APPENDIX

TO

ROUTE 109

PROJECT STUDY REPORT

4 - SM -109 - 0./3.2
4211 - 23597G
June, 1989

TABLE OF CONTENTS

EXHIBIT A-1

CERTIFICATE OF COMPLETION

All of the work necessary to the operation of the New Dumbarton Bridge as a toll facility (and in particular, the approaches and approach connections specified in Streets and Code, Section 30792.2) having been accomplished, it is hereby certified that the New Dumbarton Bridge has been completed.

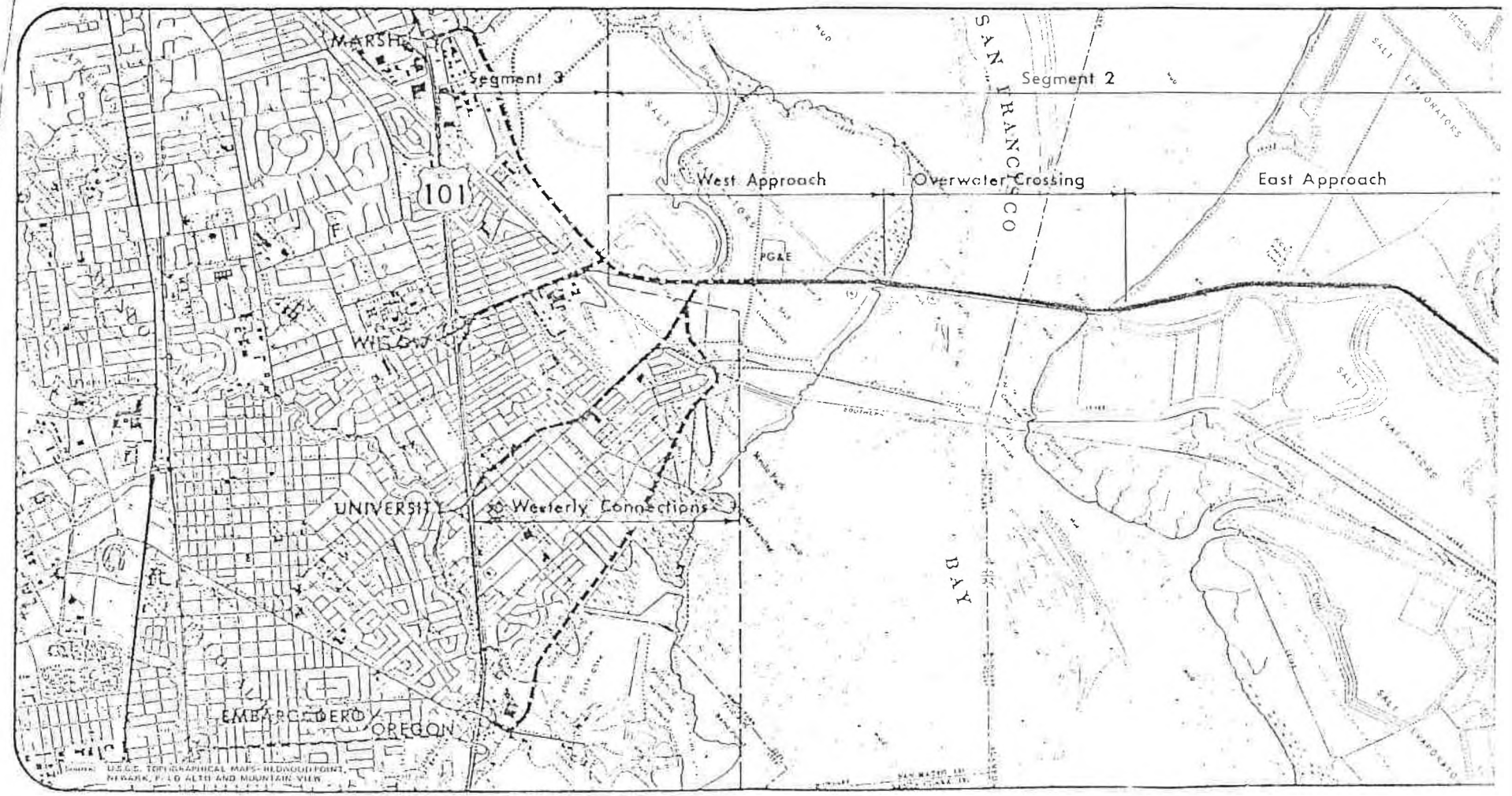
7/5/88
Date

ROBERT K. BEST
Director of Transportation

by _____
R. G. ADAMS
Deputy Director
Maintenance and Operations

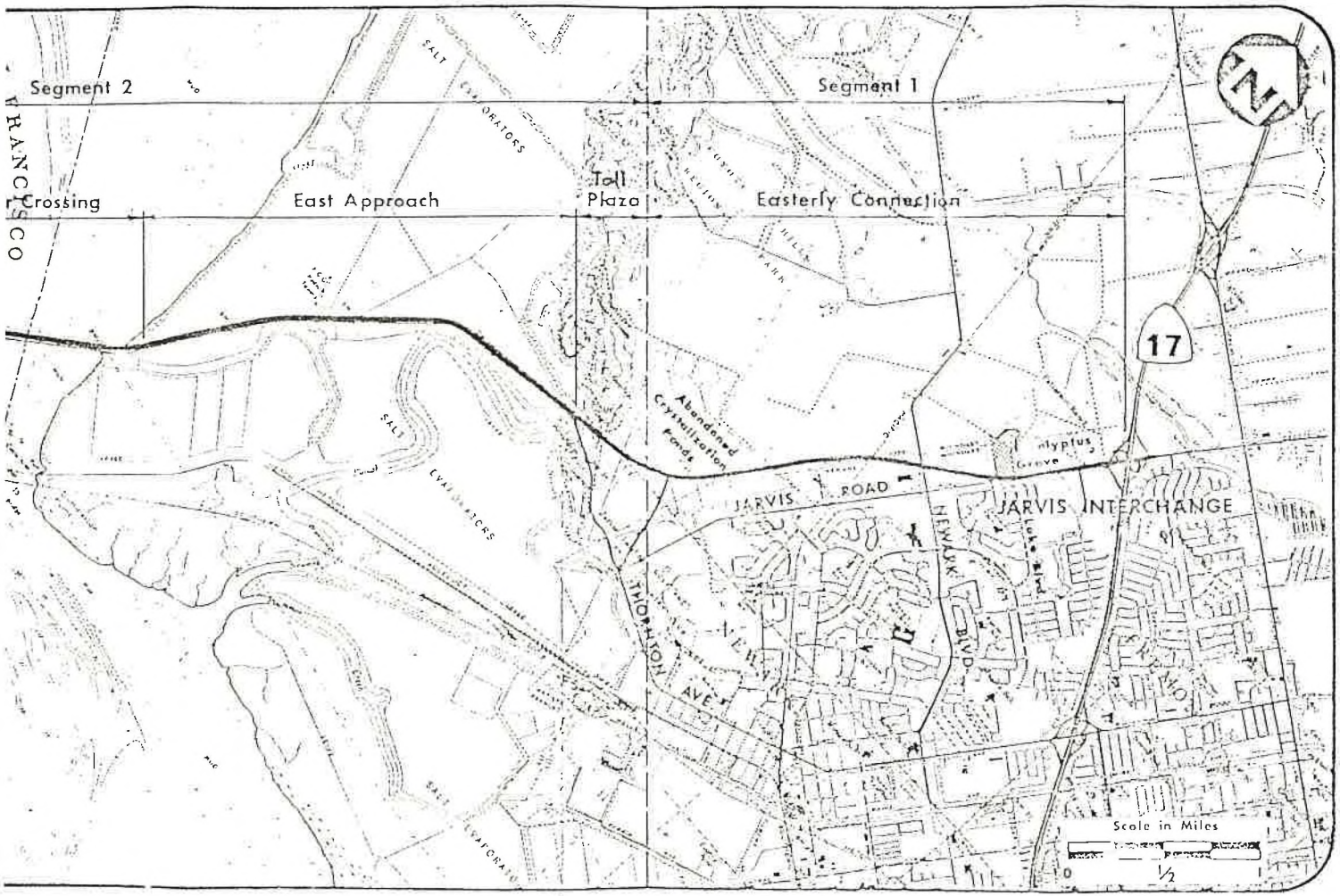
DUMBARTON BRIDGE REPLACEMENT
WESTERN APPROACH ALTERNATIVES

EXHIBIT A-2



DUMBARTON BRIDGE REPLACEMENT PROJECT

EXHIBIT A-3



PROJECT DESCRIPTION

AGREEMENT BETWEEN
THE TOWN OF ATHERTON,
CITIZENS AGAINST DUMBARTON BRIDGE,
THE CITY OF MENLO PARK AND
THE CALIFORNIA DEPARTMENT OF
TRANSPORTATION

IT IS HEREBY AGREED by and between the parties hereto, through their respective officials and attorneys, the undersigned, as follows:

1. The California Department of Transportation has planned and designed a project known as the Dumbarton Bridge Replacement Project (hereinafter called Project). Included in the Project are roadways called the West Approach (commencing at the west end of the new bridge and extending along the present westerly Willow Road approach approximately 9,000 feet to a point 450 feet east of the Southern Pacific railroad tracks), the Willow Road Connection (commencing at the westerly end of the West Approach and extending along present Willow Road to its intersection with Route 101, a distance of approximately 4,900 feet), and the Marsh Road Connection, sometimes called the Northerly Connector (commencing at the westerly end of the West Approach and extending along a 100-foot wide right-of-way, formerly subject to an easement held by the San Francisco Water Department, to the Marsh Road and Route 101 interchange, a distance of approximately 9,500 feet).

