# Transportation Concept Report

*California Department of Transportation*
*District 7*
*Office of Advance Planning*
*System Planning Branch*

Caltrans

*September 2003*

**TRANSPORTATION CONCEPT REPORT**

# STATE ROUTE 14

P.M. R0.00 – R77.01

**PREPARED BY DISTRICT 7 DIVISION OF PLANNING**

**SEPTEMBER 2003**

CALTRANS DISTRICT 07 APPROVAL

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# State Route 14
# Transportation Concept Report

# TRANSPORTATION CONCEPT REPORT

# STATE ROUTE 14

## TABLE OF CONTENTS


I. Disclaimer……1

II. Document Summary……2

III. Document Purpose……3

A. System Planning Overview……4
B. Legislative Mandate……6

IV. Regional Threshold Criteria and Policies……7

V. Route Description……11

VI. Socio-Economics……13

VII. Accident Rates and Safety……16

VIII. Segment Summaries Introduction……19

A. Segment Map……20
B. Segment Configuration……21
C. Level of Service Graph……22
D. Segment Summary……23

IX. Route Analysis……29

X. Improvements……37

XI. Transportation Concept and Conclusions……42

XII. Bibliography/Glossary……44

# I. Disclaimer

This Transportation Concept Report (TCR) is a planning document prepared by the California Department of Transportation (Caltrans) based on the data available up to the date of its publication.

This TCR identifies the present geometric and operational characteristics of the transportation facility for which it was prepared, the anticipated demand in 20 years, and the suggested improvements to satisfy the future demand.

The future improvements to the transportation facility identified in this TCR are recommendations for study purposes and shall not be binding upon the State of California and/or Caltrans for implementation. Caltrans, in collaboration with local and regional transportation agencies, and upon conduct of further studies and availability of funds, may proceed with implementation of any or all of the identified future improvements or may select improvements in lieu of those identified in this document. Any identified improvements should not be construed as being 100% publicly funded.

# II. DOCUMENT SUMMARY

While this Transportation Concept Report (TCR) is divided into twelve sections, three of the sections, VIII, X and XI are the heart of the document. They include detailed segment summaries (Section VIII), a list of suggested improvements (Section X) and Transportation Concept and Conclusions (Section XI). All of the other sections provide a context for analyzing the State Route 14 (SR-14) corridor and document the data resources studied.

The basic aim of this document is to suggest a configuration for SR-14 that will meet projected demands within a framework of programming and implementation constraints and regional policy.

The recommended concept for segments 2 through 4 of route 14 is Alternative Concept #2. Alternative Concept #2 includes the addition of 2 HOV lanes in segment 2, adding 1 HOV lane in segment 3, adding 1 mixed flow lane and 1 HOV lanes in segment 4. The recommended concept for segments 5 and 6 is to maintain the existing facility.

| Segment | Limits | Base Year (2000) Facility | Alternative Concept #1 | Alternative Concept #2 | Maintain Current D/C | LOS "D" Attainment |
|---|---|---|---|---|---|---|
| 1 | Rte. 1 to Rte. 5 | **UNCONSTRUCTED** | | | | |
| 2 | Rte. 5 to Rte. 126 (existing) | 4 MF | 4 MF + 1 HOV | 4 MF + 2 HOV | 5MF | 6MF + 2HOV |
| 3 | Rte. 126 (existing) to Rte. 126 (future) | 3 MF + 1 HOV | 3 MF + 1 HOV | 3 MF + 2 HOV | 4MF + 2HOV | 5MF + 2HOV |
| 4 | Rte. 126 (future) to Rte. 138 (south) | 2 MF + 1 HOV | 3 MF +1 HOV | 3 MF + 2 HOV | 4MF + 2HOV | 4MF + 2HOV |
| 5 | Rte. 138 (south) to Avenue I | 3 MF | 3 MF +1 HOV | 3 MF + 1 HOV | 4MF + 1HOV | 4MF + 1HOV |
| 6 | Ave. I to Kern County Line | 2 MF | 2 MF | 3 MF | 3MF | 3MF |

# III. DOCUMENT PURPOSE

This Transportation Concept Report (TCR) is an internal Caltrans planning tool intended to provide an initial look at developments within the State Route 14 (SR-14) corridor over the next twenty years. Its primary focus is on identifying "need"--defined as the difference between forecast demand and capacity. It analyzes this need in three primary ways: 1) it documents current conditions; 2) it contrasts projected future demand with planned facilities (capacity); and 3) it proposes future development alternatives to address the shortfalls between demand and capacity.

As an initial step in the planning process, its observations and conclusions serve as a reference for more complex and specific reports such as Feasibility Studies, Major Investment Studies, and Project Studies.

This TCR is composed of a series of proposed alternatives for the development of SR-14. The alternatives are included in the Segment Summaries, Section VIII. The alternatives cover a wide range: Alternative Concept #1 is based on existing plans--primarily the SCAG RTP, the LACMTA Long Range and HOV Plans, and the Caltrans District System Management Plan. The Attain LOS "D" alternative is based on the number of "lane equivalents" necessary to reach LOS "D"--by definition, the lowest adequate level of service rating.[1] The Ultimate Transportation Corridor (UTC) alternative is considered the maximum reasonable development of a highway facility within the corridor. The UTC is intended to identify potential right of way needs.

1. Please note: The Attain LOS “D” alternative is provided as a way to illustrate future congestion and capacity needs and **not as a suggestion for programming.**

# SYSTEM PLANNING:

## An Overview

**PURPOSE:**

System Planning provides the basis for an effective transportation decision-making process, which is responsive to the public demand for mobility of people and goods.

**OBJECTIVE:**

- Identify, analyze and display transportation problems on a consistent statewide basis to enable fully informed decisions on the programming of system improvements and on system operations and maintenance.

- Allow department management to make short-term decisions that are consistent with long-term objectives.

- Communicate with the public on the levels of transportation service, which the state can or cannot provide.

**PRODUCTS:**

**1) District System Management Plan (DSMP)**

The DSMP is a strategic and policy planning document that presents how the district envisions the transportation system will be maintained, managed and developed over the next twenty years and beyond. It is developed in partnership with regional and local transportation planning agencies, congestion management agencies, transit districts and air quality planning agencies. It considers the entire transportation infrastructure, regardless of jurisdiction, and addresses

all modes and services, which move people, services, and goods. As a management tool, it informs federal, state, regional and local agencies, the public and the private sector of the district's plan for developing, managing and maintaining the transportation system.

**2) Route Concept Report (RCR), Transportation Concept Report (TCR) or Corridor Study**

RCR's, TCR's and Corridor Studies analyze a route or corridor and establish a twenty-year transportation planning concept. They identify modal options and various needs to accomplish the twenty-year concept. The concept analysis considers operating level of service (LOS), modal facility type, vehicle occupancy of all modes and capacity needs. The studies identify "unconstrained" needs.

**3) Transportation System Development Plan (TSDP)**

The TSDP identifies transportation system improvements for the various options analyzed in the DSMP and TCR's. It covers the four-years immediately following the five-year STIP period and uses high and low funding scenarios. It provides a priority list for use in programming on- and off-system improvements.

| | | |
|---|---|---|
| **Document Schedule:** | **DSMP** | Generally, the same as the SCAG Regional Transportation Plan. The anticipated completion date is December 2003. |
| | **TCR's** | Ongoing; updated as conditions change. |

| | |
|---|---|
| **TSDP** | Generally precedes STIP priority list; due from the district by March 15th of odd numbered years. The anticipated completion date is December 2003. |

## The Legislative Mandate

**Long-Term System Planning**

Added: Statutes of 1999, Chapter 2.5

65086 (a) The Department of Transportation shall carry out long-term state highway system planning to identify future highway improvements and new transportation corridor through route concept reports.

(b) The department, in conjunction with transportation planning agencies, shall develop specific project listing for the initiation of project studies reports resulting in project candidates for inclusion in regional transportation plans and the state transportation improvement program as required by Section 14529.

# IV. Regional Threshold Criteria and Policies

## I. CALTRANS: California Transportation Plan:

1) Provide safety and security
2) Maintain system/investment
3) Manage network as a seamless intermodal system
4) Develop airport ground access

## II. CALTRANS: District System Management Plan:

1) District 7 has established **LOS F0** with freeway speeds of approximately 25 mph lasting from 15 minutes to 1 hour as the minimum acceptable LOS for the Freeway System.
2) HOV Criteria for implementing HOV lanes:
    a. High Demand Congested Corridors not served by urban or commuter rail
    b. System connectivity
    c. Cost effectiveness
    d. Safety
    e. Public agency input
3) SR-14 TOS/TOPS System
4) Goods Movement:
    a. Secondary Goods Movement Corridor: Kern County Line to Interstate 5
5) Truck Lanes: Trucks-Only: Under investigation on I-710, Ports to City of Commerce and in the I-5 and SR-60 corridors

## III. SCAG: Regional Transportation Plan:

1) Truck Lanes on I-5, from SR-60 to SR-126 (1 lane in each direction, if free access; 2 lanes in each direction if tolled)
2) HOV Connectors on I-5 at: SR-170, SR-14 (to possible toll lanes) and SR-134
3) Add mixed flow lanes to increase capacity (with restrictions), close gaps and for connectivity
5) California High Speed Rail System: On I-5 from Union Station to SR-14 and on SR-14 to Lancaster/Palmdale
6) Maglev System: LAX to March Inland Port, Palmdale to Union Station and San Diego.
7) Operations and maintenance: Pay now or pay later
8) 76% Freight increase through the ports and 200% freight increase at the airports.

## IV. LA Metropolitan Transportation Authority: MTA HOV Plan

**<u>Primary Corridor Criteria:</u>**

| | |
|---|---|
| 1) Travel time Savings: | Only build where building a lane would provide a travel time savings of 0.3 minutes per mile on the proposed facility compared to adjacent general purposed lanes. |
| 2) Lane Volume: | a. 600 vph minimum<br>b. 1500 vehicles (at 2+) *to take an existing freeway lane* |
| 3) Person Movement: | a. Minimum person movement of 2000 persons per hour is needed to satisfy criteria for *add-a-lane projects* |

b. Minimum of 3000 people in 2+ HOV are necessary to consider projects that would take a lane from existing facilities

4) Transit System Integration: Goal of: operation time reductions between HOV and adjacent general-purpose lane.

**Secondary Corridor Criteria**

1) 20 mph for bus round trips: Minimum **LOS E**
2) Implementation of an HOV facility should not adversely impact general-purpose lane operations or capacity. Criteria are met as long as mainline general-purpose capacity is not reduced.
3) HOV enforcement is necessary requiring dedicated enforcement areas or wide enough shoulders to monitor and apprehend violators; this criteria will not be satisfied with reduced standard shoulders and no facilities for enforcement areas.
4) Transit Station/Park and Ride Lot integration with HOV facility: primary objective is to maximize the number of HOV's that can use a facility. This criterion will be satisfied with direct access or bypass HOV lane on general-purpose ramps entering the freeway.

**System Criteria/Goals**

1) Primary means of linking HOV facility is by gap closure and freeway to freeway HOV connectors
2) Inter-county connectivity at county lines
3) System-wide time savings
4) Regional mobility
5) VMT--should reduce VMT for the entire freeway system
6) Mode shift impact
7) Transit system integration

**HOV I/C Criteria/Goal**

1) Travel time savings
2) Threshold ramp volume
3) Threshold person movement

## V. Los Angeles County Metropolitan Transportation Authority: 2001 Long-Range Transportation Plan for Los Angeles County.

**HOV Baseline Highway Projects: 2001/2008**

I-5/SR-14 HOV Direct Connectors
SR-14 from I-5 to SR-126, San Fernando Road
SR-14 Escondido Canyon Road to Pearblossom Road

## VI. 1997 Final Proposed Congestion Management Plan

LOS "E" unless base year is lower

## VII. TEA 21--Generally:

1) Maintain TDM
2) Provide for intelligent transportation systems (ITS)
3) Expands funding to include intermodal terminals at seaports

# V. ROUTE DESCRIPTION

Pursuant to statues relating to the California Department of Transportation, State Route 14 (SR-14) is an interregional freeway (also known as Antelope Valley Freeway). In District 7, Route 14 spans a total distance of 77.01 miles, entirely within Los Angeles County. The constructed portion of Route 14 originates at Route 5 (P.M. 24.79) in the City of Los Angeles and terminates at the Los Angeles / Kern County line (P.M. R 77.01) near the City of Lancaster. Approximately 25 miles of SR-14, the segment between Pacific Coast Highway (SR-1) and Interstate 5 (I-5), is unconstructed.

The "statutes Relating to the California Department of Transportation " describes Route 14 as follows:

a) Route 1 north of the intersection of Sunset Boulevard northwest of Santa Monica to Route 5 near Tunnel Station.
b) Route 5 at Los Angeles Tunnel Station to Route 58.
c) Route 58 to Route 395 near Little Lake via the vicinity of Antelope Valley.

**PURPOSE OF ROUTE:**

Route 14 is an interregional commute corridor, which provides access to the Los Angeles Central Business District (LACBD) and other employment attractors located south of the Route 14 corridor. Commuter traffic originates from the incorporated cities of Palmdale, Lancaster, and Santa Clarita, (which in 1987 incorporated Newhall, Canyon Country, Saugus, and Valencia) and the unincorporated cities of Sulphur Springs, Lang, Pinetree, Soledad, Agua Dulce, Vasquez Rocks, Vincent, Acton, Lakeview, and Summit. Due to a jobs-housing imbalance, most of the residents of these developing corridor communities must commute a relatively long distance to work in outlying areas.

Route 14 provides access to Fox Airport (Lancaster), Palmdale Airport, Agua Dulce Airport, and Edwards Air Force Base. Several recreational points of interest can be accessed from the Route 14 corridor. These include: Alpine Butte Wildlife Sanctuary, Palmdale Reservoir, Placerita Canyon State Park, Angeles National Forest, Vasquez Rocks County Park, Los Padres National Forest, Lake Hughes Recreational Area, the eastern Sierra Nevada Mountains. During winter months, travelers use Route 14 as an alternate to Route 5.

