report as appropriate, to reflect the Commission(s)' and public's comments and forward such reports to Council/Agency, to which Council/Agency could react in an appropriate manner to achieve the purposes of this process.

Staff feels that the discussion by Councilmembers should not culminate in a motion nor a vote, in order to avoid any appearance of "pre-determining the outcome" in advance of facts and issues which may not become apparent until proper CEQA findings are prepared. This "action" would be non-binding. The applicant would be required, as part of the application package, to sign a form that states that the applicant understands that there has been no binding decision rendered.

8. Contents of the Early Review Application

A complete Early Review application should include, at a minimum:

- o Name/Address of Applicant, Owner
- o Location [Address, Assessor's Parcel Number, Vicinity Map]

**PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE**

- o Description of Site [Acreage, Vacant/Developed]
- o Adjacent Land Uses
- o 300' Radius Property Ownership Map & Mailing List
- o Statement of Intent including Square feet, Height, Density/-Intensity, identification of major policy issues, description of how and why the plan supports or varies from existing policy, and description of benefits and potentially negative aspects of projects and how the project satisfies or conflicts with public objectives
- o Illustrative Site Plan [Schematic Plan, Building envelope, Parking area, landscaping, plazas, Relationship to street/-transit circulation]
- o Signed form which notifies applicant that the Council's action is non-binding.
- o Payment of fees

9. Fee for Service

The Project Review activities should be supported by a fee (full cost recovery) to include, at a minimum:

- a) Planning staff review
- b) Agency staff review, if applicable
- c) Hearing/Noticing fees
- d) Processing fee.

VOTE OF THE COMMISSIONS & PUBLIC TESTIMONY

The Sacramento Housing and Redevelopment Commission discussed the item on May 15, 1991 and voted unanimously in support of the original staff report. SHRC Commissioners Simon and Moose issued cautions about the importance of avoiding commitment at the Early Review stage in order to avoid conflict with the intent of CEQA.

The City Planning Commission discussed the item on May 16, 1991 and voted 7-1 in support of the staff report with substantive amendments proffered by staff and Joe Coomes. The amendments included clarifications concerning the process by which staff would convey Commission comments to the Council. The Planning Commission motion also included amendments regarding its role (during Early Review) for projects in Redevelopment areas that involved changes in land use.

ECOS representatives testified at the Planning Commission meeting and in a subsequent letter that the report should be amended to clarify the public review process, to include a form in the application packet that notifies the applicant of the non-binding nature of the Council's direction, to insert a 1 year sunset clause, and to explain why the existing process is inadequate, and how the proposed process benefits the applicant and the City.

**PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE**

FINANCIAL IMPACT

The Early Review process is intended to allow the Council/Redevelopment Agency the opportunity to provide direction to projects that might involve City Redevelopment Agency funds.

POLICY CONSIDERATIONS

The Early Review process is intended to allow the Council to review proposed projects which potentially conflict with existing policy. The opportunity exists to direct the applicant to substantially revise the project to conform to policy expectations. Conversely, the opportunity also exists for the Council to consider modifying the policy to fit special circumstances brought to light by the proposed project.

MBE/WBE IMPACT

There are no MBE/WBE impacts associated with this item.

RECOMMENDATION

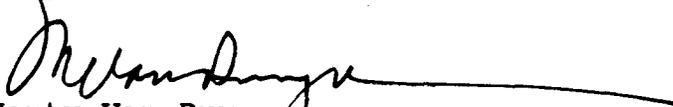
Staff recommends the following procedures for Early Review of projects:

1. Early review can be initiated either by the project applicant with staff concurrence, or by majority vote of the Council.
2. The Project Review activities should be supported by a fee.
3. The Planning Commission should perform a review function prior to the Council (or Redevelopment Agency) review. The Commission's function would be to provide to the Council a consistency review with General Plan and/or Community/Specific Plan land use designations and policy issues. In the staff report to Council, staff will incorporate comments from the public, other public agencies, and the Commission.
4. For projects located within a redevelopment area or for Redevelopment Agency projects, the Sacramento Housing and Redevelopment Commission and City Planning Commission would simultaneously review proposed projects prior to Council/Redevelopment Agency review. In addition to reviewing the project for consistency with redevelopment plans and policies, the SHRC would also review any proposed use of public subsidy. The City Planning Commission would review the project for consistency with adopted land use plans and other City Council policies. In the staff report to Council, staff will incorporate comments from the public, other public agencies, and the Commission(s).

PROCESS FOR EARLY REVIEW OF MAJOR PROJECTS
BUDGET & FINANCE/TRANSPORTATION & COMMUNITY DEVELOPMENT COMMITTEE

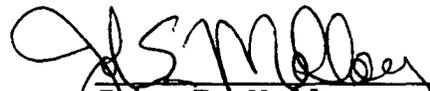
5. The full City Council/ Redevelopment Agency should discuss within a workshop format, the major policy issues and the elements of the proposed project which are in conflict with existing policy issues and react in an appropriate manner to achieve the purposes of this process. The Council should withhold any statements which might be misconstrued as pre-approval of the project.
6. The performance of the Early Review process should be reviewed after one year.