2. The United States Coast Guard has processed an application for a permit requested by the California Department of Transportation and prepared and filed a Final Environmental Impact Statement relating to that permit. The United States Coast Guard has approved the issuance of the permit, but the permit has not been delivered to the California Department of Transportation pursuant to an understanding between the parties hereto. The United States Army Corps of Engineers is currently processing

another application for a permit required by the California Department of Transportation for the construction of the Project.

3. The Town of Atherton, Citizens Against Dumbarton Bridge and Malcolm Dudley (hereinafter called plaintiffs) have brought an action in the United States District Court for the Northern District of California (No. C 75-1751 CBR) challenging the adequacy of the Environmental Impact Statement prepared by the United States Coast Guard in connection with the permit to be issued by it and delivered to the California Department of Transportation for the construction of the Project.

4. Plaintiffs and others have also brought an action in the Superior Court of the State of California for the County of San Mateo (No. 190419) challenging the statutory authorization for the construction of the Project as proposed. Plaintiffs are now prosecuting an appeal from an adverse judgment in that case before the Court of Appeal of the State of California, First Appellate District, Division Two (No. 1 Civil 41358).

5. The California Department of Transportation is prepared to advertise for bids for construction of initial phases of the Project at an early date, and believes that the earliest possible construction of the Project is necessary for safety and transportation reasons.

6. The parties are uncertain of the ultimate outcome of the pending litigation including possible further appeals. However, the litigation cannot be finally resolved at an early date.

7. The above-described roadways are located within the territorial limits of the City of Menlo Park.

8. Because of the foregoing reasons, it is in the best interests of the parties for the California Department of Transportation to make certain agreements relating to the

design of the above-described roadways to be included in the Project in order to provide a safe, efficient transportation facility, to assure adequate protection of the quality of the human environment, and to facilitate the early construction of the Project.

9. In order to achieve the above objectives, it is agreed that the design of the Marsh Road Connection shall be as shown on Exhibit A, attached hereto and incorporated herein, and the design of a portion of the West Approach and a portion of the Willow Road Connection shall be as shown on Exhibit B, attached hereto and incorporated herein, and that said roadways shall be constructed pursuant to said design as follows:

A. The Marsh Road Connection shall be constructed as part of the Project as a two-lane road, with one lane in each direction, from NC Line vicinity Station 360 to the existing intersection of Marsh Road with Haven Avenue, with the following exceptions:

a. Right and left turn storage lanes shall be constructed on the Marsh Road Connection at the Chilco Street (Belle Haven Access Road) intersection to be constructed at NC Line vicinity Station 322;

b. Right and left turn storage lanes shall be constructed on the Marsh Road Connection at the Chrysler Drive intersection to be constructed at NC Line vicinity Station 300;

c. A left turn storage lane shall be constructed on the Marsh Road connection at the existing Marsh Road-Haven Avenue intersection.

d. Right and left turn storage lanes may be constructed on the Marsh Road connection at a point between NC Line Station 360 and the Chilco Avenue intersection if the Raychem Corporation establishes a new entrance to its west site property in that area.

B. Lanes for an on-ramp and an off-ramp to Northbound Route 101 shall be constructed on existing Marsh Road between Haven Avenue and Route 101 in the manner shown on Exhibit A.

C. An on-ramp and an off-ramp connecting existing Marsh Road with northbound Route 101 shall be constructed in the manner shown on Exhibit A.

D. The existing Marsh Road-Route 101 Interchange Overpass shall not be widened.

E. The Marsh Road Connection shall be named some name other than "Marsh Road."

F. The West Approach shall be constructed as part of the Project as a two-lane road, with one lane in each direction, from the intersection with the University Avenue Connection, to be constructed at NC Line vicinity Station 400, to the intersection of the West Approach and the Willow Road Connection, to be constructed at NC Line vicinity Station 371, with the following exceptions:

a. A transition lane for westbound traffic and a right turn storage lane for eastbound traffic shall be constructed on the West Approach at the intersection with the University Avenue Connection in the manner shown on Exhibit B;

b. Right and left turn storage lanes

shall be constructed on the West Approach at the intersection with the Willow Road connection in the manner shown on Exhibit B;

G. The Willow Road Connection shall be constructed as part of the Project as a two-lane road, with one lane in each direction, from the intersection with the West Approach to the Southern Pacific Railroad tracks except that a right turn lane for eastbound traffic shall be constructed on the Willow Road Connection at the intersection with the West Approach in the manner shown on Exhibit B.

10. The parties hereto agree that traffic facilitating provisions, such as the provision of traffic signals at the intersection of the eastbound off-ramp (designated as Point EB on Exhibit A) will be made in the area of the existing Marsh Road-Route 101 Interchange westerly of Route 101, if such are deemed necessary to facilitate the movement of traffic by the Department in consultation with local authorities.

11. The parties hereto agree that, at any time prior to the completion of construction of the Project, this Agreement and the design of the portions of the Project dealt with herein may be amended and modified by a written instrument signed by all of the parties hereto. It is also agreed that any amendment to this Agreement with reference to the design of the Willow Road Connection may be entered into solely between the City of Menlo Park and the California Department of Transportation.

12. The parties hereto agree that nothing herein shal be deemed to prevent the California Department of Transportatior at any time or times subsequent to completion of construction o

---

---

the Project, from reevaluating the design or operation of the facilities described in paragraphs 9 and 10 and Exhibits A and B attached hereto. However, the California Department of Transportation agrees that prior to implementing any change in the design or operation of such facilities or portion thereof as then remain within its jurisdiction, it shall prepare and consider an environmental document prepared pursuant to the then applicable requirements of the California Environmental Quality Act.

13. Plaintiffs, as a condition of this agreement, agree that upon execution of this document, they will dismiss Civil Action No. C75-1751 CBR now pending in the United States District Court for the Northern District of California and their appeal, 1 Civil No. 41358, now pending in the Court of Appeal of the State of California, First Appellate District, Division Two. Plaintiffs and the City of Menlo Park agree that they, their agents or persons acting in concert with them shall not file any other actions challenging the Project nor interpose legal or other objections to the issuance and/or delivery of any permits for the Project from the United States Coast Guard, the United States Army Corps of Engineers or any other authority to the California Department of Transportation so long as the California Department of Transportation complies with the terms of this agreement.

DATED: August 23, 1977

Reynolds Smith
Reynolds Smith
Mayor, Town of Atherton

Malcolm H. Dudley
Malcolm H. Dudley
President, Citizens Against
Dumbarton Bridge (CADB)

Michael J. Brady
Attorney for Plaintiffs in
U.S. District Court Action
No. C 75-1751 CBR

California Department of Transportation:

