THE

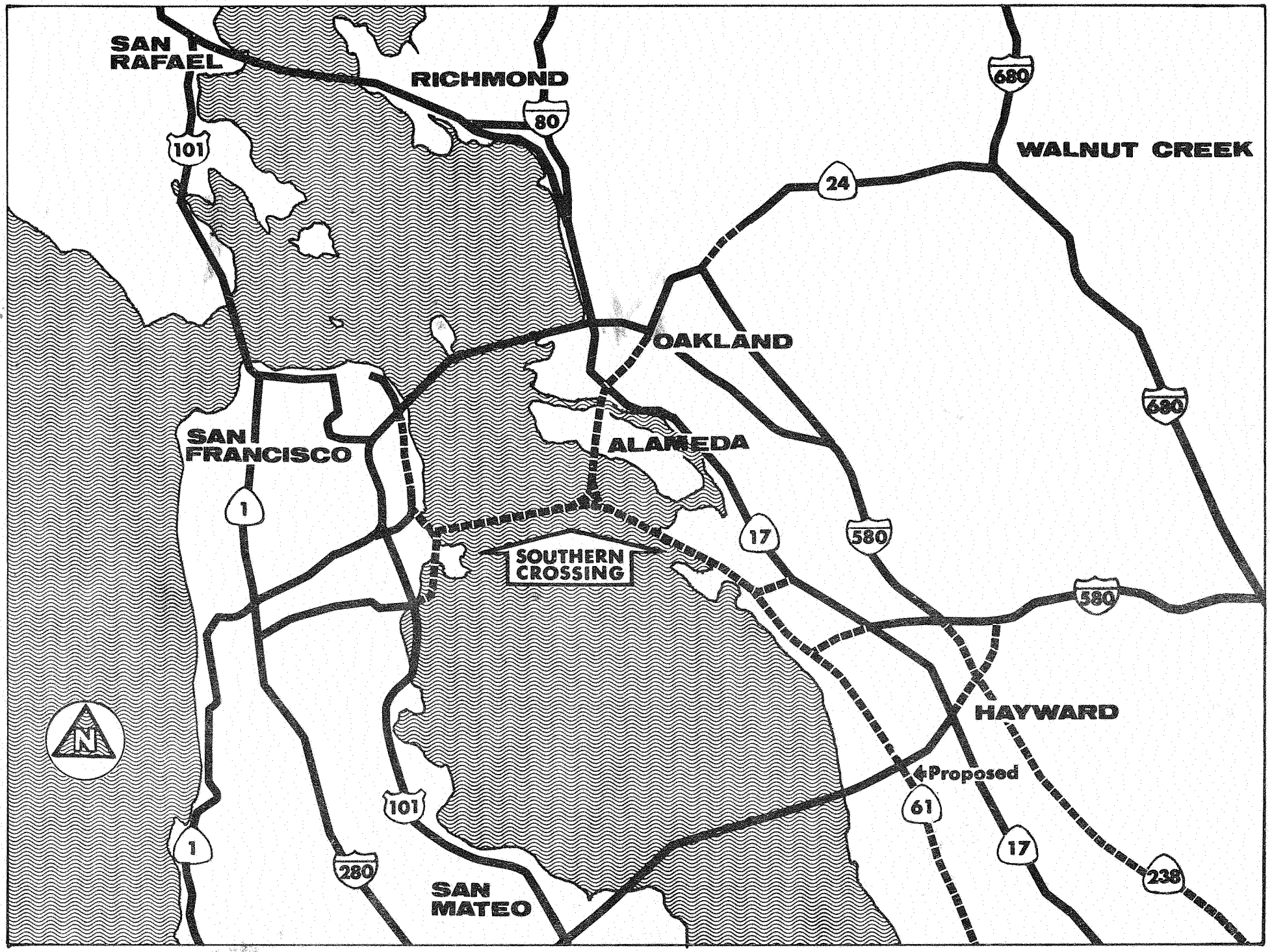
FEBRUARY 1970

southern crossing

STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC WORKS

A BRIEF REPORT


SAN RAFAEL
RICHMOND
80
101
680
WALNUT CREEK
24
OAKLAND
680
SAN FRANCISCO
ALAMEDA
1
17
580
SOUTHERN CROSSING
580
HAYWARD
N
Proposed
61
101
1
17
280
238
SAN MATEO

THE SOUTHERN CROSSING IS A . . .

1. Toll bridge project across San Francisco Bay which is currently underway.
2. Vital addition to the Bay Area regional highway system.

THE ISSUE:

SHOULD THE SOUTHERN CROSSING BE DELAYED TO . . .

1. Reevaluate the need after the initiation of BART transbay service.
2. Determine its effect on the patronage of the BART system.
3. Study its effect on the Bay Area environment.

THESE QUESTIONS WILL BE ANSWERED IN A GENERAL DISCUSSION WHICH INCLUDES . . .

A. Need.

B. History of development and current status.

C. Project cost, financing and schedule.

D. Effect on the environment.

E. Cost of Delay

F. Conclusions and recommendation.

A. NEED

THE SOUTHERN CROSSING IS NEEDED BECAUSE . . .

1. Present traffic congestion on the Bay Bridge is intolerable.
2. Increase in traffic demand is inevitable due to Bay Area growth.
3. The addition of BART alone will not satisfy future transbay demand.
4. Redistribution of Bay Bridge traffic is essential to the regional highway system.

TRAFFIC CONDITIONS ON BAY BRIDGE

DAILY TRAFFIC VOLUMES ARE . . .

1. Current daily traffic -- 165,000 + vehicles.
2. Comfortable capacity -- 125,000 vehicles.
3. High volume days approach 200,000 vehicles.

DURING PEAK TRAFFIC PERIODS . . .

1. Extreme morning and evening congestion extends for 2-3 hours.
2. Any mishap results in complete stoppage and long delays.
3. Freeway approaches and city streets are blocked.
4. Congestion costs bridge users 1.4 million hours per year.

   THIS OCCURS EVEN THOUGH BUSES NOW CARRY 53% OF COMMUTERS.

