FINAL
MAY 07 1985

SUMMARY
Route Concept Report
Route I-580
ALA 0.07 to MRN 2.31

This report defines the concept for development of Route 580 in District 4 for a 20-year planning period (1985-2005)

ROUTE CONCEPT:

Segment A	Ala	0.07 - 8.27	8 lane freeway	C-45
Segment B	Ala	8.27 - 9.68	8 lane freeway	C-45
Segment B	Ala	9.68 - 20.73	10 lane freeway	D-35
Segment C	Ala	20.73 - 30.92	8 lane freeway	C-45
Segment D	Ala	30.92 - 45.15	8 lane freeway	F-25
Segment E	Ala	45.15 - 46.95	8 lane freeway	F-20
Segment F	See Route 80 Route Concept Report			
Segment G	CC	0.00 - 7.79	6 lane freeway	B-55
Segment H	MRN	0.00 - 2.31	6 lane freeway	D-40

CONCEPT RATIONALE:

Route 580 is a major east-west corridor between the Marin County and Livermore areas. It is a principal connector to the Central Valley from the bay area cities. There is heavy commuter traffic during AM and PM peak hours on most of this route.

Intensive development in eastern Alameda and Contra Costa Counties will cause a degradation of L.O.S. to "C" or "D" in that area. In the Hayward/Oakland areas an L.O.S. of "F" can be expected unless intensive usage of alternate modes is realized.

AREAS OF CONCERN

General:

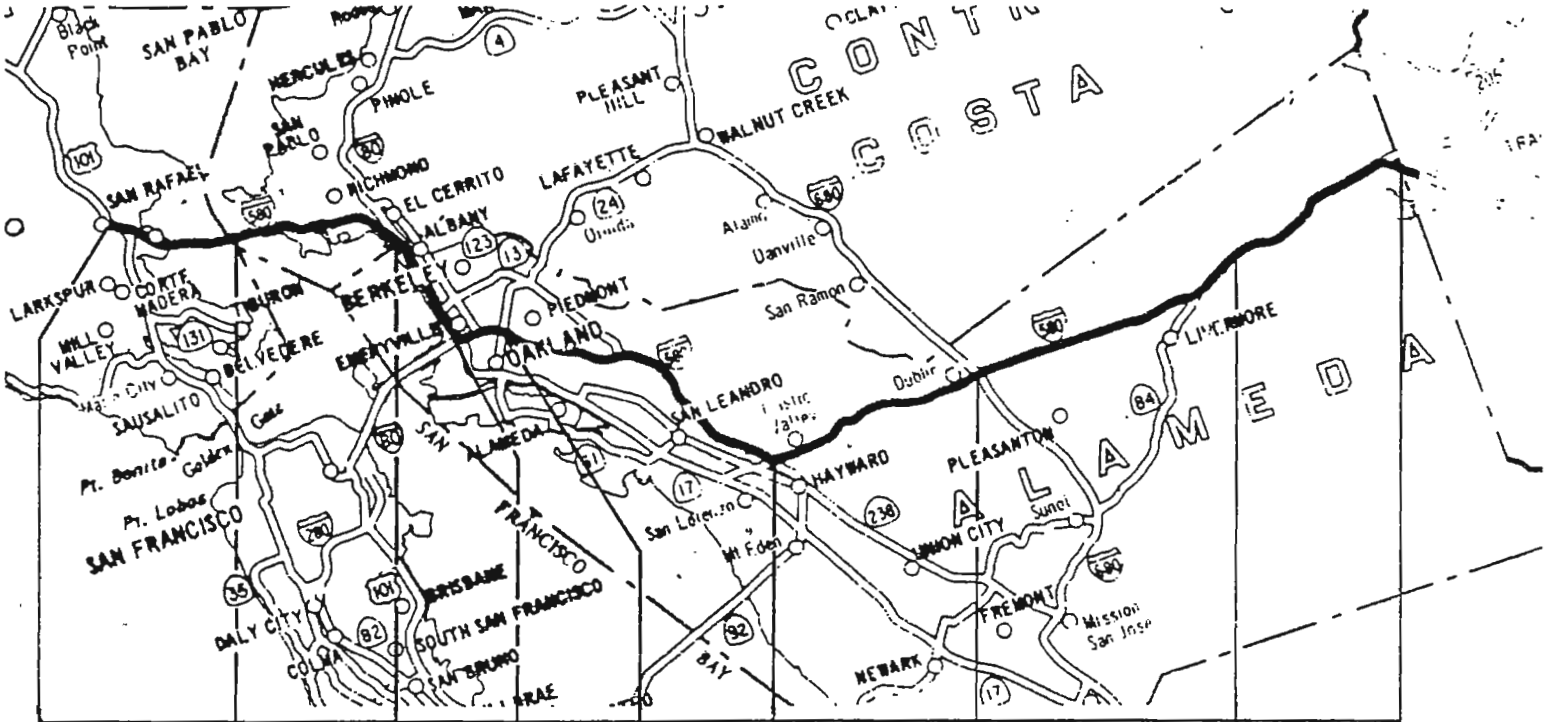
The portion of Route 580 between Route 238 and Route 80 is experiencing AM and PM congestion. This problem is particularly visible at Segment E where traffic from Route 24 is utilizing Route 580 en route to the SFOB Bridge and creates congestion near the Route 80/580 I/C. However, a potentially more severe congestion has been reduced or eliminated due to the prohibition of truck traffic in Segments E and D. This should prolong the life expectancy of the existing roadway structure but it might well have an adverse impact on Route 17 because of the increased concentration of truck traffic on it.

IMPROVEMENTS

Widen from 8 to 10 lanes from Vasco Rd. I/C to Rte. 680 I/C P.M. Ala 9.68 to Ala 20.73.

Widen from 4 to 6 lanes from Ala/CC Co. Line to Toll Plaza of Richmond/San Rafael Bridge. PM CC-0.0 to CC 5.52.

Widen from 4 to 6 lanes from CC/Mrn County Line to Route 101/580 I/C. P.M. Mrn 0.0 to Mrn 2.31.



H	G	F	E	D	C	B	A
MRN 2.31	MRN L 0.00	CC 7.79	CC 0.00	See Route 80 Concept Report	ALA 45.15	ALA 30.92	ALA 20.73	ALA R8.27	ALA 0.07

LOCATION MAP

Route 580

ROUTE CONCEPT REPORT

ROUTE 580

ALA 580 PM 0.07 to MRN 580 PM 2.31

Prepared under the direction of:

Cecil L. Smith 4/23/85

CECIL L. SMITH, Chief Date
Transportation Planning
District 4

Recommended Approval:

John Vostrez 4-30-85

JOHN VOSTREZ Date
Deputy District Director
Planning and Programming

I approve this Route Concept Report as the guide toward which today's decisions and/or recommendations should be directed.

Approved:

Burch C. Bachtold 5/7/85

BURCH C. BACHTOLD Date
District Director of
Transportation

Approved:

D.L. Wieman 9-22-86

D.L. WIEMAN, Chief Date
Division of Transportation
Planning

Approved:

Allan H. Hendrix

ALLAN HENDRIX, Chief Date
Division of Highways and
Programming

Approved:

Vince Paul 5/27/86

VINCE PAUL, Chief Date
Division of Project
Development

ROUTE CONCEPT REPORT
ROUTE I-580
ALA 0.07 to MRN 2.31

1. ROUTE DESCRIPTION

Route 580 is approximately 62 miles long and runs westerly from the Alameda/San Joaquin County line near the City of Tracy to the City of Hayward and then proceeds northerly to Marin County via the San Rafael-Richmond Bridge. It traverses Alameda, Contra Costa and Marin Counties. The section of this route from the Rte. 80 I/C in the City of Oakland to the Rte. 101 I/C in Marin County was designated Interstate Route 580 in Section 139-A of the Federal Transportation Act of 1983.

The statutes relating to the California Department of Transportation describes Route 580 as follows:

(a) from Interstate Route 5 southwest of Vernalis to Route 80 near Oakland.

(b) from Route 80 near Albany to Route 101 in Marin County via the Richmond-San Rafael Bridge. This portion was formerly designated I-180.

Route 580 is an 8 lane divided freeway from the Alameda/San Joaquin County Line (Segment A) to the Route 80 I/C (Segment E) in Emeryville. There is an HOV lane between the Route 24/580 I/C. in Oakland and Route 80 I/C (Distribution Structure) leading to the SFOB Bridge.

