ROUTE CONCEPT REPORT

39

STATE ROUTE 39
BEACH BOULEVARD

12-ORA P.M. 0.00/23.19

JUNE 2000

Caltrans

ROUTE CONCEPT REPORT

DRAFT

STATE ROUTE 39
BEACH BOULEVARD

12-ORA P.M. 0.00/22.60

PREPARED BY DISTRICT 12 DIVISION OF PLANNING

JANUARY 2001

CALTRANS DISTRICT 12 APPROVAL

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District Division Chief
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Date _____

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KEN NELSON
Interim District Director
District 12

Date _____

ROUTE CONCEPT REPORT
STATE ROUTE 39
BEACH BOULEVARD
12-ORA-PM 0.00/23.19
SUMMARY

STATE ROUTE 39

State Route 39 (SR-39) known as Beach Boulevard is located entirely within Orange County except for two small portions that are between Rosecrans Avenue and Imperial Highway (SR-90) that are located in the City of La Mirada which is part of Los Angeles County. It is a major north-south arterial that connects communities from Huntington Beach to La Habra. It is classified as State Highway – Conventional. The route provides local access to adjacent residential, commercial, retail, industrial centers, and major regional recreational areas including Knott's Berry Farm and the beaches. It also serves as a connecting link in the regional arterial network by providing a direct access to the San Diego (I-405), Garden Grove (SR-22), Artesia (SR-91), and Santa Ana (I-5) freeways. On weekdays SR-39 is heavily used by commuters to provide access to these four freeways. SR-39 begins at SR-1 in the City of Huntington Beach and travels north to Whittier Blvd (SR-72) and then east on SR-72 for about a ¼ of mile where it ends at Hacienda Blvd in the City of La Habra.

The Average Daily Traffic (ADT) on Beach Boulevard ranges from 29,000 at the Los Angeles County Line to 60,000 at Warner Avenue. Travelers experience congestion during the week in both AM and PM peak periods. There is also congestion during weekends and on holidays due to entertainment, recreational and coastal attractions. Segment 5 which includes the interchanges at I-5 and SR-90 currently operates at LOS "FO".

ROUTE CONCEPT

The concept for this route is to provide the best Level of Service (LOS) possible and reduce the duration of congestion. If no major capital improvements are made, it is anticipated that longer traffic delays will occur. For planning purposes, the route has been divided into 7 segments shown below:

SEG	POSTMILE	LIMITS	EXISTING	2020 CONCEPT # OF LANES/PEAK HOUR LOS
1	0.0/5.8	SR-1/I-405	*6-8 Lanes LOS E*	*6-8 Lanes LOS FO*
2	5.8/8.4	I-405/SR-22	*8 Lanes LOS C*	*8 Lanes LOS E*
3	8.4/14.3	SR-22/SR-91	*8 Lanes LOS C*	*8 Lanes LOS F1*
4	14.3/15.0	SR-91/I-5	*6 Lanes LOS D*	*6 Lanes LOS F2*
5	15.0/19.1	I-5/SR-90	*6 Lanes LOS FO*	*6 Lanes LOS F1*
6	19.1/20.7	SR-90/SR-72	*6 Lanes LOS C*	*6 Lanes LOS E*
7	20.7/23.1	SR-72/Hacienda Blvd.	*4 Lanes LOS C*	*4 Lanes LOS C*

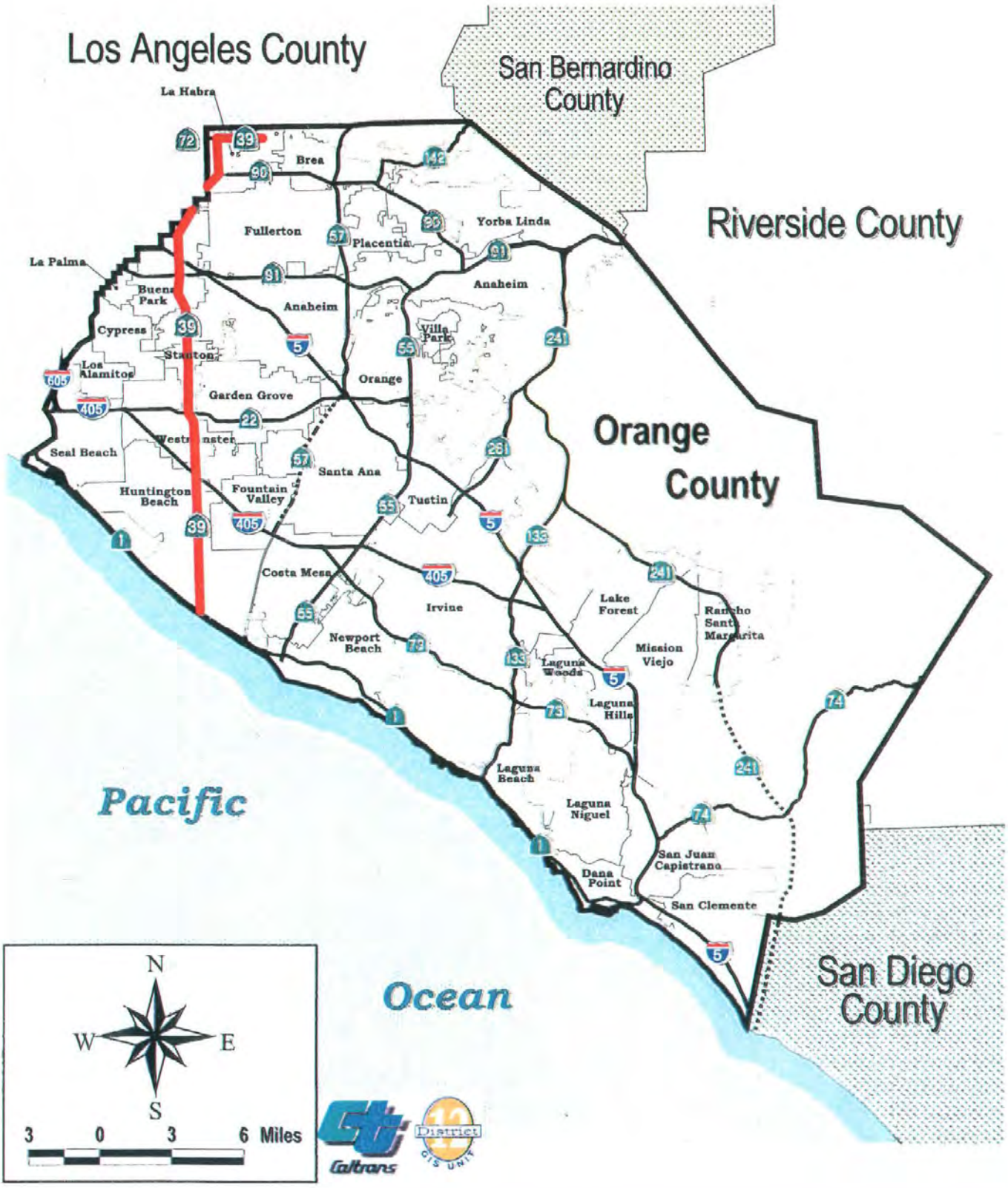
The SR-39 concept calls for continued use and development and expansion of New Technology and Intelligent Transportation Systems (ITS), Transportation System Management (TSM) and Transportation Demand Management (TDM) techniques. Capacity enhancements are not recommended or feasible.

The previous route concept for SR-39 called for completion of the SmartStreet Program. This included adding capacity, new technology, and TSM techniques, including restriping. In that concept report the addition of arterial lanes was specified for Segments 1 through 5 as part of the SmartStreet Program. The project was completed in 1999.

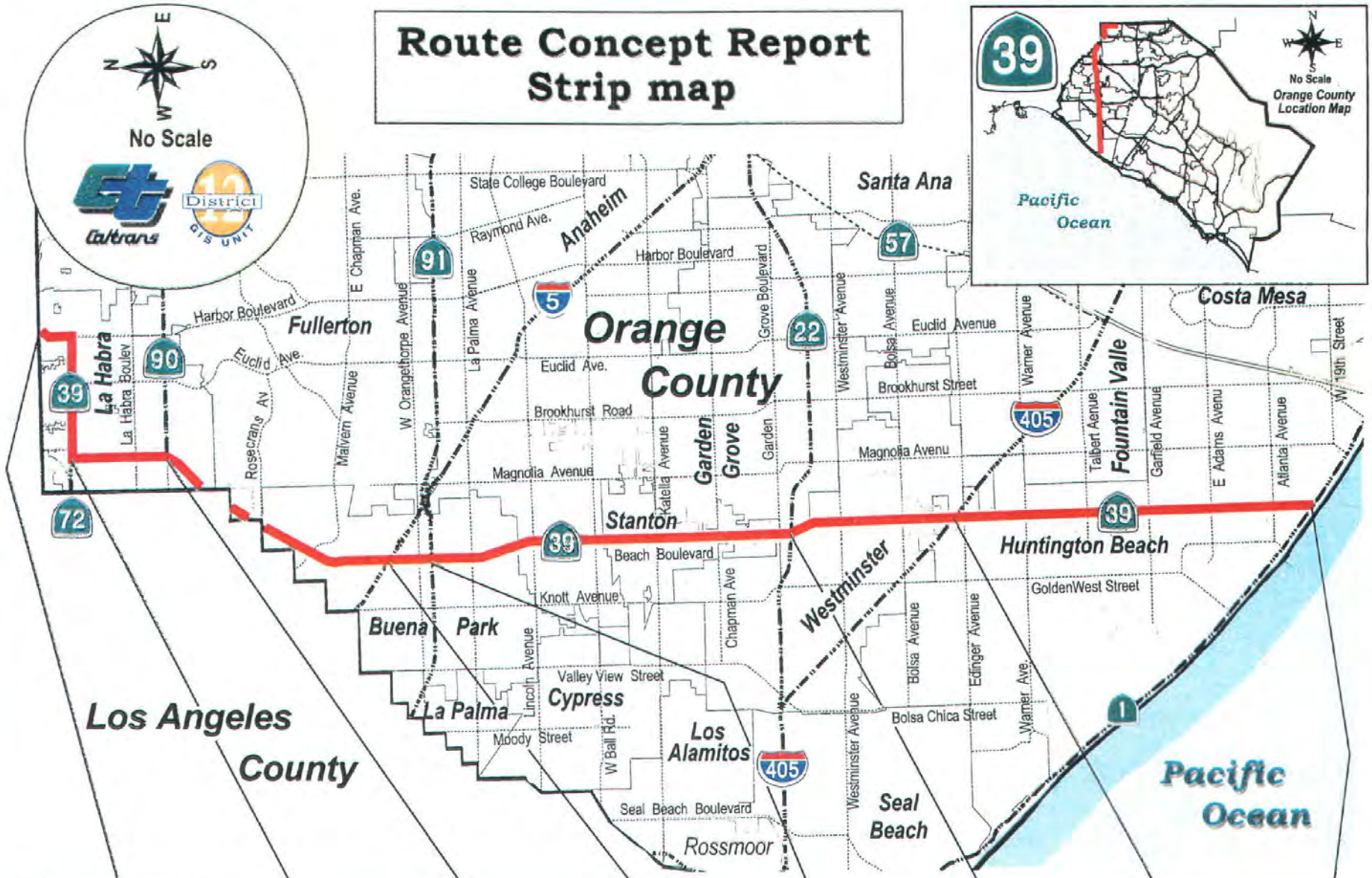
The Beach Boulevard SmartStreet Project between PCH (SR-1) and Imperial Highway (SR-90) is a comprehensive improvement program coordinated with the Orange County Transportation Authority (OCTA) and local cities along the route. The program was implemented in 1989 and the improvements were divided into three implementation phases: short-term (0-5 years), intermediate term (6-15 years), and long-term (15-20) years. The SmartStreet Program for Orange County was adopted by the OCTA in June 1984, which identified a 220-mile arterial network of SmartStreets. In 1984, Beach Boulevard was selected as Orange County's first SmartStreet Project and in May 1999, Beach Boulevard was the first SmartStreet completed in Orange County. The SmartStreet Program is included in the route concept for SR-39. An additional project has been proposed to add a lane in each direction at the Beach Boulevard/SR-1 Interchange, but this project has not yet been funded or programmed.

SR-39 is currently operating at LOS "FO" in Segment 5. The concept LOS for this segment is "F1" and for Segment 4 it is "F2". Several other segments (1,3, & 5) have a concept LOS of between "FO" to "F1". Only Segments 2, 6, & 7 are expected to operate at an acceptable LOS of between "D" to "E" in 2020. Without improved and additional SmartStreet features such as ITS, TSM, and TDM it is likely that the concept LOS would deteriorate even further since added capacity is not feasible for this route.

LOCATION MAP



Route Concept Report
Strip map



Segment	7	6	5	4	3	2	1
Postmiles	20.7 / 23.1	19.1 / 20.7	15.7 / 19.1	14.3 / 15.7	8.4 / 14.3	5.8 / 8.4	0.0 / 5.8
Limits	SR-72 to County Line	SR-90 to SR-72	I-5 to SR-90	SR-91 to I-5	SR-22 to SR-91	I-405 to SR-22	SR-1 to I-405

January 14, 2000

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ROUTE CONCEPT REPORT

STATEMENT OF PLANNING INTENT

The Route Concept Report (RCR) is an internal planning document which expresses the Department's judgment on what the characteristics of each state highway should be in response to proposed land use and projected travel demand over a 20-year planning period. Route Concept Reports are prepared in the districts and represent the combined expertise of district, local and regional agency staff.

The RCR contains the Department's goals for the development of each route in terms of Level of Service (LOS). It broadly identifies the nature and extent of improvements needed to reach those goals. More specific design and operational detail will be included and analyzed in subsequent project development documents such as Project Study Reports (PSRs), Environmental Documents, Project Reports and Preliminary and Final Design Reports. RCR's are used in the development of the District System Management Plan (DSMP) and other state and local planning and project development documents. For purposes of this report, projects under construction are included as existing.

The traffic data for this report has been prepared for the following alternatives: Base Year 1997, Year 2020 Null (projects under construction and funded), and Year 2020 Concept. System Configurations for these 3 alternatives are displayed in *Appendix 6.* The Concept LOS for this report is based on the ratio of Year 2020 forecast volumes to facility capacity for each segment of the roadway. The alternatives for SR-39 (peak hour/peak direction LOS) are shown in Table 8 (ADT Summary Page). See *Appendix 1 - Graphic Representation and Definition of Level Of Service* and *Appendix 6 – Concept System Configuration.*

In developing this RCR, the System Planning Branch considered using the metric system for designating segment limits and other significant points along this route. It was decided that it would be inappropriate for System Planning to perform even "soft conversions" at this point in the planning process. System Planning will begin using the metric system in RCRs and other System Planning documents when the postmile system is converted and a standard set of data is in use throughout the District.

Information contained in the RCR is subject to change as conditions and priorities change and as new information is obtained. The nature and size of identified improvements may change as they move through the project development stages, with final determinations made at the time of project planning and design. Changes that occur during project development may require revision of the RCR.

Preparation of this report included field reviews, review of planned and programmed projects, review of previous RCRs prepared for this route, projects under construction, and analysis of Level of Service (LOS). Internal documents from Traffic, Maintenance, Project Development and Programming, and external documents from the County of Orange Environmental Management Agency (OCEMA), Orange County Transportation Authority (OCTA), and Southern California Association of Governments (SCAG) were referenced for this RCR.

Coordination with the Advanced Planning/Intergovernmental Review Branch was also undertaken to ensure consideration of external issues impacting this route.

DISTRICT PROFILE

District 12 (Orange County) is an urbanized area of approximately 786 square miles with thirty-one (31) cities and several unincorporated areas. The county's diversified economic base includes major financial centers, commercial and industrial developments, major tourist attractions and numerous planned residential communities.

From the regional planning perspective, Orange County is part of the Southern California Association of Governments (SCAG) comprised of 180 cities and 6 counties: Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial. The region covers 38,000 square miles and characterized by distinct internal differences in climate, topography and economy. Population in the region was 15.7 million residents in 1994 and is projected to reach 22 million by 2020. Orange County is in the South Coast Air Basin (SCAB)/South Coast Air Quality District (SCAQMD) planning area.