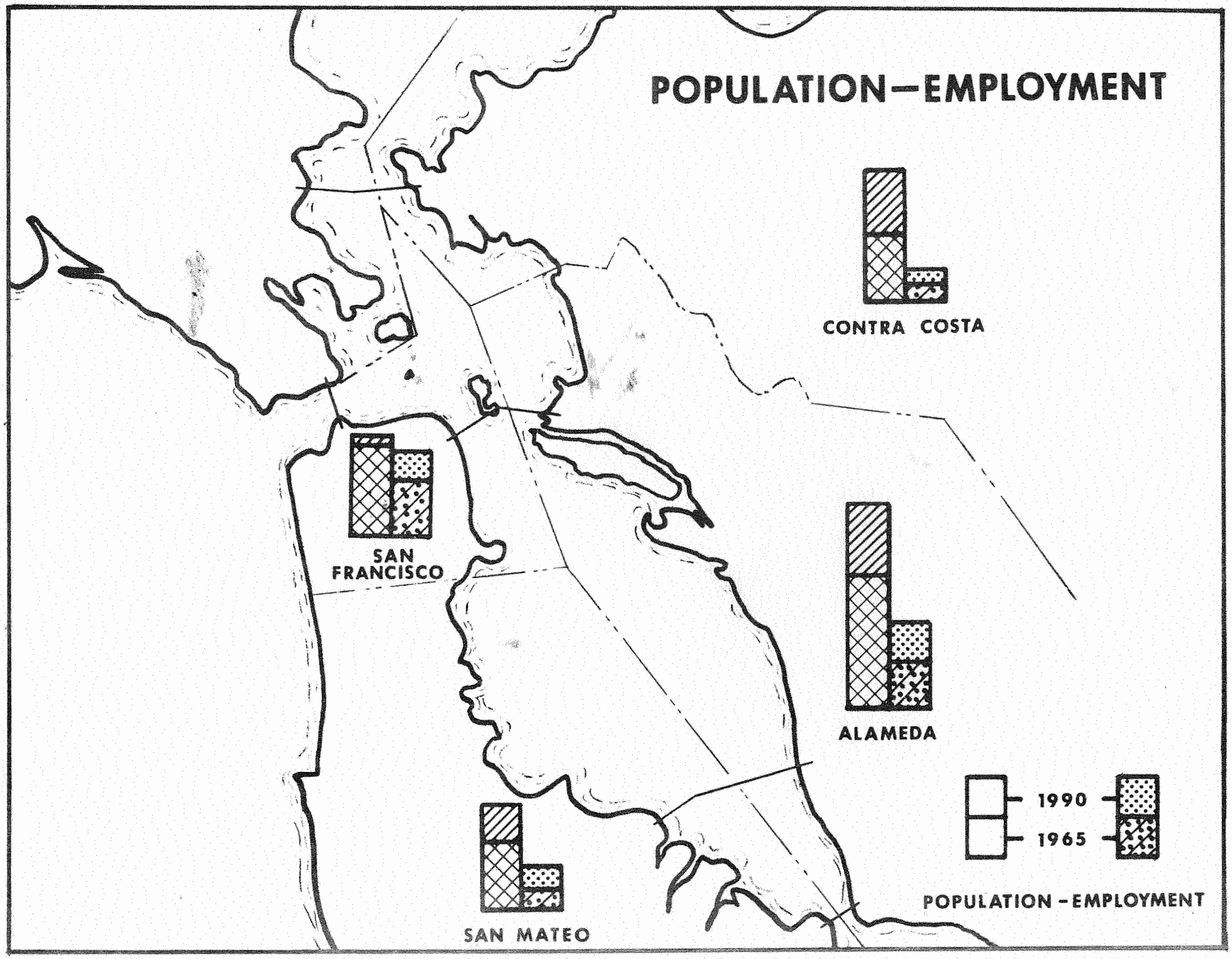
THE BRIDGE HAS . . .

1. Substandard lanes
   - width less than 12 ft., No shoulders.
2. Increasing accident rate.
3. Inadequate capacity to permit lane closures for maintenance.

INEVITABLE BAY AREA GROWTH IS INDICATED BY PROJECTIONS OF . . .

1. Population
2. Employment

THE RESULT IS INCREASED TRAVEL DEMAND.


POPULATION–EMPLOYMENT
CONTRA COSTA
SAN FRANCISCO
ALAMEDA
SAN MATEO
1990
1965
POPULATION - EMPLOYMENT

CAN THE BAY BRIDGE AND BART SATISFY FUTURE TRANSBAY TRAVEL DEMAND?

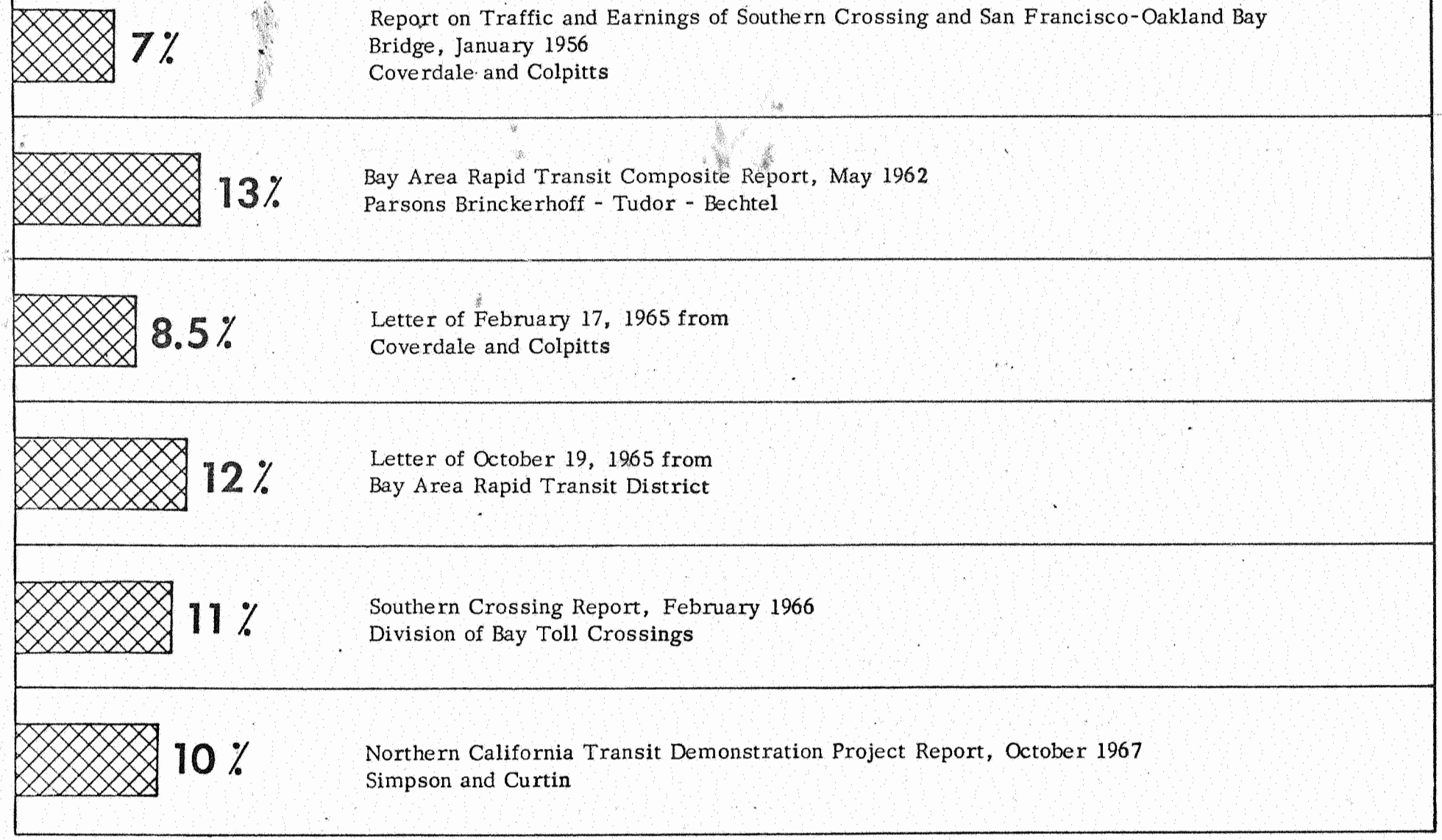
EFFECT OF BART ON BAY BRIDGE CAN BE DETERMINED FROM TRAFFIC ESTIMATES SAME EXPERTS WHO DEVELOPED BART FEASIBILITY PROVIDE THIS INFORMATION