**FUNCTIONAL CLASSIFICATION:**

Route 14 is classified as a rural principal arterial (PA), with urban segments classified as P1P, an extension of a rural principal arterial into an urban area. It is designated Super Truck Route (STR) and is part of the national network created by the federal Surface Transportation Assistance Act (STAA) to provide freeway access for oversized trucks. Route 14 is also part of the National Highway System (NHS), the Strategic Highway Corridor Network (STRAHNET), and the Interregional Road System (IRRS).

# VI. SOCIO-ECONOMICS

Current and projected population growth and residential development in the Route 14 Santa Clarita/Antelope Valley corridor area (largely a consequence of the desire to buy affordable homes) is anticipated to surpass job growth in those areas. The job-housing imbalance means that residents in the corridor area communities will continue to depend on Route 14 to commute to and from work.

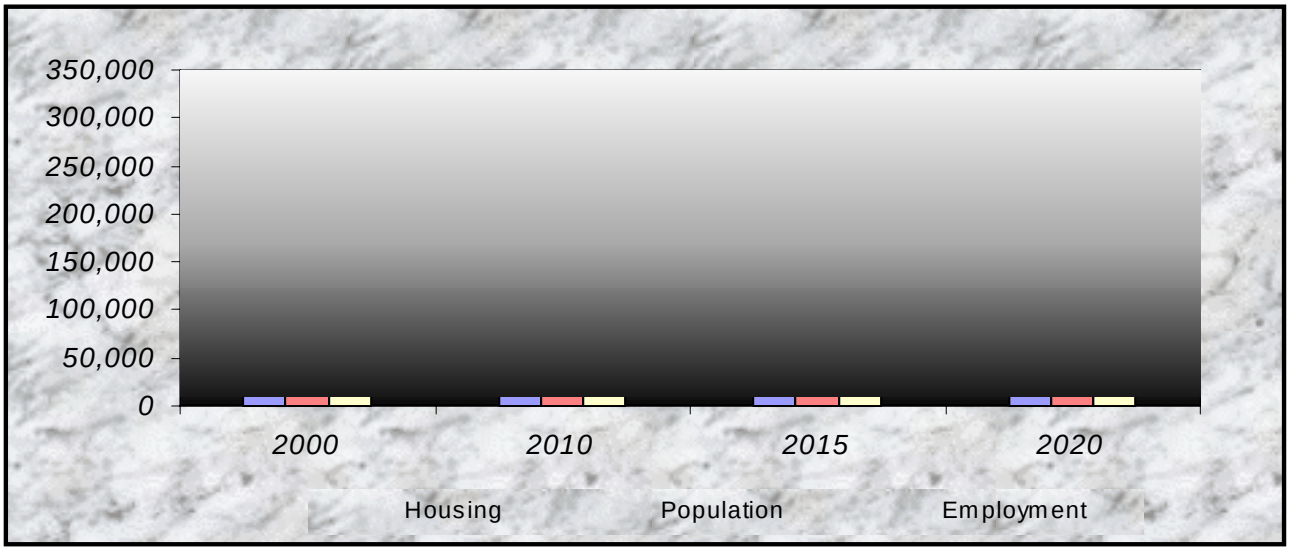
According to SCAG's 2001 RTP, the increase of vehicle miles traveled (VMT) exceeds household growth, suggesting longer commutes to work. While households have increased by nearly 24% during this time period, VMT increased by more than 82%. Therefore, the VMT is increasing at a greater rate than households are, which suggests an increase of miles driven for employment. People are spending greater amounts of time commuting and driving greater distances for their jobs, as the employment clusters are located increasingly away from the location of housing.

The impacts of the disconnection between job centers and housing will contribute to stressful commutes, increased traffic congestion due to more cars on the road, and expanding urban sprawl caused by continuing development farther away from job centers.

Implementation of the recommended concept improvements would provide commuters with the essential employee-employer connection, which is a transportation priority.

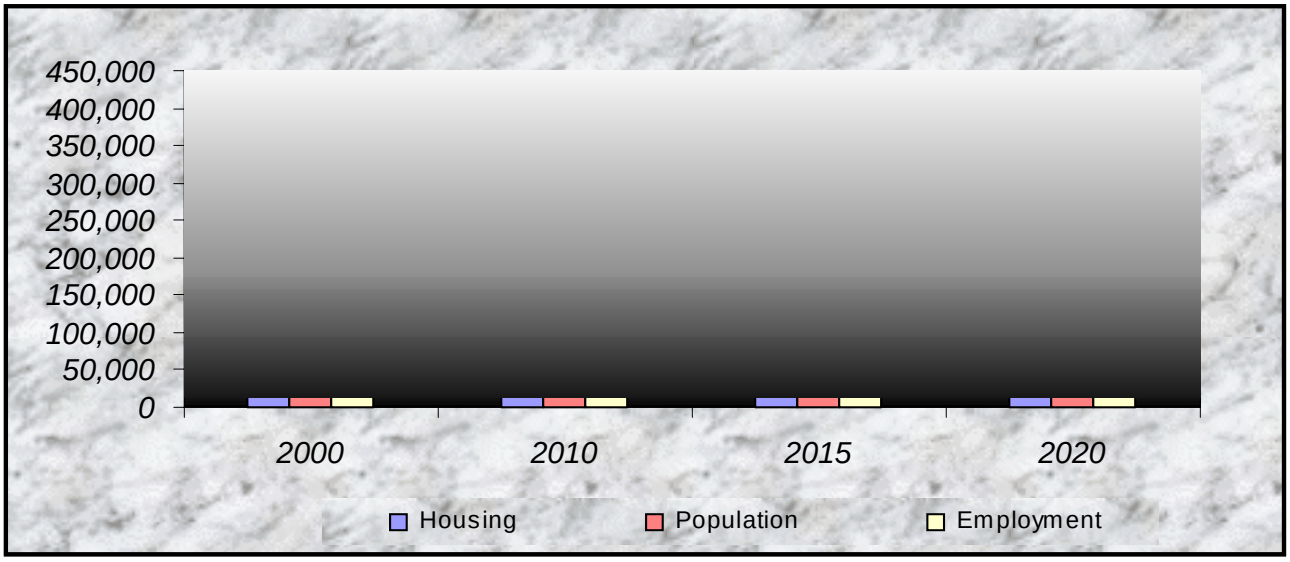
The following graphs illustrate projected growth in the areas surrounding SR-14 between 2000 and 2020. Included are data on housing, population, and employment. These graphs are provided to give perspective to socio-economic conditions along the SR-14 corridor.

## Santa Clarita Regional Statistical Area



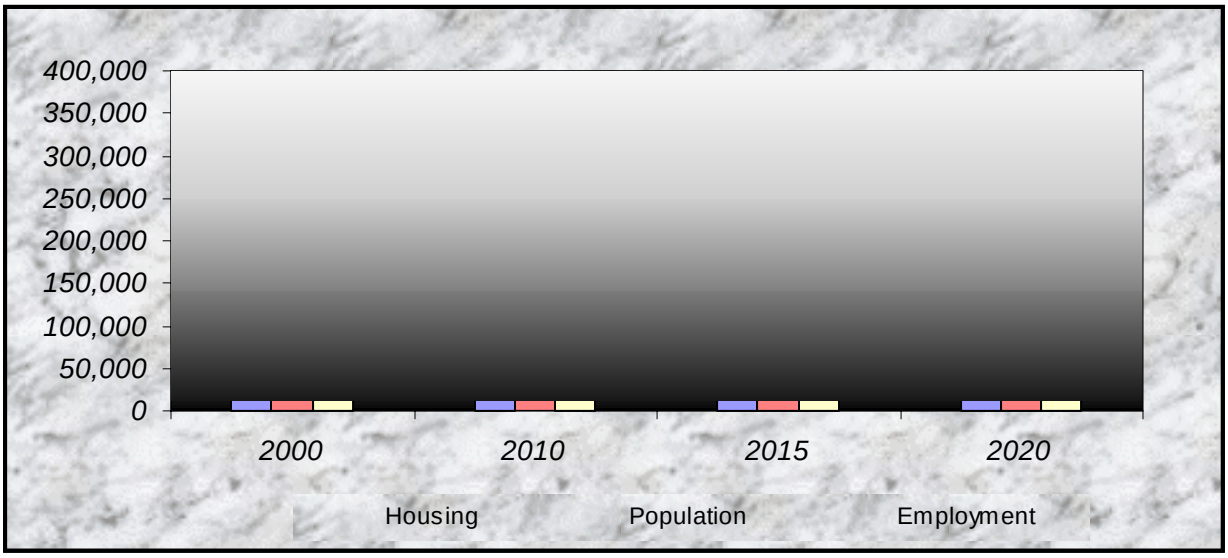

| | 2000 | 2010 | 2015 | 2020 | % Change |
|---|---|---|---|---|---|
| **Housing** | 62,411 | 85,708 | 98,067 | 111,878 | 79% |
| **Population** | 189,588 | 243,104 | 272,260 | 313,290 | 65% |
| **Employment** | 69,911 | 87,648 | 92,992 | 97,746 | 40% |

## Lancaster Regional Statistical Area



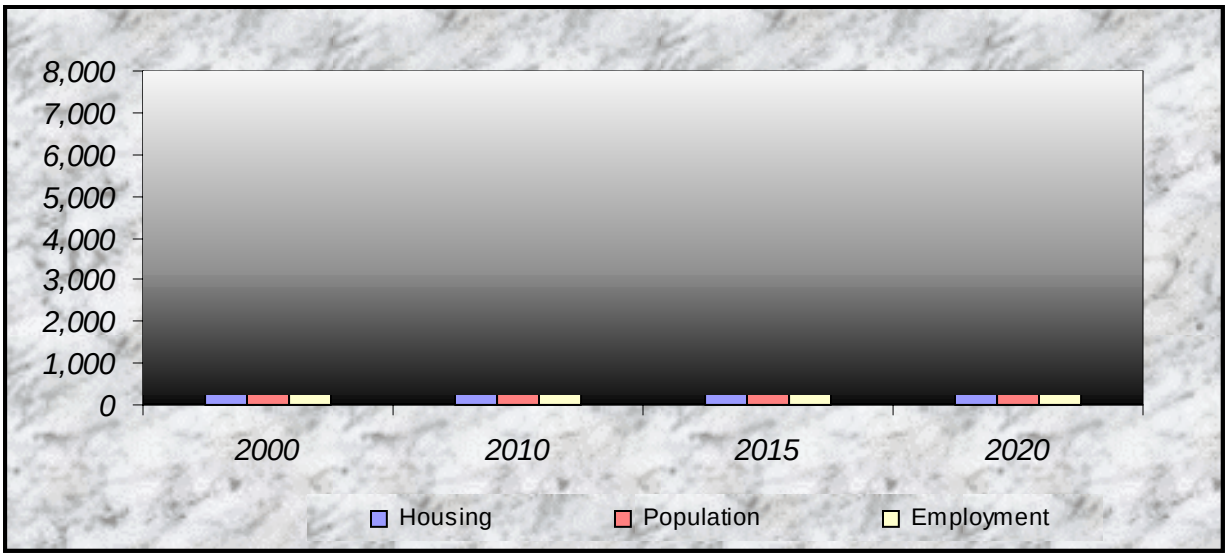

| | 2000 | 2010 | 2015 | 2020 | % Change |
|---|---|---|---|---|---|
| **Housing** | 56,284 | 90,652 | 114,803 | 139,762 | 148% |
| **Population** | 184,999 | 276,626 | 330,597 | 408,418 | 121% |
| **Employment** | 57,174 | 80,754 | 87,732 | 94,398 | 65% |

**Palmdale Regional Statistical Area Demographics**




| | 2000 | 2010 | 2015 | 2020 | % Change |
|---|---|---|---|---|---|
| **Housing** | 55,980 | 87,582 | 105,022 | 124,622 | 123% |
| **Population** | 184,772 | 265,660 | 304,680 | 359,922 | 95% |
| **Employment** | 59,420 | 78,881 | 85,000 | 90,627 | 53% |

**Angeles Regional Statistical Area Demographics**




| | 2000 | 2010 | 2015 | 2020 | % Change |
|---|---|---|---|---|---|
| **Housing** | 1,244 | 2,223 | 2,759 | 3,348 | 169% |
| **Population** | 3,189 | 4,923 | 5,736 | 6,856 | 115% |
| **Employment** | 1,577 | 4,096 | 4,863 | 5,523 | 250% |

# VII. ACCIDENT RATES AND SAFETY

District traffic safety and accident data are based on the Traffic Accident Surveillance and Analysis System (TASAS). This database provides accident rates using a three-year average along selected routes. The TASAS data, which is displayed graphically on the following pages, covers the period of January 1, 1999 through January 2003.

**First Graph: <u>Fatal Plus Injury Per Million Vehicle Miles</u>**

The first graph, "Fatal Plus Injury Per Million Vehicle Miles" (F+I/MVM), shows the rate of fatal and non-fatal injuries on Route 14 during the coverage period. This graph has two graph lines, "Average" and "Actual". The "Actual" is based on specific data for accidents on Route 14. The "Average" line represents a Statewide Average Accident Rate (SWA) for highway segments of the same type with similar characteristics in the state. In Segments 2, 3 & 4 the number of actual accidents is slightly higher than the statewide average, all other segments fall below the statewide average.

**Second Graph: <u>Total Accidents Per Million Vehicles Miles</u>**

The second graph, "Total Accidents Per Million Vehicle Miles" (Total/MVM) includes all accidents (fatal, non-fatal injury and accidents without injuries) within the coverage period. As in the first graph, the "Actual" is based on specific Route 14 data and "Average" represents a statewide average for comparable road segments. The total number of accidents is slightly above the statewide average in a small portion of segments 2, 3 & 4, otherwise the total number of accidents for this corridor falls below the statewide average.