Orange County is experiencing tremendous growth. By 2020, the county's current population of 2.6 million is projected to increase to 3.2 million. Housing units are expected to increase from 916,000 units to 1.1 million units. Employment will increase from the current 1.2 million jobs to 2.1 million jobs by 2020.

There are fifteen (15) existing and proposed Interstate and State Routes traversing Orange County. They are N/S and E/W routes; 2 are Interstate and 13 are State Routes - 5 are part of the Toll Road System, and 4 are Conventional Highway. There are 247 route miles of highway, which include 80 route miles of high occupancy vehicle (HOV) lanes currently operating on Orange County freeways; the largest number of full-time HOV lanes in California.

ROUTE DESCRIPTION - STATE ROUTE 39 (SR-39)

SR-39 is a critical north-south route located entirely within Orange County except for two short sections that pass through Los Angeles County in the City of La Mirada. It provides access from Pacific Coast Hwy (SR-1) to Whittier Blvd (SR-72) located in Los Angeles County. The length of the route is 23.199 miles long and passes through 9 cities: Huntington Beach, Westminster, Garden Grove, Stanton, Anaheim, Buena Park, Fullerton, La Mirada and La Habra. The route passes through fully developed portions of the county and is considered flat. The Fullerton Airport is approximately ½ mile east off of Route 39. This airport is a small non-commercial airport used mostly by private citizens and for training purposes.

The part of the route that passes through Buena Park is named the entertainment corridor because of the number of attractions along the route that are within the city. These attractions include Knotts Berry Farm, The Wax Museum, Mid-Evil Times and Wild Bills.

The route provides direct access to the coastal cities and is heavily used for commuting purposes during the weekdays as well as on weekends. SR-39, known as Beach Boulevard is the county's busiest surface street and serves as a traditional route from the county's northwest corner to the coast, a fact that gives this street its name.

SR-39 is part of the SmartStreet Program which is a 220-mile network of high thoroughfare arterial highways in Orange County. In May 1999, Beach Boulevard became Orange County's first completed SmartStreet and commuters have reported significant timesaving on this route.

The number of lanes on this route varies from 4 to 8. At SR-1 the S/B direction has 1 lane plus 2 left-turn lanes plus 1 right-turn lane; N/B is 3-lanes. The section from Atlanta Street to Adams is 6-lanes. From Talbert Street to Lincoln Avenue the route is predominantly 8-lanes. At SR-91 it decreases to 6-lanes then to 4-lanes at the I-5 junction. It then continues at Manchester as a 6-lane highway to Whittier Boulevard and again decreases to 4-lanes at Hacienda.

History

Over the years SR-39 has had many names. These include: La Habra Road, Grand Avenue, Hampshire Street, Huntington Beach Boulevard, Route 62, and Route 171. In 1933, State officials, seeing the unified nature of the road designated the entire route as SR-39. In 1960, an Orange County street naming committee decided to name the entire route Beach Boulevard in honor of the "Road to Summer". It is the only north-south conventional route that provides direct access from inland Orange County to the coastal areas

SR-39 was first adopted as a State Highway – Conventional Route between Northern Station (rail station) and Ocean Avenue in November of 1935. The section(s) from Coast Blvd. to Ocean Ave. was added in June of 1937; from 22nd St. to Lampson Ave. in August of 1939; and from Lincoln Ave. to La Palma Ave. in December of 1941.

A freeway portion of the route was adopted between Route 1 and Lampson Ave. in October of 1968, but later rescinded by the California Highway Commission in March of 1975.

ROUTE PURPOSE AND CLASSIFICATION

SR-39 serves 3 primary purposes in the north Orange County area. It serves as a commuter route between Huntington Beach (including other coastal communities) and north Orange County (including parts of Los Angeles County). It also provides access to the many coastal recreational areas along SR-1. The route also serves as a major commuter, commercial, entertainment and business corridor. The route intersects 2 Interstates (I-405 and I-5) and 5 State Routes (SR-1, SR-22, SR-91, SR-90 SR-72). During weekdays, this route provides access to the Interstate and State Routes for commuters. On weekends and holidays this route carries a significant amount of recreational traffic.

Federal/State Functional Classification

SR-39 is classified as Principal Arterial – Urban for the entire length of the route. It is not designated as part of the National Network for STAA Trucks and Sub-System of Highway for the movement of Extra Legal Loads (SHELL). It is however, designated as a Terminal Access Route to the Network.

Orange County

The Orange County Master Plan of Arterial Highways (MPAH – January 1999) identifies SR-39 as follows:

Postmile	Limits	Designation
0.00/14.3	SR-1 (PCH) to SR-91 (Artesia Freeway)	Principal Arterial (8 lanes) SmartStreet
14.3/19.1	SR-91 to SR-90 (Imperial Highway)	Major Arterial (6 lanes) SmartStreet
19.1/23.1	SR-90 to SR-72 (Whittier Boulevard)	Major Arterial (6 lanes)

State Freeways and Transportation Corridors are shown on the MPAH for reference purposes only. Currently, SR-39, Segment 1 is partially inconsistent with the MPAH. The MPAH shows Segment 1 entirely as 8 lanes arterial. In Segment 1 of this RCR, the section from SR-1 to Talbert is 6 lanes, and the section from Talbert to I-405 is 8 lanes.

SmartStreet Designation

SR-39 is part of the SmartStreet System, a concept developed in the early 1980's as a corridor-wide approach to improving traffic flow. SmartStreets are high thoroughfare arterial highways that employ a combination of street widening, signal synchronization, bus turnouts, multi-lane turn pockets (right or left), intersection improvements and other transportation system management techniques that facilitate a smooth, relatively uninterrupted flow of traffic.

The Orange County Transportation Authority adopted the SmartStreets Program for Orange County in June 1984, which identified 21 regionally significant roads comprising a 220-mile arterial network of SmartStreets. In December 1984, Beach Boulevard was selected as Orange County's first SmartStreet project. All lane additions for the SmartStreet Program on SR-39 have been completed. Beach Boulevard was dedicated as the first completed SmartStreet in Orange County in May 1999.

Congestion Management Program

The CMP is a legislatively required countywide program that became effective with the passage of Proposition 111 in 1990. It is an effort to reduce congestion by improving the relationship between land use, transportation, and air quality. The purpose of the CMP is to develop an integrated approach to making transportation programming decisions.

The following key intersections on SR-39 are designated as part of the Congestion Management Program (CMP): Adams Avenue, Warner Avenue, I-405 I/C, Bolsa Avenue, Katella Avenue, La Palma Avenue, SR-91 I/C, Orangethorpe Avenue, SR-90 (Imperial Highway), and SR-72 (Whittier Boulevard). Certain LOS standards are set by the CMP that cannot be exceeded. For intersections that do exceed CMP LOS limitations, mitigation measures must be implemented to bring the intersection LOS into compliance with CMP standards. Currently, all CMP intersections on SR-39 meet the LOS standards.

ROUTE ANALYSIS

State Route 39 – Beach Boulevard is designated as State Highway – Conventional throughout the entire length of the route. The number of lanes ranges from 4 to 8. The majority of the route is a divided highway with a median. The terrain is flat and the entire route is urbanized. There are a number of environmentally sensitive areas in Segments 1-6. The Average Daily Traffic (ADT) volume ranges from a high of 60,000 at Warner Avenue to a low of 29,000 at the Los Angeles County Line.

Parallel Alternative Facilities

There are no Interstate or State Routes that run parallel to SR-39 that would serve as an alternate route. Some of the main arterials that run parallel to portions of SR-39 are: To the east of SR-39 there is Newland St from SR-1 to Garden Grove Blvd; Dale St. from Garden Grove Blvd to Orangethorpe Ave; Stanton Ave from Orangethorpe Ave to Commonwealth Ave; Gilbert St/Idaho St from Commonwealth Ave to SR-72; and Magnolia St from SR-1 to Commonwealth Av. To the west of SR-39 there is Goldenwest St/Knott Ave from SR-1 to Artesia Blvd; and La Mirada Blvd from SR-39 to SR-72.

Land Use/Population Growth

For transportation planning purposes, Orange County is considered to be a fully urbanized county with the exception of Route 74. The county is a continuation of the greater Los Angeles metropolitan area with the Pacific Ocean to the west, the Cleveland National Forest to the east and Camp Pendleton Marine Corps Base to the south. The majority of the land in the county not within or adjacent to the boundaries of the national forest is developed. The primary land use is residential, small boat harbors and airports, with pockets of retail commercial, light industrial and institutional/university professional office space, medical centers, and large holdings of government land such as former Navy and Marine bases. Industrial and commercial uses usually border freeways and major arterials.

For the purposes of this report, the county is roughly divided into north and south by SR-55 from Newport Beach to Chapman Ave in Orange. The dividing line then turns east on Chapman Avenue to Santiago Canyon Road east to Silverado Canyon Road east to the Orange/Riverside County Line. North County lies west of SR-55 and north of Santiago Canyon Road and Silverado Canyon Road. In this older portion of the county, most of the street system is based on a north/south arterial grid. South County lies South of Santiago Canyon Road and Silverado Canyon Road and east of SR-55. South county contains much more new development and the street pattern meanders with the contour of the land. For example, Irvine and Mission Viejo are basically laid out on the old land grants and ranches of the area. See Exhibit 1 on the following page, Route Concept County North/South Split.

Based on 1997 estimates, Orange County's population is 2.7 million. By the year 2020 the population is expected to grow to approximately 3.2 million (19% increase). Given these numbers, the county population distribution in 2020 is projected to be 57% in the north and 43% in the south. Although the majority of growth is expected to occur in the south, the north will continue to be the more populous area of the county. See Table 1 - Population Growth/Distribution - 2020.

Based on the 1997 estimates the Orange County job base is approximately 1.3 million. By the year 2020 the job base is expected to grow to approximately 2.1 million (61% increase). Given these numbers, the county job base distribution in year 2020 is projected to be 55% in the North and 45% in the South. As with the population projections, the majority of growth is expected to occur in the South, yet the North will continue to have a higher concentration of jobs. See Table 1 - Population Growth/Distribution - 2020.

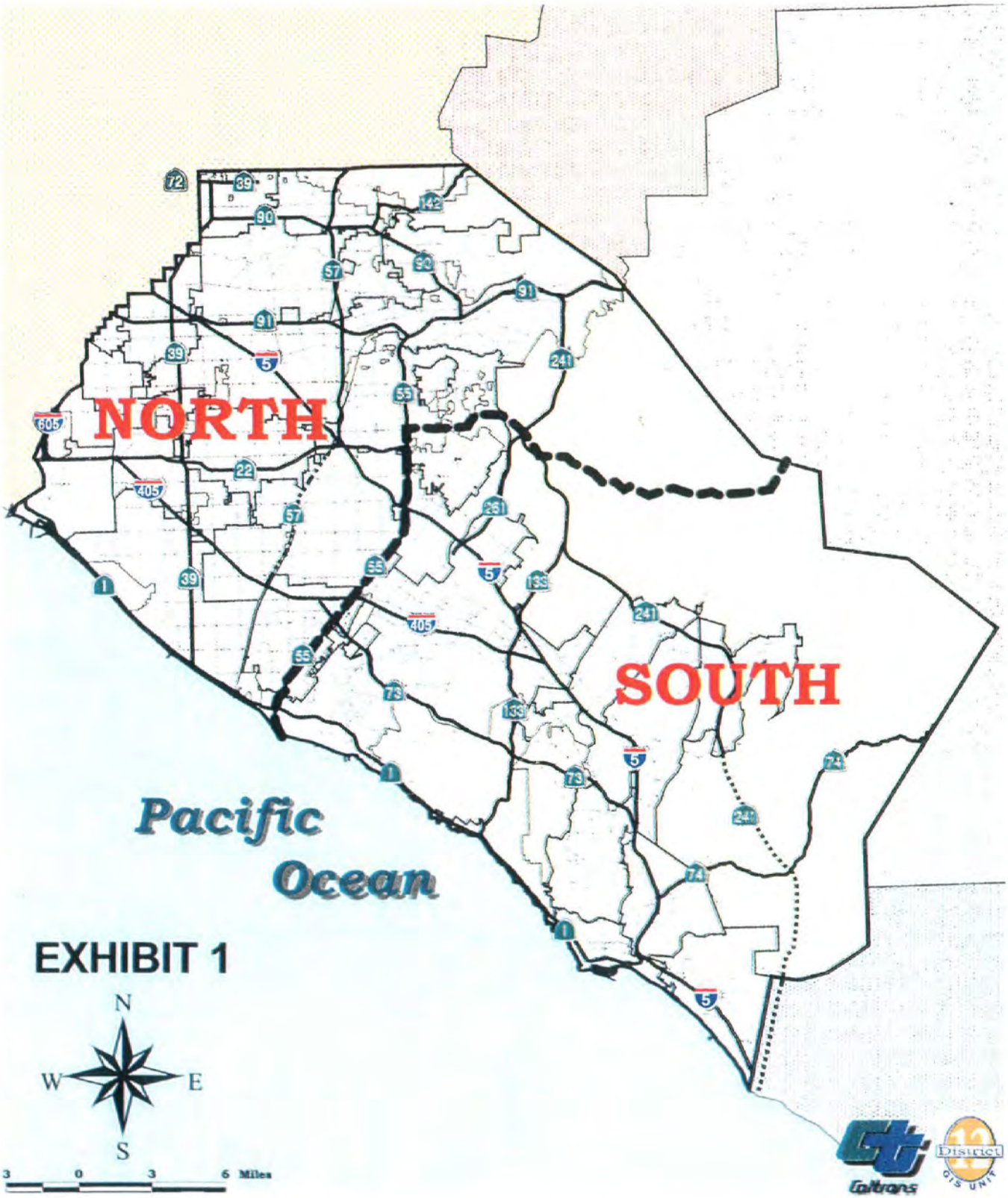
Table 1: Population Growth/Distribution - 2020

	Year 1997	% in north county	% in south county	Year 2020	% in north county	% in south county
Population	2.7*	58%	42%	3.2*	57%	43%
Employment	1.3*	58%	42%	2.1*	55%	45%

*In Millions

Land use along SR-39 is predominantly retail/professional/business and commercial. The area at the southern terminus of the route (near the intersection of SR-1) is known as "The Gateway" to the City of Huntington Beach, the coastal areas, and resorts. Traveling north towards the I-405, the route becomes a relatively high-density retail and commercial use area. As the route extends north out of the coastal area, it serves as a major north-south high volume arterial with linkages to 5 state routes. Most of the industrial/commercial development is directly adjacent to and is accessed by SR-39. As the route progresses north to the City of Buena Park it is known as the "Entertainment Corridor" providing access to the many entertainment attractions located along or near Beach Boulevard. A multimodal Transportation Center will be located near the I-5 and Malvern Street with Beach Boulevard providing the main arterial linkage. The northernmost end of the route skirts in out of Los Angeles County and the Orange County portion terminates at the County Line.

ROUTE CONCEPT
COUNTY NORTH/SOUTH SPLIT



Military Operations: There are no military bases near the vicinity of SR-39.

MULTIMODAL TRANSPORTATION

Park and Ride Lots

The Park and Ride Program is an integral element of long term operational strategies for the state highway system, not just in Orange County, but throughout the region. Caltrans and OCTA work in concert to develop park and ride solutions in Orange County to encourage ridesharing, complement the freeway system, and more importantly, to complement the HOV lane network. HOV lanes are currently existing, programmed or planned for each existing freeway in Orange County.

Currently there are three park and ride facilities that serve both SR-39 and I-405 corridors. See Table 2 – Park and Ride Facilities. These facilities are more directed toward ridesharing efforts for the I-405 Corridor, but may also be of benefit to SR-39. One of them is a Transportation Center operated by OCTA and the other two are "shared use" facilities. Shared use facilities are located where churches, shopping centers or other businesses reserve a portion of their existing parking lot for Park and Ride users. Often times the entity name will be placed on guide signs directing motorists to their parking lot.