T. R. LAMMERS
District Director

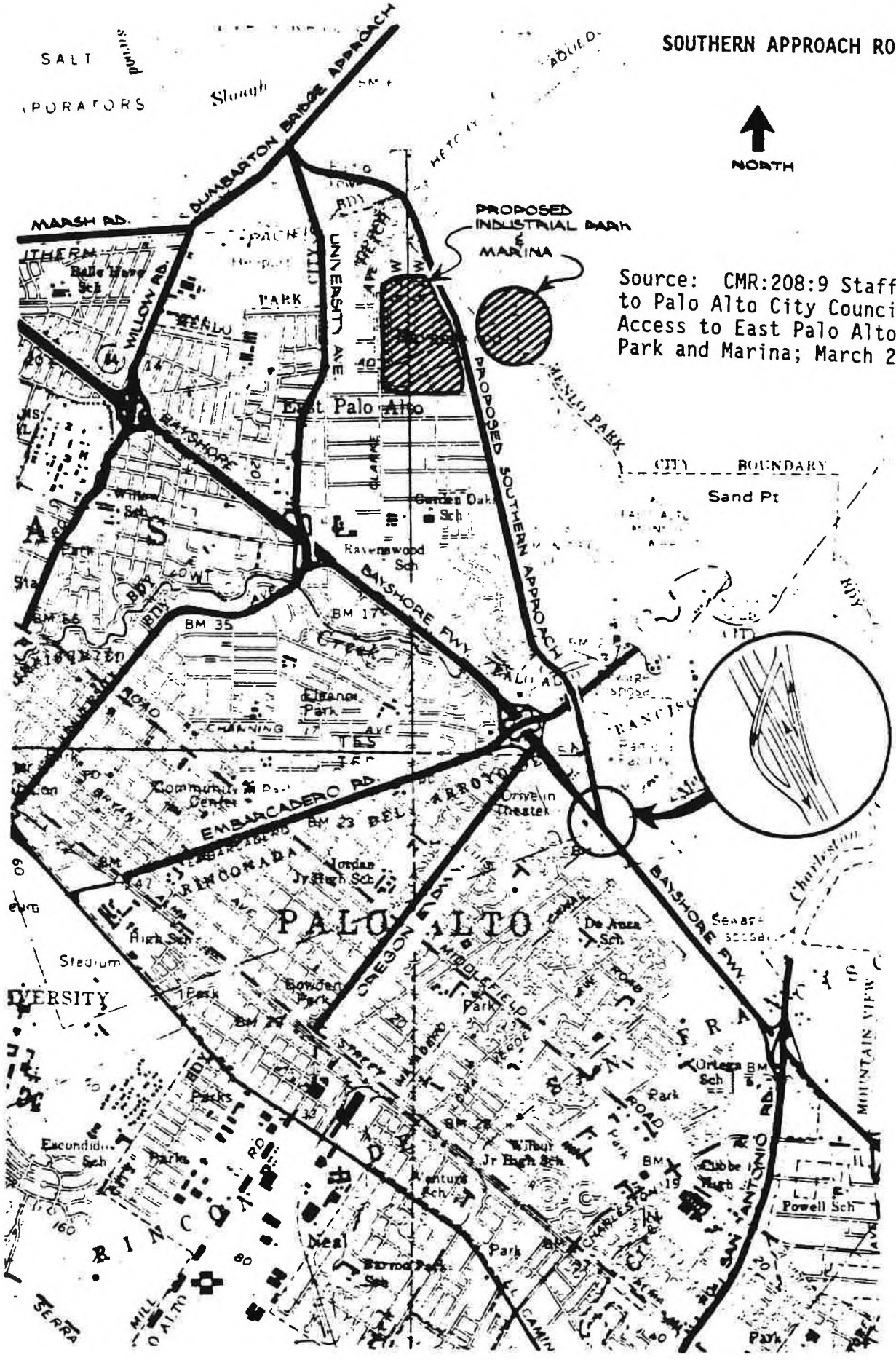
NORVAL FAIRMAN
Attorney for California
Department of Transportation

City of Menlo Park:

Robert J. Stephens
Mayor

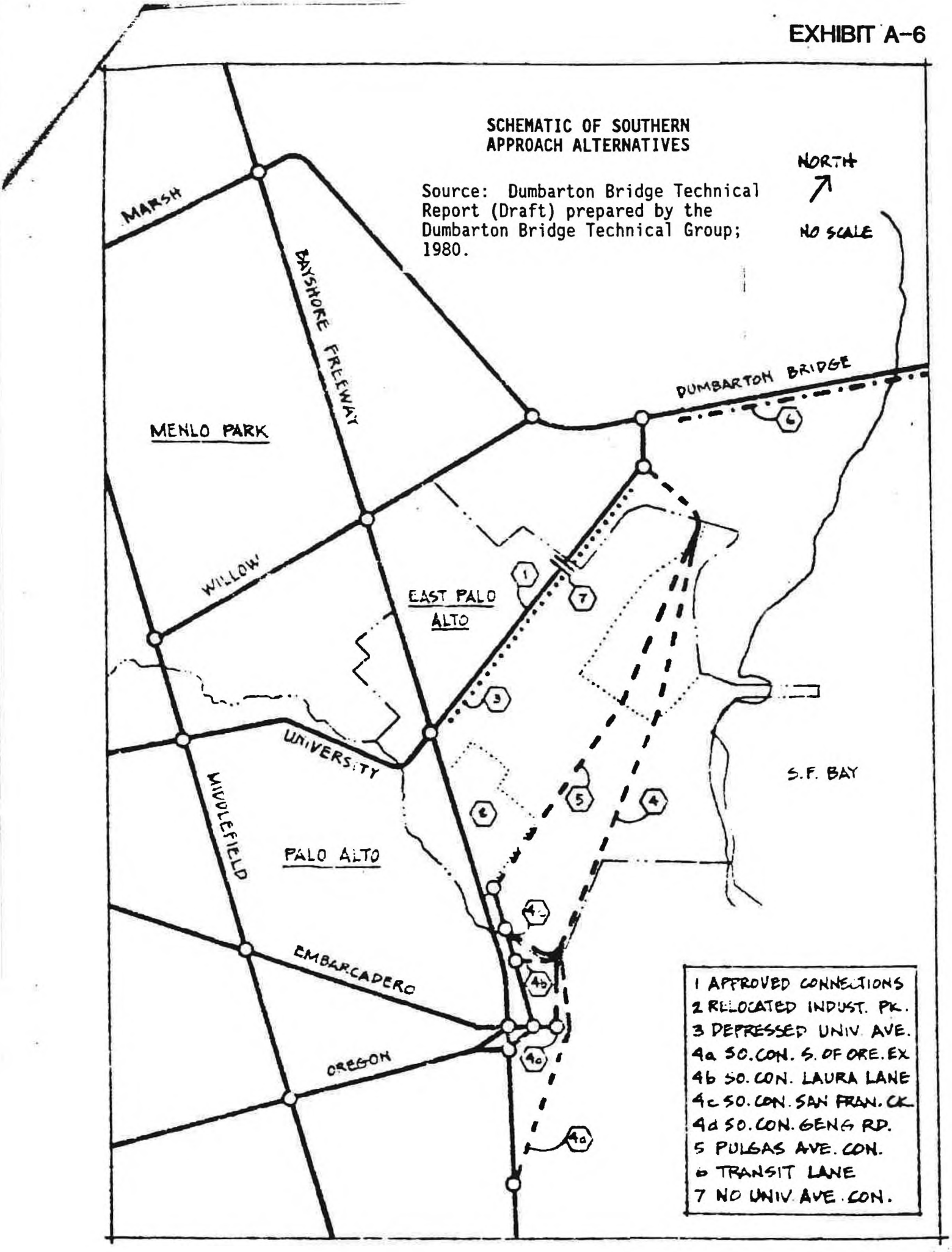
John D. Jorgenson
City Attorney

EXHIBIT A-5



Source: CMR:208:9 Staff Report to Palo Alto City Council entitled Access to East Palo Alto Industria Park and Marina; March 29, 1979.

EXHIBIT A-6


SCHEMATIC OF SOUTHERN APPROACH ALTERNATIVES
Source: Dumbarton Bridge Technical Report (Draft) prepared by the Dumbarton Bridge Technical Group; 1980.
NORTH
NO SCALE
MARSH
BAYSHORE FREEWAY
DUMBARTON BRIDGE
MENLO PARK
WILLOW
EAST PALO ALTO
UNIVERSITY
MIDDLEFIELD
PALO ALTO
EMBARCADERO
OREGON
S.F. BAY
1 APPROVED CONNECTIONS
2 RELOCATED INDUST. PK.
3 DEPRESSED UNIV. AVE.
4a SO. CON. S. OF ORE. EX
4b SO. CON. LAURA LANE
4c SO. CON. SAN FRAN. CK.
4d SO. CON. GENG RD.
5 PULGAS AVE. CON.
6 TRANSIT LANE
7 NO UNIV. AVE. CON.

Summary of Findings

- The Approved Connections will significantly aggravate the traffic situations on Willow Road east of Hamilton Avenue (in MP) and University Avenue east of Highway 101. In general, the existing adverse traffic conditions on other roads will either experience moderate changes or remain unchanged.

  Along University Avenue east of Highway 101, noise will significantly worsen. The amount of disruption will significantly increase.

  The potential for commercial development in East Palo Alto will be significantly improved.

- A Relocated Industrial Park will have the same effects on traffic situations as the Approved Connections. There will be significant adverse changes on Willow Road east of Hamilton Avenue and University Avenue east of Highway 101.