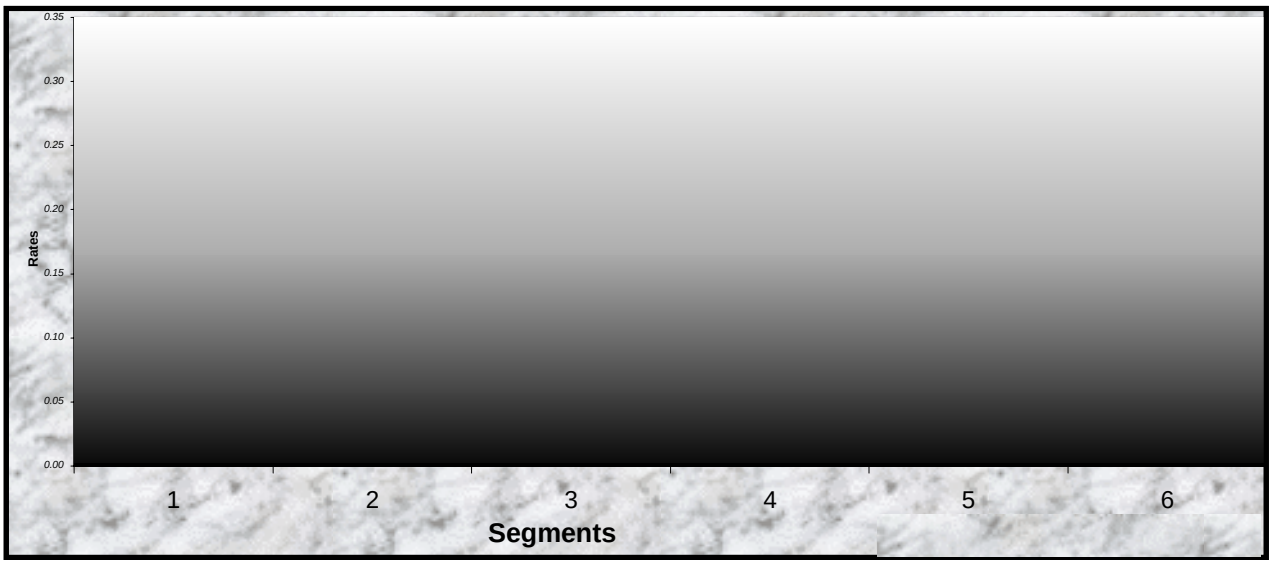
**<u>Safety</u>**

The accident data that is provided in this TCR is intended to support informed and responsible decision-making by transportation planners and programmers. Research into the connection between congestion and safety is being performed

by Caltrans and within the national and international transportation communities. Future TCR's will document the state of that research.

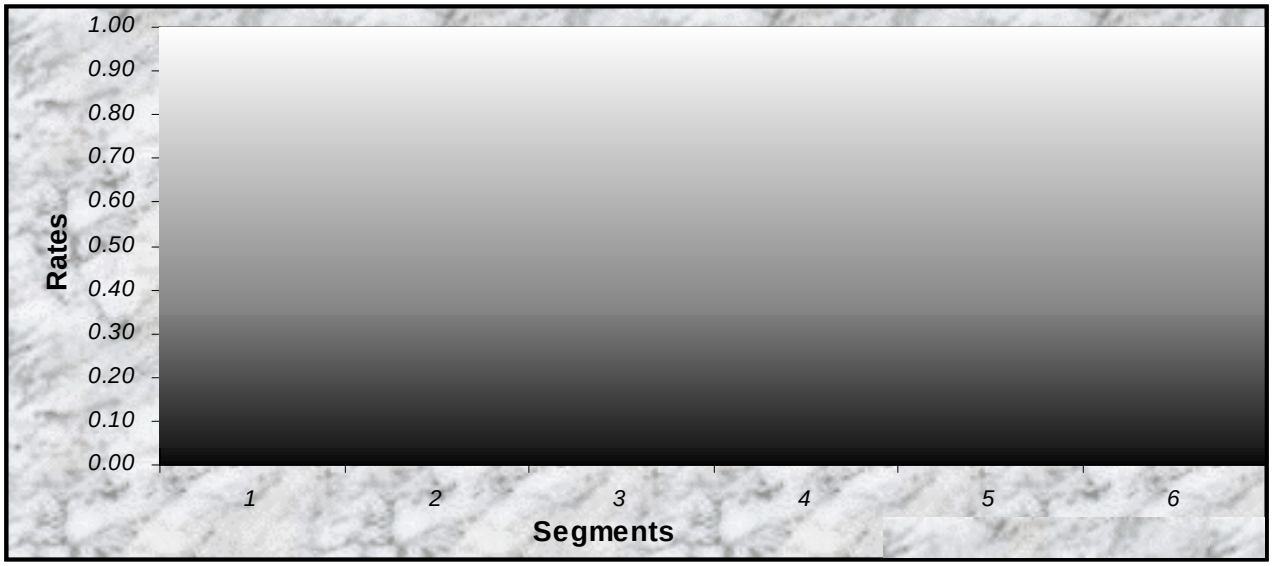
# ROUTE 14 ACCIDENT RATES

## Fatal + Injury (Per Million Vehicle Miles)




| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Actual | | *0.27* | *0.32* | *0.31* | *0.14* | *0.12* |
| Average | | *0.23* | *0.32* | *0.29* | *0.25* | *0.22* |

## Total Accidents (Per Million Vehicle Miles)




| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Actual | | *0.76* | *0.82* | *0.72* | *0.36* | *0.28* |
| Average | | *0.67* | *0.92* | *0.64* | *0.61* | *0.52* |

# VIII. SEGMENT SUMMARIES INTRODUCTION

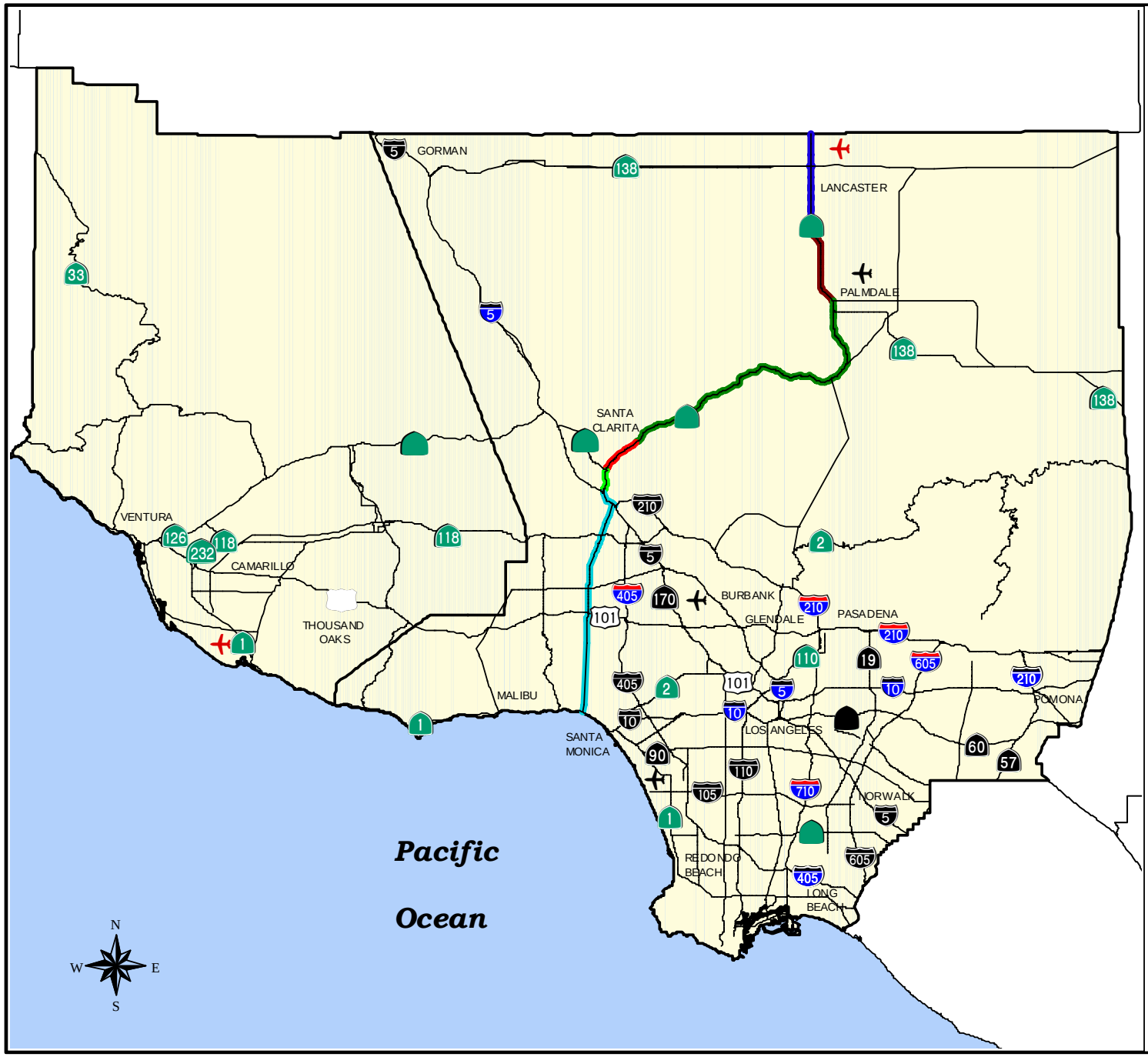
This TCR analyzes the conditions on SR-14 using the “segment” as the study unit. Segments are generally defined as “freeway interchange to freeway interchange”, “county line to freeway interchange”, or “freeway interchange to end of freeway”. The map on the following page illustrates these segments.

Each summary describes the segment’s current and projected operating characteristics, existing configuration, projected traffic demand and proposed alternative improvements.

# DISTRICT 7

*Los Angeles & Ventura Counties*

## State Route 14 TCR Segmentation




## LEGEND

| Segment No. | Description |
|---|---|
| 1 | Unconstructed 1 to Fwy 5 |
| 2 | Fwy 5 to SR 126 |
| 3 | SR 126 to Via Princessa |
| 4 | Via Princessa to SR 138 |
| 5 | SR 138 to Avenue I |
| 6 | Avenue I to County Line |

Highways

Traversable State Highways

State

Interstate

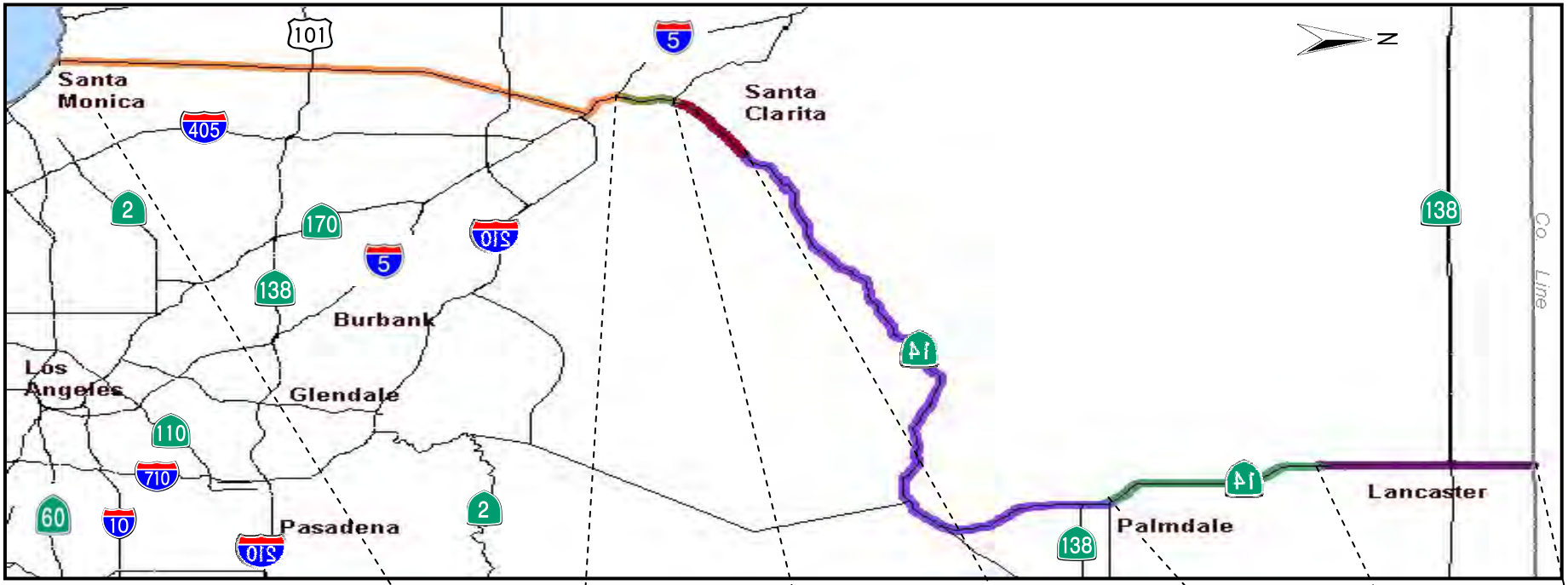
U.S.