TABLE 2
Park and Ride Facilities

Names of Park & Ride Facilities	Location	# of Spaces
Golden West Transportation Center in the City of Huntington Beach	Gothard St. @ Center Ave (near SR-39 & I-405 I/C)	124
United Methodist Center of Good Shepherd in the City of Westminster	8152 McFadden Ave (Permit is required)	42
King of Glory Lutheran Church In the City of Fountain Valley	10280 Slater Ave (Permit is required)	36

as of 6/00

Since SR-39 does not have existing HOV lanes, it is not a high priority corridor for the development of park and ride facilities or other ridesharing activities.

Bicycle Facilities

There are no bicycle facilities on SR-39.

Transit/Rail

There are no rail lines serving the SR-39 corridor. At the present time the closest train station to SR-39 is the Fullerton Transportation Center located approximately 5 miles east of Buena Park on the corner Harbor Boulevard and Commonwealth Avenue. This station is on the Los Angeles

to San Diego (LOSSAN) Rail Corridor, which primarily serves the I-5 Corridor. Both Amtrak and Metrolink trains make stops at this station. Plans are being made to construct a station in Buena Park in the future. This station will serve the same corridor. Refer to Exhibit 2 – Metrolink System Map on Page 10 and Exhibit 2a – Highway/Rail System on Page 10a.

The Beach Boulevard corridor has been identified (among others) in a preliminary study conducted by the West Orange County Cities to study the potential for rail connecting Costa Mesa to Los Angeles County.

Transit/Bus

The Orange County Transportation Authority (OCTA) provides public transit services on SR-39. Route 29 runs from Huntington Beach to Brea via Beach Boulevard. It begins at SR-1 and 1st Street, connects with the Golden West Transportation Center (at the SR-39/I-405 junction), with service to civic centers, malls, entertainment and recreational attractions, and educational facilities along Beach Boulevard. Route 29 offers weekday, Saturday, and Sunday/Holiday service.

On weekdays, buses run from approximately 5:00 a.m. to midnight with S/B and N/B headways of approximately ½ hour. The entire length of the route can take from 50 minutes to 2 hours depending on time and day. Saturday service is from 6:15 a.m. (Brea Mall) to 9:12 p.m. (SR-1) with S/B headways of 1 hour and N/B every ½ hour. Sunday and Holiday service begins at 8:07 a.m. (SR-1) and ends at 9:59 p.m. (Brea Mall) with the same (approximate) headways as Saturday service. There are 27 connecting routes to OCTA Route 29. Route 29 meets productivity, peak headway, and service span measures set by OCTA. Currently, there are no plans to add additional busses or service to this route.

Smart Bus Technology: Bringing improvements to one of the fastest growing transit systems in the country, the OCTA expects to equip all fixed route buses with state-of-the-art communication technology that precisely tracks location, improves on-time performance, creates accurate bus schedules and even helps passengers catch a connecting bus. The OCTA expects to incorporate all "Smart Bus" features by fall of 2000. The OCTA is implementing a Bus Restructuring Project on most routes.

Transportation Centers

The Goldenwest Transportation Center is located at Beach Boulevard/I-405. The new Buena Park Multimodal Transportation Center located at the I-5 near SR-39 will provide regional transportation alternatives via Metrolink and Amtrak.

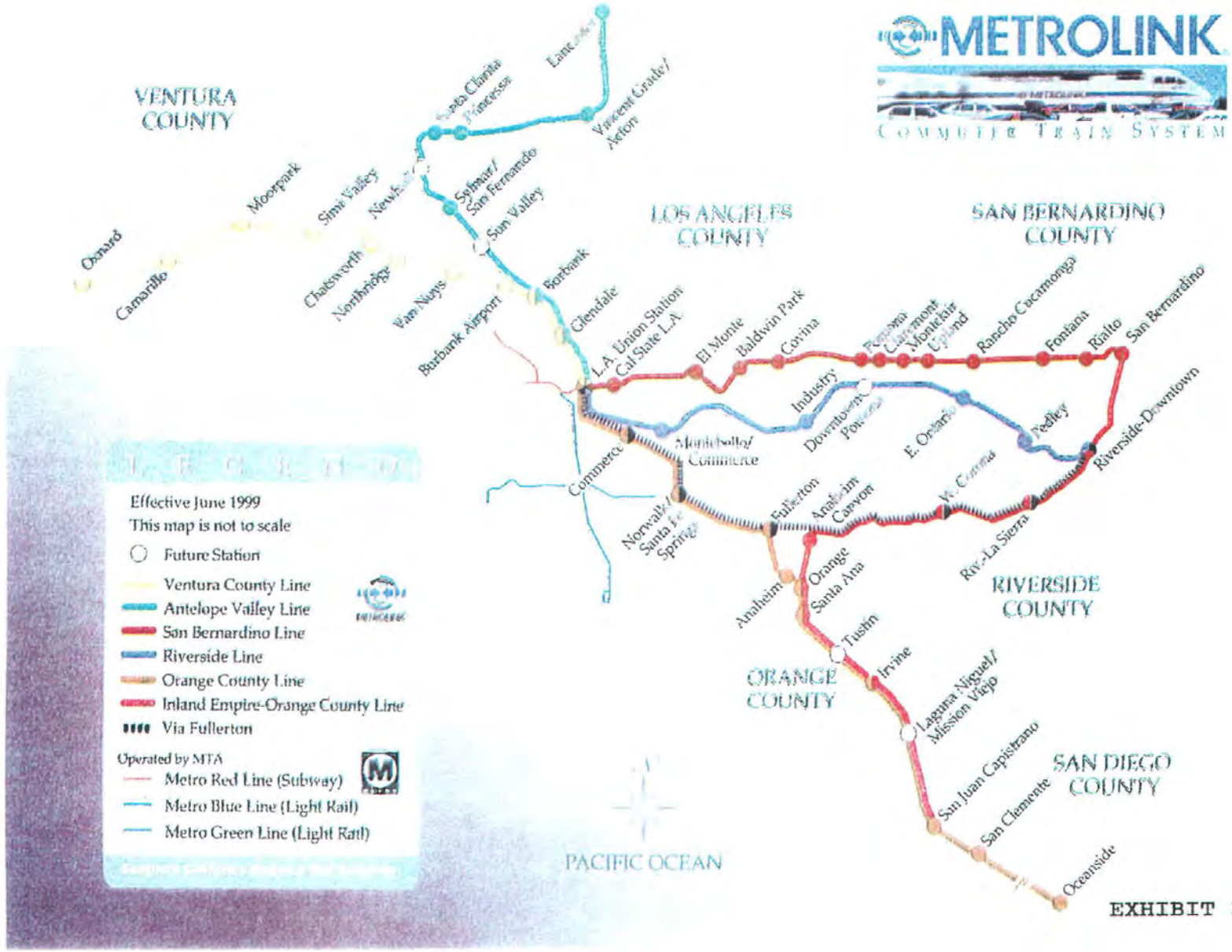
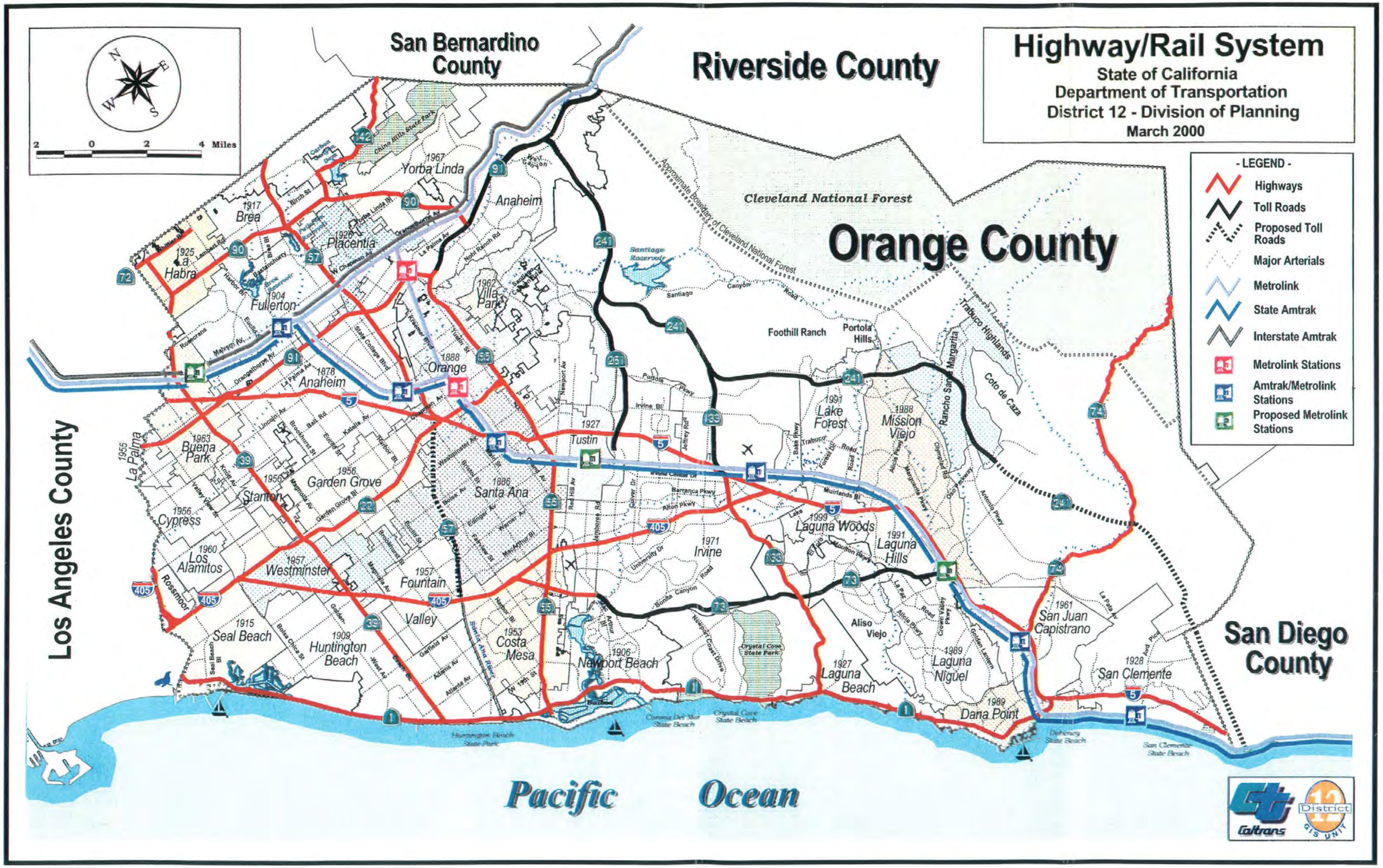

METROLINK
COMMUTER TRAIN SYSTEM
VENTURA COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
ORANGE COUNTY
SAN DIEGO COUNTY
PACIFIC OCEAN
Oxnard
Camarillo
Moorpark
Simi Valley
Chatsworth
Northridge
Van Nuys
Burbank Airport
Burbank
Glendale
L.A. Union Station
Cal State L.A.
Sylmar/San Fernando
San Valley
Vincent Grade/Acton
El Monte
Baldwin Park
Covina
Rancho Cucamonga
Fontana
Rialto
San Bernardino
Industry
Pedley
Riverside-Downtown
Commerce
Montebello/Commerce
Norwalk/Santa Fe Springs
Fullerton
Anaheim Canyon
Orange
Santa Ana
Anaheim
Tustin
Irvine
Laguna Niguel/Mission Viejo
San Juan Capistrano
San Clemente
Oceanside
Effective June 1999
This map is not to scale
Future Station
Ventura County Line
Antelope Valley Line
San Bernardino Line
Riverside Line
Orange County Line
Inland Empire-Orange County Line
Via Fullerton
Operated by MTA
Metro Red Line (Subway)
Metro Blue Line (Light Rail)
Metro Green Line (Light Rail)

EXHIBIT 2


Highway/Rail System
State of California
Department of Transportation
District 12 - Division of Planning
March 2000
San Bernardino County
Riverside County
Orange County
Los Angeles County
San Diego County
Pacific Ocean
Cleveland National Forest
Approximate Boundary of Cleveland National Forest
Santiago Reservoir
Foothill Ranch
Portola Hills
Trabuco Highlands
Coto de Caza
Rancho San Margarita
Yorba Linda
Brea
Placentia
Anaheim
Fullerton
Villa Park
Orange
Tustin
Lake Forest
Mission Viejo
Buena Park
Garden Grove
Stanton
Santa Ana
Cypress
Los Alamitos
Westminster
Fountain Valley
Irvine
Laguna Woods
Laguna Hills
Seal Beach
Huntington Beach
Costa Mesa
Newport Beach
Aliso Viejo
Laguna Beach
Laguna Niguel
San Juan Capistrano
Dana Point
San Clemente
Crystal Cove State Park
Caltrans
District 12
GIS UNIT
- LEGEND -
Highways
Toll Roads
Proposed Toll Roads
Major Arterials
Metrolink
State Amtrak
Interstate Amtrak
Metrolink Stations
Amtrak/Metrolink Stations
Proposed Metrolink Stations

CURRENT ISSUES/PROBLEM IDENTIFICATION

No major projects are planned at this time to ease congestion on this route. The SmartStreet Project was completed for Beach Boulevard in 1999 and all segments of the route are currently operating at an LOS of "E" or better except for Segment 5 which is operating at "FO'. The SmartStreet Project has had a significant impact in contributing to the attainment of an acceptable LOS along most of the route. There are some local projects and issues along SR-39 that are identified below by RCR Segment Number (by approximation) and city that could have an impact on SR-39. These issues and projects were considered when developing the concept LOS for this route.

Segment 1 - City of Huntington Beach

SR-39 is a critical access route to SR-1 (Pacific Coast Highway) and the beach. The city refers to SR-39 as the "Gateway" to the ocean and has proposed widening SR-39 to 6 (through) lanes at the SR-39/SR-1 junction. It is currently 3 lanes N/B and 1 lane + 2 right turn lanes and 1 left turn lane S/B). The current LOS for this segment is "E". The concept LOS is "FO". There is also a proposal to add one lane in each direction for through-traffic at the junction of SR-39 and I-405. There are currently 3 lanes in each direction at the junction and 4 lanes in each direction south and north of the junction. There are plans for a revitalization project in this area (see below).

Development: There are a number of development projects proposed in the City of Huntington Beach that could impact SR-39. Of particular importance, however, is the Waterfront Project – Ocean Grand Hotel and Coast Resort at Pacific Coast Highway (SR-1), a major hotel/resort and conference center development area. In addition, the city is in the process of redeveloping the Huntington Center Mall at I-405 and Beach Boulevard. It will be a major revitalization project when completed.

There is a Class II Bikeway planned on SR-1 (PCH) and a 31-acre vacant site that is proposed for commercial/residential/mixed-use development.

Segment 2 - City of Westminster

The city is completing landscaping improvements along Beach Boulevard and there is a proposed 9.5-acre site development at Westminster Memorial Park.

The City of Westminster is proposing to designate the entire City for redevelopment.

Additionally, "pinch points" have been identified at the Beach Boulevard undercrossings of I-405 and SR-22.

Segment 3 - City of Garden Grove

There are no major developments planned within the City of Garden Grove in reference to SR-39 except for a gas station/ commercial center development at the Southeast corner of Beach Boulevard and Garden Grove Boulevard.

Segment 3 - City of Stanton

The city has completed a ¾ million-dollar landscape improvement project along the median of Beach Boulevard.

Caltrans will be relinquishing the section of Garden Grove Boulevard from Beach Boulevard to Fern Street. The city will be modifying signals at that intersection.

Two ongoing issues regarding SR-39 are: 1) The Union Pacific R/W signal project at Beach Boulevard just south of Pacific Avenue, and 2) The Diversion Median in front of the shopping center at Beach Boulevard and Stanford Avenue.

The storm drain and infrastructure improvements at the 160-acre commercial site located on East Beach Boulevard near Cerritos and Katella Avenues will impact SR-39 drainages.

The Stanton Redevelopment Project 2000 proposes redevelopment throughout the City.

Segments 3, 4 - City of Anaheim

Rome Avenue and Beach Boulevard: Residents in this area concerned with high traffic volumes and noise are proposing a cul-de-sac that would terminate at Beach Boulevard.

