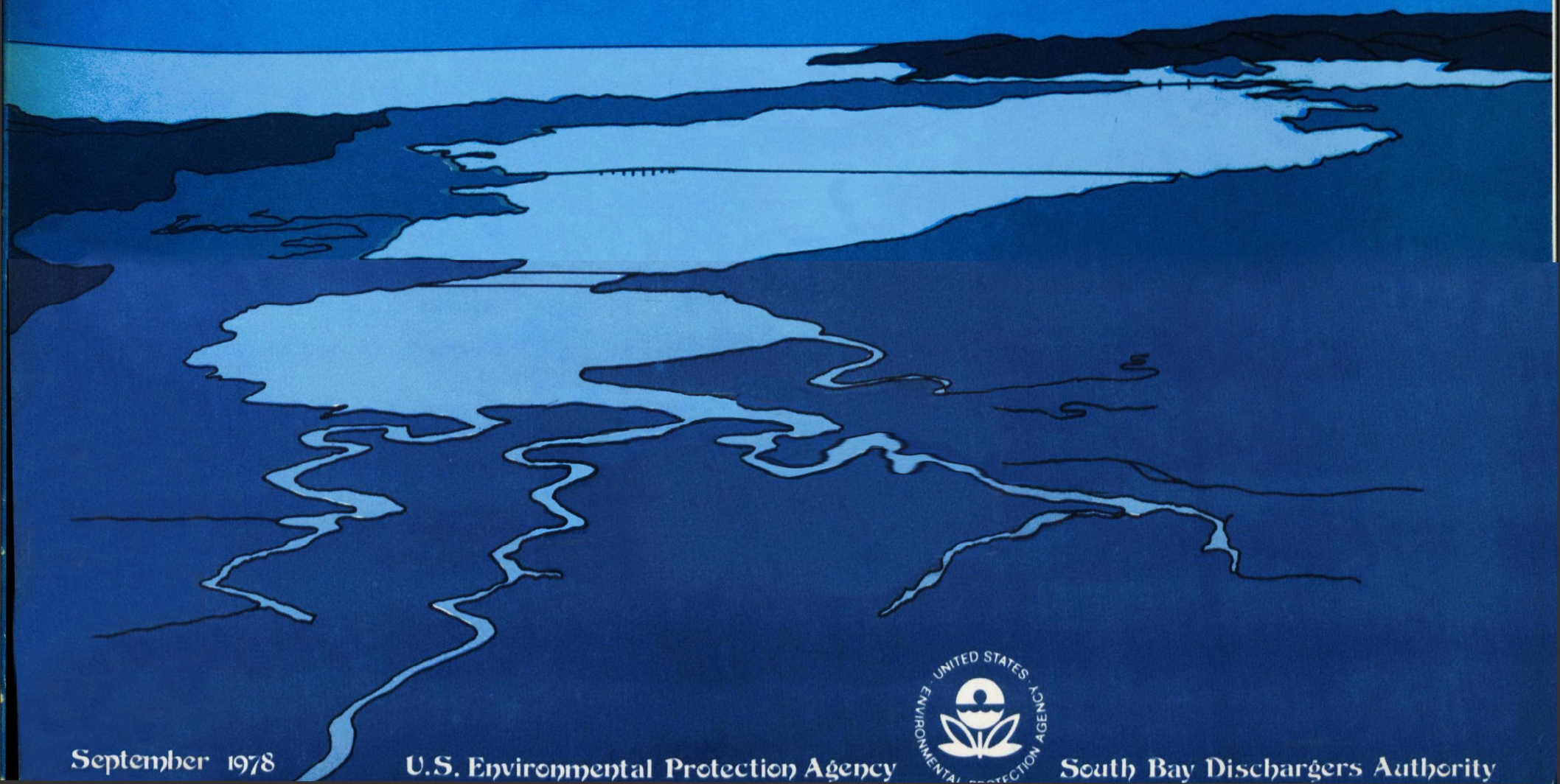
DRAFT ENVIRONMENTAL IMPACT REPORT AND STATEMENT

TREATED WASTEWATER DISPOSAL PROGRAM

SUMMARY



September 1978

U.S. Environmental Protection Agency

South Bay Dischargers Authority

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SUMMARY — DRAFT
ENVIRONMENTAL IMPACT REPORT
AND
ENVIRONMENTAL IMPACT STATEMENT

SOUTH BAY DISCHARGERS AUTHORITY
TREATED WASTEWATER DISPOSAL PROGRAM

November, 1978

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San Jose, California 95110

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To All Interested Agencies, Public Groups, and Concerned Individuals:

The Summary Draft Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) for the South Bay Dischargers Authority Treated Wastewater Disposal Program is complete and is being distributed at this time for your review and comment. This program would provide a wastewater disposal system for the San Jose/Santa Clara, Sunnyvale, and Palo Alto wastewater treatment plants, located in the Santa Clara County Baylands along the southeastern edge of San Francisco Bay. The Draft EIR/EIS has been prepared to conform with the requirements of the National Environmental Policy Act of 1969 and the California Environmental Quality Act of 1970, as amended.

The project alternative has not been selected. However, the Environmental Protection Agency (EPA) and the South Bay Dischargers Authority (SBDA), at this time, recommend a "no project alternative" for the following reasons:

1. The degree to which increased dilution resulting from a discharge north of the Dumbarton Bridge will mitigate the adverse impacts of toxicants on the biota of the South Bay cannot be predicted.

2. Modeling studies have not shown that a substantial improvement in dissolved oxygen concentrations would result if the discharges were moved north of the Dumbarton Bridge.

3. The viability of future full reclamation is being investigated in the Regional Wastewater Reclamation Study. Should such an alternative prove to be feasible, it would meet the planning requirements of the San Francisco Bay Basin Plan.

The EPA and the SBDA recognize that comprehensive receiving water monitoring will be needed to document the impacts of wastewater discharges in the South Bay after treatment facilities, now under construction, are placed in full operation. In addition, each discharging agency is committed to local and regional wastewater reclamation investigations.

This decision is being recommmended by EPA and SBDA, based upon present knowledge. However, if the final selection is a "no project alternative," we will continue to evaluate results of the monitoring program and will reconsider our selection, if appropriate.

The Final EIR/EIS will identify the project alternative selected after consideration of the public comments.

In the process of summarizing the Draft, much of the detail necessary to explain and support the summary's statements and conclusions was of necessity not presented. While the summary is as clear and accurate as possible within this limitation, those persons desiring a complete presentation of the analysis and conclusions are encouraged to review the complete Draft at the location cited below.

Comments on the Draft EIR/EIS should be sent to this office within 45 days of the date of this letter. All comments received will be considered in preparation of the Final EIR/EIS for this section. If you fail to comment within the specified time, it shall be assumed, absent a request for a specific extension of time, that you have no comments to make.

In order to receive testimony from the public, EPA will hold a public hearing on the Draft. It is presently anticipated that the hearing will be held in January or early February 1979. Public notice will be given in the local newspapers at least thirty days in advance of the public hearing.

The hearing may be continued from time to time, or to a different place, after its commencement, to accommodate the need of witnesses or the EPA.

All interested parties are invited to express their views at this hearing. Persons wishing to make comments

may submit them in writing and/or appear at the hearing. Written comments should be submitted in tripicate to:

U.S. Environmental Protection Agency
Region IX
Attn: Hearing Office (HE-141)
215 Fremont Street
San Francisco, CA 94105

Oral statements will be received and considered, but for accuracy of the record, all important testimony should be submitted in writing. Oral statements should summarize extensive written materials so that there will be time for all interested persons to be heard. Enough copies of the written materials should be produced so that other interested persons may receive a copy and there will be no necessity for written materials to be read at length.

The following documents constitute the Draft EIR/EIS:

Summary
Main Text
Appendices (2 volumes)

The Draft may be reviewed at the following locations:

U.S. Environmental Protection Agency
Region IX
Library
215 Fremont Street
San Francisco, CA 94105

U.S. Environmental Protection Agency
Public Reference Unit (P.M. 213)
401 M Street, S.W., Room 2922
Washington, D.C. 20460

Documents Librarian
Santa Clara County Library
Research Center
10400 Torre Avenue
Cupertino, CA 95014

San Jose Public Library
180 W. San Carlos St.
San Jose, CA 95110

Palo Alto Public Library
1213 Newell Rd.
Palo Alto, CA 94303

Santa Clara County Library
7387 Rosanna Street
Gilroy, CA 95020

Santa Clara County Library
78 South Dempsey Rd.
Milpitas, CA 95035

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University of California
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2635 Homestead Road
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Attn: Documents Librarian
665 W. Olive Avenue
Sunnyvale, CA 94086

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1095 North 7th Street
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801 North First Street
San Jose, CA 95110

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Planning Department
1500 Warburton Avenue
Santa Clara, CA 95050

City of Mountain View
Planning Department
540 Castro Street
Mountain View, CA 94040

City of Sunnyvale
Planning Department
P.O. Box 607
456 W. Olive Avenue
Sunnyvale, CA 94088

City of Los Altos
Planning Department
1 N. San Antonio Road
Los Altos, CA 94022

City of Palo Alto
Planning Department
250 Hamilton Street
Palo Alto, CA 94301

City of Milpitas
Planning Department
455 E. Calaveras Blvd.
Milpitas, CA 95035

City of Cupertino
Planning Department
City Hall, 10300 Torre Ave.
Cupertino, CA 95014

Town of Los Altos Hills
Planning Department
26379 Fremont Road
Los Altos Hills, CA 94022

City of Los Gatos
Planning Department
P.O. Box 949
Los Gatos, CA 95030

City of Monte Sereno
Planning Department
18041 Saratoga-Los Gatos Road
Monte Sereno, CA 95030

Please bring this notice to the attention of all persons who would be interested in this matter.