Airports

Commercial

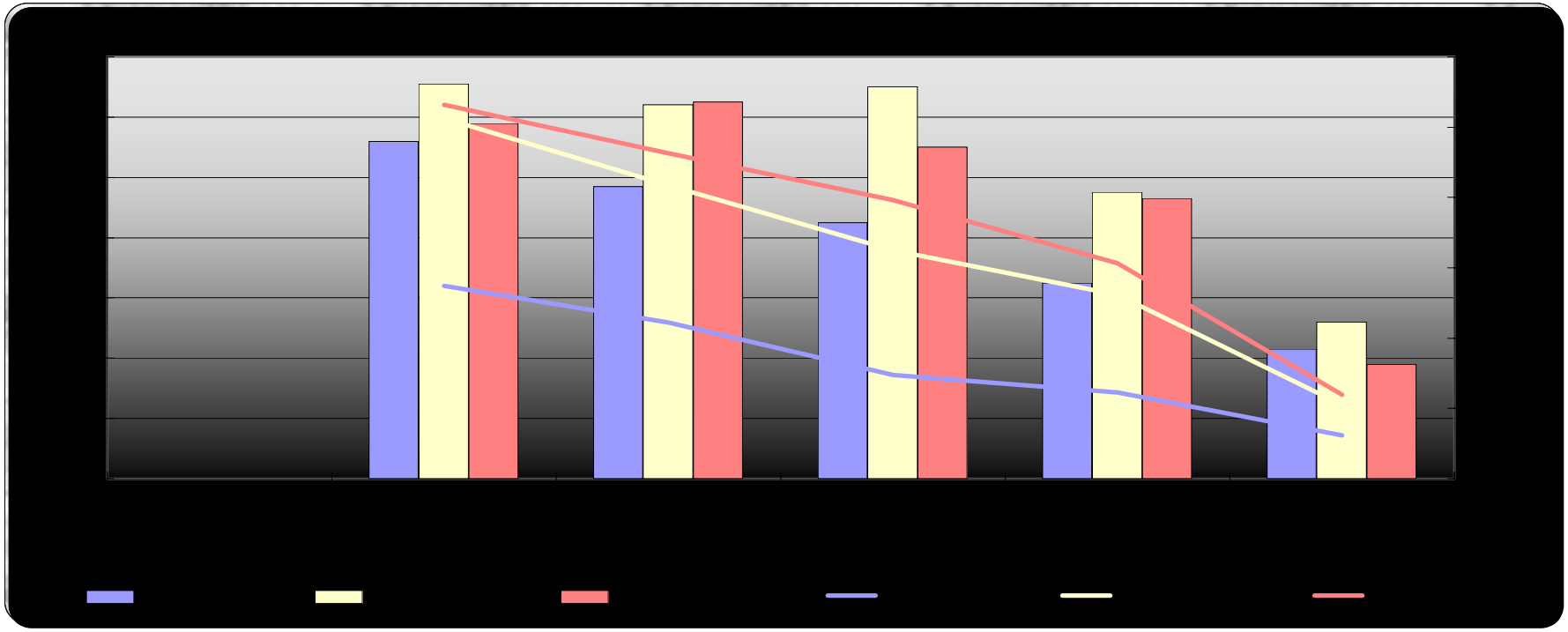
Military

# Concept Summary - Segment Configuration




| Segment # | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| ***BASE YEAR (2000)*** | | | | | | |
| Demand / Capacity | unconstructed | 1.12 | 0.97 | 0.85 | 0.65 | 0.43 |
| Avg. Daily Traffic (x1,000) | | 137.0 | 111.1 | 73.8 | 61.2 | 30.9 |
| Number of Lanes | | 4 | 3MF + 1HOV | 2MF + 1HOV | 3MF | 2MF |
| Pk.hour Level Of Service | | F0 | E | D | C | B |
| ***2020 Null With Route 710 (Main Line)*** | | | | | | |
| Demand / Capacity | unconstructed | 1.31 | 1.24 | 1.30 | 0.95 | 0.52 |
| Avg. Daily Traffic (x1,000) | | 256.2 | 208.4 | 162.3 | 130.9 | 52.4 |
| Number of Lanes | | 4MF + 1HOV | 3MF + 1HOV | 2MF + 1HOV | 3MF | 2MF |
| Pk.hour Level Of Service | | F2 | F0 | F1 | E | B |
| ***2020 Concept (Alternative #2)*** | | | | | | |
| Demand / Capacity | unconstructed | 1.18 | 1.25 | 1.10 | 0.93 | 0.38 |
| Avg. Daily Traffic (x1,000) | | 265.8 | 231.3 | 198.1 | 153.4 | 59.8 |
| Number of Lanes | | 4MF +2HOV | 3MF + 2HOV | 3MF + 2HOV | 3MF + 1HOV | 3MF |
| Pk.hour Level Of Service | | F0 | F1 | F0 | D | B |

# State Route 14
# Concept Summary - Level of Service



| ***Segment #*** | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| ***Base Year (2000)*** | | | | | | |
| Demand / Capacity | | 1.12 | 0.97 | 0.85 | 0.65 | 0.43 |
| Avg. Daily Traffic (x1,000) | | 137.0 | 111.1 | 73.8 | 61.2 | 30.9 |
| Number of Lanes | | 4MF | 3MF + 1 HOV | 2MF + 1 HOV | 3MF | 2MF |
| Pk.hour Level Of Service | | F0 | E | D | C | B |
| ***2020 Null With Route 710 (Main Line)*** | | | | | | |
| Demand / Capacity | | 1.31 | 1.24 | 1.30 | 0.95 | 0.52 |
| Avg. Daily Traffic (x1,000) | | 256.2 | 208.4 | 162.3 | 130.9 | 52.4 |
| Number of Lanes | | 4MF + 1 HOV | 3MF + 1 HOV | 2MF + 1 HOV | 3MF | 2MF |
| Pk.hour Level Of Service | | F2 | F0 | F1 | E | B |
| ***2020 Concept (Alternative #2)*** | | | | | | |
| Demand / Capacity | | 1.18 | 1.25 | 1.10 | 0.93 | 0.38 |
| Avg. Daily Traffic (x1,000) | | 265.8 | 231.3 | 198.1 | 153.4 | 59.8 |
| Number of Lanes | | 4MF + 2 HOV | 3MF + 2 HOV | 3MF + 2 HOV | 3MF + 1 HOV | 3MF |
| Pk.hour Level Of Service | | F0 | F1 | F0 | D | B |

unconstructed

# STATE ROUTE 14 - SEGMENT 1 SUMMARY

| DESCRIPTION | |
|---|---|
| Limits: | Rte. 1 to Rte. 5 |
| Post Mile: | R0.00 - R24.79 |

| Purpose |
|---|
| |

| Classification | |
|---|---|
| Functional Classification: | unconstructed |
| MPAH Designation: | |
| Other Systems: | |

| Ultimate Concept | |
|---|---|
| Main Line | HOV Lane(s) |
| | |
| | |

| Physical Characteristics | |
|---|---|
| Terrain: | |
| Mainline R/W | |
| Median / Outside Shoulder: | |
| Design Speed (MPH) | |
| Bridge Structures: | |

| Corridor Characteristics | |
|---|---|
| Trucks (% of ADT): | |
| Express Transit (lines): | |
| Operators: | |
| Rail Service: | |
| Park & Ride Lots (Spaces): | |

| Accident Rates | | | | | |
|---|---|---|---|---|---|
| per Million Vehicle Miles (MVM) (1/96 to 12/98) | | | | | |
| ACTUAL | | | AVERAGE | | |
| Fatal + Injury | | Total | Fatal + Injury | | Total |
| | | | | | |

## TRAFFIC DATA

| | | BASE YEAR (2000) | | 2020 NULL (w/o Route 710) | | 2020 NULL (with Route 710) | | 2020 CONCEPT (Alt1) | | 2020 CONCEPT (Alt2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Average Daily Traffic (ADT) | | | | | | | | | | | |
| Lanes Configuration (ea. direction) | | | | | | | | | | | |
| **Volume** | | | | | | | | | | | |
| AM Peak Hour | N | | | | | | | | | | |
| AM Peak Hour | S | | | | | | | | | | |
| PM Peak Hour | N | | | | | | | | | | |
| PM Peak Hour | S | | | | | | | | | | |
| **Speed (mph)** | | | | | | | | | | | |
| AM Average | N | | | | | | | | | | |
| AM Average | S | | | | | | | | | | |
| PM Average | N | | | | | | | | | | |
| PM Average | S | | | | | | | | | | |
| **Service Characteristics** | | | | | | | | | | | |
| Level Of Service, AM | N | | | | | | | | | | |
| Level Of Service, AM | S | | | | | | | | | | |
| Level Of Service, PM | N | | | | | | | | | | |
| Level Of Service, PM | S | | | | | | | | | | |
| Directional Split (%) AM | N | | | | | | | | | | |
| Directional Split (%) PM | N | | | | | | | | | | |

unconstructed

NOTES: 2020 Concept Alternates 1 & 2 are both modeled with I-710 gap closure built between I-10 and I-210
Speeds are estimated and are for comparative purposes only

# STATE ROUTE 14 - SEGMENT 2 SUMMARY

| DESCRIPTION | |
|---|---|
| Limits: | Rte. 5 to Rte. 126 (Existing) |
| Post Mile: | R24.79 - R27.05 |

| Purpose |
|---|
| International, Interstate, Interregional, Intraregional Travel (commute and non-commute) and Goods Movements |

| Classification | |
|---|---|
| Functional Classification: | Urban principal arterial |
| MPAH Designation: | State Freeway |
| Other Systems: | NHS, STAA, STRAHNET, IRRS |

| Ultimate Concept | |
|---|---|
| Main Line | HOV Lane(s) |
| 4 | 2 |

| Physical Characteristics | |
|---|---|
| Terrain: | Rolling |
| Mainline R/W | 234'-330' (variable) |
| Median / Outside Shoulder: | 20'-99' (I/C split)/0'-10' (variable) |
| Design Speed (MPH) | 70 |
| Bridge Structures: | 8 |

| Corridor Characteristics | |
|---|---|
| Trucks (% of ADT): | 8% |
| Express Transit (lines): | |
| Operators: | AVTA |
| Rail Service: | Metrolink |
| Park & Ride Lots (Spaces): | None |

| Accident Rates per Million Vehicle Miles (MVM) (1/96 to 12/98) | | | |
|---|---|---|---|
| ACTUAL | | AVERAGE | |
| Fatal + Injury | Total | Fatal + Injury | Total |
| 0.27 | 0.76 | 0.23 | 0.67 |

## TRAFFIC DATA

| | | BASE YEAR (2000) | | 2020 NULL (w/o Route 710) | | 2020 NULL (with Route 710) | | 2020 CONCEPT (Alt1) | | 2020 CONCEPT (Alt2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Average Daily Traffic (ADT) | | 137,000 | | 220,400 | 41,000 | 217,600 | 38,600 | 214,600 | 38,900 | 209,900 | 55,900 |
| Lanes Configuration (ea. direction) | | 4 | | 4 | 1 | 4 | 1 | 4 | 1 | 4 | 2 |
| **Volume** | | | | | | | | | | | |
| AM Peak Hour | N | 2,880 | | 4,110 | 780 | 4,120 | 750 | 4,210 | 750 | 4,250 | 760 |
| AM Peak Hour | S | 8,720 | | 10,900 | 2,200 | 10,870 | 2,090 | 9,340 | 2,310 | 9,210 | 3,630 |
| PM Peak Hour | N | 8,020 | | 10,290 | 2,250 | 10,230 | 2,090 | 9,430 | 2,310 | 8,990 | 3,670 |
| PM Peak Hour | S | 2,300 | | 3,290 | 620 | 3,290 | 600 | 3,370 | 600 | 3,400 | 610 |
| **Speed (mph)** | | | | | | | | | | | |
| AM Average | N | 65 | | 64 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| AM Average | S | 52 | | 36 | 51 | 36 | 54 | 47 | 48 | 48 | 61 |
| PM Average | N | 55 | | 41 | 50 | 41 | 54 | 47 | 48 | 50 | 61 |
| PM Average | S | 65 | | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| **Service Characteristics** | | | | | | | | | | | |
| Level Of Service, AM | N | B | | B | B | B | B | B | B | B | A |
| Level Of Service, AM | S | F0 | | F2 | F0 | F2 | F0 | F0 | F0 | F0 | D |
| Level Of Service, PM | N | F0 | | F1 | F0 | F1 | F0 | F0 | F0 | F0 | D |
| Level Of Service, PM | S | A | | B | A | B | A | B | A | B | A |
| Directional Split (%) AM | N | 25% | | 27% | 26% | 27% | 26% | 31% | 25% | 32% | 17% |
| Directional Split (%) PM | N | 78% | | 76% | 78% | 76% | 78% | 74% | 79% | 73% | 86% |

NOTES: 2020 Concept Alternates 1 & 2 are both modeled with I-710 gap closure built between I-10 and I-210
Speeds are estimated and are for comparative purposes only

# STATE ROUTE 14 - SEGMENT 3 SUMMARY

| DESCRIPTION | |
|---|---|
| Limits: | Rte. 126 (Existing) to Rte. 126 (Future) |
| Post Mile: | R27.05 - R30.81 |

| Purpose |
|---|
| International, Interstate, Interregional, Intraregional Travel (commute and non-commute) and Goods Movements |

| Classification | |
|---|---|
| Functional Classification: | Urban principal arterial P1P |
| MPAH Designation: | State Freeway |
| Other Systems: | NHS, STAA, STRAHNET, IRRS |

| Ultimate Concept | |
|---|---|
| Main Line | HOV Lane(s) |
| 3 | 2 |

| Physical Characteristics | |
|---|---|
| Terrain: | Rolling-Mountainous |
| Mainline R/W | 210'-472' (variable) |
| Median / Outside Shoulder: | 46'-60'/0'-13' |
| Design Speed (MPH) | 70 |
| Bridge Structures: | 8 |

| Corridor Characteristics | |
|---|---|
| Trucks (% of ADT): | 9% |
| Express Transit (lines): | |
| Operators: | AVTA |
| Rail Service: | Metrolink |
| Park & Ride Lots (Spaces): | 5 (351 spaces) |

| Accident Rates | | | |
|---|---|---|---|
| per Million Vehicle Miles (MVM) (1/96 to 12/98) | | | |
| ACTUAL | | AVERAGE | |
| Fatal + Injury | Total | Fatal + Injury | Total |
| 0.32 | 0.82 | 0.32 | 0.92 |