West Anaheim: The area around Lincoln and Beach Boulevard is designated for redevelopment and rezoning from residential to commercial land use. The Northeast corner of Beach Boulevard and Lincoln is an 18-acre former landfill site and depending on toxic clean up costs has the potential for redevelopment activities.

The Redevelopment Agency is studying alternative land use along the Beach Boulevard corridor and considering creation of an overlay zone.

The Anaheim Canyon Business Center Transportation Management Association (TMA) is planning a rail-feeder system at the new rail station in Anaheim.

The City of Anaheim continues to implement its Major Street Beautification Program, which is of benefit to SR-39.

Segments 3,4 – City of Buena Park

Freeway Improvement Project: There is a joint freeway improvement project at the I-5/SR-91 junction that will ease congestion on SR-39.

SmartStreet Program: One lane in each direction has been added to Beach Boulevard from Lincoln to SR-91 for a total of 8 lanes.

In addition, the City has an Intersection Improvement Project at Orangethorpe/Artesia/Beach Blvd and at Beach/La Mirada/and Malvern. TCC, CCTV, HAR Communication Systems are being installed at various locations along Beach Boulevard.

Development: Future planned development projects in the City of Buena Park that may impact SR-39 are: the new Knott's Berry Farm Water Park on Beach Boulevard; the new City Hall facility which proposes to include a new signal at the intersection of Beach Boulevard; and temporary traffic issues due to the Buena Park Mall Renovation Project.

The construction of the Buena Park Transportation Facility Metrolink Station (includes Park n' Ride) will be provide (regional) alternate transportation opportunities for residents and others and will help to ease congestion on SR-39 provided that connecting services are available to major commercial, business, and entertainment centers in the city.

A Bridge Replacement Project is currently underway for replacement of the Beach Boulevard Bridge crossing at the Brea Creek Channel.

Segments 4,5 - City of Fullerton

Hawks Pointe Development, a 55.5 acre, 210 single-family housing development is adjacent to SR-39. Amerige Heights, a planned 293-acre residential and mixed-use development is located at SR-39 and SR-90.

Segments 5,6 - City of La Mirada

The city is proposing a 122 single-family dwelling housing development located on the east side of Beach Boulevard/south of Hillsborough Drive called *Hawks Pointe.*

Segments 6,7 - City of La Habra

There are plans to create a Planned Unit Development (PUD) for the La Habra Westridge Plaza development (695,000 commercial/sq.ft) at the intersection of Beach Boulevard and Imperial Highway. This is the site of the former Chevron Research Facility.

TRAFFIC ANALYSIS

Introduction

SR-39 extends from the Pacific Ocean in the City of Huntington Beach to the Orange/Los Angeles County Line at Whittier Blvd. (SR-72) in the City of La Habra. It is an intra-regional link between the coastal communities and the northern communities. During the week this route is a heavily used by commuters. On weekends the route serves a recreational corridor that provides access to recreational opportunities along the route. In the City of Buena Park the route has been named the entertainment corridor because it serves Knotts Berry Farm, Movieland Wax Museum, Mid Evil Times and Wild Bills. It also provides direct access to the beach communities along SR-1. It is also a major commercial, retail, and business corridor. Therefore this route experiences heavy use 7 days per week. This route has been designated as a SmartStreet with one lane added in each direction along with multi-left turn pockets at various intersections.

Given the demands on this facility, it would be impossible to add enough capacity to improve the LOS above the F level at all times. A certain degree of LOS F must be accepted. It is being recommended to fully implement ITS, TSM, and TDM traffic management elements on this route in order to best manage the system as a whole, and via the state of the art Traffic Management Center (TMC). It is also recommended to develop more transit service within the corridor.

Average Daily Traffic

The ADT Summary data for SR-39 is shown in Exhibit 1. There are three time frames given for this information: Existing, Year 2020 Null (projects under construction and funded) and Year 2020 Concept. The existing data was collected from the *1997 Traffic Volumes on California State Highways* book and from the Los Angeles Regional Transportation Study (LARTS) base year forecast. Other sources of information used for existing volumes may include: count stations and other information taken from previously completed environmental documents and project related studies.

The future traffic data presented in this document is a product of the Los Angeles Regional Transportation Study (LARTS) model. The peak hour traffic volume, peak hour direction volumes and LOS are all products of the LARTS transportation model.

Transportation Modeling Description and Socioeconomic Summary

The LARTS model simulates the interaction between socioeconomic factors and the transportation system. The LARTS model is a socioeconomic driven transportation model. Among existing and projected socioeconomic variables used in the development of the LARTS model are; population, employment and income. The transportation system includes highways, arterials, and transit service (including rail service).

The Southern California Association of Governments (SCAG), in cooperation with state and local county government (Los Angeles, Orange, Riverside, San Bernardino, Ventura and Imperial) prepared the socioeconomic forecast for the 2020. In April 1998, SCAG completed the Regional Transportation Plan (RTP) Community Link 21, the long-range transportation plan for the SCAG Region. The data used for traffic forecasting analysis in this RCR is identical to that used in SCAG's RTP. Table 3 provides a summary of the socioeconomic variables for the year 2020 at the county and region level.

TABLE 3
Socio-Economic Data - Orange County/Region

Socio-Economic Data	Year 2020-Orange County	Year 2020-Region *
Population	3,206,020	20,632,271
Housing	1,094,024	7,151,115
Employment	2,101,316	10,028,476

*Los Angeles, Orange, Ventura, and Metropolitan portions of Riverside and San Bernardino counties.

Goods Movement - Truck Volumes

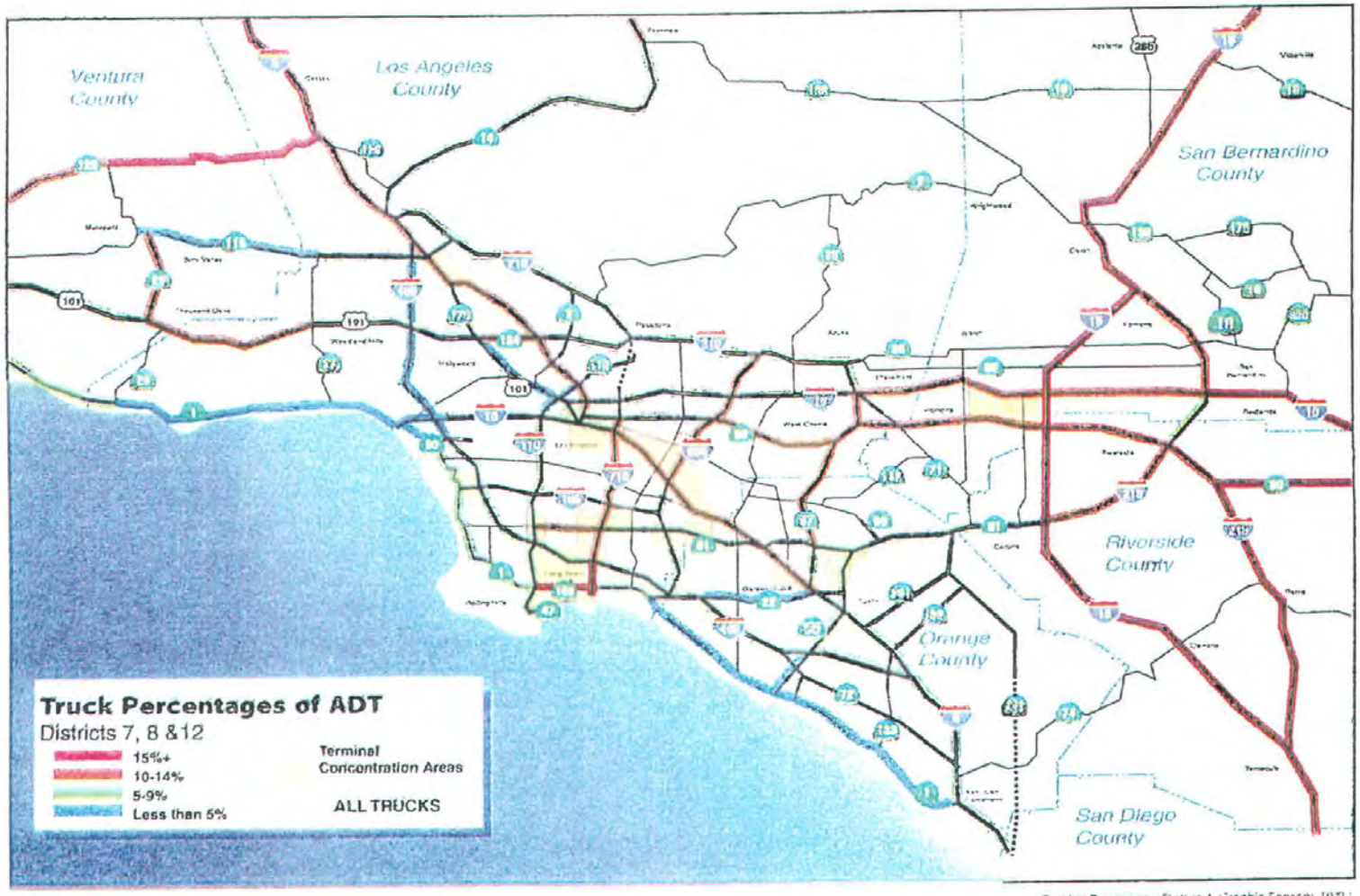
According to the publication *1997 Annual Average Daily Truck Traffic on the California State Highway System*, daily truck volumes on SR-39 range from about 500 to over 2,900. These numbers as a percentage of AADT range from 3 to 6%. The highest volumes occur in the vicinity of the SR-91 and I-405 junctions. The highest truck percentages (6%) as a total of vehicle AADT occur at the I-5 junction. Below is a breakdown of Truck Annual AADT percentages by route segment for SR-39. See Exhibit 3, Truck Percentages of AADT Map on Page 16 for a comparison of this route to other routes in the region.

TABLE 4
Truck Annual AADT Percentages by Route Segment

Segment	1	2	3	4	5	6	7
	3%	3%	5%	6%	5%	3%	3%
Postmile	0.00 – 5.80	5.80 – 8.48	8.48 – 14.38	14.38 – 15.07	15.07 – 19.17	19.17 – 20.72	20.72 – 22.60
Limits	SR1/I-405	I-405/SR22	SR22/SR91	SR91/1-5	I-5/SR90	SR90/ SR72	SR72/Co. Line

Traffic Systems Management

Traffic Systems Management is a strategy for improving mobility on the transportation system without adding capacity. The theory is to implement operational improvements and disseminate motorist information to achieve the maximum operating efficiency of the transportation system. In particular, Caltrans' goal is to develop all freeways in Orange County to full Urban Freeway Standards. Integral to this development is the Traffic Operation Systems (TOS) Plan and the system elements outlined in it. See Appendix 5 – Urban Freeway Standards for an introduction to the TOS Plan and its system elements. (On State Highway - Conventional Routes such as SR-39, SmartStreet strategies are implemented instead of TOS.)



Graphic Prepared by District 7 Graphic Services 10/97
Orange County Freeways Revised 11/96

EXHIBIT 3

Accident Rates - Automobiles

The accident rate information shown in this report is taken from Table B of the Traffic Accident Surveillance and Analysis System (TASAS). This information is used for general planning purposes. The data is an indicator of the accident rate of a particular segment of a route in comparison to the accident rate averages on similar routes statewide. Higher than average rates described in this report are not necessarily indicators that there is a significant problem since accident rates can be greatly influenced by the length of the segment as well as the time period being measured. See Table5 below for Table B information on SR-39.

The Accident Surveillance Procedures Manual developed by the Division of Traffic is used to ensure Caltrans has statewide consistency in identifying safety problem locations and for developing recommended solutions. One tool used in this process is the Table C report that lists high accident concentration locations and uses an automated system for flagging locations requiring investigation. On SR-39, the intersections at Katella Avenue and Lincoln Avenue had the highest number of accidents during the 36-month period from 10/1/96 to 9/30/99.

Highway safety is Caltrans' highest priority. Identification of safety problem areas is a continuous process. After a safety project is identified it is prioritized and programmed as soon as possible in either the State Highway Operation and Protection Program (SHOPP) if it is a high cost project, or through the District Minor Program whichever meets the funding criteria. For more detailed information please refer to the Accident Surveillance Procedures Manual.

The chart below shows that between October 1, 1996 to September 30, 1999, the Actual Total Accident Rate exceeds the Average Rate in Segments 1, 3 4 and 6.

Table 5
Accident Rates from TASAS*
(Table B)

SR-39

10/1/96 through 9/30/99			ACTUAL			AVERAGE		
			FATAL	FATAL & INJURIES	TOTAL	FATAL	FATAL & INJURIES	TOTAL
1	0.0/5.8	SR-1/I-405	.014	1.58	4.45	.012	1.09	2.40
2	5.8/8.4	I-405/SR-22	.013	1.27	1.68	.012	1.10	2.41
3	8.4/14.3	SR-22/SR-91	.026	1.49	3.57	.012	1.10	2.41
4	14.3/15.7	SR-91/I-5	.000	1.67	3.38	.012	1.09	2.40
5	15.7/19.1	I-5/SR-90	.005	.81	1.73	.018	1.02	2.23
6	19.1/20.7	SR-90/SR-72	.041	1.15	2.59	.017	1.08	2.40
7	20.7/23.1	SR-72/County Line	.000	.44	1.05	.014	1.54	3.60

*per million vehicle miles of travel

PROGRAMMED PROJECTS

Table 6 lists the major projects programmed for construction beginning in State Fiscal *Year 96 (FY 96/97)* or later. For this report a programmed project is defined as having a schedule and cost. Projects are programmed into one of the following State highway programs: State Transportation Improvement Program (STIP), the Highway System Operations and Protection Plan (SHOPP), and the Regional Transportation Plan (RTP). Programmed projects also include locally funded and administered projects, noted as LOCAL. This listing does not include soundwalls, landscaping, paving or minor projects.

TABLE 6
Programmed Projects

PPNO	PM	DESCRIPTION	CODE	EST $	FY ADV

There are no major construction projects programmed for SR-39.

See CURRENT ISSUES/PROBLEM IDENTIFICATION section for other (local) projects and more information.

Legend
PPNO = Planning and Program Number
PM = Postmile
FY ADV = Proposed Fiscal Year of Advertising

ROUTE CONCEPT

Introduction

Given projected increases in traffic demand and limited funding, multimodal solutions to congestion problems should continue to be implemented and expanded. Rail service is only in the very preliminary planning stages and has not yet been determined to be feasible in the SR-39 corridor. Bus transit service is currently in operation on SR-39; expanded service will depend on ridership and funding. No one solution exists for the transportation challenges facing the SR-39 corridor.

The full implementation of Traffic Operation System elements (CCTV, ramp metering, CMS, etc., with tie-in to TMC) is strongly recommended as a means of managing the State Highway System in the urban areas of California. On Route 39, traffic flow can be improved through the use of ITS techniques (Ramp Meter/Arterial Adaptive Control, Advanced Traveler Information Services, Advanced Traffic Management Systems) and TSM/TDM strategies such as restriping, bus turnouts, bicycle facilities, and improved/increased transit services. See APPENDIX 4 and APPENDIX 5 for more detailed information on New Technology and Urban Freeway Standards. See APPENDIX 7 for examples of Mitigation Measures (ITS, TSM and TDM).

Regional Consistency

The route concept called for in this report is consistent with SCAG's 1998 Regional Mobility Element (RME). The RME is the long-range regional transportation plan for the six county Southern California Region. By law, all projects programmed in the Regional Transportation Improvement Program (RTIP) must be contained in the regional transportation plan and have a funding source identified. The major projects already programmed or planned for this route will meet this route concept. All major projects programmed in the RTIP for SR-39 are contained in the RME; therefore, this concept is consistent with regional planning efforts.

Caltrans and OCTA are in full agreement on the following concept outlined for SR-39.

Segment 1 PM 0.0/5.8 (From SR-1 to I-405)
Existing Facility: Conventional 6 – 8 Lanes LOS E
Concept: Conventional 6 – 8 Lanes LOS FO
The first part of this segment currently operates as 3 through lanes N/B and 1 lane plus 2 left-turn and 1 right-turn lane(s) S/B. From Talbert to I-405 this segment is 8 lanes, 4 in each direction. See *CURRENT ISSUES.*

Segment 2 PM 5.8/8.4 (From I-405 to SR-22)
Existing Facility: Conventional 8 Lanes LOS C
Concept: Conventional 8 Lanes LOS E
This segment currently operates as 8 through lanes, 4 in each direction. See *CURRENT ISSUES* .