U.S. Environmental Protection Agency, Region IX

by Frank M. Covington
for Paul De Falco, Jr.
Regional Administrator

South Bay Dischargers Authority

by Franklin D. Knofler
Franklin D. Knofler
Acting Chief Executive Officer

INTRODUCTION

This summary provides a brief description of the environmental impacts associated with the alternatives for the disposal of South Bay Dischargers Authority (SBDA) highly treated wastewater. More detailed analyses of primary and secondary impacts, both beneficial and adverse, are contained in the *Draft Environmental Impact Report and Statement* (EIR/EIS) and *Appendices* to that EIR/EIS, which are being released for public review concurrently with this document. For those concerned individuals who will not find the opportunity to review the complete EIR/EIS, it is hoped that this summary will provide an overview of the problem of disposal and its anticipated impacts.

A BRIEF DESCRIPTION OF THE DISPOSAL PROBLEM

BACKGROUND AND HISTORY

The South Bay Dischargers Authority (SBDA) was formed on April 1, 1973, when the cities of San Jose, Santa Clara, Sunnyvale, and Palo Alto entered into a Joint Exercise of Powers Agreement. Figure 1 shows the service area of the SBDA.

Prior to the formation of the SBDA, an informational organization of its member cities and the Union and Menlo Park Sanitary Districts initiated a study to investigate alternative long-term solutions to wastewater management programs in the portion of the San Francisco Bay south of Dumbarton Bridge (South Bay). A recommended plan was presented in the Consoer-Bechtel (1972) report entitled *Water Quality Management Plan for South San Francisco Bay.* Because of subsequent institutional changes, such as the withdrawal of the Union and Menlo Park Sanitary Districts, a second study was commissioned. Bechtel Incorporated completed the *Overview Facilities Management Plan* in 1974, which recommended that three subregional plants provide advanced treatment for wastewaters generated within the SBDA service area. The plants would be at the sites of the existing secondary plants operated by San Jose/Santa Clara, Sunnyvale, and Palo Alto. It was further recommended that treated wastewaters from these three plants be collected in a regional intercepter for discharge through a common outfall into deep waters north of Dumbarton Bridge, in order to meet interim water quality standards that prohibited discharge south of Dumbarton Bridge or to the dead-end sloughs tributary to the Bay.

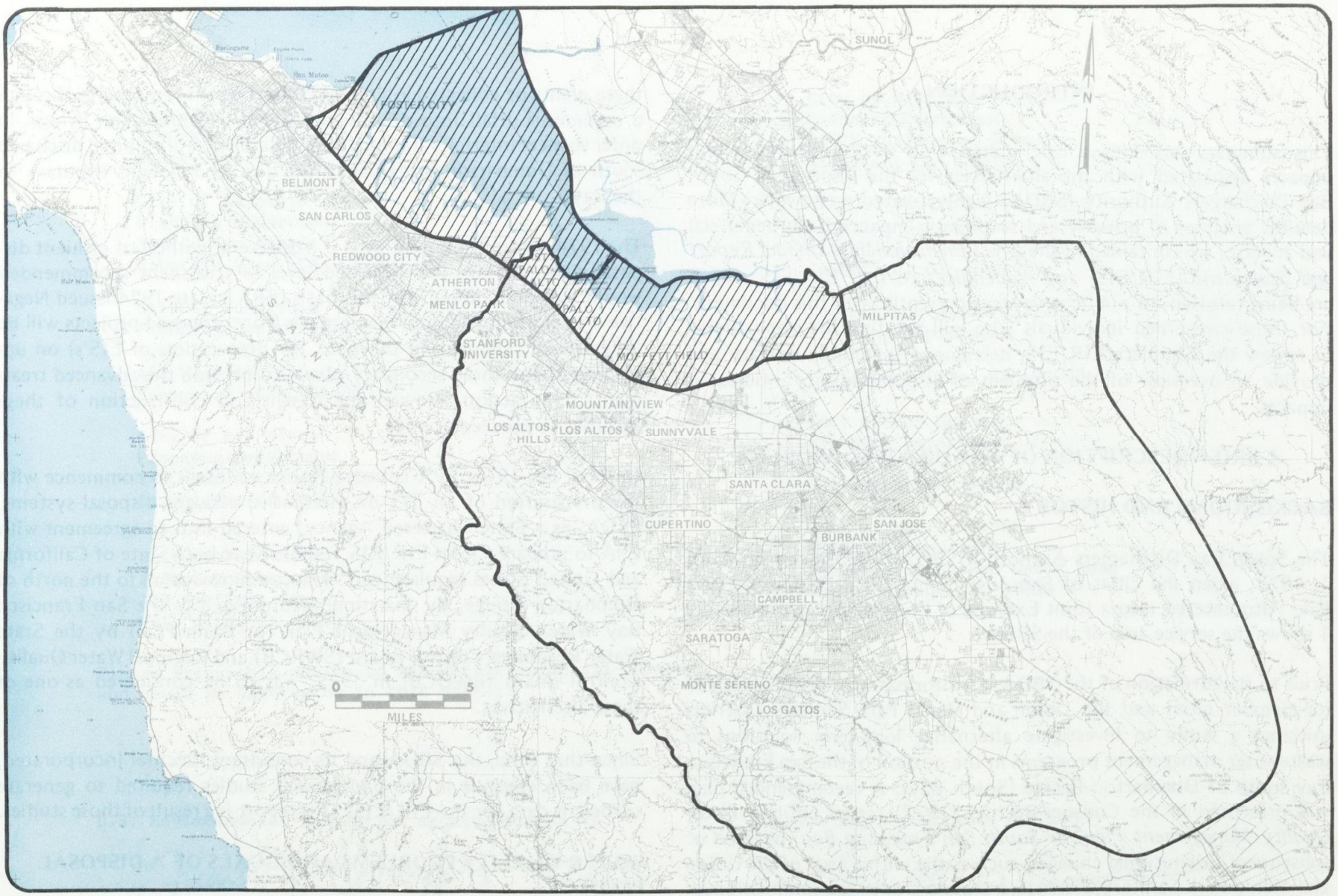
The 1974 report found that even if a different method of effluent disposal were chosen, the advanced level of treatment recommended would still be required. On this basis, EPA in late 1974 issued Negative Declarations (findings that impacts from proposed projects will be insignificant, eliminating the need for preparation of EIS's) on upgrading of the three secondary plants to provide the advanced treatment. This action allowed the design and construction of these facilities to proceed at once.

On May 30, 1975, EPA issued a Notice of Intent to commence with the preparation of an EIS on alternative effluent disposal systems. SBDA, as a State-Chartered Agency, entered into an agreement with EPA to prepare a joint EIR/EIS, responsive to both State of California and United States requirements. The common outfall to the north of Dumbarton Bridge, by that time incorporated in the San Francisco Bay Water Quality Management Plan (or Basin Plan) by the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB) in 1975, was to be considered as one of these alternatives.

Since that time, the SBDA and its consultant, Bechtel Incorporated, have been engaged in the background studies required to generate sufficient data for the EIR/EIS. This report is a result of those studies.

WATER QUALITY PROBLEMS AND GOALS OF A DISPOSAL PROJECT

Historically, wastewaters from SBDA member agencies have been discharged into sloughs draining into the South Bay. This has caused an increase in pollutants in South Bay waters — the degradation of water quality in the South Bay has been severe. Depression of dissolved oxygen concentrations to levels as low as 0.7 milligram per



SBDA SERVICE AREA

APPROXIMATE BOUNDARY OF BASIN PLAN ALTERNATIVE STUDY AREA

Figure 1
STUDY AREA LOCATION AND PRINCIPAL MUNICIPALITIES

liter, high concentrations of toxic heavy metals in the sediments, and localized problems of fish kills and waterfowl botulism outbreaks have all been attributed to the waste load accumulations in the South Bay. These conditions have been thought to be further aggravated by the lack of freshwater inflow during the dry season and the subsequent reduced flushing of the estuary.

Recent implementation of secondary treatment has resulted in marked improvements in Bay water quality. Nonetheless, strict water quality standards and guidelines promulgated by the State Water Resources Control Board (SWRCB) and San Francisco Bay Regional Water Quality Control Board (RWQCB) to protect the beneficial uses of the South Bay cannot presently be met. The upgrading of the secondary plants to provide advanced treatment is expected to improve further water quality in the open waters of the South Bay in an attempt to comply with the standards and guidelines. Each alternative discussed in the Draft EIR/EIS was evaluated with regard to the achievement of these standards and to the environmental impacts and economic costs expected.

ALTERNATIVES CONSIDERED

During the development of the *Water Quality Management Plan for South San Francisco Bay* (Consoer-Bechtel, 1972) and the *Overview Facilities Management Plan* (Bechtel, 1974), a number of treatment and disposal alternatives were examined. The Draft EIR/EIS evaluates numerous disposal alternatives, some of which were considered in these earlier studies. The criteria for evaluation in the Draft EIR/EIS include legal and institutional requirements, economic, engineering, and environmental (physical, chemical, biological, and sociocultural) factors. All alternative evaluations are based on the assumption that the advanced treatment recommended in the *Over-View Facilities Management Plan* and described under the 1974 Negative Declarations will be implemented.

A description of the four viable and four rejected alternatives to the Basin Plan Alternative are presented in the following subsections. The alternatives fall into six general categories: (1) discharge to the Bay, (2) reclamation and reuse, (3) discharge to the ocean, (4) disposal on land, (5) nonstructural actions, and (6) no further action or deferred action.