BART WILL . . .

1. Divert only 11% to 13% of Bay Bridge autos
   - 3 to 5 years normal growth on bridge
   - ALL experts agree on these estimates
2. Carry 58% to 62% of the peak hour commuters
   - Existing bus system now carries 53%
3. Not service commercial traffic

THEREFORE THE BAY BRIDGE WILL REMAIN CONGESTED EVEN WITH BART IN SERVICE

TRAFFIC STUDIES SHOWING PERCENTAGE OF TRANSBAY VEHICLES DIVERTED TO BART



THE SOUTHERN CROSSING WILL . . .

1. Divert 36% of Bay Bridge traffic

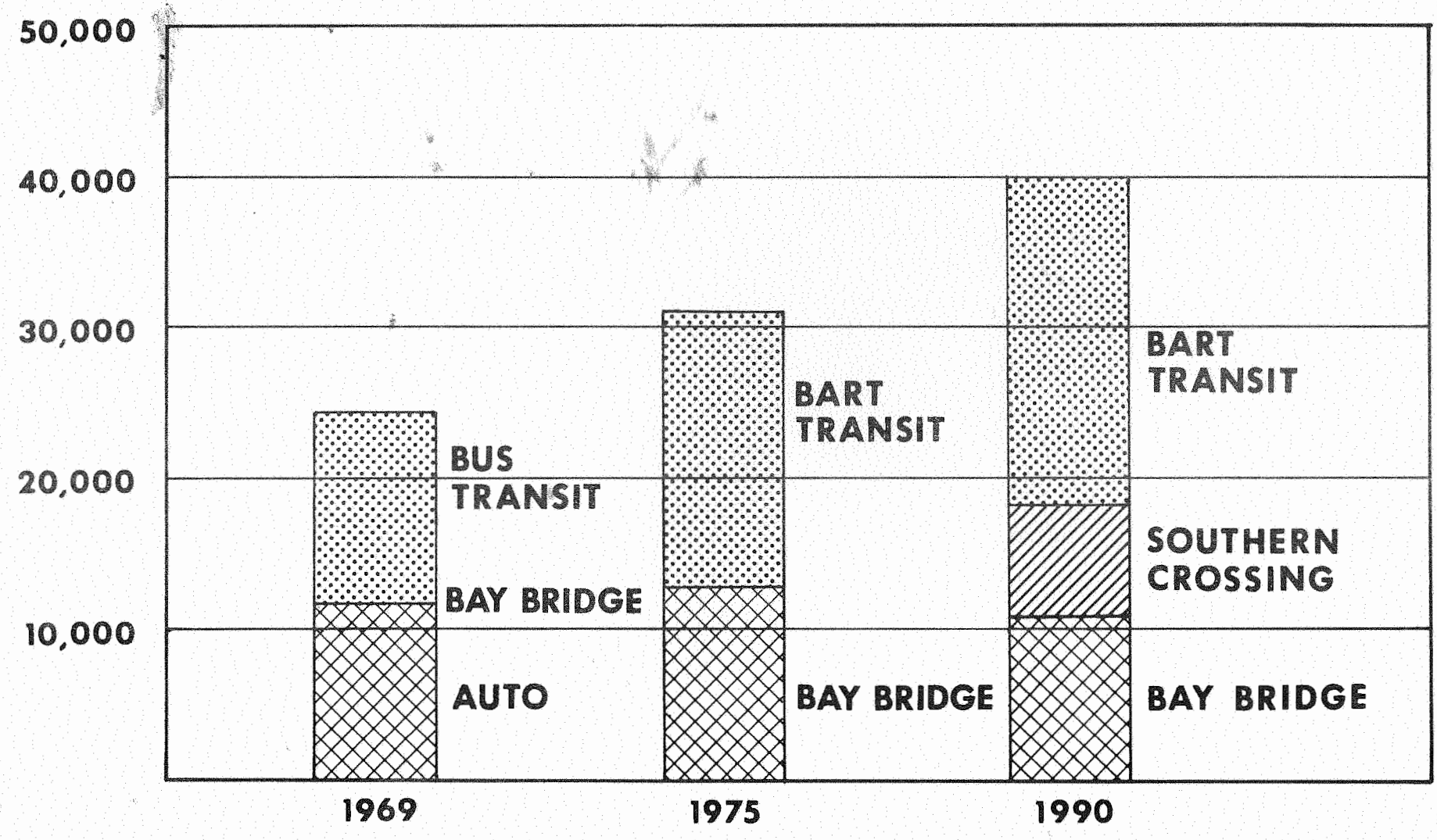
   Future volumes will be . . .