Segment 3 PM 8.4/14.3 (From SR-22 to SR-91)
Existing Facility: Conventional 8 Lanes LOS C
Concept: Conventional 8 Lanes LOS F1
This segment currently operates as 8 through lanes, 4 in each direction. See *CURRENT ISSUES.*

Segment 4 14.3/15.7 PM (From SR-91 to I-5)
Existing Facility: Conventional 6 Lanes LOS D
Concept: Conventional 6 Lanes LOS F2
This segment currently operates as 6 through lanes, 3 in each direction. See *CURRENT ISSUES*

Segment 5 PM 15.7/19.1 (From I-5 to SR-90)
Existing Facility: Conventional 6 Lanes LOS FO
Concept: Conventional 6 L anes LOS F1
This segment currently operates as 6 through lanes, 3 in each direction. See *CURRENT ISSUES*

Segment 6 PM 19.1/20.7 (From SR-90 to SR-72)
Existing Facility: Conventional 6 Lanes LOS C
Concept: Conventional 6 Lanes LOS E
This segment currently operates as 6 through lanes, 3 in each direction. See *CURRENT ISSUES*

Segment 7 PM 20.7/23.1 (From SR-72 to the County Line)
Existing Facility: Conventional 4 Lanes LOS C
Concept: Conventional 4 Lanes LOS C
This segment currently operates as 4 through lanes, 2 in each direction. See *CURRENT ISSUES*

State Route 39

Table 7 - Level of Service Comparison

Post Mile	Description of Location	1997 LOS A.M. (NB)	1997 LOS P.M. (NB)	1997 LOS A.M. (SB)	1997 LOS P.M. (SB)	2020 Null LOS A.M. (NB)	2020 Null LOS P.M. (NB)	2020 Null LOS A.M. (SB)	2020 Null LOS P.M. (SB)	2020 Concept LOS A.M. (NB)	2020 Concept LOS P.M. (NB)	2020 Concept LOS A.M. (SB)	2020 Concept LOS P.M. (SB)
0.00	PCH (SR-1)												
		D	B	A	D	E	B	B	F0	F0	C	B	F0
1.63	Adams Ave												
		E	C	A	E	F0	B	B	E	F0	C	B	F0
3.12	Main St/Ellis Ave												
		D	B	A	C	B	B	A	B	F0	C	A	E
3.61	Talbert Ave												
		D	C	B	D	E	B	B	E	F0	D	B	F0
4.13	Slater Ave												
		C	C	C	C	B	B	B	B	D	D	C	D
4.63	Warner Ave												
		C	C	B	C	B	B	B	B	C	D	C	D
5.80	I-405												
		C	C	C	C	B	B	B	B	C	D	C	D
6.64	Bolsa Ave												
		C	C	B	C	B	F0	B	F0	D	D	C	D
7.63	Westminster Ave												
		C	C	B	C	B	F0	B	F0	D	E	D	E
8.48	SR-22												
		C	C	B	C	E	E	B	F0	E	E	D	F0
9.67	Chapman Ave												
		B	C	B	C	B	E	B	B	C	E	D	D
10.66	Katella Ave												
		B	C	B	C	B	F0	E	E	C	F0	E	E
11.18	Cerritos Ave												
		C	C	B	C	B	E	B	E	D	E	D	E
11.68	Ball Rd												
		C	C	B	C	F0	F0	E	F0	E	F0	E	F0
12.69	Lincoln Ave												
		C	C	B	C	F0	F1	F0	F1	F0	F1	F0	F1
13.76	La Palma Ave												
		C	C	B	C	E	F0	F0	F0	E	F0	F0	F0
14.38	SR-91												
		C	C	C	D	F0	F0	F0	F0	F0	F0	F0	F0
14.58	Orangethorpe Ave												
		C	C	C	C	E	F2	F1	F1	F0	F2	F1	F1
15.07	I-5												
		C	C	B	C	E	F0	F0	F0	E	F0	F0	F0
15.57	Artesia Blvd												
		C	D	D	C	B	F1	F1	F0	D	F1	F1	F0
16.38	La Mirada Blvd												
		C	E	F0	D	B	F0	F1	B	B	F0	F0	D
D17.34	Rosecrans Ave												
		C	C	C	C	B	E	E	B	C	E	E	C
19.17	SR-90 Imperial Hwy												
		B	C	C	B	A	B	B	B	B	D	D	C
19.67	Lambert Rd												
		B	C	C	B	B	E	E	B	B	E	E	C
20.72	SR-72 Whittier Blvd												
		C	D	C	D	B	B	B	B	D	D	C	D
20.88	Hacienda Blvd												
		C	C	C	C	B	B	B	B	C	C	C	C
22.60	Harbor Blvd												

TABLE 8

SEG	PM	LIMITS	EXISTING ADT	# OF LANES	PK HR PK DIR VOL NB	PK HR PK DIR VOL SB	PK HR PK DIR LOS NB	PK HR PK DIR LOS SB
1	0.0/5.8	SR-1/I-405	60,000	6-8	2,990	2,800	E	D
2	5.8/8.4	I-405/SR-22	59,000	8	2,480	2,430	C	C
3	8.4/14.3	SR-22/SR-91	52,000	8	2,290	2,490	C	C
4	14.3/15.0	SR-91/I-5	55,000	6	1,990	2,220	C	D
5	15.0/19.1	I-5/SR-90	52,000	6	2,650	2,790	E	FO
6	19.2/20.7	SR-90/SR-72	31,000	6	1,740	1,550	C	C
7	20.7/23.1	SR-72/Hacienda Blvd.	29,000	4	1,090	1,130	C	C

SEG	PM	LIMITS	2020 NULL ADT	# OF LANES	PK HR PK DIR VOL NB	PK HR PK DIR VOL SB	PK HR PK DIR LOS NB	PK HR PK DIR LOS SB
1	0.0/5.8	SR-1/I-405	75,700	6-8	3,480	3,410	FO	FO
2	5.8/8.4	I-405/SR-22	84,600	8	3,960	3,970	FO	FO
3	8.4/14.3	SR-22/SR-91	105,000	8	4,650	4,720	F1	F1
4	14.3/15.0	SR-91/I-5	88,500	6	3,850	3,570	F2	F1
5	15.0/19.1	I-5/SR-90	85,100	6	3,520	3,600	F1	F1
6	19.1/20.7	SR-90/SR-72	44,400	6	2,690	2,710	E	E
7	20.7/23.1	SR-72/Hacienda Blvd.	32,800	4	1,130	1,210	B	B

SEG	PM	LIMITS	2020 CONCEPT ADT	# OF LANES	PK HR PK DIR VOL NB	PK HR PK DIR VOL SB	PK HR PK DIR LOS NB	PK HR PK DIR LOS SB
1	0.0/5.8	SR-1/I-405	75,300	6-8	3,950	3,770	FO	FO
2	5.8/8.4	I-405/SR-22	77,300	8	3,440	3,580	E	E
3	8.4/14.3	SR-22/SR-91	104,500	8	4,620	4,700	F1	F1
4	14.3/15.0	SR-91/I-5	88,300	6	3,730	3,480	F2	F1
5	15.0/19.1	I-5/SR-90	84,500	6	3,470	3,580	F1	F1
6	19.2/20.7	SR-90/SR-72	43,900	6	2,590	2,630	E	E
7	20.7/23.1	SR-72/Hacienda Blvd.	32,800	4	1,120	1,200	C	C

APPENDICES

APPENDIX 1

Graphic Representation and Definition of Levels of Service (LOS)

The TOS Plan was updated by Traffic Operations in January 1994. This iteration of the TOS Plan refined definitions and uses of the various technologies outlined in the original report. More importantly the updated version looked closer at actual implementation plans and schedules. Several TOS elements were identified as individual projects with identified funding and implementation schedules. Because of potential cost savings several other projects were proposed to be included as an element of larger projects (widening/reconstruction, adding HOV lanes, etc.); however in many of these cases no funding was identified. Finally, several new projects were identified which neither had funding nor implementation schedules.

Full implementation of the TOS Plan elements is an integral part of this and all other freeway route concepts in Orange County. It is the goal of Caltrans District 12 to bring each freeway route in Orange County up to urban freeway standards. It may be most cost effective to implement these items as part of larger projects in order to save on project development and engineering costs.

New Technology

There are several elements of the existing and future transportation system which are referred to as "new technology". It would also be appropriate to consider most of these elements as Traffic System Management (TSM) elements. Most of the above mentioned TOS elements take full advantage of new technology and these categories have a good deal of crossover application between them. In addition to the TOS elements mentioned above in the URBAN FREEWAY STANDARDS section other New Technology programs are currently being implemented in Orange County, both on and off the State Highway System. Please see Appendix 4 - NEW TECHNOLOGY for a brief outline of new technology programs and some implementation efforts currently underway in Orange County.

SmartStreet strategies can include technologies and elements utilized for TSM, TOS, and ITS.

APPENDIX 1

Graphic Representation and Definition of Level Of Service

A	B	C	D	E	F

A	Freeflow speed. Vehicles are unimpeded in their ability to maneuver within traffic stream.
B	Reasonably freeflow speeds are generally well maintained. The ability to maneuver within traffic is slightly restricted.
C	Flow and speeds still at or near freeflow. Freedom to maneuver within traffic is noticeably restricted and lane changes require more vigilance.
D	Speeds begin to decline slightly with increasing flow. Freedom to maneuver within traffic is more noticeably restricted.
E	Flow rate that corresponds to **maximum capacity** of the facility. Maneuvering within the traffic stream is extremely limited. Some delay may occur.
F	Forced traffic flow. Speed and flow may drop to zero with high densities. Less than 20 mph. Considerable delay.

To reflect the duration of congestion (stop & go, speeds less than 20 mph), the LOS has been expanded to F0, F1, F2, and F3.

F0	0-1 Hour of congestion.
F1	1-2 Hours of congestion.
F2	2-3 Hours of congestion.
F3	More than 3 Hours of congestion.

TOPS LOS

Duration of LOS E (maximum flow rate, speeds 40 mph)

E0	0-1 Hour.
E1	1-2 Hours.
E2	2-3 Hours.
E3	More than 3 Hours.

APPENDIX 2

Segment Summary Pages

Route 39
Year 1997

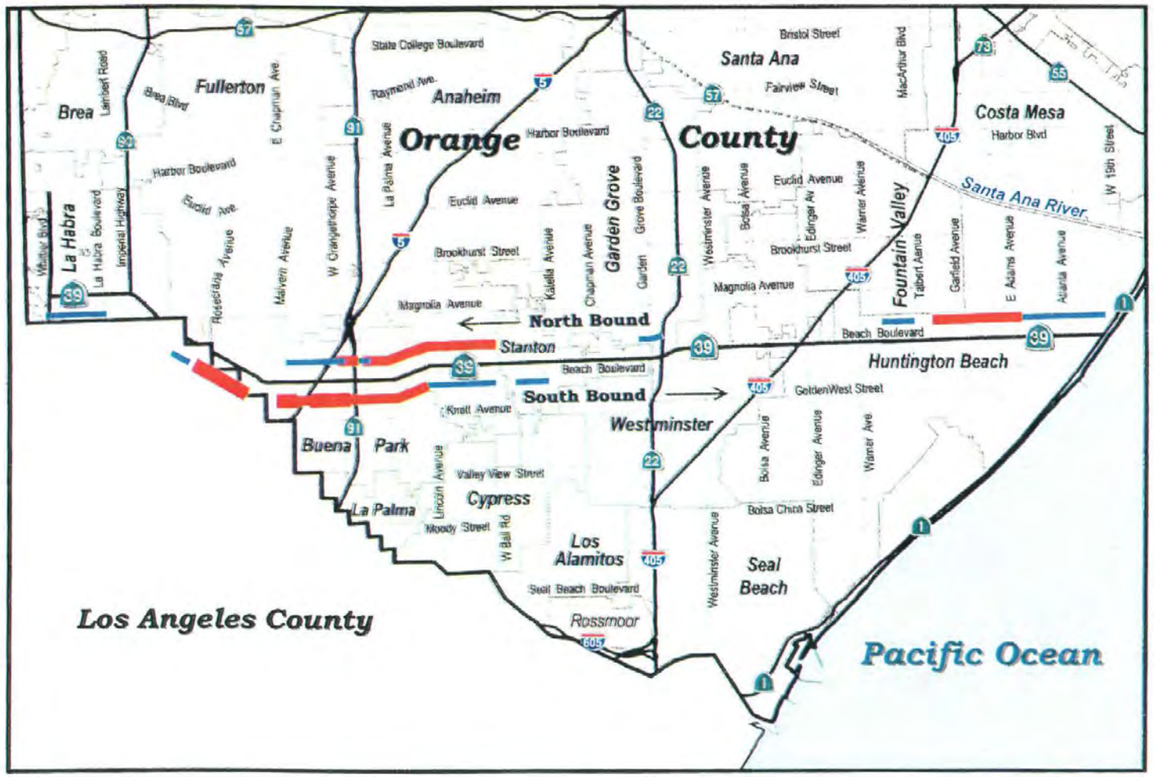
Post Mile	Decription of Location	No. Lanes	2-way ADT*	(1) 1 hr A.M Peak (NB)*	(2) 1 hr P.M Peak (NB)*	(3) 1 hr A.M Peak (SB)*	(4) 1 hr P.M Peak (SB)*	(1) V/C A.M Pea (NB)*	(2) V/C P.M Peak (NB)*	(3) V/C A.M Pea (SB)*	(4) V/C P.M Peak (SB)*	(1) LOS A.M Peak (NB)*	(2) LOS P.M Peak (NB)*	(3) LOS A.M Peak (SB)*	(4) LOS P.M Peal (SB)*
0.00	PCH (SR-1)														
		3	29,000	2,080	1,340	500	2,130	0.77	0.50	0.19	0.79	D	B	A	D
1.63	Adams Ave														
		3	37,600	2,520	1,610	630	2,520	0.93	0.60	0.23	0.93	E	C	A	E
3.12	Main St/Ellis Ave														
		4	50,000	2,990	1,850	1,070	2,710	0.83	0.51	0.30	0.75	D	B	A	C
3.61	Talbert Ave														
		4	59,000	2,950	2,220	1,380	2,800	0.82	0.62	0.38	0.78	D	C	B	D
4.13	Slater Ave														
		4	60,000	2,450	2,470	1,990	2,560	0.68	0.69	0.55	0.71	C	C	C	C
4.63	Warner Ave														
		4	57,000	2,410	2,310	1,860	2,550	0.67	0.64	0.52	0.71	C	C	B	C
5.80	I-405														
		4	59,000	2,200	2,480	2,040	2,430	0.61	0.69	0.57	0.68	C	C	C	C
6.64	Bolsa Ave														
		4	51,000	2,130	2,130	1,910	2,310	0.59	0.59	0.53	0.64	C	C	B	C
7.63	Westminster Ave														
		4	49,000	1,980	2,140	1,860	2,360	0.55	0.59	0.52	0.66	C	C	B	C
8.48	SR-22														
		4	51,000	2,310	2,210	1,790	2,490	0.64	0.61	0.50	0.69	C	C	B	C
9.67	Chapman Ave														
		4	46,000	1,740	2,090	1,850	2,100	0.48	0.58	0.51	0.58	B	C	B	C
10.66	Katella Ave														
		4	44,000	1,720	2,120	1,870	2,080	0.48	0.59	0.52	0.58	B	C	B	C
11.18	Cerritos Ave														
		4	45,000	1,930	2,040	1,730	2,110	0.54	0.57	0.48	0.59	C	C	B	C
11.68	Ball Rd														
		4	46,000	2,230	2,040	1,500	2,390	0.62	0.57	0.42	0.66	C	C	B	C
12.69	Lincoln Ave														
		4	47,000	2,290	1,990	1,460	2,400	0.64	0.55	0.41	0.67	C	C	B	C
13.76	La Palma Ave														
		4	52,000	2,000	1,930	1,650	2,080	0.56	0.54	0.46	0.58	C	C	B	C
14.38	SR-91														
		3	55,000	1,990	1,970	1,730	2,220	0.74	0.73	0.64	0.82	C	C	C	D
14.58	Orangethorpe Ave														
		3	41,000	1,550	1,700	1,520	1,690	0.57	0.63	0.56	0.63	C	C	C	C
15.07	I-5														
		3	42,000	1,490	1,590	1,410	1,610	0.55	0.59	0.52	0.60	C	C	B	C
15.57	Artesia Blvd														
		3	52,000	1,750	2,170	2,150	2,030	0.65	0.80	0.80	0.75	C	D	D	C
16.38	La Mirada Blvd														
		3	50,000	1,610	2,650	2,790	2,180	0.60	0.98	1.03	0.81	C	E	F0	D
D17.34	Rosecrans Ave														
		3	43,000	1,490	2,030	2,020	1,740	0.55	0.75	0.75	0.64	C	C	C	C
19.17	SR-90 Imperial Hwy														
		3	31,000	1,150	1,450	1,490	1,260	0.43	0.54	0.55	0.47	B	C	C	B
19.67	Lambert Rd														
		3	31,000	1,030	1,740	1,550	1,410	0.38	0.64	0.57	0.52	B	C	C	B
20.72	SR-72 Whittier Blvd														
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20.88	Hacienda Blvd														
		2	29,000	1,030	1,090	970	1,130	0.57	0.61	0.54	0.63	C	C	C	C
22.60	Harbor Blvd														