As shown in Figure 2, the Basin Plan Alternative consists of a regional conveyance pipeline, connecting lines, and pumping facilities along the southwestern shore and in the waters of the South Bay. The pipeline would be approximately 16 miles long, extending from a pumping station at the existing San Jose/Santa Clara treatment plant to a discharge point in the deepwater channel approximately one mile north of Dumbarton Bridge. The pipeline would vary in diameter from 90 inches (inside diameter) at its southern end to 102 inches at the outfall. The three subregional advanced waste treatment plants (San Jose/Santa Clara, Sunnyvale, and Palo Alto) would discharge wastewaters into this conveyance at pumping stations located near the treatment plants. The pumping stations could be modified to accommodate reversal in flow direction, if large-scale regional reclamation and reuse programs that require transport of wastewaters southward are implemented in the future.

SETTING OF THE BASIN PLAN ALTERNATIVE

The study area considered in the Draft EIS is that portion of the Santa Clara County Baylands between San Jose and the Basin Plan Alternative disposal point (Figure 1). This gently sloping, almost flat, plain and the open waters of the Bay have been extensively developed for urban, commercial, and institutional uses, including water pollution control facilities, sanitary landfills, commercial salt concentration ponds, and recreational areas (Figure 3).

The waters of the South Bay have a moderating effect on the climate of Santa Clara County; this climate in turn influences the susceptibility of the area to air quality problems. The study area is in a critical air basin; the combination of strong subsidence inversions common along the Pacific Coast and a basin ringed by mountains and open to

35 — PIPELINE STATIONS (At 1,000 ft. intervals)

PALO ALTO — PRINCIPAL MUNICPALITIES

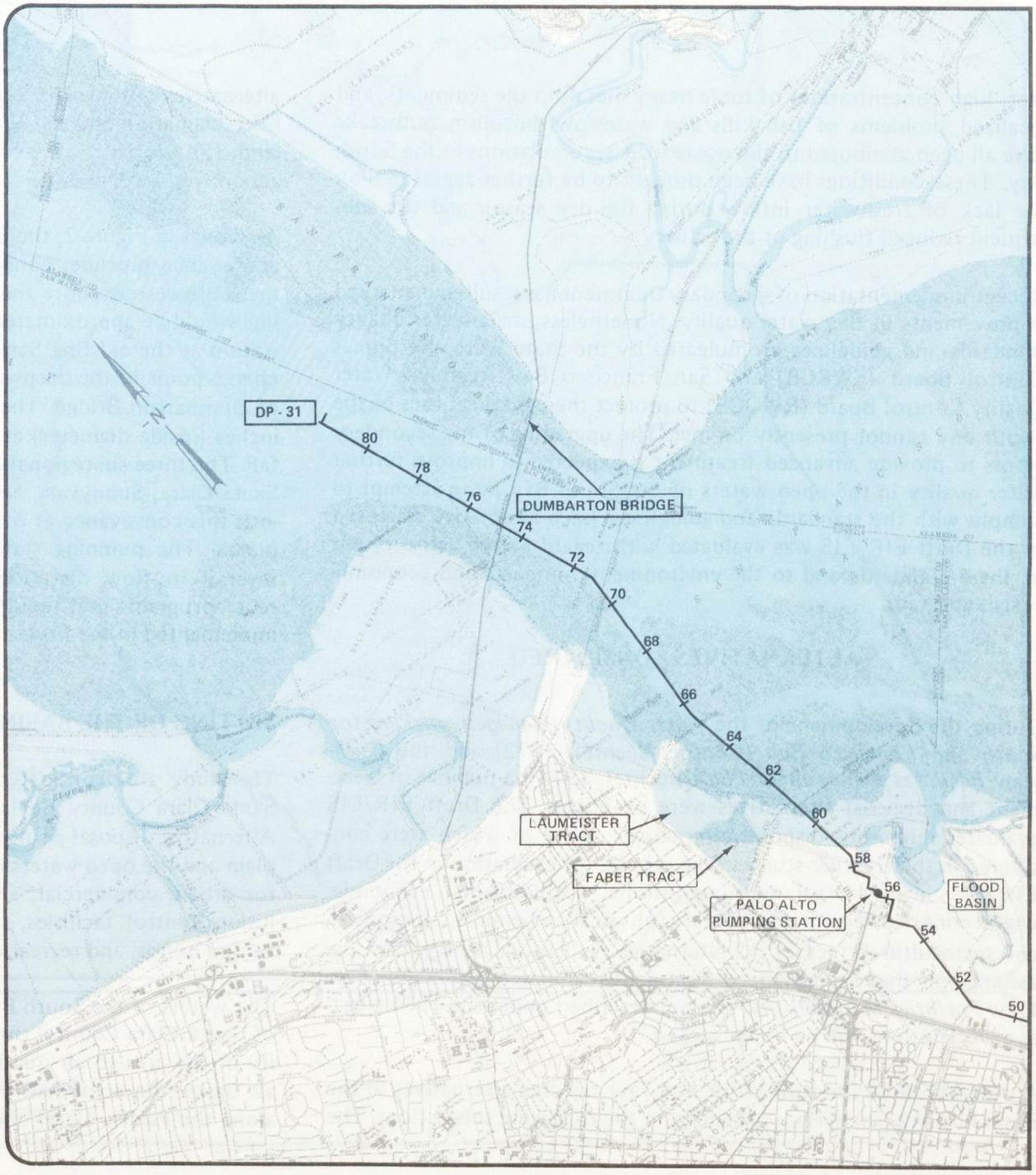
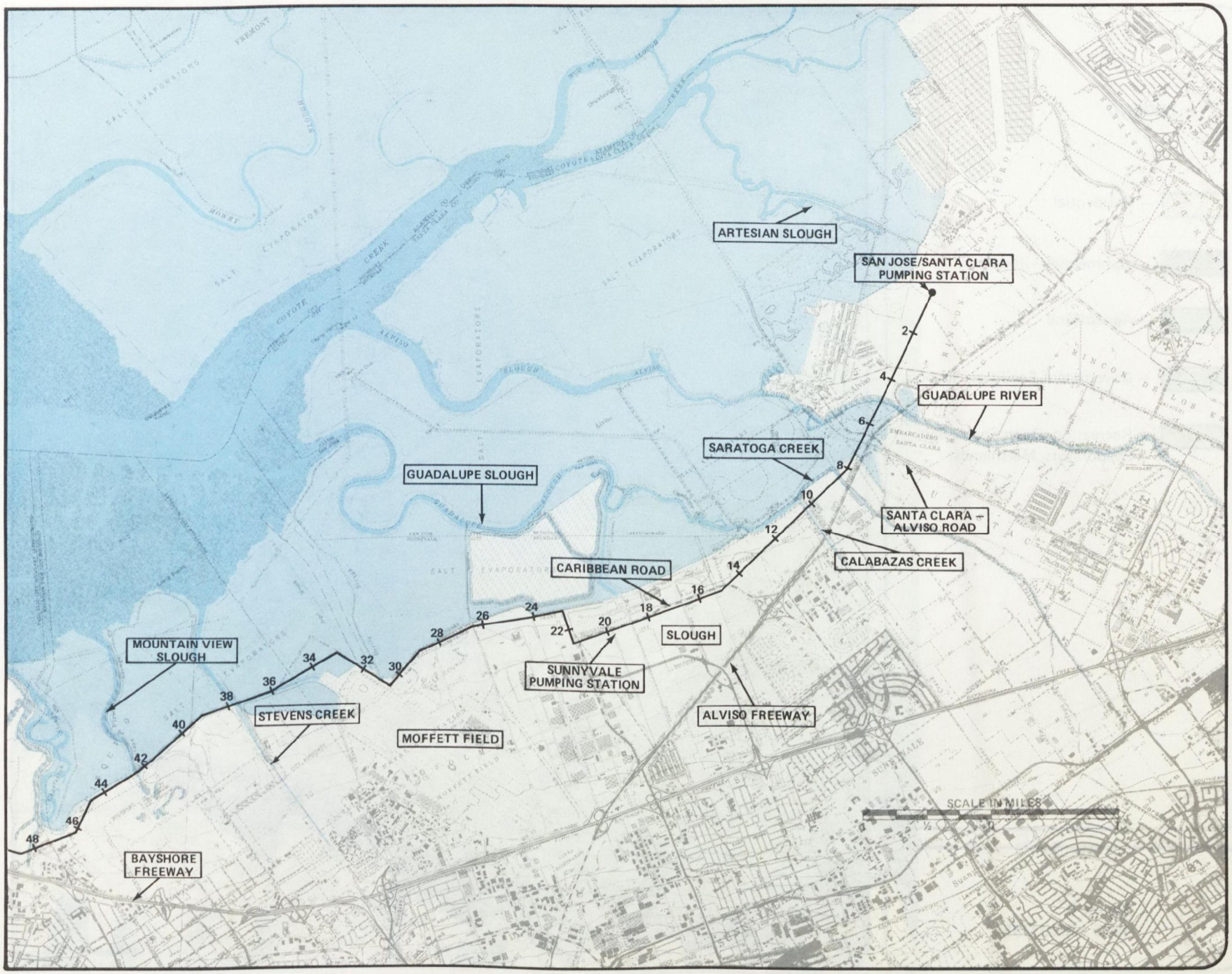


Figure 2
BASIN PLAN ALTERNATIVE


ARTESIAN SLOUGH
SAN JOSE/SANTA CLARA PUMPING STATION
GUADALUPE RIVER
SARATOGA CREEK
SANTA CLARA - ALVISO ROAD
CALABAZAS CREEK
GUADALUPE SLOUGH
CARIBBEAN ROAD
SLOUGH
SUNNYVALE PUMPING STATION
ALVISO FREEWAY
MOUNTAIN VIEW SLOUGH
STEVENS CREEK
MOFFETT FIELD
BAYSHORE FREEWAY
SCALE IN MILES
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LEGEND

- Residential
- Commercial – Industrial
- Agricultural
- Government Facilities, Schools
- Recreation, Open Space, Salt Evaporators, Marshlands.