## TRAFFIC DATA

| | | BASE YEAR (2000) | | 2020 NULL (w/o Route 710) | | 2020 NULL (with Route 710) | | 2020 CONCEPT (Alt1) | | 2020 CONCEPT (Alt2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Average Daily Traffic (ADT) | | 88,100 | 23,000 | 174,600 | 36,900 | 172,100 | 36,300 | 186,200 | 36,600 | 178,700 | 52,600 |
| Lanes Configuration (ea. direction) | | 3 | 1 | 3 | 1 | 3 | 1 | 3 | 1 | 3 | 2 |
| **Volume** | | | | | | | | | | | |
| AM Peak Hour | N | 2,080 | 150 | 3,520 | 710 | 3,510 | 710 | 3,820 | 710 | 3,860 | 720 |
| AM Peak Hour | S | 5,670 | 1,550 | 7,200 | 1,990 | 7,260 | 1,970 | 7,540 | 2,170 | 7,220 | 3,410 |
| PM Peak Hour | N | 5,360 | 1,300 | 7,270 | 2,030 | 7,170 | 1,970 | 7,390 | 2,180 | 7,340 | 3,450 |
| PM Peak Hour | S | 1,230 | 550 | 2,820 | 560 | 2,810 | 560 | 3,050 | 570 | 3,090 | 580 |
| **Speed (mph)** | | | | | | | | | | | |
| AM Average | N | 65 | 65 | 64 | 65 | 64 | 65 | 64 | 65 | 64 | 65 |
| AM Average | S | 58 | 62 | 46 | 56 | 45 | 56 | 42 | 52 | 45 | 62 |
| PM Average | N | 59 | 64 | 45 | 55 | 46 | 56 | 44 | 52 | 44 | 62 |
| PM Average | S | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| **Service Characteristics** | | | | | | | | | | | |
| Level Of Service, AM | N | A | A | C | B | C | B | C | B | C | A |
| Level Of Service, AM | S | E | D | F0 | F0 | F0 | F0 | F1 | F0 | F0 | C |
| Level Of Service, PM | N | D | C | F0 | F0 | F0 | F0 | F1 | F0 | F0 | D |
| Level Of Service, PM | S | A | A | B | A | B | A | B | A | B | A |
| Directional Split (%) AM | N | 27% | 9% | 33% | 26% | 33% | 26% | 34% | 25% | 35% | 17% |
| Directional Split (%) PM | N | 81% | 70% | 72% | 78% | 72% | 78% | 71% | 79% | 70% | 86% |

NOTES: 2020 Concept Alternates 1 & 2 are both modeled with I-710 gap closure built between I-10 and I-210
Speeds are estimated and are for comparative purposes only

# STATE ROUTE 14 - SEGMENT 4 SUMMARY

| DESCRIPTION | |
|---|---|
| Limits: | Rte. 126 (Future) to Rte. 138 (South) |
| Post Mile: | R30.81 - R59.80 |

| Purpose |
|---|
| International, Interstate, Interregional, Intraregional Travel (commute and non-commute) and Goods Movements |

| Classification | |
|---|---|
| Functional Classification: | Rural Principal Arterial-PA/P1P/P3 |
| MPAH Designation: | State Freeway |
| Other Systems: | NHS,STAA, STRAHNET,IRRS |

| Ultimate Concept | |
|---|---|
| Main Line | HOV Lane(s) |
| 3 | 2 |

| Physical Characteristics | |
|---|---|
| Terrain: | Mountainous/Rolling |
| Mainline R/W | 198'-488'(variable) |
| Median / Outside Shoulder: | 22'-99' (I/C split)/0'-13' (variable) |
| Design Speed (MPH) | 70 |
| Bridge Structures: | 33 |

| Corridor Characteristics | |
|---|---|
| Trucks (% of ADT): | 6% |
| Express Transit (lines): | |
| Operators: | AVTA |
| Rail Service: | Metrolink |
| Park & Ride Lots (Spaces): | 2 (643 Spaces) |

| Accident Rates per Million Vehicle Miles (MVM) (1/96 to 12/98) | | | |
|---|---|---|---|
| ACTUAL | | AVERAGE | |
| Fatal + Injury | Total | Fatal + Injury | Total |
| 0.31 | 0.72 | 0.29 | 0.64 |

## TRAFFIC DATA

| | | BASE YEAR (2000) | | 2020 NULL (w/o Route 710) | | 2020 NULL (with Route 710) | | 2020 CONCEPT (Alt1) | | 2020 CONCEPT (Alt2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Average Daily Traffic (ADT) | | 50,400 | 23,400 | 127,100 | 36,700 | 125,600 | 36,700 | 155,800 | 36,800 | 152,000 | 46,100 |
| Lanes Configuration (ea. direction) | | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 1 | 3 | 2 |
| **Volume** | | | | | | | | | | | |
| AM Peak Hour | N | 1,320 | 270 | 2,820 | 510 | 2,820 | 510 | 3,250 | 540 | 3,310 | 530 |
| AM Peak Hour | S | 3,140 | 1,510 | 4,900 | 2,220 | 4,990 | 2,220 | 6,500 | 2,190 | 6,240 | 3,220 |
| PM Peak Hour | N | 3,330 | 1,140 | 5,090 | 2,250 | 5,080 | 2,240 | 6,770 | 2,160 | 6,450 | 3,200 |
| PM Peak Hour | S | 760 | 510 | 2,260 | 410 | 2,260 | 410 | 2,610 | 440 | 2,650 | 420 |
| **Speed (mph)** | | | | | | | | | | | |
| AM Average | N | 65 | 65 | 63 | 65 | 63 | 65 | 64 | 65 | 64 | 65 |
| AM Average | S | 62 | 62 | 44 | 51 | 43 | 51 | 52 | 51 | 54 | 63 |
| PM Average | N | 61 | 64 | 41 | 50 | 42 | 50 | 50 | 52 | 52 | 63 |
| PM Average | S | 65 | 65 | 64 | 65 | 64 | 65 | 65 | 65 | 65 | 65 |
| **Service Characteristics** | | | | | | | | | | | |
| Level Of Service, AM | N | A | A | C | A | C | A | C | A | C | A |
| Level Of Service, AM | S | D | C | F0 | F0 | F1 | F0 | F0 | F0 | F0 | C |
| Level Of Service, PM | N | D | C | F1 | F0 | F1 | F0 | F0 | F0 | F0 | C |
| Level Of Service, PM | S | A | A | C | A | C | A | B | A | B | A |
| Directional Split (%) AM | N | 30% | 15% | 37% | 19% | 36% | 19% | 33% | 20% | 35% | 14% |
| Directional Split (%) PM | N | 81% | 69% | 69% | 85% | 69% | 85% | 72% | 83% | 71% | 88% |

NOTES: 2020 Concept Alternates 1 & 2 are both modeled with I-710 gap closure built between I-10 and I-210
Speeds are estimated and are for comparative purposes only

# STATE ROUTE 14 - SEGMENT 5 SUMMARY

| DESCRIPTION | |
|---|---|
| Limits: | Rte. 138 (South) to Avenue "I" |
| Post Mile: | R59.80 - R68.97 |

| Purpose |
|---|
| International, Interstate, Interregional, Intraregional Travel (commute and non-commute) and Goods Movements |

| Classification | |
|---|---|
| Functional Classification: | Urban Principal Arterial-P1P/PA |
| MPAH Designation: | State Freeway |
| Other Systems: | NHS, STAA, STRAHNET, IRRS |

| Ultimate Concept | |
|---|---|
| Main Line | HOV Lane(s) |
| 3 | 1 |

| Physical Characteristics | |
|---|---|
| Terrain: | Flat |
| Mainline R/W | 200'-320' (variable) |
| Median / Outside Shoulder: | 46'-94'/0'-13' (variable) |
| Design Speed (MPH) | 70 |
| Bridge Structures: | 54 |

| Corridor Characteristics | |
|---|---|
| Trucks (% of ADT): | 9% |
| Express Transit (lines): | |
| Operators: | AVTA |
| Rail Service: | Metrolink |
| Park & Ride Lots (Spaces): | 1 (118 Spaces) |

| Accident Rates | | | |
|---|---|---|---|
| per Million Vehicle Miles (MVM) (1/96 to 12/98) | | | |
| ACTUAL | | AVERAGE | |
| Fatal + Injury | Total | Fatal + Injury | Total |
| 0.14 | 0.36 | 0.25 | 0.61 |

## TRAFFIC DATA

| | | BASE YEAR (2000) | | 2020 NULL (w/o Route 710) | | 2020 NULL (with Route 710) | | 2020 CONCEPT (Alt1) | | 2020 CONCEPT (Alt2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Average Daily Traffic (ADT) | | 61,200 | | 131,000 | | 130,900 | | 131,100 | 19,200 | 132,100 | 21,300 |
| Lanes Configuration (ea. direction) | | 3 | | 3 | | 3 | | 3 | 1 | 3 | 1 |
| **Volume** | | | | | | | | | | | |
| AM Peak Hour | N | 1,810 | | 3,160 | | 3,160 | | 3,500 | 250 | 3,550 | 260 |
| AM Peak Hour | S | 3,760 | | 5,430 | | 5,420 | | 5,160 | 1,290 | 5,250 | 1,460 |
| PM Peak Hour | N | 3,790 | | 5,520 | | 5,540 | | 5,400 | 1,250 | 5,450 | 1,420 |
| PM Peak Hour | S | 1,450 | | 2,530 | | 2,530 | | 2,800 | 200 | 2,840 | 200 |
| **Speed (mph)** | | | | | | | | | | | |
| AM Average | N | 65 | | 65 | | 65 | | 64 | 65 | 64 | 65 |
| AM Average | S | 64 | | 59 | | 59 | | 60 | 64 | 60 | 64 |
| PM Average | N | 64 | | 58 | | 58 | | 59 | 64 | 59 | 64 |
| PM Average | S | 65 | | 65 | | 65 | | 65 | 65 | 65 | 65 |
| **Service Characteristics** | | | | | | | | | | | |
| Level Of Service, AM | N | A | | B | | B | | C | A | C | A |
| Level Of Service, AM | S | C | | D | | D | | D | C | D | C |
| Level Of Service, PM | N | C | | E | | E | | D | C | D | C |
| Level Of Service, PM | S | A | | B | | B | | B | A | B | A |
| Directional Split (%) AM | N | 32% | | 37% | | 37% | | 40% | 16% | 40% | 15% |
| Directional Split (%) PM | N | 72% | | 69% | | 69% | | 66% | 86% | 66% | 88% |

NOTES: 2020 Concept Alternates 1 & 2 are both modeled with I-710 gap closure built between I-10 and I-210
Speeds are estimated and are for comparative purposes only

# STATE ROUTE 14 - SEGMENT 6 SUMMARY

| DESCRIPTION | |
|---|---|
| Limits: | Avenue "I" to Kern County Line |
| Post Mile: | R68.97 - R77.01 |

| Purpose |
|---|
| International, Interstate, Interregional, Intraregional Travel (commute and non-commute) and Goods Movements |

| Classification | |
|---|---|
| Functional Classification: | Urban Principal Arterial-P1P/PA |
| MPAH Designation: | State Freeway |
| Other Systems: | NHS, STAA, STRAHNET, IRRS |

| Ultimate Concept | |
|---|---|
| Main Line | HOV Lane(s) |
| 3 | |

| Physical Characteristics | |
|---|---|
| Terrain: | Flat |
| Mainline R/W | 200'-320' (variable) |
| Median / Outside Shoulder: | 46'-94'/0'-13' (variable) |
| Design Speed (MPH) | 70 |
| Bridge Structures: | 54 |

| Corridor Characteristics | |
|---|---|
| Trucks (% of ADT): | 9% |
| Express Transit (lines): | |
| Operators: | AVTA |
| Rail Service: | Metrolink |
| Park & Ride Lots (Spaces): | None |

| Accident Rates | | | |
|---|---|---|---|
| per Million Vehicle Miles (MVM) (1/96 to 12/98) | | | |
| ACTUAL | | AVERAGE | |
| Fatal + Injury | Total | Fatal + Injury | Total |
| 0.12 | 0.28 | 0.22 | 0.52 |

## TRAFFIC DATA

| | | Base Year (2000) | | 2020 NULL (w/o Route 710) | | 2020 NULL (with Route 710 | | 2020 CONCEPT (Alt1) | | 2020 CONCEPT (Alt2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Average Daily Traffic (ADT) | | 30,900 | | 52,000 | | 52,400 | | 57,800 | | 59,800 | |
| Lanes Configuration (ea. direction) | | 2 | | 2 | | 2 | | 2 | | 3 | |
| **Volume** | | | | | | | | | | | |
| AM Peak Hour | N | 1,480 | | 2,020 | | 2,020 | | 2,230 | | 2,290 | |
| AM Peak Hour | S | 1,300 | | 1,430 | | 1,460 | | 1,790 | | 1,900 | |
| PM Peak Hour | N | 1,680 | | 1,720 | | 1,750 | | 2,070 | | 2,230 | |
| PM Peak Hour | S | 1,190 | | 1,610 | | 1,610 | | 1,790 | | 1,830 | |
| **Speed (mph)** | | | | | | | | | | | |
| AM Average | N | 65 | | 65 | | 65 | | 64 | | 65 | |
| AM Average | S | 65 | | 65 | | 65 | | 65 | | 65 | |
| PM Average | N | 65 | | 65 | | 65 | | 65 | | 65 | |
| PM Average | S | 65 | | 65 | | 65 | | 65 | | 65 | |
| **Service Characteristics** | | | | | | | | | | | |
| Level Of Service, AM | N | B | | B | | B | | C | | B | |
| Level Of Service, AM | S | A | | B | | B | | B | | B | |
| Level Of Service, PM | N | B | | B | | B | | B | | A | |
| Level Of Service, PM | S | A | | B | | B | | B | | A | |
| Directional Split (%) AM | N | 53% | | 59% | | 58% | | 55% | | 55% | |
| Directional Split (%) PM | N | 59% | | 52% | | 52% | | 54% | | 55% | |

NOTES: 2020 Concept Alternates 1 & 2 are both modeled with I-710 gap closure built between I-10 and I-210
Speeds are estimated and are for comparative purposes only

# IX. ROUTE ANALYSIS

**LAND USE:** Land use along the Route 14 corridor varies from rural to residential, commercial, and industrial. Intensive development is taking place along the northern portion of this corridor in the Antelope Valley. There are several new housing developments in Palmdale, Quartz Hill, and Lancaster.

**EXISTING FACILITY:** Route 14 is primarily a four to eight lane freeway. Outside shoulders vary in width from eight to thirteen feet. The median width varies from twenty-two feet to over one hundred feet.

**ALTERNATE ROUTES:** From Route 5 (Golden State Freeway) to the Los Angeles-Kern County Line (P.M. R77.07), Sierra Highway provides parallel service to Route 14. Sierra Highway is primarily a two-lane facility.

**CURRENT OPERATING CONDTIONS:** Existing daily traffic volumes along the SR-14 corridor range from 137,000 ADT between I-5 to SR-126 (segment 2), and drop to 30,900 between Avenue I and the Kern County Line (segment 6).

The area of concern is segment 2, which runs from I-5 to SR-126. This segment is severely congested during peak periods, with delays, backup, bottlenecks and stop and go conditions on a regular basis. In addition, a mix of trucks, cars and recreational vehicles and limited number of lanes combine to present numerous driving challenges which further constrain capacity and reduce the reliability of travel times through the SR-14 corridor.