Route 39

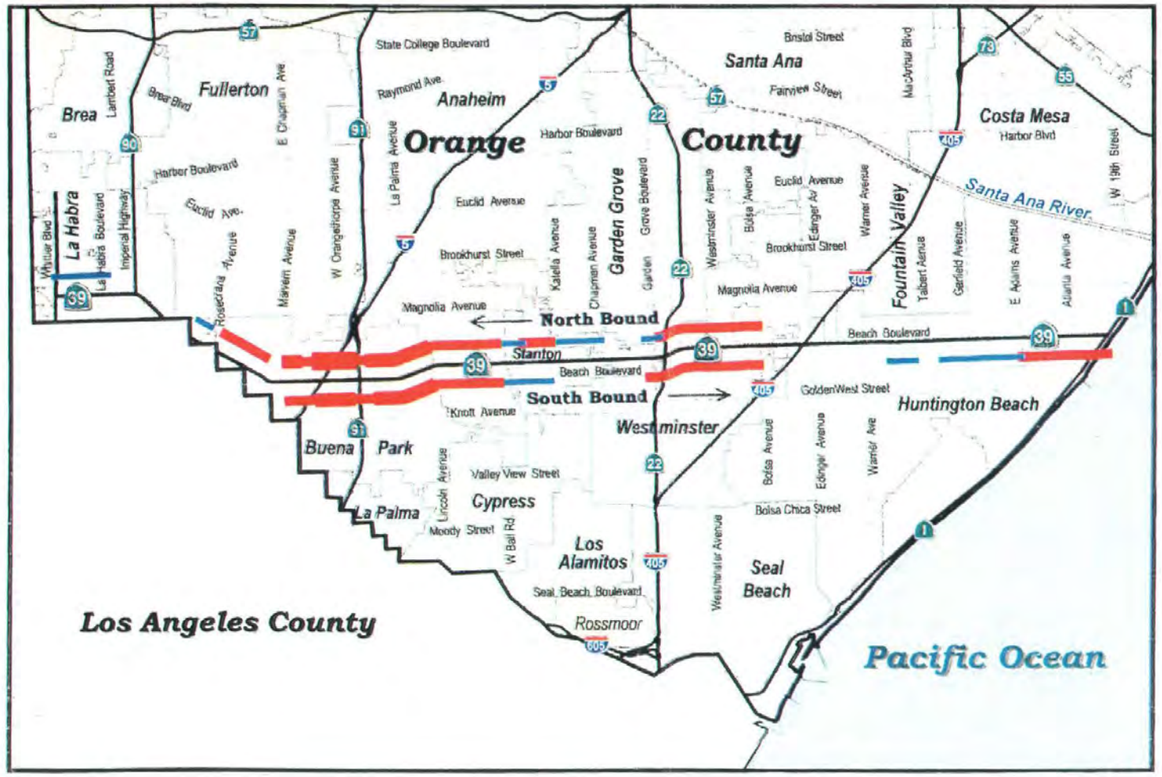
Route Concept Report

Year 2020 Level of Service (NULL)

Morning Peak



Afternoon Peak



Legend

39 State	E	F1
5 Interstate	F2	F0

N

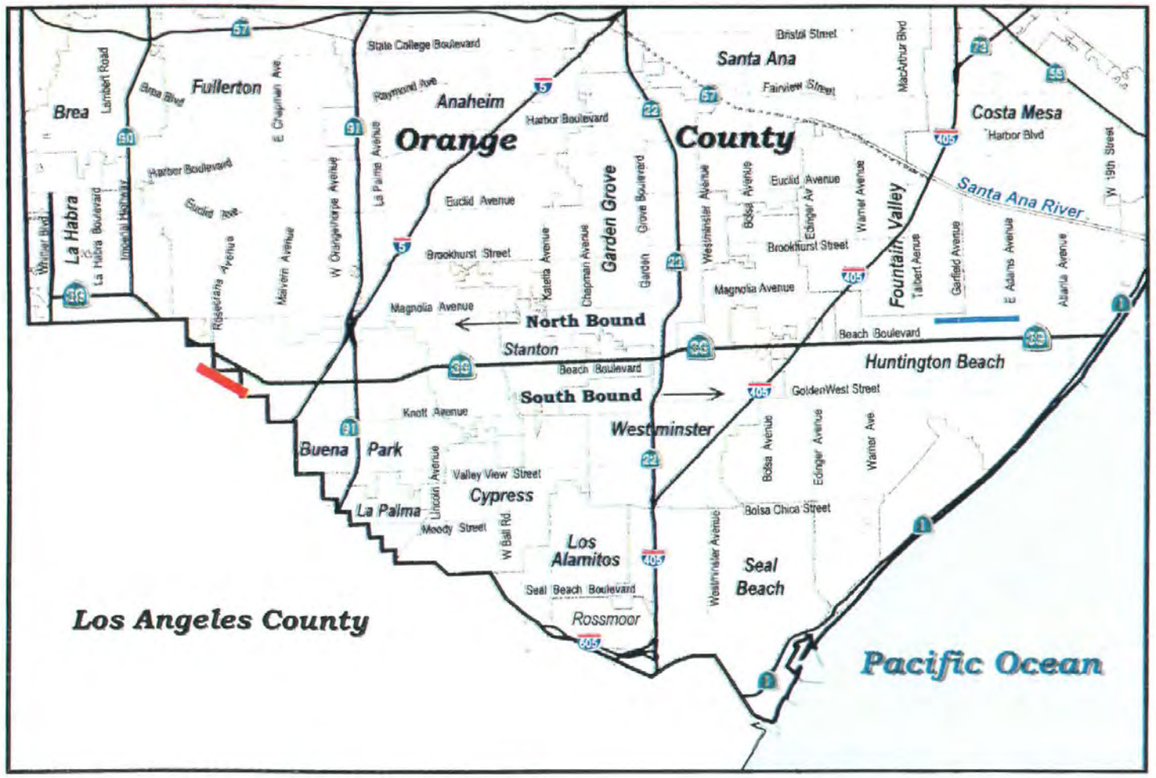
No Scale

Caltrans District 12 GIS Unit

07/14/2000

Route 39
Route Concept Report
Year 1997 Level of Service (LOS)

Morning Peak



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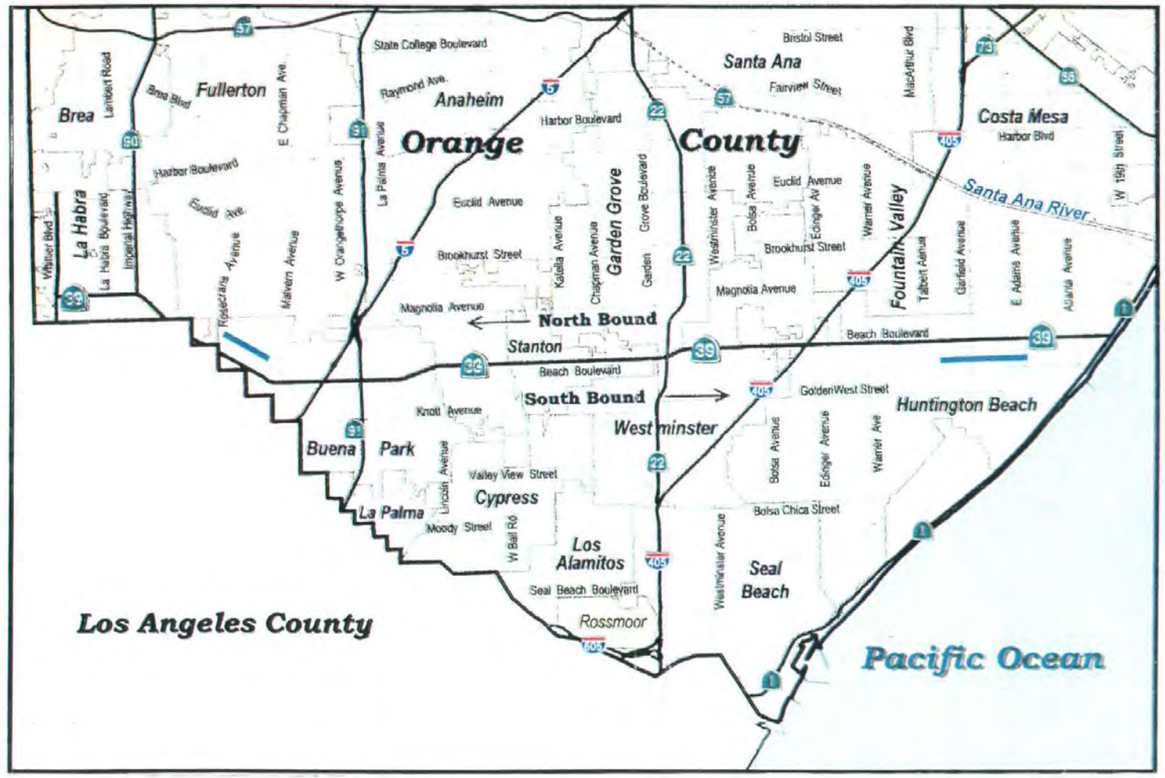


Legend

39 State	E	F1
5 Interstate	F2	F0

N

No Scale

Caltrans District 12 GIS UNIT

07/14/2000

Route 39
2020 CONCEPT

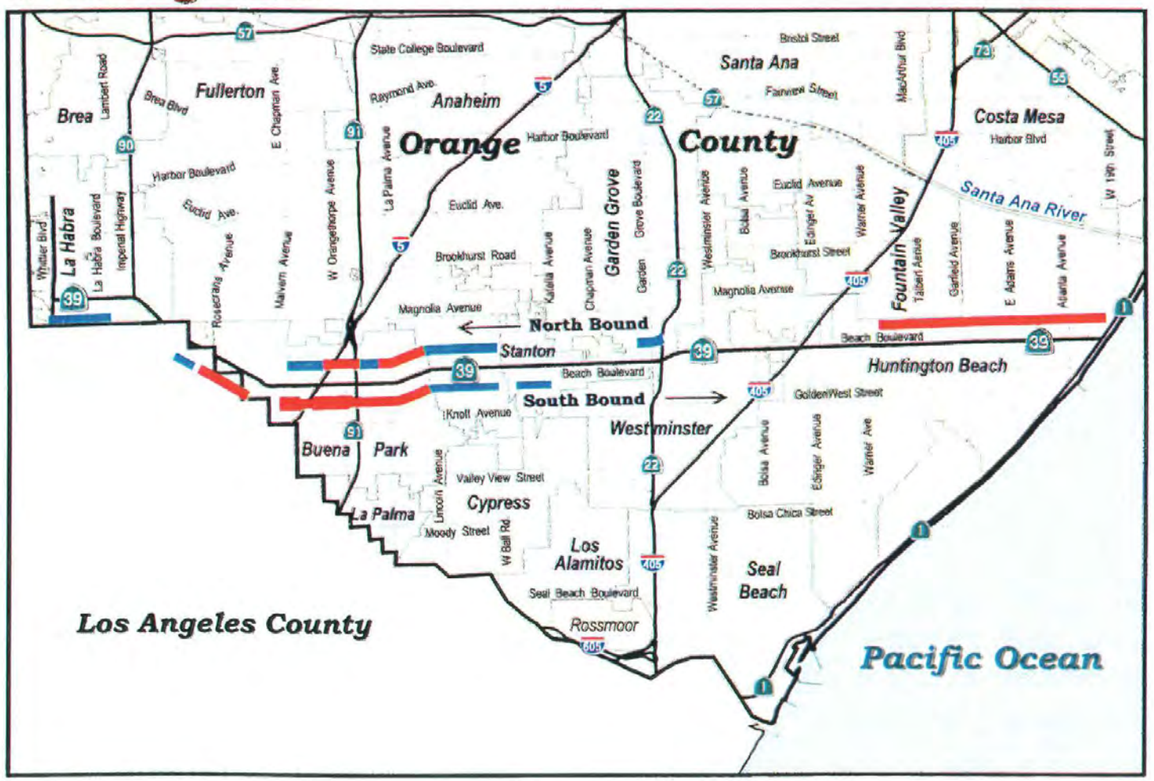
Post Mile	Decription of Location	No. Lanes	2-way ADT*	(1) 1 hr A.M Peak (NB)*	(2) 1 hr P.M Peak (NB)*	(3) 1 hr A.M Peak (SB)*	(4) 1 hr P.M Peak (SB)*	(1) V/C A.M Pea (NB)*	(2) V/C P.M Peak (NB)*	(3) V/C A.M Pea (SB)*	(4) V/C P.M Peak (SB)*	(1) LOS A.M Peak (NB)*	(2) LOS P.M Peak (NB)*	(3) LOS A.M Peak (SB)*	(4) LOS P.M Peak (SB)*
0.00	PCH (SR-1)														
		3	45,800	2,830	1,990	1,000	2,960	1.05	0.74	0.37	1.10	F0	C	B	F0
1.63	Adams Ave														
		3	45,600	3,000	1,980	1,030	2,990	1.11	0.73	0.38	1.11	F0	C	B	F0
3.12	Main St/Ellis Ave														
		4	63,100	3,860	2,490	1,240	3,580	1.07	0.69	0.34	0.99	F0	C	A	E
3.61	Talbert Ave														
		4	75,300	3,950	2,950	1,800	3,770	1.10	0.82	0.50	1.05	F0	D	B	F0
4.13	Slater Ave														
		4	73,200	2,920	3,050	2,350	3,180	0.81	0.85	0.65	0.88	D	D	C	D
4.63	Warner Ave														
		4	71,100	2,720	3,020	2,410	3,090	0.76	0.84	0.67	0.86	C	D	C	D
5.80	I-405														
		4	76,400	2,530	3,020	2,450	2,900	0.70	0.84	0.68	0.81	C	D	C	D
6.64	Bolsa Ave														
		4	74,900	2,850	3,170	2,730	3,310	0.79	0.88	0.76	0.92	D	D	C	D
7.63	Westminster Ave														
		4	77,300	2,780	3,440	2,950	3,560	0.77	0.96	0.82	0.99	D	E	D	E
8.48	SR-22														
		4	81,300	3,340	3,460	2,900	3,790	0.93	0.96	0.81	1.05	E	E	D	F0
9.67	Chapman Ave														
		4	75,100	2,640	3,340	3,020	3,300	0.73	0.93	0.84	0.92	C	E	D	D
10.66	Katella Ave														
		4	77,100	2,650	3,810	3,470	3,490	0.74	1.06	0.96	0.97	C	F0	E	E
11.18	Cerritos Ave														
		4	77,200	2,880	3,530	3,140	3,410	0.80	0.98	0.87	0.95	D	E	D	E
11.68	Ball Rd														
		4	86,500	3,530	4,020	3,370	4,080	0.98	1.12	0.94	1.13	E	F0	E	F0
12.69	Lincoln Ave														
		4	97,600	4,120	4,620	3,750	4,700	1.14	1.28	1.04	1.31	F0	F1	F0	F1
13.76	La Palma Ave														
		4	104,500	3,600	4,450	4,020	4,270	1.00	1.24	1.12	1.19	E	F0	F0	F0
14.38	SR-91														
		3	88,300	3,040	3,190	2,860	3,360	1.13	1.18	1.06	1.24	F0	F0	F0	F0
14.58	Orangethorpe Ave														
		3	82,400	2,720	3,730	3,440	3,480	1.01	1.38	1.27	1.29	F0	F2	F1	F1
15.07	I-5														
		3	84,500	2,600	3,280	3,020	3,160	0.96	1.21	1.12	1.17	E	F0	F0	F0
15.57	Artesia Blvd														
		3	82,500	2,200	3,470	3,580	3,010	0.81	1.29	1.33	1.11	D	F1	F1	F0
16.38	La Mirada Blvd														
		3	56,900	1,370	2,960	3,260	2,150	0.51	1.10	1.21	0.80	B	F0	F0	D
17.34	Rosecrans Ave														
		3	53,700	1,490	2,570	2,610	1,980	0.55	0.95	0.97	0.73	C	E	E	C
19.17	SR-90 Imperial Hwy														
		3	43,900	1,160	2,170	2,190	1,720	0.43	0.80	0.81	0.64	B	D	D	C
19.67	Lambert Rd														
		3	43,800	1,070	2,590	2,630	1,820	0.40	0.96	0.97	0.67	B	E	E	C
20.72	SR-72 Whittier Blvd														
20.88	Hacienda Blvd														
		2	32,800	1,100	1,120	1,010	1,200	0.61	0.62	0.56	0.67	C	C	C	C
22.60	Harbor Blvd														

