

## 4.10 Transportation and Traffic

### 4.10.1 Introduction

The purpose of the Transportation/Traffic Section is to describe existing and future traffic circulation and parking patterns, and to evaluate the impact of the proposed project on these conditions. This evaluation should also consider project impacts on public transportation and alternative modes of transportation, such as bicycles, shuttles, and walkways. The Vegetation Treatment Program (VTP) does not typically result in the construction of new roads or the modification of existing roads to conduct projects. However, the following section provides a brief discussion of the existing transportation system that the program operates under.

### 4.10.2 Responsible Agencies

The California Department of Transportation (Caltrans) would be a Responsible Agency for projects requiring permits for encroaching on land within its jurisdiction. Caltrans reviews projects to ensure that the proposed encroachment is compatible with the primary uses of the state highway system, and to protect the state's investment in the highway facility.

### 4.10.3 Transportation Setting

California has an extensive road network that supports a growing population that exceeds 36 million (Table 4.10.1). The amount of public roads in California is almost equally divided between rural and urban areas (Table 4.10.2). With only 8% of California's population, rural areas comprise 94% of the land area. There are roughly 80,000 miles of rural roads in California. California's growing population places an increased demand on its transportation system. In the thirteen years between 1984 and 1997, at least 26,000 lane-miles of streets and highways were added to the entire road network statewide (Table 4.10.3). The Interstate highway system grew by five percent, freeways and expressways off the Interstate system increased by 26 percent, principal arterial streets grew 13 percent, and minor arterial streets increased 26 percent. Over that same period California's population grew 28 percent and the amount of driving increased by 45 percent.

Bioregion	Total Miles	Local Roads	Other	State Highways	US Highways	Trails	Rail
Bay Area/Delta	36,640	32,639	1,538	1,055	1,025	381	1,323
Central Coast	25,246	20,510	1,470	1,163	712	1,390	428
Colorado Desert	13,251	11,291	253	601	431	675	531
Klamath/North Coast	42,165	37,549	1,258	1,159	554	1,637	680
Modoc	21,842	18,912	259	597	225	1,849	646
Mojave	39,995	34,650	415	1,404	694	2,832	1,014
Sacramento Valley	18,035	16,258	586	555	383	252	692
San Joaquin Valley	40,426	34,425	3,600	1,333	822	246	1,221
Sierra	48,416	41,418	1,828	2,168	810	2,192	591
South Coast	64,776	58,119	1,985	1,794	1,971	906	1,447
<b>Total</b>	<b>350,791</b>	<b>305,772</b>	<b>13,194</b>	<b>11,829</b>	<b>7,628</b>	<b>12,361</b>	<b>8,573</b>

## Transportation and Traffic

In California's major metropolitan areas where a majority of the state's residents live, new roadway capacity expansions have actually kept pace with population growth over the last fifteen years (while California's metropolitan areas' population has increased 28 percent since 1984, road capacity has increased by 24 percent). In reality, much of what has driven the recent growth in traffic congestion is an even sharper increase in driving (vehicle miles traveled), an exponential increase that cannot be explained by population expansion alone. Rather, the trend towards an increasing number of miles driven primarily reflects the trend towards lower-density residential and commercial development patterns that force people to drive more frequently over longer distances.

Rural areas in California face different transportation issues than urban areas. Rural areas comprise more than 90 percent of the land area, contain roughly half of the road miles in California, but represent less than 10 percent of the population (CALTRANS, 2005; Table 4.10.2). As such, the burden of maintaining the transportation system across rural regions in California is greater. Figure 4.10.1 provides an estimate of the condition of rural roads in California.

	1995	1996	1997	1998	1999	2000
Total rural and urban	170,389	170,506	170,598	165,948	166,973	168,076
Rural	87,869	87,397	87,343	82,413	83,186	83,428
Interstate	1,346	1,345	1,353	1,357	1,362	1,357
Other principal arterial	3,691	3,687	3,685	3,688	3,689	3,701
Minor arterial	6,911	6,904	6,904	6,901	6,906	6,969
Major arterial	13,058	13,014	13,066	13,001	13,059	13,100
Minor collector	9,114	9,072	8,998	8,900	8,820	8,781
Local	53,749	53,375	53,337	48,566	49,350	49,520
Urban	82,520	83,109	83,255	88,535	83,787	84,648
Interstate	1,076	1,079	1,066	1,069	1,094	1,096
Other freeways and expressways	1,328	1,334	1,399	1,397	1,375	1,343
Other principal arterial	5,860	5,854	5,836	5,844	5,832	5,939
Minor arterial	10,292	10,288	10,270	10,236	10,232	10,435
Collector	10,034	10,025	10,027	9,973	9,960	10,039
Local	53,930	54,529	54,657	55,016	55,294	55,796

SOURCE: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, Washington, DC: annual editions, table HM-20, available at <http://www.fhwa.dot.gov/ohim/hs00/hm20.htm> as of Feb. 1, 2002.