  The noise situation on University Avenue east of Highway 101 will significantly worsen. There will be significant displacement in in the East Bayshore Frontage Road area of East Palo Alto, and a significant increase in disruption in that area and along University Avenue east of Highway 101.

  The potential for commercial development in East Palo Alto will be significantly improved.

- A Depressed University Avenue will have the same effects on traffic situations as the Approved Connections and the Relocated Industrial Park with significant adverse changes on Willow Road and University Avenue.

  Along University Avenue east of Highway 101, there will be a significant increase in disruption and a moderate improvement in noise. The potential for commercial development in East Palo Alto will improve significantly.

- A Southern Connection, South of Oregon Expressway will have positive effects on Willow Road east of Hamilton and east of Highway 101. All other traffic changes are similar to the Approved Connections, including the same significant negative change on University Avenue east of Highway 101.

  Along University Avenue east of Highway 101, the noise and disruption will be significantly aggravated. There will be significant displacement along Embarcadero Road, east of Highway 101.

  The potential for both commercial and industrial development in East Palo Alto will be significantly improved.

- A Southern Connection, Laura Lane will significantly aggravate the traffic situation on Embarcadero Road east of Highway 101. On the other roads, it will generally have the same effects on traffic conditions as the Approved Connections.

  The noise affects along University Avenue will be the same as the Approved Connections. There will be significant aggravation of the noise condition. There will be some displacement in the Laura Lane area.

  The potential for industrial development in East Palo Alto will be improved.

- A Southern Connection, San Francisquito Creek will have the same effects on traffic situations as the Southern Connection, Laura Lane.

  The traffic situation on Embarcadero Road east of Highway 101 will have a significant adverse change. All other roads will generally have the same traffic condition effects as the Approved Connections.

  Similar to the Southern Connection, Laura Lane, there will be significant aggravation of the noise condition along University Avenue. Displacement along Daphne Way in East Palo Alto will be significant. The potential for industrial development in East Palo Alto will be improved.

- Similar to the Southern Connection, Laura Lane and San Francisquito Creek, Southern Connection, Geng Road, will significantly aggravate the traffic situation on Embarcadero Road east of Highway 101. It will have moderate positive effects on Willow Road, east of Hamilton Avenue and east of Highway 101, and on University Avenue east of Highway 101.

  There will be some improvement in air quality along Willow Road and some reduction in disruption along University Avenue.

  In East Palo Alto, the potential for commercial development will be reduced and the potential for industrial development will be increased.

- A Pulgas Avenue Connection, similar to the Southern Connection, Laura Lane, San Francisquito Creek, and Geng Road, will significantly aggravate the traffic situation on Embarcadero Road, east of Highway 101. Similar to the Approved Connections there will be significant aggravation of traffic situations on Willow Road and University Avenue.

  Along University Avenue, there will be a significant increase in noise and in the amount of disruption. The potential for commercial development in East Palo Alto will be significantly improved.

- A Transit Lane will have the same effects on traffic situations as the Approved Connections. There will be significant adverse changes on Willow Road east of Hamilton and University Avenue east of Highway 101.

  The transit lane with High Occupancy Vehicles will, by itself, make a negligible difference in traffic conditions. To have some effect, the transit lane with HOV's would need to induce doubling up of occupants to reduce traffic. Other pressures, such as high gasoline prices, limited gasoline supplies, bridge tolls, traffic congestion on the bridge, and energy conservation efforts, may provide incentives for this alternative. Such pressures themselves may reduce traffic.

  The noise situation and the disruption along University Avenue will be significantly aggravated. The potential for commercial development in East Palo Alto will be improved.

- No University Avenue Connection will significantly aggravate the traffic situation on Willow Road east of Highway 101. It will further degrade the traffic situation on Willow Road east of Hamilton Avenue. It will significantly improve the traffic situation on University Avenue east of Highway 101.

  The noise situation on Willow Road will be significantly aggravated, while the noise situation on University Avenue will be significantly improved. The disruption along University Avenue will also be significantly reduced.

  There will be some improvement in air quality along University Avenue, and some reduction in plant and animal qualities along Willow Road. Potential for commercial and industrial development in East Palo Alto will be reduced.

- A Southern Connection, South of Bayshore Expressway Plus No University Avenue Connection will significantly improve the traffic situation on University Avenue east of Highway 101. It will have the same effects on other roads as the Approved Connection, with a significant adverse change on Willow Road east of Hamilton Avenue.

- A Southern Connection, Geng Road Plus No University Connection will significantly aggravate the traffic situation on Embarcadero Road east of Highway 101. It will significantly improve the traffic situation on University Avenue east of Highway 101. It will moderately improve the traffic situations on Willow Road east of Hamilton Avenue and east of Highway 101.

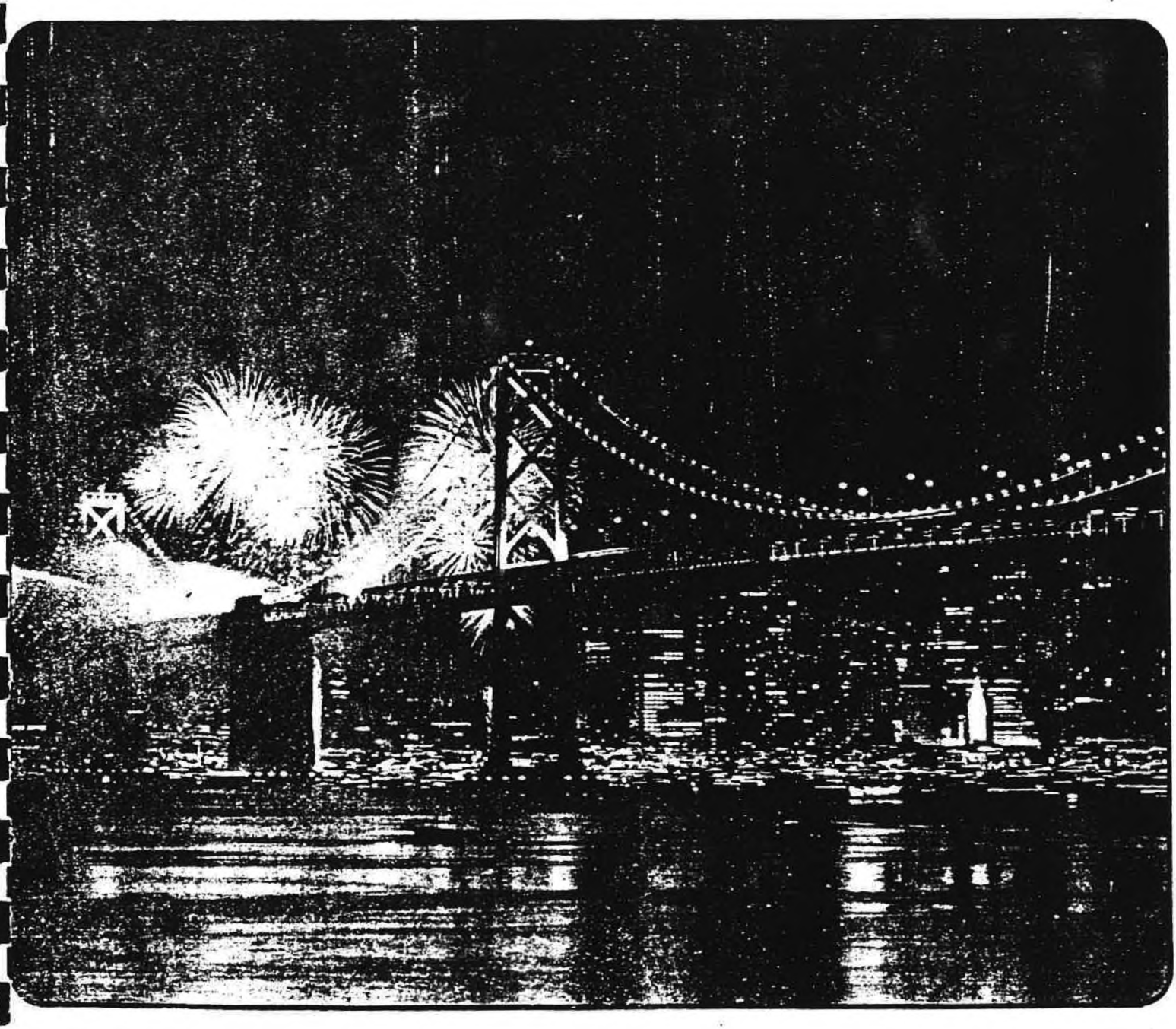
EXHIBIT A-7

REPORT TO THE LEGISLATURE

PURSUANT TO SENATE RESOLUTION 46 (1986)

TWENTY-YEAR TRAFFIC DEMANDS AND TEN-YEAR CAPITAL OUTLAY FOR STATE-OWNED TOLL BRIDGES IN THE SAN FRANCISCO BAY REGION

OCTOBER 1987



EXECUTIVE SUMMARY

This report was prepared in response to Senate Resolution 46 (1986) which requests the Department of Transportation to undertake a study of the present and projected traffic patterns as related to the seven State-owned and operated toll bridges in the San Francisco Bay Region.