Route 580 is designated as a scenic highway in its entirety. It is in the SHELL (Subsystem of Highway for the movement of Extra Length permit Load), FAP (Federal Aid Primary) and Interstate Highway Systems.

Generally, Route 580 is classified as a major collector - urban/rural - freeway from the Livermore area to the Marin Co. area via the City of Oakland and it is an interregional connector between the San Joaquin Valley and the Bay Area (Ref. to Location Map).

II. PURPOSE OF ROUTE:

The general purpose of this route varies. However, it is a major access freeway to the SF/Oakland areas and a principal connector to the Central Valley via Routes 5 and 205 in San Joaquin County. Segments C-H serve as an urban arterial and there is heavy commuter usage in both directions. Trucks over 5 tons are prohibited between the Foothill Blvd./580 I/C and the Rte. 580/24 I/C. On the remaining portions of Route 580, there is heavy commuter usage with heavy interregional truck traffic. Route 580 will take on an increasing role as a commuter route in the Livermore Valley because of the residential and commercial development presently underway. It is therefore important to actively encourage maximum use of public transportation, staggered work hours, ridesharing, preferential treatment of alternative modes and other TSM measures.

ROUTE SEGMENTATION

A. Segment A: (Ala 580 - PM 0.07 - 8.27)

This segment is the beginning of the Route 580 corridor in District 4. It extends from the Ala/San Joaquin County Line near the City of Tracy to the Greenville Rd. I/C via Altamont Pass. It is a rural freeway from the Central Valley to the City of Livermore. It has a heavy usage by tourists and recreational vehicles. It is also a major trucking route.

1. Existing Facilities:

a. Highway

There is a 8-lane divided freeway from the San Joaquin/Alameda County line to the 580/205 I/C. There is an 8-lane divided freeway throughout the rest of the segment. It is in mountainous terrain with 4% grades in both the east and west directions.

1983 STIP Projects

F.Y. 1986/87	Rte. 580
P.M. R1.5/R6.9	Replace Broken Slabs - Install Edge Drain
P.M. R5.9/R8.0	Earthquake Restrainers
P.M. R6.8	Storm Damage Restoration

b. Public Transit:

There are limited AC Transit bus services in the Livermore-Pleasanton metropolitan areas.

c. Bicycle:

Bicycles on the freeway are prohibited. However, bicycle access is provided on Altamont Pass Road and through the City of Livermore.

d. Rail:

None.

e. Park-and-Ride:

There are no Park-and-Ride facilities on this segment.

2. Current Operating Conditions:

1982 AADT is 43,000 vehicles from west of Rte. 205 I/C to east of Greenville Rd. The morning peak hour volumes are 2,200 westbound and 2,400 eastbound. These volumes hold constant throughout the segment. The truck percentage is 18% with 12% during the peak hour. The V/C ratio is 0.29 and LOS is B-55.

3. Accident Rates:

From January 1981 to December 1983 a total of 176 accidents with 149 injuries and 5 deaths occurred within this Segment. 28.3% of the accidents happened on Saturday and Sunday. 58% of the accidents occurred between 7 AM and 7 PM Monday through Friday. 55% of accidents were eastbound and 44.8% were westbound. The accident rate for the past three years is below the statewide average for this type of facility.

4. Future Operating Conditions:

The projected AADT for 1995 is 49,000 west of Rte. 205 I/C and 51,000 east of Greenville Rd. For 2005 it is 61,000 west of Rte. 205 I/C and 62,000 east of Greenville Rd. The peak hour volume by 1995 will be 3,300 westbound and 2,700 eastbound. By the year 2005, it will be 4,000 westbound and 3,300 eastbound. The D/C ratio will be 0.43 with LOS "B" in 1995. In the year 2005 the D/C ratio will be 0.53 with LOS "C".

In evaluating these statistical projections, it should be kept in mind that there is considerable uncertainty about the magnitude and timing of future growth east of the East Bay Hills of Alameda and Contra Costa Counties. Based on growth studies by ABAG and regional travel studies by MTC for this area, (Ref. I-680/580 Corridor Study), the projections may prove to be conservative.

ABAG and an MTC I-680/I-580 Corridor Study have predicted significant residential and commercial growth in a study area which consists of Alameda and Contra Costa Counties east of the East Bay Hills. This growth will directly affect traffic concentrations on I-580 and the other commuting routes of the area (Routes 4, 24, 84, 242, and I-680). In the 20 year period between 1980 and 2000, the population of that region is projected to grow from 578,000 to 793,000 reflecting a 37% overall increase. The cities of Pittsburg, Antioch and Brentwood will see the most residential growth (about 87% increase) with other rapidly growing areas, including Livermore, Pleasanton and Dublin (about a 51% increase) and the San Ramon Valley (about a 36% increase). Almost half of this total growth (approximately 45,000 new households) will occur in the northern cities of Pittsburg, Antioch and Brentwood, and will be reflected in the form of medium and high cost housing. During the same time period, commercial development is expected to increase dramatically in the central and southern regions of the Study area, creating 156,000 new jobs (an 84% increase over 1980). More than half of the new jobs (80,000) are predicted for the vicinities of Livermore, Pleasanton, Dublin and San Ramon. These growth patterns will have the following future effects on highway use in this area.

1) Increased Work Trips within the Study Area. Since an intra-city highway system does not exist that would provide non-freeway connections between communities, I-680 and Routes 4, 24, 84, and 242 will be used by regional commuters to get to and from residences in the Pittsburg, Antioch and Brentwood areas to jobs located in Concord, Walnut Creek, Pleasanton, and other central and southern cities.

2) Increased Work Trips from the Study Area to Outlying Regions: Increased population in Contra Costa County will contribute to commuter traffic travelling southbound along I-680 to jobs in the South Bay Area. Outgoing traffic will also increase on I-580 and Route 24 as these routes provide access to the Oakland-Hayward areas.

3) Increased Work Trips into the Study Area from Outside Regions: The extensive commercial development in the San Ramon Valley and Livermore in combination with the high cost of housing in the residential sections of Contra Costa County will significantly increase the number of incoming commuters from the South and East Bay areas.

At the present, most interregional traffic, which includes a high percentage of trucks, travel through the I-680/I-580 corridor. Volume predictions for this corridor, especially I-680 are extremely high. Twelve to fourteen lanes would be required to achieve a Level of Service D-40 on most of this corridor. For this reason, an alternate path connecting Route 4 and I-580 should be investigated. Extending Routes 84 and 239 to a relocated Route 4, would be a practical solution.

In regards to this segment, the Route 4/239 Corridor would allow interregional travel to bypass Central Contra Costa County and I-580 from the 680 junction eastward to the County line. The 4/239 Corridor might also be used by commuters from the Pittsburg-Antioch-Brentwood area to the Livermore-Pleasanton area. In effect, the increase in traffic should come from the predicted future surge of commuters living in the Tracy and Pittsburg-Antioch-Brentwood communities commuting to work in the Livermore-Pleasanton area. The existing 8 lane freeway can then be expected to serve the needs in this segment for most of the next twenty years.

5. Route Concept:

With the extension of Route 239 and Route 84, the present 8-lane freeway will be sufficient for the needs of this segment. Without the extension, congestion in the future may be a definite problem. Conceptual LOS "C-45" is anticipated for this segment.

6. Improvements:

None.

B. Segment B: (Ala 580 - PM 8.27 - 20.73)

Segment B extends from the Greenville Rd. I/C to the Rte. 680 I/C near the City of Pleasanton. It is approximately 12 miles long. It serves as a major urban arterial for the City of Livermore and a connector to Santa Clara and Contra Costa Counties via Route 680.

1. Existing Facilities:

a. Highway

This portion of Route 580 is an 8-lane divided freeway. The grade and terrain are moderately flat.

1983 STIP Projects

P.M. R8.1/11.7	Replace Slab - Grnd Pave -ED Drain-AC Ovrly
P.M. R9.2/R9.3	Weigh-in-Motion Scale Facility
P.M. 10.1/20.4	Highway Planting
P.M. 10.4/11.0	Ramp Roadway Reconstruction
P.M. 11.7/16.0	Re. Br. Slab - Gr Pav-ED Drain - AC Ovrly
P.M. 19.8/20.0	Widen O/C, Relocate Ramps, Signals

b. Public Transit:

Limited bus routes are available between Livermore, Pleasanton and Dublin.

c. Bicycle:

No bicycle route is provided along the freeway. There is an existing bike route on Dublin Canyon Rd. which runs parallel to I-580 between Foothill Blvd. near the Rte. 680 I/C and East Castro Valley Blvd.

d. Rail:

No rail services.

e. Park-and-Ride:

60 and 50 space lots are proposed near Crow Canyon Rd. (PM 28.5) and Center St. (PM 29.1) near Castro Valley.

