ROUTE CONCEPT REPORT
DISTRICT 8

OCTOBER 1989

The SR-91 concept is currently being updated and this report should be used for historical purposes only.

ROUTE 91

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

Ken Steele — 10-25-89

KEN STEELE
District Director
of Transportation
District 8

Date

Al Hudgens — 10/13/89

AL HUDGENS
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Date

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ROBERT SASSAMAN
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Date

The SR-91 concept is currently being updated and this report should be used for historical purposes only.

Route Concept Report Summary
Route 91
08-Riv-R0.0/21.7

ROUTE CONCEPT (2010)

Provide Level of Service (LOS) F0 (up to one hour of congestion during peak hours). Measure "A" funding (1/2 cent sales tax) makes this concept realistically attainable.

IMPROVEMENTS NECESSARY TO ATTAIN THE ROUTE CONCEPT

o Add two lanes (preferably HOV lanes) to the existing facility.

o Establish commuter rail between Riverside and Orange Counties.

o Implement Long Range Operations Plan (LROP).

- Corridor Traffic Management
- Transportation Management Associations (TMA's)
- Freeway Metering (HOV Bypass)
- Park 'N Ride

ULTIMATE FREEWAY FACILITY

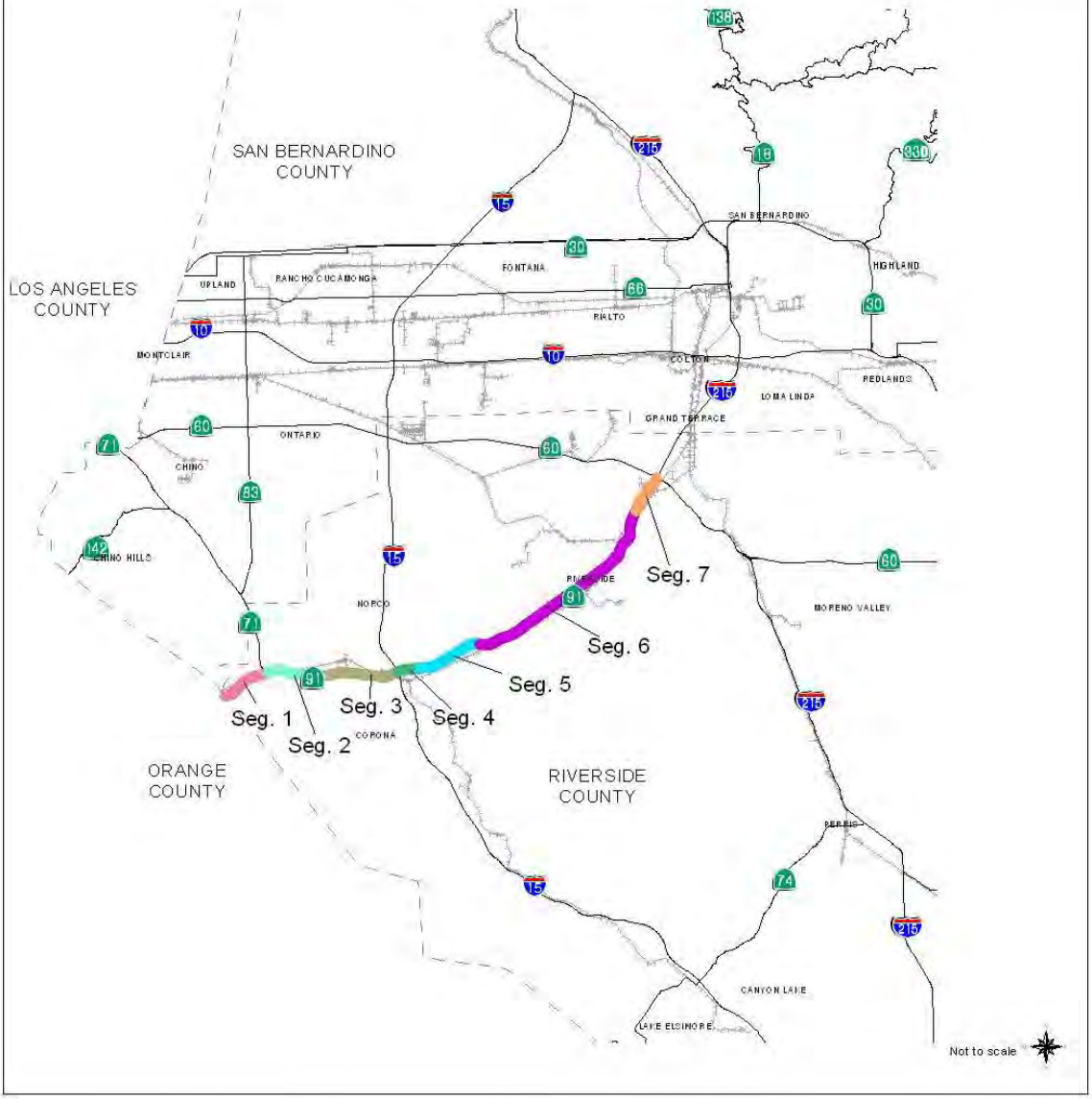
The Ultimate Route 91 freeway will be developed to a 10-lane facility with auxiliary lanes provided where feasible. Maintaining the Concept LOS beyond 2010 will require development of new parallel transportation corridors.