	1975		1990	
Bay Bridge	115,000	vehicles/day	150,000	vehicles/day
Southern Crossing . .	65,000	" "	100,000	" "

2. Not compete for BART patronage
   - diverts only 2% from BART transbay service.
   - serves areas not convenient to BART.
   - has insignificant effect on BART system revenues.

THE BAY BRIDGE, BART AND THE SOUTHERN CROSSING ARE ALL NEEDED TO MEET FUTURE TRANSBAY TRAVEL REQUIREMENTS

PEAK HOUR PERSON TRIPS



AN ADDITIONAL CORRIDOR FOR TRANSBAY TRAFFIC IS ESSENTIAL BECAUSE . . .

1. Bay Bridge congestion causes tie-ups and delays on connecting highways and city streets.
2. Current out-of-direction travel is expensive to private and commercial bridge users.
3. There is no reasonable alternative route in case of a major accident to the Bay Bridge.

B. HISTORY OF DEVELOPMENT AND CURRENT STATUS

THE PROJECT'S DEVELOPMENT HAS INCLUDED . . .

1. Numerous transbay studies over the past 25 years.
2. A $450,000 Report in 1966 recommending the India Basin–Alameda alignment.
3. Adoption of this alignment by the Toll Bridge Authority in 1966.
4. Legislature's appropriation of $10,000,000 for planning, design and right of way.
5. The Legislature's direction of concurrent construction of Southern Crossing and BART.

SOUTHERN CROSSING STUDIES SINCE 1946

1. An Additional Crossing of San Francisco Bay
   Joint Army-Navy Board, January 1947

2. Preliminary Studies for an Additional Bridge Across San Francisco Bay
   Division of Highways, January 1947

3. Additional Toll Crossings of San Francisco Bay
   Division of San Francisco Bay Toll Crossings, November 1948

4. Report on San Francisco Bay Vehicular Crossings
   Consultants to Assembly Fact Finding Committee, June 1949

5. Report on Additional Toll Crossings of San Francisco Bay as Proposed by Consultants to Assembly Interim Committee
   Division of San Francisco Bay Toll Crossings, October 1949

6. Barriers in the San Francisco Bay System
   Division of Water Resources, March 1955

7. Southern Crossing of San Francisco Bay
   Division of San Francisco Bay Toll Crossings, December 1954

8. Southern Crossing of San Francisco Bay
   Division of San Francisco Bay Toll Crossings, December 1955

9. Southern Crossing of San Francisco Bay, Supplementary Report
   Division of San Francisco Bay Toll Crossings, March 1956

10. Report on Financial Feasibility of the Proposed Southern Crossing of San Francisco Bay
    Smith, Barney & Co., September 1956

11. Southern Crossing of San Francisco Bay
    Division of San Francisco Bay Toll Crossings, October 1956

12. Southern Crossing of San Francisco Bay
    Division of San Francisco Bay Toll Crossings, December 1957

13. Report on Financial Feasibility of the Proposed Southern Crossing of San Francisco Bay
    Smith, Barney & Co., March 1958

14. Transbay Tube
    Consultants for San Francisco Bay Area Rapid Transit District, July 1958

15. Bay Area Rapid Transit Composite Report
    Parsons Brinckerhoff-Tudor-Bechtel, May 1962

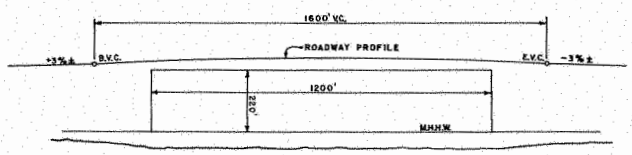
16. Transbay Traffic Study
    Division of San Francisco Bay Toll Crossings, November 1962

17. Southern Crossing Report
    Division of Bay Toll Crossings, February 1966

18. Northern California Transit Demonstration Project Report
    Simpson & Curtin, October 1967

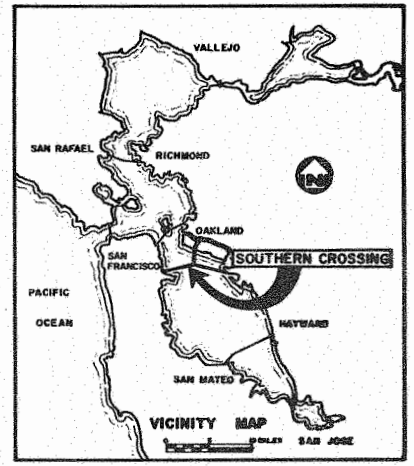
19. Bay Area Transportation Report
    Bay Area Transportation Study Commission, May 1969