2. Current Operating Conditions:

1982 AADT ranges from 76,000 east of Palomares to 83,000 east of Strobridge Ave. AM peak traffic volume ranges from 3,200 east of Palomares to 4,800 vehicles east of San Ramon in the WB direction, and 2,200 east of Route 238 to 2,900 vehicles east of San Ramon in the EB direction. The truck percentage is 6% to 9% with a peak hour volume of 7%. The V/C ratio is 1.0 and LOS is F-25.

3. Accident Rates:

A total of 762 accidents occurred in this segment with 448 injuries and 15 deaths. The rate of accidents eastbound and westbound were almost the same. Less than 1% of the accidents were alcohol related. 80% of the accidents occurred Monday through Friday. 74% of the accidents occurred between 7 a.m. and 7 p.m. 11% of the accidents happened within ramp area, and 20% of the total accidents were on wet ground. This type of accident pattern would suggest a heavily congested facility. The accident rate for the past three years is below the statewide average for this type of facility.

4. Future Operating Conditions:

Projected 1995 AADT ranges from 91,000 east of Palomares to 97,000 east of Strobridge Ave. For the year 2005 AADT ranges between 109,000 to 113,000 vehicles. The peak hour volumes are 5,000 WB, 4,100 EB for the year 1995 and for the year 2005, the peak hour volumes are 5,200 WB and 6,100 EB. The 1995 D/C ratio is 0.64 with LOS C-45 and the year 2005 D/C ratio ranges from 0.51 to 0.80 with a LOS predominantly of C-45.

As development in the San Ramon/Dublin/Livermore area grows (see Segment A, Future Operating Conditions), traffic is expected to increase significantly through Dublin Canyon. These future commuters are expected to be travelling opposite that of the present ones allowing the facility to flow evenly and smoothly. This may turn out to be very conservative in view of the fact that this corridor is the only practical route connecting the East

These statistics may prove to be even more conservative than those of Segment A. As previously stated (see Segment A, Future Operating Conditions), the communities along this segment are predicted to increase dramatically in terms of residential and especially industrial development. A tremendous influx of commuters is expected from all directions, the majority coming from the north and south. The 580/680 I/C cannot realistically be improved to handle this type of volume and will become a serious congestion problem as will the I-680 corridor itself (see I-680 Route Concept Report). Alternate modes of transportation and rerouting of traffic will be imperative if these congestion problems are to be solved. Improvement of Route 84 from I-680 to I-580 and an extension of Route 239 and Route 84 to a relocated Route 4 should relieve enormous pressure from the 580/680 I/C and the I-680 corridor.

5. Route Concept:

Ten lanes will be needed from Vasco Rd. (Ala PM 9.68) to the Rte. 680 I/C, to achieve a conceptual LOS "D-35".

6. Improvements:

Widen from 8 to 10 lanes.

C. SEGMENT C: (Ala 580 - PM 20.73 - 30.92)

Segment C runs westerly from the Route 680 I/C to Route 238 I/C. It is approximately 10 miles long and there is heavy commuter and truck traffic. This portion of Route 580 serves as a principal connector between Route 680 and Interstate Route 880 which both lead to Santa Clara County. Congestion occurs at the Route 238/580 I/C (PM 30.92) where the existing north to east connection and a short weaving section causes problems during peak hours. This is also a major carrier for traffic to and from San Mateo County via the Hayward-San Mateo Bridge.

1. Existing Facilities:

a. Highway

There are 2 lanes in each direction with sub-standard shoulders and median. It is an urban arterial and a scenic route. Currently, construction to widen the existing roadway to an 8-lane divided freeway is underway. Segment C terrain has an average 3% grade.

1983 STIP PROJECTS

P.M. 21.0/T26.2	Install Edge Drain
P.M. T25.9/28.3	Plant Revegetation
P.M. 28.0/30.0	Replacement Planting
P.M. 29.3/R31.2	Roadway Reconstruction
P.M. 29.6/R31.7	Construct I/C, Widen, Park & Ride
P.M. 29.6/R31.7	Replacement Planting

b. Public Transit:

AC Transit service is available.

c. Bicycle:

Bicycles are prohibited on the freeway. The continuation of the Segment A bike route runs from Greenville I/C to the City of Dublin via Pleasanton on Stanley Blvd. There is also a short segment of bike route on North Hopyard Rd. to Dublin. The Lawrence Livermore National Laboratory actively promotes bicycle commuting in this corridor.

d. Rail:

None presently available; however, BART is currently studying the alternatives to extend service along this corridor.

e. Park-and-Ride:

Currently, there is no Park-and-Ride facility on this segment. However, a 40 space parking facility is proposed near Tassajara Rd. (PM 18.0). The PS&E is due by 12/87.

2. Current Operating Conditions:

1982 AADT ranges from 44,000 west of Greenville Rd. I/C to 79,000 east of Hopyard Rd. I/C. The peak hour volume is between 2,400 and 4,700 in the westbound direction and from 2,500 to 3,200 in the eastbound direction. The truck percent is between 14% to 18% with peak hour volume of 12%. The V/C ratio is 0.62 with LOS C-45.

3. Accident Rates:

553 accidents took place in this segment with 307 injuries and 7 deaths. 31.2% of the accidents occurred on Saturday and Sunday. 58% of the total accidents happened Monday through Friday and were between 7 a.m. and 7 p.m. 52% of the accidents were eastbound and 42% were westbound. The accident rate for the past three years is below the statewide average for this type of facility.

4. Future Operating Conditions:

The 1995 and 2005 AADT for this segment ranges from 51,000 east of Vasco Rd to 110,000 east of I-680 and from 66,000 to 131,000, at the same locations, respectively. The projected 1995 peak hour volumes are 6,500 east of Hopyard in the WB direction and 5,300 in the EB direction, whereas the Year 2005 peak hour volumes will be 7,600 east of Hopyard in the WB and 8,000 east of I-680 in the EB direction. The D/C ratios in 1995 and 2005 will be 0.86 and 1.05 with LOS D-35 and F-25.

Bay/Hayward area to the new development projected in the San Ramon/Dublin/Livermore area.

5. Route Concept:

The 8-lane freeway presently being completed should be adequate to achieve a conceptual LOS "C-45".

6. Route Improvements:

After the completion of the ongoing construction in Segment C, no highway improvements are contemplated. Efforts should be made to encourage use of transit and other modes.

D. Segment D: (Ala 580 - PM 30.92 - PM 45.15)

Segment D extends from the Route 238 I/C near Hayward to the Route 24 I/C in Oakland and is approximately 14 miles. It runs northerly through San Leandro and San Lorenzo to downtown Oakland. It serves mainly as a commuting corridor. No trucks are permitted.

1. Existing Facilities:

a. Highway

There are presently 4-5 lanes in each direction, paved shoulders and a concrete barrier median. It is an urban arterial highway and has a rolling grade.

1982 STIP Projects

P.M. R35.0/R45.7	Ramp Roadway Reconstruction
P.M. R40.1/R40.9	Sound Walls
P.M. R41.1/R41.2	School Noise Attenuation
P.M. R42.2/44.5	Sub-seal or Repl. Slab - E Drn - AC Overlay

b. Public Transit:

AC Transit provides service throughout this segment mainly between Oakland and San Leandro.

c. Bicycle:

No bicycles are allowed on the freeway. The existing MacArthur Blvd. which runs paralled to Rte. 580 is a suggested bike route.

d. Rail:

The Fremont line of BART parallels this segment.

e. Park-and-Ride:

There is an existing park-and-ride facility located at Fruitvale Avenue in Oakland.

2. Current Operating Conditions:

1982 AADT ranges from 83,000 east of 150th Ave. to 164,000 east of Lakeshore Ave. and the peak hour volumes are 6,500 and 5,400 vehicles WB and EB, east of Oakland/Harrison respectively. The V/C ratio is 0.84 with LOS of D-40.

3. Accident Rates: (1/81 to 12/83)

A total of 1,621 accidents with 9 fatalities and 1,237 injuries occurred within this segment. 26.4% of the accidents occur on Saturday and Sunday. 73.6% of the accidents happened Monday through Friday. 68% of the accidents occurred between 7 a.m. and 7 p.m. Eastbound and westbound rates were almost equal. The accident rate is below the statewide average.