Figure 3
1975 LAND USE

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the sea results in a high potential for impaired air quality. During the summer and early fall, when air temperatures are higher, these conditions result in periods of increased air pollution, primarily from nonpoint sources such as automobile traffic. However, disposal is not growth related and, since no increase in treatment capacity is planned, no secondary impacts on air quality are expected.

Geologic hazards consist of the potential for major earthquake activity along the San Andreas fault zone to the west of the Bay and along the Hayward fault zone to the east. A major earthquake could affect the structural integrity of a pipeline should the firm Bay Muds supporting the structure lurch or slide.

One of the most characteristic features of the South Bay is the diverse habitat available for fish and wildlife. This habitat, designated as a beneficial use of the area in the SWRCB and RWQCB *Water Quality Control Plan* (1975), consists of open bay waters, estuarine and tidal mud flats, fresh and saltwater marshes, salt concentration ponds, and grasslands (Figure 4). Although somewhat reduced in productivity as a result of water pollution problems and extensive urban development pressures, these Bayland habitats still support a diverse plant and animal community, including three resident endangered species (California least tern, California clapper rail, and salt marsh harvest mouse). Portions of the South Bay have been designated as part of the San Francisco Bay National Wildlife Refuge; in the area south of Dumbarton Bridge, the wildlife refuge consists of the marshlands, salt ponds, and sloughs from Alviso Slough north on the eastern side of the Bay.

ENVIRONMENTAL IMPACTS

Environmental impacts can be categorized as primary (direct or secondary (indirect). These impacts may be beneficial (e.g., protection of designated beneficial uses of the Bay) or adverse (e.g., preemption of acreage from future development); some adverse impacts may be mitigated or reduced in severity by implementation of certain actions or measures (Table 1). Environmental effects expected from the alternatives are summarized in the following sections, and the alternatives are compared with respect to their effects in Table 2.

BASIN PLAN ALTERNATIVE (ALTERNATIVE 1)

The Basin Plan Alternative facilities would be located on the Baylands plain, roughly between the Bayshore Freeway (U.S. Highway 101) and the inboard levees of the salt ponds. Where possible, the route would follow existing utility corridors. Pumping stations would be located on treatment plant or industrial park property. However, due to the nature of the Santa Clara Baylands, approximately 74 percent of the proposed alignment would be located in relatively natural biological areas.

The main goal of the Basin Plan Alternative would be general improvement in dissolved oxygen levels in the South Bay, which would contribute to the protection of the designated beneficial uses of these waters. Three wastewater outfalls to the Bay south of Dumbarton Bridge, including one in the San Francisco Bay National Wildlife Refuge, would be eliminated. However, this alternative results in primary adverse impacts during construction as well as secondary adverse impacts during operation.

Adverse construction impacts include alteration of topography, erosion, dust, air pollution, noise, degraded water quality, and loss of biological habitat. All of these impacts would be short-term, lasting only during construction (approximately two weeks at any point along the conveyance) and the period immediately following completion of construction. Mitigating measures such as route selection, surface restoration, stream bank stabilization, and revegetation would further reduce the significance of these impacts. The areas most affected include the Palo Alto discharge canal and the Palo Alto Flood Basin. These areas have been disturbed in the past and are now recovering from this disturbance; construction would slow this recovery. No known historical or archaeological sites would be affected; no relocation of residents is anticipated; and no long-term disruption of aesthetics or access would occur.

Operation of the conveyance may contribute to degraded water quality in two locations. The disposal point would be locally affected by pollutants in the discharge, but no violations of water

Table 1
ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES
ASSOCIATED WITH THE PROJECT ALTERNATIVES

Environmental Aspect	Affected Project Alternatives (by Alternative No's.)	Impact	Primary or Secondary Beneficial or Adverse	Mitigation Proposed
Topography	1,3,5	Alteration of local surface relief from trenching in a 50- to 150-foot-wide easement	Primary, adverse	Removal of excess spoils to suitable landfill Restoration and revegetation of land surfaces, including resurfacing of roadways
	1,3,5	Erosion of stream banks and streambeds	Primary, adverse	Scheduling of stream crossings to periods of low flow to extent practicable Use of temporary cofferdams and culverts during construction Restoration of streambed and bank topography
Air Quality	1,3,4,5	Short-term, localized degradation from construction vehicle emissions	Primary, adverse	None proposed
		Short-term, localized degradation from trenching--release of methane, hydrogen sulfide, mercaptans	Primary, adverse	Construction practices to minimize air quality impacts on personnel. Emissions cannot be avoided
Water Quality	1,3,5	Short-term localized degradation of water quality as a result of increased turbidity during stream crossings, trenching in marshes or Bay, and spoils disposal at Alcatraz	Primary, adverse	Use of mechanical, bucket-type dredge culverts during construction Scheduling of stream crossings to periods of low flow to extent practicable Use of mechanical bucket-type of dredge to reduce turbidity at trench
	1,3,5	Short-term localized degradation in water quality--decreased light penetration, decreased oxygen levels, increased nutrient levels, and increased heavy metal levels--as a result of disturbing sediments	Primary, adverse	As in turbidity mitigation

Table 1 (Continued)

Environmental Aspect	Affected Project Alternatives (by Alternative No's.)	Impact	Primary or Secondary Beneficial or Adverse	Mitigation Proposed
	1-5	General improvement in dissolved oxygen levels and reduction of concentrations of conservative (non-degradable) elements in open water south of Dumbarton Bridge as a result of operation	Primary, beneficial	
	1,3,5	General reduction in toxicity levels in open waters south of the Dumbarton Bridge and in sloughs	Primary, beneficial	
	1,5	Localized minor degradation of water quality at disposal point	Primary, adverse	Source control for conservative elements Upgrading treatment to advanced levels
	1,3,5*	Decreased oxygen levels in headwaters of Artesian Slough as result of natural background and reduced freshwater flows (removal of wastewater discharges)	Primary, adverse	None proposed
	1,3,5*	Increased salinity in South Bay as result of decreased freshwater flows	Primary, undefined*	None proposed
Sediment Quality	1,3,5*	Short-term change in sediment quality as result of use of clean granular backfill	Primary, beneficial	
	1-5	Minor degradation of sediment quality at disposal point	Primary, adverse	Source control for conservative elements
	1,3,4,5	Potential for small improvement in sediment quality in South Bay at old disposal points	Primary, beneficial	
Noise	1,3,4,5	Short-term, localized increases over ambient from construction equipment	Primary, adverse	Use of noise reduction mufflers, "quiet" equipment

Table 1 (Continued)

Environmental Aspect	Affected Project Alternatives (by Alternative No's.)	Impact	Primary or Secondary Beneficial or Adverse	Mitigation Proposed
				Scheduling in residential areas to normal working hours and in biologically sensitive areas to times of minimal impacts
	1,3,5*	Local increases in noise over ambient from operation of pumping stations	Primary, adverse	Location of pumping stations on treatment plant property or in industrial parks Enclosure of pumping stations at Sunnyvale, Palo Alto
Biology	1,3,4,5	Trenching impacts, site preparation effects and noise degraded habitats in Baylands or on land	Primary, adverse	Use of narrow easement in sensitive (marsh) areas, where practicable Restoration of stream bank and streambed backfill with clean material, and revegetation of marshlands and grasslands to restore habitat
	1,3,4,5	Potential disruption of rare, endangered species, and species of special concern during construction through noise, habitat loss	Primary, adverse	Scheduling of construction to avoid marshlands during mid-May through June nesting period of the California clapper rail and the Alameda song sparrow
	1,3,5*	Removal of fresh water from Artesian Slough, resulting in loss of freshwater habitat	Primary, adverse	None proposed
	1-5	Potential decrease in biological productivity at disposal points as result of changes in water quality, sediment quality	Primary, adverse	Source control for conservative elements
	1,3,4,5	Potential change in biota in South Bay as result of changed oxygen levels, salinity	Primary, undefined**	None proposed

Table 1 (Continued)

Environmental Aspect	Affected Project Alternatives (by Alternative No's.)	Impact	Primary or Secondary Beneficial or Adverse	Mitigation Proposed
Archaelogical, Historical, and/or Paleontological Resources	1, 3, 5	Potential for encountering subsurface remains during construction	Primary, adverse	Preconstruction survey to identify sensitive areas or previously known sites
Land Use	1, 3, 5	Temporary (less than two weeks) disruption of some road traffic	primary, adverse	Maintain public access by temporary means Use of signs, fencing where necessary to protect public safety
	1, 3, 5	Preemption of area over pipelines from other uses, such as permanent buildings	Secondary	Location of pipeline within designated open space and industrial properties consistent with present and planned land use
	5	Long-term commitment of land use	Primary, secondary, beneficial	None proposed
Aesthetics	1, 3, 4, 5	Highly visible during construction—short-term	Primary, adverse	Restoration of land topography, revegetation to reduce postconstruction visibility
	1, 3, 5*	Visible and audible pumping stations near parklands	Primary, adverse	Landscaping to increase structure compatibility with surroundings and design of enclosures to reduce noise
Economics	1, 3, 4, 5	Investment of capital costs, of which 12.5 percent must be funded by the cities comprising the SBDA, and a portion of which must be paid back to federal government by industry under revenue program	Primary, adverse	None proposed
	1, 3, 4, 5	Annual operating costs for power, maintenance, and administration		
	5	Reduced crop productivity due to mineral content of irrigation water	Secondary, adverse	Advanced wastewater treatment to reduce salts—blending of water supplies