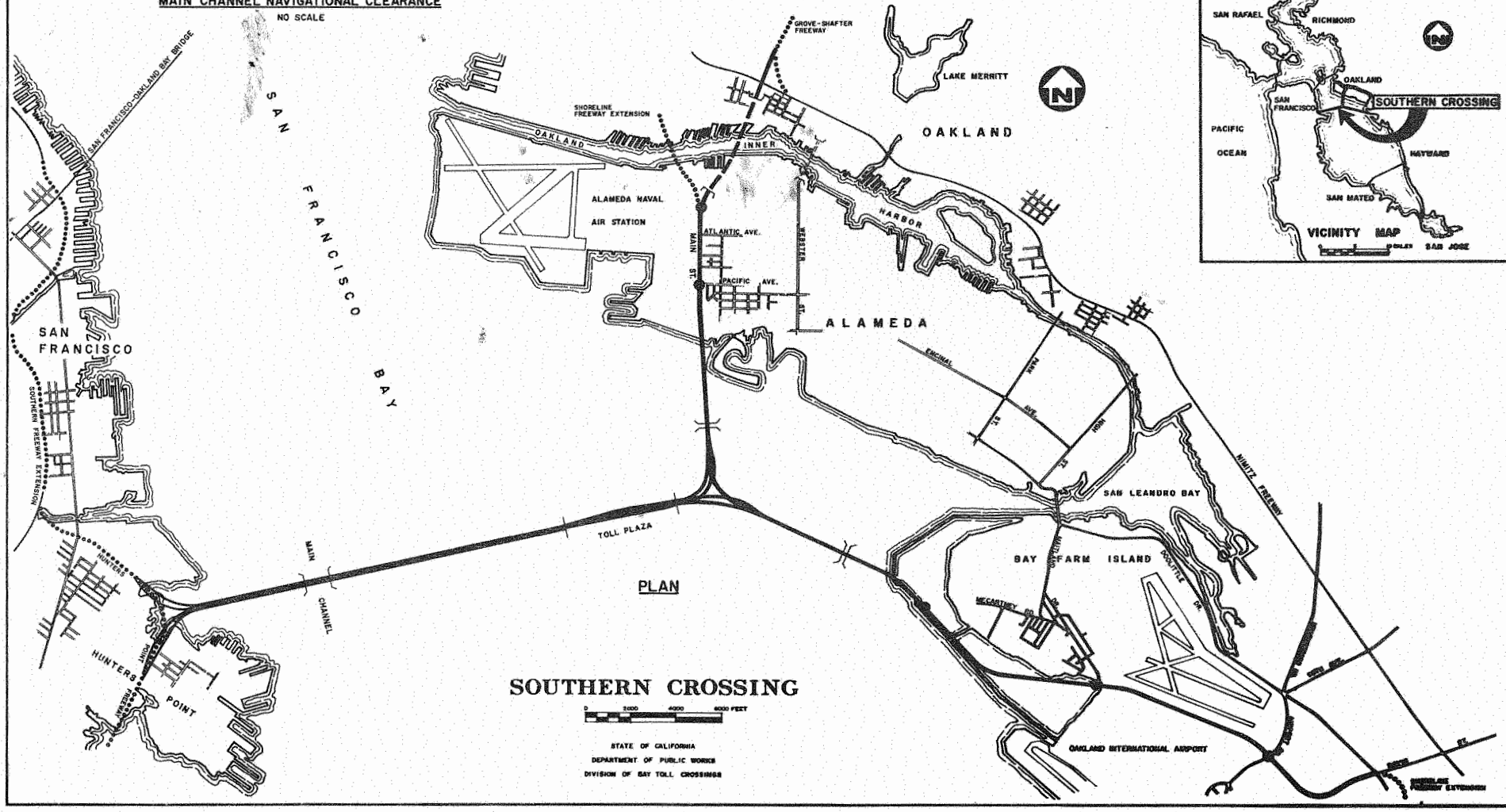
Total State Expenditures to Date. . . $8,900,000



MAIN CHANNEL NAVIGATIONAL CLEARANCE

NO SCALE





PLAN

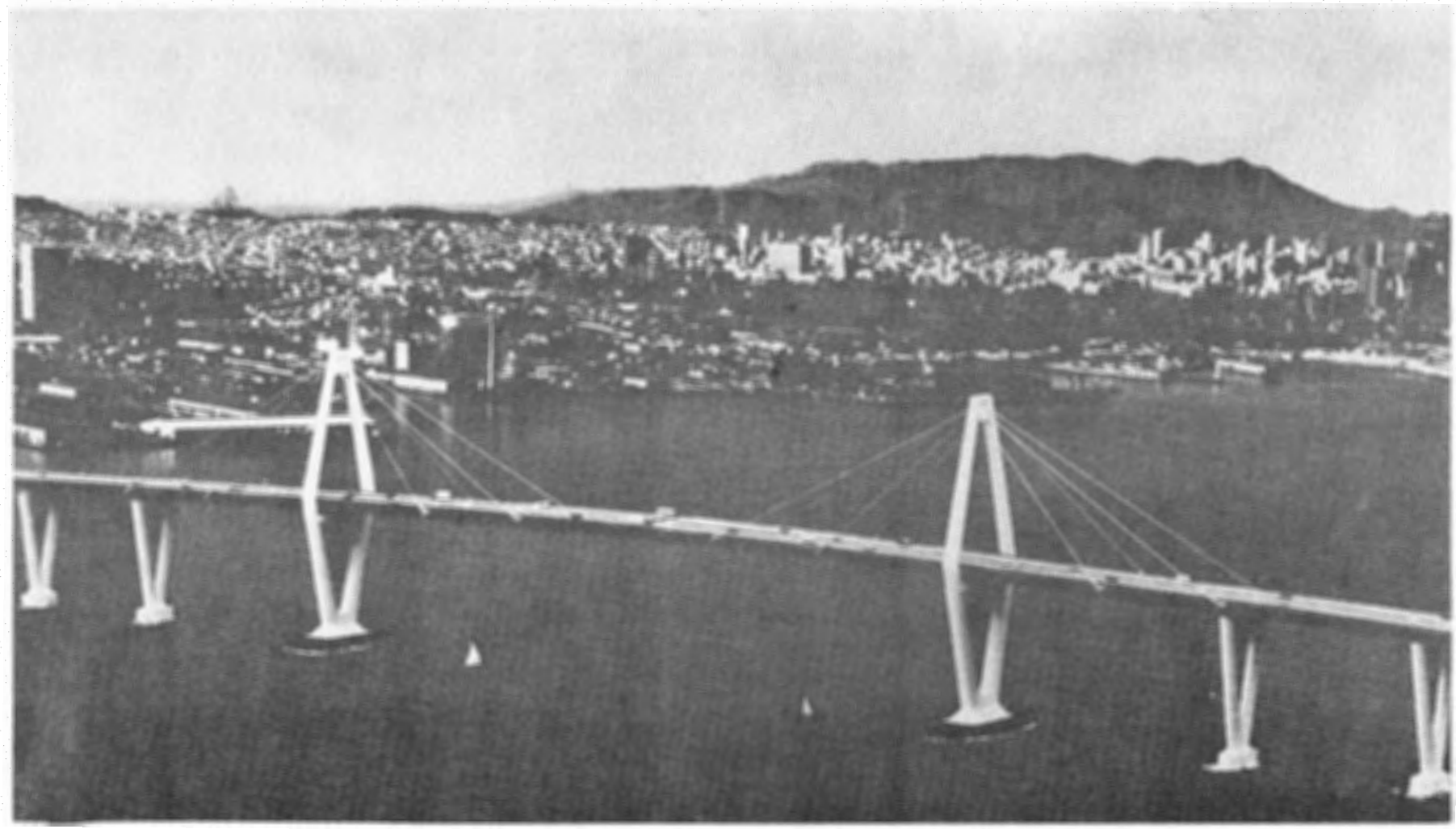
SOUTHERN CROSSING

0 2000 4000 6000 FEET

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF BAY TOLL CROSSINGS

THE PROJECT IS NOW . . .