4. Future Operating Conditions:

The projected 1995 AADT ranges from 97,000 west of Plaza Drive to 192,000 vehicles east of Lakeshore Ave. and for the year 2005 it ranges between 173,000 to 208,000 vehicles. The AM peak hour volumes for the year 1995 will be 11,900 northbound, 6,400 southbound. Level of service will be F-25 with D/C of 1.42. AM peak hour volumes for the year 2005 will be 12,800 NB and 6,900 southbound. Level of service will be F-25 with D/C east of Lakeshore of 1.54.

This segment of Route 580 was completed in the late 1960's. By that date, this area was already heavily developed so right of way costs were high. The existing design utilized massive retaining walls and many structures in order to reduce the right of way take. For this reason, our options are limited.

Between Golf Links Road (P.M. 36.34) to the Route 24 I/C (P.M. 45.15) we would need a 12 to 16 lane freeway to accommodate all projected traffic and achieve our target level of service of "D-35".

This target LOS is achievable only through increased utilization of transit and other alternate modes.

5. Route Concept:

Eight lane freeway. Without increased utilization of transit and other modes, the conceptual LOS F-25 would remain.

6. Route Improvements:

Provide HOV and auxiliary lanes wherever feasible.

E. Segment E: (Ala 580 - PM 45.15 - PM 46.95)

Segment E extends from the Route 24 I/C in Oakland to the Route 80 I/C (Distribution structures) in Emeryville. There is very heavy commuter traffic during AM and PM peak hours. The major traffic flows are towards SFOB Bridge where operational difficulties are severe.

1. Existing Facilities:

a. Highway

There are 4 lanes in each direction, paved shoulders and a concrete barrier median. Segment E is an urban arterial and has a flat grade and terrain. This segment is an elevated freeway.

1983 STIP Projects

P.M. 45.2/46.9 High Occupancy Vehicle Lane
P.M. 45.2/46.9 Reversable High Occupancy Vehicle Lane
P.M. 46.0/46.1 Widen Bridge

b. Public Transit:

There is AC Transit bus service between the Oakland area and the SF metropolitan area.

c. Bicycle:

No bicycles are allowed on this segment.

d. Rail:

BART train services are very frequent, especially during the morning and afternoon peak hours.

e. Park-and-Ride:

There is an available parking lot at SFOB Bridge.

2. Current Operating Conditions:

The 1982 AADT ranges from 158,000 east of Route 80/17 junction to 148,000 west of Route 24 junction with about 6,400 vehicles during AM peak hour westbound and 5,300 eastbound. The V/C ratio is 0.84 with LOS F-25.

3. Accident Rates:

A total of 360 accidents occurred in this segment with 3 fatalities and 193 injuries. 72.4% of the accidents took place Monday through Friday. 68% of the total accidents were from 7 a.m. to 7 p.m. 32.7% of the accidents occurred in the eastbound direction compared to 67.2% in the westbound direction. The rate of accidents in September and November were higher than other months. The accident rate is below the statewide average.

4. Future Operating Conditions:

Year 1995 AADT will vary from 151,000 east of Route 123 junction to 169,000 east of Route 80/17 and for the year 2005 it varies from 164,000 to 187,000. Traffic volumes projectd for 1995 (WB) is 10,100 and 5,400 (EB). Year 2005 projections are 10,900 (WB) and 5,900 (EB). The projected D/C ratio for 1995 is 1.33 with LOS F-25 and for the year 2005 the D/C ratio is 1.43 with LOS F-20. Twelve to fourteen lanes will be required to provide the target level of service of D-40.

5. Route Concept:

Eight lane freeway. The conceptual LOS would be "F-20" if there is no significant increase in use of transit and alternative modes.

6. Route Improvements:

Route 580 is an 8-lane freeway and because it is entirely on structure, no improvements are presently contemplated. However, operational difficulties in this segment will likely worsen since demand is growing. The existing HOV lane will reach capacity by 2005.

F. Segment F: (04-Ala 580 - PM 46.95 - 47.85)

Segment F is from the Route 80 I/C in Emeryville to the Alameda/Contra Costa County line. Segments F, G and H are primarily used for commuter traffic and as a connector to Route 101. Segment F is contiguous with Route 80.

This segment will be discussed in the Route 80 Route Concept Report.

The route concept for this segment is a 10 lane freeway and provision of an HOV lane. Conceptual LOS "F-20". For more details, see Segment B of the Route 80 Route Concept Report.

G. Segment G: (04-CC-580 PM 0.0 - 7.79)

Segment G extends from the Alameda/Contra Costa County Line to the Contra Costa/Marin County Line on the Richmond/San Rafael Bridge.

1. Existing Facilities

a. Highway Facility

There are 2 lanes in each direction from the Alameda/Contra Costa County Line to Garrard Blvd. and 3 lanes in each direction from Garrard Blvd. to the west end of the San Rafael Bridge. The width of existing shoulder and median are variable.

1983 STIP Projects:

FY 83/84 CC 17
PM 0.0/3.0 A/C resurfacing
PM 0.2/1.9 6 lane freeway (Unit 1)
PM 1.2/1.7 Frontage Road
PM 2.2/2.3 Reconstruct street
PM 2.8/3.0 Reconstruct street
PM 5.9/6.0 Strengthen bridge and bike path
PM 6.1/7.8 Bridge water line improvements
PM 6.2/7.8 Install airline and compressors, expansion joint repairs
PM 6.6/7.8 Improve maintenance access
PM 7.3/7.5 Fog detectors and replace foghorns

FY 84/85 CC 17
PM 1.1/1.2 Construct access road and bridge
PM 1.6/T4.5 6 lane freeway (Unit 2)
PM 2.8/3.0 Widening, channelization and signals
PM 5.6/5.7 Widen shoulder (both sides), modify retaining wall
PM 5.7/5.8 Rehabilitate deck, widen UC permit upgrade
PM 6.2/7.7 Replace main channel fenders
PM 6.3/7.7 Traveler Rail System

FY 85/86 CC 17
PM 0.7/1.6 Highway Planting
PM 2.2/2.3 Reconstruct street
PM 2.7/T5.0 6 lane freeway (Unit 3)
PM 3.5/4.1 Cul-de-Sacs and street connections
PM 6.0/7.7 Replace lighting
PM 6.1/7.8 Resurface upper deck - Stage I

FY 86/87 CC 17
PM T4.7/6.2 6 lane freeway (Unit 5)
PM 6.3/7.8 Install corrosion system - phase II
PM 7.3/7.5 Renovate timber fenders, secondary

FY 87/88 CC 17
PM 0.0/1.2 Reconstruct I/C, replace structure
PM 6.1/7.7 Resurface lower deck - Stage 2
PM 6.1/7.7 Replace main channel fenders

FY 88/89 CC 17
PM 6.0/7.7 Replace scourred material - chan pier
PM 6.0/7.7 Upper dick column replacement

b. Public Transit:

AC Transit serves the Richmond area. Travelers Transit operates a van service between San Rafael and Richmond.

c. Bicycle:

There is an available bicycle lane on the frontage road along the Route 80/880 corridor. Bicycle access is expected to be provided between Route 80 and the Bridge Toll Plaza area as part of the I-580 project. Travelers Transit will carry bicycles across the bridge.

d. Park-and-Ride:

There are joint use lots near the Routes 17/80 Separation.

e. Rail:

The Bay Area Rapid Transit (BART) line is runs to and from Richmond.

2. Current Operating Conditions:

1982 AADT values between the Route 80/17 intersection and west end of San Rafael Bridge ranges from 52,000 to 33,000. EB peak hour volume ranges from 2,600 to 1,200 and WB peak hour volume ranges from 2,300 to 1,600. The V/C ratio at the Route 80 junction is 1.0 with LOS E-35 whereas the V/C ratio at the San Rafael Bridge is 0.4 with LOS A-55.

3. Accident Rates:

The peak accident days of the week were Monday through Friday. 51.2% of the total accidents were on the northbound lanes. The peak accident hours are between 7-8 a.m. and 4-5 p.m. There were a total of 321 accidents, 284 injuries and 4 deaths.

Total accident and fatality rates are below the statewide average.

4. Future Operating Condition

Projected 1995 and 2005 AADT is 38,000 and 42,000 at the Richmond-San Rafael Bridge Toll Plaza. Forecast EB and WB peak hour volumes for 1995 are 2,600 and 1,800 and for the year 2005 are 3,000 and 2,000, at the Toll Plaza, respectively. Similarly, the D/C ratios are 0.5 with LOS B-55 at the same location.