Table 1 (Continued)

Environmental Aspect	Affected Project Alternatives (by Alternative No's.)	Impact	Primary or Secondary Beneficial or Adverse	Mitigation Proposed
	1, 3, 4, 5	Employment generated by construction and local, short-term economic stimulus attributable to construction wages put into circulation	Primary, beneficial	
Energy Consumption	1, 3, 4, 5	Operation—consumption of electrical energy	Primary, adverse	None proposed
Commitment of Resources	1, 3, 4, 5	Construction materials (pipe, backfill, concrete, pumps, instrumentation)	Primary, adverse	None proposed
	5	Reduction in amount of water resources drawn from existing state supplies	Primary, secondary beneficial	None proposed
	1–5	Commitment of disposal point to wastewater discharge	Primary, adverse	None proposed

*Activity related to Alternative 5 only if off-season outfall system removes discharge from sloughs.
**Undefined – nature of impact not clear at primary level; may be adverse or beneficial.

LEGEND

- Grasslands
- Salt Ponds
- Salt Marshes And Slough "Eyebrows"
- Managed Marsh, Primarily Fresh Water
- Oxidation Ponds

Figure 4
HABITAT MAP

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quality standards are anticipated. The headwaters of Artesian Slough may be degraded as they become more saline with the removal of the freshwater discharges from the San Jose/Santa Clara treatment plant. The headwaters are expected to exhibit an increased expression of background oxygen demands. Reduced flows would also result in increased salinity in the South Bay, to approximately those levels now occurring north of Dumbarton Bridge. Levels of 50 ml/l of toxicity expected to occur in the 1985 dry season would be approximately at the toxicity guidelines of 40 ml/l. These changes in water quality in the South Bay and its sloughs are expected to affect in an adverse and indirect manner both biological productivity and habitat diversity, particularly in Artesian Slough.

Hazards to structural and operational integrity of the Basin Plan Alternative include potential damage by earthquake, plant upsets, pumping station malfunctions, or power failures. Each of these potentially could result in a bypass of wastewater to the South Bay. The proper selection of pipeline alignment, the use of pilings placed in stiff clays in areas of soft muds, and backfill with coarse granular material are expected to minimize, to the extent possible, the potential for earthquake damage. Backup pumping systems and power supplies, as well as some storage capacity for bypassed flows at Sunnyvale, should reduce in-Bay impacts that could be caused by system failures.

Operation of the Basin Plan Alternative is expected to result in electrical energy consumption in 1981 on the order of 7.9 million kilowatt-hours per year; this is equivalent to approximately 4,900 barrels of crude oil per year. To place this in perspective, the same energy consumption would occur if each of the residents of Santa Clara County burned two 150-watt light bulbs for slightly less than one day each year. Capital costs for the conveyance and pumping stations are estimated to be $86 million (1978 dollars escalated to 1980), 87.5 percent of which is covered by federal and state grant funds. Annual operating costs (estimated for 1981-1982) of approximately $320,000 (power consumption, maintainance, and administration) would not be grant fundable.

Each user — residential, commerical, institutional, and industrial — that discharges into the SBDA sewer system must pay a fair share of the cost of operating and maintaining a conveyance pipeline. A system of "user charges" would be established to accomplish this. In addition, each industrial user must pay back to the cities in the SBDA its share of the federal funds for capital costs; this is known as "industrial cost revovery." Annual revenue requirements for industrial users, therefore, might impose a burden on the individual industries, varying with the percentage treatment capacity of the system attributable to each industry. Seasonal, large-volume dischargers, such as the canning industry, are expected to have higher revenue requirements than year-round and low-volume dischargers.

NO ACTION BEYOND CURRENTLY APPROVED IMPROVEMENTS AT TREATMENT PLANTS (ALTERNATIVE 2)

Under this alternative, the upgrading of SBDA treatment facilities to the advanced levels covered by the 1974 Negative Declarations would be implemented, but no further action would be contemplated (Figure 5). Continued discharge at present disposal points would retain freshwater flushing in Artesian Slough; water quality standards would not, however, be met south of Calaveras Point during dry and canning seasons. Environmental benefits that could be attributed to retaining fresh water in Artesian Slough should be recognized. A no further action alternative could be considered part of a deferred action program, where the effects of the approved treatment could be monitored and documented.

No additional costs or construction impacts would be incurred with this alternative. Should additional action be required at some future date to meet water quality standards, the cost of this new action would be significantly increased over present estimates and the effects of inflation on labor and materials would all contribute to this increase.

No further action does not comply with Basin Plan prohibitions against discharge south of Dumbarton Bridge or to tributaries on the South Bay, does not guarantee a 10 to 1 dilution rate, and may result in toxicity levels of up to 400 ml/l.

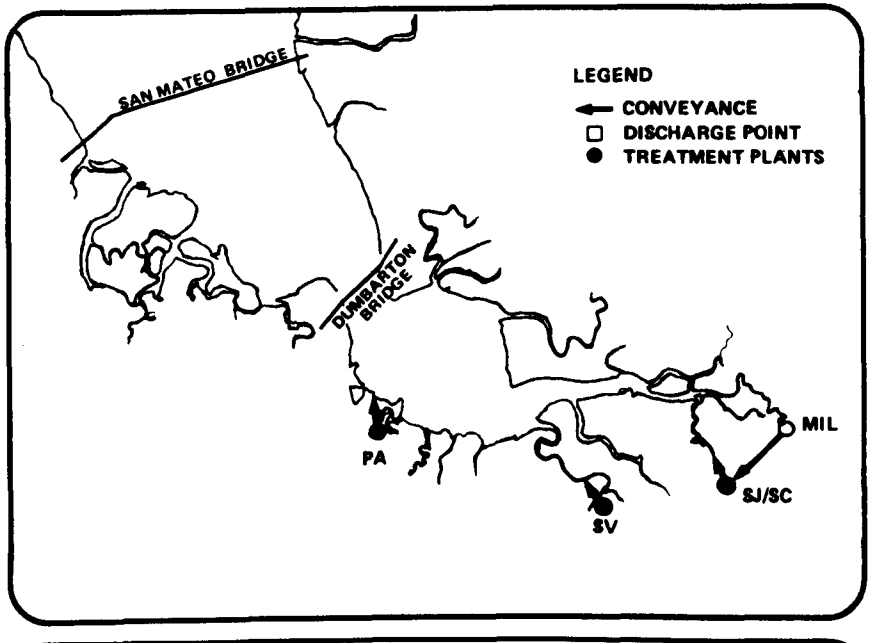


Figure 5 SCHEMATIC – ALTERNATIVE 2

INDIVIDUAL OUTFALLS TO BAY SOUTH OF DUMBARTON BRIDGE (ALTERNATIVE 3)

Using separate outfalls, dischargers would convey effluent to the nearest deep water south of Dumbarton Bridge (Figure 6). Under this arrangement, effluents from the San Jose/Santa Clara and Sunnyvale treatment plants would be combined and conveyed to a discharge point in the vicinity of Calaveras Point; effluent from the Palo Alto plant would be discharged from an outfall in deep water northeast of its present discharge location. This system should meet dissolved oxygen requirements in open waters of the Bay, while discontinuing wastewater discharge to the sloughs. However, improvement in water quality in the South Bay would not be as great as would be expected if discharges were relocated north of the Dumbarton Bridge through the proposed outfall, and the prohibition against discharge to the Bay south of Dumbarton Bridge would not be met. As with the Basin Plan Alternative, this alternative eliminates freshwater flushing of the sloughs during the dry season, endangering the freshwater habitat of Artesian Slough.

The nature and extent of construction impacts from this alternative would not be significantly different from those of the Basin Plan Alternative, although more extensive impacts would occur on natural habitats such as marshes and salt ponds.

The cost of construction and the first year of operation is estimated approximately 80 percent of that of the Basin Plan Alternative, or $69 million; however, this estimate does not provide for the technical problems of construction in salt ponds. These problems are expected to increase construction costs and time.

This alternative is compatible with local or small-scale reclamation and reuse projects and could function as an off-season disposal system for such projects. This alternative is less compatible with large-scale Bay Area reclamation than the Basin Plan Alternative, since a regional collection for Santa Clara County would not exist.

UPGRADED TREATMENT WITH CONTINUED LOCAL DISCHARGE (ALTERNATIVE 4)

No new conveyance systems would be built in this alternative; each treatment plant would continue discharging at its present location (Figure 7). Treatment levels at San Jose/Santa Clara would be upgraded beyond the advanced levels currently approved. Additional treatment would probably include breakpont chlorination for residual ammonia removal and carbon absorption for removal of toxicity and for further removal of oxygen demanding materials.