**OPERATING DEFICIENCIES:** Congestion results primarily from a lack of capacity to accommodate existing and projected traffic demand. Operating deficiencies occur when the existing facility or projected LOS falls below the concept LOS. A deficiency also exists on urban freeways when the LOS is F0 or below (i.e. F1, F2, etc.).

Currently, an operating deficiency exists on segment 2 of SR-14. The level of service on this segment is F0 during the AM peak period on the southbound side of the route and F0 during the PM peak period on the northbound side of the route.

Segments 3, 4, 5, & 6 are operating at LOS E and above during the AM and PM peak periods which is an acceptable LOS. However, it is expected that by the year 2020 these segments will also experience operating deficiencies and will deteriorate to an unacceptable LOS.

**CONGESTION MEASURES:** The following table shows the duration of delays, average speeds, demand/capacity ratios, levels of service, and the hours of delay segment by segment on SR-14.

# STATE ROUTE 14 - CONGESTION MEASURES

## SPEED

| | AVERAGE SPEEDS (MPH) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000* BASE YEAR | | 2020 NULL* (withouth I-710) | | 2020 NULL* (with I-710) | | 2020 CONCEPT* Alternate 1 | | 2020 CONCEPT* Alternate 2 | |
| | Main Line | HOV | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Segment 1 | unconstructed | | | | | | | | | |
| Segment 2 | 52 | | 36 | 50 | 36 | 54 | 47 | 48 | 48 | 61 |
| Segment 3 | 58 | 62 | 45 | 55 | 45 | 56 | 42 | 52 | 44 | 62 |
| Segment 4 | 61 | 62 | 41 | 50 | 42 | 50 | 50 | 51 | 52 | 63 |
| Segment 5 | 64 | | 58 | | 58 | | 59 | 64 | 59 | 64 |
| Segment 6 | 65 | | 65 | | 65 | | 64 | | 65 | |

## DEMAND / CAPACITY RATIOS

| | 2000* BASE YEAR | | 2020 NULL* (without I-710) | | 2020 NULL* (with I-710) | | 2020 CONCEPT* Alternate 1 | | 2020 CONCEPT* Alternate 2 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Segment 1 | unconstructed | | | | | | | | | |
| Segment 2 | 1.12 | | 1.40 | 1.15 | 1.31 | 1.07 | 1.21 | 1.18 | 1.18 | 0.83 |
| Segment 3 | 0.97 | 0.79 | 1.24 | 1.04 | 1.24 | 1.01 | 1.26 | 1.12 | 1.25 | 0.78 |
| Segment 4 | 0.85 | 0.77 | 1.31 | 1.15 | 1.30 | 1.15 | 1.16 | 1.12 | 1.10 | 0.73 |
| Segment 5 | 0.65 | | 0.94 | | 0.95 | | 0.92 | 0.66 | 0.93 | 0.66 |
| Segment 6 | 0.43 | | 0.52 | | 0.52 | | 0.57 | | 0.38 | |

## LEVEL OF SERVICE

| | 2000* BASE YEAR | | 2020 NULL* (without I-710) | | 2020 NULL* (with I-710) | | 2020 CONCEPT* Alternate 1 | | 2020 CONCEPT* Alternate 2 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Segment 1 | unconstructed | | | | | | | | | |
| Segment 2 | F0 | | F2 | F0 | F2 | F0 | F0 | F0 | F0 | D |
| Segment 3 | E | D | F0 | F0 | F0 | F0 | F1 | F0 | F0 | D |
| Segment 4 | D | C | F1 | F0 | F1 | F0 | F0 | F0 | F0 | C |
| Segment 5 | C | | E | | E | | D | C | D | C |
| Segment 6 | B | | B | | B | | B | | B | |

## HOURS OF DELAY

| | 2000* BASE YEAR | | 2020 NULL* (without I-710) | | 2020 NULL* (with I-710) | | 2020 CONCEPT* Alternate 1 | | 2020 CONCEPT* Alternate 2 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) | Main Line | HOV Lane(s) |
| Segment 1 | unconstructed | | | | | | | | | |
| Segment 2 | 100 | | 300 | 0 | 300 | 0 | 150 | 50 | 100 | 0 |
| Segment 3 | 50 | 0 | 200 | 0 | 200 | 0 | 250 | 50 | 200 | 0 |
| Segment 4 | 100 | 0 | 1,350 | 300 | 1,250 | 300 | 900 | 250 | 700 | 50 |
| Segment 5 | 0 | | 100 | | 100 | | 100 | 0 | 100 | 0 |
| Segment 6 | 0 | | 0 | | 0 | | 0 | | 0 | |

Speed values are estimates and are to be used for comparative purposes only
Delay values are estimates and are to be used for comparative purposes only
*: Worst condition during peak hours

**TRANSIT DEFICIENCIES:** The following table shows the current transit deficiencies for SR-14. This information utilizes the "Sketch Plan" (RCR Guidelines, 1987) method to roughly estimate the amount of transit service (if any) would be necessary to achieve the desired route concept. The formula employed can be summarized as follows:

The "sketch plan" formula is based on the above assumptions:

- One way Peak Hour volume = PK
- Maximum Service Flow (MSF) for route concept LOS "D" = 0.93
- 2000 vehicles per lane per hour X 0.93 X Number of lanes = Freeway Capacity @ LOS "D"
- Vehicle Occupancy Factor = 1.3 Passengers Per Vehicle (SCAG is currently using an Average Vehicle Occupancy rate of 1.1 Persons per Vehicle (PPV) in the AM peak and an PPV of 1.3 in the PM peak. This table utilizes the largest peak volume regardless of time or direction. It also uses the 1.3 PPV value for illustrative purposes only).
- Peak hour volumes are taken from the segment summaries found in Section IV. 2020 deficiencies did not incorporate HOV lane volumes in the calculations.

Transit Required = (PK – MSF @ "D") x 1.3 (ppv) ÷ 50 (ppv)

The formula was used to calculate both current and future transit deficiencies. Where negative values occur for hourly bus requirements, the value is equal to zero.

**Current Deficiencies**

| Segment | Highest Peak Hour Volume | # Lanes | Vehicle Capacity Hr/Ln | LOS "D" (0.93) Capacity | 0.93 x # Lanes | Demand Exceeding Capacity @ LOS "D" | Buses per Hour Required to Achieve Concept |
|---|---|---|---|---|---|---|---|
| 1 | | | unconstructed | | | | |
| 2 | 11000 | 4 | 2000 | 1860 | 7440 | 4628 | 93 |
| 3 | 9700 | 3 | 2000 | 1860 | 5580 | 5356 | 107 |
| 4 | 7100 | 2 | 2000 | 1860 | 3720 | 4394 | 88 |
| 5 | 6400 | 3 | 2000 | 1860 | 5580 | 1066 | 21 |
| 6 | 3100 | 2 | 2000 | 1860 | 3720 | -806 | 0 |

**2020 Deficiencies**

| Segment | Highest Peak Hour Volume | # Lanes | Vehicle Capacity Hr/Ln | LOS "D" (0.93) Capacity | LOS "D" x # Lanes | Demand Exceeding Capacity @ LOS "D" | Buses per Hour Required to Achieve Concept |
|---|---|---|---|---|---|---|---|
| 1 | | | unconstructed | | | | |
| 2 | 15550 | 4 | 2000 | 1860 | 7440 | 10543 | 211 |
| 3 | 9800 | 3 | 2000 | 1860 | 5580 | 5486 | 110 |
| 4 | 6200 | 2 | 2000 | 1860 | 3720 | 3224 | 65 |
| 5 | 6450 | 3 | 2000 | 1860 | 5580 | 1131 | 23 |
| 6 | 2950 | 2 | 2000 | 1860 | 3720 | -1001 | 0 |

Even though the information presented in these tables is a rudimentary estimate at best and a more detailed analysis is necessary, it is clear that in order to achieve the future desired route concept, additional transit service is desperately needed. To be sure, apparent need (congestion and time delay) is not be

adequate to divert drivers from their vehicles. Transit and Transportation officials need to make transit use more attractive to its potential customers. Increased service, safe, clean, well-maintained buses and Park-and-Ride facilities, and attractive fare pricing (similar to the Proposition "A" 41% fair reduction from July 1982 to July 1985[2]) will induce many drivers out of their vehicles.

The transit component is just one facet in a multi-modal and multi-agency approach to a long-term solution.

**Transit Service:** Antelope Valley Transit Authority (AVTA) provides commuter bus service on three routes Monday through Friday to and from the Los Angeles Central Business District (LACBD). The Antelope Valley Bus Company operates four direct subscription commuter buses between Antelope Valley and the Lockheed plant in Burbank. It also operates two direct trips between the Antelope Valley and the Los Angeles Airport and nearby aerospace firms, and nine weekday trips from the Los Angeles portion of the Antelope Valley and Edwards Air Force Base. Santa Clarita Commuter Service (subsidized by Los Angeles County Proposition A one-half cent gas tax allocations to local jurisdictions in the county) contracts with the Antelope Valley Bus Company to provide a.m. and p.m. peak hour service on weekdays to the LACBD. Greyhound provides national bus service from the Antelope Valley. The Metrolink Antelope Valley Line provides commuter service between Union Station and Lancaster, a total of 76.6 miles. There are 10 stations and 24 trains run daily. The average ridership is approximately 5,600 riders per weekday.

The Southern California Regional Rail Authority (SCRRA) is working to add and expand stations, improve speeds and add passenger cars to meet the current demand. Currently, the Palmdale Station is under construction and additional parking is being added to the Newhall Station.

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[2] Jon Hillmer and Stephen t. Perry, *The El Monte Busway: A Twenty-Year Retrospective*, Los Angeles County Metropolitan Transportation Authority, 7th National conference on High

There are six major park and ride facilities with 1,112 parking stalls that serve Route 14, which are State owned.

| PM | Location | City | # of Stalls | Owner |
|---|---|---|---|---|
| 27.1 | 20100 W. San Fernando Rd. east of Rte. 14 | Newhall | 32 | State |
| 27.1 | 23610 San Fernando Rd. ½ mile west of Rte. 14 | Newhall | 130 | State |
| 30 | Rte. 14 @ Golden Valley Rd. (3 lots) | Santa Clarita | 189 | State |
| 54.2 | Rte. 14 @ Sierra Highway | Los Angeles County | 213 | State |
| 58.2 | Ave. S & Geiger Ave. | Palmdale | 430 | State |
| 66.7 | 1601 W. Ave. K @ Rte. 14 | Lancaster | 118 | State |

**GOODS MOVEMENT**

The economic vitality and well being of the Los Angeles region depends upon the safe and timely transport of goods as well as people. Current levels of congestion are detrimental to this vitality, and future projections indicate that this situation will get much worse. In terms of freight alone, the 2001 SCAG RTP forecasts international trade to double by 2020, with overall goods movement increasing by over 30%. Significant actions need to be taken to protect the economic well being of the region. These include improved rail service, including more grade separations; additional and improved intermodal transfer facilities; truck lanes on major truck routes; improved access to seaports as well as enhanced cargo handling capabilities at seaports; and improved air cargo accessibility with separation from passenger activities at airports. Some of the specific conditions affecting SR-14 are as follows:

**Truck:** Route 14 is designated as a Super Truck Route (STR. Route 14 is also part of the Surface Transportation Assistance Act (STAA) truck network, which provides freeway access for oversized trucks. Truck volume in 2001 ranges from 4% to 30% of ADT in Los Angeles County. Trucking and freight service is offered by 22 local lines for a variety of interstate services regionally and nationally. Regional truck traffic is expected to increase by over 40% by 2020, with virtually no capacity available to handle this additional volume (see 2001 SCAG RTP). Thus, routes with heavy truck traffic would benefit greatly from exclusive truck lanes.

**Airports:** Route 14 provides access to Fox Airport in the City of Lancaster, the Palmdale Airport, and Agua Dulce Airport. Los Angeles International Airport is 68 miles from the Antelope Valley and the Burbank/Glendale/Pasadena Regional Airport is 55 miles from the Antelope Valley.

**Seaports:** The Antelope Valley is located approximately 65 miles from the Los Angeles Port and 85 miles from the Long Beach Port. The City of Palmdale is an official foreign Trade Zone. Capabilities of the Zone include duty free customs services at an inland airport.

# X. IMPROVEMENTS

These seven programming documents provide a mechanism for project funding within the region. The following is a brief description of each.

**Regional Transportation Improvement Program (RTIP)** -- A five-year list of proposed transportation projects. The Regional Transportation Planning Agency (RTPA) submits the RTIP to the California Transportation Commission (CTC) as a request for State Funding. If RTIP projects have federal funding components, they will also appear in the FTIP once selected for the STIP (see below).

**Interregional Improvement Program (IIP)** -- A five-year program developed by Caltrans that includes projects developed through the Interregional Road System Plan, Intercity Rail, Soundwall, Toll Bridge, and Aeronautics programs.

**State Transportation Improvement Program (STIP)** -- A five-year list of transportation projects proposed in RTIP's and PSTIP's that the CTC adopts. Those projects that have federal funding components will also appear in the FTIP and FSTIP.

**State Highway Operation and Protection Program (SHOPP)** -- A ten-year program limited to projects related to State highway safety and rehabilitation.

**Federal Transportation Improvement Program (FTIP)** -- A three to five year list of all transportation projects proposed for federal funding under ISTEA, within the planning area of an MPO. An MPO develops the FTIP and the Director of Caltrans approves it. In air quality non-attainment areas, the plan must conform to a State Implementation Plan.

**Federal State Transportation Improvement Program (FSTIP) --** A three-year list of transportation projects proposed for funding under ISTEA developed by the

State in cooperation with MPO's and in consultation with local non-urbanized governments. The FSTIP includes all FTIP projects as well as other federally funded rural projects.

**Traffic Operations Program Strategies (TOPS) --** A program developed by Caltrans and the CHP to ensure the safety and service of California motorist by implementing the latest in interactive/integrated transportation management and information system. Caltrans and the California Highway Patrol use sophisticated electronic technologies that process and analyze freeway traffic data, to monitor traffic flow in order to rapidly detect and effectively respond to incidents and resulting congestion. Implementation of TOPS includes minor operational improvements i.e. geometric upgrades and major capital improvements i.e. HOV lanes.