5. Route Concept

At the present there are 6 lanes on the Richmond-San Rafael Bridge. However, only 4 lanes are presently in use. The post-STIP 6-lane facility would achieve a conceptual LOS "B-55".

6. Improvements

Since there is an extra lane available on the bridge, widen (by striping) the existing 4 lanes to 6 lanes.

H. Segment H: (04-Mrn-580 - PM 0.0 - 2.31)

Segment H extends from the CC/Mrn County Line to the Route 101 junction near the City of San Rafael.

1. Existing Facilities

a. Highway Facility

There are 2-3 lanes in each direction along this segment. The existing width of shoulder and median is variable.

Projects

The CTC has authorized a special study to be conducted on the I-580/101 interchange to evaluate needs and proposed improvements.

b. Public Transit

Traveler's Transit operates 15 passenger vans across the bridge.

c. Bicycle

Traveler's Transit will shuttle bicycles on their vans.

d. Park-and-Ride

No facility.

e. Rail

No available rail services.

2. Current Operating Conditions

1982 AADT varies from 25,500 east of Bellam Blvd. to 34,000 east of Sir Frances Drake. The WB peak hour volume is 1,700 and EB is 2,200. The V/C ratio is 0.6 with LOS C-50.

The City of San Rafael has also identified P.M. 2.02 to 2.31 as operating at a LOS "F" during the P.M. peak due to the limited ability of Highway 101 to accept traffic.

Analysis conducted by the City of San Rafael also show the interchange at Bellam Blvd. to operate at lower LOS than the trunk line conditions, which would impact the overall operation along this portion of the segment.

3. Accident Rate (1/81 - 12/83)

There were 96 accidents on this segment during the last three years. Most accidents occur on the weekends with 61 injuries. 73.9% of the total accidents involved were in the northbound lanes. The accident rates are below the statewide average.

Total fatality rate is zero and the total accident rate is 0.60. This accident rate is below the statewide average.

4. Future Operating Condition

Projected 1995 varies from 31,00 east of Bellam to 42,000 east of Sir Francis Drake. Year 2005 traffic volumes varies from 33,000-45,000 at the same locations. Forecasted EB and WB peak hour volumes are 2,800 and 1,900 for 1995 and 3,300 and 2,200 for year 2005. Similarly, the D/C ratios are 0.7 with LOS C-50 and 0.9 with LOS D-40 for the year 1995 and 2005. According to the City of San Rafael's evaluation of development potential, these projections may be understated.

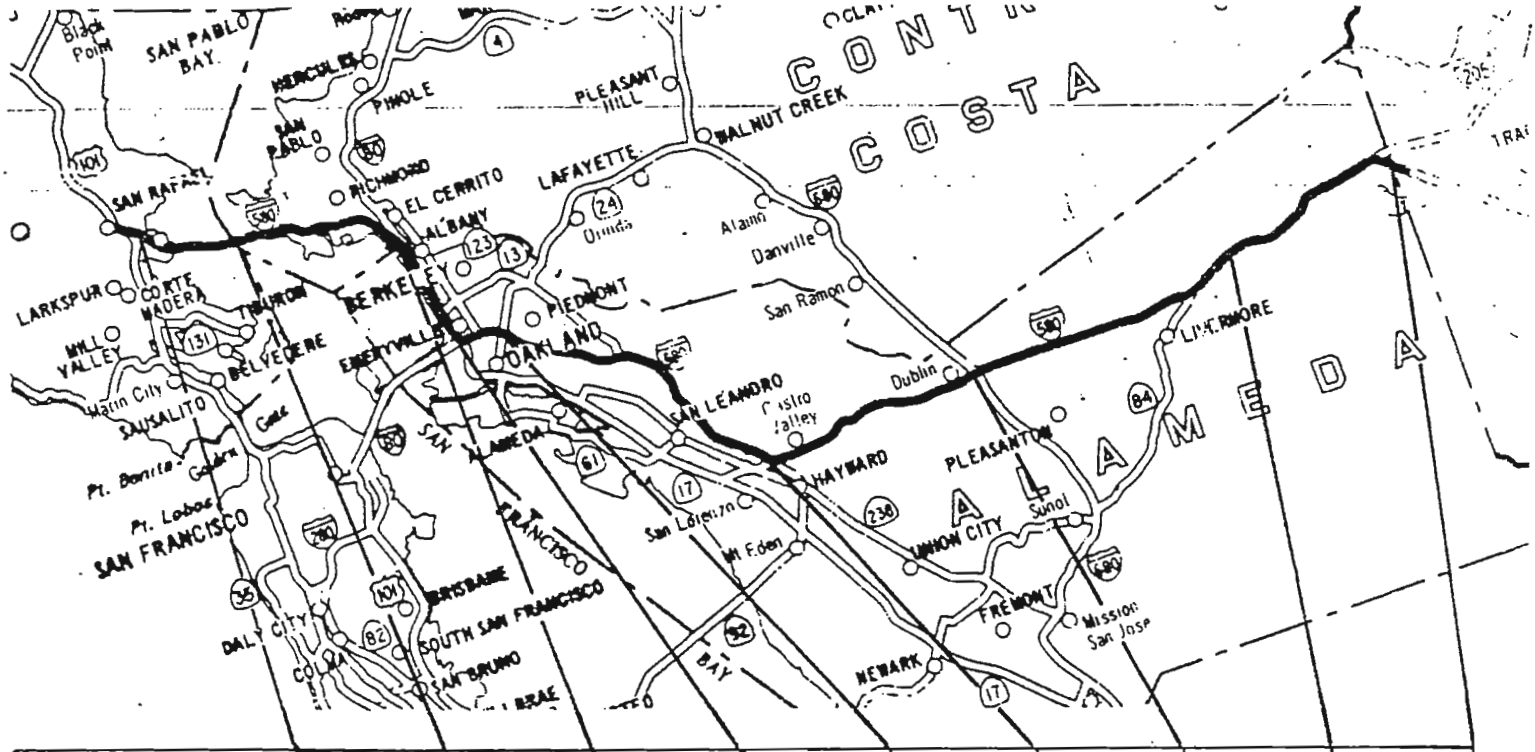
5. Route Concept

6 lanes are needed from CC/Mrn County line to Route 101/580 I/C, with a conceptual LOS "D-40".

6. Improvements

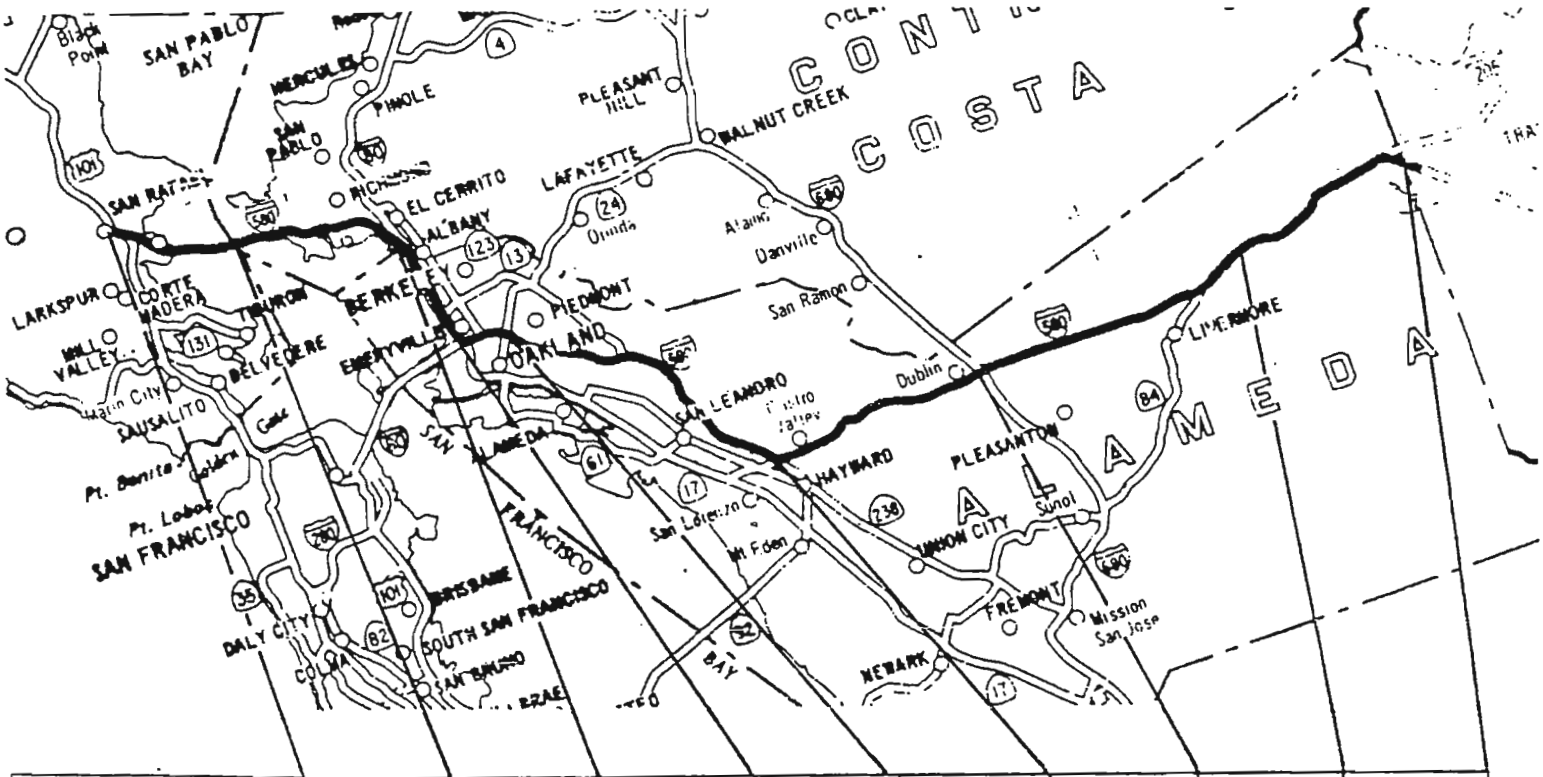
Restripe the San Rafael Bridge to provide 6 lanes. Widen the existing 4 lanes to 6 lanes between the end of the San Rafael Bridge and the Route 101 I/C.