DEFICIENCIES AND IMPROVEMENTS

SEGMENTS	EXISTING FACILITY	1988 LOS	NO BUILD 2010 LOS	CONCEPT FACILITY	CONCEPT 2010 LOS
Orange Co. Line to Rte. 15	8F	F2	F3	10F	F0
Rte. 15 to P.M. 8.4	8F	F1	F2	10F	F0
P.M. 8.4 to Magnolia Ave.	6F	F1	F3	8F	F0
Magnolia Ave. to 14th St.	6F	E	F3	8F	F0
14th St. to 60/91/215	6F	F0	F3	8F	F0

STATE ROUTE 91
SEGMENT MAP

Caltrans DISTRICT 8

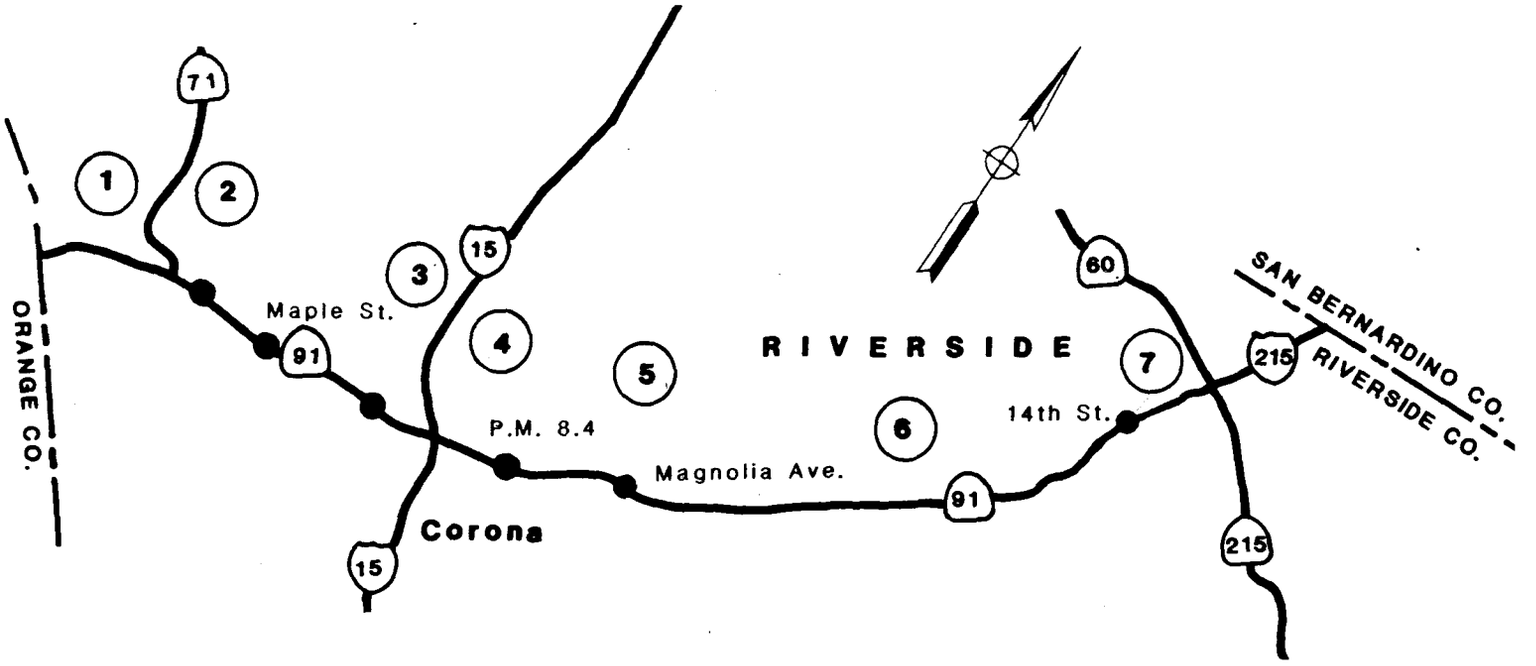


Seg.	Description
1.	Orange/Riverside County Line to Jct. SR-71
2.	Jct. SR-71 to Maple Street Interchange
3.	Maple Street Interchange to Jct. I-15
4.	Jct. I-15 to 0.8 miles west of McKinley Street
5.	0.8 miles west of McKinley Street to Magnolia Avenue
6.	Magnolia Avenue to 14th Street Interchange
7.	14th Street Interchange to Jct. SR-60/I-215
	Rail
	County Line