## Transportation and Traffic

Facility Type	1984	1997	Percent Change 1984-97
Interstate Highways	13,584	14,276	5%
Other Freeways & Expressways	6,252	7,873	26%
Principal Arterial Streets	28,851	32,618	13%
Minor Arterial Streets	35,240	44,472	26%
Collector Streets	61,976	66,602	7%
Local Streets	?	215,989	?
Total Statewide	?	381,827	?
Subtotal Less Local Streets	194,590	220,608	13%
Population (Millions)	25.8	32.9	28%
Vehicle Miles Travels (Billions)	196	286	45%

Source: California Research Bureau, Federal Highway Administration, California Department Of Transportation

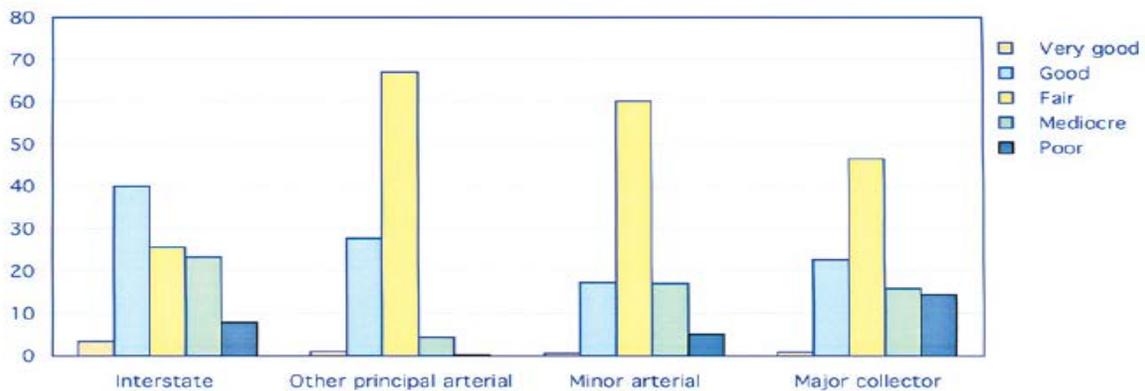


Figure 4.10.1 Condition of Rural Roads in California

Source: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics (2000)

### 4.10.4 Environmental Issues

Air quality and greenhouse gas emissions are the predominant environmental impacts associated with transportation. This is closely tied to energy consumption by cars, trucks, and other modes of transportation. The transportation sector accounts for roughly 35% of all energy used in California (U.S. DOE, 2002). The burning of fossil fuels for transportation is estimated to represent 60% of all greenhouse gases. A growing population combined with a trend toward longer commutes will likely further degrade air quality without changes in fuel consumption and our dependence on petroleum as a primary source of energy, and current modes of transportation. Other environmental impacts associated with transportation include:

- Water Quality – can be degraded through stormwater runoff from roads and other impermeable surfaces.
- Vegetation – can be impacted through direct removal due to new roads as well as impairments from transportation generated air pollution.
- Wildlife habitat – road systems increase fragmentation and can degraded existing habitat.

## Transportation and Traffic

- Open space – transportation can either directly or indirectly (i.e. growth induced) lead to losses in the amount of open space.

### Water Quality Issues

Forest roads have been shown to represent a significant portion of the sediment budget in many forest watersheds that are managed for timber production. The greatest potential for degrading water quality comes from roads on steep slopes or erodible soils, and stream crossings. In the North Coast bioregion where many watersheds are listed as sediment impaired, forest roads are viewed as a primary source of management related sediment.

### Vegetation Issues

Roads have numerous effects on vegetation. There are direct impacts of vegetation removal from road building. There are indirect effects associated with the displacement of native plants and the introduction of non-native species; along with fragmentation of habitat.

### Wildlife and Habitat Issues

Roads and transportation systems have the potential to degrade and fragment habitat conditions for a number of species across California. The following provides a brief summary of wildlife and habitat issues that are known to be aggravated by existing road conditions.

#### Kit Fox:

The San Joaquin kit fox (*Vulpes macrotis mutica*) is an example of an endangered species that is at risk of extinction from habitat fragmentation, loss, and degradation. Roads are one of many factors that are known to affect kit fox populations. Roads may affect fox survival, den use, movements, and other essential functions. Furthermore, the potential for negative impact is proportional to road width, traffic volume, and speed limit. Due to relatively low land values the San Joaquin Valley has been experiencing one of highest rates of population growth and with this will come increased urbanization and demand for more roads. It is expected that roads will grow wider, carry higher traffic volumes, and become more inhospitable to wildlife. A recent study found that the kit fox did not show significant avoidance to building dens near roads, but that there was a higher risk to vehicle strikes and a direct loss of habitat (Bjurlin et al., 2005).

As urban lands spread and natural lands diminish, urbanized kit fox populations also may become more valuable to species recovery. Consequently, the influence of transportation networks on the persistence of urban fox populations will grow simultaneously to the importance of those populations.

#### Fish Passage:

Roads in rural areas often cross fish-bearing streams and when not properly designed create barriers to fish passage. This issue is most relevant within the North Coast, the Sierra, and Sacramento Valley bioregions where large number of salmon migrate from the ocean upstream to spawn. Caltrans has conducted an extensive survey of culverts along North Coast streams to determine the potential number of barriers and to establish a priority for removing barriers to fish passage. In a survey of over 800 miles of State highway over 400 potential fish passage sites were identified, of which, 312 were surveyed. The initial results indicated that 60% of the sites did not meet the desired design requirements for fish passage, and 32% of the sites were determined to present difficult passage conditions for one or more species of fish (Lang, 2005).

## Transportation and Traffic

### Open Space Issues

Road building in California can have growth inducing effects on future population and development patterns that leads to sprawl and a reduction in the amount of open space areas. In California foothill communities this has resulted in an increase in the number of houses and people living in fire prone landscapes. In turn, this may influence the types of vegetation management that are needed or appropriate to manage fire risk within the WUI (Wildland Urban Interface).