The I-580/101 freeway to freeway connection from westbound I-580 to southbound 101 is provided by Sir Francis Drake Blvd., a local 2 lane street. This has impacted both local and freeway movement. Reconstruction of Route 101/580 I/C should be investigated.



SEGMENT		MRN 2.31 H MRN L 0.00	CC 7.79 G CC 0.00	F	ALA 45.15 E	ALA 30.92 D	ALA 20.73 C	ALA R8.27 B	ALA 0.07 A
NO. OF LANES NO BUILD	PRESENT	4-6	4-6	See Route 80 Concept Report	8	8-10	4	8	8
	1995	4-6	4-6		8	8-10	8	8	8
	2005	4-6	4-6		8	8-10	8	8	8
LEVEL OF SERVICE NO BUILD	PRESENT	C-50	E-30,A-55		F-25	D-40	F-25	C-45	B-55
	1995	C-50	B-50		F-25	F-25	C-45	D-35	B-55
	2005	D-40	B-50		F-25	F-20	C-45	F-25	C-45
TERRAIN		FLAT	FLAT		FLAT	ROLLING	M	FLAT	M
GRADES		0-3%	0-3%		0-3%	3-6%	3%	0-3%	4%
ACTUAL	Accidents Per MVM	0.6	0.94		1.26	0.85	0.78	0.54	0.44
	Fatalities Per MVM	0.000	0.011		0.010	0.004	0.016	0.007	0.010

EXHIBIT A



SEGMENT		MRN 2.31 H	MRN L0.00 CC 7.79 G	CC 0.00 F	ALA 45.15 E	ALA 30.92 D	ALA 20.73 C	ALA R8.27 B	ALA 0.07 A
A.A.D.T. (000)	1982	34	52	See Route 80 Concept Report	158	164	83	79	43
	1995	42	62		169	192	97	110	51
	2005	45	67		187	208	113	131	62
P.H.V. (00)	1982	22	26		64	65	48	47	24
	1995	28	40		101	119	50	65	33
	2005	33	43		109	128	61	80	40
AVE. HWY SPEED		70	70		70	70	70	70	70
OPERATING SPEED		55	47		35	41	31	55	53
V/C	1982	0.6	1.0		0.84	0.84	1.0	0.62	0.29
	1995	0.7	0.5		1.33	1.42	0.64	0.86	0.43
	2005	0.9	0.5		1.43	1.54	0.80	1.05	0.53
YEAR CAPACITY WILL BE REACHED									

EXHIBIT B

EXHIBIT C

ROUTE 580 ACCIDENT REPORT BETWEEN 1/81 AND 12/83

Location P.M.	Segment No.	No. of Accidents Total	Fatal	Inj	F+I	Person Killed	Person Injured	Accident Rate* Fatal	F+I	Total	Statewide Rate** Fatal	F+I	Total
Ala 0.09 to 8.27	A	175	4	93	97	4	149	0.010	0.24	0.44	0.015	0.20	0.47
Ala 8.27 to 20.73	B	485	7	168	175	7	263	0.007	0.19	0.54	0.012	0.27	0.68
Ala 20.73 to 30.92	C	679	14	259	273	14	411	0.016	0.31	0.78	0.022	0.40	0.97
Ala 30.92 TO 45.15	D	1283	9	739	743	10	1212	0.004	0.40	0.85	0.010	0.40	1.07
Ala 45.15 to 46.95	E	369	3	133	136	4	199	0.010	0.46	1.26	0.011	0.46	1.22
	F	See	Route 80 Route Concept Report										
CC 0.00 to 7.79	G	321	4	185	189	4	284	0.011	0.55	0.94	0.021	1.07	2.82
MRN 0.00 to 2.30	H	96	0	44	44	0	61	0.000	0.27	0.60	0.009	0.26	0.68

* Rates are mvm (million vehicle miles).

** Statewide averages for this type of facility in comparable terrain.

EXHIBIT D

EXISTING FACILITY (HIGHWAY)

Route Segment	County	From PM	To PM	Segment Length (Miles)	Traveled Way Width (Feet)	Number of Lanes	Shoulder Width (Feet)	Median Width (Feet)
A	Ala	0.07	8.27	8.20	24-69	4F,8F	0-22	20 →
B	Ala	8.27	20.73	12.46	48-66	8F	0-22	36-50
C	Ala	20.73	30.92	10.19	24-60	8F	0-11	8-80
D	Ala	30.92	45.15	14.23	24-90	8F	0-13	11-36
E	Ala	45.15	46.95	1.80	36-90	6F,8F	0-10	22
F	See Route 80 Route Concept Report							
G	CC	0.00	7.79	7.79	24-49	4C,6F	0-10	0 →
H	MRN	0.00	2.31	2.31	24-40	4F,6F	0-8	10 →

EXHIBIT E

TRAVEL DEMAND PROJECTS METHODOLOGY (ABSTRACT)

1995 & 2005 Demand Person Trips Projections
34 X 34 ABAG/MTC Region Superdistricts Matrix
Computer-Assisted Four-Step Conventional Gravity
Model. (Housing & Employment based on ABAG's
"Projections 83")

December 1983

INTRODUCTION: This modeling procedure developed traffic volume expansion factors and applied them to "census" volumes ("1980 Traffic Volumes on California State Highways") of State Highway segments at ABAG/MTC superdistrict (SD) borders (screenlines).

These projected 1995 and 2005 volumes were the basis for projecting volumes on all mainline segments for the 1983/84 "Route Concept Reports."

In essence, this methodology is consistent with the elements of the conventional "four-step" procedure for travel demand forecasting as summarized in the FHWA/UMTA outline for UTPS models and as described in the NCHRP guide for urban travel estimations ("Quick Response").

SUMMARY: Criteria and methods used in each one of the four "steps":

1. Trip Generation: Based on ABAG projections per 34 MTC "superdistrict." Productions per MTC-observed person trips produced and households; attractions per employment (and housing), adjusted to observed attractions.

2. Trip Distribution: Based on zonal trips produced and attracted, distribution factors based on travel times, and calibration factors derived from MTC-observed vs. simulated 1980 trip interchanges.

3. Assignment: Based on zonal trip interchanges, "fastest path" criteria and experience of travel patterns.

4. Modal Split: Implied; it was assumed that, on the segments evaluated, modal percentages and occupancy rates would remain essentially unchanged.

ASSUMPTIONS: The following parameters would remain essentially unchanged between 1980 and 2005:

1. Trip production rates, as functions of the number of households and their superdistrict of location.

2. Trip attraction rates and adjustment factors, as functions of jobs, housing units and superdistrict of location.

3. Speeds: Change in corridor speeds may be proportional to region-wide speed changes, or may differ without significantly affecting distribution or assignment.