March 2007

PRESENT AND FUTURE OPERATING CONDITIONS

State of California
Business and Transportation Agency
Department of Transportation
DISTRICT 8



	1	2	3	4	5	6	7
PRESENT (1988)							
Counties & segments	Riv-91.01	Riv-91.02	Riv-91.03	Riv-91.04	Riv-91.05	Riv-91.06	Riv-91.07
Segment Post Miles	R0.0-R2.1	R2.1-4.2	4.2-7.5	7.5-8.4	8.4-11.1	11.1-20.0	20.0-21.7
Type of Facility	Freeway	Freeway	Freeway	Freeway	Freeway	Freeway	Freeway
Number of Lanes	8	8	8	8	6	6	6
Number of Passing Lanes	None	None	None	None	None	None	None
Number of Auxiliary Lanes	R2.6-R3.3 WB	None	None	None	None	13.2-13.6 EB 18.0-18.3 EB & WB	215 EB & WB
Number of HOV Lanes	None	None	None	None	None	None	None
Number of Truck Climbing Lanes	None	None	None	None	None	None	None
Traveled way	48'	48'	48'	48'	36'	36'	36'
Total Shoulder Width							
OUTSIDE	10'	10'	8' to 11'	8'	8'	8'	8'
INSIDE	8'	8'	0'	5'	5'	5' to 10'	5'
Median Width	46'	22' to 46'	22'	22' to 48'	22' to 46'	20' to 22'	20'
Terrain	Rolling	Rolling	Rolling	Flat	Flat	Flat	Flat
Highway Gradeline	Rolling	Rolling	Rolling	Flat	Flat	Flat	Flat
AADT	174,000	166,000	168,000	149,000	142,000	153,000	157,000
Peak Hour Volume	15,660	14,940	14,490	13,783	13,135	11,475	12,560
Directional Split	65%	65%	70%	60%	60%	50%	55%
V/C or D/C Ratio	1.43	1.36	1.42	1.33	1.35	.98	1.17
Level of Service	F2	F2	F2	F1	F1	E	F0
Actual 3 Yr. Average Accident Rate	.59	.74	1.15	.85	.76	.94	1.77
Expected 3 Yr. Average Accident Rate	.84	.84	.84	.80	1.08	1.11	1.13
Bicycle ADT	100	100	100	Unk.	Unk.	Unk.	Unk.
No. of Nearby Park-N-Ride Lots	0	0	1	0	0	1	0
% of Truck in the Peak Hour	3.5	3.5	3.7	2.6	2.6	1.9	1.9
Auto Occupancy Rate	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Transit Centers	0	0	0	0	0	0	1
Rail	0	0	0	0	0	0	0
FUTURE (2010) No-Build							
AADT	325,000	325,000	289,000	247,000	221,000	216,000	206,000
Peak Hour Volume	24,375	24,375	21,675	20,378	18,233	17,820	17,510
Directional Split	55%	55%	55%	55%	55%	55%	55%
V/C or D/C Ratio	1.66	1.66	1.59	1.37	1.64	1.58%	1.56%
LOS	F3	F3	F3	F2	F3	F3	F3
% of Trucks in Peak Hr.	4%	4%	4%	3%	3%	2%	2%
Auto Occupancy Rate	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Transit Centers	0	0	0	0	0	0	1
Commuter Rate	0	0	0	0	0	0	0
Concept LOS	F0	F0	F0	F0	F0	F0	F0

STATEMENT OF PLANNING INTENT

The Route Concept Report (RCR) is a planning document which describes the Department's basic approach to development of a given route. Considering reasonable financial constraints, corridor geometrics, and projected travel demand over a 20-year planning period, the RCR defines an appropriate type of facility and level of service (LOS) for each route. The objective of the effort is to provide a better basis for the development of the State Transportation Improvement Program and to determine the appropriate concept for future highway projects.

Route Concept Reports are prepared by District staff in cooperation with local and regional agencies. They will be updated as necessary as conditions change or new information is obtained.

Route Concept Reports are a preliminary planning phase document that leads to subsequent programming and the project development process. As such, the specific nature of proposed improvements (i.e., roadway width, number of lanes, access control, etc.) may change in later project development stages, with final determinations made during the project report and design phases. Roadway widths, as discussed in Route Concept Reports, are used for the purpose of estimating improvement costs, and may change depending upon operating conditions and design standards at the time of actual project development.