The bridges are the San Francisco-Oakland Bay Bridge, the San Mateo-Hayward Bridge, the Dumbarton Bridge, the Richmond-San Rafael Bridge, the Antioch Bridge, the Benicia-Martinez Bridge, and the Carquinez Bridge.

The Resolution also requests the Department to provide the Senate with any existing plan or proposal for the construction of new bridges within the region, including time tables as may now be anticipated.

Caltrans projected future traffic demands for each of the seven bridges for the years 1995 and 2010. The traffic projections were guided by the following key assumptions:

- Vehicle trip generation rates will remain constant between 1985 and the years of projection.
- Auto occupancy rates and modal shares will also remain the same.
- Traffic projections are unconstrained by any capacity deficiencies in the approach highway systems.

The projections suggest significant increases in traffic demand on all of the bridges by the year 2010. The magnitude of the increase on each bridge is shown below:

PERCENT INCREASE IN AVERAGE DAILY TRAFFIC BY THE YEAR 2010

BRIDGE	PERCENT INCREASE
San Francisco-Oakland Bay	38
San Mateo-Hayward	43
Dumbarton	56
Richmond-San Rafael	47
Antioch	156
Benicia-Martinez	71
Carquinez	60

After traffic projections were made, Caltrans determined how many lanes would be required to satisfy the demand. The table below shows lane deficiencies both directions for the year 2010 based on the traffic projections. The table is based on the assumption that currently programmed lane additions for the San Mateo-Hayward Bridge and the Benicia-Martinez Bridge will be implemented.

PROJECTED LANE DEFICIENCIES BY THE YEAR 2010

BRIDGE	LANES
San Francisco-Oakland Bay	10
San Mateo-Hayward	2
Dumbarton	2
Richmond-San Rafael	0
Antioch	2
Benicia-Martinez	0
Carquinez	4

There is a need to undertake a transportation system level planning effort, within the framework of an open public process, to address the projected lane deficiencies in the corridor across San Francisco Bay. These deficiencies total 14 lanes for the combined San Francisco-Oakland Bay, San Mateo-Hayward, and Dumbarton Bridges.

Caltrans currently has plans for widening the existing Benicia-Martinez Bridge and constructing a new parallel bridge which will increase capacity of this crossing. In addition the Department has done some very preliminary work addressing the need to replace the older structure of the two structures which make up the Carquinez Bridge.

A ten-year capital outlay listing of programmed and anticipated projects is included in the report for each of the seven bridges. The projects are divided into two separate five-year categories. The total cost of the projects, excluding support, in each category is shown below for each bridge.

BRIDGE	1987/88 through 1991/92 (Escalated)	1992/93 through 1996/97 (Unescalated)
San Francisco-Oakland Bay	$20,413,000	$169,100,000
San Mateo-Hayward	92,165,000	128,900,000
Dumbarton	6,271,000	5,000,000

Richmond–San Rafael	8,540,000	6,900,000
Antioch	1,064,000	1,100,000
Benicia–Martinez	282,992,000	6,900,000
Carquinez	6,208,000	140,600,000
TOTALS	$417,653,000	$458,500,000

Route concept discussions are included in the report for each highway route on which the toll bridges are located. These discussions cover the bridges and the approach roadways on each end. In general terms, the route concept sections address existing roadway conditions, probable future roadway configurations and the type of facility that is anticipated within a twenty–year time frame.

DUMBARTON BRIDGE

ROUTE CONCEPT

The original Dumbarton Bridge, the first vehicular crossing of San Francisco Bay, was opened to traffic on January 15, 1927. It linked southern Alameda County on the east to San Mateo County on the west. Built originally to provide a shortcut for traffic originating in San Mateo and Santa Clara Counties, the bridge served industrial and residential areas on both sides of the bay. The bridge was built with private capital and then purchased by the State for $2.5 million in 1951.

The bridge's age and the limitations of a two-lane, undivided roadway and lift-span made it necessary for a replacement bridge to be constructed. The new bridge, a four-lane, high-level structure was opened to traffic on October 3, 1982. The cost of the complete project was $200 million, including the freeway approaches which connect with Interstate 880 on the east and Route 101 on the west. A map of the bridge and surrounding area is shown on Exhibit D.

The new facility is on Route 84 and is 1.6 miles long with shoulders for emergency use. Bicyclists are prohibited from using the shoulders. However, there is an eight foot wide bike path on the south side of the bridge which is separated from traffic by a concrete barrier. A 340 foot center span provides 85 feet of vertical clearance for shipping. The approach spans on both sides of the Bay are of prestressed lightweight concrete girders supporting a lightweight concrete deck. The center spans are twin steel trapezoidal girders which also support a lightweight concrete deck.

The route concept for Route 84 is covered by two segments. The first segment is from the Marsh Road/Route 101 Interchange in Redwood City to the San Mateo/Alameda County Line (mid-span of the Dumbarton Bridge).

This first segment of Route 84 is located in a developing industrial and commercial area of Redwood City. It is routed along Marsh Road, east of Route 101, to the junction of Route 114. The segment then continues onto the Dumbarton Bridge. It is classified as a 2/4-lane expressway to the beginning of the bridge. The bridge portion is a 4-lane freeway.

The route concept for this segment is for a 6-lane freeway. Future commercial development and already heavier than expected traffic volumes across the bridge indicate a need for expanding the Dumbarton Bridge and its approaches. There are, however, no capacity improvements presently programmed for this segment.

Nevertheless, major commercial development along the Route 101 corridor in San Mateo and Santa Clara Counties is expected in the next twenty years. In San Mateo County alone, the Association of Bay Area Governments (ABAG), in its "Projections '85", forecasts 91,700 new jobs, 38,700 (42 percent) of which will be in the Cities of Menlo Park, Redwood City and San Mateo. The traffic generated by commuters will increase substantially by 2010 (see Table 9) as these employment opportunities develop and new housing lags in the same area.

The second segment is from mid-span on the Dumbarton Bridge, at the San Mateo/Alameda County line, to the Route 880/Decoto Road Interchange. The entire segment is a 4-lane freeway. Easterly from the bridge, the segment passes through developing and existing commercial and residential land use areas. A high occupancy vehicle (HOV) lane opened at the new toll plaza in April 1986.

The route concept for this second segment is for a 6-lane freeway. There are currently no capacity improvements programmed for either segment.

It may be expected that if capacity improvements were made to the bridge they would necessitate capacity improvements to the approaches on both sides as well.