Route 39

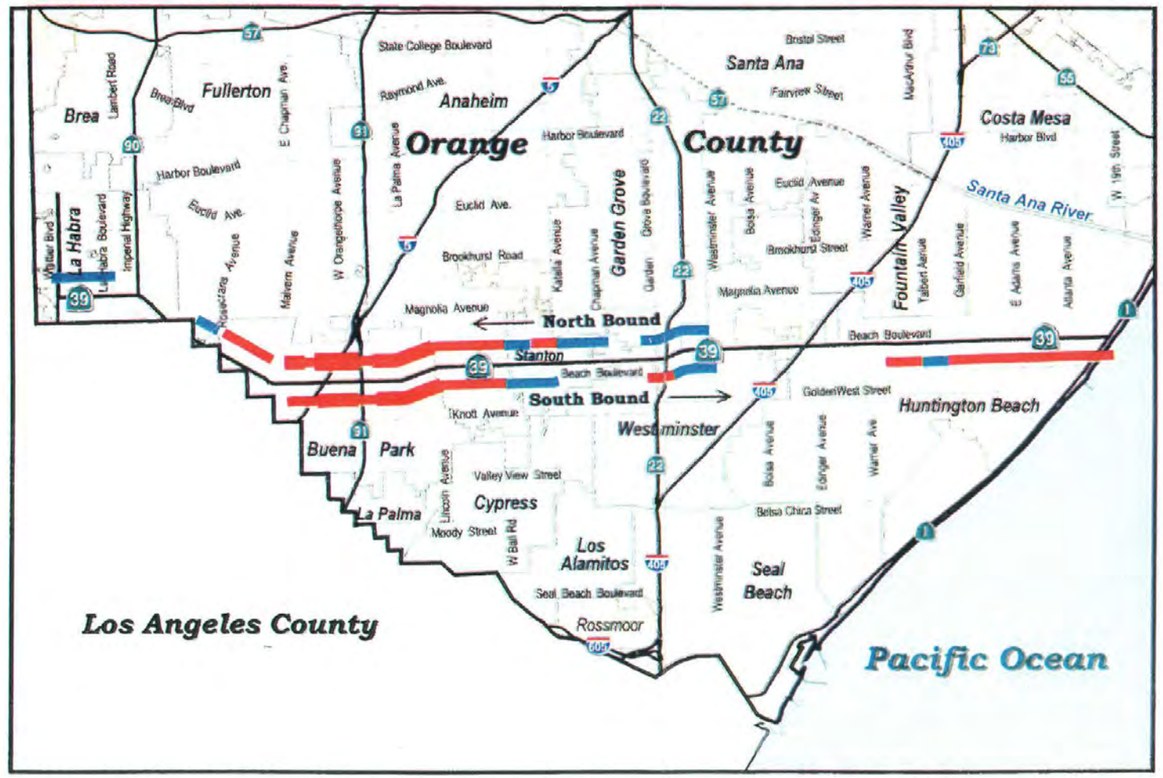
Route Concept Report

Year 2020 Level of Service (CONCEPT)

Morning Peak



Afternoon Peak



Legend

39 State	E	F1	
5 Interstate	F2	F0	

N

No Scale

Caltrans District 12 GIS UNIT

07/14/2000

Route 39
2020 NULL

Post Mile	Decription of Location	No. Lanes	2-way ADT*	(1) 1 hr A.M Peak (NB)*	(2) 1 hr P.M Peak (NB)*	(3) 1 hr A.M Peak (SB)*	(4) 1 hr P.M Peak (SB)*	(1) V/C A.M Pea (NB)*	(2) V/C P.M Peak (NB)*	(3) V/C A.M Pea (SB)*	(4) V/C P.M Peak (SB)*	(1) LOS A.M Peak (NB)*	(2) LOS P.M Peak (NB)*	(3) LOS A.M Peak (SB)*	(4) LOS P.M Peal (SB)*
0.00	PCH (SR-1)														
		3	43,500	2,700	1,990	990	2,730	1.00	0.74	0.37	1.01	E	B	B	F0
1.63	Adams Ave														
		3	44,500	2,980	1,980	1,060	2,700	1.10	0.73	0.39	1.00	F0	B	B	E
3.12	Main St/Ellis Ave														
		4	50,000	2,920	1,800	1,040	2,640	0.81	0.50	0.29	0.73	B	B	A	B
3.61	Talbert Ave														
		4	70,500	3,480	2,730	1,730	3,410	0.97	0.76	0.48	0.95	E	B	B	E
4.13	Slater Ave														
		4	76,400	2,970	3,110	2,520	3,240	0.83	0.86	0.70	0.90	B	B	B	B
4.63	Warner Ave														
		4	75,700	2,900	3,140	2,550	3,230	0.81	0.87	0.71	0.90	B	B	B	B
5.80	I-405														
		4	78,700	2,640	3,120	2,570	3,040	0.73	0.87	0.71	0.84	B	B	B	B
6.64	Bolsa Ave														
		4	83,800	3,120	3,700	3,190	3,750	0.87	1.03	0.89	1.04	B	F0	B	F0
7.63	Westminster Ave														
		4	84,600	3,070	3,960	3,320	3,970	0.85	1.10	0.92	1.10	B	F0	B	F0
8.48	SR-22														
		4	81,800	3,380	3,510	2,980	3,770	0.94	0.98	0.83	1.05	E	E	B	F0
9.67	Chapman Ave														
		4	75,700	2,640	3,370	3,040	3,300	0.73	0.94	0.84	0.92	B	E	B	B
10.66	Katella Ave														
		4	78,000	2,720	3,840	3,500	3,490	0.76	1.07	0.97	0.97	B	F0	E	E
11.18	Cerritos Ave														
		4	78,100	2,940	3,550	3,130	3,380	0.82	0.99	0.87	0.94	B	E	B	E
11.68	Ball Rd														
		4	88,100	3,630	4,120	3,420	4,140	1.01	1.14	0.95	1.15	F0	F0	E	F0
12.69	Lincoln Ave														
		4	98,700	4,170	4,650	3,780	4,720	1.16	1.29	1.05	1.31	F0	F1	F0	F1
13.76	La Palma Ave														
		4	105,000	3,610	4,470	3,990	4,340	1.00	1.24	1.11	1.21	E	F0	F0	F0
14.38	SR-91														
		3	88,500	3,030	3,290	2,950	3,290	1.12	1.22	1.09	1.22	F0	F0	F0	F0
14.58	Orangethorpe Ave														
		3	84,100	2,710	3,850	3,440	3,570	1.00	1.43	1.27	1.32	E	F2	F1	F1
15.07	I-5														
		3	85,100	2,640	3,290	3,080	3,160	0.98	1.22	1.14	1.17	E	F0	F0	F0
15.57	Artesia Blvd														
		3	84,000	2,200	3,520	3,600	3,040	0.81	1.30	1.33	1.13	B	F1	F1	F0
16.38	La Mirada Blvd														
		3	57,900	1,400	3,050	3,410	2,250	0.52	1.13	1.26	0.83	B	F0	F1	B
017.34	Rosecrans Ave														
		3	54,100	1,470	2,610	2,610	1,970	0.54	0.97	0.97	0.73	B	E	E	B
19.17	SR-90 Imperial Hwy														
		3	44,400	830	2,210	2,280	1,730	0.31	0.82	0.84	0.64	A	B	B	B
19.67	Lambert Rd														
		3	44,400	1,070	2,690	2,710	1,800	0.40	1.00	1.00	0.67	B	E	E	B
20.72	SR-72 Whittier Blvd														
20.88	Hacienda Blvd														
		2	32,800	1,110	1,130	970	1,210	0.62	0.63	0.54	0.67	B	B	B	B
22.60	Harbor Blvd														

APPENDIX 3

Bikeway Classifications

Class I Bikeway (Bike Path):	Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.
Class II Bikeway (Bike Lane):	Provides a restricted right-of-way (striped lane) for the exclusive or semi-exclusive use of bicycles with through travel by motorized vehicles or pedestrians prohibited but with cross flows by pedestrians and motorists permitted.
Class III Bikeway (Bike Route):	Provides for shared use with pedestrian or motor vehicle traffic.

APPENDIX 4

New Technology

Intelligent Transportation Systems (ITS)
There are currently two pilot projects on-going in Orange County which may be considered as Intelligent Transportation System (ITS) projects. The first of these is the Mobile Video Surveillance and Communications Project. This project locates portable trailers at critical locations along the highway to monitor flow conditions on the mainline and interactively regulate on-ramp traffic flow. The second ITS project is the Integrated Freeway Ramp Meter/Arterial Adaptive Signal Control Project. This project will allow for the joint monitoring of the I-5 and I-405 interchange area and Alton Parkway by the District and the City of Irvine. The intent of both of these projects is to apply several new technologies in an effort to optimize traffic flow.

Intelligent Vehicle Highway Systems (IVHS)
These systems utilize what is also commonly referred to as smart systems. There are three basic components necessary to implement a fully functional IVHS. These three are discussed below.

- **Advanced Traveler Information Systems (ATIS)**
  This type of system would provide the motorist with real-time traffic routing information. This information could be provided to the motorist using virtually any medium including television, radio, telephone and personal computer. Information could be routed to offices, homes or even directly to an in-vehicle device.

- **Advanced Traffic Management Systems (ATMS)**
  These systems include the potential use of Automatic Vehicle Identification (AVI) systems and Advanced Traveler Information System (ATIS) for electronic detection and interface with real-time TOS information. Other areas of research include bottleneck evaluations and the policies and procedures to be required for automated highway operation.

- **Automated Vehicle Control Systems (AVCS)**
  The greatest potential for improving highway safety within the IVHS technologies is the AVCS. These systems can electronically enhance or automate driving functions. There are two basic types of driving control offered for use of this new technology. First is the lateral control system which controls vehicle steering, and the second is the longitudinal system which automates vehicle spacing, or the distance between vehicles. PATH (see below) is currently researching both types of driving control systems. It is anticipated that these systems are more long term innovations but do have a high potential for feasible implementation.

Showcase for IVHS - The Priority Corridor

The Priority Corridor proposal is an endeavor to demonstrate the actual full potential of the transportation network with all possible new technologies in place and integrated. This comprehensive and coordinated approach should reveal new capabilities of the transportation system. It is meant to serve as a living laboratory for new developments in transportation.

The Priority Corridor is geographically described as: bounded on the north by SR-126 and I-210; on the east by SR-71, I-15 and I-215; on the south by the U.S. border with Mexico, the Otay Mesa Border crossing and SR-905; and on the west by the Pacific Ocean. This corridor includes a myriad of intermodal systems for moving people and goods. It is also an air quality non-attainment area and experiences severe congestion. The corridor is host to over half the population and jobs in California. It is being viewed as a Showcase for IVHS. This plan proposes to take full advantage of four Transportation Management Centers (TMC's), IVHS and Intermodal Transportation Management and Information System (ITMIS).

Consequently, the numerous and diverse difficulties experienced within the corridor area render it an ideal proving ground for new technology. These factors also provide an excellent opportunity to evaluate intermodal technologies, traffic management techniques, traveler information systems, passenger and fleet management systems, as well as freight vehicle control systems. Deployment and implementation of these different technologies will attempt to optimize and coordinate freeway and street operations with public and private transportation systems within the corridor. A cooperative effort among Caltrans, CHP, regional, county and city governments and the MPOs is essential to the success of Priority Corridor operations.

New Technology Research and Development

Caltrans and University of California at Berkeley have established Partners for Advanced Transit and Highways (PATH). PATH researches new technologies such as warning and avoidance systems and electronic braking. PATH also analyzes ATIS, IVHS and ATMS developments for costs and feasibility.

The District is committed to working with cities, the county, regional agencies, other state agencies, and academic institutions on the research, development and implementation of new technology in the development of the transportation system. The implementation of new technology is necessary to obtain optimum efficiency of the system.

APPENDIX 5

Urban Freeway Standards

In April 1992 the Transportation Planning Branch completed a Transportation Operation Systems (TOS) Plan for District 12. The TOS Plan outlined the traffic system management elements required for efficient operation of the state highway system. Following is an excerpt from that report.

> "The goal of the Plan is to develop ultimate urban and regional freeways and highways, defined as transportation corridors, which have all system elements satisfied and will provide the following benefits:
>
> - Operate facilities at maximum efficiency
> - Minimize and manage travel delay and congestion
> - Disseminate motorist information using advanced technologies.
>
> The typical urban freeway operations plan includes:
>
> - Electronic Loop Detectors
> - Closed Circuit Television (CCTV)
> - Changeable Message Signs (CMS)
> - Highway Advisory Radio (HAR)
> - Freeway Ramp Meters
> - Fiber Optic Communications System
> - Traffic Management Center (TMC)
> - Major Incident Response Teams
> - Motorist Call Boxes
> - Freeway Service Patrols (FSP)
> - Airborne Surveillance
> - Smart Corridor Interface with Local Agencies
> - High Occupancy Vehicle (HOV) Facilities.
> - Maintenance Pullouts
>
> Methods to achieve maximum efficiency on transportation facilities include: ramp metering, freeway incident detection and confirmation (CCTV surveillance, etc.), freeway incident response teams, and FSP. Methods to disseminate motorist information include provision of real-time information on traffic conditions to allow motorists to make informed route decisions by using CMS, HAR, In-Vehicle Navigation Systems and teletext services (Commuter TV). Management of data includes monitoring technologies such as loop detectors and CCTV."

The TOS Plan was updated by Traffic Operations in January 1994. This iteration of the TOS Plan refined definitions and uses of the various technologies outlined in the original report. More importantly the updated version looked closer at actual implementation plans and schedules. Several TOS elements were identified as individual projects with identified funding and implementation schedules. Because of potential cost savings several other projects were proposed to be included as an element of larger projects (widening/reconstruction, adding HOV lanes, etc.); however in many of these cases no funding was identified. Finally, several new projects were identified which neither had funding nor implementation schedules.

Full implementation of the TOS Plan elements is an integral part of this and all other freeway route concepts in Orange County. It is the goal of Caltrans District 12 to bring each freeway route in Orange County up to urban freeway standards. It may be most cost effective to implement these items as part of larger projects in order to save on project development and engineering costs.