Purposes for RCR's include:

- Providing the basis for Caltrans input into the Regional Transportation planning process.
- Providing non-highway, e.g., TSM and demand management solutions to highway problems.
- Providing the basis for analyzing local/developer requests for highway improvements.
- Providing long-range system objectives for guiding short-term route improvement decisions for which the RCR and local agency circulation elements of general plans would be compatible.
- Identifying and guiding protection of long-term right-of-way needs.
- Facilitating a District management consensus on priorities, and to use that consensus to emphasize those priorities in candidate lists and to Headquarters on Proposed State Transportation Improvement Program (PSTIP) development.

ASSUMPTIONS

The following assumptions form the basis for the development of Route Concept Reports:

1. The relative importance of State highways in the District can generally be established based on the functional classification of the routes. In general, higher priorities will be given to major improvements on principal arterial routes as compared to minor arterials and collectors.

2. A realistic concept LOS must be established for each route (generally Principal Arterials), in order to have route concepts and route development plans which are possible to achieve, i.e. forecast of future revenues, right of way constraints, and political climate. A concept LOS is not established on routes which will only be rehabilitated and/or maintained.

3. Level of service and capacity calculations are based on the 1985 Highway Capacity Manual. Previous Route Concept Report level of service and capacity calculations were based on the 1965 Highway Capacity Manual.

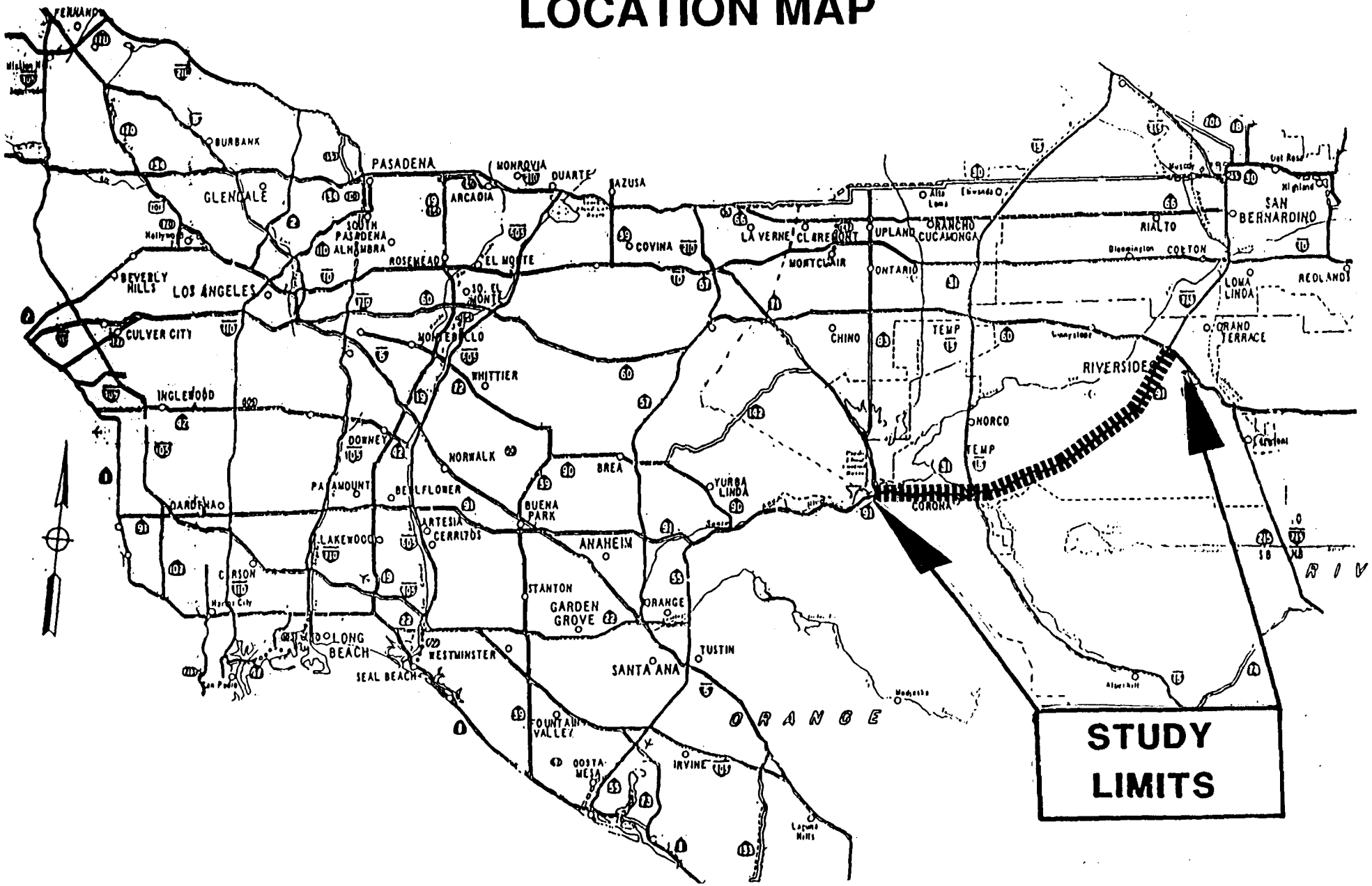
4. Determinations of future LOS for the routes in District 8 are based upon Statewide and District forecasts of State highway travel developed by Caltrans and the Southern California Association of Governments (SCAG).