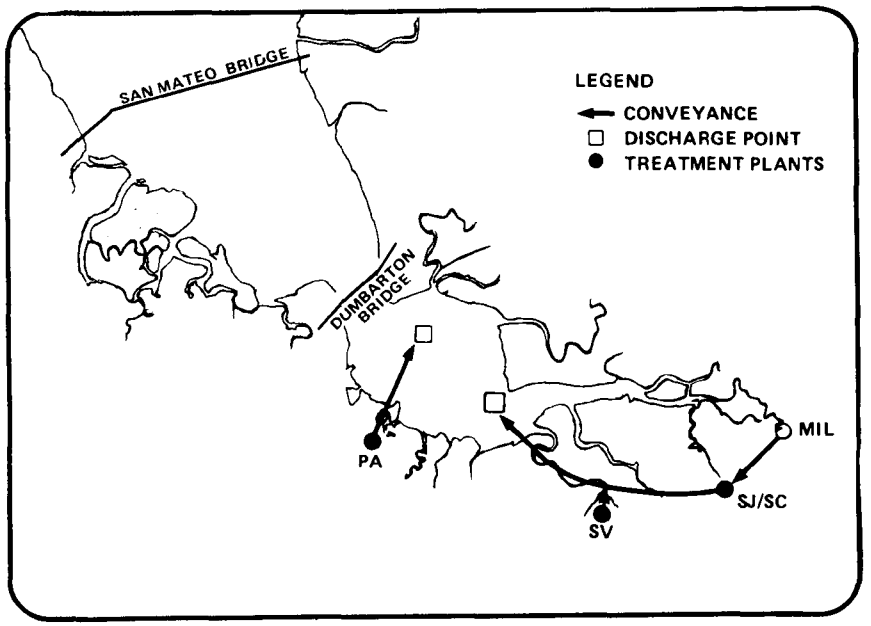


Figure 6 SCHEMATIC – ALTERNATIVE 3

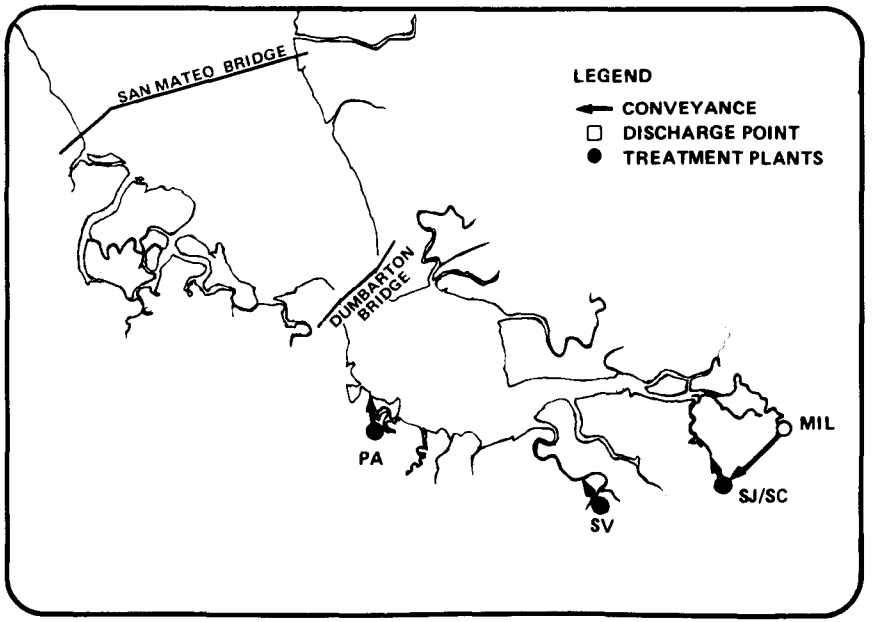


Figure 7 SCHEMATICS – ALTERNATIVE 4

This alternative should meet dissolved oxygen requirements in open waters of the Bay. The sloughs would continue to receive flushing flows, and the freshwater habitat would persist in Artesian Slough. Oxygen depletion in the dry season and the buildup of conservative elements in the sloughs would continue, however. This alternative does not meet the prohibitions against discharge south of Dumbarton Bridge or to dead-end sloughs, nor does it provide the 10:1 minimum dilution required by the Basin Plan. Toxicity levels of 400 ml/l would be expected to occur in the dry season of 1985 in the South Bay.

Construction impacts would be less extensive for this alternative, is limited to the San Jose/Santa Clara plant site.

The cost of construction and the first year of operation is estimated to be approximately 1.4 times that of the Basin Plan Alternative, or $121 million. Costs of operating the advanced treatment facilities will be greater than those of the Basin Plan Alternative primarily due to increased consumption of chemicals and energy. Reclamation and reuse on a local scale would be compatible with this alternative; however, it would be less compatible with large-scale Bay Area reclamation than the Basin Plan Alternative, since a regional collection for Santa Clara County would not exist.

Table 2
COMPARISON OF THE
ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Environmental Aspect	Basin Plan Alternative (No.1)	No Further Action (No.2)	Individual Deepwater Outfalls (No.3)	Upgrade Treatment (No.4)	Reclamation Reuse (No.5)
Construction Related					
Topography	Alteration along alignment of 50- to 150- foot-wide easement	No effect	Alteration along short, on-land connector routes	Limited to San Jose/ Santa Clara plant site	Alteration along easement to market as well as along back-up disposal routes
Water Quality	Turbidity and degradation from release of benthic pollutants in Bay and streams from 4.2 miles dredged trench and from seven stream crossings	No effect	Turbidity and degradation from release of benthic pollutants in Bay and streams from 5.0 miles of dredged trench and from two stream crossings	No trenching in Bay or streams; no impact	Turbidity and degradation from release of benthic pollutants in Bay and streams from construction of off-season disposal and bypass--varies with system chosen
Air Quality	Dust, odors, and construction equipment emissions along Bay-lands and in Bay	No effect	Dust, odors, and construction equipment emissions at plant sites and in Bay	Dust and vehicle emissions at San Jose/Santa Clara plant construction site	Dust, odors, and construction equipment emissions along distribution system, in area of reclamation plant, and at off-season outfall construction site
Sediment Quality	Replace polluted sediments along alignment in Bay with clean backfill	No effect	As in Basin Plan Alternative, more extensive in-Bay effects	No effect	No effect except for off-season outfall
Noise	Construction activity, including pile driving for portions of in-Bay pipe and for pumping stations	No effect	Construction activity, including pile driving for pumping stations and for some portions of outfalls	Noise limited to construction activity at San Jose/ Santa Clara plant site	Construction activity, including pile driving for off-season outfall; construction noise for reclamation plant and distribution system
Biology--Habitat	1.3 miles in salt marsh, 0.8 mile in mud flats, 4.4 miles in grassland, 3.4 miles in open water, and 2.4 miles in dikes affected by trenching	No effect	Approximately 1.5 miles of salt marsh, 1.6 miles of mud flats, 0.6 mile of grassland, 3.4 miles of open water, and 4.8 miles of salt pond affected by trenching	Some grassland for San Jose/Santa Clara upgraded facility; no trenching	Off-season outfall varies with system chosen; reclamation plant and distribution system primarily grassland--mileage depends on system and market location; significant amount of acreage expected to be disturbed

Table 2

Environmental Aspect	Basin Plan Alternative (No.1)	No Further Action (No.2)	Individual Deepwater Outfalls (No.3)	Upgrade Treatment (No.4)	Reclamation Reuse (No.5)
Biology—Rare or Endangered Species	California clapper rail near Palo Alto section; potential salt marsh harvest mouse population near Palo Alto	No effect	California clapper rail and salt marsh harvest mouse populations near Palo Alto and at the San Jose/Santa Clara and Sunnyvale alignments	No effect	Off-season outfall system similar to Alternatives No. 1, 2 or 3; may disturb raptors during distribution system and reclamation plant construction
Archaeology	No known sites; some potentially sensitive areas in Baylands	No effect	No known sites	No effect	No known sites
Land Use	Temporary disruption of some road traffic, use of Palo Alto Municipal Airport and Yacht Harbor, Sunnyvale Industrial Park, restricted briefly	No effect	Temporary disruption at Palo Alto Municipal Airport, Yacht Harbort, road crossings between San Jose and Sunnyvale	No effect	Off-season outfall and distribution system similar to Alternatives No. 1, 2 or 3; at least as extensive as Basin Plan Alternative; Long-term land use commitment
Visibility	In Baylands, short-term	No effect	More localized to plant sites, open water, short-term	Localized to San Jose/Santa Clara plant site, short-term	More visible in Santa Clara Valley, short-term
Operation Related					
Water Quality	Should meet dissolved oxygen standards in open water; Artesian Slough sensitive to reduced flushing and increased salinity; sloughs may not meet dissolved oxygen levels of 5.0 mg/l at all times of year; salinity of South Bay increases to open water levels; potential open water levels; potential for slight buildup of conservative elements (exceeds guideline at 40 ml/l toxicity by 10 ml/l); compatible with reclamation	Dissolved oxygen standards in open water are met most of year; Artesian Slough receives flushing flows, but oxygen depletion for dry and canning seasons is common; no salinity change; potential for buildup of conservative elements to 400 ml/l; compatible with reclamation	Should meet dissolved oxygen standards in open water; Artesian Slough, sensitive to reduced flushing and increased salinity; sloughs may not meet dissolved oxygen levels of 5.0 mg/l at all times of year; salinity of South Bay increases to moderate levels; potential for buildup of conservative elements to 125 ml/l; compatible with reclamation	Should meet dissolved oxygen standards in open water; less sensitive to loading variations; Artesian Slough receives flushing flows but still subject to periodic oxygen depletion; potential for buildup of conservative elements to 400 ml/l; no salinity change; compatible with reclamation	Ability to meet standards depends on off-season disposal system chosen; wastewater loadings decreased in dry season; water conservation possible

Table 2 (Continued)