Respectfully submitted by:


Marty Van Duyn
Planning Director

Approved:


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June 11, 1991
All Districts



5

DEPARTMENT OF
PUBLIC WORKS

CITY OF SACRAMENTO
CALIFORNIA

1391-55TH AVENUE
SACRAMENTO, CA
95822-2911

DIVISION OF
FLOOD CONTROL AND SEWERS

916-449-5271

June 11, 1991

Budget and Finance/Transportation and Community Development Committee
Sacramento, California

Honorable Members in Session:

SUBJECT: COMBINED SEWER SYSTEM, AFFORDABILITY STUDY

SUMMARY

This report presents the findings of the second phase (Phase 2) of the Combined Sewer System investigation. The main objective of this Phase 2 study was to determine the magnitude of costs, and thus the affordability, of a combined sewer system improvement project designed to control street flooding/sewage backups associated with a 10-year design storm, and eliminating combined system overflows up to a 1-year design storm (the 10/1 criteria). The Phase 3 study will consist of a detailed alternative analysis of projects for the range of design storm criteria identified in Phase 2, resulting in a cost-benefit assessment of improvement plans.

The Phase 2 study finds that the least-cost alternative is estimated to cost approximately \$550,000,000. The resultant increase in sewer and drainage fees associated with this magnitude of cost is not affordable. Based on these findings, the Phase 2 report recommends that the City propose to the Regional Water Quality Control Board that the design criteria selected for use in the Phase 3 study be less stringent than the Phase 2 criteria.

It is recommended that the Joint Committee refer this Phase 2, Affordability Study, to the full City Council for approval.

BACKGROUND INFORMATION

The City of Sacramento is developing a comprehensive improvement plan, in response to a Regional Water Quality Control Board (Board) Cease and Desist Order. This plan will improve the combined sewer system to control street flooding and sewage backups, and minimize combined sewer overflows (CSOs). Development of the plan consists of three phases.

Phase 1 was completed in October 1990 with the submittal, and subsequent approval by the Board of a Plan of Operations and Technical Overview Report for the Combined Wastewater Control System (CWCS). The Phase 2 study began in January 1991. Phase 3 will begin after submission of the Phase 2 results to the Board on July 1, 1991. The Regional Water Quality Control Board, at their April 26, 1991 meeting, concurred with the concept of using Phase 2 and 3 reports. A report summarizing the Phase 2 results is attached.

Phase 2 consisted of an evaluation of alternative improvement plans for controlling street flooding and sewage backups associated with a 10-year design storm, and eliminating CSOs for a 1-year design storm (called the 10/1 Criteria). This evaluation also included an estimate of the cost of these plans and an affordability of the least-cost plan. The objective of this evaluation was to (1) determine the affordability of the least-cost plan to city rate payers based on an EPA affordability definition, and by comparing the projected rate increases to statewide averages; and (2) to select a reasonable range of additional design criteria for analysis in a subsequent Phase 3 study.

The Phase 3 study will include the development of a recommended improvement plan based on cost-effectiveness and technical feasibility factors for the range of design storm criteria identified in Phase 2. A costs-benefit curve will be developed that will allow the identification of the point on the curve, where project costs escalate much more rapidly than the associated benefits of flood and CSO controls.

Results of the Phase 2 study indicate that the least costly project to meet the 10/1 criteria is estimated at \$550,000,000. This cost was then converted into monthly residential rate increases and compared to EPA affordability criteria and other statewide municipal sewer rates. This affordability assessment indicates that the project to meet the 10/1 Criteria is not affordable for the City of Sacramento. Therefore, staff recommends proposing to the Board that the additional design storm criteria selected for analysis in the Phase 3 "cost-benefit" study be less stringent than the 10/1 target criteria.

FINANCIAL DATA

The description of the alternative projects and improvement plans, their range of costs, and a description of the least-cost improvement plan is contained in Section 3 of the attached Exhibit A. Section 4 of the same Exhibit A contains an affordability assessment of the least-cost plan. The several alternatives to upgrade the collection system to handle the 10/1 design criteria and their capital costs range from about \$550 million to \$750 million.

POLICY CONSIDERATIONS

The Phase 2 report and recommendations does potentially set a City policy for determining affordability of public works projects to meet State and/or Federal compliance requirements. The approach used in the Phase 2 report is consistent with EPA policy which is described in Section 4 of the attached Exhibit A.

MBE/WBE EFFORTS

Not applicable.

RECOMMENDATION:

It is recommended that the Joint Committee recommend to the City Council that the Phase 2 report being submitted to the Regional Board on 1 July 1991 contain the following:

1. The estimated cost for a project to meet the 10/1 Criteria, including an affordability analysis.
2. A proposal that the additional design storm criteria to be analyzed in the Phase III "cost-benefit" study will be less stringent than the 10/1 target criteria, since the cost of the 10/1 Criteria project exceeds the financial capability of the City.
3. A workplan, including time schedule, for a Phase III study that will include a "cost-benefit" study of alternative projects for the recommended range of storm events, the selection of a recommended Final Improvement Plan, and the submittal of a Phase III Detailed Technical Report.

for: Donald M. Dodge
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RECOMMENDATION APPROVED:

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June 11, 1991
All Districts

CITY OF SACRAMENTO

COMBINED SEWER IMPROVEMENT AND

IMPLEMENTATION PLAN

REPORT TO CITY COUNCIL

ALTERNATIVE PLAN COSTS FOR THE

10-YEAR FLOOD/1-CSO CONTROL CRITERIA

Prepared by

HDR Engineering, Inc.
Bartle Wells Associates
John Tomko, Consulting Engineer
and
City of Sacramento's
Division of Flood Control and Sewers

June 1, 1991

SECTION 1 INTRODUCTION

The City of Sacramento is developing a plan, in response to a Regional Board Cease and Desist Order, for improving its combined sewer system to control street flooding and sewage backups, and to minimize combined sewer overflows (CSOs). The study consists of three phases. Phase 1 included the development of a Plan of Operations and Technical Overview Report for the Combined Wastewater Control System (CWCS). Also included was the development of a CSO sampling program for the Sacramento River.