1. In the 4th year of major design with contract plans well underway.
   - Nearly $5,000,000 has been spent to date
   - Right of Way understandings have been reached with the involved agencies and interests.
   - Permits have been obtained from BCDC and the Corps of Engineers. A Coast Guard permit is pending for the main channel crossing.
2. Included in the plans of all regional and local agencies
   - BCDC Bay Plan
   - BATS Committed Regional Highway System
   - ABAG Land Use Alternatives
   - Master Plans of local agencies



CABLE STAYED GIRDER - DIAMOND TOWER

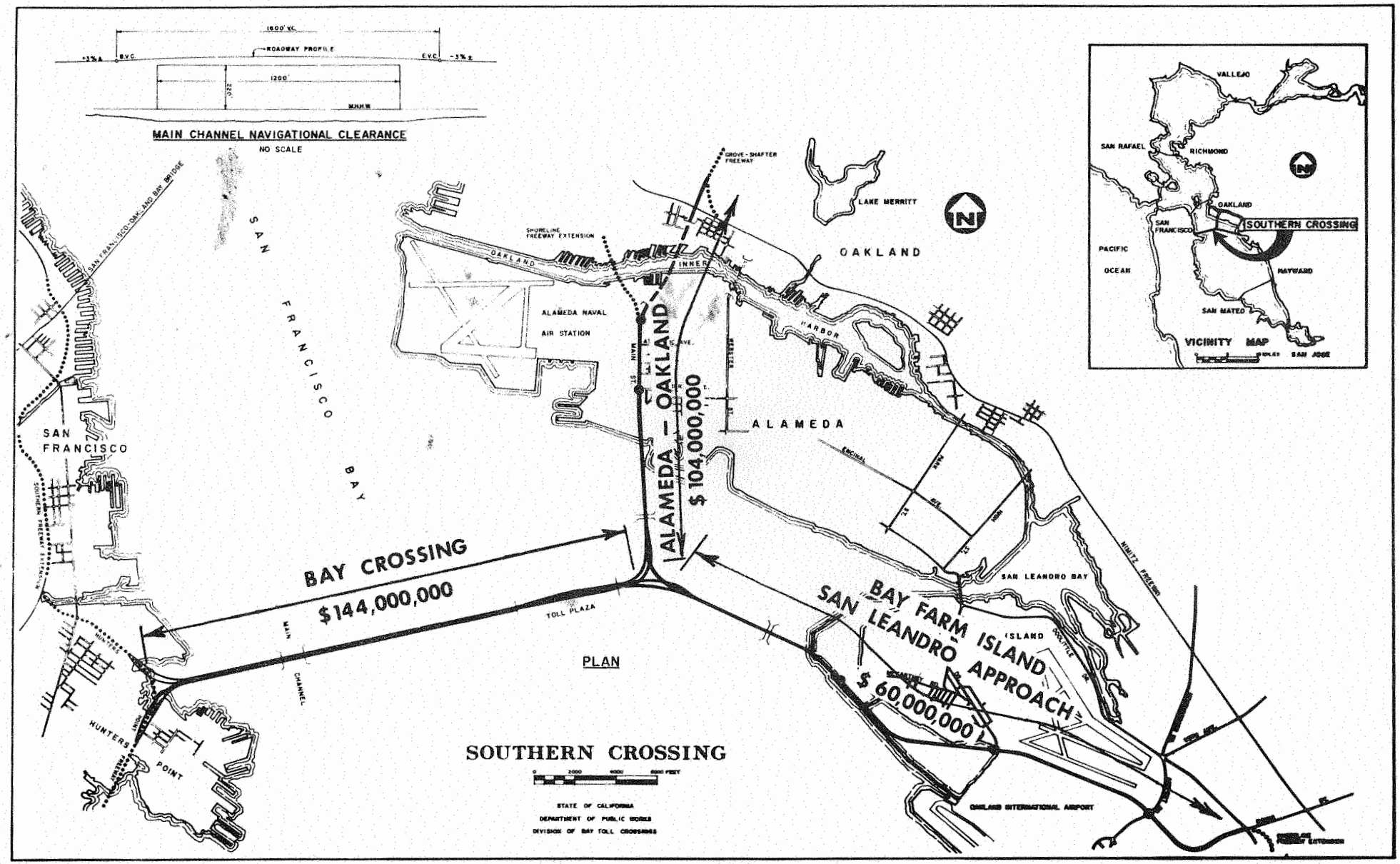
C. PROJECT COST, FINANCING AND SCHEDULE

FINANCING FACTS:

1. The Southern Crossing is a vital element of the Regional Highway System which is too costly to finance entirely from Gas Tax Funds.
2. Plans indicate 2/3 of the financing could be from toll revenues and 1/3 from gas tax funds.
3. Historically, revenue bonds from user tolls finance expensive Bay crossing construction.

MAJOR ELEMENTS OF PROJECT COST

1. Main Channel Crossing	$144 million
Ramps to Hunters Point Freeway	
Main Channel spans	
Toll Plaza	
2. Alameda-Oakland Section	$104 million
Alameda Trestle	
Alameda Viaduct	
Estuary Tube	
3. Bay Farm Island - San Leandro Approach	$ 60 million
Bay Farm Island Trestle	
San Leandro Approach	



TOLL CROSSING FACILITY
PROJECT COST

DEFINITIVE FINANCING PLAN WILL BE DEVELOPED AT TIME OF TOLL REVENUE BOND SALE. IT MUST INCLUDE . . .

1. Final traffic estimate by consultants
2. Required toll schedule on crossing
3. Expected interest rates
4. Current priority of gas tax funds

PREVIOUS APPLICATION OF BAY BRIDGE TOLL REVENUE FUNDS . . .

1. Original construction -- 1932-1936	$ 73 million
2. Expansion of Bridge -- 1957-1966	$ 42 million
3. Reconstruction of the San Mateo-Hayward Bridge -- 1965-1970	$ 70 million
4. BART Transbay Tube -- 1965-1970	$180 million