5. Route concepts are generally uniform for an entire route, unless there is a major change in function or number of lanes along the route.

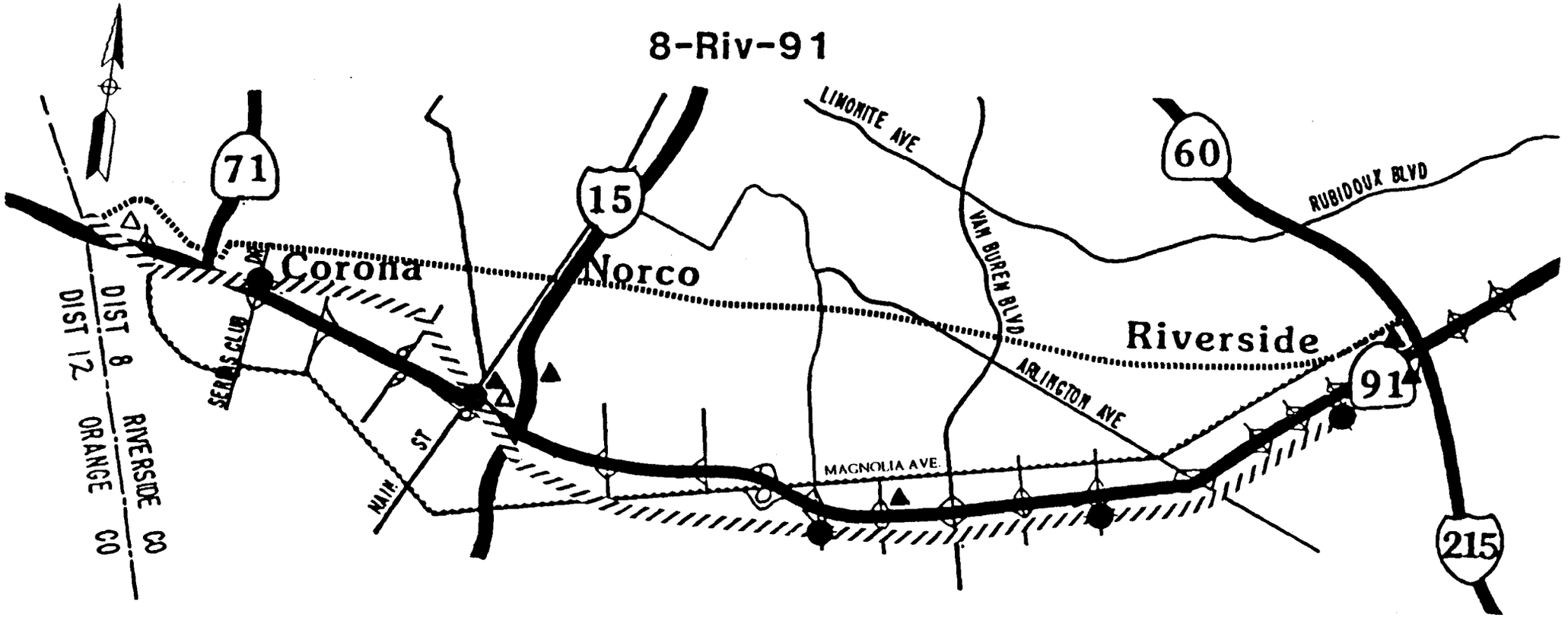
6. Major projects will be developed to meet standards acceptable to the Federal Highway Administration in order to receive Federal funding for projects. Otherwise, a "design exception" will be prepared during the project development process.

7. For all routes, safety projects will be pursued on an on-going basis in order to be responsive to safety problems as they are identified.