Phase 2 consisted of an evaluation of alternative improvement plans for controlling street flooding/sewage backups associated with a 10-year design storm, and eliminating CSOs up to a 1-year design storm (the 10/1 Criteria). This evaluation also included an estimate of the cost of these plans and an affordability analysis of the least costly plan. The objective of this Phase 2 evaluation was to provide sufficient technical and financial information to select a reasonable range of additional design criteria for analysis in a subsequent Phase 3 study. The least-cost alternative improvement plan identified during the Phase 2 study represents an estimated total project cost for only a single target set of design criteria (the 10/1 Criteria). Technical information collected during Phase 2 included the Water Quality Sampling Program, a detailed topographic and sewer survey, a TV survey of approximately 100,000 linear feet of pipelines, a soil boring program to determine the feasibility of deep storage tunnels, a nationwide survey of municipalities also conducting combined sewer improvement studies, a major upgrade of the City's existing computerized model of the combined sewer system, a reliability study of the pump stations and Pioneer Reservoir, and a structural and hydraulic assessment of existing sewer lines. A Detailed Technical Report containing the results of the Phase 2 study will be submitted to the Regional Board on 1 July 1991.

Phase 3 of the study will involve the development of a recommended improvement plan based on cost-effectiveness and technical feasibility factors, for the range of design storm criteria identified in Phase 2. A cost/benefit curve will then be developed that will allow the identification of the "knee" of the curve; that is, the point where project costs escalate much more rapidly than the associated benefits (flood control/CSO control).

This report describes the analysis and results of the recently completed Phase 2 investigation. Section 2 contains a detailed description of the project phases and how the 10/1 Criteria was selected. Section 3 contains a description of the alternative projects and improvement plans, their range of costs, and a description of the least-cost improvement plan. Section 4 contains an affordability assessment of the least-cost plan. Section 5 contains conclusions and recommendations.

SECTION 2 PROJECT APPROACH

CEASE AND DESIST ORDER

On June 22, 1990, the Regional Water Quality Control Board (the Board) issued a Cease and Desist Order to the City. The Order requires that the City improve its Combined Sewer System (CSS) to control street flooding, and minimize the potential for sewage backups and combined sewer overflows (CSOs) to the Sacramento River. For purposes of this report street flooding is defined as consisting of only stormwater runoff due to inadequate drop inlet capacity (i.e., it does not contain municipal wastewater), sewage backups are combined sewage back flows out of the collection system (they contain municipal waste waters), and CSOs are untreated discharges of combined sewage to the Sacramento River.

PHASE 1

The Cease and Desist Order required the City to submit two technical reports by 1 October 1990. The activities and tasks associated with preparing these two reports are considered Phase 1 activities. The two Phase 1 reports were submitted on 1 October 1990 and subsequently approved by the Board. These Phase 1 reports were:

- 1) An Interim Plan of Operations that presented a modification to the operation of the system that minimizes back ups into streets/structures, while increasing the potential for CSOs;
- and 2) A Technical Overview Report that summarized the existing information on the condition and capacity of the system, and determined the informational needs necessary to comprehensively assess the system and evaluate alternatives during a Phase 2 investigation. This report also contained a detailed workplan and time schedule to acquire these informational needs and for completing a Phase 2 Detailed Technical Report.

PHASE 2

The Cease and Desist Order also requires that a Detailed Technical Report containing the recommended improvement plan be submitted by 1 July 1991. As the Phase 2 data were being collected and preliminary project information was being evaluated, it became apparent that a large number and variety of alternative projects exist due to the wide range of design storm criteria that could be applied. It has been the City's intent to develop and analyze alternative projects for a range of storm events, and to select the alternative plan that best satisfies the federal and state policies on controlling combined sewer overflows and

minimizing street flooding, while remaining affordable to City rate payers. To accomplish this, a cost curve was to be developed that would compare the project benefits (flooding and CSO control) to project costs. The magnitude of the alternative project costs were also going to be considered so that affordability could be incorporated into the decision process.

However, the wide range of design criteria and the resulting number of alternative projects, makes development of a "cost-benefit" curve a time consuming and arduous task. Moreover, much of the developed curve would likely not even be relevant based on the magnitude of the costs. Therefore, City staff petitioned the Board on 26 April 1991 to allow the City to determine the least-cost improvement plan for a single "target" set of criteria. The results and cost information will then be used to determine a reasonable range of design criteria for evaluation in a subsequent Phase 3 study, and allow for the development of a "cost-benefit" curve.

The Regional Board concurred that this phased project strategy was appropriate and warranted based upon the complexities of the combined sewer system, the variety and size of improvement projects, the numerous alternative project combinations, and the outstanding questions regarding acceptable (regulatory) levels of flood control and CSO control, and the affordability of the improvement plans to meet different design criteria.

Therefore, this report describes the analysis and results of Phase 2 of the Combined Sewer Improvement and Implementation Plan study. Alternative project costs and a corresponding rate assessment are provided. This report evaluates only a single set of target design storm and CSO control criteria, to determine a magnitude of costs. Therefore, the least-cost alternative improvement plan identified in this report is representative only of an estimated total project cost for this single target set of design criteria.

SELECTION OF THE TARGET DESIGN CRITERIA

In order to develop an appropriate design rainfall event to evaluate the combined sewer system, a survey of other cities' combined sewer improvement plans was completed. Numerous cities across the United States are implementing improvements to limit CSO events. Based on an evaluation of these other programs, all being implemented as a result of EPA regulations, the appropriate design criteria were established.