TRAFFIC DEMANDS

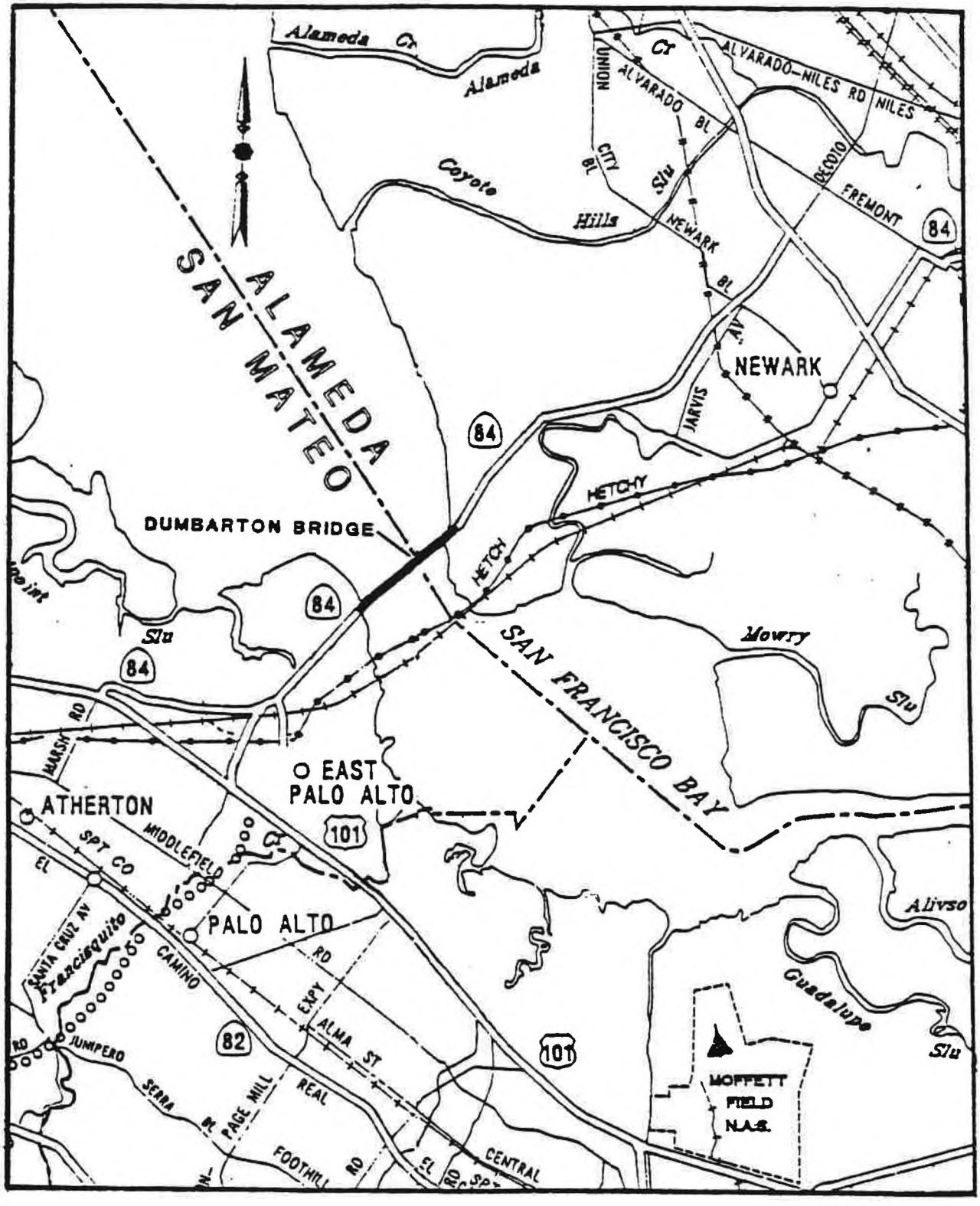
The year 2010 traffic projections (see Table 9) indicate a need for two additional lanes (see Table 8) on the bridge.

Projected lane deficiencies and present and projected traffic demands on the Dumbarton Bridge are shown in Tables 8 and 9.

CAPITAL OUTLAY

Table 10 lists capital outlay improvement projects

EXHIBIT D
MAP OF DUMBARTON BRIDGE AND SURROUNDING AREA



anticipated to be constructed on the Dumbarton Bridge during the next ten years. The projects are divided into two five-year groups:

1987/88 through 1991/92

These are committed projects that have been programmed in the 1987 State Transportation Improvement Program (STIP) covering the same five-year period. The project costs (Right of Way and Construction) are escalated to the planned year of construction for a total value of $6,271,000.

1992/93 through 1996/97

These are candidate capital outlay improvement projects anticipated to be programmed in the five-year period beyond the current STIP. The projects have not been programmed, nor have funds been committed or a year of construction determined. The project costs (Right of Way and Construction) are shown as 1987 unescalated costs for a total 1987 value of $5,000,000.

The list of candidate projects is not considered to be all inclusive. Changes to these projects and the addition of others may be necessary as conditions change.

TABLE 8
PROJECTED LANE DEFICIENCIES ON THE DUMBARTON BRIDGE BY THE YEAR 2010 (Both Directions)

1987		2010				2010
EXISTING LANES		LANE DEFICIENCIES WITHOUT ADDITIONS	-	PROGRAMMED LANE ADDITIONS	=	LANE DEFICIENCIES REMAINING
4		2		0		2

TABLE 9
PRESENT AND PROJECTED TRAFFIC DEMANDS FOR THE DUMBARTON BRIDGE

Year	ADT* (two-way)	Peak Hour			
		Westbound (Toll Direction)		Eastbound (Free Direction)	
		AM	PM	AM	PM
1985	33,000	3,000	900	1,000	3,200
1995	41,900	4,100	1,100	1,200	4,300
2010	51,500	5,200	1,300	1,400	5,400

Notes: (1) 1985 data are count-based traffic demands
(2) 1995 & 2010 data are projected traffic demands (unconstrained)

* Average Daily Traffic

TABLE 10
DUMBARTON BRIDGE
CAPITAL OUTLAY IMPROVEMENT PROJECTS

1987 STIP PROJECTS*
(1987/88 through 1991/92)

PROJECT DESCRIPTION	CONST. FISCAL YEAR	STIP COST ($1,000)
Modify Interchange (Stage II) at Route 880/84 Interchange (Decoto Rd.)	87/88	3,098
Modify Interchange at western relocation of Thornton Avenue	87/88	1,943
Install corrosion system on approach spans	88/89	946
Install security monitoring system	88/89	284
TOTAL		$6,271

CANDIDATE PROJECTS**
(1992/93 through 1996/97)

PROJECT DESCRIPTION	ESTIMATED COST ($1,000)
Install scaffolding and travellers - steel girder spans	800
Modify administration building	500
Automatic toll collection	400
Automatic vehicle identification	300
West connection and approach to bridge - widen expressway	3,000
TOTAL	$5,000

* Costs are escalated to year of construction and do not include support.
** Amounts are 1987 current costs and do not include support.

SUMMARY OF PROJECTED TRAFFIC DEMANDS ALL BRIDGES

The projections of traffic demands are based, among others, on the following key assumptions:

- Vehicle trip generation rates will remain constant between 1985 and the years of projection (1995 and 2010).
- Auto occupancy rates and modal shares will also remain, in the aggregate, the same.
- Traffic projections are unconstrained by any capacity deficiencies in the approach highway systems.

Traffic projections through the year 2010 are summarized for each bridge in Table 23. The following information is shown for each of the years 1985, 1995 and 2010:

- 2–way ADT (Average Daily Traffic)
- Peak hour volumes for A.M. and P.M. for the toll direction and the free direction.

There are significant increases in ADT projected for the year 2010. These range from a low of 38 percent on the San Francisco–Oakland Bay Bridge to 60 percent on the Carquinez Bridge, and to a high of 156 percent on the Antioch Bridge.

TABLE 23

TRAFFIC PROJECTIONS

for

State Owned Toll Bridges in the San Francisco Bay Area

BRIDGE County-Route	Year	2-Way ADT	Peak Hour Volumes Toll Direction AM	Toll Direction PM	Free Direction AM	Free Direction PM
Dumbarton Ala/SM-84	1985	33.0	3.0	.9	1.0	3.2
	1995	41.9	4.1	1.1	1.2	4.3
	2010	51.5	5.2	1.3	1.4	5.4
San Mateo - Hayward Ala/SM-92	1985	57.0	3.6	2.0	1.8	3.7
	1995	67.8	4.6	2.2	1.9	4.6
	2010	81.6	5.8	2.5	2.0	5.7
San Francisco - Oakland Bay Ala/SF-80	1985	224.0	10.7	7.5	7.1	11.3
	1995	262.0	13.1	8.3	7.2	13.6
	2010	309.0	16.5	9.0	7.3	16.5
Richmond - San Rafael CC/Mrn-580	1985	38.0	1.4	1.8	1.8	1.4
	1995	44.0	1.9	2.1	2.1	1.7
	2010	55.8	2.7	2.8	2.6	2.0
Carquinez CC/Sol-80	1985	86.0	2.2 (2.9)	4.8 (5.1)	4.5	3.1 (4.6)
	1995	110.0	2.2 (3.7)	6.7 (7.0)	6.6	3.3 (5.9)
	2010	137.6	2.8 (4.6)	8.7 (9.1)	8.4	3.9 (7.4)
Benicia - Martinez CC/Sol-680	1985	65.0	2.1 (2.7)	3.7 (4.3)	3.6	2.2 (3.1)
	1995	87.1	2.1 (3.6)	5.7 (6.4)	5.7	2.5 (4.2)
	2010	111.2	2.7 (4.6)	7.6 (8.5)	7.8	2.9 (5.3)
Antioch CC/Sac-160	1985	7.4	.2 (.4)	.4 (.5)	.4	.3 (.5)
	1995	12.2	.2 (.7)	.9 (1.0)	.9	.3 (.8)
	2010	19.0	.2 (1.1)	1.5 (1.7)	1.6	.4 (1.2)

Notes: (1) All traffic figures are in thousands
(2) 1985 data are count-based traffic demands
(3) 1995 & 2010 data are projected traffic demands (unconstrained)
(4) Data in parentheses are the unusually high peak hour demands which occur because of weekend traffic.