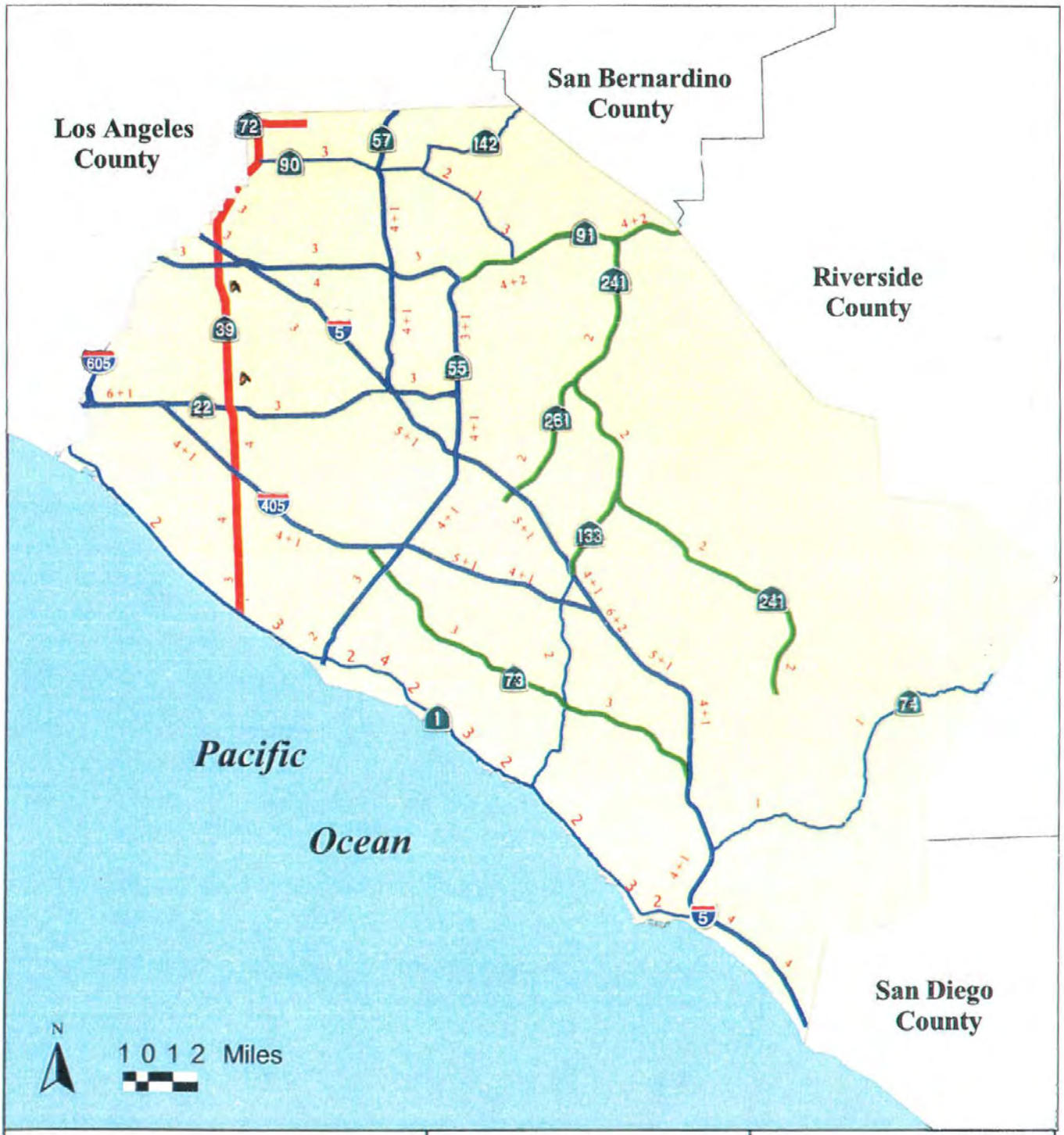
New Technology

There are several elements of the existing and future transportation system which are referred to as "new technology". It would also be appropriate to consider most of these elements as Traffic System Management (TSM) elements. Most of the above mentioned TOS elements take full advantage of new technology and these categories have a good deal of crossover application between them. In addition to the TOS elements mentioned above in the URBAN FREEWAY STANDARDS section other New Technology programs are currently being implemented in Orange County, both on and off the State Highway System. Please see Appendix 4 - NEW TECHNOLOGY for a brief outline of new technology programs and some implementation efforts currently underway in Orange County.

SmartStreet strategies can include technologies and elements utilized for TSM, TOS, and ITS.

APPENDIX 6
CONCEPT SYSTEM CONFIGURATION

Year 1997 System Configuration

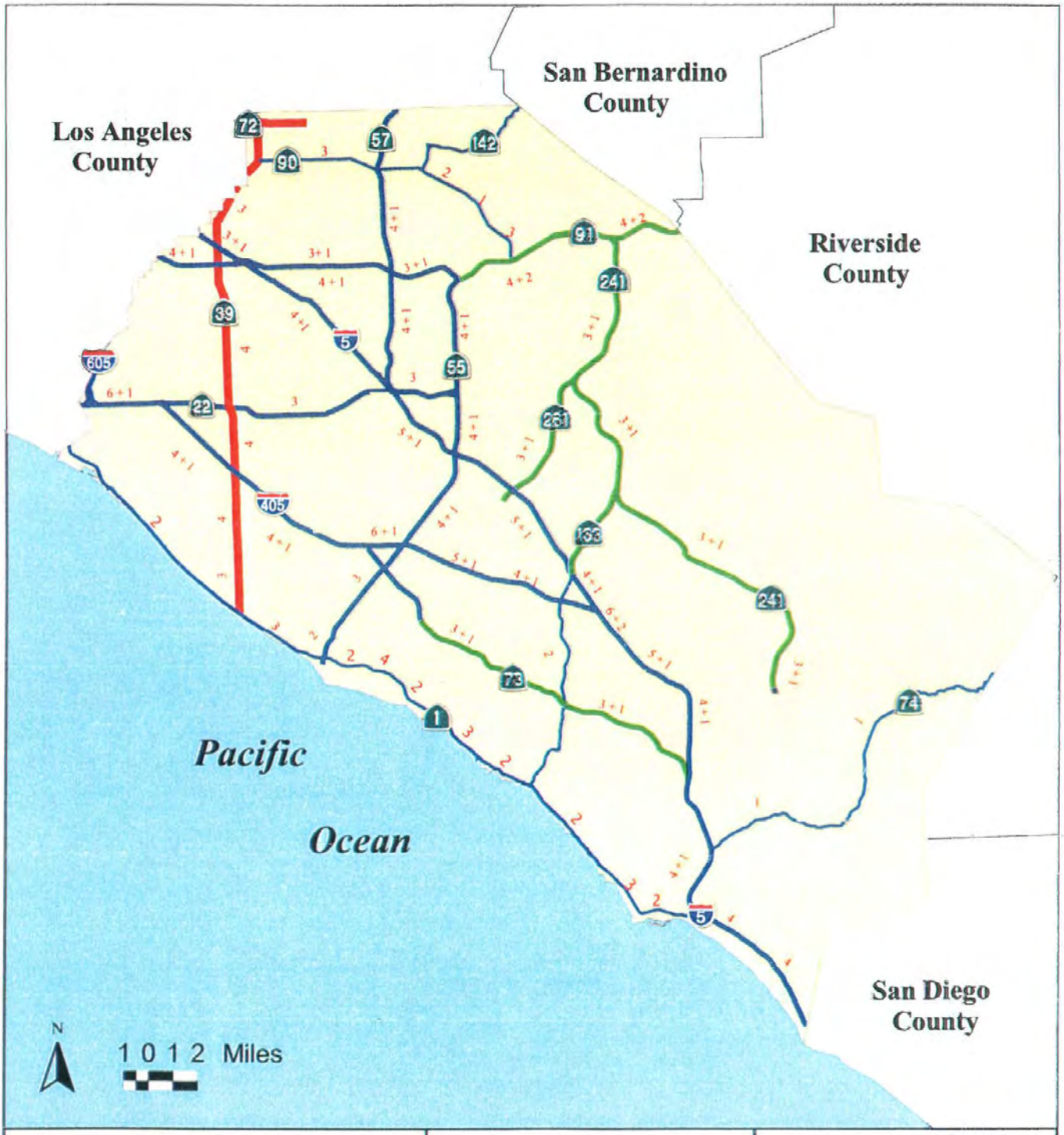


Legend :

Mixed Flow No. of Lanes + HOV No. of Lanes (Directional)
June 2000

District 12 GIS UNIT

Year 2020 Null System Configuration

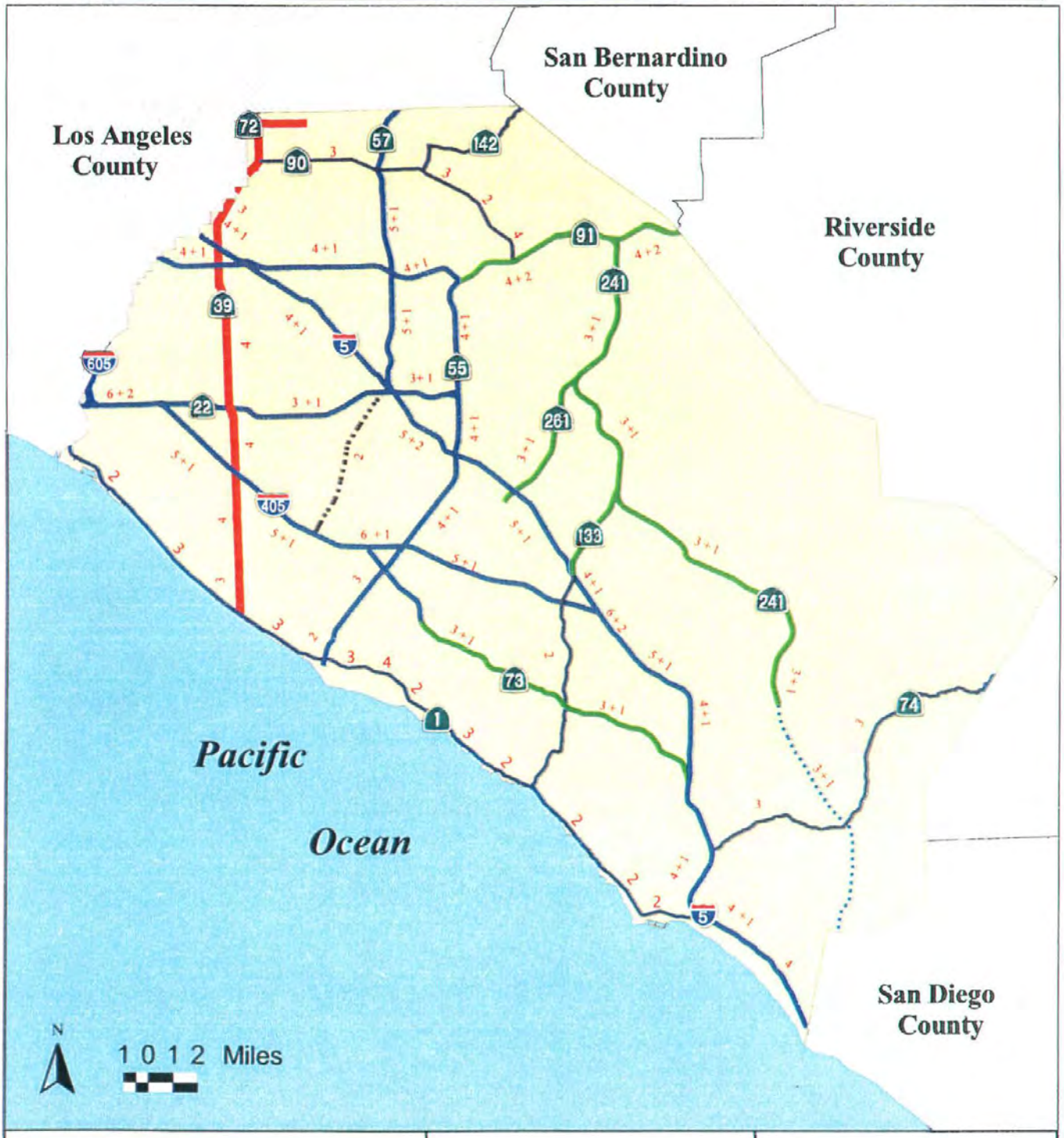


Legend :

Mixed Flow No. of Lanes + HOV No. of Lanes
(Directional)
May 2000

District 12 GIS UNIT

Year 2020 Concept System Configuration



Legend :

Mixed Flow No. of Lanes + HOV No. of Lanes
(Directional)
May 2000

District 12 GIS UNIT

Appendix 7

Mitigation Measures

- Multimodal Transportation Network: Provides vital intra-corridor and inter-corridor linkages for businesses and residents by incorporating rail, transit, bicycle, and pedestrian plans and programs in the development process.

- Rail/Transit: Includes commuter rail, intercity rail, public (transit) bus service, private (transit) bus service, and shuttle services.

- Park and Ride Facilities: Provides park and ride lots to support a multimodal transportation network, rail/transit, and HOV lanes.

- Intelligent Transportation Systems (ITS): Use of technology to both prevent and alleviate traffic congestion using methods ranging from real-time management to personalized travel information services. Examples of ITS applications include traveler information systems such as changeable message signs on freeways, advanced communications systems to dispatch vehicles to accidents, traffic management centers, and information clearinghouse strategies.

- Transportation System Management (TSM) and Traffic Operations Systems (TOS): Provides for optimum utilization of the existing infrastructure. Projects include those that increase the number of person-trips that can be carried on the highway system without significantly increasing capacity. Examples include: restriping, ramp meters, meter bypass lanes, parking management, special event management, incident response, priority designation for transit and/or high occupancy vehicles, computerized signals, signs, signals, and pavement markings.

APPENDIX 8

ACRONYMS

ADT - Average Daily Traffic
ATMS – Advanced Traffic Management System
ATIS – Advanced Traveler Information Systems
AVCS – Automated Vehicle Control Systems
AVI – Automatic Vehicle Identification

CBD – Central Business District
CCTV - Closed Circuit Television
CHP - California Highway Patrol
CMS - Changeable Message Sign

DSMP – District System Management Plan
DOD- Department of Defense

EB – Eastbound
EIR – Environmental Impact Report
ETC - Eastern Transportation Corridor

FAA – Federal Aviation Aministration
FCR – Flexible Congestion Relief
FSP - Freeway Service Patrol
FTA – Federal Transit Act
FTC- Foothill Transportation Corridor

HOV - High Occupancy Vehicle
HOT - HOV/Toll

I – Interstate
IGR – Intergovernmental Review
ITS – Intelligent Transportation Systems
ITMS – Inter-modal Transportation Management System
ITMIS – Inter-modal Transportation Management and Information System
IVHS – Intelligent Vehicle Highway System

LARTS - Los Angeles Regional Transportation Study
LBT - Laguna Beach Transit
LOS - Level Of Service
LOSSAN – Los Angeles – San Diego Rail Corridor
LRA – Local Redevelopment Authority

MCAS – Marine Corps Air Station
MPAH - Master Plan of Arterial Highways

MPO – Metropolitan Planning Organization

NB – Northbound
NHS - National Highway System
NTA – National Transportation Authority

OCEMA - Orange County Environmental Agency
OCTA - Orange County Transportation Authority
OHC - Other Highway Construction

PATH – Partners for Advanced Transit and Highways
PM - Post Mile
PPN - Planning and Program Number
PSR – Project Study Report

RAS - Rehabilitate and Safety
RCR - Route Concept Report
RME - Regional Mobility Element
RTIP – Regional Transportation Improvement Plan

SANDAG – San Diego Association of Governments
SB – Southbound
SCRRA – Southern California Regional Rail Authority
SCAG - Southern California Association of Governments
SHELL - Subsystem of Highways for the movement of Extra Legal Loads
SHOPP - State Highway Operation Project Plan
SJHTC - San Joaquin Hills Transportation Corridor
SR - State Route
STIP - State Transportation Improvement Program
STRAHNET – STRategic Highway NETwork

TASAS - Traffic Accident Surveillance and Analysis System
TMC - Transportation Management Center
TMC – Transportation Monitoring Center
TOS – Traffic Operation System
TSM – Traffic System Management
TSM - Transportation System Management

UCI - University of California Irvine

WB - Westbound

APPENDIX 9

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