Twenty-one cities were surveyed for information on their specific improvement plans. The majority of the improvement plans for these cities focused on CSO control rather than flood control. The Sacramento system is unique in that all wastewater must be pumped in order to reach the Sacramento River as a CSO. There are no gravity overflow points.

The Sacramento combined sewer system must control both street flooding/sewage backups and minimize CSOs. Therefore, two target design storm criteria were selected for analysis, one for flood protection and the other for CSO control.

FLOODING CONTROL CRITERIA

Most combined sewer systems provide flood protection equal to a separated drainage system, which is typically a 5- or 10-year design storm. Therefore, the 10-year design storm was selected as the target criteria for control of street flooding within the Sacramento combined sewer system for the Phase 2 study. A 10-year design storm has a return frequency of once every 10 years (i.e., a 10 percent probability of occurring each year).

CSO CONTROL CRITERIA

Based on the survey results, most states have imposed a 1-year design storm criteria for CSO control. Therefore, the 1-year storm criteria was selected as the target criteria for the control of CSOs. A 1-year design storm has a return frequency of once a year (i.e., a 100 percent probability of occurring once each year).

This set of target criteria (the 10/1 Criteria) was agreed to by the Regional Board at their 26 April 1991 meeting.

PHASE 3

The analysis performed to date on the 10/1 Criteria (and summarized in this report) will be used to select additional design criteria (i.e., storm frequencies and/or CSO frequencies) for analysis in the Phase 3 study. The Phase 3 study will include a cost-benefit comparison study of recommended improvement plans for each of these storm criteria. The objective is to evaluate a sufficient number of storm criteria so as to develop a cost curve that will allow the City to identify the "knee" of the curve; i.e., the point where project costs escalate much more rapidly than the associated benefits (flood control/CSO control).

If the costs associated with this "knee-of-the-curve" plan translates into a rate increase equal to or less than some maximally acceptable increase, and if the level of flooding and CSO control is equal to or greater than the control sought by the Regional Board, then the City would have a technical basis for selecting an improvement plan. However, if either or both of these scenarios do not occur, then a negotiated project selection process, that considers financial feasibility, will be necessary. In this case, the Phase 3 report will include a cost feasibility analysis.

The Phase 2 Detailed Technical Report to be submitted on 1 July 1991 will include a work plan for the Phase 3 study. This work plan will also recommend a range of design criteria for analysis in the Phase 3 study, including the rationale for their selection.

SECTION 3 ALTERNATIVE IMPROVEMENT PROJECTS AND PLANS

Alternative improvement projects were identified and initially screened based upon non-cost factors (i.e., social/environmental constraints and technical factors). The feasible projects were then combined into alternative plans, all meeting the same level of flood and CSO control (i.e., the 10/1 Criteria). Flood control plans were sized based upon a computer model of the combined sewer system. The objective was to eliminate street flooding and sewage backups for a storm having a return frequency of once every 10 years. CSO control plans were then combined with these various flood control plans. The objective for CSO control was to contain and/or treat combined sewer flows associated with a 1-year return storm. Various combinations of the flood control and CSO plans were developed and costed. In this manner, the least costly alternative plan, for the 10/1 Criteria, was identified.

ALTERNATIVE IMPROVEMENT PROJECTS

The types of alternative projects evaluated in this report include the following:

Conveyance Systems. Conveyance systems for flood control are used to carry sanitary and storm flows from their point of origin to either Sump 1A or Sump 2, and include:

- Pipes - Typically, pipes are buried less than 30 feet down, and flow under gravity conditions
- Tunnels - Conveyance structures that are installed more than 30 feet below grade, and constructed by use of tunnelling methods
- Pumping Stations and Forcemains - Pumps are used to force the sanitary and storm flows through a pressure pipeline to a higher elevation.

Storage. Storage facilities are used to hold excess water that cannot be conveyed by the existing piping system. Flows in excess of the sewer capacity can be diverted to storage for short term holding. After the storm passes, the stored water is returned to the sewers. Storage facilities include:

- Open or Covered Reservoirs - Tanks or earthen basins can be used to store excess flows. Basins can be covered to control odors and volatile organic carbon emissions.
- Tunnels - Tunnels, as previously described, can be used to store excess flows.

Treatment. For purposes of this report it has been assumed that the discharge of primary treated combined sewage effluent to the Sacramento River is permissible only during storm events, and that stored combined sewage must receive secondary treatment at the Sacramento Regional Wastewater Treatment Plant (SRWTP) during off-peak times (i.e., following a storm event).

ALTERNATIVE IMPROVEMENT PLANS

Several alternatives plans were developed to handle the 10/1 Criteria. These are described briefly below:

- **Conveyance Alternative.** This alternative consists of installing larger sewers in place of existing sewers, or constructing parallel sewers. The size and location of these sewers is designed to eliminate street flooding. Sanitary and storm flows are routed to either Sump 1A or Sump 2 and from there to the SRWTP, the City wastewater treatment (CWTP), Pioneer Reservoir, and finally to the Sacramento River.
- **Separation Alternative.** Under this alternative, the sanitary and storm flows are collected and conveyed in completely separate sewer systems. The sanitary flows are conveyed to the SRWTP for treatment and disposal. The stormwater is conveyed in a new collection system to 6 pumping stations and then pumped to the Sacramento River. This alternative was based on the 1988 study recommendations, and the costs were updated to the same unit costs used in this study.
- **Tunnel Alternative.** This alternative involves constructing a network of tunnels approximately 50 feet below the ground. The tunnels will be used to store and convey combined sewage flows which cannot be handled in the existing sewer system, and thereby eliminate street flooding. Wastewater in the tunnels is conveyed to Sump 2, where it is pumped to the SRWTP for treatment during off peak times.
- **Storage Alternatives.** Three storage locations have been identified for flood control. The sites are:
 - UC Davis Medical Center/Old Fairgrounds
 - Pioneer Reservoir area
 - Union Pacific area

The sites were evaluated in different combinations. They were used to store excess wastewater flows and thereby avoid enlarging or paralleling some of the existing sewers. At off-peak times, the stored water is returned to the nearest interceptor for conveyance to SRWTP for treatment.