LOCATION MAP



TRANSPORTATION CORRIDOR CONCEPT



LEGEND

- PROPOSED HIGH FLOW ARTERIAL
- PROPOSED COMMUTER RAIL LINE
- BIKE TRAIL
- PROPOSED COMMUTER RAIL LINE STATIONS
- PARK 'N RIDE LOTS
- PROPOSED PARK 'N RIDE LOTS

ROUTE DESCRIPTION

Route 91 begins in Los Angeles County at Route 1 in Hermosa Beach, traverses Orange County and terminates in Riverside County at the junction of Routes 60, 91, and I-215 in the City of Riverside.

In District 8, Route 91 begins at the Riverside/Orange County Line (PM R0.0), two miles west of the junction with Route 71, intersects I-15 in Corona, and terminates at the junction of Routes 60, 91, and I-215 (PM 21.7), a length of 21.7 miles.

Route 91 is divided into the following segments:

	Segment	Limits
1	R0.0/R2.1	Orange County Line to Route 71
2	R2.1/4.2	Rte. 71 to Maple St.
3	4.2/7.5	Maple St. to Rte. 15
4	7.5/8.4	Rte. 15 to 0.9 miles east of McKinley St.
5	8.4/11.1	0.9 miles east of McKinley St. to Magnolia Ave.
6	11.1/20.0	Magnolia Ave. to 14th St.
7	20.0/21.7	14th St. to 60/91/215 Interchange

ROUTE PURPOSE

Route 91 is a Federal Aid Primary (FAP) Route, functionally classified as an Urban Principal Arterial, and is part of the California Freeway and Expressway System. The primary purpose of this route is to provide for interregional and commute travel with the secondary purpose of serving intraregional/local and recreational travel. The route is part of the Federal Surface Transportation Assistance Act designated route for oversized trucks (STAA), as well as an eligible scenic highway within District 8 from the Riverside/Orange County Line to Route 15 near Corona.

Route 91 is the only east-west freeway that links San Bernardino/Riverside, an area of more affordable housing, to employment centers in Orange County and southern Los Angeles/Long Beach. As such, Route 91 is an essential link in Southern California's economy.

ROUTE CONCEPT

The year 2010 concept for Route 91 is to provide a Level of Service (LOS) F0. This means accepting up to one hour of congestion (speeds dropping below 30 m.p.h.) during the weekday peak periods. Caltrans and Federal functional classifications recommend LOS D (peak hour minimum speeds of 40 m.p.h.) as the standard for Urban Principal arterials; however, consideration of

reasonable financial constraints, corridor geometrics and high travel demand make this standard unrealistically attainable over the planning period. While the concept F0 is adopted for programming purposes, route segments operating below LOS D are considered deficient for planning purposes.

ALTERNATIVE CONCEPTS CONSIDERED

1. Lower Concept

   The route currently operates at LOS F for up to three hours at various locations during both the morning and evening peak periods and is projected to deteriorate to F3 by 2010 for virtually the entire route. This LOS is unacceptable given the importance of Route 91 to the Riverside area commuters employed in Orange and Los Angeles Counties as well as the impact on the regional economy.

2. Higher Concept (LOS D)

   The higher concept, while desirable as stated previously, was rejected on the grounds of high costs associated with needed improvements to handle traffic demand. New parallel corridors, which will reduce travel demand on Route 91 will be a more cost effective alternative for attaining a higher LOS.

ROUTE ANALYSIS

Land Use

Route 91 through the Cities of Riverside and Corona largely consists of residential units broken up by sections of retail businesses, commercial districts, offices, and open space. Industrial centers are located between Corona and Riverside, and near the 60/91/215 Interchange.

Future traffic demand will develop from the combination of several contributing factors. For instance, both central business districts of Corona and Riverside are designated as redevelopment areas and significant growth is anticipated. Another contributing factor is the burgeoning population. Specifically, the present San Bernardino/Riverside Counties combined population of 2.2 million is forecasted to exceed 4 million by the year 2010. In Orange County, the present population of 2 million is projected to exceed 2.8 million by 2010. Figure 1 shows the traffic trend for Route 91.