## PROGRAMMED IMPROVEMENTS

The following table lists major Route 14 capacity enhancement and operational improvement projects programmed for construction.

| Segment | PPNO[1] | PM | Description | Est. Cost | Start | Complete[2] |
|---|---|---|---|---|---|---|
| 2 | 0168M | R24.9/R25.2 | Rte.5/Rte.14 HOV Connector | 81.0M | 05/05 | 05/08 |
| 2 | 0380G | R24.8/R27.0 | Widen Fwy. for HOV lanes | 7.6M | 02/01 | 08/02 |
| 4 | 2225 | 31.6R | Supplement HOV Const. (Soundwall) | 2.5M | 04/02 | 05/03 |
| 4 | 0389N | 44.0/54.5R | Widen Fwy. For HOV lanes | 34.8M | 07/00 | 07/03 |
| 4, 5 | 03901A | 54.5R/60.7R | Widen Fwy. For HOV lanes | 29.1M | 06/03 | 04/05 |

PPNO[1] : Planning and Program Number

Complete[2]: Target Completion Date

## OTHER IMPROVEMENTS CONSIDERED

**RAMP METERING:** Ramp metering is one of Traffic Management's tools to regulate the flow of traffic entering the freeways during the peak traffic hours. Currently, there are 859 ramps that are metered in Los Angeles and Ventura Counties; of which, 320 have separate HOV bypass lanes, where the HOVs do not have to stop at the ramp meter signal. The District 7 10-year Ramp Meter Development Plan shows plans for 51 ramp meters on SR-14 from Sierra Highway to Avenue J (segments 2 through 5). According to the Ramp Meter Development Plan, the portion of SR-14, from Avenue I to the Kern County line (segment 6) does not warrant ramp metering due to low traffic volumes.

The implementation of Ramp meters will:

a. Smooth the overall flow of freeway traffic
b. Accommodate more vehicles per hour on the freeway
c. Decrease commuting travel times
d. Increase safety on the freeway.

Ramp metering reduces traffic congestion on the freeway. This increases the capacity of the mixed flow lane and enables traffic to flow at greater speeds. The number of traffic accidents is reduced as well. Freeway congestion is most often caused by a bottleneck, where the freeway demand exceeds the freeway capacity. This condition usually occurs during the weekday peak hours, but some freeways experience congestion during the mid-day and some on weekends. When the demand exceeds the capacity, congestion creates queues of stop-and-go traffic, and ramp metering limits the amount of traffic entering the freeway so that the demand at the bottleneck does not exceed the capacity. A free-flowing traffic lane can carry 33% more cars than a congested lane. It is in the interest of the entire public to keep the freeways moving freely.

On weekdays, the meters operate 3 to 4 hours during the peak traffic periods. Some ramps are also metered during the mid-day hours, and some are even metered on weekends. The ramp volume as well as the volume on the freeway determines the rate at which cars are allowed onto the freeway. The mainline responsive controllers react to the volumes on the freeway, such that if the volumes decrease significantly, then the meter will adjust and allow more cars onto the freeway. If the freeway volumes are light, the meter may go to continuous green.

Projects within freeway segments identified in the Ramp Meter Development Plan should include provisions for ramp metering. However, there are ramp locations that are not metered, due to the heavy volume of traffic and/or insufficient storage area for the metered vehicles. The average cost for a complete installation of a ramp meter is $50,000. This cost as a percentage of the freeway construction varies depending on the type of freeway construction.

In addition to ramp meters, a system of electronic traffic sensors, changeable message signs, and closed-circuit television cameras have been installed district-wide to monitor traffic flow and respond to congestion in a variety of ways. These, plus a Highway Advisory Radio and 24 hour traffic condition cable access "Freeway Vision" are controlled from a state-of-the-art Traffic Management Center in the Caltrans district office.

**HOT LANES:** In response to current and projected growth demands, the 1998 SCAG Regional Transportation Plan (RTP) recommended the construction of High Occupancy Toll (HOT) Lanes. HOT lanes are freeway lanes which are used by buses and carpools at reduced or not cost and by Single Occupancy Vehicles (SOVs), or carpools with less than the required minimum number of passengers, for a fee. HOT lanes encourage the use of transit and carpools, and also serve a greater variety of users and generate revenue.

According to SCAG's State Route 14 Corridor Improvement Study the standard HOT lane alternative significantly increases speeds for both the mainline and HOV/HOT lanes, and reduces overall travel time. Reductions in both regional VMT and VHT indicate that this alternative has significant regional benefits.

**NEW HIGHWAY:** Another alternative discussed in SCAG's State Route 14 Corridor Improvement Study is combining a direct new highway connection between Palmdale and Los Angeles, from SR-14 near Angeles Forest Highway to the interchange of I-210 at SR-2, with the SR-14 HOT lanes alternative. This was considered the most effective alternative tested. In this alternative, the HOT lane volumes are within capacity, and mainline volumes are much closer to capacity. Travel times between Palmdale and I-5 are 12 to 16 minutes less than for the HOT lane alternative alone and there is a 14-minute time difference between the mainline and HOT lanes.

**TRUCK LANES:** Truck volume in 2001 ranges from 4% to 30% of ADT in Los Angeles County. Route 14 could benefit from exclusive truck lanes.

# XI. TRANSPORTATION CONCEPT AND CONCLUSIONS

**TRANSPORTATION CONCEPT:** The transportation concept describes the operating conditions and physical facilities required to provide those conditions that could exist on SR-14 after considering the conclusions, priorities, and strategies discussed in the District System Management Plan (DSMP), the SCAG Regional Transportation Plan (RTP), and other planning documents. The transportation concept represents what could reasonably be accomplished to facilitate the mobility of traffic desiring to use the route. It assumes that management improvement strategies and system operation management improvements to maximize the efficiency on SR-14 will be implemented.

The transportation concept is composed of a Level of Service (LOS) and facility component. The concept LOS indicates the minimum level of service the District would allow on a route prior to proposing an alternative to improve operating conditions. The concept facility is the facility that could be developed to maintain or attain the concept LOS.

The recommended transportation concept for segments 2, 3, and 4 is Alternative Concept #2. Alternative Concept #2 recommends an increase in capacity by adding 2 HOV lanes to segments 2, adding 1 HOV lane to segment 3, adding 1 mixed flow lane and 1 HOV lanes to segment 4. The recommended transportation concept for segments 5 and 6 is to maintain only.

**CONCLUSION:** Under alternative #2, there is a great improvement in speed, Demand/Capacity (D/C) ratios, LOS, and time savings over the Null scenario.

Under Alternative Concept #2, an HOV lane would also be added to segment 5 and 1 mixed flow lane added to segment 6. However, the traffic forecast for the

future does not merit adding capacity to these segments. Therefore, the recommended concept for segments 5 and 6 is to maintain only.

Alternative Concept #1 was examined but was not selected. It recommends adding 1 HOV lane in segment 2, no increase in capacity in segment 3, adding 1 mixed flow lane in segment 4, adding 1 HOV lane in segment 5 and no increase in capacity in segment 6. Under this alternative, the system continues to be congested.

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## GLOSSARY

**AADT:** (Average Annual Daily Traffic) Denotes that the daily traffic is averaged over one calendar year.

**ADT:** (Average Daily Traffic) The average number of vehicles passing a specified point during a 24-hour period.

**AQMD:** (Air Quality Management District) A regional agency, which adopts and enforces regulations to achieve and maintain state and federal air quality standards.

**AQMP:** (Air Quality Management Plan) The plan for attaining state air quality as required by the California Clean Air Act of 1988. The plan is adopted by air quality districts and is subject to approval by the California Air Resources Board.

**ATIS:** (Advanced Traveler Information Systems)

**ATMS:** (Advanced Traffic Management Systems)

**AV:** (Antelope Valley Transit)

**AVCS:** (Automated Vehicle Control Systems)

**AVO:** (Average Vehicle Occupancy) The average number of persons occupying a passenger vehicle along a roadway segment intersection, or area, as typically monitored during a specified time period. For the purpose of the California Clean Air Act, passenger vehicles include autos, light duty trucks, passenger vans, buses, passenger rail vehicles and motorcycles.

**AVR:** (Average Vehicle Ridership) The number of employees who report to a worksite divided by the number of vehicles driven by those employees, typically averaged over an established time period. This calculation includes crediting vehicle trip reductions from telecommuting, compressed workweeks and non-motorized transportation.

**Caltrans:** (California Department of Transportation) As the owner/operator of the state highway system, state agency responsible for its safe operation and maintenance. Proposes projects for intercity rail, interregional roads, and sound walls. Also responsible for the SHOPP, Toll Bridge, and Aeronautics programs. Caltrans is the implementing agency for most state highway projects, regardless of program, and for the Intercity Rail program.

**CBD:** (Central Business District) The downtown core area of a city, generally an area of high land valuation, traffic flow, and concentration of retail business offices, theaters, hotels, and service businesses.

**CCTV:** (Closed Circuit Television)

**CE:** (Commuter Express) Operated by Los Angeles Department of Transportation

**CEQA:** (California Environmental Quality Act) A statute that requires all jurisdictions in the State of California to evaluate the extent of environmental degradation posed by proposed development or project.

**CHP:** (California Highway Patrol)

**CIP:** (Capital Improvement Program) A seven-year program of projects to maintain or improve the traffic level of service and transit performance standards developed and to mitigate regional transportation impacts identified by the CMP Land Use Analysis Program, which conforms to transportation-related vehicle emissions air quality mitigation measures.

**CMA:** (Congestion Management Agency) The agency responsible for developing the Congestion Management Program and coordinating and monitoring its implementation.

**CMAQ:** (Congestion Mitigation Air Quality program) Part of ISTEA, this is a funding program designed for projects that contribute to the attainment of air quality goals.

**CMP:** (Congestion Management Program) A legislatively required countywide program, which addresses congestion problems.

**CMS:** (Changeable Message Sign)

**CMS:** (Congestion Management System) Required by ISTEA to be implemented by states to improve transportation planning.

**COG:** (Council of Governments) A voluntary consortium of local government representatives, from contiguous communities, meeting on a regular basis, and formed to cooperate on common planning and solve common development problems of their area. COGs can function as the RTPAs and MPOs in urbanized areas.

**Commute Hours:** AM and PM peak commute travel times. Generally, between the hours of 5:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m., Monday through Friday.

**Concept:** A strategy for future improvements that will reduce congestion or maintain the existing level of service on a specific route.

**Congestion:** Defined by Caltrans as, reduced speeds of less than 35 miles per hour for longer than 15 minutes.

**CTC:** (California Transportation Commission) A body established by Assembly Bill 402 (AB 402) and appointed by the Governor to advise and assist the Secretary of the Business, Transportation and Housing Agency and the Legislature in formulating and evaluating state policies and plans for transportation.

**D/C:** (Demand-to-Capacity ratio) The relationship between the number of vehicle trips operating on a facility, versus the number of vehicle trips that can be accommodated on that facility.

**DSMP:** (District System Management Plan) A part of the system planning process. A district's long-range plan for management of transportation systems in its jurisdiction.

**EIR:** (Environmental Impact Report) A report prepared pursuant to CEQA that analyzes the level of environmental degradation expected to be caused by a proposed development or project.

**Extended Commute:** Service hours beyond the normal commute hours. Generally, in the evening, this refers to transit service until 10:00 p.m.

**F+I Actual:** (Fatal Plus Injury Actual) Contains specific data for accidents that are State highway related. Each accident record contains a ramp, intersection or highway postmile address that ties it to the Highway database.

**F+I Average:** (Fatal Plus Injury Average) The Statewide Average Accident Rate (SWA) is based on a rated segment. The accident-rating factor (ARF) indicates how the existing segment compares to other segments on the Sate Highway System. The ARF is a comparison of the segment's accident rate to the statewide average accident rate for roads of the same type and having similar characteristics. Accident severity as well as accident frequency is considered in calculating the ARF. If the total number of accidents is less than three, there will not be a calculation for the ARF. If there are more than two, but less than twenty-five total accidents, an accident-rating factor will be generated, but there will not be an accident severity flag listed. If there are more than twenty-five accidents, an accident rating factor and severity flag will be generated.

**F+I/MVM:** (Fatal Plus Injury per Million Vehicle Miles) The fatality rate of those killed in vehicles plus the injury rate of those injured in vehicles.

**FAI:** (Federal Aid Interstate) Highway program established in 1956 for national defense purposes, these roadways interconnect the major nationwide population and economic centers. Also, there is a federal funding category for these routes.

**FHWA:** (Federal Highway Administration)

**Free-flow Speed:** Speed that occurs when density and flow are "zero".

**Freeway Capacity:** The maximum sustained 15 minute rate of flow that can be accommodated by a uniform freeway segment under prevailing traffic and roadway conditions in a specified direction.

**FSP:** (Freeway Service Patrol) A special team of tow truck drivers who continuously patrol freeways during commuter hours to help clear disabled automobiles.

**FT:** (Foothill Transit)

**GM:** (Gardena Municipal Bus Lines)

**GRT:** (Guaranteed Return Trip) A ridesharing strategy which provides a "Guaranteed Return Trip" to those who rideshare, in the case of an emergency or when overtime work hours are required.

**HAR:** (Highway Advisory Radio)

**HCM:** (Highway Capacity Manual) Revised in 1994 by the Transportation Research Board of the National Research Council, the HCM presents various methodologies for analyzing the operation (see Level of Service) of transportation systems as freeways, arterial, transit, and pedestrian facilities.

**HOT Lanes:** (High Occupancy Toll Lane) New HOV lanes that allow single occupant vehicles access for a fee.

**HOV:** (High Occupancy Vehicle Lane) A lane of freeway reserved for the use of vehicles with more than a preset number of occupants; such vehicles often include buses, taxis and carpools.

**HSR:** (High Speed Rail) A regional system that will connect major regional activity centers and significant inter-/multi-modal transportation facilities.

**I/C:** (Interchange) A system of interconnecting roadways in conjunction with one or more grade separations providing for the interchange of traffic between two or more roadways on different levels.