SUMMARY OF PROJECTED LANE DEFICIENCIES ALL BRIDGES

Projected traffic demands show lane deficiencies in the corridors of six of the seven State-operated Bay Area toll bridges by the year 2010. The exception is the Richmond-San Rafael Bridge corridor. Caltrans has preliminary engineering underway to address the capacity needs for the Benicia-Martinez corridor and a widening of the San Mateo-Hayward Bridge. However, no specific planning is underway for the Carquinez Bridge or to address the long range major deficiencies of the transbay corridor between Contra Costa/Alameda Counties and San Francisco/San Mateo Counties.

The lane deficiencies noted in Table 24 are presented for long range planning purposes only. Significant project level planning would be necessary, on both the bridges and their approaches (with a detailed analysis of demand/capacity relationships), to verify the precise expansion needs of a particular corridor.

Specifically, there is a need to undertake a transportation system level planning effort, within the framework of an open public process, to address the projected lane deficiencies in the corridor across San Francisco Bay. These deficiencies total 14 lanes for the combined San Francisco-Oakland Bay, San Mateo-Hayward, and Dumbarton Bridges. Since these deficiencies are based on projected vehicle trips only, there is a need to address person trips within the context of potentially expanded: (1) HOV facilities, (2) bus transit and (3) rail transit, in the corridor.

Table 24 displays the following lane deficiency information for each bridge:

- Number of existing lanes (1987).
- Lane deficiencies that would exist in 2010 if no new lanes were added between now and 2010.
- Lane additions currently programmed in the 1987 STIP.
- Lane deficiencies remaining after programmed lane additions have been implemented.

TABLE 24

PROJECTED LANE DEFICIENCIES ON BAY AREA BRIDGES

BY THE YEAR 2010 (BOTH DIRECTIONS)

Bridge	1987 Existing Lanes	2010 Lane Deficiencies Without Additions	-	Programmed Lane Additions	=	2010 Lane Deficiencies Remaining
San Francisco-Oakland Bay	10	10		0		10
San Mateo-Hayward(1)						
5.0 miles	4	4		2		2
1.8 miles	6	2		0		2
Dumbarton	4	2		0		2
Richmond-San Rafael	4	0		0		0
Antioch(2)	2	2		0		2
Benicia-Martinez(3)	4	6		5-6		0
Carquinez	6	4		0		4

(1) San Mateo-Hayward planned widening:
The existing San Mateo-Hayward Bridge is a 6.8 mile structure. Of this, 5.0 miles are 4 lanes and the remainder is 6 lanes. A currently programmed project in the 1991-1992 year will widen the 4-lane portion to 6 lanes. This will make the entire structure a 6-lane facility leaving a projected deficiency of 2 lanes in the year 2010.

(2) Antioch operational deficiency:
The existing Antioch Bridge is a two-lane structure (one lane each direction) with a concrete median barrier. The barrier, along with narrow shoulders and a steep grade are constraints on vehicle operating speeds on the bridge - even with today's relatively light traffic volumes. This is largely because trucks and recreational vehicles are estimated to be 10% of the total traffic. As traffic volumes grow there will be increased operational problems with a two lane structure. Therefore a deficiency of two lanes is shown for operational reasons - even though traffic projections show the existing lanes would be adequate from a strict traffic demand standpoint.

(3) Benicia-Martinez planned widening and new bridge:
See discussion under New Bridges.

416 An act to amend Section 409 of the Streets and Highways Code, relating to highways.
Approved by Governor August 12, 1988
. Filed withSecretary of State August 15, 1988.

LEGISLATIVE COUNSEL'S DIGEST

AB 3318, Duplissea. State highways: Route 109.

Under existing law, State Highway Route 109 is from the vicinity of Notre Dame Avenue in East Palo Alto to Route 84.

This bill would revise the description of Route 109 as being from Route 84 to Route 101.

The bill would limit the Department of Transportation's responsibility for maintaining and operating segments of the revised route, and would declare that the bill does not constitute a commitment to construct highway projects on segments of the revised route. The bill would prohibit the allocation for Route 109 projects, other than the existing segment, until specified conditions are met.

The bill would prohibit the consideration of any proposed segment of Route 109 without the participation and approval, as specified, of cities and counties through which the segment would pass. The bill would, however, further provide that nothing in the bill would preclude the department from conducting such a study and analysis.

The people of the State of California do enact as follows:

SECTION 1. Section 409 of the Streets and Highways Code is amended to read:

409. (a) Route 109 is from Route 84 to Route 101.

(b) The department is not responsible for the maintenance or operation of Route 109, except for that segment between Notre Dame Avenue in East Palo Alto and Route 84, nor shall the redesignation of Route 109 by the act which added this subdivision constitute a commitment for future construction of any highway projects on that route. Funds shall not be allocated to any Route 109 project, other than a project on the segment between Notre Dame Avenue in East Palo Alto and Route 84, until the commission has first allocated funds to all projects contained in the 1988 State Transportation Improvement Program which are not deleted from future programs, and construction begins on those projects.

(c) No study and analysis of any proposed segment of Route 109 shall be conducted without the involvement of the governing body of any city or county through which the segment would pass as an active participant in the study and analysis. However, nothing in this subdivision shall preclude the department from conducting such a study and analysis. Furthermore, no segment may be included in any plan for future Route 109 construction unless the segment is approved by each of those governing bodies.

DELETED MATERIAL IS IN BRACKETS []. ADDED MATERIAL IS CAPITALIZED.

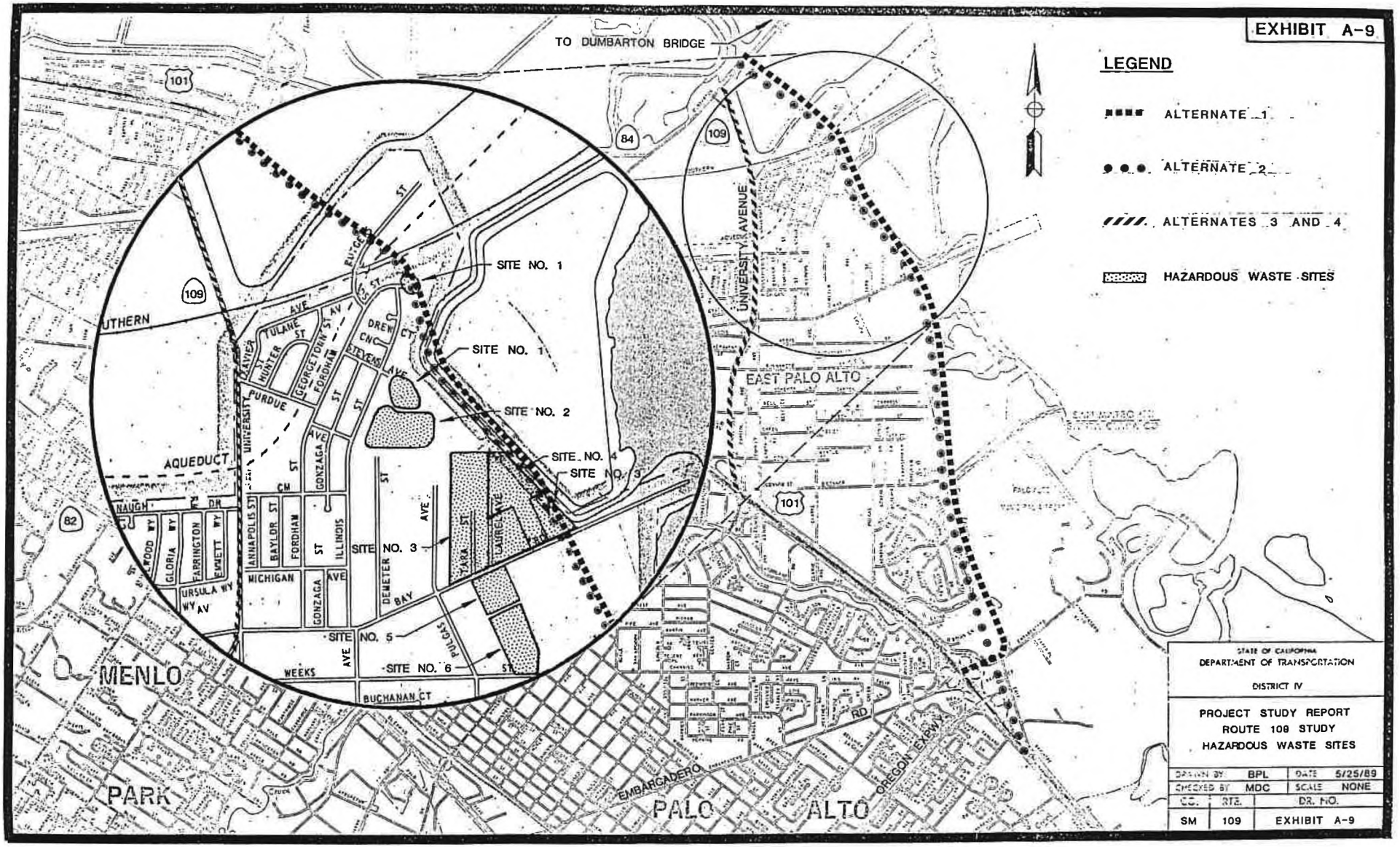


EXHIBIT A-9
LEGEND
ALTERNATE 1
ALTERNATE 2
ALTERNATES 3 AND 4
HAZARDOUS WASTE SITES
TO DUMBARTON BRIDGE
SITE NO. 1
SITE NO. 1
SITE NO. 2
SITE NO. 4
SITE NO. 3
SITE NO. 3
SITE NO. 5
SITE NO. 6
EAST PALO ALTO
MENLO PARK
PALO ALTO
UNIVERSITY AVENUE
AQUEDUCT
BAY
EMBARCADERO RD
OREGON EXPWY
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DISTRICT IV
PROJECT STUDY REPORT
ROUTE 109 STUDY
HAZARDOUS WASTE SITES
DRAWN BY BPL DATE 5/25/89
CHECKED BY MDC SCALE NONE
CO. RTE. DR. NO.
SM 109 EXHIBIT A-9