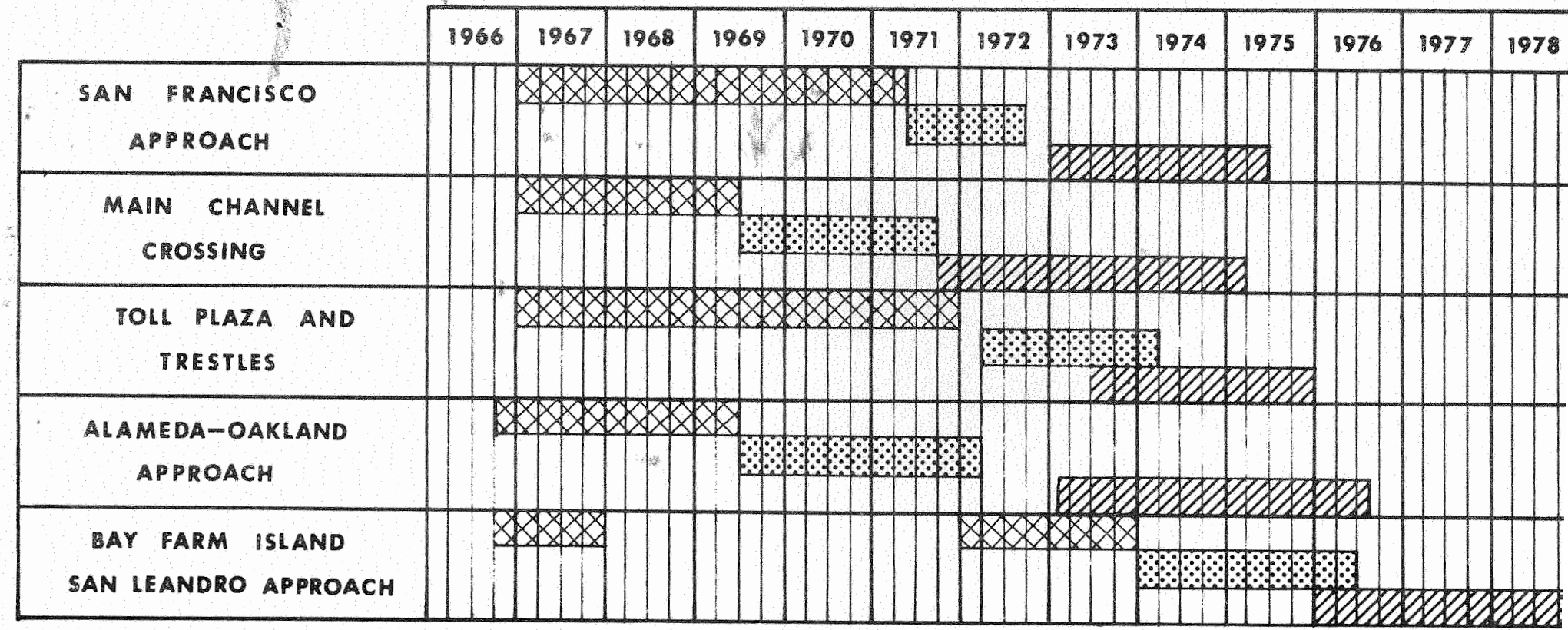
ALL FUNDS DEDICATED TO PROVIDING FOR THE TRANSBAY TRAFFIC DEMAND

NOW, THE SOUTHERN CROSSING AND DUMBARTON BRIDGE

THE PROJECT SCHEDULE IS TO . . .

1. Complete design of major sections during the next two years.
2. Begin construction in 1971.
3. Open for transbay traffic in 1976.
4. Complete freeway approaches by 1978-1980.

PROJECT SCHEDULE



PRELIMINARY DESIGN, SOIL AND FOUNDATION EXPLORATION, PERMIT APPLICATION AND RIGHT OF WAY ACQUISITION.

FINAL DESIGN AND PREPARATION OF CONTRACT PLANS AND SPECIFICATIONS.

COSTRUCTION.

D. EFFECT ON THE ENVIRONMENT

1. Effect of the Crossing on the environment has been considered.

2. The Crossing will have no adverse effect on such environmental factors as . . .

   - Air Quality
   - Tidal Flow, Siltation and Water Quality
   - Navigation and recreational boating
   - Aesthetics
   - Fish and Wildlife

AIR QUALITY

Opposition Statement

1. The Southern Crossing will add to air pollution through increased use of the auto.

Pertinent Facts

1. Crossing will reduce traffic congestion and air pollution.

2. Crossing will shorten trips, and reduce total miles driven, and reduce air pollution.

3. Number of autos is largely a function of population.

4. New Crossing will not increase automobile ownership in the area significantly.

Official Comment and Source

1. "It is my opinion, therefore, that the proposed South Bay Crossing would have little effect on general air pollution in the Bay Area."

AIR RESOURCES BOARD - John A. Maga
By George J. Taylor

2. "If the Southern Crossing is not built, it is strongly believed that extreme traffic congestion on the Bay Bridge would result. This would, in fact, lead to increased smog conditions because of the longer time required for the individual vehicle to make the trans-bay trip and because when vehicles are stalled or slowed to a standstill in traffic, their pollutant emissions tend to increase. In other words, a trans-bay trip which is quicker and uninterrupted by traffic stalls contributes less to air pollution."

SAN FRANCISCO BAY AREA COUNCIL STATEMENT
ON SOUTHERN CROSSING

TIDAL FLOW, SILTATION AND WATER QUALITY

Opposition Statement

1. The Southern Crossing will have a detrimental effect on tidal flow.

2. The Southern Crossing will cause increased siltation.

3. Siltation and shoaling has been caused by the San Mateo-Hayward Bridge.

4. The Southern Crossing will affect tidal flow and increase pollution in the South Bay.

Pertinent Facts

1. In order to alleviate effect on Bay currents, the entire crossing will be on structure. No earth fill in the Bay.

2. Effect of crossing is too small to be detected on Corps of Engineers hydraulic model of the Bay.

3. BCDC has required additional model studies to assure no adverse effect on Bay currents.

4. The apparent shoal near the San Mateo-Hayward Bridge was caused by the original construction operations.

Official Comment and Source

1. "The applicant will provide the Commission with the results of model studies to be undertaken at the applicant's expense of the effects construction of the crossing may have on tidal currents and silt deposits in the Bay, and its proposals for designing, constructing, and maintaining the crossing and its environs so as to alleviate any adverse effects; the Commission will then decide on the adequacy of the proposed alleviating steps."

BAY CONSERVATION AND DEVELOPMENT COMMISSION
Joseph E. Bodovitz
Executive Director

NAVIGATION AND RECREATIONAL BOATING

Opposition Statement

1. The two boat openings in the East Bay approaches will not be adequate for small craft.

2. The bridge and approaches will interfere with Bay excursion tours.

3. The bridge and approaches will interfere with maintenance of navigation channels.

Pertinent Facts

1. Because of shallow water depths, the area off the south shore of Alameda cannot be used for sailing except by the smallest sail boats.

2. The two small craft openings provided in the trestle approaches are adequate to serve the needs of existing and planned marinas in this area.