Environmental Aspect	Basin Plan Alternative (No.1)	No Further Action (No.2)	Individual Deepwater Outfalls (No.3)	Upgrade Treatment (No.4)	Reclamation Reuse (No.5)
Sediment Quality	Minor degradation at disposal point—accumulation of conservative elements possible; potential for improvement in South Bay and sloughs	Continued potential for degradation in sloughs, at lower rates due to advanced waste treatment	Minor degradation at disposal points in deep water; potential for improvement in sloughs	As in no further action, potential for degradation in sloughs but at lower rate of buildup	Off season outfall system effects similar to Alternatives No. 1, 2 or 3.
Noise	Local increases over ambient due to pumping station operation	No effect	Potential local increases due to pumping station operation	No effect	Potential increases in ambient noise in Santa Clara Valley along distribution route
Biology	Conversion of freshwater habitat in Artesian Slough to tidal marsh; potential degradation of benthos north of bridge at disposal point	Artesian Slough remains freshwater; no change in benthos; effects of oxygen depletion continue to be felt	Conversion of freshwater habitat in Artesian Slough to tidal marsh; potential degradation of benthos at disposal sites in South Bay	Artesian Slough remains freshwater; no change in benthos	Similar to off-season disposal system chosen
Land Use	Preemption of land area over pipeline from other use; area committed to pumping station use at treatment plants	No effect	Preemption of land area between San Jose and Sunnyvale; commitment of land at treatment plants to pumping stations	Commitment of land at San Jose/Santa Clara plant to upgraded treatment system	Commitment of land at San Jose/Santa Clara to reclamation system; commitment of land area over conveyance route to compatible use; preemption of land use in Baylands depends on off-season disposal system chosen

Table 2 (Continued)

Environmental Aspect	Basin Plan Alternative (No.1)	No Further Action (No.2)	Individual Deepwater Outfalls (No.3)	Upgrade Treatment (No.4)	Reclamation Reuse (No.5)
Visibility	Pumping stations at treatment plants audible, visible, but not inconsistant with present use	No effect	Pumping stations at treatment plants audible, visible, but not inconsistent with present use	Expanded facility at San Jose/Santa Clara, not inconsistent with present use	Expanded facility at San Jose/Santa Clara not inconsistent with present use. Pumping stations visible, audible in Santa Clara Valley along distribution lines; visibility of off-season disposal system depends on system selected
Economics and Resources					
Costs of Construction and First-Year Operation	Estimated to be $86 million capital cost (1978 dollars, escalated to 1980) and $280,000 first year operation costs	0.0	Approximately $169 million (does not account for additional cost for construction in salt ponds)	Approximately $121 million	Approximately $323 million (does not account for revenues for water sold; assumes 67 million gallons per day)
Energy Consumption	Approximately 7.9 million kilowatt-hours per year in 1985, or 4,900 barrels of crude oil	No increase	Approximately same as Basin Plan Alternative	Increased consumption for advanced treatment (not determined quantitatively)	Increased consumption for advanced treatment and distribution depending on treatment level selected (between 5 and 15 times Basin Plan Alternative, assuming 50,000 acre-feet per year transported to South Santa Clara Valley)
Resources Committed	Construction materials (pipe, backfill, concrete, pumps, instrumentation)	No effect	Construction materials similar to Basin Plan Alternative	Construction materials for treatment plant	Construction materials for treatment plant, off-season outfall, and conveyance to market

Table 2 (Continued)

Environmental Aspect	Basin Plan Alternative (No.1)	No Further Action (No.2)	Individual Deepwater Outfalls (No.3)	Upgrade Treatment (No.4)	Reclamation Reuse (No.5)
	No additional chemicals consumed	No increase	No increase	Consumption of chemicals in treatment	Consumption of chemicals in treatment

RECLAMATION AND REUSE (ALTERNATIVE 5)

Reclamation of wastewater from the SBDA treatment system, and the reuse of this water, was considered as an alternative to disposal. Depending on the market location, size, and water quality requirements, a reclamation and reuse alternative might include a reclamation treatment plant for additional treatment of a portion of the SBDA effluent, a distribution system to transport reclaimed waters to the market area, and an off-season disposal system for discharge of that effluent not reclaimed (Figure 8). The benefit of this alternative is conservation of water resources by using reclaimed wastewaters in place of potable water supplies.

Studies of the viability of reclamation and reuse in the Bay Area have been sponsored by various member cities of SBDA, by the Department of Water Resources, by the Santa Clara Valley Water District, by the State Water Resources Control Board, by the EPA, by the State Department of Water Resources, and by the U.S. Bureau of Reclamation.

Assuming a market in the Santa Clara Valley for a portion of the San Jose/Santa Clara effluent, construction impacts would include those anticipated for an in-Bay outfall system for off-season discharges as well as impacts on water quality, air quality, habitats, and aesthetics in the grasslands and agricultural lands of the Santa Clara Valley. The extent of these impacts would vary with the market served (i.e., Santa Clara County only or Santa Clara and San Benito Counties).

Operational impacts would be primarily related to the cost and quality of the water in the market area. Salt buildup in soils, restrictions in crops, and the high cost of treating wastewaters to acceptable quality levels are all factors with potentially adverse impacts. Bay impacts would vary with the disposal system chosen, but, generally, would result in significant changes in water quality over those achieved with disposal alone only if the major portion of the effluent could be reclaimed year-round.

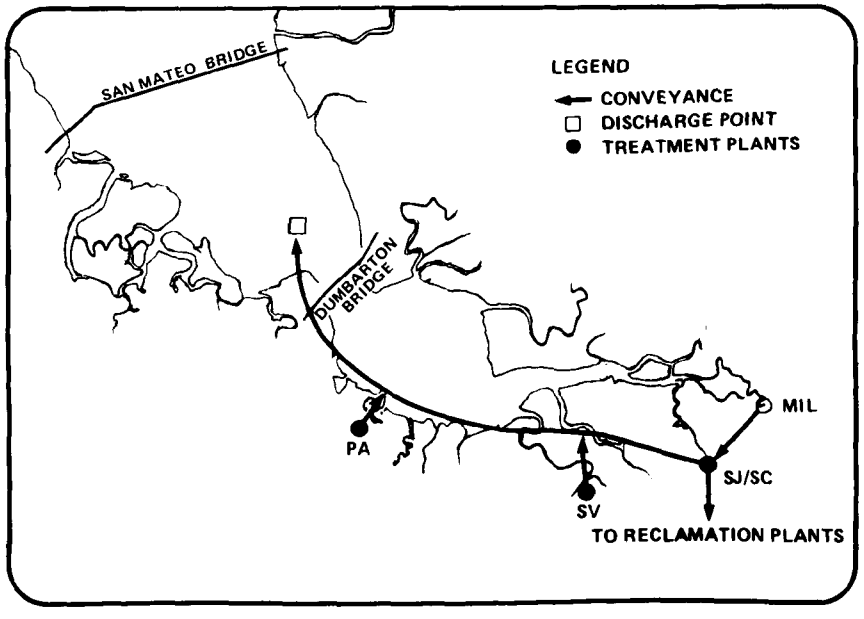


Figure 8 SCHEMATIC – ALTERNATIVE 5

The cost of construction and the first year operation of a 67 mgd facility is estimated to be 3.8 times that of the Basin Plan Alternative, or $328 million. Increased cost is primarily due to increased treatment requirements and the cost of conveyance to the market. These include significant increases in energy consumption. Not included in this calculation are the revenues that would be received for the sale of reclaimed waters. When these are included, the cost comparison between reclamation and the Basin Plan Alternative increases the favorability of reclamation.

A study to determine the engineering, economic, and environmental feasibility of reclaiming a small portion of SBDA wastewaters for agricultural use in the South Santa Clara Valley and the Bolsa area of San

Benito County was undertaken for this EIR/EIS. As an option for water resources management, such a small-scale reclamation/reuse project has the benefits of (1) reducing SBDA discharges by approximately 10 percent, (2) increasing the amount of irrigation water without increased use of potable, diverted water supplies, and/or (4) opening up additional lands for irrigation. Disadvantages of such a project are primarily economic — depending on the level of treatment used, reclaimed water would cost between $150 and $570 per acre-foot. If fully subsidized, the cost to the user (the farmer) would be between $9 and $56 per acre-foot. However, in water-short areas, in drought years, and in areas with low-quality water supplies, such a water management option may be economically feasible and could be implemented regardless of the disposal alternative chosen.

OTHER ALTERNATIVES

The following alternatives were analyzed in the Draft EIR/EIS along with the above alternatives but were rejected for reasons of cost or environmental impacts.

Consolidation with Other Discharger Authorities

This alternative would involve consolidation with other discharger authorities in San Mateo County, with discharge north of the San Mateo Bridge. It has been considered in earlier management programs. While it would meet water quality requirements in open water, many of the environmental disadvantages associated with the five previously described alternatives would occur, such as decreased freshwater flushing in the sloughs. This alternative has more severe construction impacts and a higher cost (approximately twice) than the Basin Plan Alternative. Since many of the other Bay Area discharger authorities have completed independent studies and, in some instances, begun construction of their own improved treatment facilities, consolidation would require forfeiture of invested funds by these other authorities, with no guaranteed benefits accruing to these authorities as a result of that action.

Discharge to the Ocean

This alternative would consist of a collection and disposal conveyance from the Baylands to the Pacific Ocean. A tunnel through the Santa Cruz Mountains, a deepwater ocean outfall, and a series of pumping stations would be required in addition to the major portion of the on land systems of the Basin Plan Alternative. Construction impacts would be significantly increased over those of the Basin Plan Alternative and would affect additional acreage of grassland, woodland, coastal zone, and ocean habitat. Water quality in the South Bay would be expected to improve to levels similar to those expected for the Basin Plan Alternative. Freshwater habitat and flushing in Artesian Slough would be lost. The increased costs (approximately 2.7 times that of the Basin Plan Alternative) and construction impacts are not justified by the small increment in improvement in Bay water quality over the Basin Plan Alternative.