4. Time vs. Distribution Factor Functions, and Calibration Factors. Increased socio-economic densities vs. higher fleet efficiencies and/or real earnings would have compensatory effects on trip lengths.

EXPLANATION TO TRAFFIC VOLUME TABLES

COLUMN	DESCRIPTION
SEGMENT	Description of the Route Segment
CO	County Abbreviations
MILE POST	Mile Post in County
AADT	Annual Average Daily Traffic Count
AM PK	Morning Peak Hour Traffic
AH	Volumes Ahead Direction
BK	Volumes Back Direction
NO L	Number of Lanes (Existing) One Direction
V/C	Volume/Capacity: Ratio Volume Traffic to Max. No. of Traffic/Hr.
LOS	Level of Service According to the Functional Classification of the Route Relative to the Terrain and Facility
LN	Number of Lanes Needed to Meet LOS "D" One Direction/Urban
	Number of Lanes Needed to Meet LOS "B" One Direction/Rural
% Truck AADT	Truck % of Average Annual Daily Traffic Count
% Truck PK HR	Truck % at Peak Hour

This chart indicates the relationship between Level of Service and minimum operating speed for a given facility type.

Assigned Level of Service	Facility Type	Minimum Operating Speed
B	Freeways, expressways, or multilane conventional highways	55 MPH
B	Two-lane conventional highways	50 MPH
C	Freeways or expressways	50 MPH
C	Multilane conventional highways	45 MPH
C-45	Two-lane conventional highways	45 MPH
C	Two-lane conventional highway	40 MPH
D	Freeways or expressways	40 MPH
D	Conventional highways	35 MPH
D	Conventional highways with controlling traffic signals	15-30 MPH*

* This condition is shown on the tabulation of route segments under the "LOS" headings as D35.

Operating level of service on a roadway is a measure of the speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort, convenience, and operating cost. A roadway designed for a certain level of service will actually operate at different levels throughout the day. The level of service on a roadway varies inversely as some function of the traffic volume.

TRAFFIC VOLUMES See explanation of symbols on following page

a b c m n o p q x y z $ r s t x y z $ u v w x y z $

1983/1984 ROUTE CONCEPT STUDY — TRUCK % — 1982 — 1995 — 2005

ROUTE 580

SEGMENT	CO	MILE POST	DESCRIPTION	AA DT	PK HR	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN
	ALA	0.07	San Joaquin/Alameda																							
				18	12	16	8	9	4	0.12	A	4	19	12	10	4	0.16	A	4	24	15	12	4	0.20	A	4
		0.42	Jct Rte 205 East																							
				18	12	43	22	24	4	0.29	B	4	49	32	26	4	0.42	B	4	61	39	32	4	0.51	C	5
A		R1.48	Grant Line Rd I/C																							
				18	12	43	22	24	4	0.29	B	4	51	33	27	4	0.43	B	4	62	40	33	4	0.53	C	5
		R5.93	No. Flynn Rd I/C																							
				18	12	43	22	24	4	0.29	B	4	51	33	27	4	0.43	B	4	62	40	33	4	0.53	C	5
		R8.27	Greenville Rd I/C																							
				18	12	44	24	25	4	0.32	B	4	51	35	29	4	0.46	B	4	66	43	35	4	0.57	C	5
		9.68	Vasco Rd I/C																							
				15	10	53	29	29	4	0.38	B	4	64	45	37	4	0.59	C	5	83	56	46	4	0.74	D	6
		10.69	Jct Rte 84																							
				15	10	48	27	28	4	0.36	B	4	63	51	42	4	0.67	C	6	80	67	54	4	0.88	E	7
		12.53	No. Livermore Blvd I/C																							
				15	10	50	28	25	4	0.37	B	4	62	42	34	4	0.55	C	4	78	54	45	4	0.71	C	4
		13.22	Portola Ave I/C																							
				15	10	69	39	28	4	0.51	C	4	89	55	45	4	0.72	D	4	112	71	58	4	0.93	E	5
B		14.98	Airway Blvd I/C																							
				15	10	72	42	29	4	0.55	C	4	95	59	48	4	0.78	D	4	120	69	69	4	0.91	E	5

TRAFFIC VOLUMES See explanation of symbols on following page

a b c m n o p q x y z $ r s t x y z $ u v w x y z $

1983/1984 ROUTE CONCEPT STUDY — TRUCK % — 1982 — 1995 — 2005

ROUTE 580

SEGMENT	CO	MILE POST	DESCRIPTION	AA DT	PK HR	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN
		16.70	El Charro Rd I/C																							
				15	10	74	44	30	4	0.58	C	4	96	60	49	4	0.79	D	4	122	70	70	4	0.92	E	5
		17.95	Tassajara Rd I/C																							
				14	10	79	47	32	4	0.62	C	4	104	65	53	4	0.86	D	4	131	76	76	4	1.0	E	5
		19.86	Hopyard Rd I/C																							
				14	10	77	46	31	4	0.61	C	4	110	64	53	4	0.84	D	4	131	66	80	4	1.05	F	5
		20.73	Jct Rte 680																							
				9	7	79	48	29	5	0.51	C	4	91	50	41	5	0.53	C	5	110	50	61	5	0.80	D	5
		R21.43	San Ramon Rd I/C																							
				8	6	76	32	28	4	0.42	B	4	91	47	38	4	0.62	C	4	109	46	56	4	0.74	C	4
		T26.24	Palomares/Eden Canyon																							
				8	6	76	33	26	2	0.87	F	2	95	48	39	4	0.63	C	4	110	46	56	4	0.74	C	4
		28.98	Crow Canyon/Castro Valley																							
C				7	5	83	39	25	2	1.0	F	3	97	49	40	4	0.64	C	4	113	52	52	4	0.68	C	4
		30.36	Strobridge Ave Conn																							
				6	4	81	38	22	2	1.0	F	3	95	46	37	5	0.48	B	5	110	48	48	5	0.51	C	5
		30.92	Jct Rte 238																							
				1	1	94	44	33	4	0.58	C	4	104	59	39	4/5	0.78	D	4	122	59	48	4/5	0.78	D	5
		R31.71	163rd/164th I/C																							
D				1	1	94	44	33	4	0.58	C	4	107	60	40	4	0.79	D	4	125	60	49	4	0.79	D	4

TRAFFIC VOLUMES See explanation of symbols on following page

a b c m n o p q x y z $ r s t x y z $ u v w x y z $

1983/1984 ROUTE CONCEPT STUDY TRUCK % 1982 1995 2005

ROUTE 580

SEGMENT	CO	MILE POST	DESCRIPTION	AA DT	PK HR	AA DT	AM AH	PK BK	NO L	V/C	LOS	AA DT	AM AH	PK BK	NO L	V/C	LOS	AA DT	AM AH	PK BK	NO L	V/C	LOS
	ALA	R32.72	Plaza Dr I/C																				
				1	1	83	31	30	4	0.54	C 4	97	56	37	4	0.74	C 4	113	56	46	4	0.74	C 4
		R32.84	150th Ave I/C																				
				1	1	103	44	36	4	0.58	C 4	121	68	46	4	0.89	D 4	141	68	56	4	0.89	D 4
		R33.43	Benedict Dr Conn																				
				1	1	101	42	35	4	0.55	C 4	116	66	44	4	0.87	D 4	136	65	53	4	0.86	D 4
		R33.94	Grand Ave I/C																				
				1	1	95	38	33	4	0.50	C 4	110	63	42	4	0.83	D 4	129	62	51	4	0.82	D 4
		R34.48	Estudillo Ave I/C																				
				1	1	99	39	36	4	0.51	C 4	115	59	48	4	0.78	D 4	131	61	61	4	0.80	D 4
		R35.11	Foothill Blvd I/C																				
				1	1	94	36	36	4	0.47	B 4	114	60	49	4	0.79	D 4	123	59	59	4	0.78	D 4
		R35.71	106th Ave I/C																				
D				1	1	107	40	40	4	0.53	C 4	126	65	53	4	0.86	D 4	136	64	64	4	0.84	D 4
		R36.34	Golf Links Rd I/C																				
				1	1	109	39	41	4	0.51	C 4	127	67	55	4	0.88	D 4	138	72	59	4	0.95	E 5
		R37.80	Keller Ave I/C																				
				1	1	115	40	44	4	0.53	C 4	136	77	51	4	1.01	F 5	147	77	63	4	1.01	F 5
		R38.31	Edwards Ave I/C																				
				1	1	133	45	50	4	0.65	C 4	155	88	59	4	1.16	F 6	168	95	63	4	1.25	F 6