**ICES:** (Intermodal Corridors of Economic Significance) Significant National Highway System Corridors that link intermodal facilities most directly, conveniently and efficiently to intrastate, interstate and international markets.

**IRRS:** (Interregional Road System) A series of interregional state highway routes, outside the urbanized areas, that provide access to, and links between, the state's economic centers, major recreational areas, and urban and rural regions.

**ISTEA:** (Intermodal Surface Transportation Efficiency Act) Federal legislation and funding Program adopted in 1991. It provides increased funding and program flexibility for multi-modal transportation programs. Update: ISTEA expired on September 30, 1997. In December 1997, Congress passed and the President signed a six-month extension of the law, holding funding to current levels and keeping program structure and formulas intact. This extension expired on March 31, 1998, with an obligation deadline of May 1, 1998. On June 9, 1998, the President signed into law PL 105-178, the Transportation Equity Act for the 21st Century (TEA-21) authorizing highway, highway safety, transit and other surface transportation programs for the next 6 years. TEA-21 builds on the initiatives established in the 1991 ISTEA.

**ITIP:** (Interregional Transportation Improvement Program) An improvement program that makes up 25% of the STIP. 60% of this program is for improvements on Interregional Routes in non-urbanized areas and intercity rail.
40% is to fund projects of interregional significance (for the interregional movement of people and goods).

**ITMS:** (Intermodal Transportation Management System) A quick-response statewide sketch planning tool to assist planners in evaluating proposals in order to improve spending decisions. It provides the capability to analyze the current transportation network and to evaluate the impacts of investment options at the
corridor area or statewide level.

**ITS:** (Intelligent Transportation Systems) The application of electronics and computer information systems to transportation.

**ITSP:** (Interregional Transportation Strategic Plan) Caltrans guiding framework for implementing the Interregional Improvement Program under Senate Bill 45.

**IVHS:** (Intelligent Vehicle Highway Systems) The development of application of electronics, communications or information processing (including advanced traffic management systems, public transportation systems, satellite vehicle tracking systems, and advanced vehicle communications systems) used alone or in combination to improve the efficiency and safety of surface transportation systems.

**LACBD:** (Los Angeles Central Business District)

**LACMTA:** (Los Angeles County Metropolitan Transportation Authority)

**LADOT:** (Los Angeles Department of Transportation)

**LARTS:** (Los Angeles Regional Transportation Study) An organization of transportation planners and data analysts who have developed and are charged with monitoring and forecasting travel in the Los Angeles area. It has primary responsibility for predicting future travel behavior within six counties (Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial) which comprises the Southern California Association of Governments (SCAG) region. It operates under the aegis of CALTRANS, District 7, and functions with the support of SCAG, U.S. Department of Transportation, and transit districts, cities and counties of the SCAG region.

**LAX:** (Los Angeles International Airport)

**LIR:** (Local Implementation Report) A report that jurisdictions must submit to LACMTA to remain in conformance with Los Angeles County Congestion Management Program (CMP) requirements. This report is submitted on an annual basis, and contains a resolution of conformance, new development activity reporting, selected mitigation strategies and credit claims and future transportation improvements.

**LOS:** (Level of Service) A qualitative measure describing operational conditions within a traffic stream; generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

**LROP:** (Long-Range Operations Plan)

**LX:** (Los Angeles Department of Transportation Commuter Express)

**MF:** (Mixed Flow) Traffic movement having automobiles, trucks, buses, and motorcycles sharing traffic lanes.

**Model:** (1) A mathematical or conceptual presentation of relationships and actions within a system. It is used for analysis of the system or its evaluation under various conditions. (2) A mathematical description of a real-life situation, that uses data on past and present conditions to make a projection about the future.

**Model, Land Use**: A model used to predict the future spatial allocation of urban activities (land use), given total regional growth, the future transportation system, and other factors.

**Model, Mode Choice:** A model used to forecast the proportion of total person trips on each of the available transportation modes.

**Model, Traffic:** A mathematical equation or graphic technique used to simulate traffic movements, particularly those in urban areas or on a freeway.

**MPAH:** (Master Plan of Arterial Highways)

**MPO:** (Metropolitan Planning Organization) According to U.S. Code, the organization designated by the governor and local elected officials as responsible, together with the state, for the transportation planning in an urbanized area. It serves as the forum for cooperative decision making by principal elected officials of general local government.

**MTA:** (Metropolitan Transportation Authority) Metro Bus Lines

**Multi-modal:** Pertaining to more than one mode of travel.

**NHS:** (National Highway System) Will consist of 155,000 miles (plus or minus 15 percent) of the major roads in the U.S. Included will be all Interstate routes, a large percentage of urban and rural principal arterials, the defense strategic highway network, and strategic highway connectors.

**Night Owl:** Evening transit service hours that extend beyond the normal commute service hours, but is less than 24 hour per day.

**NOP:** (Notice of Preparation) A notice informing potentially affected agencies that an Environmental Impact Report (EIR) is being prepared for a proposed development or project.

**Null:** A concept that includes only existing projects and those projects which may or may not be constructed but are programmed in the 1996 STIP.

**OHC:** Other Highway Construction.

**Peak: (Peak Period, Rush Hours):** (1) The period during which the maximum amount of travel occurs. It may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak. (2) The period during which the demand for transportation service is the heaviest. (AM Peak period represents 6:30 a.m. to 8:30 a.m. and PM Peak period represents 3:00 p.m. to 6:00 p.m.)

**Performance Indicator:** Quantitative measures of how effective an activity, task, or function is being performed. In transportation systems, it is usually computed by relating a measure of service output or use to a measure of service input or cost.

**PM:** (Post Mile) Is the mileage measured from a county line or the beginning of a route to another county line or the ending of the route. Each post mile along a route in a county is a unique location on the State Highway System.

**PMT:** (Passenger Miles Traveled) The number of miles traveled by all passengers on a transportation mode such as transit.

**PPN:** (Planning and Program Number) Used in the State Transportation Improvement Program (STIP) to identify projects.

**PSR:** (Project Study Report) The pre-programming document required before a project may be included in the STIP.

**Public Transportation:** Transportation service to the public on a regular basis using vehicles that transport more than one person for compensation, usually but not exclusively over a set route or routes from one fixed point or another. Routes and schedules may be determined through a cooperative arrangement. Subcategories include public transit service, and paratransit services that are available to the general public.

**RAS:** (Rehabilitation and Safety)

**Ridesharing:** Two or more persons traveling by any mode, including but not limited to, automobile, vanpool, bus, taxi, jitney, and public transit.

**RME:** (Regional Mobility Element) SCAGs major policy and planning statement on the region's transportation issues and goals. It is comprised of a set of long-range policies, plans, and programs that outline a vision of a regional transportation system compatible with federal and state mobility objectives. Formerly called the Regional Mobility Plan (RMP).

**RMP:** (Regional Mobility Plan) The equivalent to the federal and state required Regional Transportation Plan (RTP) for the SCAG region.

**Roadway Characteristics:** The geometric characteristics of the freeway segment under study, including the number and width of lanes, lateral clearances at the roadside and median, free-flow speeds, grades and lane configurations.

**RSA:** (Regional Statistical Area) An aggregation of census tracts for the purpose of sub-regional demographic and transportation analysis within the Southern California Association of Governments (SCAG) area.

**RTIP:** (Regional Transportation Improvement Program) A list of proposed transportation projects submitted to the CTC by the regional transportation planning agency, as a request for state funding through the FCR and Urban and Commuter Rail Programs. The individual projects are first proposed by local jurisdictions (CMAs in urbanized counties), then evaluated and prioritized by the RTPA for submission to the CTC. The RTIP has a seven-year planning horizon, and is updated every two years.

**RTP:** (Regional Transportation Plan) A comprehensive 20-year plan for the region, updated every two years by the regional transportation-planning agency. The RTP includes goals, objectives, and policies, and recommends specific transportation improvements.

**RTPA:** (Regional Transportation Planning Agency) The agency responsible for the preparation of RTPs and RTIPs and designated by the State Business Transportation and Housing Agency to allocate transit funds. RTPAs can be local transportation commissions, COGs, MPOs or statutorily created agencies. In the Los Angeles area, SCAG is the RTPA.

**SC:** (Santa Clarita Transit)

**SCAB:** (South Coast Air Basin) A geographic area defined by the San Jacinto Mountains to the east, the San Bernardino Mountains to the north, and the Pacific Ocean to the west and south. The entire SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

**SCAG:** (Southern California Association of Governments) The Metropolitan Planning Organization (MPO) for Ventura, Los Angeles, Orange, San Bernardino, Riverside and Imperial counties that is responsible for preparing the RTIP and the RTP. SCAG also prepared land use and transportation control measures in the 1994 Air Quality Management Plan (AQMP).

**SCAQMD:** (South Coast Air Quality Management District) The agency responsible for preparing the Air Quality Management Plan (AQMP) for the South Coast Air Basin.

**SCRRA:** (Southern California Regional Rail Authority) Operates Metrolink.

**SHOPP:** (State Highway Operation and Protection Program) A four-year program limited to projects related to State highway safety and rehabilitation.

**SJHTC:** (San Joaquin Hills Transportation Corridor)

**SM:** (Santa Monica Transit)

**Smart Shuttle:** A multiple occupant passenger vehicle equipped with advanced technology for more effective vehicle and fleet planning, scheduling and operation, as well as offering passengers more information and fare payment options.

**SR:** (State Route)

**SRTP:** (Short-Range Transit Program) A five-year comprehensive plan required by the Federal Transit Administration for all transit operators receiving federal funds. The plans establish the operator's goals, policies, and objectives, analyze current and past performance, and describe short-term operational and capital improvement plans.

**STAA:** (Surface Transportation Assistance Act)

**STIP:** (State Transportation Improvement Program) A list of transportation projects, proposed in RTIPs and the PSTIP, which are approved for funding by the CTC.

**STP:** (Surface Transportation Program) Part of ISTEA, this is a funding program intended for use by the states and cities for congestion relief in urban areas.

**STRAHNET:** (Strategic Highway Corridor Network)

**TASAS:** (Traffic Accident Surveillance and Analysis System) A system that provides a detailed list and/or summary of accidents that have occurred on highways, ramps or intersections in the State Highway System. Accidents can be selected by location, highway characteristics, accident data codes or any combination of these.

**TCM:** (Transportation Control Measure) A measure intended to reduce pollutant emissions from motor vehicles. Examples of TCMs include programs to encourage ridesharing or public transit usage, city or county trip reduction ordinances, and the use of cleaner burning fuels in motor vehicles.

**TCR:** (Transportation Concept Report) Formerly Route Concept Report (RCR) this report analyzes a transportation corridor service area, establishes a twenty-year transportation planning concept and identifies modal transportation options and applications needed to achieve the twenty-year concepts.

**TDM:** (Transportation Demand Management) Demand based techniques for reducing traffic congestion, such as ridesharing programs and flexible work schedules enabling employees to commute to and from work outside of peak hours.

**TEA-21:** (Transportation Equity Act for the 21st Century) Signed by President Clinton on June 9, 1998. TEA-21 builds on the initiatives established in the ISTEA Act of 1991. This new Act combines the continuation and improvement of current programs with new initiatives to meet the challenges of improving safety as traffic continues to increase at record levels, protecting and enhancing communities and the natural environment as we provide transportation, and advancing America's economic growth and competitiveness domestically and internationally through efficient and flexible transportation.

**TIA:** (Transportation Impact Analysis) An analysis procedure to assist local jurisdictions in assessing the impact of land use decisions on the Congestion Management Program (CMP) system for Los Angeles County.

**TL:** (Truck Lane)

**TMC:** (Transportation Management Center) A focal point that can monitor traffic and road conditions, as well as train and transit schedules, and airport and shipping advisories. From here, information about accidents, road closures and emergency notifications is relayed to travelers.

**TOPS:** (Traffic Operations Strategies) An implementation plan to improve the overall operation of the State transportation system.

**TOS:** (Traffic Operation System) Computer based signal operation.

**TOT/MVM:** (Total Accidents Per Million Vehicle Miles)

**TPMP:** (Transit Performance Measurement Program) A state mandated program to evaluate transit operator system performance on the basis of operating statistics. The program monitors transit system performance of Los Angeles County operators that receive state and federal funds and analyzes the institutional relationships among operators to ensure coordination.

**Traffic Conditions:** Any characteristics of the traffic stream that may affect capacity or operations, including the percentage composition of the traffic stream by vehicle type and driver characteristics (such as the differences between weekday commuters and recreational drivers).

**Transportation Management Association (TMA)/Organization (TMO):** A private/non-profit association that has a financial dues structure joined together in a legal agreement for the purpose of achieving mobility and air quality goals and objectives within a designated area. There are fourteen operating TMA/TMO's in Los Angeles County.

**TRO:** (Trip Reduction Ordinances)

**TSM:** (Transportation System Management) That part of the urban transportation Process undertaken to improve the efficiency of the existing transportation system. The intent is to make better use of the existing transportation system by using short-term, low capital transportation improvements that generally cost less and can be implemented more quickly than system development actions.

**TT:** (Torrance Transit)

**TW:** (Transitway)

**UTPS:** (Urban Transportation Planning System) A tool for multi-modal transportation planning developed by the Urban Mass Transportation Administration (now the Federal Transit Administration) and the Federal Highway Administration. It is used for both long and short-range Planning, particularly system analysis and covers both computerized and manual planning methods. UTPS consists of computer programs, attendant documentation, user guides and manuals that cover one or more of five analytical categories: highway network analysis, transit network analysis, demand estimation, data capture and manipulation, and sketch planning.

**VCTC:** (Ventura County Transportation Commission)

**Vehicle Occupancy:** The number of people aboard a vehicle at a given time; also known as auto or automobile occupancy when the reference is to automobile travel only.

**Vehicle Trip:** A one-way movement of a vehicle between two points.

**V/C:** (Volume/Capacity).

**VMT:** (Vehicle Miles Traveled) (1) On highways, a measurement of the total miles traveled in all vehicles in the area for a specified time period. It is calculated by the number of vehicles multiplied by the miles traveled in a given area or on a given highway during the time period. (2) In transit, the number of vehicle miles operated on a given route or line or network during a specified time period.

**VSM:** (Vehicle Service Miles) The total miles traveled by transit service vehicles while in revenue service.