3. The location of the small craft opening at the Alameda channel has been coordinated with the Ballena Bay yacht Harbor. This opening will be located over the newly dredged channel to Ballena Bay.

4. The small craft opening for the Bay Farm Island Channel is provided to meet the needs of future marinas that may be developed.

5. Crossing will not interfere with Bay excursion tours.

6. The bridge and approaches will not interfere with maintenance of navigation channels.

Official Comment and Source

1. "... we have circularized our Harbor Navigation Committee as to possible objections concerning the Proposed Southern Crossing of San Francisco Bay.
All replies received were favorable in their comments and there were no objections to the Crossing as proposed."

MARINE EXCHANGE
Robert H. Langner
Executive Secretary

2. A meeting was held with members of the Pacific Inter-Club Yacht Association on August 26, 1969. No official objections were received from this organization.

3. Application for a Coast Guard permit to construct a bridge across navigable water is currently pending.

AESTHETICS

Opposition Statement

1. The appearance of the Southern Crossing will have a detrimental effect on the scenic beauty of the Bay.

2. The design of the main span will not be compatible with and complementary to the other bridges in the Bay Area.

3. The Southern Crossing approach trestles in the East Bay will create a "picket fence" across the water.

4. The approach trestles will damage the view of the Bay from the Alameda shore.

5. The Southern Crossing will not increase "visual access" to the Bay.

Pertinent Facts

1. Because the Southern Crossing will be a prominent addition to the views of the Bay, every effort is being made to design a structure that will enhance rather than detract from the environment.

2. The architectural firm of Anshen and Allen has been retained as architectural consultants for the project and all services will be under the personal direction of Mr. William Stephen Allen. The architectural consultant will be involved during all phases of the project design to assure continuity of architectural features.

3. The main span of the crossing will be a cable stayed girder with diamond shaped towers. The selection of this design was based on a strong recommendation by the Consulting Architect. He pointed out that this bridge type would provide a transitional form between the great towers of the Bay Bridge to the north and the graceful girders of the San Mateo-Hayward Bridge to the south.

4. Foremost consideration is being given to the architectural design of the trestle approaches in the East Bay. These trestles will rise on gentle grades to provide openings for sail boats and will be designed with the view from Alameda in mind. The trestle spans will be over three times longer than the spans of the San Mateo-Hayward Bridge in order to minimize the monotonous repetition of the shorter spans. The entire trestle will have a slim and attractive profile.

5. Visual access to the Bay will be provided for motorist using the crossing, and it is being designed with the view of the Bay in mind. The entire length of the crossing will be deck type structure and motorists will not be enclosed within superstructure truss-work. The Southern Crossing will incorporate low barrier railings that will minimize interference with the view.

Official Comment and Source

1. "The crossing has been designed with the help of outstanding architects, and the thousands of motorists using it daily will enjoy panoramic views of the Bay."

BAY CONSERVATION AND DEVELOPMENT COMMISSION
STAFF REPORT ON PERMIT APPLICATION #21-69
(Southern Crossing)

2. "In considering the aesthetic aspects of the main span of the Southern Crossing of San Francisco Bay, the Consulting Architect has followed the basic philosophy that the best results can be obtained from a process of considering and selecting from various valid engineering solutions, and that no significant aesthetic benefits can be obtained either from superfluous adornment or any design that departs from the best engineering principles."

William Stephen Allen, Consulting Architect

3. Support for basic preliminary design concept of cable stayed girder structure.

East Bay Chapter AIA

4. Believes the diamond tower design is something of lasting beauty.

Opinion KGO-TV

5. "Diamond Tower" another monument to this areas, exquisite architectural taste

Editorial KTVU

FISH AND WILDLIFE

Opposition Statement

1. The Southern Crossing will cause damage to fish and wildlife.

2. Route 87 will have to be built with the Southern Crossing and this highway will cause damage to fish and wildlife.

3. Route 61 will have to be built with the Southern Crossing and this highway will cause damage to fish and wildlife.

Pertinent Facts

1. The entire overwater crossing will be on structure and will therefore cause no damage to fish and wildlife.

2. The Southern Crossing does not commit the construction of Route 87 in San Mateo County. Current plans indicate that if Route 87 is ever built, it would not be constructed in the Bay and would not be constructed for twenty to twenty-five years.

3. The southern extension of Route 61 will not be an offshore freeway and should, therefore, have little or no effect on fish and wildlife.

4. Reasonable public access to the Bay will be provided at India Basin and Bay Farm Island.

Official Comment and Source

1. "The proposed construction of a new bridge crossing complex from India Basin across San Francisco Bay to Alameda and Bay Farm Island will not adversely affect the fish and game in those areas ....
Final engineering plans should incorporate reasonable access for sight-seers, fishermen, bird watchers, or others who would enjoy the scenery of San Francisco Bay."

STATE DEPARTMENT OF FISH AND GAME
L. H. Cloyd, Director

E. DELAY IN PROJECT WOULD RESULT IN . . .

1. Increase in construction cost of $60,000,000 for a 4 year delay.
2. Increase in right of way cost of $25,000,000 for a 4 year delay.
3. Adverse effect on many planned developments such as . . .
   - Marine Terminal for Port of San Francisco
   - Bay Farm Island land development
   - Oakland Airport expansion
   - Estuary Development by Port of Oakland
   - Drydock expansion by Todd Shipyards
   - Navy development in Alameda
4. Disruption of the many City and Regional Master Plans
5. The major loss of time and money already spent on this project in route location and design work.
6. Continued cost of delay to Bay Bridge users of $6 million per year.

F. CONCLUSIONS . . .

THE SOUTHERN CROSSING . . .

- Is a key element of the Bay Area regional highway system and is needed now.
- Culminates 25 years of promises to the traveling public.
- Has been studied sufficiently to show that the effect on BART patronage is minimal.
- Will have no adverse effects on the Bay Area environment.
- Can be financed now through a combination of toll revenue bonds and gas tax funds.
- Would cost an additional $85,000,000 if delayed for 4 years, substantially increasing financing problems.

RECOMMENDATION:

THE DEPARTMENT OF PUBLIC WORKS SHOULD OPPOSE ALL EFFORTS TO DELAY OR HALT THE SOUTHERN CROSSING

BUT THE REAL ISSUE IS . . .

WHO GETS THE TOLL FUNDS?

1. Regional Government
2. Environmental purposes
3. Rapid Transit, etc., etc.

OR, TOLL BRIDGE USERS WHO PAY

OR, DO WE HAVE PLANNED CONGESTION