- Treatment Alternatives. To meet the requirement for treating wastewater discharges to the Sacramento River, treatment plant sites were identified as follows:

- Pioneer Reservoir area
- CWTP site
- Meadowview WTP site
- SRWTP site

Except for the SRWTP site, treatment plants will provide primary treatment only (i.e., sedimentation and disinfection).

LEAST COST PLAN TO CONTROL COMBINED WASTEWATER FLOWS

The physical facilities (pipelines, pump stations, storage reservoirs and tunnels, and treatment plants) associated with each flood control and CSO control alternative plan were sized based upon a computer model of the combined sewer system. Cost estimates include not just materials and labor expenses, but also design, construction inspection, contract administration, legal, bonds, and insurance costs. A 25 percent contingency factor was then added to the total project costs to obtain a final cost estimate.

Project costs varied from \$550 to \$754 million dollars. The least expensive system that meets the 10\1 Criteria is the tunnel alternative which includes the following:

- A nine-mile, 15-foot diameter tunnel system leading to Sump 2,
- Consolidation pipes to divert water from the existing sewers to the tunnels,
- An additional pumping station near Sump 2,
- The up-sizing of laterals and mains,
- The upgrading of the collection system to a 10-year storm (common to all plans),
- The rehabilitation of existing sewers,
- Improvements to Sumps 1, 1A, 2, and Pioneer Reservoir.

The estimated total cost of this project is \$550 million.

SECTION 4 FINANCIAL ANALYSIS OF THE LEAST COST PLAN

OBJECTIVE OF THE ANALYSIS

This section presents a financial evaluation of the least cost alternative plan, which is based on the target design criteria of a 10-year storm for flood control and a 1-year storm for CSO control. The objective is to assess the financial impact to the City's rate payers in financing a \$550 million combined sewer improvement plan. This assessment is accomplished by first determining future monthly sewer and storm drainage fees associated with this project, and then comparing these fees to an EPA household affordability index for sewer-related construction projects, and 1991 sewer fees for comparable cities (population over 100,000) within California.

CURRENT SEWER AND STORM DRAINAGE FEES

Based upon the 1990/91 sewer and storm drainage fee schedule and a typical residential household being a single-family house with 6 or 7 rooms, the typical monthly residential sewage and storm drainage fees for the City of Sacramento are \$6.15 and \$8.47 respectively. In addition, the Sacramento Regional County Sanitation District's (SRCS) wastewater treatment fee is \$7.45 per month per household. Therefore, the current total sewer and storm drainage fee for the a typical residential household in the City of Sacramento is \$22.07.

CURRENT ESTIMATED SERVICE CHARGE REVENUE

Budgeted revenues for 1990/91 from service charges, for both sewer and storm drainage enterprise funds, are estimated at \$26.2 million (approximately 88 percent of total revenue). Total revenues plus fund balances are budgeted to provide for operating expenses, debt service, capital improvements, and fund transfers. Table 1 shows estimated annual service charge revenue by fund and account category. This estimate was calculated using the actual February 1991 billing report. More than 72 percent of system service charge revenue is derived from residential accounts, with commercial and metered accounts accounting for the remaining 28 percent. Using the more recent February 1991 data, annual service charge revenue is projected at \$26.57 million, or at the rate of \$2.214 million per month.

COST OF COMPLIANCE

Fee increases associated with the total project cost of \$550,000,000 (in 1991 dollars) and additional annual operation and maintenance costs for this project (estimated to be \$1.0

TABLE 1. CITY OF SACRAMENTO ANNUAL SERVICE CHARGE REVENUE

	Sewer Service Chg		Storm Drainage Chg		Total	
	Accts	Annual Revenue	Accts	Annual Revenue	Annual Revenue	Percent
Residential	69,439	\$5,931,000	103,914	\$13,308,000	\$19,239,000	72.4%
Commercial	2,561	1,798,000	5,392	4,849,000	6,647,000	25.0
Metered	<u>2,372</u>	<u>679,000</u>	<u>-</u>	<u>-</u>	<u>679,000</u>	<u>2.6</u>
Total	74,372	\$8,408,000	109,306	\$18,157,000	\$26,565,000	100.0%

Source: Based on February 1991 billing report.

million in 1991 dollars upon project build-out) were calculated. It was assumed that project costs will be spread over a ten-year construction period beginning in 1992/93, and that construction project costs will occur evenly at an expenditure rate of 10 percent each year. An inflated annual construction cost was estimated using an inflation rate of 4 percent. (The Engineering News Record's San Francisco Construction Cost Index has increased at an average annual rate of 3.7 percent during the period from December 1985 through December 1990.)

Three alternative financing plans - Pay-As-You-Go, General Obligation Bonds, and Revenue Supported Bonds - were developed to estimate monthly financing costs.

Debt Financing Costs

To the extent the City elects to fund construction costs through debt financing, initial annual costs will be reduced as contrasted with pay-as-you-go financing. Table 2 calculates estimated annual debt service per \$1.0 million of construction cost, as follows:

- General obligation bond - \$100,000
- Revenue-supported bond - \$106,000

General obligation bond financing would be the least costly bond alternative. The revenue-supported bond estimate is intended to be indicative of costs for either a revenue bond, lease financing such as certificates of participation, or other revenue-supported debt or some combination thereof.