TRAFFIC VOLUMES See explanation of symbols on following page

a b c m n o p q x y z $ r s t x y z $ u v w x y z $

1983/1984 ROUTE CONCEPT STUDY TRUCK % 1982 1995 2005

ROUTE 580

SEGMENT	CO	MILE POST	DESCRIPTION	AA DT	PK HR	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN
		R38.92	Kuhnle Ave I/C	1	1	127	44	48	4	0.63	C	4	148	84	56	4	1.11	F	5	160	91	61	4	1.20	F	6
		R39.24	Jct Rte 13 North	1	1	104	36	35	4	0.47	B	4	114	71	38	4	0.93	E	5	123	77	41	4	1.01	F	5
		R39.91	MacArthur Blvd I/C	1	1	111	39	37	4	0.51	C	4	121	74	40	4	0.97	E	5	131	80	43	4	1.05	F	5
		R40.08	High St I/C	1	1	123	44	41	4	0.58	C	4	139	86	46	4	1.13	F	6	151	93	50	4	1.22	F	6
		R40.65	35th Ave I/C	1	1	142	52	47	5	0.55	C	4	162	100	54	5	1.05	F	6	175	108	58	5	1.42	F	7
		R41.14	Coolidge Ave I/C	1	1	129	48	43	4	0.63	C	4	144	89	48	4	1.17	F	6	156	96	52	4	1.26	F	6
		R41.43	Fruitvale Ave I/C	1	1	151	57	50	4	0.75	C	4	175	108	58	4	1.42	F	7	190	117	63	4	1.54	F	7
		R42.18	Bruce St I/C	1	1	134	51	45	4	0.67	C	4	152	94	51	4	1.24	F	6	165	102	55	4	1.34	F	6
		42.67	Park Blvd I/C	1	1	164	64	54	4/5	0.84	D	4	192	119	64	5/4	1.25	F	7	208	128	69	5/4	1.35	F	8
		43.48	Lakeshore Ave I/C	1	1	140	55	47	4	0.72	C	4	162	100	54	4	1.32	F	6	175	108	58	4	1.42	F	7

TRAFFIC VOLUMES See explanation of symbols on following page

a b c m n o p q x y z $ r s t x y z $ u v w x y z $

1983/1984 ROUTE CONCEPT STUDY TRUCK % 1982 1995 2005

ROUTE 580

SEGMENT	CO	MILE POST	DESCRIPTION	AA DT	PK HR	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN
	ALA	43.75	Van Buren/Grand																							
				1	1	162	65	54	5	0.68	C	5	187	116	63	5	1.22	F	7	203	126	68	5	1.33	F	8
		44.28	Oakland/Harrison																							
				1	1	143	57	47	5	0.60	C	5	161	99	53	5	1.04	F	6	174	107	58	5	1.41	F	7
		45.15	Jct Rte 24																							
				2	1	148	60	49	4	0.79	F	4	151	94	50	4	1.24	F	6	164	101	55	4	1.33	F	6
		45.99	Jct Rte 123																							
E				2	1	158	64	53	4	0.84	F	4	169	101	54	4	1.33	F	6	187	109	59	4	1.43	F	7
		46.95	Jct Rte 80/17																							
F																										
		51.48	No. Jct Rte 80																							
				20	10	52	21	24	2	0.9	E	3	60	21	40	3	0.7	C	3	63	23	43	3	0.8	C	3
	CC	0.22	Central Ave I/C																							
				20	10	52	23	26	2	1.0	E	3	62	25	37	3	0.7	C	2	67	27	40	3	0.7	C	3
		1.67	47th Street																							
				20	10	46	23	14	2	0.5	C	2	56	25	31	3	0.5	B	2	60	27	33	3	0.6	C	2
			(Several Intersections)																							
				20	10	39	20	12	2	0.5	B	2	47	23	23	3	0.4	B	2	50	25	25	3	0.4	B	2
		2.69	25th/Potrero																							
				20	10	36	18	12	2	0.5	B	2	44	20	24	3	0.4	B	2	48	23	28	3	0.5	B	2

TRAFFIC VOLUMES See explanation of symbols on following page

a b c m n o p q x y z $ r s t x y z $ u v w x y z $

1983/1984 ROUTE CONCEPT STUDY TRUCK % 1982 1995 2005

ROUTE 580

SEGMENT	CO	MILE POST	DESCRIPTION	AA DT	PK HR	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN
			(Several Intersections)	20	10	34	15	13	2	0.5	B	2	42	17	25	3	0.4	B	2	45	19	29	3	0.5	B	2
		3.78	Hoffman/Cutting	20	10	44	21	16	2	0.6	C	2	53	22	34	3	0.6	C	2	57	26	39	3	0.7	C	3
			(Several Intersections	21	10	38	18	15	2	0.6	C	2	45	19	29	3	0.5	B	2	49	22	33	3	0.6	C	3
G		4.52	Cutting/Canal	22	11	37	20	15	2	0.6	C	2	43	20	25	3	0.4	B	2	46	24	29	3	0.5	B	2
			(Several Intersections)	23	11	36	19	16	2	0.6	C	2	42	22	22	3	0.4	B	2	45	26	26	3	0.5	B	2
		4.85	Garrard Blvd	13	6	36	19	17	3	0.7	C	2	44	21	26	3	0.5	B	2	48	24	30	3	0.5	B	2
		5.43	Marine St I/C	12	6	34	16	20	3	0.4	A	2	42	18	27	3	0.5	B	2	45	20	31	3	0.5	B	2
		6.01	Western Dr I/C	11	5	33	16	20	3	0.4	A	2	39	17	26	3	0.5	B	2	42	20	30	3	0.5	B	2
		6.13	East End R-SR Br Toll Plaza	11	5	33	16	20	3	0.4	A	2	38	18	26	3	0.5	B	2	42	20	30	3	0.5	B	2

TRAFFIC VOLUMES See explanation of symbols on following page

a b c m n o p q x y z $ r s t x y z $ u v w x y z $

1983/1984 ROUTE CONCEPT STUDY TRUCK % 1982 1995 2005

ROUTE 580

SEGMENT	CO	MILE POST	DESCRIPTION	AA DT	PK HR	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN	AA DT	AM AH	PK BK	NO L	V/C	LOS	LN
		7.79	Contra Costa County																							
	MRN	L0.00	Marin County (Richmond North City Limit)																							
				11	5	33	16	20	3	0.4	A	2	38	18	26	3	0.5	B	2	42	20	30	3	0.5	C	2
		L2.48	San Rafael, West																							
		0.00	End Richmond-San Rafael Bridge																							
				11	5	32.5	16	20	3	0.4	A	2	39	17	25	3	0.4	B	2	42	20	29	3	0.5	C	2
H		0.16	San Rafael San Quentin I/C																							
				11	5	34	17	21	3	0.4	B	2	42	18	28	3	0.5	B	2	45	21	32	3	0.6	C	2
		0.16	Sir Frances Drake Blvd I/C																							
				9	4	25.5	14	17	2	0.5	B	2	31	15	22	2	0.6	C	2	33	17	26	2	0.7	C	2
		2.02	Bellam Blvd I/C																							
				9	4	32	17	22	2	0.6	C	2	39	19	28	2	0.7	C	2	42	22	33	2	0.9	D	2
		2.31	Jct Rte 101 Fwy																							

Route 580

Exhibit F

COMPARISON OF FUTURE LOS WITH ROUTE CONCEPT

SEGMENT	NO. LANES/LOS			ROUTE CONCEPT		NEEDS	
	1982	1995	2005	Proposed Lanes	LOS	Lanes	Target LOS
A ALA 0.07-8.27	8/B	8/B	8/C	8	C-45	10	B-55
B ALA 8.27-20.73	8/C	8/D	8/F	10	D-35	14	B-55
C ALA 20.73-30.92	4/F	8/C	8/C	8	C-45	10	D-40
D ALA 30.92-45.15	8-10/D	8-10/F	8-10/F	8-10	F-25	16	D-40
E ALA 45.15-46.95	8/F	8/F	8/F	8	F-20	14	D-40
F		SEE	RTE	80	RCR		
G CC 0.00-7.79	4-6/A-55 E-30	4-6/B	4-6/B	6	B-55	6	B-55
H MRN 0.00-2.31	4-6/C-50	4-6/C	4-6/D	6	D-40	6	D-40