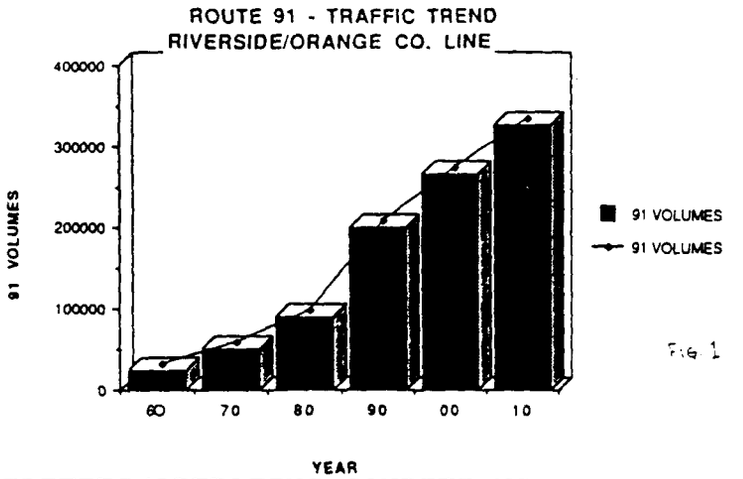


Fig 1

EXISTING FACILITIES/OPERATING CONDITIONS

Segment	Post Miles	Freeway Lanes	1988 AADT	*Operating LOS
1	R0.0/R2.1	8	174000	F2
2	R2.1/4.2	8	166000	F2
3	4.2/7.5	8	161000	F2
4	7.5/8.4	8	149000	F1
5	8.4/11.1	6	142000	F1
6	11.1/20.0	6	153000	E
7	20.0/21.7	6	157000	F0

*Based on Actual Observations by Traffic Operations. (See Figure 2 below).

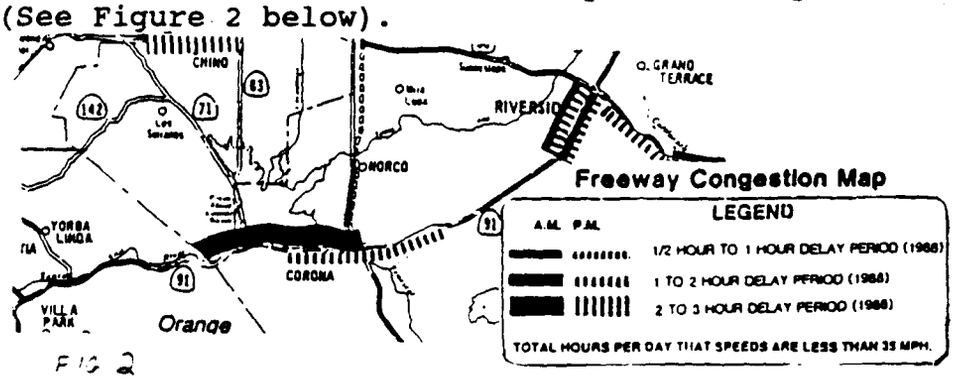


Fig 2

Accident Rates

An average of safety statistics for the most recent three year period show the following accident rates** for Route 91.

Segment	Post Mile	Actual Rate Total	Expected Rate Total
1	R0.0/R2.1	.59	.84
2	R2.1/4.2	.74	.84
3	4.2/7.5	1.15	.84
4	7.5/8.4	.85	.80
5	8.4/11.1	.76	1.08
6	11.1/20.0	.94	1.11
7	20.0/21.7	1.77	1.13

**Accidents per million vehicle miles.

EXISTING AND FUTURE DEFICIENCIES

2010 Operating Levels

Segment	Post Miles	2010 AADT	1988 LOS	2010 LOS (No Build)	Concept LOS
1	R0.0/R2.1	325,000	F2	F3	F0
2	R2.1/4.2	325,000	F2	F3	F0
3	4.2/7.5	289,000	F2	F3	F0
4	7.5/8.4	247,000	F1	F2	F0
5	8.4/11.1	221,000	F1	F3	F0
6	11.1/20.0	216,000	E	F3	F0
7	20.0/21.7	206,000	F0	F3	F0

IMPROVEMENTS NECESSARY TO ATTAIN THE ROUTE CONCEPT

Segment	Existing Lanes(1988)	Required Lanes (2010)	Additional Lanes Needed	Length (Miles)
1	8	10	2	2.1
2	8	10	2	2.1
3	8	10	2	3.3
4	8	10	2	0.9
5	6	8	2	2.7
6	6	8	2	8.9
7	6	8	2	1.7

HOV/TRANSIT CONSIDERATION

- Route 91 HOV lanes are recommended in the RTIP, SCAG Regional Mobility Plan and the District 8 LROP improvements. The appropriate facility type will be determined in the environmental impact report process. The projected 2010 LOS used in this RCR are based upon higher person throughput provided by an HOV lane.

- Commuter rail is currently under study by the Riverside County Transportation Commission (RCTC) and the Orange County Transportation Commission (OCTC).

ULTIMATE FREEWAY FACILITY

The Ultimate Route 91 freeway will be developed to a 10 lane facility with auxiliary lanes provided where feasible. Maintaining the Concept LOS beyond 2010 will require development of new parallel transportation corridors.