Land Disposal

Transport of effluent to a land disposal site would remove wastewater from the Bay and improve water quality to levels similar to those expected for the Basin Plan Alternative. However, suitable land disposal sites do not occur in Santa Clara County, and public acceptance outside the county appears to be lacking. In addition, construction impacts for a conveyance, storage, and dispersal system would be large. Construction and operation costs might range as high as eight times that of the proposed project, and energy usage would be significantly greater.

Nonstructural Wastewater Management

Nonstructural wastewater management would use phased development of treatment and disposal facilities to meet water quality criteria. This alternative entails source control, land-use planning, and enforcement of environmental regulations to control the quality and quantity of wastewater. The alternative modes of disposal discussed in this report were designed as part of a phased development plan, which in turn was designed in response to source control, land use, and

environmental regulations. For this reason, nonstructural wastewater management is not an alternative mode of disposal; it is a criterion for disposal and has been incorporated as such into the alternative disposal systems.

Alternative (Estuarine) Alignment for the Basin Plan Alternative

This subalternative would involve a common conveyance from San Jose to the discharge point north of Dumbarton Bridge, with the alignment being located primarily in the waters of the South Bay. (Figure 9). Impacts associated with operation of this subalternative would be identical to those expected from the Basin Plan Altervative. Construction impacts, however, would be significantly increased: more salt pond, mudflat, and open water habitat would be affected; increased construction time would be required; and more dredge spoils would be generated. In addition, construction in salt ponds would be more costly, because special techniques would have to be developed to avoid disruption of salt pond operation and to prevent breaching of the dikes. As a result, construction costs would be slightly greater than those expected for the proposed project. The estuarine route, then, has been eliminated from consideration, since, when compared with the Basin Plan Alternative route, it does not improve water quality, is not less costly to construct or operate, and has more adverse environmental impacts during construction.

LESLIE SALT COMPANY PARTICIPATION IN THE BASIN PLAN ALTERNATIVE

For the past several years, Leslie Salt Company has stored the toxic residue from evaporative salt production (bittern – the highly concentrated fluid which remains after salt crystallizes out in the salt ponds). However, this storage is encroaching on the productive salt ponds at the rate of one per year and, consequently, is reducing the diversity of the habitat in the National Wildlife Refuge as well as limiting the economic production of salt in the South Bay. Since bittern is highly toxic and cannot be treated for toxicity, it may be discharged only after dilution to 100:1 concentrations. One source of water for dilution is the Bay itself; however, a toxic plume of wastewater might affect as much as one-third of an acre of Bay bottom under such conditions. Another source of dilution water is wastewater from a South Bay discharger. SBDA is a logical choice of such diluent, and should the Basin Plan Alternative be implemented, it is technically feasible for Leslie Salt to connect to the disposal pipeline in order to discharge bittern.

There are institutional constraints to the joint participation of SBDA and Leslie Salt Company:

- SBDA is a chartered municipal discharger located entirely within Santa Clara County, while Leslie Salt is an industry in Alameda County; the SBDA charter would require amendment.
- Leslie Salt Company would have to arrange payback to state and federal granting agencies of the pipeline and diffuser capacity preempted by their use.
- Leslie Salt would have to arrange self-monitoring and automatic shutdown of discharge to assure 100:1 dilution minimum discharge at the proper flows and discharge only at ebb tide in winter.

Should SBDA select a discharge alternative *other* than the Basin Plan Alternative, Leslie Salt Company would have to make other arrangements for bittern disposal.

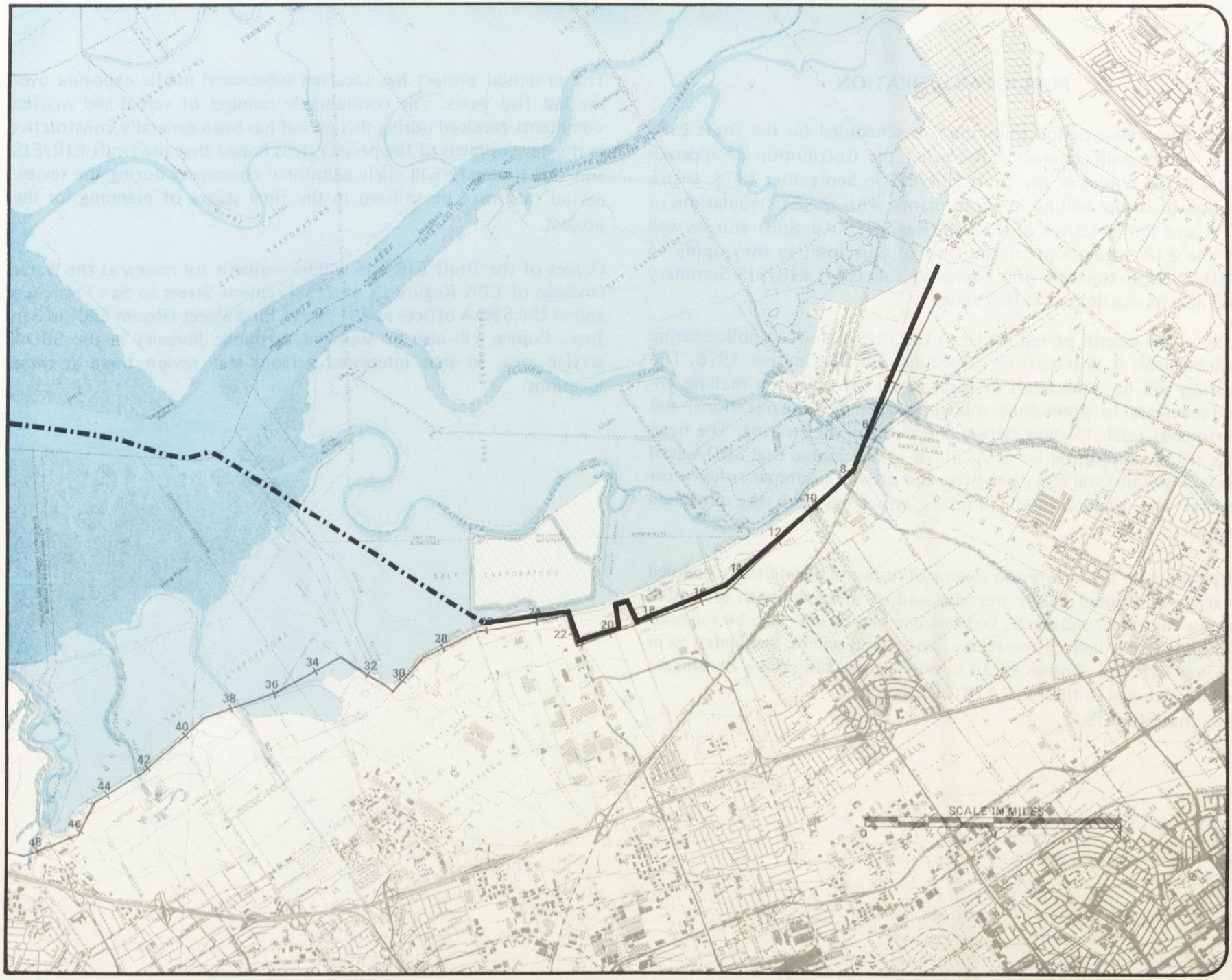
LEGEND:

ON-LAND PORTION OF ESTUARINE ALIGNMENT

ON-WATER PORTION OF ESTUARINE ALIGNMENT

ON-LAND ALIGNMENT

Figure 9
ALTERNATIVE ALIGNMENTS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PUBLIC PARTICIPATION

A 45-day review period (minimum) is scheduled for the Draft EIR/EIS, which will commence following the distribution of approximately 250 copies of the Draft EIR/EIS in September 1978. Distribution of copies will be in conformance with the EIS regulations of EPA and the directives of the EPA Region IX Administrator, as well as the EIR regulations of the City of San Jose, as they apply to SBDA. Approximately 400 copies of this Draft EIR/EIS Summary will also be distributed at that time.

After a one-month period for Draft EIR/EIS review, a public hearing will be held; it is tentatively scheduled for 18 October 1978. The hearing will be announced in local newspapers and by mailing announcements to potentially interested agencies, organizations, and persons at least 15 days before the date of the hearing. The hearings will be sponsored by EPA, but it is anticipated that SBDA staff and consultants will also participate and present a summary of environmental and socioeconomic impacts associated with the proposed project.

Depending on the nature and extent of response during the scheduled hearing, additional public hearings and/or meetings with interested groups may be conducted. Written comments will also be received during the first half of the review period and will be responded to in a Final EIR/EIS. Copies of all significant written review comments will be included in the Final EIR/EIS.
the Final EIR/EIS.

The proposed project has received substantial public exposure over the last five years. The considerable number of verbal and written comments received during this period has been generally constructive in the development of the project. It is hoped that the Draft EIR/EIS and this summary will elicit additional comments during the review period that may be utilized in the final stages of planning for the project.

Copies of the Draft EIR/EIS will be available for review at the Water Division of EPA Region IX at 215 Fremont Street in San Francisco and at the SBDA offices at 801 North First Street (Room 320) in San Jose. Copies will also be supplied to public libraries in the SBDA service area, so that interested persons may review them at these locations.

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