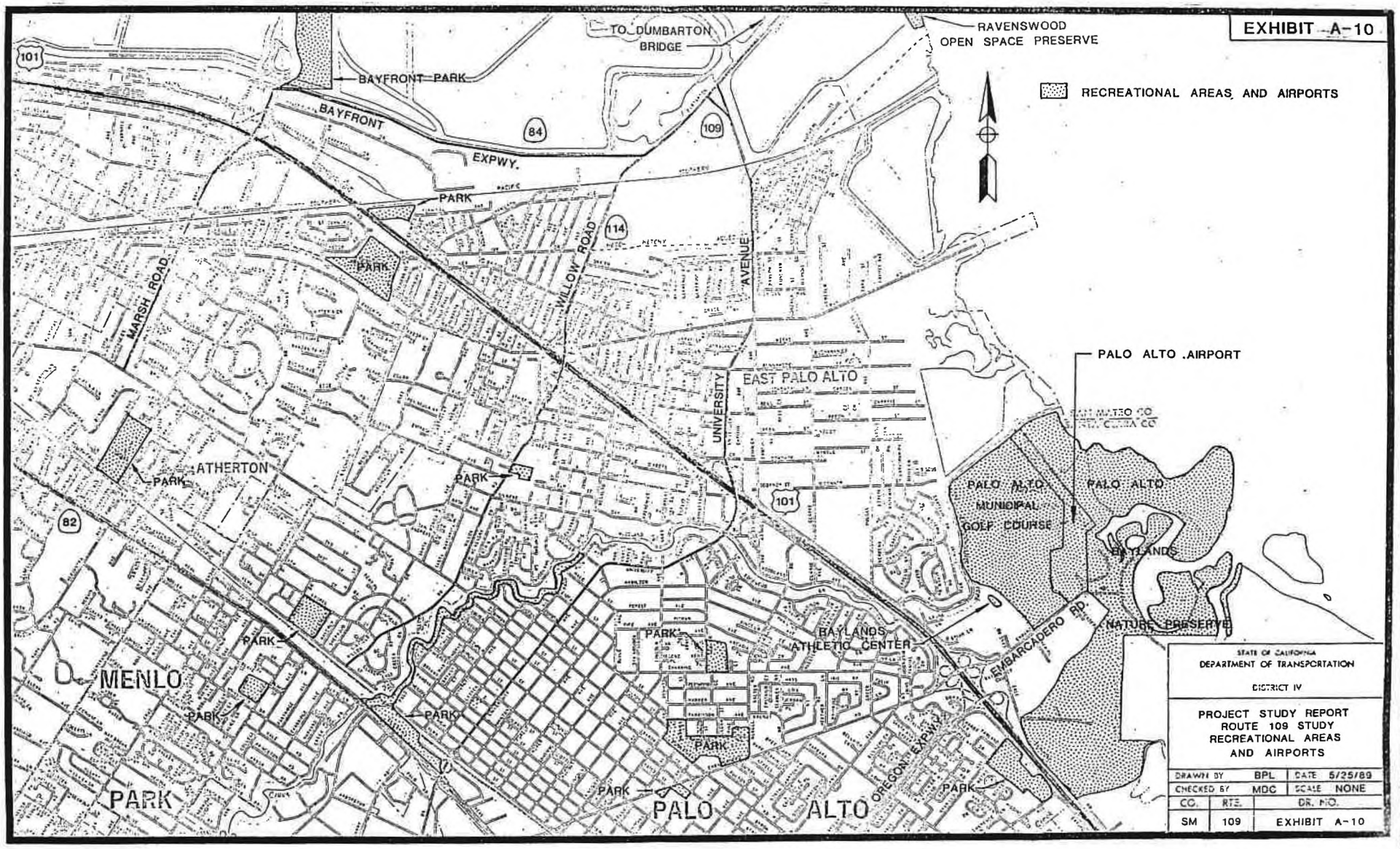
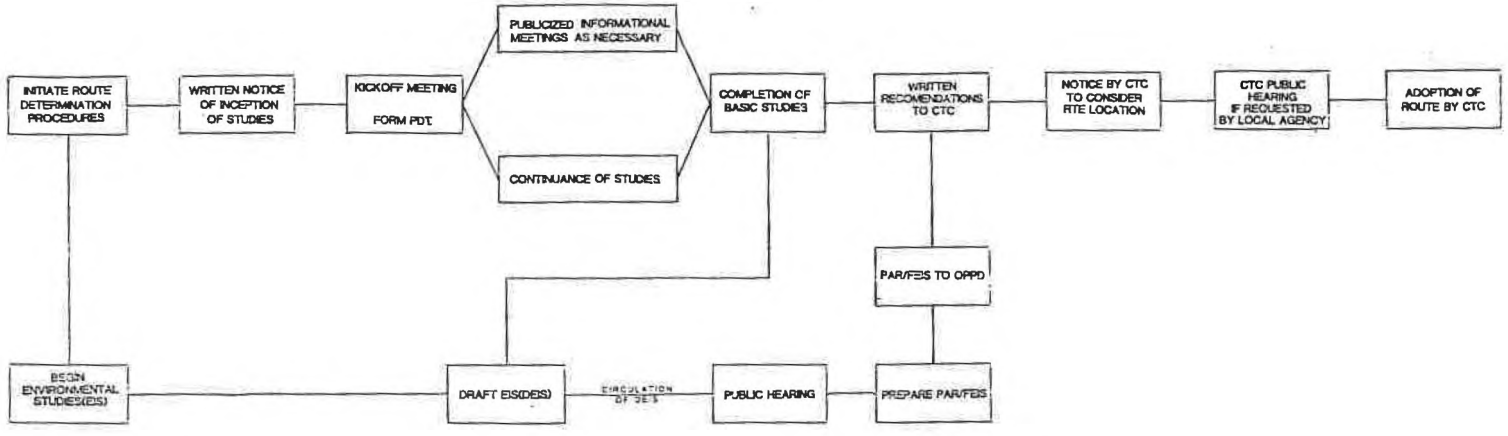


EXHIBIT A-10
RECREATIONAL AREAS AND AIRPORTS
TO DUMBARTON BRIDGE
RAVENSWOOD OPEN SPACE PRESERVE
BAYFRONT PARK
BAYFRONT EXPWY.
PARK
MARSH ROAD
WILLOW ROAD
UNIVERSITY AVENUE
EAST PALO ALTO
PALO ALTO AIRPORT
ATHERTON
PARK
PALO ALTO MUNICIPAL GOLF COURSE
PALO ALTO BAYLANDS NATURE PRESERVE
BAYLANDS ATHLETIC CENTER
EMBARCADERO RD.
MENLO PARK
PALO ALTO
OREGON EXPWY.
101
84
109
114
82
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DISTRICT IV
PROJECT STUDY REPORT
ROUTE 109 STUDY
RECREATIONAL AREAS AND AIRPORTS
DRAWN BY BPL DATE 5/25/89
CHECKED BY MDC SCALE NONE
CO. RTE. DR. NO.
SM 109 EXHIBIT A-10



PDT – Project Development Team
OPPD – Caltrans Office of Project Planning and Design
DEIS, FEIS – Draft and Final Environmental Impact Statement
PAR – Project Approval Report
CTC – California Transportation Commission

ROUTE DETERMINATION AND ADOPTION FLOW DIAGRAM
(FREEWAY OR CONTROLLED ACCESS HIGHWAY)