Each option assumes a 20-year serial bond issue. Interest rate assumptions compared to *Bond Buyer* Index figures for the period January 1, 1990 through May 16, 1991 are as follows:

	Debt Financing Assumption	Bond Buyer Index Data	
		Rate	Index Used
General Obligation Bond	7.25%	6.81-7.56%	20 G.O. Bonds
Revenue-Supported Bond	7.50%	7.07-7.83	25 Revenue Bonds

**TABLE 2. CITY OF SACRAMENTO
CONSTRUCTION PROJECT DEBT SERVICE ESTIMATE
(PER \$1 MILLION CONSTRUCTION COST)**

	General Obligation (GO) Bond ¹	Revenue- Supported (COP) Bond ²
Construction fund	\$1,000,000	\$1,000,000
Issuance costs (2%)	21,000	23,500
Discount allowance (2%)	21,000	23,500
Reserve fund (10%)	<u>n/a</u>	<u>116,000</u>
Estimated issue size	\$1,042,000	\$1,163,000
Estimated annual debt service	\$ 100,000	\$ 114,000
Less: Reserve fund interest earnings ³	<u>n/a</u>	<u>8,000</u>
Net estimated annual debt service	\$ 100,000	\$ 106,000

1 - 20-year issue estimated at net interest cost of 7.25%.

2 - 20-year issue estimated at net interest cost of 7.50%.

3 - Assumes interest earnings at 7.0%.

Additional Monthly Revenue Requirements

Additional monthly revenue requirements resulting specifically from this project were prepared and compared to current revenue. Three alternative financing plans (see Table 3) were developed to estimate these additional monthly financing costs through the 10-year period ending 2001/02:

- Pay-As-You-Go
- General Obligation Bonds
- Revenue Supported Bonds

As shown in Table 3, Section 1, construction costs are assumed to occur evenly during the 10 year period, though based upon a 4% inflation rate annual construction costs will range from \$57.2 million in 1992/93 to \$81.5 million in 2001/02.

Section II of this same table converts the inflated annual construction cost (in Section 1) to an additional monthly revenue requirement. Monthly O&M costs associated with this project, are then added to the construction-related monthly cost to arrive at a total additional monthly revenue requirement. Section II also allocates this additional revenue requirement to customer classifications assuming continuation of the existing revenue allocation. For example, in 1992/93 residential users would be assessed an additional \$3.5 million per month (a 218% increase above current revenues).

Section III of Table 3 shows the additional monthly revenue requirements, and the percent increase above current revenues for the three alternative financing plans. A brief summary of these plans follow:

Pay-As-You-Go: Pay-as-you-go financing assumes that the City would fund the entire construction cost from current-year revenues. Under this scenario revenues must be increased 218.6 percent in 1992/93 (as compared to the current 1990/91 revenues) up to a maximum increase of 312.6 percent over current revenues by 2001/02. Additional revenue requirements would be significantly reduced thereafter, subject to O&M, inflation effects and other capital needs.

General Obligation Bond Financing: G.O. bond financing would spread project costs over a 20 year period for each annual bond sale. Since bonds will be issued for each of the 10 years of construction, the total bond payment period will be 30 years, through 2021/22. Use of debt financing will reduce costs of financing projects in the early years. G.O. bond financing would gradually increase additional revenue requirements from a 23.3 percent increase in 1992/93 to a 264.2 percent increase over current rates in 2001/2002 (a \$5.8 million per month increase). Debt service payments would continue at the 2001/2002 level until 2011/12 when serial bonds begin to mature. Debt service payments would then gradually decrease until the final issue matures in 2021/22.

TABLE 3
CITY OF SACRAMENTO COMBINED SEWER IMPROVEMENT PLAN FINANCING

ASSUMPTIONS:

* Project Size (X \$1000)	\$550,000
* Additional O&M cost/yr. (X \$1000)	1,000
* ENR SF Construction Index (4/91)	6141
* Inflation Rate	4.00%
* G.O. Debt service/year/million	\$100,000
* C-O-P Debt service/year/million	\$106,000