INTERNAL AND EXTERNAL COORDINATION

Long Range Operations Plan (LROP)

The District's LROP presents policies and strategies necessary to manage the State transportation system effectively over the next 10 years. LROP improvements planned for maintaining the LOS for Route 91 include:

- Corridor Traffic Management: The District will work with local and regional agencies to implement urban "Corridor Traffic Management" with the goal of operating an entire system of conventional and access controlled roadways as a unit. It will be necessary to improve City's major arterials in order to improve corridor throughput, provide for incident management and mitigate impacts of ramp metering and freeway construction.

- Transportation Management Associations (TMA's): The District will promote associations of employers, employees, commercial interests, developers, public officials, business people, private citizens and others in the corridors to cooperatively solve mutual transportation problems. A TMA in downtown Riverside is currently being organized.

- Freeway Metering (HOV Bypass): A system of timed signals which regulate the number and interval of vehicles entering the freeway to control the flow into a bottleneck section will be installed throughout the corridor. Ramp control will result in improved efficiency of the freeway, decreased accidents, reduced duration of peak period travel and increased vehicle throughput.

  Optional HOV bypass lanes at the ramps will provide a positive incentive by allowing buses and other HOVs to bypass the meters.

- Park 'N Ride: An effective network of park-and-ride lots throughout the corridor is planned to support ridesharing and HOV lanes. This includes developing procedures and strategies for incorporating private business joint use of air space in State highway corridors. These procedures are currently under study at the Corona Park 'N Ride lot.

COMMUTE MANAGEMENT: Strategies to reduce vehicular travel during peak periods include car/van pooling, alternative work hours, transit use, non-motorized facilities, telecommuting, and preferential HOV parking.

ADVANCED TRANSPORTATION SYSTEM DEVELOPMENT

Attaining the Route Concept must involve local jurisdictions and the private sector in order to induce modal shifts, provide HOV facilities, mitigate traffic impacts and ensure R/W protection for the ultimate facility. This District will proactively advocate the following measures, strategies and policies:

Traffic Mitigation Strategies

- Private sector sponsorship of TMA's.
- Development mitigation to be considered.
  - Park 'N Ride Lots.
  - Shuttle service to Park 'N Ride Lots.
  - Direct connectors to Route 91 HOV lanes.
  - Freeway auxiliary lanes, HOV bypass lanes for metered ramps.
  - Signalization/operational improvements at interchanges.
- Local government participation should include:
  - Adding over/undercrossings (without ramps) to improve local traffic circulation and free up congested interchanges.
  - Staggered work hours for companies/schools located near congested interchanges.

Right of Way Protection Strategies

- Adopt the ultimate freeway facility into local general plans.
- Retain Caltrans excess land needed for constructing the Ultimate facility.
- Negotiate with local jurisdictions and developers for right of way protection/dedication to maintain the ultimate 10-lane facility option.
- Acquire 300' of access control on surface streets which intersect with freeway off ramps.
- Where practical, consideration will be given to outside widening in preference to median widening as a means of preserving right of way for the ultimate lane width.

- Landscaping

  Planting by Caltrans will not exceed standard highway planting unless there is a legal requirement to do more. A continuing program for warranted planting will be pursued through the STIP process in keeping with funding priorities. Planting by others on Caltrans' right of way is allowed through the encroachment permit process, State administered contract funded partially or totally by others or leasing the area to be planted to the abutting property owner. Planting by others is to be guided by a Master Planting Plan furnished by Caltrans and consideration of agreements and/or commitments based on previous Caltrans policy.

- Maintenance

  Based upon the highway classifications in the Maintenance Management System Manual, Route 91 has been assigned a Maintenance Service Level (MSL) of 1. MSL 1 routes are of the highest priority for funding available to do resurfacing, restoration, rehabilitation (3R) and maintenance projects.

- Measure A - Riverside County

  The goal of the Riverside County Regional Transportation Improvement Plan (RTIP) is to improve and maintain the quality of life in Riverside County by supplementing existing funds for transportation. Measure A (the 1/2 cent sales tax for improved transportation) was passed by the voters in the November, 1988 election. The Riverside County Transportation Commission (RCTC) will administer the disbursement of Measure A funds for projects in the RTIP. Improvement projects funded by Measure A on Route 91 are listed below:

Limits	Project	Estimated Cost ($ Million)
Orange County Line to Magnolia Ave.	Widen to 10 lanes	36.0
Magnolia Ave. to 91/60/I-215 I.C.	Widen to 10 lanes	173.5
91/60/I-215 I.C.	Reconstruct I.C. (2 direct connectors)	115.0

  Measure A funds will also be used for the improvement of local streets and roads, transit service, commuter buses, ridesharing, and the development of commuter rail lines.