	Financing Year									
	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
I-CONSTRUCTION COSTS (ANNUAL) (x \$1000)										
1991 Constant Dollars	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000
ENR-S.F. Construction Index	6,387	6,642	6,908	7,184	7,471	7,770	8,081	8,404	8,741	9,090
Inflated Construction Cost	57,200	59,500	61,900	64,400	67,000	69,700	72,500	75,400	78,400	81,500
II-TOTAL MONTHLY REVENUE REQUIREMENTS (x \$1000)										
Current revenue	\$2,214	\$2,214	\$2,214	\$2,214	\$2,214	\$2,214	\$2,214	\$2,214	\$2,214	\$2,214
Additional capital expense	4,800	5,000	5,200	5,400	5,600	5,800	6,000	6,300	6,500	6,800
Additional O&M expense	40	40	90	100	100	110	110	110	120	120
Additional revenue required - total	4,840	5,040	5,290	5,500	5,700	5,910	6,110	6,410	6,620	6,920
Residential (72.4%)	3,500	3,600	3,800	3,900	4,100	4,200	4,300	4,600	4,700	4,900
Commercial (25.0%)	1,200	1,300	1,300	1,400	1,400	1,500	1,500	1,600	1,600	1,700
Metered (2.6%)	120	130	140	140	150	150	160	160	170	180
III-FINANCING ALTERNATIVES-MONTHLY COSTS (x \$1000)										
A. PAY-AS-YOU-GO FINANCING										
Additional revenue required	\$4,840	\$5,040	\$5,290	\$5,500	\$5,700	\$5,910	\$6,110	\$6,410	\$6,620	\$6,920
Increase over current revenue	218.6%	227.6%	238.9%	248.4%	257.5%	266.9%	276.0%	289.5%	299.0%	312.6%
B. G.O. BOND ISSUE										
Debt service - current year issue	\$477	\$496	\$516	\$537	\$558	\$581	\$604	\$628	\$653	\$679
O&M expense	40	40	90	100	100	110	110	110	120	120
Additional revenue required - cumulative	517	1,013	1,578	2,125	2,683	3,274	3,878	4,507	5,170	5,849
Increase over current revenue	23.3%	45.7%	71.3%	96.0%	121.2%	147.9%	175.2%	203.6%	233.5%	264.2%
C. REVENUE SUPPORTED (C-O-P) BOND ISSUE										
Debt service - current year issue	\$505	\$526	\$547	\$569	\$592	\$616	\$640	\$666	\$693	\$720
O&M expense	40	40	90	100	100	110	110	110	120	120
Additional revenue required - cumulative	545	1,071	1,668	2,247	2,838	3,464	4,104	4,770	5,473	6,193
Increase over current revenue	24.6%	48.4%	75.3%	101.5%	128.2%	156.5%	185.4%	215.5%	247.2%	279.7%

(1) City revenue only - excludes revenue from Regional Sanitation District fee

Revenue Bond Financing: Maximum annual debt service would be incurred similar to General Obligation Bonds. By 2001/02 a 279.7 percent increase over current revenue, or \$6.2 million per month, would be required.

PROJECT AFFORDABILITY

To address the affordability of rate increases required to provide funds for sewer-related construction costs, the following approaches were used:

- The EPA Household Affordability Index
- A 1991 survey of monthly wastewater charges for California cities and districts

Each of these guidelines are applied to a typical single-family residence. As previously demonstrated, these guidelines would be applicable to approximately 72 percent of the City's service charge revenue and therefore closely representative. The analysis further assumes that all costs would be supported entirely by service charge increases.

Household Effective Buying Income

Monthly service charges are the primary source of sewer revenue for the City. City residents pay a service charge for both sewer and storm drainage as well as a fee to SRCSD. A typical six- to seven-room resident currently pays the following monthly fees:

Sewer	\$ 6.15
Storm drainage	8.47
SRCSD	<u>7.45</u>
Total	\$22.07

Affordability of such charges is related to household income for the area. In 1989 the median household effective buying income (EBI) for Sacramento was \$24,500, as reported by *Sales and Marketing Management* in its most recent (August 1990) survey. The following areawide estimates indicate a lower EBI for the City by comparison:

- Sacramento County - \$31,555
- State of California - \$33,219
- Pacific Region - \$32,072

EPA Index of Household Affordability

In the 1970's, the EPA issued a memorandum which included an index of household affordability for sewer related charges based upon median household income. This memorandum used an index equal to 2% of the median household income. Though this memorandum is no longer used by the EPA, the EPA Office of Municipal Pollution Control (OMPC) still uses informal guidelines in reviewing mandated sewer related expenditures.

They do not consider sewer related expenditures within the range of 1 - 2% of median household income as a financial hardship. Furthermore, for sewer related expenditures beyond the 2% level, they recognize that affordability varies by community, depending upon a community's individual mix of public expenditures and the relative importance of the sewer related project. If rates increase to within 3 to 4% of the median income, EPA considers this a potential financial hardship and would begin to consider alternative solutions.

For purposes of this report, we have assumed that the threshold index for hardship is 2 percent for the City of Sacramento. Therefore, adjusting the 1989 household EBI by the assumed 4 percent inflation rate to start of construction in 1992/93, results in an EBI of approximately \$27,000 and a threshold monthly service charge of \$45.00.

Table 4 shows the projected total monthly residential sewer and storm drainage rate for the years 1992/93 through 2001/02 for each of the three alternative financing plans. This rate includes existing sewer and storm drainage fees (including the Regional sewer fee) plus the additional fees required by the \$550 million combined sewer system improvement plan (as indicated in Table 3). In addition, the EPA hardship index for each of these ten years is also shown in Table 4. This project affordability analysis assumes inflationary increases in the household EBI as well as both the City and SRCSD fees.

The observations reached and conclusions made regarding each of the three alternative financing alternatives and their relationship to the 2% affordability index follows:

Pay-As-You-Go - This financing plan would increase sewer rates 22% over the hardship threshold throughout the 10 year period. The required monthly residential fee would exceed the hardship threshold by \$9.91 in 1992/93. By 2001/2002, the fee would exceed the threshold by \$14.20.

General Obligation or Revenue Supported Bonds - Under either option, the required monthly residential fee would not exceed the hardship threshold until 1999/00. By 2001/02 the required fee rate reaches its maximum level (except for inflationary increases), and exceeds the threshold amount by \$7.13 (for G.O. Bonds) and \$9.39 (for Revenue Bonds). These fees are 2.22% and 2.29% of the median household income. Debt service payments would continue at the 2001/02 level until 2011/12 when serial bonds begin to mature, and would gradually decrease until the final issue matures in 2021/22.

COMPARABLE CALIFORNIA SEWER SERVICE CHARGES

Table 5 shows 1991 survey results of sewer service charges in California cities and districts. For areas with population over 100,000 (a benchmark for the City) average monthly charges are \$10.04 and the highest charges are \$30.09. The survey indicates that the EPA Threshold of Household Affordability Index is significantly above current actual rates in the area. Even the highest fee is only 67 percent of the 1991 EPA affordable fee of \$45.00. The average charge is less than current City charges and only 22 percent of the 1991 EPA affordable fee.

SUMMARY

Using the EPA Affordability Index as a guide, a \$550 million project grossly exceeds the threshold affordability index for the Pay-As-You-Go plan, and marginally exceeds the threshold affordability index in both of the bond financing plans. Hence, there is no margin for additional rate increases due to capital expenditures and/or increased O&M requirements for improvements to the separated sanitary and storm drainage systems, for growth within the sewer and storm drainage service areas, and for increases in Regional Sanitation District's treatment and/or interceptor systems.

In addition, the EPA also recognizes that the affordability of a project is dependent upon a community's individual mix of public expenditures and the relative importance of the sewer related project. Therefore, considering the other large capital projects the City is pursuing (flood control-SAFCA, stormwater quality control, solid waste, etc.), the \$550 million project becomes even less affordable.

Finally, comparable California charges may provide a more practical fee increase comparison.

CONCLUSION

Based on the affordability analysis the least-cost alternative is not affordable.

SECTION 5 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based on the completion of Phase 2 of the improvement plan study.

1. There are several alternatives to upgrade the collection system to handle the 10/1 design criteria and their capital costs range from about \$550 million to \$750 million.
2. The threshold EPA affordability index for Sacramento is estimated to be about \$45.00 per month starting in the fiscal year 1992/93.
3. The least-cost alternative is not affordable.
4. The least-cost alternative could be affordable with county, state, and/or federal monetary contributions.

RECOMMENDATION:

The Phase 2 report should be submitted to the Regional Board on 1 July 1991. This report should contain:

1. The improvement plan for the 10/1 Criteria, including project costs and affordability analysis.
2. A proposal that the additional design storm criteria to be analyzed in the Phase III "cost-benefit" study will be less stringent than the 10/1 target criteria, since the order of magnitude of the 10/1 Criteria improvement plan exceeds the financial capability of the City.
3. A workplan, including time schedule, for a Phase III study that will include a "cost-benefit" study of alternative projects for the recommended range of storm events, the selection of a recommended Final Improvement Plan, and the submittal of a Phase III Detailed Technical Report.

TABLE 4
CITY OF SACRAMENTO COMBINED SEWER IMPROVEMENT PLAN AFFORDABILITY

ASSUMPTIONS:

* Project size (x \$1000)	\$550,000
* Average residential sewer fee - City	\$6.15 /month
* Average residential storm fee - City	\$8.47 /month
* Average residential system fees - City	\$14.62 /month
* Average residential sewer fee - Regional	\$7.45 /month
* Average residential fees - total (1)	\$22.07 /month
* Household effective buying income (1989)	\$24,500
* Inflation rate	4.00%
* EPA Hardship Threshold Index/year	2.00%

	Financing Year									
	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
HOUSEHOLD EFFECTIVE BUYING INCOME	\$27,000	\$28,100	\$29,200	\$30,400	\$31,600	\$32,900	\$34,200	\$35,600	\$37,000	\$38,500
AFFORDABLE RESIDENTIAL FEE/MONTH (2)	\$45.00	\$46.83	\$48.67	\$50.67	\$52.67	\$54.83	\$57.00	\$59.33	\$61.67	\$64.17
AFFORDABILITY (MONTHLY)										
A. PAY-AS-YOU-GO FINANCING										
Required residential fee-total (3)	\$54.91	\$57.15	\$59.75	\$62.13	\$64.50	\$66.95	\$69.39	\$72.53	\$75.13	\$78.37
B. G.O. BOND ISSUE										
Required residential fee-total (3)	\$26.36	\$30.55	\$35.25	\$39.85	\$44.57	\$49.55	\$54.66	\$59.97	\$65.55	\$71.30
C. REVENUE SUPPORTED (C-O-P) BOND ISSUE										
Required residential fee-total (3)	\$26.55	\$30.95	\$35.83	\$40.66	\$45.59	\$50.81	\$56.15	\$61.71	\$67.55	\$73.56

(1) Does not include rate increases proposed for 1991/92

(2) EPA index times household effective buying income

(3) Includes inflationary increase

TABLE 5. CALIFORNIA CITIES AND DISTRICTS
1991 SURVEY OF SEWER SERVICE CHARGES^{1,2}

Population	Cities & Districts Surveyed	Average	Median	Low	High
Up to 1,000	19				
Monthly charges		\$ 24.05	\$ 18.00	\$ 8.33	\$ 88.75
Connection fees		1,893.00	1,000.00	150.00	4,472.00
1,001 to 10,000	86				
Monthly charges		12.62	10.30	0.00 ³	55.50
Connection fees		1,669.00	1,400.00	0.00	6,500.00
10,001 to 50,000	108				
Monthly charges		10.30	9.60	3.54	27.40
Connection fees		1,887.00	1,667.00	0.00	8,025.00
50,001 to 100,000	48				
Monthly charges		9.61	8.90	3.92	23.52
Connection fees		2,176.00	2,184.00	328.00	4,851.00
Over 100,000	41				
Monthly charges		10.04	8.75	4.08	30.09
Connection fees		1,841.00	1,565.00	0.00	4,810.00

1 - Single-family residential monthly charges.

2 - Excludes ad valorem taxes.

3 - Los Angeles County Sanitation District No. 27 currently collects sufficient funds through ad valorem taxes to pay for O&M without collecting a sewer charge.

Source: Black & Veatch, *Sewer Service Survey* (1991).